PARLIAMENT OF AUSTRALIA

The State of Diabetes Mellitus in Australia in 2024

House of Representatives

Standing Committee on Health, Aged Care and Sport

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Chair's foreword

Australia is a wealthy country and as such, we have seen gradual increases in life expectancy since European settlement.

Healthcare needs have changed and now, in the 21st century, we are faced with a number of challenges in dealing with chronic illness; the foremost of which is diabetes mellitus. We are now facing a situation where life expectancy may decline because of the diseases of affluence.

There are a number of classifications of diabetes mellitus but for the purposes of this review, we have used a broad classification of:

- Type 1 diabetes mellitus
- Type 2 diabetes mellitus (and associated obesity)
- Gestational diabetes
- Pre-diabetes and insulin resistance
- Rare forms of diabetes associated with pancreatic damage or removal such as cystic fibrosis, post-surgical or rare genetic disorders.

Type 1 diabetes mellitus

In the 103 years since Banting and Best discovered insulin and treated 14-year-old Leonard Thompson with bovine insulin, there has been many advances in Type 1 diabetes management, including the use of home blood glucose monitoring instead of urine testing, the development of bio engineered human insulin and new forms of insulin, the use of insulin pumps and the development of Continuous Glucose Monitoring (CGM technology) and feedback systems that attempt to mimic pancreatic islet cell function.

There is now increasing evidence that a hybrid closed loop system using an insulin pump, CGM technology and a feedback system leads to better blood glucose control, reduced hypoglycaemic episodes, reduced complications, and much better outcomes for those with Type 1 diabetes, yet these systems are only available for a limited number of patients and more must be done to increase the availability of this technology.

There is evidence that some people, particularly in outer metropolitan, rural and regional areas are having difficulty accessing support from diabetes educators, podiatrists, dietitians, general practitioners (GPs), endocrinologists, and community outreach services. These services should be strengthened to allow more equitable access to support and an integrated model of care instituted with State and Federal Government support be made available to all those with diabetes mellitus.

Subsidies for new technology, such as insulin pumps and closed loop systems, should be made available to as many people with Type 1 diabetes as soon as possible as this will lead to reduced hospitalisations, reduced complications, and larger health cost savings. There are also exciting advances in screening for risk of Type 1 diabetes, and genetic predisposition for Type 1 diabetes and prevention of Type 1 diabetes.

It is important that availability of new screening procedures, treatment and prevention possibilities be made available and horizon scanning for new advances be part of a long-term research and development pipeline.

There are also other forms of diabetes such as those associated with pancreatic removal or destruction (e.g. cystic fibrosis, post pancreatitis etc.) and this cohort although small in number, should be offered access to new treatments and technology, given that they have the same issues in management as Type 1 diabetes.

Type 2 diabetes mellitus

Increasingly, there is a huge burden being placed on health resources by people with Type 2 diabetes and this is across virtually the entire health spectrum of disease from obstetrics, paediatrics, neurology, cardiology, vascular surgery, ophthalmology, and geriatrics.

Access to technology, such as CGM devices, is also important in Type 2 diabetes, and broader access to those requiring insulin is vital if we are to delay the onset of complications. Screening for Type 2 diabetes at contact points with the health system, e.g. GPs and emergency departments, is also important for reduction of complications and early diagnosis. CGM technology should be made available to those with Type 2 diabetes requiring insulin and to others who have had glucose control difficulties.

We have been presented with evidence that children as young as nine have been diagnosed with Type 2 diabetes and multigenerational diagnoses of Type 2 diabetes is occurring. This is often related to the epigenetic effects of gestational diabetes.

Children are being exposed to the risks of obesity and Type 2 diabetes for many reasons, including a lack of access to a healthy diet, lack of exercise and poor availability of education about the risks of diabetes.

When diagnoses are made with Type 2 diabetes, there are huge barriers to appropriate management and support, particularly in outer metropolitan, rural and regional areas. Access to diabetes educators and dieticians is vital in these areas if equality of care is to be addressed.

Indigenous communities lack adequate resources, including diabetes educators, podiatrists, endocrinologists, and GPs. In remote areas there is a significant shortage of Indigenous health workers, and this impacts severely on diabetes management.

Early onset Type 2 diabetes seems to have a more rapid trajectory with early development of complications, such as visual impairment, renal failure, and cardiovascular disease and this is severely impacting the health needs of these communities.

It is very important that all levels of government work together to address associated issues such as access to potable water, healthy foods, education, and health supports. Once again, it is important that an integrated model of care across all levels of government is seen as the gold standard.

Type 2 diabetes clearly affects these high-risk communities disproportionately, but it is having a severely impact across the health spectrum in all communities and is responsible for enormous pressure on our primary care system and our hospital system.

There are many new treatments available such as the GLP-1 receptor agonists (e.g. semaglutide) and they are indeed game changes for some people and access to these lifesaving treatments should be a priority with continuity of supply for those in greatest need.

However, they are very expensive, require continuing treatment, have been in short supply and may have significant side effects.

Because of the short-term benefits for weight loss, there has been pressure for off label prescribing of these new medications and this has led to considerable prescribing and reformulation. It is my view that this should not be permitted because of the risks, and I support the governments recently implemented restrictions.

The primary aim must be prevention and it is very important that every strategy possible is used as part of a comprehensive preventative response. This will require an all of Government approach involving local, State and Federal Governments. Some of the policy recommendations will include improving access to healthy foods, using a reformulation levy to decrease consumption of sugar sweetened beverages, limiting advertising of high sugar and highly processed foods, particularly to children, better urban planning to encourage increased physical activity and improved educational resources for our children about the dangers of diabetes.

It is of concern that the marketing of highly processed food products for very young infants, e.g. pureed foods in sachets and toddler formulas, is rampant. Food labelling is opaque, unintelligible to most people without consideration of the long-term consequences.

Urgent reform is required in advertising, marketing and community awareness. Dietary guidelines need to change.

Self-regulation by the food industry and the ‘fast food’ industry has not and will not work, and our children are suffering the consequences.

Data shows that the highest rates of Type 2 diabetes are found in South Western Sydney, which includes my electorate of Macarthur, followed by Western Queensland, Country South Australia, Western NSW and other rural and remote areas. Some areas of the highest incidence include remote Indigenous communities.

The electorates of Chifley, Fowler and McMahon – all located in Western Sydney – have the highest rates of diabetes (of all types), with regional and rural electorates, such as Spence, Grey and Hunter, close behind too.

This demonstrates that communities that have a high incidence of disadvantage have the highest rates of Type 2 diabetes and gestational diabetes.

There was significant evidence revealed about the importance of low carbohydrate diets in all forms of diabetes and this needs to be further promoted and evaluated.

As can be seen, there are enormous improvements in diabetes management and support across the spectrum of disease.

These advances have occurred because of medical research and evidence-based policy.

It is important that we have a well-coordinated, funded and integrated diabetes research program that involves longer term funding to support a cohort of researchers to consolidate appropriate research facilities.

Many of our recommendations will require ongoing assessment and I recommend that this be overseen by the Australian Centre for Evaluation in the Department of Treasury. State and Federal Health Departments require more integration in management and in research capabilities.

Australia has enormous potential for diabetes research and clinical trials and peak bodies should help coordinate where the main priorities lie and be provided with the funding to increase evidence-based research programs.

Gestational diabetes

It is of concern that the incidence of gestational diabetes is increasing, and we know through the science of epigenetics that this very significantly increases the risks not only to the child in utero but also to the risk of multigenerational Type 2 diabetes.

Diagnosis and management of gestational diabetes should be a priority and access to technology, such as CGM technology and insulin pumps, should be increased. Early diagnosis is vital to prevent long term consequences.

Obesity

Obesity in Australia goes hand in hand with our diabetes epidemic and unfortunately, like diabetes, it is the most disadvantaged communities that are suffering the most, although it is an increasing problem around the country.

Look at any community photograph taken in the 50s or 60s and compare it to one taken now and the change in body habitus is obvious. Current health practices have not reversed the trend and will require a review of what we can do.

Clearly, this will involve a multipronged approach from all levels of government including:

- Education

- Better access to a healthy diet
- Prevention of promotion of unhealthy foods, particularly to young children
- A reformulation levy on sugar sweetened beverages
- More understandable labelling on everyday foods
- Better access to exercise and to sport, especially for children and adults of all ages
- A healthy food Commissioner in the Department of Health

The new GLP-1 receptor agonists and other medication certainly have a role and the pressure for increased access is intense, but the caveats previously discussed still apply, i.e. they are expensive, there may be yet unknown long term side effects and particularly in a time of short supply off label prescribing and compounding should be discouraged.

However, for people with very high BMI (e.g. > 35) they can be lifesaving and reduce the incidence of severe illness. Other treatment options such as bariatric surgery are also a treatment option and more equitable access is important.

Conclusion

The health costs of obesity and diabetes are very high and of significant concern in virtually every community across the country and in every age group. We know that some groups are at high risk, for example Indigenous communities, Pacific Islander communities and increasingly those from the Indian subcontinent, but in truth, we are all at risk.

Access to services is inequitable and requires cooperation by all agencies – State and Federal. This is particularly true for Indigenous and culturally and linguistically diverse communities. If we are to reduce the burden of diabetes on the health system, we will require a multipronged approach that focuses on prevention and public health policies across not just health services, but also education, agriculture, construction, social services, communications, transport, and manufacturing.

There are several recommendations that cross the boundaries of several modalities, and it is important that flexibility of management and integrated care is available across all areas of the country.

We hope that the recommendations are taken as a whole, and that early implementation is commenced as we are truly facing huge health consequences if no action is taken.

I would like to thank all the member of the Health Secretariat, including Kate Portus, Clare Anderson, Andrew Bray, Iva Glisic and Kate Morris, as well as the APH Broadcasting team, for all their hard work, particularly on our travels.

I am incredibly impressed by their knowledge, support and diligence and it has been a wonderful experience to work with them.

I would like to thank all Committee Members who have all contributed to the Committee. Our original Deputy Chair, Melissa McIntosh, has been a pleasure to work with and provided personal insights into diabetes. I thank the new Deputy Chair, Julian Leeser, for his support and I look forward to working with him.

Further, I thank Monique Ryan, Jenny Ware, Gordon Reid, Mark Coulton, Michelle Ananda-Rajah, Anne Stanley, Graham Perrett, Sophie Scamps, Kate Thwaites and Jodie Belyea for their contribution and presence as Members throughout the Inquiry.

Lastly, I wish to thank our dear friend and colleague, Peta Murphy, who was a Member of this Committee and who we sadly lost during this Inquiry after a hard fought and valiant battle with cancer. Peta had a strong focus on the social determinants of health and had significant input into our Inquiry, and our report, I hope, reflects her ideals.

Terms of reference

The House of Representatives Standing Committee on Health, Aged Care and Sport will inquire into and report on diabetes. The Committee will investigate:

1 The causes of diabetes (type 1, type 2 and gestational) in Australia, including risk factors such as genetics, family history, age, physical inactivity, other medical conditions and medications used;

2 New evidence-based advances in the prevention, diagnosis and management of diabetes, in Australia and internationally;

3 The broader impacts of diabetes on Australia's health system and economy;

4 Any interrelated health issues between diabetes and obesity in Australia, including the relationship between type 2 and gestational diabetes and obesity, the causes of obesity and the evidence-base in the prevention, diagnosis and management of obesity; and

5 The effectiveness of current Australian Government policies and programs to prevent, diagnose and manage diabetes.

Members

Chair

Dr Mike Freelander MP	Macarthur, NSW

Deputy Chair

Mr Julian Leeser MP (from 20 March 2024)	Berowra, NSW
Mrs Melissa McIntosh MP (to 20 March 2024)	Lindsay, NSW

Members

Dr Michelle Ananda-Rajah MP	Higgins, VIC
Ms Jodie Belyea MP (from 18 March 2024)	Dunkley, VIC
Hon Mark Coulton MP	Parkes, NSW
Ms Peta Murphy MP (to 4 December 2023)	Dunkley, VIC
Dr Gordon Reid MP	Robertson, NSW
Dr Monique Ryan MP	Kooyong, VIC
Ms Anne Stanley MP	Werriwa, NSW
Ms Kate Thwaites MP (7 December 2024 to 18 March 2024)	Jagajaga, VIC
Ms Jenny Ware MP	Hughes, NSW

Supplementary Members

Mrs Melissa McIntosh MP (from 20 March 2024)	Lindsay, NSW
Mr Graham Perrett MP	Moreton, QLD
Dr Sophie Scamps MP	Mackellar, NSW

This Committee is supported by staff of the Department of the House of Representatives.

Abbreviations

AAHMS	Australian Academy of Health and Medical Sciences
AANA	Australian Association of National Advertisers
ACADI	Australian Centre for Accelerating Diabetes Innovations
ACDPA	Australian Chronic Disease Prevention Alliance
ACMA	Australian Communications and Media Authority
ACRRM	Australian College for Rural and Remote Medicine
ADDN	Australasian Diabetes Data Network
ADEA	Australian Diabetes Educators Association
ADG	Australian Dietary Guidelines
ADIPS	Australasian Diabetes in Pregnancy Society
ADS	Australian Diabetes Society
AFGC	Australian Food and Grocery Council
AHCWA	Aboriginal Health Council Western Australia
AID	Automated Insulin Delivery
AIHW	Australian Institute for Health and Welfare
AMA	Australian Medical Association
AMSANT	Aboriginal Medical Services Alliance Northern Territory
ANZMOSS	Australian and New Zealand Metabolic and Obesity Surgery Association
ANZOS	Australia and New Zealand Obesity Society
ANZSPED	Australia and New Zealand Society for Paediatric Endocrinology and Diabetes
APA	Australian Patients Association

APS	Authorised Prescriber Scheme
ARC	Australian Research Council
ARTG	Australian Register of Therapeutic Goods
ASMBS	American Society for Metabolic and Bariatric Surgery
AUSDRISK	Australian Diabetes Risk Assessment
BMI	Body Mass Index
CDC	Australian Centre for Disease Control
CDE	Credentialled Diabetes Educator
CDMP	Chronic Disease Management Plans
CDOER	Centre for Diabetes, Obesity and Endocrinology Research
CGM	Continuous Glucose Monitor
CHF	Consumers Health Forum
CPIDM	Checkpoint-Inhibitor-Induced Diabetes
CSII	Continuous Subcutaneous Insulin Infusion
DALYs	Disability-Adjusted Life Years
DPP-4	Dipeptidyl Peptidase-4
FSANZ	Food Standards Australia New Zealand
GDM	Gestational Diabetes Mellitus
GI	Glycaemic Index
GIP	Glucose-Dependent Insulinotropic Polypeptide
GLP-1	Glucagon-like Peptide-1
GP	General Practitioner
HCL	Hybrid Closed Loop
HIV	Human Immunodeficiency Virus
HSR	Health Star Rating
HTA	Health Technology Assessment

JDRF Australia	Juvenile Diabetes Research Foundation Australia
IFSO	International Federation for the Surgery of Obesity and Metabolic Disorders
IPAN	Institute for Physical Activity and Nutrition, Deakin University
IPP	Insulin Pump Program
LADA	Latent Autoimmune Diabetes in Adults
LGA	Local Government Area
LTA	Le Taeao Afua
MBS	Medicare Benefits Schedule
MDI	Multiple Daily Injections
MODY	Maturity Onset Diabetes of the Young
MRFF	Medical Research Future Fund
MSAC	Medical Services Advisory Committee
MTAA	Medical Technology Association of Australia
NACCHO	National Aboriginal Community Controlled Health Organisation
NAPWHA	National Association of People With HIV Australia
NDIS	National Disability Insurance Scheme
NDSS	National Diabetes Services Scheme
NHMRC	National Health and Medical Research Council
NIAA	National Indigenous Australians Agency
NIP	Nutrition Information Panel
NPSC	Nutrient Profiling Scoring Criterion
NWAU	National Weighted Activity Unit
OECD	Organisation for Economic Co-operation and Development
OGTT	Oral Glucose Tolerance Test
PAD	Peripheral Arterial Disease

PBAC	Pharmaceutical Benefits Advisory Committee
PBO	Parliamentary Budget Office
PBS	Pharmaceutical Benefits Scheme
PCOS	Polycystic Ovarian Syndrome
PHA	Private Healthcare Australia
PHAA	Public Health Association of Australia
PSF	Peer Support Facilitator
RACGP	Royal Australian College of General Practitioners
RACP	Royal Australasian College of Physicians
RANZCO	Royal Australian and New Zealand College of Ophthalmologists
RDAA	Rural Doctors Association of Australia
SAHMRI	South Australian Health and Medical Research Institute
SAP	Sensor-Augmented Pump
SAS	Special Access Scheme
SGLT2	Sodium-Glucose Co-Transporter-2
SMBG	Self-Monitoring of Blood Glucose
SSB	Sugar-Sweetened Beverage
T1DCRN	Type 1 Diabetes Clinical Research Network
TGA	Therapeutic Goods Administration
UNICEF	United Nations Children’s Fund
VACCHO	Victorian Aboriginal Community Controlled Health Organisation
WHO	World Health Organization
WSLHD	Western Sydney Local Health District

List of recommendations

Recommendation 1

2.125 The Committee recommends that the Australian Government undertakes a comprehensive economic analysis of the direct and indirect cost of all forms of diabetes mellitus in Australia.

Recommendation 2

3.177 The Committee recommends that the National Health and Medical Research Council expedites a review of the Australian Dietary Guidelines, and ensures that the revised guidelines include adequate information for Australians living with diabetes.

Recommendation 3

3.179 The Committee recommends that the Australian Government implements food labelling reforms targeting added sugar to allow consumers to clearly identify the content of added sugar from front-of-pack labelling. This food labelling initiative should be separate from the information regarding added sugar potentially being included in the Nutrition Information Panel.

Recommendation 4

3.181 The Committee recommends that the Australian Government implements a levy on sugar-sweetened beverages, such that the price is modelled on international best practice and the anticipated improvement of health outcomes. The levy should be graduated according to the sugar content.

Recommendation 5

3.184 The Committee recommends that the Australian Government considers regulating the marketing and advertising of unhealthy food to children, and that this regulation should:

- **Focus on children defined as those aged 16 and under**
- **Be applied to television, radio, gaming and online**
- **Use definition of unhealthy food that has been independently developed.**

Recommendation 6

3.186 The Committee recommends that the Australian Government provides its response to the Australian Food Story: Feeding the Nation and Beyond report and considers a dedicated resource within the Department of Health and Aged Care to support access to healthy food to all Australian communities.

Recommendation 7

3.188 The Committee recommends that the Australian Government, in consultation and cooperation with state and territory governments, develops a best practice framework to tackle the problem of obesogenic environments, including through better urban planning and the development of physical activity initiatives and supports efforts to increase access to regular exercise in schools and neighbourhoods as a matter of urgency.

Recommendation 8

4.138 The Committee recommends that the Australian Government explores the potential for effective national screening programs for all forms of diabetes, particularly Type 2 diabetes.

Recommendation 9

4.139 The Committee recommends that the Australian Government implements a national public health campaign to increase public awareness of the early signs of all forms of diabetes mellitus.

Recommendation 10

4.141 The Committee recommends that the Australian Government funds the development of education-based obesity screening information and resources.

Recommendation 11

4.143 The Committee recommends that the Australian Government implements a national public health campaign to increase awareness of the importance of prevention, identification of early signs, and good management of all forms of diabetes mellitus.

Recommendation 12

4.144 The Committee recommends that equitable access to health care for people living with all forms of diabetes be improved through:

- **Access to longer appointments with a health care provider subsidised by the MBS**
- **Access to case conferencing models of health care, especially in rural and remote areas**
- **Access to telehealth services**
- **Increase in the number of item numbers for allied health consultation for those with diabetes for diabetes educators and dieticians and other allied health providers**
- **Access to diabetes educators, including in high-risk outer metropolitan, rural and remote communities.**

Recommendation 13

4.146 The Committee recommends that the Australian Government reviews the limits for accessing juvenile mental health and diabetes services, with a view to enabling young people to continue receiving support for longer.

Recommendation 14

4.147 The Committee recommends the Australian Government work with the state and territory governments to develop education tools and resources to support all staff across the health care system to improve understanding of diabetes, its different forms, the early signs and management. The Diabetes in Schools program should be funded to allow all schools to access it.

Recommendation 15

5.89 The Committee recommends that subsidised access to Continuous Glucose Monitors (CGMs) be further expanded. In the first instance, all access limitations in relation to patients with Type 1 diabetes should be removed. Furthermore, individuals with insulin-dependent Type 3c diabetes and patients with gestational diabetes should be made eligible for subsidised CGMs and for those with Type 2 diabetes requiring regular insulin. The Committee recommends prioritising the removal of age limitations on access to subsidised access for Type 1 diabetes patients.

Recommendation 16

5.94 The Australian Government should explore expanding subsidised access to insulin pumps for all Australians with Type 1 diabetes. A gradual increase, such as expanding access to those aged 40 and under, would be useful as an initial step.

Recommendation 17

5.96 The Committee recommends that the Australian Government undertakes a review of the price and choice of insulin pumps in Australia.

Recommendation 18

6.88 The Committee recommends that the Australian Government, subject to a positive recommendation from the Pharmaceutical Benefits Advisory Committee, expands the eligibility criteria for Glucagon-like Peptide-1 (GLP-1) receptor agonists, particularly for high-risk patients.

Recommendation 19

6.90 The Committee recommends that the Australian Government establishes mechanisms for securing supplies of Glucagon-like Peptide-1 (GLP-1) receptor agonists for disadvantaged and remote communities, including Aboriginal and Torres Strait Island communities.

Recommendation 20

6.91 The Committee recommends that the Australian Government considers expanding access to bariatric surgery within the public system for eligible patients.

Recommendation 21

7.66 The Committee recommends that the Australian Government takes steps to manage diabetes research efforts through the Australian Centre for Disease Control (CDC) by coordinating with the peak bodies such as JDRF and Diabetes Australia research priorities with an emphasis on equitable access and prevention. The Committee also recommends that the Australian Government considers increased funding for Type 1 diabetes research and clinical trials.

Recommendation 22

7.68 The Committee recommends that the Australian Government undertakes a survey of current diabetes-related data, with a view to developing strategies for establishing new and improving current data sources and for establishing a national diabetes mellitus register within the CDC.

Recommendation 23

8.54 The Committee recommends that the Australian Centre for Evaluation in the Department of Treasury commits to the ongoing assessment of any actions taken in respect of Committee recommendations made in this report.

Contents

Appendixes

1. Introduction

1.1 In Australia, approximately 1.5 million people – some five per cent of the population – are known to live with diabetes. Moreover, there is overwhelming evidence that the number of Australians diagnosed with the condition will continue to rise. The nation faces what has throughout the inquiry been referred to as a diabetes epidemic.

1.2 In this inquiry, the term 'diabetes' is used to denote diabetes mellitus.[1] Diabetes mellitus is a condition of chronically elevated blood glucose (sugar) levels, caused by a deficiency of the hormone insulin, which is produced in the pancreas, or resistance to the physiological actions of insulin. While there are a number of different types of diabetes, this report primarily focuses on the most prevalent forms, including Type 1 diabetes, Type 2 diabetes, and gestational diabetes. Some rare forms of diabetes – such as, for example, those collectively termed Type 3c (or pancreatogenic) diabetes – are also covered in this report.

1.3 Type 1 diabetes occurs when cells of the pancreas are destroyed by the body's own immune system, leaving the body unable to produce insulin at all. By contrast, Type 2 diabetes occurs when the pancreas is either not producing enough insulin, or when the insulin that is produced is not effective. Gestational diabetes is similar to Type 2 diabetes, but occurs during pregnancy, and is recognised as a risk factor for the subsequent development of Type 2 diabetes in both the mother and the child.

1.4 Type 2 diabetes is the most common form of the condition. Some 1.3 million Australians live with Type 2 diabetes, representing about 87 per cent of all diabetes cases. Type 2 diabetes is often associated with certain risk factors, with obesity being acknowledged as a major risk factor. Accordingly, efforts to combat diabetes by reducing the cases of obesity are a prominent feature of this report.

1.5 Often described as a 'disease of affluence,' Type 2 diabetes is particularly prevalent in wealthy societies that have greater access to a 'rich' diet that is high in protein and fat. Within these societies, however, it is members of communities with lower socio-economic status that are at higher risk of developing Type 2 diabetes due to restricted access to affordable fresh food, a lack of time and space for regular physical activity, and an inability to access quality health care.

1.6 Indeed, diabetes does not impact all Australian communities equally, and the current rates are especially alarming among Indigenous and Torres Strait Islander communities. These communities experience not only higher levels of diabetes, but the disease often develops at a younger age, and is more severe. It is also important

[1] Diabetes insipidus – a rare condition that is caused by a deficiency of or a resistance to the hormone arginine vasopressin (or antidiuretic hormone) – is, however, beyond the scope of this inquiry.

to note that electorates with the highest rates of Type 2 diabetes have huge levels of disadvantage. Devising and implementing diabetes prevention strategies across a range of areas will therefore be vital for managing the impact of the disease now and into the future.

1.7 Equally, certain forms (such as Type 1 diabetes) are determined by genetics, and the modification of external factors cannot prevent or delay the onset of disease. As such, while prevention is vital for tackling the diabetes epidemic, the cultivation of a sophisticated research ecosystem and deep expertise in diabetes pharmacotherapy and technology remains just as important. This specialist knowledge is essential for ensuring that Australians have access to the best diagnosis and treatment options, and – ideally in the near future – a cure for Type 1 diabetes.

1.8 In undertaking this inquiry into diabetes in Australia, the Committee was conscious of recent government initiatives in this area, including the National Diabetes Strategy 2021–2030 and the National Obesity Strategy 2022–2032. This inquiry does not seek to review or assess these initiatives, but instead aims to expand our understanding of diabetes, while raising the visibility of the disease, considering its impact, and identifying steps for tackling diabetes as a matter of medical, social, and economic urgency.

About the inquiry

Objectives and scope

1.9 On 24 May 2023, the House of Representatives Standing Committee on Health, Aged Care and Sport adopted an inquiry into diabetes referred by the Minister for Health and Aged Care, the Hon Mark Butler MP.

1.10 The inquiry primarily focused on the causes of diabetes, as well as advances in prevention, diagnosis and management of the condition. The Committee also considered the broader impacts of diabetes on Australia's health system and economy, and the effectiveness of the Australian Government's current diabetes related policies and programs. Where relevant, the Committee explored the interrelated health issues between diabetes and obesity.

Conduct of the inquiry

1.11 On 30 May 2023, the Committee issued a media release announcing the inquiry and calling for submissions. The Committee invited submissions from a range of individuals and organisations with an interest in public health, all forms of diabetes and chronic diseases. This included federal and state government departments and agencies, industry groups and peak bodies, think tanks, academics, health practitioners, medical research organisations, pharmaceutical and health tech companies, and the general public.

1.12 The Committee received 473 submissions in support of this inquiry, and an additional 22 supplementary submissions. The Committee also received three video submissions and a video exhibit. The full list of submissions is at Appendix A.

1.13 The inquiry received a further 54 additional documents, including answers to questions taken on notice at public hearings, letters clarifying evidence, and other additional information. The full list of additional documents presented to the inquiry is at Appendix B.

1.14 The Committee held 15 days of public hearings:

- 20 June 2023 – Canberra, ACT
- 15 September 2023 – Canberra ACT
- 18 September 2023 – Campbelltown NSW
- 17 November 2023 – Canberra ACT
- 20 November 2023 – Brisbane Qld
- 21 November 2023 – Yarrabah Qld
- 22 November 2023 – Cairns Qld
- 23 November 2023 – Melbourne Vic
- 16 February 2024 – Canberra ACT
- 1 March 2024 – Canberra ACT
- 6 March 2024 – Alice Springs NT
- 7 March 2024 – Darwin NT
- 8 March 2024 – Darwin NT
- 20 March 2024 – Canberra ACT
- 22 March 2024 – Canberra ACT

1.15 A list of witnesses who attended these public hearings is at Appendix C. Transcripts of all public hearings are available on the Committee's website.

1.16 The Committee consulted widely throughout the inquiry and received submissions from individuals and organisations from every state and territory across Australia, including from many people living in regional, rural and remote areas. In recognition of the high level of community interest in this inquiry, the Committee continued to consider contributions received after the submission deadline of 31 August 2023 on a case-by-case basis.

1.17 The Committee travelled across Australia to hear from 206 witnesses at public hearings. In seeking to hear first-hand from communities impacted by diabetes, the Committee also engaged an Indigenous Language Interpreter for witnesses giving evidence at a public hearing in Darwin. Witnesses from across the nation – from

Adelaide to Norfolk Island – and overseas took the opportunity to contribute to the inquiry.

1.18 On 21 November 2023, the Committee also attended a site visit to the Gurriny Yealamucka Health Service in Yarrabah in Far North Queensland.

1.19 The Parliamentary Budget Office (PBO) prepared four costings to assist with the inquiry. The costings include:

- 20 per cent tax on sugar sweetened beverages
- Limit marketing of unhealthy foods on radio television, print and social media, especially for children
- Subsidise insulin pumps for all Australian living with Type 1 diabetes
- Subsidising glucagon-like peptide 1 receptor agonist drugs (GLP-1 RAs) on the Pharmaceutical Benefits Scheme for obesity and individuals with Type 2 diabetes requiring intensive insulin therapy.

1.20 The key information contained within the PBO documents is available in appendices D, E, F and G respectively. The full costings have been published on the PBO website.

Acknowledgements

1.21 The Committee would like to thank everyone who provided written submissions and gave evidence at public hearings.

1.22 In particular, the Committee would like to thank all those individuals who, despite being personally impacted by diabetes, have gone to considerable effort to contribute to this inquiry.

1.23 The Committee would also like to express its thanks to the Gurriny Yealamucka Health Services Aboriginal Corporation for facilitating a site visit. This site visit provided the Committee with valuable first-hand insights into the health and societal challenges affecting the Yarrabah community.

Report structure

1.24 This report is structured into eight chapters, including this introduction.

1.25 Chapter 2 sets out the definition of diabetes, and outlines the most prevalent types of the disease. Focus is placed on Type 1, Type 2, and gestational diabetes, as well as rare forms of the condition classified as Type 3c diabetes. In discussing the current state of knowledge regarding the causes and major risk factors for different diabetes types, the chapter reflects on obesity and its relation to diabetes. The chapter also offers insight into the current and projected levels of diabetes and obesity, and outlines the impact of the disease on Australia's health sector and economy.

1.26 Chapter 3 examines efforts to prevent diabetes and obesity, placing an emphasis on population-wide strategies. In acknowledging that diet has a significant impact on prevention and management of all types of diabetes, the discussion considers methods for supporting healthy eating habits, as well as strategies for managing the consumption and marketing of unhealthy foods and beverages. Initiatives designed to raise the level of physical activity in society are also considered.

1.27 Chapter 4 focuses on current early detection and diagnosis practices for diabetes, while also examining available diabetes management strategies. In demonstrating that diabetes is a complex disease with various serious health complications, the chapter considers some of the current challenges that patients and health care specialists face in attempting to manage and treat diabetes and its complications. The extent to which Australia's health care system and heath care workforce is prepared for dealing with the burden of this disease is also examined.

1.28 The pace of innovation in the field of diabetes-related technology has been described as nothing short of remarkable throughout the course of this inquiry. Accordingly, Chapter 5 examines the latest innovations in the field of glucose monitoring and insulin administration, and the current clinical contexts in which these technologies are most frequently used. Questions around access to diabetes technology and the process of its assessment and reimbursement in Australia are also considered.

1.29 Chapter 6 examines the current state of diabetes pharmacotherapy – the use of medication to treat the condition. In noting the ongoing importance of insulin and other common medications used in the treatment of different types of diabetes, emphasis is placed on the new generation of medications called Glucagon-like Peptide-1 (GLP-1) receptor agonists. GLP-1 receptor agonists have been described as a game-changer in the treatment of diabetes and obesity; as such, the chapter examines their function, current use, and availability in Australia. Other forms of treatment for diabetes and obesity, such as bariatric surgery, are also covered.

1.30 Research is fundamental in the development of innovative diabetes treatments. Chapter 7 therefore examines current funding sources for and investment in research into diabetes and obesity. This chapter also offers an outline of the diabetes research ecosystem in Australia, and discusses the availability and quality of data on diabetes, as well as future research initiatives in this area.

1.31 In recognising that the impact of diabetes and obesity is not expressed evenly across Australian communities, Chapter 8 places focus on at-risk cohorts. The impact of diabetes in Aboriginal and Terres Strait Islander communities is examined, with specific consideration of health care access, common complications, and the availability of fresh food. This discussion also reflects on challenges faced by members of culturally and linguistically diverse communities, people living with disability, as well as those living in rural and remote communities. As Australia is an aging society, issues faced by older Australians with diabetes are also noted. In terms of impact on the health system and costs to the economy, it is absolutely clear that prevention of diabetes should be the primary aim of management wherever possible.

2. Causes of diabetes and impacts on Australia's health system and economy

Overview

2.1 Diabetes is a complex multiorgan disease with a wide spectrum of causes, risk factors, and symptoms. Understanding what diabetes is, its prevalence in Australia, and its health and economic impact provides an important contextual foundation for examining efforts designed to prevent and treat the disease.

2.2 In discussing current understandings of the causes of and risk factors for diabetes, focus is placed on Type 1, Type 2, gestational diabetes, as well as rare forms, such as Type 3c diabetes. With obesity identified as one of the major risk factors for Type 2 and gestational diabetes, this chapter also discusses the current medical understanding of the causes of obesity, and its relation to diabetes.

2.3 In the course of this inquiry the Committee heard that Australia is facing a diabetes epidemic. The subsequent sections thus examine the available data pertaining to current rates of both diabetes and obesity in Australia, as well as likely future trends. Where possible, this data is placed into an international context.

2.4 Diabetes is a relentless condition that deeply impacts the lives of patients and their families. The disease also has significant broader impacts on various aspects of society. The final section considers the impact of diabetes across the health system, and examines available data on direct and indirect costs in an effort to develop a better understanding of the impact of the condition on Australia's economy.

What is diabetes?

2.5 Diabetes mellitus is a chronic metabolic disease characterised by elevated levels of blood glucose (sugar). The main symptom is the passing of large quantities of sweet-tasting urine, which gave the condition its name: *diabetes* from the Greek word meaning 'a siphon' as the body channels excess fluid; and *mellitus* from the Greek and Latin terms for honey.[1]

[1] R Bilous, R Donnelly and I Idris, *Handbook of Diabetes*, 5th edition, John Wiley & Sons, Hoboken NJ, 2021, p. 3.

2.6 The underlying cause of diabetes is a deficiency (either relative or absolute) of the hormone insulin, or resistance to the action of insulin ('insulin resistance'). Insulin is produced in beta cells of the pancreas, and it is the principal hormone for lowering blood glucose levels.[2] While there are multiple forms of diabetes, the most common include Type 1 diabetes, Type 2 diabetes, and gestational diabetes.

2.7 Type 1 diabetes is caused by an autoimmune destruction of insulin-producing beta cells in the pancreas.[3] As a result, the body cannot produce insulin to self-manage blood glucose levels, and the patient experiences an absolute deficiency of insulin. People living with Type 1 diabetes must regularly monitor their blood glucose levels and administer insulin either via multiple daily injections or an insulin pump.

2.8 Type 1 diabetes is a lifelong condition for which there is no known cure.[4] In most cases, Type 1 diabetes is developed and diagnosed in childhood or adolescence, although it can also present later in life.[5]

2.9 Type 2 diabetes is a result of both impaired insulin production and the body's resistance to its action.[6] Patients with Type 2 diabetes thus experience a relative deficiency of insulin. Some people living with Type 2 diabetes need to administer insulin either temporarily or regularly; others manage their condition with medications and adjustment to their diet and lifestyle.[7]

2.10 Type 2 diabetes is diagnosed when blood glucose levels reach a certain threshold. The condition tends to develop over many years. When patients have higher than normal blood glucose levels, but before reaching the threshold for diagnosing Type 2 diabetes, they are considered to have pre-diabetes.[8]

2.11 Specialists note that the precise levels of glucose or thresholds that define diabetes have been revised several times in the past.[9] As such, there is some uncertainty as to the exact number of those diagnosed with pre-diabetes or Type 2 diabetes.

2.12 There are several different blood tests that are used to diagnose diabetes. According to Diabetes Australia, the tests include:

- Glycated haemoglobin (HbA1c): a non-fasting test that measures average blood glucose over the last two to three months. An HbA1c of 6.5 per cent (48 millimoles per mole – mmol/L) indicates likelihood of diabetes; between 6.0 per cent to 6.4 per cent would indicate pre-diabetes.
- Fasting blood glucose: a fasting test that measures the blood glucose level at a particular time. A fasting blood glucose level of 7.0 mmol/L or more indicates

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2 Bilous, Donnelly and Idris, *Handbook of Diabetes*, p. 3.
3 Bilous, Donnelly and Idris, *Handbook of Diabetes*, p. 3.
4 Diabetes Australia, Submission 248, p. 8.
5 Endocrine Society of Australia, Submission 401, n.p.
6 Bilous, Donnelly and Idris, *Handbook of Diabetes*, p. 3.
7 Diabetes Australia, Submission 248.2, p. 4.
8 Dietitians Australia, Submission 390, p. 4.
9 Bilous, Donnelly and Idris, *Handbook of Diabetes*, p. 3.

diabetes; between 6.1 mmol/L and 6.9 mmol/L is likely pre-diabetes (also called impaired fasting glucose).

- Non-fasting (or random) blood glucose: a test that measures the blood glucose level after easting. A non-fasting (or random) blood glucose level of 11.1 mmol/L or more indicates diabetes; between 7.8 mmol/L and 11.0 mmol/L is likely pre-diabetes.
- Oral glucose tolerance test (OGTT): a test that combines fasting and non-fasting blood glucose level measurement. A fasting blood test is first administered; then a sweet drink is consumed and the blood glucose is measured after one and then two hours. Diabetes is likely if the fasting level is 7.0mmol/L or above, or the 2-hour level is 11.1 mmol/L or above.[10]

2.13 Gestational diabetes mellitus (GDM) is a form of diabetes that occurs during pregnancy. In most cases, pregnancy-related diabetes resolves after the baby is born. Women who had gestational diabetes and their children have an increased risk of developing Type 2 diabetes later in life.[11]

2.14 There are also a number of rarer forms of diabetes that are collectively classified as 'other types of diabetes.'[12] These include, for example:

- Type 3c diabetes: a form of diabetes that occurs when the pancreas is damaged or removed. In most cases, this is a consequence of pancreatic cancer, pancreatitis (inflammation of pancreas) and cystic fibrosis.[13]
- Maturity-onset diabetes of the young (MODY): an inherited, non-autoimmune form of diabetes. It is usually a non insulin-dependent variant, and it occurs before the age of 25.[14]
- Latent autoimmune diabetes in adults (LADA): an autoimmune form of diabetes that occurs in adults (unlike Type 1 which is usually diagnosed earlier in life), with slowly progressive beta cell failure.[15]
- Checkpoint-inhibitor-induced diabetes (CPIDM): a very rare type of diabetes that is triggered by Immune Checkpoint Inhibitors, which are used for treatment of various forms of cancer.[16]

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10 Diabetes Australia, *What is diabetes*, accessed 3 June 2024, www.diabetesaustralia.com.au/about-diabetes/what-is-diabetes/

11 Diabetes Australia, *Gestational diabetes*, accessed 3 June 2024, www.diabetesaustralia.com.au/about-diabetes/gestational-diabetes/

12 Diabetes Australia, Submission 248, p. 16.

13 Dr Shanal Kumar, Private capacity, *Committee Hansard*, Brisbane, 20 November 2023, p. 36; Diabetes Australia, Submission 248, p. 16.

14 Bilous, Donnelly and Idris, *Handbook of Diabetes*, p. 57.

15 G Stenstrom et al (2005) 'Latent Autoimmune Diabetes in Adults: Definition, Prevalence, Beta-Cell Function, and Treatment', *Diabetes,* 54(2):68.

16 Australian Centre for Accelerating Diabetes Innovations (ACADI), Submission 316, p. 2; B Verges (2023) 'Diabetes Induced by Immune Checkpoint Inhibitors (ICIs)', *Annales d'Endocrinologie* 84(3):351.

2.15 Many people living with rare types of diabetes require similar management as people living with Type 1 diabetes, such as the daily administration of insulin and regular blood glucose monitoring.[17]

Causes of diabetes

2.16 The causes of diabetes are complex, and vary for each type. Much of the evidence provided in support of this inquiry discussed the 'risk factors' for diabetes. Risk factors are attributes, characteristics or exposures that increase the chances of developing a disease.[18] Some of the risk factors that impact the development of diabetes are modifiable – for example modifying or changing a type of diet or levels of physical activity to prevent or delay the onset of Type 2 diabetes; others are non-modifiable, such as genetic factors that cause Type 1 diabetes.[19]

Type 1 diabetes

2.17 The exact causes of Type 1 diabetes are not known. It is widely accepted, however, that both genetics and environmental factors likely contribute to Type 1 diabetes.[20] The genetic component seems to play a central role, and researchers have identified genetic markers that can predict the development of Type 1 diabetes.[21]

2.18 Researchers believe that genetically susceptible individuals develop the disease following an environmental trigger.[22] The Centre for Diabetes, Obesity and Endocrinology Research (CDOER), based out of the Westmead Institute of Medical Research, noted that environmental factors associated with Type 1 diabetes included vitamin D deficiency (particularly early in life), obesity, insulin resistance and viruses.[23]

2.19 As part of the inquiry, the Committee heard evidence discussing the possibility of a COVID-19 infection being an environmental trigger that could influence the development of Type 1 or Type 2 diabetes. Multiple submitters, including the Department of Health and Aged Care, referenced emerging evidence suggesting that there may be a link between COVID-19 and new-onset Type 1 and/or Type 2 diabetes.[24]

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17 Diabetes Australia, Submission 248, p. 16.

18 Australian Institute of Health and Welfare (AIHW), *Risk factors*, accessed 3 June 2024, www.aihw.gov.au/reports-data/behaviours-risk-factors/risk-factors/overview

19 Diabetes Australia, Submission 248.1, p. 3.

20 Murdoch Children's Research Institute, Submission 88, p. 1; Centre for Diabetes, Obesity and Endocrinology Research (CDOER), Submission 157, p. 1; NSW Health, Submission 349, p. 17; Endocrine Society of Australia, Submission 401, n.p.

21 Dr Dorota Pawlak, Chief Scientific Officer and Director, Type 1 Diabetes Clinical Research Network, Juvenile Diabetes Research Foundation (JDRF) Australia, *Committee Hansard*, Canberra, 20 June 2023, p. 16.

22 Endocrine Society of Australia, Submission 401, n.p.

23 CDOER, Submission 157, p. 1.

24 JDRF Australia, Submission 64, Attachment 1; Department of Health and Aged Care, Submission 152, p. 6; Dexcom AMSL Diabetes, Submission 375, p. 10; Australian College of Nurse Practitioners, Submission 403, p. 3; Australian College of Midwives, Submission 442, p. 5. See also: Dr Sof Andrikopoulos, Chief Executive

Type 2 diabetes

2.20 The Committee received evidence identifying multiple and complex risk factors for Type 2 diabetes. The extent to which these risk factors may interact to cause Type 2 diabetes is a matter of ongoing research and debate.

2.21 It is increasingly recognised that there are significant genetic and family-related risk factors for Type 2 diabetes.[25] Individuals with a family history of Type 2 diabetes or obesity, and those from non-Caucasian ethnic groups, are at a higher risk of developing the disease.[26] Additionally, an individual having previously been diagnosed with gestational diabetes, or whose mother had gestational diabetes during pregnancy, is also at higher risk of Type 2 diabetes.[27]

2.22 A person's age is another factor for developing Type 2 diabetes.[28] Body weight and fat tissue tend to increase with age, while muscle mass decreases. These changes impact the body's ability to metabolise glucose and as a result older people are at a higher risk of Type 2 diabetes.[29]

2.23 In addition to non-modifiable risk factors such as genetics and age, there are several modifiable factors that influence the development of Type 2 diabetes. Being overweight or obese is a major modifiable risk factor for the development of Type 2 diabetes.[30] According to analysis from the Australian Institute for Health and Welfare (AIHW), 55 per cent of cases of Type 2 diabetes are due to overweight and obesity – making it the strongest risk factor for the disease.[31] Indeed, the Endocrine Society of Australia submitted that '[t]he strong inter-relationship between type 2 diabetes and obesity has given rise to the term diabesity.'[32]

2.24 While also acknowledging obesity as the greatest risk factor for Type 2 diabetes, Dr James Muecke AM, ophthalmologist and Australian of the Year in 2020, suggested that obesity is not a root cause of diabetes, but rather a symptom of underlying issues. Dr Muecke AM explained that in his view, 'obesity is only a marker for poor metabolic health.'[33]

Officer, Australian Diabetes Society, *Committee Hansard*, Canberra, 20 June 2023, p. 3; Associate Professor Anthony Russell, President, Australian Diabetes Society, *Committee Hansard*, Canberra, 15 September 2023, p. 34.

25 Diabetes Australia, Submission 248, p. 9.

26 Department of Health and Aged Care, Submission 152, p. 11; Diabetes Australia, Submission 248.1, p. 3; National Retail Association, Submission 372, p. 3.

27 Department of Health and Aged Care, Submission 152, p. 11; Diabetes Australia, Submission 248.1, p. 3.

28 Diabetes Australia, Submission 248.1, p. 3.

29 National Retail Association, Submission 372, p. 3.

30 See, for example: Diabetes Australia, Submission 248.1, p. 4; Department of Health and Aged Care, Submission 152, p. 11; Australian Food and Grocery Council (AFGC), Submission 337, p. 3; National Association of Clinical Obesity Services, Submission 354, p. 1.

31 Australian Medical Association, Submission 219, p. 2; The George Institute for Global Health, Submission 406, n.p.

32 Endocrine Society of Australia, Submission 401, n.p.

33 Dr James Muecke AM, Submission 67, Attachment 1, p. 12.

2.25 The Committee heard that while excess weight and obesity are associated with Type 2 diabetes, the two are not always linked. The Department of Health and Aged Care emphasised that 'while obesity is a significant risk factor for type 2 diabetes, not all individuals living with obesity develop diabetes, and diabetes can occur in individuals who are not obese.'[34] Further illustrating this point, the CDOER highlighted that 20 per cent of people with Type 2 diabetes are not living with excess weight or obesity.[35]

2.26 Certain medications can also present a risk for Type 2 diabetes. For example, the Committee heard that taking antipsychotic drugs or corticosteroids can raise an individual's risk of Type 2 diabetes by increasing their body weight and insulin resistance.[36]

2.27 The Endocrine Society of Australia further noted that specific medical conditions including polycystic ovarian syndrome (PCOS), obstructive sleep apnoea, and Cushing's syndrome, appear to be risk factors for developing Type 2 diabetes.[37] Hepatitis C Virus co-infection, lipodystrophy (a group of diseases that cause abnormal distribution of fat throughout the body) and living with human immunodeficiency virus (HIV) all present risk factors.[38]

2.28 Poor diet, smoking, and physical inactivity can also impact the development of the disease.[39] Indeed, the George Institute for Global Health cited AIHW data showing that poor diet is the second strongest risk factor for Type 2 diabetes after overweight and obesity.[40]

Gestational diabetes

2.29 The risk factors for gestational diabetes are very similar to those for Type 2 diabetes.[41] Genetic makeup places some individuals at a greater risk of gestational diabetes. Specifically, having a family history of Type 2 diabetes or a particular ethnic background can increase a person's chance of developing the condition.[42]

2.30 The Australian College of Nurse Practitioners submitted that 'poor nutrition, and physical inactivity can contribute to the development of GDM [gestational diabetes mellitus]'.[43] According to the Australian College of Midwives further risk factors include certain medications and the presence of PCOS.[44]

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34 Department of Health and Aged Care, Submission 152, pp. 11–12.
35 CDOER, Submission 157, p. 1.
36 NSW Health, Submission 349, p. 18; Endocrine Society of Australia, Submission 401, p. 1.
37 Endocrine Society of Australia, Submission 401, n.p.
38 National Association of People With HIV Australia, Submission 457, p. 4.
39 See, for example: Dr James Muecke AM, Submission 67.1, p. 1; Department of Health and Aged Care, Submission 152, p. 11; CDOER, Submission 157, p. 1; Diabetes Australia, Submission 248.1, p. 3; NSW Health, Submission 349, p. 17; Australian College of Rural and Remote Medicine, Submission 428, p. 2.
40 The George Institute for Global Health, Submission 406, n.p.
41 CDOER, Submission 157, p. 1.
42 CDOER, Submission 157, p. 1.
43 Australian College of Nurse Practitioners, Submission 403, p. 3.
44 Australian College of Midwives, Submission 442, p. 4.

2.31 The Committee also heard that an individual's age and weight before becoming pregnant influence the likelihood of developing gestational diabetes during pregnancy. Women who become pregnant at older age and who are overweight or obese at the time of pregnancy are more likely to develop gestational diabetes.[45] In some cases, women who develop gestational diabetes were in fact living with undiagnosed pre-diabetes before the pregnancy.[46]

2.32 In addition, hormones produced by the placenta can contribute to the development of gestational diabetes.[47] While a woman is pregnant, the placenta produces certain hormones to help maintain the pregnancy, including estrogen, cortisol and human placental lactogen. These hormones can block insulin, leading to insulin resistance.[48]

Causes of obesity

2.33 Obesity is a significant risk factor for Type 2 and gestational diabetes. As such, efforts to prevent obesity should drive a reduction in these forms of diabetes.

2.34 The Obesity Collective defined obesity as 'a chronic relapsing condition where extra body fat affects a person's health.'[49] There is a broad consensus among contributors to the inquiry that no single factor causes or explains obesity.[50] As the Australian Food and Grocery Council (AFGC) emphasised:

> In 2009, the National Preventive Health Taskforce completed the most comprehensive examination (before or since) of overweight and obesity in Australia. No single factor or group of factors was identified as being strongly associated with, and therefore potentially driving, the increases in the weight of Australians.[51]

2.35 The Committee heard that there was a range of modifiable and non-modifiable factors that can contribute to excess weight gain. These include, for example:

- Genetics and physiological factors such as an individual's ethnicity, family history of obesity, appetite, metabolism, satiety (how easily someone feels full) and weight distribution
- Eating patterns from infancy (including the length of breastfeeding) through to adulthood

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45 Australia & New Zealand Obesity Society (ANZOS), Submission 379, p. 7; NSW Health, Submission 349, p. 22.

46 Sydney Low Carb Specialists, Submission 84, p. 4.

47 Sydney Low Carb Specialists, Submission 84, p. 4; Australian College of Nurse Practitioners, Submission 403, p. 2.

48 Australian College of Nurse Practitioners, Submission 402, p. 2. See also: University of Rochester Medical Center, *Health Encyclopedia: Diabetes during pregnancy*, accessed 3 June 2024, www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=90&contentid=P02444

49 The Obesity Collective, Submission 343, p. 2.

50 Department of Health and Aged Care, Submission 152, p. 11; Novo Nordisk, Submission 246, p. 8; Cancer Council Australia, Submission 298, p. 5; The Obesity Collective, Submission 343, p. 4; ANZOS, Submission 379, p. 3.

51 AFGC, Submission 337, p. 9.

- Sleep quality and routines
- Exposure to stress
- The use of certain medications
- The environments in which people live.[52]

2.36 The Australia and New Zealand Obesity Society (ANZOS) emphasised that interaction between these different factors is critical for understanding obesity:

> Simple explanations of the development of obesity often focus on an imbalance of energy where calories (energy) intake exceeds energy expenditure, leading to weight gain. However, a complex and diverse range of factors contribute to a positive energy balance, and it is the interaction between a number of these influences, rather than any single factor acting alone, that is thought to be responsible.[53]

2.37 A common theme raised throughout the inquiry was the idea that Australia may have an 'obesogenic' environment: an environment that contributes to people developing obesity. The Royal Australasian College of Physicians (RACP) explained:

> Obesogenic environments encourage adults and children to consume more calories than are metabolically required… [These are] modern environments that promote unhealthier foods, stress, physical inactivity and weight gain.[54]

2.38 Ms Justine Cain from Diabetes Australia, which is the national peak body for people living with diabetes and those at risk, expressed her concern regarding this trend:

> Very, very scarily, the experts say our country's environment is obesogenic. That means it is easier to become overweight or obese in Australia than it is to maintain a healthy weight.[55]

2.39 The idea of an obesogenic environment implies that obesity is partly attributable to systemic or societal factors, which shifts focus from individuals living with obesity, to the broader environment. In addition, there are other determinants of health that contribute to obesity.[56] The Obesity Collective, for example, identified income, education, and housing situation as some specific examples of determinants of health that can increase the risk of obesity.[57]

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52 See, for example: Department of Health and Aged Care, Submission 152, p. 11; Novo Nordisk, Submission 246, p. 8; Diabetes Australia, Submission 248.1, p. 5; Cancer Council Australia, Submission 298, p. 5; ANZOS, Submission 379, p. 3; The Obesity Collective, Submission 343, p. 4; Infant & Toddler Foods Research Alliance, Submission 305, p. 3.

53 ANZOS, Submission 379, p. 3.

54 Royal Australasian College of Physicians (RACP), Submission 174, p. 4.

55 Ms Justine Cain, Group Chief Executive Officer, Diabetes Australia, *Committee Hansard*, Canberra, 20 June 2023, p. 2.

56 See, for example: Australian Medical Association, Submission 219, pp. 2–3; Public Health Association of Australia, Submission 220, p. 5; The Obesity Collective, Submission 343, p. 4.

57 The Obesity Collective, Submission 343, p. 4.

2.40 The Committee acknowledges that socio-economic factors have a significant impact on obesity.[58] As Mr Stephen Bali, the NSW Parliament Member for Blacktown, submitted: 'The problem is that people in lower socio-economic communities do not have the same financial means to access healthy food options and enjoyable physical activity in the same way wealthier communities do.'[59]

2.41 ANZOS further noted that lower socio-economic communities often have more difficulty accessing healthy food options. Indeed, these communities are often characterised by a higher density of fast-food outlets, and fewer public spaces for exercise such as parklands or beaches. It is also the case that dealing with long commutes to work and services can leave 'less time to plan and undertake desirable health behaviours.'[60]

Scale of the problem

2.42 Similar to other diseases, diabetes can be quantified in terms of its incidence and prevalence. As Professor Jonathan Shaw, the Deputy Director of Clinical and Population Health at the Baker Heart and Diabetes Institute explained, 'prevalence is the number of people who have the condition at any time in the population' (i.e. total cases), and 'incidence is the rate at which new cases are occurring.'[61]

2.43 The major sources of data and information about diabetes in Australia are the AIHW,[62] the National Diabetes Services Scheme (NDSS),[63] and the Australasian Paediatric Endocrine Group state and territory-based registers. Many of those who provided information to the Committee about the incidence, prevalence, burden or general trends associated with diabetes in Australia drew from these sources.

Current levels of diabetes

2.44 Diabetes Australia submitted that approximately 1.5 million Australians are currently living with all types of known, diagnosed diabetes.[64] Multiple submissions noted that the true prevalence of diabetes in Australia is likely higher, as this figure only includes people who have received a formal medical diagnosis and are registered with the NDSS.[65]

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58 See, for example: Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 8; Northern Territory (NT) Health, Submission 161, p. 2; Ingham Institute for Applied Medical Research, Submission 364, p. 1.

59 Mr Stephen Bali MP, Submission 234, p. 4.

60 ANZOS, Submission 379, p. 8.

61 Professor Jonathan Shaw, Deputy Director, Clinical and Population Health, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 41.

62 Department of Health and Aged Care, Submission 152, p. 10.

63 The National Diabetes Services Scheme (NDSS) is an initiative of the Australian Government that is administered by Diabetes Australia; NDSS, *About the NDSS*, accessed 3 June 2024, www.diabetesaustralia.com.au/resources/ndss/.

64 Diabetes Australia, Submission 248, p. 2.

65 NSW Health, Submission 349, p. 13; ACADI, Submission 316, p. 2.

2.45 NDSS data indicated that the number of people in Australia with specific forms of diabetes are as follows:

1 137,000 people have Type 1 diabetes (this group represents about nine per cent of the Australians with some form of diabetes)

2 1.3 million people have Type 2 diabetes (about 87 per cent of diabetes cases)

3 44,000 people were diagnosed with gestational diabetes in the past year (about 3 per cent of diabetes cases)

4 12,000 people have some other form of diabetes (about one per cent of diabetes cases).[66]

Diabetes Australia added that about 500,000 Australians currently live with undiagnosed Type 2 diabetes.[67]

2.46 In some instances, it can be difficult to diagnose the correct type of diabetes. For example, Dr Shanal Kumar, endocrinologist at the Prince Charles and Princess Alexandra Hospitals in Brisbane, told the Committee that this was particularly the case for Type 3c diabetes, which is sometimes incorrectly classified as Type 2 diabetes. The misclassification can thus somewhat distort the picture of diabetes cases.[68]

2.47 A significant number of Australians are also currently living with pre-diabetes. Diabetes Australia cited evidence estimating that at least two million Australians have pre-diabetes;[69] Diabetes Victoria estimated that this number could be as high as 2.5 million.[70] The Consumers Health Forum of Australia submitted that an even greater number – possibly as high as almost one-third of Australians – may have pre-diabetes.[71] This is a high-risk group: according to Diabetes Australia, about 'one-third of people living with prediabetes will develop type 2 diabetes within 10 years.'[72]

Trends and future forecasts for diabetes

2.48 Diabetes is the fastest-growing chronic or non-communicable disease in Australia.[73] The Royal Australian College of General Practitioners (RACGP) cited research indicating that Australia has seen a steady increase in the prevalence of diabetes

66 Figures are rounded. National Diabetes Services Scheme (NDSS), *All types of diabetes*, accessed 3 June 2024, www.ndss.com.au/wp-content/uploads/All-Diabetes-Type.pdf
67 Diabetes Australia, Submission 248, p. 3.
68 Dr Kumar, *Committee Hansard*, Brisbane, 20 November 2023, p. 37.
69 Diabetes Australia, Submission 248, p. 3.
70 Diabetes Victoria, Submission 310, p. 2.
71 Consumers Health Forum of Australia, Submission 367, p. 4.
72 Diabetes Australia, Submission 248, p. 10.
73 Diabetes Victoria, Submission 310, p. 2; Dexcom AMSL Diabetes, Submission 375, p. 23; Ypsomed Australia, Submission 416, p. 1; The George Institute for Global Health, Submission 406, n.p.

(i.e. the number of people currently living with the condition) over the years, which reflected a global trend.[74]

2.49 NSW Health similarly emphasised this trend, and submitted that overall, different sources of data including the Population Health Survey, the Australian Bureau of Statistics National Health Survey and the 2021 Australian Census 'all show that there has been an increase in prevalence [of diabetes] over time.'[75]

2.50 Impact Obesity, a health promotion charity, referenced AIHW data about the trends over time pertaining to the prevalence of diabetes, which showed that the number of Australians living with all forms of diabetes increased by 183 per cent between 2000 and 2021, from 460,000 to 1.3 million.[76]

2.51 Diabetes Australia also highlighted that the prevalence of diabetes is increasing in Australia, noting that in 1989–90 about 1.2 per cent of Australians had diabetes, compared to 5.6 per cent in 2023.[77] In discussing the future trends, Ms Cain from Diabetes Australia told the Committee that:

> By 2050, if we don't change the trajectory of what's happening with the diabetes epidemic, 3.1 million Australians—that's eight per cent of the projected population—will be living with diabetes.[78]

2.52 The Committee received evidence suggesting that the incidence (i.e. the number of new cases developed in a population in a specific time period) of Type 1 diabetes is increasing. The CDOER informed the Committee that Type 1 diabetes is becoming more common worldwide, with cases growing by about three per cent annually. This increase is also seen in Australia. The Centre commented that this 'rate of increase cannot be due to genetic changes, as the increase is too fast.'[79]

2.53 The Rural Doctors Association of Australia, however, submitted that 'the incidence of Type 1 diabetes has remained relatively stable for two decades.'[80] Professor Shaw from the Baker Heart and Diabetes Institute further clarified that:

> The incidence of type 1 diabetes has generally been increasing in almost every country over the last 40 to 50 years. It's probably plateaued in some countries, and I think it's probably plateaued here over the last decade or so.[81]

2.54 A recent study drew upon data from 1990 to 2019 to examine changes to Type 2 diabetes prevalence, deaths, and disability-adjusted life years (DALYs) (a measure of

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74 Royal Australian College of General Practitioners (RACGP), Submission 427, p. 3.
75 NSW Health, Submission 349, p. 13.
76 Impact Obesity, Submission 277, p. 1.
77 Diabetes Australia, Submission 248, p. 3.
78 Ms Cain, Diabetes Australia, *Committee Hansard*, Canberra, 20 June 2023, p. 2.
79 CDOER, Submission 157, p. 1.
80 Rural Doctors Association of Australia, Submission 407, p. 5. See also: AIHW, *Diabetes: Australian facts,* accessed 3 June 2024, www.aihw.gov.au/reports/diabetes/diabetes/contents/summary#How-common-is-diabetes
81 Professor Shaw, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 41.

the burden of a disease) in Australia, and compared these markers with 14 other similar countries including the United Kingdom, United States, Canada, New Zealand, Norway, Singapore, and Germany. The study found that of the 15 peer countries, Australia had the fourth highest Type 2 diabetes prevalence, and was the fourth worst for Type 2 diabetes-related death rates.[82]

2.55 The Medical Technology Association of Australia (MTAA) submitted that due to Australia's ageing population 'over time, an increasingly large portion of Australia's population – as much as half of it by the middle of the century – would be at risk of developing type 2 diabetes on account of ageing alone.'[83] MTAA further noted that, based on migration trends, a growing percentage of Australia's population will also 'be at risk of developing type 2 diabetes on account of ethnic or cultural background alone.'[84]

2.56 The increasing prevalence of Type 2 diabetes is not unique to Australia; according to the World Health Organisation, this trend is occurring worldwide.[85] The International Diabetes Federation estimates that Type 2 diabetes is growing globally: 10.5 per cent of the world's population aged between 20 and 79 is currently living with diabetes, and this number is set to rise to 12.2 per cent by 2045.[86]

2.57 The Committee heard evidence that younger people are increasingly being diagnosed with the condition.[87] The Department of Health and Aged Care cited research which suggested that people were previously diagnosed with Type 2 diabetes after the age of 50, 'but diagnosis in younger adults, adolescents and even children is increasingly common.'[88]

2.58 Indeed, NDSS data shows that among Australians under the age of 39, the incidence of people developing Type 2 diabetes (i.e. rates of new cases) increased by 37 per cent between 2012 and 2022.[89] For young people under the age of 20, the number of newly-diagnosed type 2 diabetes cases increased over the past decade by 18 per cent.[90]

2.59 Professor Louise Baur, Fellow at the RACP told the Committee about the rising number of younger patients with diabetes:

> When I trained in paediatrics in the 1980s, in a major children's hospital in Sydney, we never saw a child with type 2 diabetes. Now over 10 per cent of children in New South Wales under the age of 16 who have diabetes have type 2

82 SMS Islam et al (2023) 'The burden of type 2 diabetes in Australia during the period 1990–2019: Findings from the global burden of disease study', *Diabetes Research and Clinical Practice*, 199, pp. 1–8.
83 Medical Technology Association of Australia (MTAA), Submission 426, p. 3.
84 MTAA, Submission 426, p. 3.
85 Australian College for Rural and Remote Medicine, Submission 428, p. 2.
86 International Diabetes Federation, *Diabetes Atlas*, accessed 10 May 2024, diabetesatlas.org
87 See, for example: Department of Health and Aged Care, Submission 152, p. 6; Diabetes Australia, Submission 248.1, p. 4; Ms Taryn Black, Chief Strategy Officer, Diabetes Australia, *Committee Hansard*, Canberra, 15 September 2023, p. 26.
88 Department of Health and Aged Care, Submission 152, p. 6.
89 Diabetes Australia, Submission 248.1, p. 4.
90 Diabetes Australia, Submission 248.1, p. 4.

> diabetes. We're certainly seeing at my hospital and at others children who are yet to enter high school who have type 2 diabetes. Now, they will come from families with a very strong family history of type 2 diabetes as well, but we never saw it before. It was an old person's disease when I was growing up; now it's the stuff of which we need to train our endocrinologists, and ordinary general paediatricians like me need to be aware of that.[91]

2.60 Type 2 diabetes is typically more serious and aggressive in young people.[92] Diabetes Australia noted that 'the aggressive onset of diabetes-related complications at a much younger age is widely observed both in Australia and internationally.'[93]

2.61 While the Committee heard that Type 2 diabetes prevalence (being the total number of individuals who have the condition at a specific time) is increasing in Australia, evidence was also received stating that the overall incidence rate (being the number of individuals who develop the condition during a particular time period) is decreasing.[94] Dr Alan Barclay, Health and Nutrition Consultant for the National Retail Association, noted a decrease in the incidence of Type 2 diabetes over the past ten to 15 years, and suggested that this 'doesn't seem to be particularly well known.'[95]

2.62 The National Retail Association's submission also cited research supporting that the incidence rate of Type 2 diabetes in Australia has been decreasing over recent decades, except for a small increase between 2020 and 2021, which may be attributable to COVID-19 lockdowns.[96] The AIHW noted that COVID-19 lockdowns had a negative impact on several lifestyle factors including healthy dietary patterns and physical activity.[97]

2.63 In appearing before the Committee, Professor Shaw explained that incidence is the best metric of the risk of the general population developing Type 2 diabetes and elaborated:

> The incidence of at least clinically diagnosed type 2 diabetes has actually been coming down in Australia and in a number of other high-income countries… That doesn't mean the numbers of people with diabetes aren't still going up. In terms of the burden of care, the burden of care is still rising. But it also does indicate some suggestion at least that some of the things that many countries have done over the last 10 or 20 years might have had some benefit. It's modest… But it

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91 Professor Louise Baur, Fellow, RACP, *Committee Hansard*, Canberra, 15 September 2023, p. 61.

92 Diabetes Australia, Submission 248.1, p. 4; Diabetes WA, Submission 421, p. 9.

93 Diabetes Australia, Submission 248.1, p. 4.

94 Australian & New Zealand Obesity Society (ANZOS), Submission 379, p. 4; Dr Alan Barclay, Health and Nutrition Consultant, National Retail Association, *Committee Hansard*, Brisbane, 20 November 2023, p. 1.

95 Dr Barclay, National Retail Association, *Committee Hansard*, Brisbane, 20 November 2023, p. 1.

96 DJ Magliano et al (2021) 'Trends in the incidence of diagnosed diabetes: A multicountry analysis of aggregate data from 22 million diagnoses in high-income and middle-income settings', *The Lancet Diabetes & Endocrinology,* 9(4):203–211; National Retail Association, Submission 372, p. 3.

97 AIHW, *Diabetes: Australian facts – Impact of COVID-19*, accessed 3 June 2024, www.aihw.gov.au/reports/diabetes/diabetes/contents/impact-of-covid-19

> does, perhaps, indicate that some [of] the things that we've been doing have at least been moving in the right direction.[98]

2.64 An increase in gestational diabetes has also been recorded in Australia.[99] According to the Australian Diabetes in Pregnancy Society (ADIPS), approximately one in five pregnancies in Australia are affected by diabetes. This statistic includes those diagnosed with gestational diabetes, and a small proportion of women (around 1–2 per cent) who have another form of diabetes prior to pregnancy.[100]

2.65 Diabetes Australia and the ADIPS both identified gestational diabetes as the 'fastest growing type of diabetes in Australia' and reported that the number of women diagnosed with this condition each year has more than doubled in comparison to the previous decade.[101]

2.66 Multiple explanations for the increase in gestational diabetes were offered throughout the inquiry. These included increasing maternal age in pregnancy, increasing body mass index (BMI), earlier age of diabetes onset, higher proportions of mothers who are at a higher risk of diabetes due to their ethnicity, and a change in the diagnostic criteria for gestational diabetes.[102]

2.67 According to Maternal Health Matters, changes to the definitions of and thresholds for gestational diabetes is the key reason driving the increase in diagnoses.[103] Professor Jenny Doust, a general practitioner and professor of clinical epidemiology, told the Committee that since the new definitions for gestational diabetes were introduced, around 25,000 additional Australian women each year are being diagnosed with the condition. Professor Doust called for an independent review of the way that gestational diabetes is diagnosed in Australia, and further noted that the changes to the gestational diabetes diagnosis have not been accepted in the United States, New Zealand or the United Kingdom, and were not endorsed by the RACGP.[104]

2.68 Professor Shaw also reiterated the issue with changing diagnostic parameters:

> …there certainly has been an increase in gestational diabetes. I have to say that a significant component, but certainly not all of it, has been a change in diagnostic criteria, which has [meant] that women who five years ago would have been told that they don't have gestational diabetes are now told they do have it.

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98 Professor Shaw, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 41.

99 See, for example: Diabetes Australia, Submission 248, p. 11; Australian Diabetes in Pregnancy Society (ADIPS), Submission 318, p. 3; Australian College of Midwives, Submission 442, p. 4; Maternal Health Matters, Submission 418, p. 1.

100 ADIPS, Submission 318, p. 3.

101 Diabetes Australia, Submission 248, p. 11; ADIPS, Submission 318, p. 3.

102 ADIPS, Submission 318, p. 3; Australian College of Midwives, Submission 442, p. 4.

103 Maternal Health Matters, Submission 418, p. 1.

104 Professor Jenny Doust, Private capacity, *Committee Hansard*, Brisbane, 20 November 2023, p. 43.

> That's not to say that's a good or bad thing, but it's a significant component of the increase in the numbers.[105]

2.69 Gestational diabetes can have an adverse effect on both the mother and the child.[106] The Committee heard that even though gestational diabetes generally resolves after birth, women who develop the condition during pregnancy are at a higher risk for future health issues beyond their pregnancy. For instance, the ADIPS submitted that gestational diabetes increases the risk of Type 2 diabetes ten-fold, and the risk of experiencing a cardiovascular event in the future two-fold.[107]

2.70 The CDOER further noted that 'diabetes and obesity in the mother during pregnancy increase the risk of obesity and diabetes in the offspring', which can stimulate a 'cycle of disadvantage.'[108] Diabetes Australia similarly characterised diabetes as an intergenerational condition: children born to mothers with gestational diabetes are 'seven times more likely to develop type 2 diabetes later in life.'[109]

2.71 The Committee received a limited amount of evidence about trends or future forecasts for other forms of diabetes, beyond Type 1 diabetes, Type 2 diabetes, and gestational diabetes. It is notable, however, that NDSS data shows that the prevalence of other forms of diabetes has increased by 110 per cent in Australia over the past decade.[110]

2.72 In her submission to the inquiry, Dr Kumar noted that among people with cystic fibrosis, both the prevalence and incidence of cystic fibrosis-related diabetes increase with age. She explained that the life expectancy for people with cystic fibrosis was expected to increase, which by extension suggested that more people within this cohort would likely develop cystic fibrosis-related diabetes in the future.[111]

Current levels of overweight and obesity

2.73 Many contributors to the inquiry expressed the opinion that, as with diabetes, Australia is experiencing an obesity epidemic.[112] Also similar to diabetes, obesity rates are higher among communities that have greater socio-economic disadvantage.[113]

2.74 According to the National Obesity Strategy 2022–32, approximately 14 million Australians are currently either overweight or obese.[114] The Department of Health and

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105 Professor Shaw, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 40.
106 Australian College of Midwives, Submission 442, p. 13.
107 ADIPS, Submission 318, p. 7.
108 CDOER, Submission 157, p. 5.
109 Diabetes Australia, Submission 248, p. 12.
110 Diabetes Australia, Submission 248, p. 16.
111 Dr Shanal Kumar, Submission 74, p. 1.
112 See, for example: Royal Women's Hospital, Melbourne, Submission 21, p. 3; Dr James Muecke AM, Submission 67, Attachment 1, p. 12; The George Institute for Global Health, Submission 406, n.p.
113 Australia & New Zealand Obesity Society (ANZOS), Submission 379, p. 3.
114 Novo Nordisk, Submission 246, p. 7.

Aged Care detailed that, as of 2017–18, approximately 67 per cent of Australian adults aged 18 years and older – and 25 per cent of children and adolescents aged between 2 to 17 – were either overweight or obese.[115] Of the Australian adult population, 31.3 per cent of people were specifically living with obesity.[116]

Trends and future forecasts for overweight and obesity

2.75 Obesity is a significant and growing issue globally. The World Obesity Foundation predicts that, if current trends continue, by 2035 more than half of the world's population will be either overweight or obese. Childhood obesity is rising even faster, and the number of children living with obesity may double between 2020 and 2035.[117]

2.76 Australia is a significant contributor to the global rise in obesity. According to the Organisation for Economic Co-operation and Development (OECD), Australia ranks the fifth highest for obesity rates among OECD countries.[118]

2.77 Looking at long-term trends, the Australian Medical Association noted that:

> Rates of obesity [not including overweight] in Australian adults have been steadily increasing for at least 25 years (from 19% in 1995 to 31% in 2018). Among children (aged 5-17), there has also been an upward trend (from 5% in 1995 to 8% in 2018). It is estimated that a third (33%) of the projected adult population will be obese by 2025.[119]

2.78 In addition to the increase in the rates of obesity, the severity of the condition has also changed. Pharmaceutical company Novo Nordisk submitted that:

> The highest relative growth in numbers of people with obesity during the last decade has been in Class III category (BMI of 40 or higher). According to some experts, Class III is the most expensive class of obesity to treat and one where the individual is at highest risk for complications.[120]

2.79 Sydney Low Carb Specialists expressed particular concern about the increasing rate of childhood obesity in Australia, because children who are overweight or obese tend to struggle with their weight into adulthood.[121]

2.80 The Committee received evidence suggesting that, if the current trend continues, more than 40 per cent of the Australian population is likely to be living with obesity in the next 10 years, which will have direct impact on the rates of Type 2 diabetes.[122]

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115 Department of Health and Aged Care, Submission 152, p. 12.
116 The Obesity Collective, Submission 343, p. 3.
117 World Obesity Foundation, 'Economic impact of overweight and obesity to surpass $4 trillion by 2035', *Media Release*, 2 March 2023, www.worldobesity.org/news/economic-impact-of-overweight-and-obesity-to-surpass-4-trillion-by-2035.
118 Diabetes Australia, Submission 248.1, p. 4.
119 Australian Medical Association, Submission 219, Attachment 1, p. 4.
120 Novo Nordisk, Submission 246, p. 7.
121 Sydney Low Carb Specialists, Submission 84, p. 3.
122 Novo Nordisk, Submission 246, p. 7; Grattan Institute, Submission 471, p. 5.

Impact of diabetes

2.81 The impact of diabetes is enormous for those suffering with the disease, and their families. With a significant number of Australians living with diabetes, there is also an acute impact on the country's health system and the economy.

Health system impact

2.82 Several submissions asserted that the number of Australians currently living with diabetes created substantial pressure on the health system.[123] As Diabetes Australia explained, diabetes is a 'serious chronic condition that can cause debilitating and costly complications.'[124]

2.83 Diabetes-related complications can include blindness, kidney disease, heart conditions, stroke, lower limb amputations, and many more health conditions.[125] The Alfred Alliance in Diabetes' submission elaborated that diabetes is:

- the leading cause of kidney failure across the whole population
- among the leading causes of vision loss among working-age adults
- responsible for more than 50 per cent of all lower limb amputations
- a major risk factor for most manifestations of cardiovascular disease.[126]

2.84 AIHW data indicates that diabetes leads to approximately 17,477 deaths per year, and is associated with around 10.5 per cent of all deaths. Diabetes Australia highlighted that the number of diabetes-related deaths increased by 73 per cent between 2000 and 2020.[127]

2.85 Primary care plays a key role in helping individuals living with diabetes manage the condition, including any diabetes-related complications that arise. The RACGP submitted that in 2019–20, out of all the general practitioner appointments with patients, approximately 12 per cent were with patients with Type 2 diabetes (alone), one per cent were with patients with Type 1 diabetes, and one per cent were with patients with gestational diabetes.[128]

2.86 Presentations at emergency departments and hospitalisations offer additional insight into the impact of diabetes on Australia's health system. According to the Department of Health and Aged Care, in 2020–21 there were almost 1.3 million hospitalisations associated with diabetes, representing approximately ten per cent of total hospitalisations in Australia.[129] Approximately five per cent of these patients had

123 See, for example: Australian Health Promotion Association, Submission 359, p. 5; Ypsomed Australia, Submission 416, p. 1.
124 Diabetes Australia, Submission 248, p. 3.
125 Diabetes Australia, Submission 248, p. 24.
126 Alfred Alliance in Diabetes, Submission 285, p. 1.
127 Diabetes Australia, Submission 248, p. 3.
128 RACGP, Submission 427, p. 3.
129 Diabetes Australia, Submission 248, p. 4.

diabetes recorded as the principal diagnosis (i.e. the diagnosis largely responsible for the hospitalisation).[130]

2.87 The Australian Centre for Accelerating Diabetes Innovations (ACADI) highlighted an Australian study suggesting that around 30 to 40 per cent of people admitted to hospital had some type of diabetes.[131] Other sources suggest that around 23 or 25 per cent of hospital inpatients will have diabetes.[132]

2.88 The complexity of diabetes-related hospital admissions, Diabetes Australia explained, 'means that the average length of hospitalisation is significantly longer for a person living with diabetes than in a person without diabetes.'[133] The Ingham Institute agreed with this assessment, and cited evidence showing that on average patients living with diabetes stay in the hospital about 2.6 days longer than patients without diabetes.[134]

2.89 Attendances at emergency departments indicate that diabetes accounts for 'around 19,000 emergency department presentations.'[135] As the Australian College of Nurse Practitioners explained:

> The healthcare system finds itself grappling with the challenge of managing not only the rise of diabetes-related hospital admissions, but also the substantial costs of treating the inherent complications.[136]

Impact on Residential Aged Care and the National Disability Insurance Scheme

2.90 The growing number of Australians living with diabetes will also impact other government services, including residential aged-care facilities and the National Disability Insurance Scheme (NDIS).[137] Diabetes is more common among older Australians: in 2021, almost one in five adults aged between 80 to 84 were living with diabetes.[138] The number of Australians aged 85 years and over will double by around 2050,[139] which will result in a 'significant increase in the number of people living with diabetes in aged care.'[140]

2.91 Diabetes poses additional challenges to the residential aged care system, as many aged care residents living with diabetes will require specific diabetes management

130 Department of Health and Aged Care, Submission 152, p. 44.
131 ACADI, Submission 316, p. 7.
132 Ingham Institute, Submission 364, p. 1; Endocrine Society of Australia, Submission 401, p. 2.
133 Diabetes Australia, Submission 248, p. 4.
134 Ingham Institute for Applied Medical Research, Submission 364, p. 1.
135 Diabetes Australia, Submission 248, p. 4.
136 Australian College of Nurse Practitioners, Submission 403, p. 4.
137 Diabetes Australia, Submission 248, pp. 16–17.
138 Department of Health and Aged Care, Submission 152, p. 10.
139 Diabetes Australia, Submission 248, p. 17.
140 Diabetes Australia, Submission 248, p. 17.

support and care, such as assistance with blood glucose monitoring, help administering insulin or other medications, and special dietary requirements.[141]

2.92 The NDIS is another area likely to be impacted by the growing prevalence of diabetes in Australia, since 'people with diabetes are twice as likely to live with a disability than people without diabetes.'[142] Mrs Catharina Felton, who has been diagnosed with insulin-dependent Type 2 diabetes, submitted that if she were unable to control and manage her condition effectively (and experienced complications leading to a disability), it could lead to 'potential reliance on the NDIS.'[143]

Financial impact of diabetes

2.93 The overall financial impact of diabetes can be divided between direct and indirect costs. Direct costs are costs borne by the health sector for providing patient care (such as hospitalisation or medication); indirect costs encompass all other affected areas (for example, loss of productivity due to illness or premature death).

2.94 Diabetes Australia estimated that the total annual cost of diabetes in Australia is $17.6 billion.[144] Ms Cain from Diabetes Australia further noted that, based on more up-to-date modelling, this estimate was currently approximately $17.9 billion.[145] The Grattan Institute provided an even higher estimate, suggesting that the total cost of diabetes to Australia could be $20.4 billion each year.[146]

2.95 The Australian Diabetes Society, which is the peak national medical and scientific body in Australia for diabetes, submitted that 'it is unclear what the direct and indirect costs of diabetes are to the Australian economy.'[147] Consequently, the organisation recommended that a comprehensive health economic analysis of the direct and indirect costs was needed.

Direct costs of diabetes

2.96 The Committee received substantial evidence about the direct costs of diabetes to Australia's health care system. For instance, Medtronic, a medical device company, suggested that:

> In Australia the average direct medical cost of a person with diabetes is estimated to be twice the direct medical cost of patients without diabetes (annual healthcare costs of A$3,005 per person with known diabetes and A$1,446 for those without diabetes).[148]

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141 Diabetes Australia, Submission 248, p. 17. See also: PDC Health Hub by Perth Diabetes Care, Submission 369, p. 48; Catherine McLaine, Submission 431, pp. 6–7.
142 Diabetes WA, Submission 421, p. 24.
143 Mrs Catharina Felton, Submission 227, p. 2.
144 Diabetes Australia, Submission 248, p. 5.
145 Ms Cain, Diabetes Australia, *Committee Hansard*, Canberra, 15 September 2023, p. 25.
146 Grattan Institute, Submission 471, p. 6.
147 Australian Diabetes Society, Submission 317.1, p. 12.
148 Medtronic, Submission 397, p. 7.

2.97 The costs to the health system are higher for people with diabetes-related complications.[149] An Australian study cited by Diabetes Australia found that the direct cost of supporting a person living with diabetes more than doubles once complications develop ($9,600 per annum for people living with diabetes-related complications, compared to $3,500 for a person without complications).[150]

2.98 The CDOER also asserted that 'diabetes becomes expensive because of its complications.'[151] The Baker Heart and Diabetes Institute submitted that cardiovascular disease, which includes coronary heart disease, stroke and peripheral arterial disease, was responsible for most of the financial costs related to diabetes.[152]

2.99 As another example, the CDOER noted that preventable blindness, which was commonly caused by diabetes, cost Australia approximately $2 billion annually. In part, this reflects the fact that most people who become blind later in life never return to paid employment.[153]

2.100 Diabetes is also the most common cause of end-stage kidney failure in Australia (also known as renal failure), which costs the country $2.6 billion annually. Organ damage is expensive not only to the health system (owing to the substantial costs of dialysis and kidney transplantation), but indeed the economy more broadly. The CDOER explained that many people with end-stage kidney failure do not resume paid employment, and that most patients on haemodialysis (an ongoing process through which a machine cleans a patient's blood multiple times each week) could not work full-time.[154]

2.101 The Endocrinology Section of the Department of Medicine at Alice Springs Hospital also outlined the costs associated with diabetes related complications, and emphasised that dialysis treatment for a single patient cost over $100,000 per annum. With approximately 450 people on dialysis in Central Australia currently, this equates to at least $45 million spent on dialysis alone.[155]

2.102 The Menzies School of Health Research has estimated that the cumulative cost of dialysis for patients with end-stage kidney disease in Central Australia up to and including 2025 was approximately $264–342 million, and that if 20 per cent of new end-stage kidney disease cases could be prevented, it would result in a saving of about $302 million.[156]

2.103 Diabetes-related foot disease is another common complication. As Diabetes Feet Australia, the peak national clinical and research body for diabetes-related foot health

149 Medtronic, Submission 397, p. 7.
150 Diabetes Australia, Submission 248, p. 24.
151 CDOER, Submission 157, p. 4.
152 National Heart Foundation of Australia, Submission 319, p. 3.
153 CDOER, Submission 157, p. 4.
154 CDOER, Submission 157, p. 4.
155 Alice Springs Hospital Endocrinology Department on behalf of the Department of Medicine, Submission 348, p. 3.
156 Alice Springs Hospital Endocrinology Department on behalf of the Department of Medicine, Submission 348, pp. 3–4.

and disease, explained: 'People with diabetes are at risk of nerve damage causing the loss of protective sensation of the feet, reduced blood flow to the feet, skin ulceration, infection and lower limb amputation.'[157] Diabetes Feet Australia estimated that the cost to Australia of diabetes-related foot disease as of 2018 was about $1.6 billion, representing around 1 to 1.5 per cent of the Australian health budget.[158]

2.104 In its discussion of direct costs of diabetes to Australia's health system, the Department of Health and Aged Care stated that for the financial year 2019–20, around $3.1 billion of expenditure in the Australian health system was attributed to diabetes.[159] More recent AIHW data indicates that this cost increased to $3.4 billion in the year 2020-21, which means that 2.3 per cent of Australia's total disease expenditure is spent on diabetes.[160]

2.105 According to the AIHW, this $3.4 billion Australian healthcare system expenditure on diabetes can be broken down into expenditure on specific forms of diabetes as follows:

- $373 million was attributed to Type 1 diabetes
- $2 billion was attributed to Type 2 diabetes
- $72 million was attributed to gestational diabetes
- $668 million was attributed to other or unknown diabetes.[161]

The Committee acknowledges that the Department of Health and Aged Care advised caution when interpreting the above breakdown of expenditure by diabetes type, given the high amount allocated to 'other/unknown' diabetes.[162]

2.106 Costs of diabetes can also be ascertained by examining at areas of expenditure. AIHW advised that the total $3.4 billion spent on diabetes comprises:

- $953 million on the Pharmaceutical Benefits Scheme
- $750 million on public hospital admissions
- $555 million on dental services
- $377 million on general practitioner services
- $242 million on pathology
- $90 million on private hospital services
- $88 million on specialist services
- $58 million on allied health and other services

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157 Diabetes Feet Australia, Submission 330, p. 2.
158 Diabetes Feet Australia, Submission 330, p. 2.
159 Department of Health and Aged Care, Submission 152, p. 11.
160 AIHW, *Diabetes: Australian facts*, accessed 3 June 2024, www.aihw.gov.au/reports/diabetes/diabetes/contents/impact-of-diabetes/health-system-expenditure
161 Figures are rounded. AIHW, Diabetes: *Australian facts*, accessed 4 June 2024, www.aihw.gov.au/reports/diabetes/diabetes/contents/impact-of-diabetes/health-system-expenditure
162 Department of Health and Aged Care, Submission 152, p. 43.

- $19 million on public hospital emergency departments
- $3 million on medical imaging.[163]

2.107 The Committee also heard that in addition to these costs, 'a significant proportion of spending on private hospital care is directly attributable to diabetes or closely related.'[164]

2.108 Throughout the inquiry it was repeatedly impressed upon the Committee that diabetes-related health system costs are likely to increase in the future.[165] Australia's aging population is a major contributing factor, with Diabetes Australia noting that the 'costs of treating diabetes increase as people age with more than 54% of costs relating to people aged 60 and over.'[166]

2.109 NSW Health also expected diabetes-related health system costs to rise, and informed the Committee that total NSW hospital inpatient costs for diabetes were forecast to increase from $1.8 billion annually in 2019–20 to $2.55 billion in 2028–29. NSW Health added that this represented a projected total of $21.7 billion over a decade, and 'is equivalent to more than 2.9 million episodes of care, 4.6 million NWAU (National Weighted Activity Unit)[167] and 18 million bed days used.'[168]

2.110 Over the past two decades the Australian healthcare system costs related to all types of diabetes have risen:

- direct healthcare costs have increased by 289 per cent
- hospital costs have increased by 308 per cent
- Pharmaceutical Benefits Scheme costs have increased by 282 per cent.[169]

2.111 The RACP emphasised the potential cost benefits from reducing the cases of Type 2 diabetes in Australia, noting that modelling has estimated that a '10% reduction in the rate of type 2 diabetes in Australia would result in a gain of GDP [Gross Domestic Product] $532 million over the next 10 years.'[170]

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163 AIHW, *Diabetes: Australian facts: Health system expenditure*, accessed 11 June 2024, www.aihw.gov.au/reports/diabetes/diabetes/contents/impact-of-diabetes/health-system-expenditure

164 Private Healthcare Australia, Submission 321, p. 2.

165 See, for example: Diabetes Australia, Submission 248, p. 5; NSW Health, Submission 349, p. 8; Australian Diabetes Society, Submission 317, p. 2; MTAA, Submission 426, p. 16.

166 Diabetes Australia, Submission 248, p. 5.

167 Note: A National Weighted Activity Unit (NWAU) is a measure of health service activity expressed as a common unit, against which the National Efficient Price (NEP) is paid. It provides a way of comparing and valuing each public hospital service, whether they are emergency department presentations, admissions or outpatient episodes, weighted for clinical complexity. The average hospital service is worth one NWAU – the most intensive and expensive activities are worth multiple NWAU, the simplest and least expensive are worth fractions of an NWAU. See: NSW Health, Submission 349, p. 8.

168 NSW Health, Submission 349, p. 8.

169 Diabetes Australia, Submission 248.1, p. 2.

170 RACP, Submission 174, p. 5.

Indirect costs of diabetes

2.112 The Committee heard that the indirect costs of diabetes are significant and include lost wages and superannuation, lost productivity, travel costs to receive treatment, the costs of carers, the cost of aids, work modifications, and additional welfare payments.[171]

2.113 The RACP informed the Committee that the indirect costs associated with both diabetes and obesity are borne by different groups:

> …patients and carers bear the direct cost of lost income and disease, the economy faces the cost of lost productivity and governments experience lost revenue and higher costs for income support payments. These national costs are in addition to the Australian Government's direct healthcare costs.[172]

2.114 Further elaborating on the indirect cost of diabetes, Diabetes Victoria noted that these arise from 'decreased productivity, work absences, early retirement, [and] premature death,' and were estimated to be $14 billion per year.[173]

2.115 The Committee received a number of submissions that referenced the particular economic impacts that flow from working-age adults living with diabetes.[174] For example, the Primary Care Diabetes Society of Australia noted that when people living with diabetes under the age of 55 leave the workforce because of difficulties managing their condition alongside their job, this has subsequent effects on taxation, welfare support and hospital usage. These financial impacts are in addition to the impacts on affected individuals and their families, which may include the possible negative psychological impact of leaving the workforce earlier than intended.[175]

2.116 The George Institute for Global Health estimated that by 2030 almost five per cent of Australians aged 45–64 will have left the workforce due to diabetes – up from 4.2 per cent in 2010.[176] The Institute further stated that in 2012, 'the estimated cost of lost labour-force participation in Australia due to diabetes was $384 million, with resultant extra welfare payments of $4 million and lost tax revenue of $56 million.'[177]

2.117 The Committee was informed that the Juvenile Diabetes Research Foundation (JDRF) Australia has undertaken an economic assessment of the costs of Type 1 diabetes specifically. JDRF Australia's analysis identified that Type 1 diabetes costs Australia approximately $2.9 billion annually – of which, approximately 20 per cent was borne by the Australian Government. Diabetes Australia emphasised that diabetes-related complications significantly increased the costs associated with Type 1 diabetes: the lifetime cost is $738,000 when complications develop, compared to

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171 The George Institute for Global Health, Submission 406, n.p.
172 RACP, Submission 174, pp. 4–5.
173 Diabetes Victoria, Submission 310, p. 2.
174 CDOER, Submission 157, p. 4; Primary Care Diabetes Society of Australia, Submission 214, p. 2.
175 Primary Care Diabetes Society of Australia, Submission 214, p. 2.
176 The George Institute for Global Health, Submission 406, n.p.
177 The George Institute for Global Health, Submission 406, n.p.

$143,000 for an individual with Type 1 diabetes without diabetes-related complications.[178]

2.118 As one illustration of the indirect economic costs of Type 1 diabetes, the Type 1 Foundation, a not-for-profit charity that supports people living in Australia with Type 1 diabetes, surveyed 2,900 people in Australia either living with, caring for, or in a relationship with a person living with Type 1 diabetes. This survey found that 81 per cent of parents had their ability to work impacted by Type 1 diabetes, and that 70 per cent of parents with school-aged children with Type 1 diabetes had to either cease full-time employment, change jobs, or start working part-time.[179]

2.119 Factors like reduced workforce participation, absenteeism, and underemployment contribute to lower productivity. According to a 2014 study by Deloitte Access Economics, diabetes was estimated to cost Australia approximately $5.63 billion annually in lost productivity.[180]

Committee comment

2.120 The Committee acknowledges that diabetes is a complex condition, and that questions relating to its cause, risk factors, and diagnosis are a subject of ongoing scientific debate. Equally, the Committee recognises that obesity is caused by multiple interrelated factors, and that while there is consensus regarding the link between obesity and diabetes, the nuances of this link are still not fully understood.

2.121 The statistics presented in this chapter clearly show that diabetes is a major problem both in Australia and around the world. The Committee is particularly concerned about the growing number of Australians living with Type 2 diabetes, and the potentially high number of people with undiagnosed Type 2 diabetes. Evidence pointing to a rise of Type 2 diabetes among children is particularly distressing. The Committee also acknowledges the potential intergenerational effect of Type 2 diabetes and gestational diabetes. There is a real possibility that some Australian children will have worse life expectancies than their parents due to diabetes.

2.122 In addition to the impact that diabetes has on individuals and their families, the Committee is also deeply concerned about the impacts of diabetes on Australia's health system, particularly considering that the overall number of Australians living with diabetes is increasing.

2.123 Beyond the health system, the Committee agrees that if it is not prevented and managed, diabetes will likely lead to significant cross-portfolio costs in areas such as the NDIS, reduced income tax, and lost productivity. Overall, diabetes could have a serious adverse impact on Australia's economy.

178 Diabetes Australia, Submission 248, p. 8.
179 Type 1 Foundation, Submission 340, p. 5.
180 Diabetes Australia, Submission 248, p. 5.

2.124 There is no doubt that diabetes is a major public health challenge. Efforts to address the increasing incidence and prevalence of the disease are critical. Serious intervention is needed now if the cost of diabetes in Australia is to be contained.

Recommendation 1

2.125 The Committee recommends that the Australian Government undertakes a comprehensive economic analysis of the direct and indirect cost of all forms of diabetes mellitus in Australia.

2.126 Diabetes has a substantial impact on both the national health system and economy. Current data, however, offers only a fragmented and piecemeal picture of this impact. A comprehensive and systematic analysis of the direct and indirect cost of diabetes will enable the development of more cost-effective measures to deal with the impact of diabetes.

3. Prevention of diabetes and obesity

Overview

3.1 Throughout the inquiry, excess weight, poor diet and insufficient physical activity were identified as key modifiable factors associated with Type 2 diabetes and gestational diabetes. Maintaining a healthy weight through appropriate diet and levels of physical activity are, however, beneficial for all patients regardless of diabetes type.

3.2 This chapter examines health prevention measures for diabetes and obesity that focus on diet and physical activity. Systematic changes are examined, along with strategies that can empower individuals to make healthier lifestyle choices.

3.3 In examining diet-related approaches to prevention, the Committee focused on current Australian Dietary Guidelines (ADG), dietary interventions for diabetes, food labelling practices, and the consumption of sugar-sweetened beverages. The marketing of unhealthy foods and the impact of this marketing is also considered.

3.4 While a healthy diet is critical for patients with diabetes and obesity, access to healthy food remains a challenge for many Australians. Accordingly, the Committee has considered the availability and affordability of healthy food in urban, rural and remote communities.

3.5 Much of the evidence received by the Committee during this inquiry demonstrates that many Australians lead sedentary lives, and that levels of physical activity are decreasing across all age groups. The final sections of the chapter thus foreground the question of how to best support our communities to become more physically active.

The importance of prevention

3.6 The National Preventative Health Strategy 2021–2030, the National Diabetes Strategy 2021–2030 and the National Obesity Strategy 2022–2032 all recognise that prevention is vital for meeting the rising tide of chronic diseases such as diabetes and obesity.[1]

[1] Australian Government, National Preventative Health Strategy 2021-2030, accessed 17 May 2024, www.health.gov.au/resources/publications/national-preventive-health-strategy-2021-2030; National Obesity

3.7 The prevention of diabetes also emerged as a dominant theme through the course of the inquiry.[2] Preventive action, as the Australian Medical Association (AMA) emphasised, saves lives, reduces the impact of diabetes on Australia's economy, and takes pressure off the health system.[3]

3.8 Preventing diabetes is also financially advantageous. The submission from the Rural Doctors Association of Australia cited modelling by Price Waterhouse Coopers, which indicated that diabetes prevention could result in a net economic benefit of $4.65 per $1 invested.[4]

3.9 Although the transformative potential of prevention is widely recognised, inquiry evidence suggests that the Australian health system is more oriented towards reaction rather than prevention. In its submission, the Alice Springs Hospital Endocrinology Department emphasised this point:

> Diabetes is a preventable problem and we are currently pouring money into reactive services at the "bottom of the cliff" such as renal and cardiology, and missing the opportunity to prevent disease with practical solutions at the "top of the cliff".[5]

3.10 The question of whether emphasis should be placed on system-wide changes or efforts to empower individuals to make better health choices was also foregrounded as part of the inquiry.

3.11 Multiple submissions described policies and programs that aim to educate and support individuals to make healthier choices as focusing on 'personal responsibility,' and expressed the opinion that such approaches have limited effectiveness.[6] Elaborating upon this view, the Australian Centre for Behavioural Research in Diabetes submitted that the 'hyperfocus on 'personal responsibility' for diabetes and obesity has led to limited systems-level action (i.e. policy, regulation, industry implementation) […].'[7]

3.12 The George Institute for Global Health shared a similar perspective:

Strategy 2022–32 (2022), accessed 17 May 2024, www.health.gov.au/resources/publications/national-obesity-strategy-2022-2032.

2 See, for example: NT Health, Submission 161, p. 3; Australian Medical Association (AMA), Submission 219, p. 1; Health and Wellbeing QLD, Submission 250, p. 2; Doctors for Nutrition, Submission 323, p. 3; Australian College of Nurse Practitioners, Submission 403, p. 7; Coalition for Healthy Remote Stores, Submission 404, p. 2; The Australian Youth Advocacy Network, Submission 448, p. 8; Mr David Clarke, Chief Executive Officer, Australian Patients Association, *Committee Hansard*, Canberra, 15 September 2023, p. 4.

3 AMA, Submission 219, p. 1.

4 Rural Doctors Association of Australia, Submission 407, p. 8.

5 Alice Springs Hospital Endocrinology Department on behalf of the Department of Medicine, Submission 348, p. 1. See also: NT Health, Submission 161, p. 3; Australian College of Nurse Practitioners, Submission 403, p. 7.

6 See, for example: Dr Kathryn Williams, Submission 73, p. 8; The Australian Centre for Behavioural Research in Diabetes, Submission 353, p. 11; The George Institute for Global Health, Submission 406, n.p.

7 The Australian Centre for Behavioural Research in Diabetes, Submission 353, p. 11.

> Successive Australian policies to prevent and disrupt the prevalence of diabetes has [sic] focused predominantly on encouraging individuals to change their lifestyle through education and health promotion. Policies focused on voluntary regulation have been unsuccessful in changing behaviour. A paradigm shift is required: from personal responsibility to shared responsibility and requires greater accountability from government and industry leaders.[8]

3.13 In appearing before the Committee, Professor Steve Robson, President of the AMA, highlighted that 'individual responsibility is important… but it's got to be more than that' and cautioned against placing the onus on individuals to tackle complex problems such as diabetes and obesity:

> I personally think that in many areas of endeavour the individual responsibility argument is actually a cop-out used by people who have a vested interest in things.[9]

3.14 Ms Tiffany Petre, Director of the Obesity Collective, the peak body for obesity in Australia, told the Committee that there were 'many false dichotomies' which often derail discussion about chronic conditions, such as prevention versus treatment, or personal versus social responsibility, when in fact action is required across all areas.[10]

Public health approaches to diabetes and obesity

3.15 The benefits of taking a population-wide approach to tackling diabetes and obesity have been foregrounded throughout the inquiry. The Cancer Council Australia submitted that:

> Strategies that take population wide approaches to address the environmental drivers of obesity have the maximum potential to achieve positive health improvements.[11]

3.16 Diabetes Australia argued that there was a need for both population health interventions 'that mitigate the impact of the obesogenic environment and support people's ability to make healthier choices,' and specific Type 2 diabetes prevention programs.[12]

3.17 The Committee heard about opportunities to tailor public health messaging targeted at diabetes and obesity in a manner similar to the messaging aimed at reducing smoking. In its submission, the Department of Health and Aged Care stated that:

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8 The George Institute for Global Health, Submission 406, n.p.

9 Professor Steve Robson, President, Australian Medical Association, *Committee Hansard*, Canberra, 15 September 2023, p. 59.

10 Ms Tiffany Petre, Director, The Obesity Collective, *Committee Hansard*, Canberra, 17 November 2023, p. 16.

11 Cancer Council Australia, Submission 298, p. 3.

12 Diabetes Australia, Submission 248.1, p. 3.

> There is an opportunity to learn from past and ongoing preventive health success stories to address complex health issues such as obesity. Australia has made significant progress in reducing smoking prevalence over many years, through a multifaceted and multilayered approach to tobacco reform that has resulted in a significant decline in smoking prevalence over the past 20 years. Consistent with this approach, long-term, sustainable funding is needed to support a universal, whole-of-population approach to preventive health challenges such as obesity, complemented by targeted initiatives, which will reduce inequities and result in more effective prevention action.[13]

3.18 This approach is particularly important for addressing diabetes risk factors in children.[14] Deakin University's Institute for Physical Activity and Nutrition (IPAN) reported that youth is a particularly important period, since 'lifestyle behaviours contributing to obesity originate and track from infancy and early childhood.'[15] IPAN further noted that physical activity during childhood is essential to prevent obesity both in the short- and long-term.[16]

3.19 Exercise and Sports Science Australia submitted that on average, individuals have insulin resistance for 10 to 15 years before receiving a Type 2 diabetes diagnosis.[17] There is thus a significant window of time in which preventative measures can be gradually and systematically introduced to support an individual in developing healthy habits. Public health measures can play an important role in this process.

3.20 In recent times, particular focus in the treatment for and research into diabetes has been placed on Type 2 diabetes remission.[18] Remission can be achieved via dietary interventions or bariatric surgery.[19] The Australian and New Zealand Metabolic and Obesity Surgery Society explained that 'weight loss has proven beneficial effects on insulin resistance' and noted that studies have shown that weight loss can lead to Type 2 diabetes remission in some individuals.[20]

3.21 In 2021 Diabetes WA surveyed the beliefs and knowledge about diabetes remission. Two-thirds of respondents believed that everyone living with Type 2 diabetes has the potential to achieve remission.[21] Diabetes Australia, however, submitted that

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13 Department of Health and Aged Care, Submission 152, p. 13.
14 Federation of Canteens in Schools, Submission 25, p. 1.
15 Institute for Physical Activity and Nutrition (IPAN), Deakin University, Submission 259, n.p.
16 IPAN, Deakin University, Submission 259, n.p.
17 Exercise and Sports Science Australia, Submission 410, p. 5.
18 Diabetes Australia, Submission 248.1, p. 12.
19 Australian Government, Australian National Diabetes Strategy 2021–2030, viewed 17 May 2024, www.health.gov.au/resources/publications/australian-national-diabetes-strategy-2021-2030, p. 3; Australasian Society of Lifestyle Medicine, Submission 276, p. 4.
20 Australian and New Zealand Metabolic and Obesity Surgery Society, Submission 201, p. 1; Diabetes Australia, Submission 248.1, p. 12; Nestle Health Science, Submission 312, p. 1; Australian Diabetes Society, Submission 317.1, p. 6; Professor Stephen Colagiuri, Submission 371, p. 3.
21 Diabetes WA, Submission 421, pp. 17-18.

'remission is not achievable for everyone with type 2 diabetes.'[22] The organisation further explained:

> Remission does not mean diabetes is cured or reversed and over time, or if weight returns, type 2 diabetes may return. However, any amount of time a person spends in remission lowers their long-term risk of developing diabetes-related complications.'[23]

3.22 Diet and physical activity are also modifiable risk factors for gestational diabetes.[24] Moreover, NSW Health stated that although 'there are no modifiable risk factors which increase the risk for type 1 diabetes […] maintaining a healthy lifestyle is important for managing the symptoms and long-term complications.'[25]

3.23 Healthy diet and regular physical activity can thus prevent, put in remission, and assist management of diabetes. The Committee heard, however, that such strong emphasis on diet can increase risk of eating disorders for some patients. The Butterfly Foundation explained that indeed management of Type 1 diabetes 'involves a focus on diet, meal planning and monitoring of carbohydrate intake. Restriction and precise monitoring of food intake are risk factors for the development of eating disorders.'[26] People with Type 2 diabetes are also at a higher risk of eating disorders compared to the general population due to the 'need for strict dietary control and weight management.'[27]

3.24 Individuals living with diabetes who are at risk of eating disorders or have pre-existing eating disorders may thus require multidisciplinary care that addresses both physical and mental health, potentially including referral to specialised mental health care professionals.[28]

Diet related measures

3.25 'Our poor diet,' Dr James Muecke AM submitted, 'is responsible for more disease and death than alcohol, tobacco and inactivity combined.'[29] The Committee heard that Australians do not eat enough fruit or vegetables,[30] with the Public Health Association of Australia (PHAA) noting that 'less than 10% of adults and children eat

22 Diabetes Australia, *Type 2 diabetes*, accessed 17 May 2024, www.diabetesaustralia.com.au/about-diabetes/type-2-diabetes/.
23 Diabetes Australia, Submission 248.1, p. 12.
24 NSW Health, Submission 349, p. 24; IPAN, Deakin University, Submission 259, n.p.; Australian Diabetes in Pregnancy Society, Submission 318, p. 7.
25 NSW Health, Submission 349, p. 24.
26 Butterfly Foundation, Submission 331, p. 9.
27 Professor Tracey Wade, Associate Professor Deborah Mitchison and Mikayla Hussey, Submission 95, p. 2.
28 Professor Tracey Wade, Associate Professor Deborah Mitchison and Mikayla Hussey, Submission 95, pp. 2–3.
29 Dr James Muecke AM, Submission 67, Attachment 2, p. 3.
30 See, for example: IPAN, Deakin University, Submission 259; Cancer Council Australia, Submission 298, p. 5; Australian Food and Grocery Council (AFGC), Submission 337, p. 5.

the recommended amount' of these foods.[31] In contrast, sugar, refined carbohydrates and unhealthy fats in ultra-processed foods are consumed in excess in Australia.[32]

3.26 The subsequent sections examine systematic measures that can assist Australians in developing healthier eating habits, such as the ADGs and food labelling practices. In examining sugar intake as a contributing factor in the development of Type 2 diabetes, the ensuing discussion also considers regulatory measures that might reduce sugar intake. The marketing and advertising of unhealthy foods is also examined.

Australian Dietary Guidelines

3.27 The Australian Dietary Guidelines (ADG) provide advice about the types and amounts of food that an individual should eat to maintain good health.[33] The current ADG were developed by the National Health and Medical Research Council (NHMRC) and the Department of Health and Aging and published in 2013 to help Australians reduce their risk of developing chronic health problems.[34]

3.28 In 2023, the Australian Government tasked the NHMRC to review the 2013 ADG to '…ensure the Guidelines remain a trusted resource by considering the best and most recent scientific evidence.'[35] The review is due to be finalised by 2026.[36]

3.29 Professor Jonathan Shaw, Deputy Director of Clinical and Population Health at Baker Heart and Diabetes Institute told the Committee:

> I think the guidelines themselves are quite reasonable. Other people will have different perspectives, particularly because there are obviously many recommendations within that. The challenge with that sort of thing is really that they are bits of advice for individuals, and the reality is that, for many aspects of lifestyle, individual choice is only a pretty small part of what influences what eventually happens. I think the successes for these sorts of things come from population-level interventions. Some of them involve regulation, but not all of them do.[37]

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31 Public Health Association of Australia, Submission 220, p. 7.

32 See, for example: Dr James Muecke AM, Submission 67, Attachment 1, p. 12; IPAN, Deakin University, Submission 259, n.p.

33 Eat for Health, *Australian Dietary Guidelines*, accessed 6 June 2024, www.eatforhealth.gov.au/guidelines/guidelines

34 Eat for Health, *Australian Dietary Guidelines*, accessed 6 June 2024, www.eatforhealth.gov.au/guidelines/guidelines

35 National Health and Medical Research Council, *Review of the 2013 Australian Dietary Guidelines,* accessed 6 June 2024, www.nhmrc.gov.au/health-advice/nutrition/australian-dietary-guidelines-review/about-the-review.

36 Professor Steve Wesselingh, Chief Executive Officer, National Health and Medical Research Council, *Senate Community Affairs Legislation Proof Hansard,* Canberra, 5 June 2024, p. 49.

37 Professor Jonathan Shaw, Deputy Director, Clinical and Population Health, Baker Heart and Diabetes Institute, *Committee Hansard,* Melbourne, 23 November 2023, p. 37.

3.30 Some submissions and witnesses also expressed concerns about the applicability of the ADG to people living with diabetes or obesity. Sydney Low Carb Specialists, for example, suggested the ADG do:

> …little to change the trajectory of our patients with Type 2 diabetes… The ADG low fat guidelines are asking people to eat in a way that works against their human physiology – higher carbs that trigger insulin which is a fat storing hormone.[38]

3.31 Professor Peter Brukner, furthermore, called for an independent analysis of current nutrition research that could inform the guidelines:

> The problem with the previous dietary guidelines is that they responsibility for them was given to the dieticians' association. Obviously the majority of dieticians are employed in the food industry, so there's a huge conflict of interest there. So we need completely independent people to analyse the evidence. There is a huge amount of evidence. A lot of it is not super high quality—that's a problem with nutrition research—but there is now an abundance of evidence to show that a restricted carbohydrate approach is extremely beneficial, not just for type 2 diabetes and obesity, but for a whole range of other chronic diseases which are related to insulin resistance.[39]

3.32 Multiple stakeholders recommended the ADG be updated to include emerging best practice evidence about diet and nutrition for patients with diabetes, either as a part of this document or as separate guidelines.[40] As Dr Alan Barclay, Health and Nutrition Consultant at the National Retail Association explained:

> There's… a misconception that the [ADG] are handed out by all dieticians and other health professionals to people with diabetes. In fact, the dietary guidelines didn't include people with diabetes in their systematic literature reviews, and they certainly shouldn't be using carte blanche to recommend either prevention or management. There are… guidelines from around the world that we should be following, and perhaps, when the current dietary guidelines are upgraded, they can specifically look at diabetes, but the current ones certainly excluded people with complex health conditions.[41]

3.33 The inquiry evidence also suggests that there is a scope for improving the promotion and communication of the ADG. For example, the Australian Food and Grocery Council (AFGC) recommended:

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38 Sydney Low Carb Specialists, Submission 84, p. 5.

39 Professor Peter Brukner, Private capacity, *Committee Hansard,* Melbourne, 23 November 2024, p. 47.

40 Diabetes Australia, Submission 248.1, p. 19; Diabetes SA, Submission 395, p. 7.

41 Dr Alan Barclay, Health and Nutrition Consultant, National Retail Association, *Committee Hansard,* Brisbane, 20 November 2023, p. 2.

> …a greater focus on promoting the [ADGs] – especially to those people that have poor literacy and would benefit from education programs and skills on nutrition and culinary literacy as a preventative health measure.[42]

3.34 Dairy Australia suggested the ADG could be better promoted by:

- Supporting marketing and communications activities to promote the guidelines
- Simplifying the number of key messages and rationalising ADG resources
- Ensuring there are visual aspects to the guidelines to help with interpretation whether this be displaying different foods in each food group or demonstrating relatable portion sizes, such as the palm of one's hand
- Supporting consumers with the practical application of the guidelines in the form of recipes and digital education tools such as podcasts, to bring the guidelines to life and increase accessibility.[43]

Low carbohydrate diets

3.35 Through the course of the inquiry, the Committee received evidence regarding the use of a low-carbohydrate diet for diabetes management. In its submission, Sydney Low Carb Specialists discussed the merits of carbohydrate restriction, and argued that such a diet can have a more profound impact on Type 2 diabetes than pharmacology interventions.[44]

3.36 In reflecting on her experience with this type of diet, Ms Jane MacDonald, who lives with Type 1 diabetes, said:

> I exercise therapeutic carbohydrate restriction. I do this by eating real whole food, by avoiding ultra-processed food and by minimising carbohydrates and sugars. This method allows me to avoid the two biggest risks of diabetes emergencies: the risk of diabetes ketoacidosis, and of severe hypoglycaemia—as well as avoiding living the ticking time bomb of diabetes, being the No. 1 risk factor for some other health conditions. This way of life is achievable and sustainable, as my continuous 5½ years achievement demonstrates. I have also maintained the 14-kilogram weight loss that occurred as a bonus.[45]

Food labelling

3.37 Food labelling can play a significant role in supporting healthy eating habits. Australia and New Zealand have a joint food regulation system, which has jurisdiction for food labelling.[46] Food Standards Australia New Zealand (FSANZ) is an independent statutory agency that as part of its remit develops standards regulating the use of

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42 AFGC, Submission 337, p. 11.
43 Dairy Australia, Submission 309, p. 3.
44 Sydney Low Carb Specialists, Submission 84, p. 1.
45 Jane MacDonald, Private capacity, *Committee Hansard*, Canberra, 22 March 2024, p. 58.
46 Department of Health and Aged Care, Submission 152, p. 28.

ingredients, processing aids, colourings, additives, vitamins and minerals, composition of some foods and foods developed by new technologies.[47] FSANZ also sets food labelling standards in the Food Standards Code. These standards are subsequently enforced by the Australian states and territories.[48]

3.38 The Committee primarily received evidence relating to three components of product food labelling, namely the:

- Nutrition Information Panel
- Glycaemic Index symbol
- Health Star Rating system.

3.39 The Nutrition Information Panel (NIP) on food labels provides information about seven core elements: energy, protein, total fat, saturated fat, carbohydrate, sugars, and sodium (a component of salt).[49] Since 2002, a standardised NIP has been required on all packaged foods and beverages (except for alcohol, coffee, tea and water) sold in Australia.

3.40 The glycaemic index (GI) is a measure used to determine how much a particular food will affect blood sugar levels. Foods are classified as low, medium or high glycaemic foods. Foods high in refined sugars are digested more quickly and have a high GI, while foods high in protein, fat or fibre tend to have a low GI.[50] The Glycemic Index Foundation, a health promotion charity that administers the GI symbol, submitted that the GI symbol is a powerful tool for consumers to make healthy food choices:

> Foods that carry the certified Low GI Symbol must meet stringent nutrient criteria including total available (glycemic) carbohydrate, saturated fat, unsaturated fat, sodium, and in certain foods protein, trans fat, sugars, fibre and/or calcium. In addition, products must have had their glycemic index tested at an accredited laboratory that uses the International Standard.[51]

3.41 Finally, the Health Star Rating (HSR) system – a front-of-pack labelling method that rates the overall nutritional profile of packaged food and assigns it a rating from half a star to five stars – is an initiative of the Australian and New Zealand Governments.[52] The Department of Health and Aged Care explained that the system:

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47 Australian Government Department of Health and Aged Care, Food Standards Australia New Zealand (FSANZ), viewed 21 May 2024, www.health.gov.au/contacts/food-standards-australia-new-zealand-fsanz; Food Standards Australia New Zealand (FSANZ), viewed 21 May 2024, 'Labelling', www.foodstandards.gov.au/business/labelling.

48 Food Standards Australia New Zealand (FSANZ), viewed 21 May 2024, 'Labelling', www.foodstandards.gov.au/business/labelling.

49 The Glycemic Index Foundation, Submission 268, p. 14; Food Standards Australia New Zealand (FSANZ), 'Nutrition information panels', accessed 21 May 2024, www.foodstandards.gov.au/consumer/labelling/panels.

50 Healthline, 'Glycemic Index: What It Is and How to Use It,' https://www.healthline.com/health/diabetes/oatmeal#takeaway

51 The Glycemic Index Foundation, Submission 268, p. 1; Glycemic Index Foundation: https://www.gisymbol.com/about-the-gi-symbol/

52 Australian Government, *Health Star Rating System*, accessed 11 June 2024, www.healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/About-health-stars

> …helps Australians compare the nutritional value of similar packaged products. Products are given a health star rating based on their nutritional profile, considering 4 aspects of food associated with risk factors for chronic diseases. These are energy, saturated fat, sodium, and total sugars, along with certain 'positive' aspects of a food such as dietary fibre, protein and fruit, vegetable, nut, and legume content.[53]

3.42 Questions pertaining to the clarity of the food labelling system were frequently raised during the inquiry. The Central Australian Aboriginal Congress recommended that an easily understandable approach to food labelling, such as a 'traffic light' system, be implemented for all packaged and processed foods.[54] Alternatively, warning labels could be added to foods high in saturated fats, refined sugar, salt and energy.[55]

3.43 The Committee also heard suggestions that existing food labels could be improved by providing more details. The Glycemic Index Foundation proposed some additions to the NIP, including that more detailed information should be provided about carbohydrates such as the amount of starches, which are used as a substitute in foods when sugars are removed. The organisation also suggested mandating the inclusion of dietary fibre in the NIP, as well as the addition of the GI in the NIP on high carbohydrate foods and beverages.[56]

3.44 Multiple calls were made for added sugar to be reflected on food labels.[57] Added sugar is sugar that has been added during the processing of food, as opposed to naturally occurring sugar.[58] The Food for Health Alliance, a partnership between Cancer Council Victoria, VicHealth, and the Global Centre for Preventative Health and Nutrition at Deakin University, emphasised that added sugars contribute to increased weight gain, heart disease, Type 2 diabetes and poor dental health.[59]

3.45 The PHAA submitted that currently added sugars 'may appear under at least 40 different names, making it a challenge for many people to identify foods containing added sugars and to limit consumption as recommended by the ADGs.'[60]

3.46 Echoing the need for clear labelling of added sugar, the Food for Health Alliance proposed:

- That added sugar labelling be mandatory and applied across the packaged food supply and

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53 Department of Health and Aged Care, Submission 152, p. 29.
54 Central Australian Aboriginal Congress, Submission 226, p. 14.
55 Australian Patients Association, Submission 218, p. 8; Australian Chronic Disease Prevention Alliance, Submission 414, p. 3.
56 Glycemic Index Foundation, Submission 268, pp. 14–15.
57 Dr James Muecke AM, Submission 67, p. 1; Public Health Association of Australia (PHAA), Submission 220, p. 8; Infant and Toddler Foods Research Alliance, Submission 305, p. 2; Institute for Health Transformation, Deakin University, Submission 342, p. 8; Food for Health Alliance, Submission 370, p. 15; Synod of Victoria and Tasmania, Uniting Church in Australia, Submission 396, p. 4; Australian Chronic Disease Prevention Alliance, Submission 414, p. 6.
58 AMA, Submission 219, Attachment 1, p. 9.
59 Food for Health Alliance, Submission 370, p. 15.
60 PHAA, Submission 220, p. 8.

- That a comprehensive definition of added sugar is adopted that includes sugars from processing methods (including hydrolysis, fermentation, heat treatment, extrusion, pulping, juicing).[61]

According to the organisation, 80 per cent of Australians adults agree that the NIP should show added sugar.[62]

3.47 It was suggested that visual depictions of the amount of added sugar in the form of teaspoons or sugar cubes on front of pack labelling could be effective.[63] As Professor Brukner told the Committee:

> At the moment you read the food, you've got to take your glasses to the supermarket, you read the tiny writing and it's very hard to work out what's in food, whereas if you had a simple front-of-packet labelling that showed the amount of sugar, that would be very effective…[64]

3.48 Peak bodies representing the Australian food and beverages industry did not support suggestions to change the sugar labelling methods. Ms Tanya Barden, Chief Executive Officer of the AFGC, explained that the AFGC would not support pictorial front-of-pack labelling of added sugar, but was open to potential changes to the NIP.[65] Mr Geoff Parker, Chief Executive Officer of the Australian Beverages Council, expressed a similar view:

> having an additional front-of-pack labelling device […] is going to erode the benefit of HSR and consumers' understanding of HSR, which is just starting to get traction.[66]

3.49 The Department of Health and Aged Care informed the Committee that FSANZ is currently leading the work on nutrition labelling for added sugars.[67]

The Health Star Rating system

3.50 Under the HSR system, products receive a score ranging from half a star (least healthy) to five stars (most healthy), in half-star increments. A product's HSR is determined using the HSR Calculator, which considers the overall content of a food, including positive components that are recommended for consumption under the ADG (such as protein, dietary fibre and fruits, vegetables, nuts and legumes) and

61 Food for Health Alliance, Submission 370, p. 15
62 Food for Health Alliance, Submission 370, p. 15.
63 Professor Brukner, *Committee Hansard*, Melbourne, 23 November 2023, p. 49; Dr James Muecke, Submission 67, p. 1.
64 Professor Brukner, *Committee Hansard*, Melbourne, 23 November 2023, p. 49.
65 Ms Tanya Barden, Chief Executive Officer, Australian Food and Grocery Council (AFGC), *Committee Hansard*, Canberra, 16 February 2024, p. 9.
66 Mr Geoff Parker, Chief Executive Officer, Australian Beverages Council, *Committee Hansard*, Canberra, 22 March 2024, p. 68.
67 Department of Health and Aged Care, Submission 152, p. 28.

negative components that the ADG recommend limiting (e.g. saturated fat, sugars and sodium).[68]

3.51 The HSR rates the 'overall nutritional profile' of the product, 'rather than just focusing on a single nutrient.'[69] Importantly, the system compares similar packaged products. HSR is thus 'meant to provide a comparison within similar product categories only. For example, the system helps choose between one breakfast cereal and another, not between yoghurt and pasta sauce.'[70]

3.52 The Committee heard that front-of-pack labelling systems such as the HSR provide two potential benefits, in that they:

- Educate consumers about the health benefits of similar products, supporting individuals to make healthier choices
- Encourage industry reformulation of products to make them healthier.[71]

3.53 These benefits notwithstanding, the Committee was informed that there were two main issues with the current HSR system: shortcomings in the HSR algorithm, and the voluntary nature of the system.

3.54 In reflecting on the former, Professor Brukner explained that the algorithm that determines how many stars a product received 'was developed in collaboration with technical and nutrition experts from government (including FSANZ), industry, public health and consumer organisations.'[72] He suggested that industry's involvement has weakened the utility of the HSR system:

> …the vested interests of industry appear to have influenced the outcomes of the algorithm to the point where the health star ratings only serve to further confuse consumers. When a full fat Greek yoghurt gets a 1.5 star rating and a highly processed, sugary food like Up and Go gets 4.5, you can see how it is flawed. The health star rating panel should be free of COI [conflicts of interest], and the criteria for healthy food reflect gold-standard evidence.[73]

Echoing this concern, Dr Muecke AM described the HSR system as 'a device created by industry for industry.'[74]

3.55 PHAA proposed changes to 'identify and resolve current anomalies where unhealthy products score highly.'[75] Diabetes Australia similarly called for an examination of the HSR algorithm:

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68 Glycemic Index Foundation, Submission 268, p. 14.
69 AFGC, Submission 337, p. 7.
70 Australian Government, *Health Star Rating System - How to use Health Star Ratings*, accessed 24 May 2024, www.healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/How-to-use-health-stars.
71 Diabetes Australia, Submission 248.1, p. 17; PHAA, Submission 220, p. 8.
72 Professor Peter Brukner, Submission 130, p. 6.
73 Professor Peter Brukner, Submission 130, p. 6.
74 Dr James Muecke, Submission 67, p. 1.
75 PHAA, Submission 220, p. 8.

> One analysis of Australia's Health Star Rating system found that technical weaknesses, design flaws and governance limitations result in 75% of ultra-processed foods displaying at least 2.5 health stars. The analysis found that the existing Health Star Rating system could be misrepresenting the healthiness of new packaged food products and inadvertently encouraging people to choose foods with little nutritional value.[76]

3.56 The Consumers Health Forum of Australia further proposed that the rating algorithm be changed to 'an objective measure of nutritional value rather than relative value compared to other products in the same "class".'[77] Rather than the current system which only allows product HSRs to be compared within a similar product category (such comparing two types of breakfast cereal), the system could be changed to allow comparison across products (between for example a type of cereal a type of yogurt).

3.57 Dr Dimitri Batras, Board Director and Company Secretary of the Australian Health Promotion Association, also expressed concern that the category-based HSR system could confuse consumers. He commented: 'If you see three stars on a cereal box, you might assume that's a healthy-ish option and not understand the fact that's within a category.'[78]

3.58 In focusing on consumers with diabetes, the Glycemic Index Foundation submitted that since the HSR algorithm 'only includes total sugars… and it does not include GI or GL [glycemic load]', it 'is not suitable for the management of blood glucose levels by people with existing diabetes who need to know the total amount of available carbohydrate and glycemic index or load.'[79] The Glycemic Index Foundation thus argued that the GI symbol is currently the most useful front-of-pack labelling scheme for the prevention or management of diabetes.[80]

3.59 Evidence as to the effectiveness of the current HSR system as a tool for informing consumers and supporting healthier choices is mixed.

3.60 The Central Australian Aboriginal Congress submitted that interpretive front-of-pack labelling systems like the HSR have been found to 'contribute to increased consumption of healthy food choices.'[81] The AFGC also stated that 'Consumers understand, use and generally trust the on-pack labelling – supporting them make food choices more consistent with the advice of the [ADG].'[82]

3.61 The Royal Australasian College of Physicians (RACP) outlined that according to some studies, 'consumers' ability to select healthier products is heightened when

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76 Diabetes Australia, Submission 248.1, p. 17.
77 Consumers Health Forum of Australia, Submission 367, p. 5.
78 Dr Dimitri Batras, Board Director and Company Secretary, Australian Health Promotion Association, *Committee Hansard*, Canberra, 16 February 2024, p. 18.
79 Glycemic Index Foundation, Submission 268, p. 14.
80 Glycemic Index Foundation, Submission 268, p. 14.
81 Central Australian Aboriginal Congress, Submission 226, p. 15.
82 AFGC, Submission 337, p. 7.

products display an HSR.' However, RACP also noted that these studies found that 'recognition of the [HSR] rating system is modest and patchy in some social demographics.'[83]

3.62 Against this backdrop, there is scope for stronger public education about the HSR system, to raise awareness and understanding about how to use it correctly.[84]

3.63 The Committee also heard substantial evidence pertaining to the fact that the HSR system is voluntary by design, and that it only appears on products 'at the discretion of food manufacturers and retailers (such as supermarkets).'[85]

3.64 The AFGC submitted that 'the implementation of the HSR System has been a successful public health intervention' and that the 'uptake by industry has been strong.'[86] In appearing before the Committee, Ms Barden from the AFGC highlighted the benefits of the voluntary nature of the system, as its uptake is encouraged by mechanisms such as targets set by the government, industry groups, and consumers themselves.[87]

3.65 The voluntary nature of the HSR system, however, has been raised in the evidence as problematic. The Australian Dental Association submitted that '[m]otivating food and beverage companies to make these changes [displaying HSRs and advisory labels] across their entire product range will continue to be challenging without mandatory systems.'[88]

3.66 The George Institute for Global Health further explained the shortcomings of the voluntary approach:

> The inconsistent uptake of the HSR means that consumers are not aware of the unhealthiness of some products and there is little incentive for producers to make their products healthier. The voluntary nature of the HSR allows manufacturers of healthier products to use it as a marketing tool, while the nutritional information of unhealthy products remains hidden. To be effective, the HSR was always envisaged as a tool to compare the healthiness of all products.[89]

3.67 According to the Australian Chronic Disease Prevention Alliance, analyses conducted in Australia and overseas challenged the merit of industry self-regulation in this area, and demonstrate that 'regulatory approaches are more cost-effective and

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83 Royal Australasian College of Physicians (RACP), Submission 174, p. 7.

84 Public Health Association of Australia, Submission 220, p. 8; Diabetes Australia, Submission 248.1, p. 17; Infant and Toddler Foods Research Alliance, Submission 305, p. 10; Mr David Clarke, Chief Executive Officer, Australian Patients Association, *Committee Hansard*, Canberra, 15 September 2023, p. 4.

85 Australian Government, *Health Star Rating System - How to use Health Star Ratings*, accessed 24 May 2024, www.healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/How-to-use-health-stars.

86 AFGC, Submission 337, p. 7.

87 Ms Barden, AFGC, *Committee Hansard*, Canberra, 16 February 2024, p. 10

88 Australian Dental Association, Submission 249, p. 7.

89 The George Institute for Global Health, Submission 406, n.p.

have greater health gains than voluntary approaches to improve diets and reduce obesity.'[90]

3.68 Monitoring of HSR uptake is performed by FSANZ.[91] First implemented in June 2014, the HSR underwent an independent review in 2019 that assessed if and how well the objectives of the HSR system have been met.[92] The review recommended making the system mandatory if the uptake targets were not achieved under the voluntary model.[93] Ms Goodchild from the Department of Health and Aged Care noted that 'the Food Ministers' (all Australian health and agricultural ministers) 'made an agreement that they would look to mandating the health star rating if we didn't get 70 per cent uptake […].'[94]

3.69 The most recent FSANZ review of the HSR update was published in May 2024 and found that, as of November 2023, the HSR was displayed on 32 per cent of intended products in Australia. This was below the target 60 per cent.[95]

3.70 The George Institute for Global Health assesses the healthiness of products within the portfolios of Australia's 20 largest food and beverage manufacturers; the results are published annually in its *FoodSwitch: State of the Food Supply Report*. The most recent audit found the HSR displayed on 41 per cent of all products. In its submission, the Institute further highlighted that HSR uptake was uneven: 'The voluntary nature of the HSR allows manufacturers of healthier products to use it as a marketing tool, while the nutritional information of unhealthy products remains hidden.'[96] The RACP similarly noted that 'certain products that should display an HSR to alert consumers to their harmful dietary contents are less likely to include an HSR rating.'[97]

3.71 Ms Barden argued that one of the barriers to higher uptake of the HSR system, and a possible explanation for delayed uptake, was the cost to industry of adding the HSR to food labels:

> We've had an economist independently doing some work on this [the cost of changing food labels] a few years ago. Any label change in the industry is in the hundreds of millions of dollars. We've recently had changes around plain English allergen labelling, changes around added sugars that's being floated, changes around the health star and also changes around recycling labelling. When you've got all of these going on separately, businesses will sometimes then wait and be

90 Australian Chronic Disease Prevention Alliance, Submission 414, p. 10.
91 Ms Tiali Goodchild, Acting First Assistant Secretary, Population Health, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 19.
92 Food Standards Australia and New Zealand, *Health Star Rating System*, accessed 11 June 2024, www.foodstandards.gov.au/consumer/labelling/Health-Star-Rating-System
93 RACP, Submission 174, p. 7.
94 Ms Goodchild, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 19.
95 *Uptake of the Health Star Rating system as at November 2023, A report on progress against the first interim target of the Health Start Rating system*, May 2024, p. 2.
96 The George Institute for Global Health, Submission 406, n.p.
97 RACP, Submission 174, p. 7.

> able to do them together so it doesn't cost five lots of hundreds of millions of dollars.[98]

3.72 In discussing the current uptake levels, Mr Geoff Parker, Chief Executive Officer of the Australian Beverages Council, told the Committee that the HSR scheme should continue to be voluntary at least through to late 2025.[99] This is when HSR uptake will be monitored against the final target, which is that 70 per cent of intended products carry an HSR.[100]

Healthy Food Partnership

3.73 The Healthy Food Partnership is a voluntary, collaborative initiative between government, the public health sector, and the food industry.[101] Its aim is to encourage healthy eating among Australians, promote appropriate portion sizes, and enable food manufacturers to provide healthier choices. The initiative focuses on two key areas: Partnership Reformulation Program and the Industry Guide to Voluntary Serving Size Reduction.

3.74 In its submission, AFGC commended the Healthy Food Partnership framework, and noted that product variants which are reformulated in response to the latest nutritional science and public health concerns have long been part of the industry practice.[102]

3.75 In addition to reformulation, AFGC concurred that portion and serving guidance has also been important in assisting consumers moderate their intake of energy dense, nutrient poor foods:

> Appropriate serving sizes labelled on packs coupled with practical, convenient devises provides portion guidance to consumers which underpins healthy diet selection. Evidence consistently shows that people consume more food and beverage when offered larger sizes than when offered smaller serving sizes.[103]

3.76 The Committee heard that positive reformulation also occurs outside of the Healthy Food Partnership. For instance, the Australian Beverages Council drew attention to the Sugar Reduction Pledge, an initiative led by the non-alcoholic beverages industry that aims to reduce sugar across beverages to help address overweight and obesity. The Sugar Reduction Pledge covers about 80 per cent of the volume of non-alcoholic

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98 Ms Barden, AFGC, *Committee Hansard*, Canberra, 16 February 2024, p. 10.

99 Mr Parker, Australian Beverages Council, *Committee Hansard*, Canberra, 22 March 2024, p. 69.

100 Australian Government, *Health Start Rating System, HSR system changes – 2020*, accessed 11 June 2024, www.healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/HSR-system-changes2020#:~:text=60%25%20uptake%20across%20intended%20products,products%20by%2014%20November%202025.

101 Department of Health and Aged Care, *About the Healthy Food Partnership*, accessed 11 June 2024, www.health.gov.au/our-work/healthy-food-partnership/about-the-healthy-food-partnership; Department of Health and Aged Care, Submission 152, p. 28.

102 AFGC, Submission 337, p. 8.

103 AFGC, Submission 337, p. 8.

drinks, and has a 'more ambitious sugar reduction target' than the Healthy Food Partnership's Reformulation Program.'[104]

3.77 The Australian Beverages Council submitted that 'mandating the reformulation of existing products as a standalone measure is a blunt and ineffective instrument when it comes to shifting food consumption behaviour.'[105] Instead, it advocated for industry initiatives, including those that are driven by changing consumer preferences, as a means to encourage long-term behaviour change.[106] The AFGC similarly gave preference to collaborative, partnership approaches between industry and government.[107]

3.78 The Committee received multiple submissions noting the ineffectiveness of Healthy Foods Partnership as a voluntary scheme and calling for reformulation targets to be mandated.[108]

3.79 The Food for Health Alliance cited that according to a report by the George Institute for Global Health, 'voluntary targets under the Healthy Food Partnership have not been effective in significantly improving the composition of packaged foods,'[109] and that therefore the reformulation targets should be mandated, 'government led in line with current evidence'.[110] Moreover, the Food for Health Alliance proposed that 'failure to comply with targets within a set time period must result in government regulation.'[111]

Reconstitution levy for sugar-sweetened beverages

3.80 Sugar-sweetened beverages (SSBs) are water-based beverages 'with added caloric sweeteners, such as sucrose, high-fructose corn syrup or fruit juice concentrate.'[112] They can include soft drinks, sports drinks, fruit drinks, energy drinks and cordials.[113] SSBs do not include alcoholic drinks or artificially-sweetened (diet) drinks.[114] The AMA highlighted that SSBs contain 'a high number of liquid calories' but provide 'almost no nutritional benefit.'[115]

3.81 The average 375-millilitre can of soft drink in Australia contains between 8–12 teaspoons of sugar (33–50 grams).[116] This is more than the WHO's daily

104 Australian Beverages Council, Submission 374, p. 8.
105 Australian Beverages Council, Submission 374, p. 6.
106 Australian Beverages Council, Submission 374, p. 6.
107 AFGC, Submission 337, p. 8.
108 PHAA, Submission 220, p. 10; Infant and Toddler Foods Research Alliance, Submission 305, p. 12; Food for Health Alliance, Submission 370, p. 15; Dietitians Australia, Submission 390, p. 10; Synod of Victoria and Tasmania, Uniting Church in Australia, Submission 396, p. 10; The George Institute for Global Health, Submission 406, n.p.
109 Food for Health Alliance, Submission 370, p. 17.
110 Food for Health Alliance, Submission 370, p. 17.
111 Food for Health Alliance, Submission 370, p. 17. See also Dietitians Australia, Submission 390, p. 10.
112 NT Health, Submission 161, p. 2.
113 NT Health, Submission 161, p. 2.
114 AMA, Submission 219, Attachment 1, p. 4.
115 AMA, Submission 219, Attachment 1, p. 4.
116 AMA, Submission 219, Attachment 1, p. 9.

recommended amount.[117] The Australian Dental Association noted that some SSBs contained particularly high sugar content, as many as 49 teaspoons of sugar in some instances.[118]

3.82 Throughout the inquiry, the Committee heard evidence that these drinks significantly contributed to obesity and obesity-related conditions such as Type 2 diabetes. In reflecting on the link between SSB consumption and weight gain, the Australian Patients Association noted that 'despite there being many calories in SSBs, people tend not to eat less to compensate for this, and SSBs can actually trigger hunger.'[119]

3.83 The RACP identified SSBs 'as a major source of added sugars in a diet,' and suggested that 'reduced consumption of sugar sweetened drinks would potentially decrease obesity and related comorbidities.'[120] Indeed, the Menzies School of Health Research submitted that 'people who consume sugary drinks regularly – 1 to 2 cans a day or more – have a 26% greater risk of developing type 2 diabetes than people who rarely consume such drinks.'[121]

3.84 The Grattan Institute submitted that SSB consumption was linked to weight gain and an increased risk of developing Type 2 diabetes.[122] According to its analysis, excess sugary drink consumption was responsible for an estimated 15 per cent of the diet-attributable diabetes burden in high-income countries.[123] The Grattan Institute submission further highlighted that 'recent studies have found evidence that sugary drink consumption increases diabetes risk factors [including obesity] in children.'[124]

3.85 Throughout the course of the inquiry, the Committee received numerous calls for stronger regulation of SSBs, including through the introduction of a reconstitution levy.[125] The AMA called for the Government action, proposing that:

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117 AMA, Submission 219, Attachment 1, p. 9.
118 Australian Dental Association, Submission 249, p. 7.
119 Australian Patients Association, Submission 218, p. 6.
120 RACP, Submission 174, p. 7.
121 Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 7.
122 Grattan Institute, Submission 471, p. 7.
123 Grattan Institute, Submission 471, p. 7.
124 Grattan Institute, Submission 471, p. 7. See also: Australian and New Zealand Obesity Society (ANZOS), Submission 379, p. 8.
125 See, for example: Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 7; NT Health, Submission 161, p. 4; RACP, Submission 174, p. 7; Australian Patients Association, Submission 218, p. 6; AMA, Submission 219, p. 2; PHAA, Submission 220, p. 7; Central Australian Aboriginal Congress, Submission 226, p. 6; Diabetes Australia, Submission 248.1, p. 14; Australian Dental Association, Submission 249, p. 7; Cancer Council Australia, Submission 298, p. 6; Infant and Toddler Foods Research Alliance, Submission 305, p. 2; Australian Diabetes Society, Submission 317.1, p. 15; Australasian Diabetes in Pregnancy Society (ADIPS), Submission 318, p. 8; Institute for Health Transformation, Deakin University, Submission 342, p. 6; Consumers Health Forum of Australia, Submission 367, p. 5; Food for Health Alliance, Submission 370, p. 9; Australian and New Zealand Obesity Society (ANZOS), Submission 379, p. 8; Dietitians Australia, Submission 390, p. 8; Synod of Victoria and Tasmania, Uniting Church in Australia, Submission 396, p. 7; The George Institute for Global Health, Submission 406, n.p.; Australian Chronic Disease Prevention Alliance, Submission 414, p. 5; Aboriginal Health Council Western Australia (AHCWA), Submission 447, p. 9; Miwatj Health, Submission 449, pp. 15–16; Grattan Institute, Submission 471, p. 3; Professor Brukner, *Committee Hansard*, Melbourne, 23 November 2023, p.

> To effect a change in SSB consumption, both a clear message for consumers that the product is unhealthy, and a tangible deterrent are warranted. A tax can deliver on both counts by creating a price signal that the product is unhealthy, and reducing consumption through higher prices (and therefore lower affordability). Furthermore, an appropriately designed tax can also incentivise manufacturers of SSBs to reformulate their products to contain less free sugar.[126]

3.86 The Infant and Toddler Foods Research Alliance similarly asserted that a levy would be a powerful tool for incentivising beverage manufacturers 'to reformulate to reduce sugar content,' encourage the 'provision of cheaper low/no sugar products' and further encourage 'consumers to shift to low/no sugar products.'[127] The Menzies School of Health Research and the RACP agreed that such fiscal measures did increase product reconstitution, leading to reduced sugar content.[128]

3.87 In December 2022 the World Health Organization (WHO) recommended that countries introduce (or increase existing) SSB levies.[129] Many countries have already implemented a form of levy for SSBs; indeed, the Australian Academy for Health and Medical Sciences highlighted the fact that 'according to the World Bank, as of February 2023, 106 countries and territories had some type of SSBs taxation in place, covering 52% of the world's population.'[130]

3.88 While there is considerable support for the introduction of a levy on SSBs, the effectiveness of such a measure remains contentious. Appearing at a public hearing, Ms Goodchild from the Department of Health observed that:

> Over 100 countries worldwide have implemented a sugar sweetened beverage levy. I think the evidence is lacking as to whether that has impacted overweight or obesity rates. It has definitely taken large-scale amounts of sugar out of beverages. I think there's strong evidence that it has clearly had dental benefits.[131]

3.89 In a similar vein, the Mayor of Alice Springs Town Council, Mr Matt Paterson, expressed reservations as to whether these measures would indeed be effective in his community:

> My gut tells me it won't work. You're just targeting the most disadvantaged people anyway who are going to use it. If you go into a remote community, it's [the price] already so high for a can of Coke now. Will people still buy it? I think the answer is yes. We've got a floor price on our alcohol in Alice Springs, so it

50; Dr Ruwani Peiris, Public Health Registrar, Aboriginal Medical Services Alliance Northern Territory, *Committee Hansard*, Darwin, 7 March 2024, p. 12.

126 AMA, Submission 219, Attachment 1, p. 5.

127 Infant and Toddler Foods Research Alliance, Submission 305, p. 8.

128 See, for example: Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 10; RACP, Submission 174, p. 7.

129 Australian Academy for Health and Medical Sciences, Submission 224, p. 6.

130 Australian Academy for Health and Medical Sciences, Submission 224, p. 6.

131 Ms Goodchild, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 24.

> means that a minimum standard drink is a certain price. Some would say that's worked to a certain extent, but we're still having alcohol issues. So I don't know if adding a sugar tax is necessarily going to address all of those or if it's just targeting the most disadvantaged as well. I think it's a very delicate space.[132]

3.90 Industry bodies have challenged the link between sugar consumption and the trend in obesity rates, noting that while the level of sugar consumption in Australia has decreased, obesity rates are still on the rise. Citing data from the Australian Health Survey data, the AFGC outlined that:

> …the average daily energy (kilojoule) intake has decreased for both men and women between 1995 and 2011-12. The average daily intake of sugars and saturated fat also declined significantly during this time. This suggests that there are factors other than increased energy intake, contributing to high levels of obesity across the nation.[133]

3.91 Ms Barden from the AFGC told the Committee that:

> If we look at the data, the evidence has shown that sugar consumption has been decreasing… We're also finding in Australia, in the absence of a sugar tax, significant reductions in beverage levels of sugar. Yet there's not a correlation with a reduction in obesity.[134]

3.92 The Australian Beverages Council also argued that sugar consumption in Australia is decreasing, providing an analysis of 22 years sales data (1997–2018) for SSBs in Australia that showed a trend in consumer preferences for low and no-sugar beverages. This analysis, according to the Australian Beverages Council, showed a 'significant 30 per cent decrease in per capita sugar contribution' of non-alcoholic water-based beverages over the 22 years.[135]

3.93 The Australian Beverages Council also challenged positioning of SSBs as a major contributing factor to obesity. In 2016, the organisation commissioned the Commonwealth Scientific and Industrial Research Organisation to undertake secondary analysis of the 2011–12 Australian Health Survey, which found that:

- In adults, there was no clear association between weight status and the proportion consuming sugar-sweetened beverages, or the total consumption of these beverages
- The contribution of beverages to total energy intake was relatively low across the adult population – four per cent of intake.[136]

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132 Mr Matt Paterson, Mayor, Alice Springs Town Council, *Committee Hansard*, Alice Springs, 6 March 2024, p. 5.
133 AFGC, Submission 337, p. 9.
134 Ms Barden, AFGC, *Committee Hansard*, Canberra, 16 February 2024, p. 11.
135 Australian Beverages Council, Submission 374, p. 4.
136 Australian Beverages Council, Submission 374, p. 4.

3.94 Rather than focus on a single element like SSBs, the AFGC advocated for a holistic 'whole diet' approach, noting that:

> An excessive and simplistic focus in the obesity debate, for example, on a particular nutrient – sugars, sodium or saturated fat – has limited chance of success in addressing the issue. It is important to consider the multifactorial nature of health, as opposed to a single initiative or program to address the issue.[137]

3.95 The Committee heard that some groups of people consume more SSBs than others. In Australia, consumption of SSBs 'is highest amongst young people, Aboriginal and Torres Strait Islanders and people from socially disadvantaged groups.'[138] NT Health told the Committee that there was high consumption of SSBs in remote communities, 'including among babies and children.'[139]

3.96 The Grattan Institute further emphasised that the consumption of SSBs in Australia is an issue for multiple reasons because, despite the long-term decrease in consumption:

- '…average sugary drink consumption […] has been steady recently'
- '…studies in NSW and South Australia found that sugary drink consumption has declined the least for disadvantaged groups… [which is] of particular concern because these groups are at higher risk of obesity and diabetes'
- '…the groups at the highest risk of developing diabetes and obesity, including poorer people and Indigenous Australians, drink the most sugary drinks.'[140]

3.97 During the inquiry, discussion regarding the potential introduction of reconstitution levy questioned how such a measure might impact Australia's sugar industry. The AMA, however, argued that the impact on Australian sugar farming would be minimal:

> About 80 per cent of Australia's domestic sugar production is exported. The AMA estimates that only 5.3 per cent of total domestic production goes towards domestic sugar-sweetened beverage manufacture. The estimated change in SSB consumption modelled in this report translates to a 0.64 to 1.01 per cent drop in demand for domestic sugar production.[141]

3.98 The AMA also expressed the opinion that 'Australian surveys have consistently shown majority support for a tax on sugar-sweetened beverages,'[142] and emphasised that a majority of Australians support such a measure, particularly if the proceeds are used to fund obesity prevention initiatives.[143]

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137 AFGC, Submission 337, p. 10.
138 Diabetes Australia, Submission 248.1, pp. 14–15.
139 NT Health, Submission 161, p. 2.
140 Grattan Institute, Submission 471, pp. 7–8.
141 AMA, Submission 219, Attachment 1, p. 4.
142 AMA, Submission 219, Attachment 1, p. 11.
143 AMA, Submission 219, Attachment 1, p. 11.

3.99 The question of a link between the consumption of sugary drinks and access to clean water has also been raised as part of the inquiry. The National Aboriginal Community Controlled Health Organisation (NACCHO) flagged that about 25,000 Aboriginal and Torres Strait Islander people living in remote communities do not have access to safe tap water for drinking.[144] In some of these communities 'SSBs can be viewed as the safer option to the community's water supply, and consumption can be high among young children and babies.'[145] The AMA also submitted that it was 'aware of price anomalies between SSBs and bottled water in remote community stores' and recognised the fact that SSBs are sometimes the cheaper option.[146]

3.100 The Grattan Institute noted that a levy would incentivise beverage manufacturers to reformulate their products with a reduced amount of sugar.[147] In addition, AMA modelling found that for a 20 per cent tax on SSBs, 'half (49.5%) of the total health gains accrued to the two most disadvantaged SES [socio-economic status] quintiles.'[148] The AMA's model estimated that over the population's lifetime, almost $300 million in out-of-pocket health costs would be saved, with the most disadvantaged SES groups incurring the greatest healthcare cost savings.[149]

3.101 Based on this modelling, the AMA argued that 'when viewed holistically, an SSB tax could be considered a progressive measure, since lower SES groups would theoretically experience a disproportionate health benefit in response to the tax, compared to higher SES groups.'[150]

3.102 In their submissions, entities such as the AMA, PHAA, and the Grattan Institute discussed options for creating a reconstitution levy.[151] For additional detail on the design of such a measure, the Australian Academy for Health and Medical Sciences noted that the WHO has published a 'global tax manual for SSBs' to support countries in implementing these types of policies.[152]

3.103 Estimates about the effect of a reconstitution levy depend upon multiple factors, including the design of the measure, what beverages are captured (i.e. the definition of SSBs), the pass-through rate (whether the manufacturers absorb it or pass it onto consumers), the degree of product reformulation, and consumption.

3.104 In its submission, PHAA recommended 'a 20% health levy on sugar sweetened beverage manufacturers, with a tiered approached (based on sugar content).'[153] The Grattan Institute similarly suggested the following model:

- Less than 5 grams of sugar per 100ml: no levy

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144 National Aboriginal Community Controlled Health Organisation (NACCHO), Submission 244, p. 23.
145 AMA, Submission 219, Attachment 1, p. 26.
146 AMA, Submission 219, Attachment 1, p. 26
147 Grattan Institute, Submission 471, p. 2.
148 AMA, Submission 219, Attachment 1, p. 22
149 AMA, Submission 219, Attachment 1, p. 24.
150 AMA, Submission 219, Attachment 1, p. 24.
151 See, for example: AMA, Submission 219, Attachment 1, pp. 15–17; PHAA, Submission 220, p. 7; Institute for Health Transformation, Deakin University, Submission 342, n.p.; Grattan Institute, Submission 471, p. 3.
152 Australian Academy for Health and Medical Sciences, Submission 224, p. 6.
153 PHAA, Submission 220, p. 7.

- Between 5 and 8 grams of sugar per 100ml: 40 cents per litre
- 8 or more grams of sugar per 100ml: 60 cents per litre.[154]

Based on modelling, the Grattan Institute estimated that under its proposed scheme, 'the price of drinks with the most sugar would increase by about 12 per cent on average.'[155]

3.105 The Institute for Health Transformation at Deakin University cited research that suggested a reconstitution levy 'would be cost-effective and save the Australian Government $1.7bn, costing very little (~$11.8m) to implement, while delivering $1.7bn in total healthcare cost offsets.'[156] The AMA's most recent modelling indicates that a fiscal measure on SSBs would 'raise annual government revenue of $814 million to $749 million.'[157]

3.106 In support of the inquiry, the Parliamentary Budget Office (PBO) undertook cost modelling of the application of a 20 per cent levy on SSBs. For the purpose of this analysis, SSBs were defined to include all non-alcoholic water-based beverages with added sugar, including soft drinks, cordial, energy drinks, sports drinks, fruit drinks and flavoured mineral waters.[158]

3.107 The PBO advised that the introduction of such a measure would be 'expected to increase the fiscal and underlying cash balances by around $1.4 billion over the 2023–24 Budget forward estimates period […]'.[159]

Marketing of unhealthy foods

3.108 Throughout the course of the inquiry the Committee heard concerns that Australians are in their daily lives often and increasingly subjected to factors that contribute to the development of obesity, which scientific literature refers to as an obesogenic environment.[160] In discussing measures that might counter this trend, various submissions and witnesses before the Committee raised the possibility of regulating the marketing of unhealthy foods.

3.109 Unhealthy food, which is also termed 'discretionary food,' 'junk food,' or 'ultra-processed food,' refers to items 'that lack nutrients, vitamins and minerals, and are high in kilojoules (energy), salts, sugars, or fats.'[161]

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154 Grattan Institute, Submission 471, p. 13.
155 Grattan Institute, Submission 471, p. 13.
156 Institute for Health Transformation, Deakin University, Submission 342, p. 6.
157 AMA, Submission 219, Attachment 1, p. 6.
158 Parliamentary Budget Office (PBO) costings, Appendix D, p. 1.
159 Parliamentary Budget Office (PBO) costings, Appendix D, p. 1.
160 See, for example: RACP, Submission 174, p. 4; Diabetes Australia, Submission 248.1, p. 3; Cancer Council Australia, Submission 298, p. 5; Australia and New Zealand Obesity Society (ANZOS), Submission 379, p. 3; Australian College of Nurse Practitioners, Submission 403, p. 6.
161 Health Direct, *Junk food and your health*, accessed 30 May 2024, www.healthdirect.gov.au/junk-food-and-your-health#what-is.

3.110 One of the central themes of the evidence gathered is a concern regarding the prevalence of advertisements promoting unhealthy food, particularly to children, and the potential effects that this advertising can have on health outcomes for children in Australia.[162] For example, the PHAA submitted that unhealthy food and beverages have 'a negative impact on children's dietary intake and weight.'[163] Preventing obesity during childhood and adolescence is important, the AMA further explained, as obesity during this period is often associated with other comorbidities, including 'a greater risk of developing type 2 diabetes.'[164]

3.111 The Committee heard that food marketing to children is 'pervasive and persuasive,' and 'ubiquitous in their daily lives – in their homes, schools, communities and gathering places.'[165] Dr Muecke AM also expressed concern at what he described as the food industry's 'relentless promotion of unhealthy food and drinks at checkouts and at the end of aisles within their supermarkets.'[166] Furthermore, children are often further exposed to this marketing across various online platforms.[167]

3.112 Indeed, the RACP reported that:

> Children in Australia see 168 junk food or sugary drink advertisements on the web or mobile devices per week, adding to the 800 promotions they see annually if they watch 80 minutes of television per day.[168]

3.113 According to a 2024 report by Deakin University, food companies are marketing unhealthy products online in ways that target children as young as 8 years old. The report suggests that children aged 8 to 13 may be targeted with approximately 13 junk foods advertisements on a typical day they spend online.[169]

3.114 The report further estimated that teenagers aged 14 to 17 see an average of 24 junk food advertisements every day. For one teenager in the study this was as high as 70 advertisements over a typical two-hour period spent online. The study also found that many advertisements targeted at children and young people were interactive, prompting children and young people to 'shop or order now' for confectionary and unhealthy takeaway foods by directing them to platforms where they could purchase these products.[170]

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162 See, for example: Dr James Muecke AM, Submission 67, Attachment 2, pp. 4, 10; RACP, Submission 174, p. 6; AMA, Submission 219, p. 2; PHAA, Submission 220, pp. 6–7; Diabetes Australia, Submission 248.1, p. 16; Infant and Toddler Foods Research Alliance, Submission 305, p. 10; Institute for Health Transformation, Deakin University, Submission 342, pp. 6–7; Food for Health Alliance, Submission 370, pp. 10–13; Dietitians Australia, Submission 390, pp. 8–10.

163 PHAA, Submission 220, p. 7.

164 AMA, Submission 219, p. 2.

165 AMA, Submission 219, Attachment 3, p. 11.

166 Dr James Muecke AM, Submission 67, Attachment 2, pp. 4, 10.

167 AMA, Submission 219, Attachment 3, p. 11.

168 RACP, Submission 174, p. 6.

169 K Backholer, #Digital Youth – How children and young people are targeted with harmful product marketing online, Deakin University, Melbourne, 2024, p. 1.

170 K Backholer, #Digital Youth – How children and young people are targeted with harmful product marketing online, Deakin University, Melbourne, 2024, p. 1.

3.115 The RACP informed the Committee that there was emerging evidence indicating a link between unhealthy food marketing and increased energy consumption in children, citing one study which found that Australian children 'eat more food after watching junk food promotions,' but without 'decompensation at later meals.'[171]

3.116 In addition, the Food for Health Alliance submitted that 'exposure to unhealthy food marketing influences the foods that children prefer, the foods they choose and the foods they eat.'[172] The AMA drew the Committee's attention to a report published in 2023 on food marketing to children by the United Nations Children's Fund (UNICEF) and the WHO that echoed this point:

> We know that food marketing harms children. It negatively affects children's food preferences, purchase decisions and consumption behaviours, ultimately contributing to childhood obesity and diet-related disease. Food marketing also affects household purchasing decisions and the types of foods that are eaten in the home.[173]

3.117 Drawing upon data from the Australian Institute of Health and Welfare (AIHW), Diabetes Australia submitted that children were eating too many discretionary foods containing saturated fat, added salt and added sugars. Discretionary foods, according to AIHW research, 'comprise almost 40% of Australian children's energy intake, while less than 5% of Australian children are consuming the amount of fruit and vegetables recommended by the Australian Dietary Guidelines.'[174]

3.118 The definition of both healthy and unhealthy food is a subject of ongoing debate, especially in relation to the marketing of unhealthy food to children.[175] Professor Jason Wu, Head of Nutrition Science at the George Institute for Global Health, however, argued that the inability to develop an agreed definition should not be used as an argument to delay regulation in this domain. Referencing how other countries have approached the question of regulation, Professor Wu said:

> Different countries have used different definitions to decide what should be allowed to be marketed to children. One commonly used strategy is the nutrient profiling based model—pretty similar to our health star rating, actually. Under the health star rating, we look at the level of different nutrients, and that's how we bring it all together to generate the health star rating. You can use that underlying algorithm to say: 'If a product scores above a certain threshold then it can be marketed, or if it's below then it shouldn't be.' So that is a commonly used approach.[176]

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171 RACP, Submission 174, p. 6.

172 Food for Health Alliance, Submission 370, p. 10.

173 AMA, Submission 219, Attachment 3, p. v.

174 Diabetes Australia, Submission 248.1, p. 16.

175 Ms Sally Witchalls, Policy Adviser, AMA, *Committee Hansard*, Canberra, 15 September 2023, p. 56; Mr David Stout, Director, Policy, National Retail Association, and Dr Barclay, National Retail Association, *Committee Hansard*, Brisbane, 20 November 2023, p. 9.

176 Professor Jason Wu, Head, Nutrition Science, The George Institute for Global Health, *Committee Hansard*, Brisbane, 20 November 2023, p. 18.

3.119 Policies designed to prevent children from being subjected to unhealthy food marketing, the National Retail Association submitted, should follow Australia's HSR scheme, or the FSANZ Nutrient Profiling Scoring Calculator (a tool designed to help food manufacturers determine whether a food meets the Nutrient Profiling Scoring Criterion).[177] Defining unhealthy food using either of these existing models according to the National Retail Association, would be 'the logical choices for determining objectively which foods are healthy choices and furthermore, they can be relatively easily updated as our understanding of nutrition science evolves […].'[178]

3.120 In recognising the involvement of industry in the development of the HSR scheme, contributors such as Cancer Council Australia called instead for an 'independent and consistent nutrition criterion to determine which foods are unhealthy and therefore unsuitable to be promoted to children.'[179]

3.121 The Department of Health and Aged Care informed the Committee that the Australian Government commissioned a 'feasibility study to explore the current landscape of marketing and advertising to children and consider options for implementing restrictions in Australia.'[180] Based on the findings of the study, 'the department will provide recommendations to Government on potential options to restrict unhealthy food marketing to children.'[181]

3.122 The Committee received evidence indicating that the mandatory advertising codes that currently exist in Australia, which are under the remit of the Australian Communications and Media Authority (ACMA), 'only concern what can be shown during children's specific television programs on commercial television, with no regard to diet specifically.'[182] The RACP commented that 'the existing codes are not aligned to the changing television viewing patterns of children and the rapid shifts toward internet viewing and subscription streaming platforms.'[183]

3.123 Advertising to children is currently managed as part of an industry self-regulation approach in Australia, through the Australian Association of National Advertisers (AANA). Advertising to children is currently covered by two separate Codes:

- Food and Beverages Advertising Code
- Children's Advertising Code (December 2023).[184]

3.124 The National Retail Association explained that the Food and Beverages Advertising Code:

> …restricts advertising or marketing of food determined as "discretionary" under the Food Standards Australia and New Zealand (FSANZ) Nutrient Profiling

177 National Retail Association, Submission 372, pp. 20.
178 National Retail Association, Submission 372, pp. 19–20.
179 Cancer Council Australia, Submission 298, p. 6.
180 Department of Health and Aged Care, Submission 152, p. 28.
181 Department of Health and Aged Care, Submission 152, p. 28.
182 RACP, Submission 174, p. 6.
183 RACP, Submission 174, p. 6.
184 National Retail Association, Submission 372, p. 19.

> Scoring Criterion (NPSC) from being targeted in marketing toward people under 15 years of age. These marketing communications include broadcast, print, digital and online, social media, point of sale and sponsorships.[185]

3.125 The Children's Advertising Code, the National Retail Association outlined:

> …is a general code that governs how products and services are marketed toward children, including factual presentation, use of sexualisation, safety, social values, parental authority, claims, competitions, use of personalities, costs, presentation of alcohol and encouraging unhealthy lifestyle or eating or drinking habits.[186]

3.126 The National Retail Association expressed support for the AANA's self-regulatory approach to advertising to children, noting that:

> We believe that restricting advertising targeted to children and general advertising where children represent a significant proportion of the audience provides sufficient protection to children, and further regulation is not required.[187]

3.127 Ms Barden from the AFGC noted that the AANA industry self-regulation approach has 'been in place for a number of years… has commitments from industry and… very high compliance rates around avoiding marketing to children.'[188]

3.128 Mr Parker from the Australian Beverages Council highlighted that some industries have made additional commitments beyond the AANA codes. Reiterating the current level of industry self-regulation about advertising to children, he said:

> The non-alcoholic beverages industry is steadfastly committed to responsible marketing through our marketing and advertising commitment and our alignment with other industry self-regulatory codes…like the Australian Association of National Advertisers, or AANA, Food and Beverages Advertising Code and their children's advertising code. Our marketing and advertising commitment holds all members to account to ensure that all marketing is obviously accurate and truthful, does not misrepresent health benefits, supports the [ADG], reflects responsible consumption and, most critically, prohibits the marketing of products directly to children—which we define as people under the age of 18—or during children's programming.[189]

3.129 Multiple submissions asserted, however, that the current model of industry self-regulation via the AANA is insufficient.[190] The RACP commented that 'children are

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185 National Retail Association, Submission 372, p. 19.
186 National Retail Association, Submission 372, p. 19.
187 National Retail Association, Submission 372, p. 20.
188 Ms Barden, AFGC, *Committee Hansard*, Canberra, 16 February 2024, p.12.
189 Mr Parker, Australian Beverages Council, *Committee Hansard*, Canberra, 22 March 2024, p. 67.
190 RACP, Submission 174, p. 6; PHAA, Submission 220, p. 6; Diabetes Australia, Submission 248.1, p. 16; Cancer Council Australia, Submission 298, p. 6.

bombarded by junk food advertising despite the AANA encouraging advertisers to avoid depiction of material contrary to prevailing community standards on health.'[191]

3.130 The Cancer Council of Australia and Diabetes Australia both cited research indicating that voluntary industry codes and initiatives aimed at limiting the marketing of unhealthy food to children are insufficient.[192] Diabetes Australia explained that these 'lack meaningful incentives to comply or monitoring of compliance.'[193]

3.131 Governments around the world are taking steps to restrict the marketing of unhealthy food to children.[194] The Australian Chronic Disease Prevention Alliance noted that 'at least 40 countries restrict the marketing of unhealthy foods in broadcast and/or digital media, or plan to.'[195] The RACP also highlighted that 'the WHO and UNICEF have recently urged countries to regulate junk food advertising.'[196]

3.132 The Committee heard that there is general support within Australia for restricting the marketing of unhealthy food to children.[197] The RACP highlighted that there was strong support among Australian physicians for such measures. Indeed, the RACP has recently launched the Switch off the Junk campaign, calling for a crackdown on unhealthy food advertising as one measure to address childhood overweight and obesity.[198]

3.133 Multiple submissions called upon government to protect children against unhealthy food marketing.[199] The Food for Health Alliance's Brands Off Our Kids campaign called for government regulation to prevent children from being exposed to unhealthy food marketing. The Alliance's proposal calls for the regulation to:

- Ensure television, radio and cinema are free from unhealthy food marketing from 6am to 9.30pm
- Prevent processed food companies targeting children
- Ensure that public spaces and events are free from unhealthy food marketing

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191 RACP, Submission 174, p. 6.

192 Diabetes Australia, Submission 248.1, p. 16; Cancer Council Australia, Submission 298, p. 6.

193 Diabetes Australia, Submission 248.1, p. 16.

194 Diabetes Australia, Submission 248.1, p. 16; Australian Chronic Disease Prevention Alliance, Submission 414, p. 3.

195 Australian Chronic Disease Prevention Alliance, Submission 414, p. 3.

196 RACP, Submission 174, p. 6.

197 RACP, Submission 174, p. 6; Diabetes Australia, Submission 248.1, p. 16; Infant and Toddler Foods Research Alliance, Submission 305, p. 10; Australian Diabetes in Pregnancy Society, Submission 318, p. 8.

198 RACP, Submission 174, p. 6.

199 See, for example: Dr James Muecke AM, Submission 67, Attachment 2, p. 10; Professor Peter Brukner, Submission 130, p. 7; RACP, Submission 174, p. 6; AMA, Submission 219, p. 2; PHAA, Submission 220, p. 6; Central Australian Aboriginal Congress, Submission 226, p. 14; Diabetes Australia, Submission 248.1, p. 16; Australasian Society of Lifestyle Medicine, Submission 276, p. 10; Cancer Council Australia, Submission 298, p. 6; Infant and Toddler Foods Research Alliance, Submission 305, p. 2; Institute for Health Transformation, Deakin University, Submission 342, p. 6; Consumers Health Forum of Australia, Submission 367, p. 5; Food for Health Alliance, Submission 370, p. 10; Australian and New Zealand Obesity Society (ANZOS), Submission 379, p. 8; Dietitians Australia, Submission 390, p. 8; Synod of Victoria and Tasmania, Uniting Church in Australia, Submission 396, p. 8; Australian Chronic Disease Prevention Alliance, Submission 414, pp. 3–4; Royal Australian College of General Practitioners, Submission 427, p. 10.

- Protect children from digital marketing of unhealthy food.[200]

3.134 Two key aspects of the Food for Health Alliance's proposal are that the government regulation should protect all children up until 18 years of age, and the definition of what constitutes marketing should be 'comprehensive and future-proofed.'[201]

3.135 In support of the inquiry, the PBO undertook cost modelling of initiatives that would limit the marketing of 'unhealthy foods.' The following seven options were considered:

- Option 1: Marketing unhealthy foods on radio, television, print and social media is banned entirely.
- Option 2: Marketing unhealthy foods on radio only is banned entirely.
- Option 3: Marketing unhealthy foods on television only is banned entirely.
- Option 4: Marketing unhealthy foods in print only is banned entirely.
- Option 5: Marketing unhealthy foods on social media only is banned entirely.
- Option 6: Marketing unhealthy foods on radio and television are banned during prime time hours (e.g. 6pm–9pm).
- Option 7: Marketing of unhealthy foods on social media is banned for children and adolescents only.[202]

3.136 For the purpose of this modelling, 'unhealthy foods' were defined in accordance with the definition for 'junk food' provided by the Australian Government *healthdirect* website as 'foods that lack nutrients, vitamins and minerals, and are high in kilojoules (energy), salts, sugars, or fats.' Examples include but are not limited to:

- Cakes and biscuits
- Fast foods (such as hot chips, burgers and pizzas)
- Chocolate and sweets
- Processed meat (such as bacon)
- Snacks (such as chips)
- Sugary drinks (such as sports, energy and soft drinks)
- Alcoholic drink.[203]

3.137 According to the PBO, all examined options would decrease the fiscal and underlying cash balances by between around $1.8 million (Option 4) and $46 million (Option 1) over the 2023–24 Budget forward estimates period.[204]

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200 Food for Health Alliance, Submission 370, p. 9.
201 AMA, Submission 219, p. 2.
202 Parliamentary Budget Office (PBO) costings, Appendix E, p. 1.
203 Parliamentary Budget Office (PBO) costings, Appendix E, pp. 1–2.
204 Parliamentary Budget Office (PBO) costings, Appendix E, p. 3.

Access to healthy food

3.138 Maintaining a healthy diet requires access to quality food. For some communities in Australia, this continues to present a challenge. As the National Aboriginal Community Controlled Health Organisation (NACCHO) explained:

> Food security is a complex issue that comprises multiple factors, including low household income, unemployment, inadequate transport to food stores – particularly those that offer food at a lower cost – and higher food costs in remote areas. Food security is also impacted by poor housing infrastructure, and insecure access to electricity and potable water.[205]

3.139 The Australian College of Rural and Remote Medicine also emphasised that 'Australia's rural, remote and Aboriginal and Torres Strait Islander communities experience food insecurity in conjunction with a range of other health risk factors… Many people do not have access to affordable, healthy nutritious food.'[206]

3.140 The Aboriginal Health Council Western Australia (AHCWA) further explained that:

> when food is scarce and incomes are less, people are often more likely to maximise calories per dollar spent and foods rich in fats, refined starches and sugars as they represent the lowest-cost options. The reality for many Aboriginal communities is that eating majority healthy options like lean meats, grains, and fruits and vegetables are more expensive and not readily and prioritised [sic].[207]

3.141 In remote areas of Australia, the cost of food and other essentials is more expensive than in other areas. By way of example, the Committee was informed that, on average, food in very remote stores in the Northern Territory (NT) costs 52% more than in Darwin. This is particularly impactful because 'nearly 60% of Aboriginal and Torres Strait Islander people in the NT live in a household with incomes that are in the lowest 20% nationally.'[208]

3.142 According to AHCWA 'it has been estimated that in some Aboriginal communities, 34 to 80 per cent of the family income is required to purchase healthy diets; this is compared to 30 percent for the lowest income families more generally, and 14 per cent for the average Australian family.'[209]

3.143 The Central Australian Aboriginal Congress explained that 'prices for healthy, fresh foods, particularly fresh fruit, vegetables and dairy foods, are higher in remote areas for a number of reasons, including the cost of freight over long distances, and the high cost of storing perishable food.'[210] Grocery stores in rural and remote areas thus tend to stock longer-life foods and offer fewer options,[211] which further limits access to

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205 NACCHO, Submission 244, p. 22.
206 Australian College of Rural and Remote Medicine, Submission 428, p. 7.
207 AHCWA, Submission 428, p. 7.
208 Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 10.
209 AHCWA, Submission 447, p. 5.
210 Central Australian Aboriginal Congress, Submission 226, p. 7.
211 Australian College of Nursing, Submission 245, pp. 9–10.

healthy food. Longer-life frozen fruit and vegetables are also often not suitable alternatives due to lack of access to freezers for storage in some communities.[212]

3.144 The Committee also heard about the difficulty of accessing healthy and affordable food for people who live in 'food deserts in the outskirts of major cities.'[213] The Synod of Victoria and Tasmania, of the Uniting Church of Australia, described food deserts as places 'where shops don't sell fresh food and healthy groceries, and only ultra-processed food is available.'[214] It noted that food deserts are typically located in lower-socioeconomic areas, and that being unable to purchase 'raw ingredients within 15 minutes of their homes by public transport… means it is difficult to source healthy food.'[215]

3.145 Dr Muecke AM further emphasised that people from lower socio-economic areas needed support in order to have access to 'real food at affordable prices, rather than rely on the cheap, addictive, and alluring sugary products that reign supreme in their suburbs.'[216]

3.146 Dr Kathryn Williams, Head of the Department of Endocrinology and Clinical Lead of the Family Metabolic Health (Obesity) Service at Nepean Hospital, described how the Penrith Local Government Area (LGA) 'has a visibly high concentration of fast-food outlets… [with] 220 "non-healthy" food outlets (84% of the total number of outlets) and 42 "healthy" food outlets (16% of the total).'[217] Dr Williams highlighted that the Penrith LGA also had 'some of the highest rates of obesity in the region,' and that there was a 'correlation between a high relative proportion of unhealthy food outlets, and low socio-economic advantage, poor health outcomes and low WalkScores [a measure of the walkability of an area].'[218]

3.147 In addition to economic barriers, physical distance to healthy stores can present an additional barrier. Mr Paterson described the challenges some people living outside of Alice Springs face in doing grocery shopping:

> …a lot of community are telling us that they will drive 300 kilometres from their remote community into Alice Springs to do their weekly shop. When I say they're driving, they're not driving on bitumen roads, they're driving on very substandard roads. When they come in, there's obviously the cost of petrol but the road also damages their cars. We can start to unravel, as you can imagine, the difficulties to cars and all those sorts of things.[219]

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212 Royal Australian College of General Practitioners, Submission 427, p. 6; AHCWA, Submission 447, p. 5.
213 Australian College of Nursing, Submission 245, p. 14.
214 Synod of Victoria and Tasmania, Uniting Church in Australia, Submission 396, p. 6.
215 Synod of Victoria and Tasmania, Uniting Church in Australia, Submission 396, p. 6.
216 Dr James Muecke AM, Submission 67, Attachment 2, p. 10.
217 Dr Kathryn Williams, Submission 73, n.p.
218 Dr Kathryn Williams, Submission 73, n.p.
219 Mr Paterson, Alice Springs Town Council, *Committee Hansard*, Alice Springs, 6 March 2024, p. 1.

3.148 A community member quoted by the Diabetes across the Lifecourse Partnership also highlighted the fact that a lack of transportation options can hinder access to healthy food:

> There is no community buses. No. The thing that happens is, a family member will ask another family member who has a car. But then again saying that, there is no fuel station, so they probably have no fuel. They can't [go] anywhere. They can't buy fresh food. So what do we do?[220]

3.149 An inability to access healthy food is seen as a factor underpinning rising rates of Type 2 diabetes and gestational diabetes.[221] As such, multiple submissions called for a healthy food subsidy,[222] or a healthy food subsidy specifically targeted at remote areas.[223]

3.150 The Australian College of Nursing suggested that a healthy food subsidy would be effective because 'in the longer term, subsidising food saves money spent on health care, ensures a healthier population, and potentially reduces the incidence of type 2 diabetes.'[224] A trial program in the NT found that a 20 percent discount on fruit and vegetables led to increase in consumption, suggesting that such measures could have significant impact.[225]

3.151 Some of the specific proposals for a healthy food subsidy related to what amount the discount would need to be to have a significant impact. The Diabetes across the Lifecourse Partnership noted that in very remote stores in the NT, 'prices are on average 56% higher' than in Darwin.[226] It noted that a 50 to 60 per cent discount in these remote stores would only reduce the cost of healthy food to Darwin levels, which were higher than prices on the Eastern seaboard. Accordingly, it recommended a 60 per cent price discount, and suggested that 'a smaller reduction could be considered in non-remote areas.'[227]

3.152 Other points of discussion focused on how such a subsidy should be delivered. The Central Australian Aboriginal Congress proposed a direct to consumer, point of sale subsidy.[228] Miwatj Health suggested funding 'transport subsidies for food supply to remote communities,' and noted that the Queensland (Qld) Government recently announced a '$64 million remote freight subsidy in Far North QLD.'[229]

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220 Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 9.

221 Rural Doctors Association of Australia, Submission 407, pp. 8–9; Victorian Aboriginal Community Controlled Health Organisation, Submission 455, p. 8.

222 See, for example: AMA, Submission 219, Attachment 1, p. 11; PHAA, Submission 220, p. 8; Australian College of Nursing, Submission 245, p. 11; Consumers Health Forum of Australia, Submission 367, p. 5; Australasian Society of Lifestyle Medicine, Submission 276, p. 10.

223 See, for example: Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 4; Central Australian Aboriginal Congress, Submission 226, p. 7; Endocrine Society of Australia, Submission 401, p. 3; Miwatj Health, Submission 449, p. 4.

224 Australian College of Nursing, Submission 245, p. 11.

225 Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 8.

226 Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 8.

227 Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 7.

228 Central Australian Aboriginal Congress, Submission 226, p. 7.

229 Miwatj Health, Submission 449, p. 4; see also Public Health Association of Australia, Submission 220, p. 8.

3.153 While most of the evidence focusing on food security discussed subsidies, other types of policies were also proposed, such as regulating shops in remote areas,[230] and implementing a program for the 'prescribing of healthy foods or meals in the same way that doctors prescribe drugs.'[231]

3.154 Food security is a recognised problem for a range of communities across Australia. A recent inquiry into food security in Australia by the House of Representatives Standing Committee on Agriculture made various recommendations relating to this issue, including the development of a National Food Plan, appointment of a Minister for Food and a National Food Council, development of a National Food Supply Chain Map, development of a school curriculum for food and nutrition education, and provision of subsidies for community stores in remote locations so they can provide fresh food in regular quantities and at affordable prices.[232]

3.155 The Committee also heard that a remote food security strategy is currently being developed, led by the National Indigenous Australians Agency and the Aboriginal Medical Services Alliance Northern Territory.[233]

Physical activity-related approaches

3.156 Physical activity and exercise are important elements in diabetes management.[234] The Australian Sports Commission noted that 'all diabetes clinical guidelines consider diet and exercise to be the foundation for diabetes management, with even small changes in physical activity levels leading to great reductions of the incidence of type 2 diabetes.'[235]

3.157 In appearing before the Committee, Professor Richard Telford AM from the University of Canberra, said that there was evidence to suggest that physical activity was the 'key independent risk factor in the prevention of type 2 diabetes.'[236] Physical activity – which does not exclusively mean structured exercise, but rather all body movement that uses energy[237] – was equally important for the prevention of gestational diabetes and community obesity.[238]

3.158 In Australia, levels of physical activity are frequently measured against physical activity and exercise guidelines produced by the Australian Government. In its

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230 Alice Springs Hospital Endocrinology Department on behalf of the Department of Medicine, Submission 348, p. 4.

231 The George Institute for Global Health, Submission 406, n.p.

232 House Standing Committee on Agriculture, *Australian Food Story: Feeding the Nation and Beyond,* November 2023.

233 NACCHO, Submission 244, p. 23; NT Health, Submission 161, p. 4.

234 Exercise and Sports Science Australia, Submission 410, p. 2.

235 Australian Sports Commission, Submission 307, p. 2.

236 Professor Richard Telford AM, Professorial Fellow, Research Institute for Sport and Exercise, University of Canberra, Committee Hansard, Canberra, 20 March 2024, p. 5.

237 IPAN, Deakin University, Submission 259, n.p.

238 IPAN, Deakin University, Submission 259, n.p.; Australasian Diabetes in Pregnancy Society (ADIPS), Submission 318, p. 7; Professor Telford AM, University of Canberra, *Committee Hansard*, Canberra, 20 March 2024, p. 5.

submission, the Department of Health and Aged Care explained that these guidelines were:

> '…available for all life-stages, [and] provide guidance on what duration and intensity of physical activity, and what sedentary behaviour, is appropriate for each age group to benefit their overall health and wellbeing.'[239]

3.159 In the course of this inquiry, the Committee received a body of evidence suggesting that Australians were not meeting the recommended levels of activity. The Obesity Collective highlighted that:

> The majority of children (88% of those aged 5-12) and adolescents (98% of those aged 13-17) are not meeting the physical activity and sedentary behaviour guidelines and over half of adults did not participate in sufficient physical activity.[240]

3.160 Diabetes Australia referenced research showing that 'while rates of leisure-time physical activity have remained relatively stable, physical activity accrued via daily work-related activity, transport activity and home-based activity have all declined.'[241] At the same time, it noted that sedentary activities have increased.[242]

3.161 Evidence as to the level of physical activity within particular communities provides additional insights. Diabetes Australia submitted that people living in low socio-economic areas were less likely to meet the national physical activity guidelines than people living in the highest socio-economic areas.[243] Multiple factors can contribute to decreased physical activity, including 'a lack of time, a lack of opportunities to get physically active and environments that promote inactivity or car-based transport.'[244]

3.162 Miwatj Health highlighted that Aboriginal and Torres Strait Islander people, and in particular those living in rural or remote communities, often faced additional barriers to physical activity including a 'lack of transport, competing work, family or cultural commitments… lack of diversity in sporting programs… pathway/footpath interruptions, fear of dogs, individuals feeling "shame" to participate, climate and limited capacity building opportunities of local people to operate sustainable programs.'[245]

3.163 Asserting that increasing physical activity in Australia would necessarily cut across a series of public policy areas, the PHAA proposed multiple key priority action areas, namely: 'whole-of-school physical activity programmes, improving active transport and land use, healthcare, sport and recreation for all and community-wide programmes.'[246]

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239 Department of Health and Aged Care, Submission 152, p. 30.
240 The Obesity Collective, Submission 343, p. 5.
241 Diabetes Australia, Submission 248.1, p. 18.
242 Diabetes Australia, Submission 248.1, p. 18.
243 Diabetes Australia, Submission 248.1, p. 18.
244 Diabetes Australia, Submission 248.1, p. 18.
245 Miwatj Health, Submission 449, p. 8.
246 PHAA, Submission 220, p. 11.

3.164 There are of course a significant number of existing initiatives within Australia aimed at promoting physical activity, including exercise and sport. The Australian Sports Commission highlighted the Australian Government's Sporting Schools program, which was provided for free to children and their families. Led by the Australian Sports Commission:

> …the program is designed to help schools increase children's participation in sport and connect them with community sport opportunities. Since it began in 2015, the program has engaged over 15 million children across more than 9,000 schools (86% of all schools in Australia) who are registered with the program, with 57% of schools located in regional or remote areas.[247]

3.165 The Committee received evidence regarding current initiatives that focus on physical activity with the aim of addressing obesity, which are supported by governments at all levels.[248] There is a broad consensus, however, that further action is required to encourage and increase physical activity and exercise among the Australian population.[249]

3.166 The Institute for Physical Activity and Nutrition recommended that the Australian Government 'develop a National Physical Activity Action Plan to support the prevention and management of diabetes.'[250] It noted that such a plan should 'incorporate physical activity into health and social services,' and highlighted that this was not something currently done well in Australia.[251]

3.167 Mr Matthew Carroll AM, Chief Executive Officer and Secretary General of the Australian Olympic Committee, argued that physical education and sport should be a mandatory part of the curriculum in primary and secondary schooling:

> We acknowledge primary school physical education and its role in developing the competence required to enjoy sport. Physical activity has declined in the last five decades as the prevalence of obesity has increased. As students progress, secondary school sport must continue to be a mandatory part of the curriculum. With 44 Olympic sports, there are plenty of options—many with very, very low cost. [252]

3.168 The AMA echoed that physical education and participatory sports programs should be a 'core syllabus component' in both primary and secondary schools, and called on the Australian Government to achieve this in cooperation with state and territory governments.[253] Government supported after school physical activity programs would

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247 Australian Sports Commission, Submission 307, p. 2.

248 Department of Health and Aged Care, Submission 152, pp. 29–30; NSW Health, Submission 349, p. 30.

249 See, for example: AMA, Submission 219, Attachment 1, p. 11; Diabetes Australia, Submission 248.1, pp. 18-19; IPAN, Deakin University, Submission 259, n.p.; AFGC, Submission 337, p. 4; Miwatj Health, Submission 449, p. 8.

250 IPAN, Deakin University, Submission 259, n.p.

251 IPAN, Deakin University, Submission 259, n.p.

252 Mr Lewis Matthew Carroll AM, Chief Executive Officer, Secretary General, Australian Olympic Committee, *Committee Hansard*, Canberra, 20 March 2024, p. 2.

253 AMA, Submission 219, p. 3.

also be a welcome intervention, particularly for 'students from low socioeconomic background who often cannot afford... [to] enrol in physical activity programs.'[254]

Committee comment

3.169 The Committee believes that greater effort could be expended in delivering population-wide, public health initiatives to prevent the development of both obesity and diabetes in Australia. While there is some debate as to whether public health approaches should focus primarily on diet or physical activity to address diabetes, it is clear that both factors must be addressed.

3.170 The Committee is encouraged by evidence showing that improving diet and physical activity can prevent or delay Type 2 diabetes in some patients. Equally positive is the evidence relating to Type 2 diabetes remission, which presents an opportunity for some individuals to significantly improve their health and consequently their overall quality of life.

3.171 While the ADG were originally designed for healthy Australians, they no longer serve the needs of the majority of people. In particular, they do not take into account the significant number of Australians living with pre-diabetes, diabetes, or excess weight.

3.172 Noting that a review of the ADG is already underway, the Committee encourages the National Health and Medical Research Council to ensure that the updated ADG are designed to counter the growing prevalence of Type 2 diabetes, and include specific dietary guidance for people with pre-diabetes or diabetes.

3.173 Bodyweight is the leading modifiable risk factor for Type 2 diabetes, and a key risk factor for gestational diabetes. As such, it is likely that initiatives to reduce bodyweight will, with time, prevent cases of diabetes. The Committee acknowledges the efforts to tackle the rising rate of obesity outlined in the National Obesity Strategy 2022–2023, and believes that the effective implementation of the Strategy must be a priority.

3.174 The Committee also believes that the availability and marketing of unhealthy food and drink products should be better regulated. The Committee recognises that a broad public health campaign promoting healthy food is inherently less targeted than advertisements designed for and pitched at very specific audience groups. In particular, the Committee believes that the ability to purchase and make use of social media data to market products to children should be strictly regulated.

3.175 The Committee also recognises that too many Australians do not have access to healthy, affordable food. This includes many people living in rural and remote areas, but also many people living in or near cities, particularly in lower socio-economic areas. The Committee acknowledges that the Australian Government is currently

[254] Australian Patients Association, Submission 218, p. 11.

developing a remote food security strategy that should address some of these issues.

3.176 The Committee notes that the House of Representatives Standing Committee on Agriculture undertook an inquiry into food security in Australia in 2023, and provided a report to Parliament on 7 December 2023 that included multiple recommendations aimed at improving access to affordable healthy food. The Government's response to this report was due on 7 June 2024.

Recommendation 2

3.177 The Committee recommends that the National Health and Medical Research Council expedites a review of the Australian Dietary Guidelines, and ensures that the revised guidelines include adequate information for Australians living with diabetes.

3.178 In their present form, the Australian Dietary Guidelines do not fully respond to the needs of all Australians, many of whom struggle with excess weight and/or live with diabetes. The guidelines should provide adequate information for this cohort to better manage their diet.

Recommendation 3

3.179 The Committee recommends that the Australian Government implements food labelling reforms targeting added sugar to allow consumers to clearly identify the content of added sugar from front-of-pack labelling. This food labelling initiative should be separate from the information regarding added sugar potentially being included in the Nutrition Information Panel.

3.180 The Committee acknowledges the fact that food labelling plays a role in encouraging healthy consumer habits. The existing system is not fit for purpose, especially with respect to sugar content in food and beverage.

Recommendation 4

3.181 The Committee recommends that the Australian Government implements a levy on sugar-sweetened beverages, such that the price is modelled on international best practice and the anticipated improvement of health outcomes. The levy should be graduated according to the sugar content.

3.182 Despite the decreasing consumption of sugar-sweetened beverages across Australia's overall population, the Committee notes that some Australians who are particularly at-risk of and impacted by diabetes and overweight and obesity, including those living in lower-socioeconomic areas and Aboriginal and Torres Strait Islander people, still consume high amounts of sugar-sweetened beverages.

3.183 From reviewing the evidence, the Committee considers that a reconstitution levy on sugar-sweetened beverages, comparable to fiscal measures pertaining to tobacco, can contribute towards a healthier Australia.

Recommendation 5

3.184 The Committee recommends that the Australian Government considers regulating the marketing and advertising of unhealthy food to children, and that this regulation should:

- **Focus on children defined as those aged 16 and under**
- **Be applied to television, radio, gaming and online**
- **Use definition of unhealthy food that has been independently developed.**

3.185 The Committee considers that the current amount of unhealthy food marketing targeting children is inappropriate, and that it contributes towards childhood overweight and obesity, which can have a flow-on effect to diabetes.

Recommendation 6

3.186 The Committee recommends that the Australian Government provides its response to the *Australian Food Story: Feeding the Nation and Beyond* report and considers a dedicated resource within the Department of Health and Aged Care to support access to healthy food to all Australian communities.

3.187 The Committee acknowledges and commends the recent inquiry by the House of Representatives Standing Committee on Agriculture into food security in Australia, which made multiple recommendations that, if implemented, will improve many Australians access to healthy and affordable food.

Recommendation 7

3.188 The Committee recommends that the Australian Government, in consultation and cooperation with state and territory governments, develops a best practice framework to tackle the problem of obesogenic environments, including through better urban planning and the development of physical activity initiatives and supports efforts to increase access to regular exercise in schools and neighbourhoods as a matter of urgency.

3.189 The environments we live in play a major role in our lifestyles, including when we live more sedentary lives. Emphasis needs to be placed on making positive lifestyle change through urban and environmental planning, both by altering built environments and increasing physical activity in our communities.

4. Screening, diagnosing and managing diabetes and obesity

Overview

4.1 Early detection and diagnosis are crucial for achieving positive outcomes for patients with any form of diabetes. If the early signs of diabetes are missed, opportunities to slow the progression of the disease become limited. Throughout the inquiry, the Committee thus examined the current screening and diagnosis protocols for diabetes, and sought to identify opportunities for improving these practices in Australia.

4.2 Diabetes can lead to serious complications. Common conditions that can arise as a consequence of diabetes include heart disease, stroke, dementia, eye disease, kidney disease, foot and lower limb complications, and dental issues. In addition to considering these complications, the mental health impact of the disease – which has been described as a 'silent diabetes complication' – is also noted in this chapter.

4.3 Managing diabetes and obesity – along with complications associated with these conditions – is a complex process, which often requires support from different health care specialists, and management and treatment options that are tailored to suit the needs of individual patients. In acknowledging this fact, the following sections focus on tools and programs that are currently available for managing diabetes and obesity, such as the annual cycle of care, Medicare Benefits Schedule (MBS) subsidies, and the Diabetes in Schools Program, as well as potential initiatives that might strengthen the current management framework.

4.4 It is evident that the number of diabetes patients in Australia requires a well-trained health workforce to help manage the burden of the disease. In noting a range of difficulties that both patients and health professionals face in managing diabetes and its complications, this chapter concludes by outlining some of the opportunities identified during the inquiry for better diabetes management solutions across the health care system.

Screening and diagnosing diabetes

4.5 Screening is the only practical way to detect diabetes in its early stages.[1] Early diagnosis, in turn, allows individuals to take pre-emptive action to delay the onset and successfully manage the condition.

Type 1 diabetes

4.6 For Type 1 diabetes, diagnosis most often occurs when a person presents to the doctor with symptoms.[2] The early warning signs of Type 1 diabetes are commonly referred to as the '4Ts'. These are:

- Tired (unexplained or excessive fatigue)
- Thirsty (unquenchable thirst)
- Thinner (unexplained weight loss)
- Toilet (needing to use the toilet to urinate more often).[3]

4.7 Delayed diagnosis of Type 1 diabetes after symptoms have already developed often leads to a high incidence of hospital admissions to intensive care and an increased risk of long-term complications.[4]

4.8 Approximately 900 people are hospitalised each year with diabetic ketoacidosis because the early warning signs of Type 1 diabetes are missed.[5] Diabetic ketoacidosis occurs when the level of ketones – a type of chemical produced in the liver when there is not enough insulin – is too high.[6] Diabetes Australia explained that diagnosis of Type 1 diabetes can be achieved before the onset of diabetic ketoacidosis by looking for high glucose and high A1C levels (being the percentage of haemoglobin proteins in the blood coated with sugar) present in patients before the clinical onset of diabetes.[7]

4.9 Genetics seems to play central role in development of Type 1 diabetes. The Type1Screen Program based at Royal Melbourne Hospital currently provides free bloodspot screening for family members of people with Type 1 diabetes to improve early detection.[8]

4.10 Accurate screening is important to determine how far a patient's Type 1 diabetes has progressed. Type 1 diabetes has three stages, which are determined based on the

1 Murdoch Children's Research Institute, Submission 88, p. 2.
2 Endocrine Society of Australia, Submission 401, n.p.
3 Diabetes Australia, Submission 248, p. 8.
4 Diabetes Australia, Submission 248, p. 3.
5 Diabetes Australia, Submission 248, p. 8.
6 See: National Diabetes Services Scheme, *Ketoacidosis,* accessed 30 April 2024, www.ndss.com.au/living-with-diabetes/management-and-care/ketoacidosis/
7 Diabetes Australia, Submission 248, pp. 3–4.
8 Murdoch Children's Research Institute, Submission 88, p. 2.

autoantibody status, hyperglycaemia, and associated symptoms.[9] The Murdoch Children's Research Institute highlighted that 'accurate screening depends on accurate detection of islet autoantibodies, a highly specialised area of pathology that requires expert oversight and national reference methodologies.'[10]

4.11 Detecting Type 1 diabetes early enables opportunities for intervention that may slow or delay the development of the disease. Diabetes Australia told the Committee that screening, when combined with medications such as teplizumab, can delay the development of Type 1 diabetes by up to three years.[11] The Murdoch Children's Research Institute also discussed the importance of detecting Type 1 diabetes in its earlier stages:

> People who are identified as having either Stage 1 or Stage 2 T1D [Type 1 diabetes] are the candidates for a disease modification therapy that will prevent T1D. They will also benefit by monitoring of progression of Stage 1 or Stage 2 ensuring prevention of severe initial clinical presentations of T1D [Type 1 diabetes] such as diabetic ketoacidosis, a potentially lethal complication which occurs in approximately 35% of children presenting with type 1 diabetes in Australia. Annual follow up of at-risk children has essentially eliminated the risk of diabetic ketoacidosis in Australian and international cohorts.'[12]

4.12 The Juvenile Diabetes Research Foundation (JDRF) Australia is currently conducting a Type 1 Diabetes National Screening Pilot to determine the best model for routine Type 1 diabetes screening.[13] The pilot study is supported by the Type 1 Diabetes Clinical Research Network, which was established in 2010. Envisaged to run for three years, this initiative aims to detect markers of Type 1 diabetes and assess attitudes towards population screening.[14]

4.13 The pilot study screens infants by using either heel prick blood spot or saliva cheek swab method to determine their genetic risk of developing Type 1 diabetes. The results allow researchers to monitor infants identified as having a high genetic risk of developing Type 1 diabetes and conduct autoantibody testing.[15] The feasibility of autoantibody testing using dried bloodspot screening samples for children aged two, six and ten years old is also currently being explored.[16] JDRF told the Committee that if the pilot is successful, Australia could become the first country in the world to introduce a national Type 1 diabetes screening program for the general population.[17]

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9 Sanofi, Submission 347, p. 5.
10 Murdoch Children's Research Institute, Submission 88, p. 2.
11 Diabetes Australia, Submission 248, p. 9.
12 Murdoch Children's Research Institute, Submission 88, p. 2.
13 Juvenile Diabetes Research Foundation (JDRF) Australia, Attachment 1, p. 54. See also: Murdoch Children's Research Institute, Submission 88, p. 2; Sanofi, Submission 347, p. 6.
14 JDRF Australia, Submission 64.1, p. 4; JDRF Australia, Submission 64, Attachment 1, p. 54; JDRF Australia, *JDRF launches pilot study of general population screening for type 1 diabetes*, accessed 16 April 2024, https://jdrf.org.au/jdrf-launches-pilot-study-of-general-population-screening-for-type-1-diabetes/
15 Sanofi, Submission 347, p. 6.
16 Sanofi, Submission 347, p. 6.
17 JDRF Australia, Submission 64.1, p. 4.

4.14 Submitters and witnesses said that greater awareness of Type 1 diabetes was needed to improve screening and diagnosis. For example, Diabetes Australia recommended a national awareness campaign to increase awareness of the 4Ts to support screening and diagnosis of Type 1 diabetes.[18] Similarly, the National Rural Health Alliance called for diabetes awareness and early detection programs to improve timely diagnosis and in doing so avoid preventable complications and morbidity among rural Australians.[19]

Type 2 diabetes, pre-diabetes and obesity

4.15 Early detection of Type 2 diabetes can reduce a person's risk of developing complications and other conditions associated with the disease.[20] Type 2 diabetes develops over a long period of time where the body becomes resistant to insulin and loses the capacity to naturally produce sufficient insulin in the pancreas.[21] Lifestyle changes, such as a healthier diet and increased physical activity, may slow the progression of Type 2 diabetes for some people.[22]

4.16 The primary screening measure for Type 2 diabetes in Australia is the Australian Diabetes Risk Assessment (AUSDRISK) tool. AUSDRISK assists people to assess their risk of developing Type 2 diabetes within the next five years.[23] The tool was developed by the Baker Institute for Heart and Diabetes in 2010 as part of a joint initiative from the federal and state and territory governments.[24] Consultations with a general practitioner for Type 2 diabetes risk evaluation are subsidised by the MBS.[25]

4.17 The submission from the Department of Health and Aged Care drew the Committee's attention to the current guidance for Type 2 diabetes and pre-diabetes screening by the American Diabetes Association (ADA).[26] ADA recommends testing for adults with a body mass index (BMI) above or equal to 25kg/m^2 who have one or more risk factors for diabetes, and any person with gestational diabetes or human immunodeficiency virus.[27] In all other adults, ADA recommends testing from the age of 35. In cases where a person has been diagnosed with pre-diabetes, testing for diabetes should be conducted annually.[28]

4.18 The Royal Australian College of General Practitioners (RACGP) recommended the general population be screened for Type 2 diabetes every three years from the age

18 Diabetes Australia, Submission 248, p. 9. See also: Ms Belinda Moore, Submission 150, p. 1.
19 National Rural Health Alliance, Submission 411, p. 2.
20 Diabetes Australia, Submission 248, p. 10; Royal Australian College of General Practitioners (RACGP), Submission 427, p. 5.
21 Diabetes Australia, Submission 248, p. 9.
22 Diabetes Australia, Submission 248, p. 9.
23 Department of Health and Aged Care, Submission 152, p. 14; NSW Health, Submission 349, p. 27.
24 Department of Health and Aged Care, Submission 152, p. 14.
25 Department of Health and Aged Care, Submission 152, p. 14.
26 Department of Health and Aged Care, Submission 152, p. 7.
27 Department of Health and Aged Care, Submission 152, p. 7.
28 Department of Health and Aged Care, Submission 152, p. 7.

of 40, and annually from the age of 18 for Aboriginal and Torres Strait Islander people to improve opportunities for early intervention.[29]

4.19 Type 2 diabetes is diagnosed through fasting blood glucose and HbA1c tests, followed by a glucose tolerance test when necessary.[30] HbA1c stands for glycosylated haemoglobin, which develops when haemoglobin joins with glucose in the blood. While the HbA1c test has significantly improved diagnosis, there are still an estimated 500,000 people in Australia living with undiagnosed Type 2 diabetes.[31]

4.20 Pre-diabetes is diagnosed when blood glucose levels are higher than normal, but not high enough be considered Type 2 diabetes.[32] Approximately one third of people with pre-diabetes will develop Type 2 diabetes within ten years.[33] The Rural Doctors Association of Australia recommended investing in screening to identify people with pre-diabetes to allow early intervention.[34]

4.21 Obesity is generally diagnosed based on BMI that is equal or greater than 30 kg/m^2 and/or waist circumference.[35] Sydney Low Carb Specialists highlighted, however, that this method of diagnosis can be problematic as:

> …individuals who are thin on the outside but metabolically unwell (normal weight obese) have multiple markers for metabolic syndrome despite their normal body mass index (BMI). This could be explained by their adipose storage threshold being low, they do not store excess triglycerides in their adipose tissue but rather viscerally and ectopically such as liver, skeletal muscle and pancreas which further worsens dysregulated insulin signalling and consequent elevated blood glucose.[36]

4.22 There are currently no national screening programs for Type 2 diabetes, pre-diabetes or obesity in Australia. Many people are unaware that they are at risk, which can delay opportunities for timely screening and diagnosis. Ms Janine Dawson, Diabetes Prevention Manager at Western Sydney Diabetes, told the Committee about her organisation's work with Blacktown Workers Club and reported:

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29 See: Diabetes Australia, Submission 248.3, p. 7.

30 Pharmacy Guild of Australia, Submission 223, p. 7; NSW Health, Submission 349, p. 27.

31 See, for example: Pharmacy Guild of Australia, Submission 223, p. 7; Diabetes Australia, Submission 248, p. 3; NSW Health, Submission 349, p. 27; Diabetes SA, Submission 395, n.p; Endocrine Society of Australia, Submission 401, n.p.

32 Diabetes Australia, Submission 248, p. 10.

33 Diabetes Australia, Submission 248, p. 10. See also: Health and Wellbeing Queensland, Submission 250, Attachment 1, p. 2.

34 Rural Doctors Association of Australia, Submission 407, p. 11. See also: Name withheld, Submission 116, p. 2.

35 Dr Kathryn Williams, Submission 73, n.p; National Retail Association, Submission 372, p. 3; Endocrine Society of Australia, Submission 401, n.p.

36 Sydney Low Carb Specialists, Submission 84, n.p. See also: Name withheld, Submission 104, p. 2.

> …we've found that 50 per cent of people who are at risk don't realise they are. When we give them opportunities to change, they take them. I think part of it is detection, but also giving people opportunities to do things that they want to do.[37]

4.23 The Committee heard about a local Type 2 diabetes screening program that was trialled by Western Sydney Diabetes at Blacktown and Mount Druitt Hospital emergency departments over a six-year period starting in 2016.[38] The program measured blood glucose and HbA1C levels for all adults undergoing blood sampling in the emergency department.[39] The trial found that 18 per cent of individuals had HbA1C levels indicative of diabetes and 22 per cent had diabetes.[40]

4.24 Western Sydney Diabetes replicated the program across eleven medical centres throughout the Western Sydney Local Health District (WSLHD).[41] Clinical records for patients in the WSLHD indicated 8.6 per cent of adults had been diagnosed with diabetes.[42] The results similarly found that 30 per cent of patients had pre-diabetes, and 18 per cent had diabetes.[43] In its submission, Western Sydney Diabetes concluded that these results indicate about ten per cent of individuals in the WSLHD are undiagnosed, 'representing a missed opportunity for early detection and management.'[44]

4.25 Although the program succeeded in identifying people with Type 2 diabetes and pre-diabetes, Associate Professor Milan Piya, Clinical Academic Endocrinologist at Campbelltown Hospital, believed that testing all patients arriving at emergency is not viable:

> …because of the cost of the HbA1c but also the fact that if you do an HbA1c usually it comes back the next day and patients have moved on. You need someone to take responsibility for those thousands of patients that actually have had an HbA1c done. If it's high and no-one picks it up, there's no point in screening.[45]

4.26 The Committee also heard about a local Type 2 diabetes screening program led by Austin Health in Melbourne. Austin Health's Diabetes Discovery Initiative performed HbA1c checks on all patients admitted to Austin Health aged 54 and over.[46] The

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37 Ms Janine Dawson, Diabetes Prevention Manager, Western Sydney Diabetes, Integrated and Community Health, Western Sydney Local Health District, *Committee Hansard,* Campbelltown, 18 September 2023, p. 7.

38 Western Sydney Diabetes, Submission 85, p. 2.

39 T Hng et al (2016) 'Diabetes case finding in the Emergency Department using HbA1c: An opportunity to improve diabetes detection, prevention and care', *BMJ Open Diabetes Research and Care* 4 (1):1.

40 Western Sydney Diabetes, Submission 85, p. 2.

41 Western Sydney Diabetes, Submission 85, p. 2. See also: Professor Glen Maberly, Director, Western Sydney Diabetes, Integrated and Community Health, Western Sydney Local Health District, *Committee Hansard,* Campbelltown, 18 September 2023, p. 4.

42 Western Sydney Diabetes, Submission 85, p. 2.

43 Western Sydney Diabetes, Submission 85, p. 2.

44 Western Sydney Diabetes, Submission 85, p. 2.

45 Associate Professor Milan Piya, Clinical Academic Endocrinologist, Campbelltown Hospital, *Committee Hansard,* Campbelltown, 18 September 2023, p. 34. See also: Mrs Judy Powell, Policy and Advocacy Manager, Exercise and Sports Science Australia, *Committee Hansard,* Brisbane, 20 November 2023, p. 22.

46 Diabetes Australia, Submission 248.1, p. 9.

initiative found that one third of patients had diabetes, including approximately five per cent who were undiagnosed, and another third were found to be living with pre-diabetes.[47]

Gestational diabetes

4.27 Most women are screened for gestational diabetes between 24 and 28 weeks of pregnancy. Women who might be at higher risk are often tested earlier.[48]

4.28 Gestational diabetes is diagnosed using an oral glucose tolerance test (OGTT). This process involves an initial blood test to assess fasting blood glucose levels. A sugary drink is then consumed and followed by another blood test one and then two hours later. A diagnosis of gestational diabetes is made if the blood glucose levels are above the normal range in the fasting, one, or two hour test.[49] Sydney Low Carb Specialists suggested that many women diagnosed with gestational diabetes had undiagnosed pre-diabetes prior to pregnancy.[50]

4.29 Women diagnosed with gestational diabetes have a higher risk of serious complications during pregnancy and labour.[51] Diabetes Australia explained:

> For the mother complications can include hypertension, pre-eclampsia and requiring caesarean section. Babies born to mothers diagnosed with GDM [gestational diabetes] are at increased risk of premature birth, macrosomia, stillbirth, respiratory distress, hypoglycaemia and jaundice… With appropriate care and support during pregnancy, many of these complications are preventable.[52]

4.30 Some women may decline or delay screening for gestational diabetes because they are concerned about how a diagnosis of gestational diabetes will affect their pregnancy. Dr Zoe Bradfield, Vice President of the Australian College of Midwives, estimated the number of women declining screening was less than five per cent, but observed that women are increasingly declining the oral glucose tolerance test as 'it's an uncomfortable and unpleasant mechanism for them to be diagnosed' and because many women working full time cannot take the time away from work needed to complete the test.[53]

4.31 Miss Leah Hardiman, who has experienced gestational diabetes, told the Committee:

> Women report that it often dominates their pregnancy. Every antenatal appointment, they will be discussing their weight, what they've eaten, what the

47 Diabetes Australia, Submission 248.1, p. 9.
48 Maternal Health Matters, Submission 418, n.p; Australian College of Midwives, Submission 442, p. 5.
49 Diabetes Australia, *Gestational diabetes*, accessed 16 April 2024, www.diabetesaustralia.com.au/about-diabetes/gestational-diabetes/.
50 Sydney Low Carb Specialists, Submission 84, p. 4.
51 Diabetes Australia, Submission 248, p. 12.
52 Diabetes Australia, Submission 248, p. 12.
53 Dr Zoe Bradfield, Vice President, Australian College of Midwives, *Committee Hansard,* Canberra, 17 November 2023, pp. 2–3.

> results are and whether they're testing four times a day. Women say that they don't get to ask the questions or enjoy the pregnancy because this dominates every question. It does feel quite judgemental at times… as though somehow they're doing harm to their baby that they never intended to do… We also haven't measured what this is costing women financially, either, with additional appointments, parking fees, childcare fees, loss of income owing to the increased amount of appointments, having to relocate—some have to relocate to a tertiary facility at 36 weeks if they live in regional, rural or remote areas. The cost of that on their psychological health—being away from their children if they can't take them—is something we have never measured.[54]

Diagnostic criteria

4.32 There was substantial debate within the evidence received to the inquiry about the criteria used to diagnose gestational diabetes in Australia.[55] RACGP submitted that the diagnosis of gestational diabetes 'has been a controversial area for decades, with guidelines based on consensus agreement.'[56]

4.33 The Australasian Diabetes in Pregnancy Society (ADIPS) recommended changes to the way gestational diabetes was diagnosed in 2014.[57] According to the ADIPS guidelines, a diagnosis for gestational diabetes

> is made based on the 75g OGTT with one or more of the following values:
>
> - fasting plasma glucose ≥5.1mmol/L
> - 1-hour post 75g oral glucose load ≥10.0 mmol/L
> - 2-hour post 75g oral glucose load ≥8.5 mmol/L.[58]

4.34 The RACGP expressed concerns about the ADIPS guidelines, which have resulted in a sharp increase in the number of patients diagnosed with gestational diabetes since 2014 and prompted concerns about overdiagnosis.[59] RACGP explained that overdiagnosis of gestational diabetes means that women are undergoing unnecessary interventions and health resources are being wasted.[60] Professor Paul Glasziou told the Committee the number of women diagnosed with gestational diabetes has doubled under the ADIPS guidelines.[61]

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54 Miss Leah Hardiman, Private capacity, *Committee Hansard,* Brisbane, 20 November 2023, p. 45.

55 See, for example: Royal Women's Hospital, Melbourne, Submission 21, p. 3; Australasian Diabetes in Pregnancy Society (ADIPS), Submission 318, p. 3.

56 RACGP, Submission 427, p. 5.

57 Professor Paul Glasziou, Private capacity, *Committee Hansard,* Brisbane, 20 November 2023, p. 44.

58 Australian Institute of Health and Welfare, *Diabetes: Australian facts*, accessed 16 April 2024, www.aihw.gov.au/reports/diabetes/diabetes/contents/how-common-is-diabetes/gestational-diabetes

59 RACGP, Submission 427, p. 5. See also: Royal Women's Hospital, Melbourne, Submission 21, p. 3.

60 RACGP, Submission 427, p. 5. See also: Professor Jenny Doust, Private capacity, *Committee Hansard,* Brisbane, 20 November 2023, p. 43.

61 Professor Glasziou, *Committee Hansard,* Brisbane, 20 November 2023, p. 44. See also: ADIPS, Submission 318, p. 3.

4.35 RACGP recommended that the criteria for gestational diabetes testing and screening should be reviewed based on updated evidence.[62] Similarly, Professor Jenny Doust argued that '[m]ore treatment does not always mean better outcomes' and called for an independent review of the process of diagnosing gestational diabetes in Australia.[63]

4.36 ADIPS recommended funding for a national continuous quality improvement process for gestational diabetes to include regular review of guidelines and models of care including addressing communication and mental health needs, telehealth and workforce development models.[64]

4.37 In appearing before the Committee, Professor David Simmons, ADIPS President, suggested the guidelines for screening and diagnosing gestational diabetes should be further strengthened as diagnosing gestational diabetes at 24 to 28 weeks of pregnancy can be too late and recommended earlier testing at 10 to 12 weeks.[65]

Postpartum screening

4.38 Women who have had gestational diabetes during pregnancy have a higher risk of developing Type 2 diabetes later in their lives.[66] Associate Professor Vincent Wong, Director of Diabetes and Endocrine Service at Liverpool and Fairfield Hospitals, told the Committee that women who had gestational diabetes in pregnancy are at a 40 to 50 per cent risk of developing Type 2 diabetes within ten years.[67] Professor Wong expressed concerns about the lack of programs to manage this cohort, and commented on the small number of women who complete their postpartum follow-up.[68]

4.39 The Australian College of Nurse Practitioners emphasised the importance of follow-up care for women who had gestational diabetes during their pregnancy to prevent Type 2 diabetes and calls for the available support for women with post-gestational diabetes to be reviewed.[69] Some women, however, are unable to seek Type 2 diabetes screening due to cost and other access barriers. For example, Belinda Moore, a nurse who has worked in diabetes education since 2013, explained:

> …the only professionals they can access to do this is via a general practitioner or private practice medical specialist. Women either cannot afford private practice specialists or cannot access a general practitioner because they do not bulk bill

62 RACGP, Submission 427, p. 5.
63 Professor Doust, *Committee Hansard,* Brisbane, 20 November 2023, p. 43.
64 ADIPS, Submission 318, p. 6.
65 Professor David Simmons, President, ADIPS, *Committee Hansard,* Canberra, 17 November 2023, pp. 9, 11.
66 Royal Women's Hospital, Melbourne, Submission 21, p. 4.
67 Associate Professor Vincent Wong, Director of Diabetes and Endocrine Service, Liverpool and Fairfield Hospitals, South West Sydney Local Health District, *Committee Hansard,* Campbelltown, 18 September 2023, p. 36. See also: Miss Ashley Boniface, Accredited Exercise Physiologist, Exercise and Sports Science Australia, *Committee Hansard,* Brisbane, 20 November 2023, p. 22; Dr Dan Halliday, President, Australian College of Rural and Remote Medicine, *Committee Hansard,* Brisbane, 20 November 2023, p. 34.
68 Associate Professor Wong, South West Sydney Local Health District, *Committee Hansard,* Campbelltown, 18 September 2023, p. 36.
69 Australian College of Nurse Practitioners, Submission 403, p. 6.

> or they cannot get an appointment. We need credentialed diabetes educators who had already developed a therapeutic relationship with women who had gestational diabetes throughout their pregnancies to be able to continue supporting women post pregnancy so they can keep working at reducing their risk of developing gestational diabetes.[70]

Diabetes-related complications

4.40 Diabetes can lead to a range of serious health outcomes. Many complications are preventable with early detection and treatment. According to the Department of Health and Aged Care, complications can include:

> …heart disease; stroke; eye disease, including retinopathy; kidney disease; peripheral vascular disease; nerve damage; foot problems; gum disease; and mental health impacts including treatment-related distress, anxiety, and depression.[71]

4.41 Screening for diabetes-related complications is a crucial part of diabetes management. The Australian Patients Association (APA) highlighted that most people with diabetes will experience at least one complication in their lifetime, even if they achieve adequate glycaemic control.[72] The APA also estimated diabetes-related complications cost the federal health care budget $2.0 billion each year.[73]

4.42 Throughout the inquiry, the Committee heard substantial evidence in relation to the following diabetes-related complications:

- Heart disease
- Stroke
- Dementia
- Eye disease, including diabetic retinopathy
- Kidney disease
- Foot and lower-limb complications
- Dental complications and
- Mental health impacts.

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70 Ms Belinda Moore, Submission 150, p. 2.
71 Department of Health and Aged Care, Submission 152, p. 4. See also: cohealth, Submission 302, p. 4.
72 Australian Patients Association (APA), Submission 218, p. 1.
73 APA, Submission 218, p. 1.

Heart disease

4.43 Heart conditions are the most common diabetes-related complications and they are the leading cause of death in people with diabetes.[74] For many people, heart complications can be prevented or delayed if they are detected early when treatments are most effective.[75]

4.44 The Heart Foundation of Australia explained:

> Despite improvements in therapies that lower blood glucose or address other CVD [cardiovascular disease] risk factors, people with diabetes are at least twice as likely to develop CVD [cardiovascular disease] and its manifestations and complications including coronary artery disease, stroke, atrial fibrillation, heart failure, and peripheral arterial disease...
>
> The risk of developing heart disease is even higher in people with longstanding diabetes, microvascular complications, and suboptimal glycaemic control, and also in women, people who develop diabetes before age 40, and First Nations people.[76]

4.45 Diabetes Australia recommended Australians living with diabetes and at elevated risk of heart complications be able to access the most effective and accurate diagnostic tools as soon as practicable.[77]

Stroke

4.46 People living with diabetes are 1.5 times more at risk of stroke than the general population.[78] The Australian Chronic Disease Prevention Alliance (ACDPA) observed increasing rates of stroke in people under the age of 65 around the world, and attributed this increase 'at least in part, to an increase in the rate of modifiable stroke risk factors such as type 2 diabetes and obesity and overweight.'[79] Diabetes can cause pathologic changes in blood vessels, which can cause stroke when blood vessels in the brain are affected.[80]

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74 Diabetes Australia, Submission 248, pp. 25–26. See also: National Heart Foundation of Australia, Submission 319, n.p.

75 Diabetes Australia, Submission 248, p. 26.

76 National Heart Foundation of Australia, Submission 319, p. 3. See also: Professor Garry Jennings, Chief Medical Advisor, Heart Foundation, *Committee Hansard,* Melbourne, 23 November 2023, p. 1.

77 Diabetes Australia, Submission 248, p. 26.

78 Diabetes Australia, Submission 248, p. 3.

79 Australian Chronic Disease Prevention Alliance, Submission 414, n.p.

80 Australian Chronic Disease Prevention Alliance, Submission 414, n.p.

Dementia

4.47 People living with diabetes are twice as likely to develop dementia than the general population.[81] About 4000 people living with diabetes develop dementia each year.[82] Dr Paul Mason explained:

> The brain, which accounts for a small percentage of body mass but a significant amount of energy consumption, is particularly vulnerable to metabolic diseases. The close link between dementia and metabolic disease is evident from research showing that obesity increases dementia risk, and brain volume decreases with higher body mass index.[83]

4.48 One submitter told the Committee that 'treating doctors should be more transparent about the connection between ongoing low blood glucose levels and dementia, which I personally did not know about until a few months ago, despite having diabetes – and frequent low blood sugars – for over three decades.'[84]

Eye disease, including diabetic retinopathy

4.49 Diabetes is the most common cause of preventable blindness in Australia.[85] Optometry Australia told the Committee that almost all people with Type 1 diabetes and more than half of people with Type 2 diabetes will be affected by diabetic retinopathy in their lifetime.[86] Professor Hugh Taylor AC explained:

> …everybody with diabetes will develop diabetic eye disease if they live long enough, and 98 per cent of that vision loss can be prevented if it's detected and treated. But once the vision is lost from diabetes, it can't be restored. People can no longer look after themselves or their diabetes once they've lost the vision.[87]

4.50 Diabetic retinopathy may be asymptomatic, especially in its early stages.[88] Timely diagnosis facilitated by regular eye examinations is therefore crucial to patient

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81 Diabetes Australia, Submission 248, p. 3. See also: National Aboriginal Community Controlled Health Organisation, Submission 244, p. 10.

82 Diabetes Australia, Submission 248, p. 3; Ms Justine Cain, Group Executive Officer, Diabetes Australia, *Committee Hansard,* Canberra, 20 June 2023, p. 2.

83 Dr Paul Mason, Submission 402, n.p.

84 Name withheld, Submission 332, n.p.

85 Centre for Diabetes, Obesity and Endocrinology Research (CDOER), Submission 157, p. 4; Mr Stephen Bali MP, Submission 234, p. 7; Royal Australian and New Zealand College of Ophthalmologists (RANZCO), Orthoptics Australia and the Macular Disease Foundation Australia, Submission 377, n.p; Ms Cain, Diabetes Australia, *Committee Hansard,* Canberra, 20 June 2023, p. 2; Associate Professor Anthony Russell, President, Australian Diabetes Society, *Committee Hansard,* Canberra, 15 September 2023, p. 25.

86 Optometry Australia, Submission 322, n.p.

87 Professor Hugh Taylor AC, *Committee Hansard,* 23 November 2023, Melbourne, p. 52.

88 Melbourne Dental School, University of Melbourne, Submission 92, n.p; Optometry Australia, Submission 322, n.p; RANZCO, Orthoptics Australia and the Macular Disease Foundation Australia, Submission 377, n.p.

outcomes.[89] However, about 50 per cent of Australians do not get regular eye examinations.[90]

4.51 Diabetes retinopathy can be successfully managed with improved glycaemic control, eye injections and laser therapy.[91] If left untreated, however, it can cause blindness.[92] To help people manage diabetes-related eye complications, the Department of Health and Aged Care supports KeepSight program, which promotes the importance of regular eye checks.[93]

Kidney disease

4.52 Diabetes is the most common cause of end-stage kidney failure in Australia and people living with diabetes are 12 times more at risk of end-stage kidney disease than the general population.[94] Diabetes Australia estimated 330,000 people living with diabetes in Australia have chronic kidney disease, and 10,000 people will experience kidney failure and require dialysis or transplant.[95]

4.53 Diabetes-related kidney disease costs the Australian economy around $2.68 billion each year, with kidney failure accounting for around $1.9 billion of this cost.[96] People with diabetes and chronic kidney disease are also more vulnerable to other diabetes-related complications, such as diabetic retinopathy and foot complications, as well as other complications, such as anaemia, metabolic bone disease and infections.[97]

4.54 Diabetes Australia recommended the implementation of a National Diabetes Kidney Disease Screening Program to ensure people living with diabetes have access to regular kidney checks.[98]

Foot and lower-limb complications

4.55 Diabetes can cause nerve damage and poor blood circulation, which can lead to foot-complications. Up to 85 per cent of non-traumatic lower limb amputations in people

89 Optometry Australia, Submission 322, n.p; RANZCO, Orthoptics Australia and the Macular Disease Foundation Australia, Submission 377, n.p.
90 Optometry Australia, Submission 322, n.p; RANZCO, Orthoptics Australia and the Macular Disease Foundation Australia, Submission 377, n.p.
91 Optometry Australia, Submission 322, n.p.
92 Optometry Australia, Submission 322, n.p.
93 Department of Health and Aged Care, *What we're doing about diabetes*, accessed 22 April 2024, www.health.gov.au/topics/chronic-conditions/what-were-doing-about-chronic-conditions/what-were-doing-about-diabetes
94 CDOER, Submission 157, p. 4; Diabetes Australia, Submission 248, p. 3; Professor Jonathan Shaw, Deputy Director, Clinical and Population Health, Baker Heart and Diabetes Institute, *Committee Hansard,* Melbourne, 23 November 2023, p. 36.
95 Diabetes Australia, Submission 248, p. 25.
96 Diabetes Australia, Submission 248, p. 25.
97 Miwatj Health, Submission 449, n.p.
98 Diabetes Australia, Submission 248, p. 25.

with diabetes in Australia can be prevented.[99] Diabetes, however, remains the most common cause of non-traumatic lower limb amputations in Australia.[100]

4.56 Diabetes foot complications are difficult to detect, prevent and treat.[101] Regular foot care is therefore crucial to prevention. The Australian Podiatry Association Limited submitted:

> Inadequate treatment can result in serious complications, including lower limb amputation and mortality. Regrettably, numerous examples exist where mismanagement of foot-related issues, stemming from poorly handled diabetic foot conditions, has resulted in dire outcomes.[102]

4.57 The Department of Health and Aged Care supports Food Forward, an initiative preventing diabetes-related amputations, to help people to manage their diabetes-related foot complications.[103]

4.58 Delayed foot care can have severe consequences.[104] The Australian Podiatry Association Ltd explained that diabetic foot ulcers (a common outcome when foot care is neglected) occurs in an estimated 19 per cent to 34 per cent of people with diabetes during their lifetime.[105] Noting the prevalence of foot complications for people with diabetes, the Australian Podiatry Association Ltd recommended a standardised national approach to allow podiatrists to conduct various neurovascular, lower limb, and foot assessments and ensure ongoing foot health care for patients at risk of low limb complications.[106]

4.59 Similarly, the Australian Diabetes Society called for funding to establish a National Diabetes Foot Disease Prevention program:

> A 20% reduction in foot complications would equate to the prevention of 300 deaths, 880 amputations, 5,520 hospital admissions and $320 million in direct health care costs every year in Australia. This program will have a focus on managing the key reversible risk factors, working in continuity with community-based diabetes care and accredited interdisciplinary services.[107]

4.60 Treating all wounds early and effectively is also central to preventing the deterioration of diabetes-related foot complications. The AMA explained the need for better wound care management for diabetes patients:

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99 Diabetes Feet Australia, Submission 330, p. 4.
100 CDOER, Submission 157, p. 4.
101 Australian Podiatry Association Limited, Submission 314, p. 3.
102 Australian Podiatry Association Limited, Submission 314, p. 3.
103 Department of Health and Aged Care, *What we're doing about diabetes*, accessed 22 April 2024, www.health.gov.au/topics/chronic-conditions/what-were-doing-about-chronic-conditions/what-were-doing-about-diabetes
104 Australian Podiatry Association Limited, Submission 314, p. 3.
105 Australian Podiatry Association Limited, Submission 314, p. 3.
106 Australian Podiatry Association Limited, Submission 314, p. 3.
107 Australian Diabetes Society, Submission 317.1, pp. 7–8.

> Patients with diabetes often suffer chronic wounds, which take longer to heal and increase a person's risk of developing infections and other complications… Every three hours of every day, one Australian loses a lower limb as a direct result of a diabetes-related foot disease.[108]

4.61 The AMA recommended the Australian Government fund a wounds consumable scheme in general practice to improve wound care management in relation to diabetes.[109]

Dental complications

4.62 Dental complications are often a poorly understood part of diabetes management. In his submission to the inquiry, Dr Andre Priede noted:

> When I was first diagnosed with Type 1 diabetes, I received extensive education and support on how to prevent the acute and chronic complications of a disease that impacts all parts of the body, with one very important omission: the mouth. Referrals were made to various healthcare professionals… to check my eyes, feet, heart and kidneys. A "head to toe" check-up, but one that excluded my mouth. There was never any discussion on the oral complications of diabetes, how they might be prevented, and how oral disease may impact my blood glucose control.[110]

Mental health impacts

4.63 Living with diabetes can have serious impacts on a person's mental health. While many people with diabetes may experience mental health or emotional health challenges, these challenges are rarely discussed as part of routine diabetes care.[111] Diabetes Australia described the mental health impacts of diabetes 'as a silent diabetes complication.'[112] Mental health challenges can make managing diabetes more difficult and may lead to an increased risk of complications and hospital admissions.[113]

4.64 The Department of Health and Aged Care referenced data from the National Health Survey 2022, in which approximately 43 per cent of people over the age of 15 with diabetes (Type 1, Type 2 and unknown) reported experiencing moderate, high, or very high psychological distress.[114]

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108 Australian Medical Association (AMA), Submission 219, p. 3.
109 AMA, Submission 219, p. 3.
110 Dr Andre Priede, Submission 93, p. 1.
111 Diabetes Australia, Submission 248, p. 26.
112 Diabetes Australia, Submission 248, p. 26.
113 Diabetes Australia, Submission 248, p. 26.
114 Department of Health and Aged Care, additional document 43, answers to questions taken on notice at public hearing on 1 March 2024, n.p. See also: Professor Stephen Colagiuri, Submission 371, Attachment 1, p. 3.

4.65 Many people seeking specialised diabetes mental health care reported difficulties including high costs, limited number of subsidised visits under a mental health care plan, limited availability of professionals, and a lack of professionals with specific knowledge of diabetes-related mental health care.[115]

4.66 Miss Emily Klimek, a volunteer advocate for JDRF Australia who lives with Type 1 diabetes told the Committee:

> I'm 15 years old, and I have had type 1 diabetes, also known as T1D, since I was two. I am speaking on behalf of the 130,000 with type 1 and also the eight more that will diagnosed tomorrow. I think T1D is very misunderstood, and it absolutely sucks having it. You never get a day off, and every day there's a different challenge that comes up.[116]

4.67 Miss Nicola Hames recounted her experience being diagnosed with Type 1 diabetes during year 11 in high school:

> At 16 I had just started entering into life, and by 16 and a half, I felt I didn't deserve it, because I was made to feel like a burden to the system. I was bullied in school, called "obese" despite a normal BMI, and a "junkie" for my need to inject insulin. I was told I was "faking it" to get more time in exams, and made to feel like my disease was just in my head. I don't blame my peers for this; they didn't know any better, and I barely did either. My physical health was at an all-time low, and my mental health was no better. We could not afford the additional psychology sessions I required outside what my GP had provided as part of a mental health care plan. My psychologist wanted to see me once every week or fortnight, and at the best time I was able to go once every month which was completely insufficient for my needs at the time.[117]

4.68 Another submission, provided by an individual who was diagnosed with Type 2 diabetes in 1996 at age 40, said:

> During my first few years as a diabetic the adjustments were difficult to deal with. In the midst of a very busy working career, raising a young family, I struggled with not only a physical change in my body but also one that affected my state of mind that resulted in mild depression. Following diagnosis, I also developed diabetic neuropathy that affects my muscles throughout my body. It has meant regular ongoing treatments for the past 26 years consisting of remedial massage and visits to combinations of both physiotherapy and chiropractors. Therefore, it was, and is still, a multi-faceted battle.[118]

4.69 In its submission, NSW Health advocated for greater access to clinical psychology assessment and management for people with diabetes distress and emphasised the

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115 Diabetes Australia, Submission 248, p. 26.

116 Miss Emily Klimek, Volunteer advocate, JDRF Australia, *Committee Hansard*, Canberra, 20 June 2023, p. 13.

117 Miss Nicola Hames, Submission 46, n.p.

118 Name withheld, Submission 65, n.p.

positive results of a pilot study at Nepean Hospital following the introduction of a clinical psychologist to its diabetes service.[119]

4.70 The Department of Health and Aged Care drew the Committee's attention to the Diabetes Youth Zone initiative, which was launched in October 2023. Dr Leanne Laajoki, Director of Chronic Conditions Strategic Policy explained:

> …the Diabetes Youth Zone… has a really strong focus on emotional wellbeing for young people, who can share their stories living with diabetes. It sets up supports with family, friends, psychologists and support teams. It recognises that diabetes impacts mental health. People with mental health conditions obviously are also quite more disproportionately impacted if they do get chronic disease. So we do recognise the bidirectional nature and recognise that in our overarching diabetes strategy as well as the national strategic framework for chronic conditions.[120]

4.71 The Committee was deeply impacted by the submission provided by Mr Ian Cavanagh, who in August 2023 lost his son Liam, a young man with Type 1 diabetes. Mr Cavanagh described the challenges that Type 1 diagnosis presents for adolescents, and called for more mental health funding for young people with diabetes:

> During Liam's decline I spent hours on Google researching the link BTW [between] Diabetes and depression.
>
> I searched for a psychologist that specialised in that field.
>
> If I'd had success […]
>
> You may not be reading this.[121]

Managing diabetes and obesity

4.72 Managing diabetes and obesity is a challenge as each patient is unique, and has varying levels of access to the necessary tools and treatment. Throughout the inquiry, the Committee heard from many people living with different forms of diabetes about how they manage their disease. Some submitters and witnesses described what has worked well, and others discussed the challenges with finding the right way to manage their diabetes.

4.73 Professor Steve Robson, President of the Australian Medical Association (AMA), summarised the importance of good diabetes management:

> We all know that, if diabetes gets out of control, you're going to end up in an emergency department or as a hospital inpatient. That's the very costly end of care. Managing diabetes well—keeping great blood-sugar control, being onto

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119 NSW Health, Submission 349, p. 35. See also: Associate Professor Emily Hibbert, Submission 464, n.p.

120 Dr Leanne Laajoki, Director, Chronic Conditions Strategic Policy, Department of Health and Aged Care, *Committee Hansard,* Canberra, 1 March 2024, p. 20.

121 Mr Ian Cavanagh, Submission 468, n.p.

> wounds early, making sure medication management is right—isn't very exciting, but, boy, it pays off and it saves an enormous amount of money by keeping people out of those tertiary care environments where care is expensive.[122]

4.74 Type 1 diabetes is managed through blood glucose monitoring and insulin replacement.[123] Ms Jane MacDonald, who has lived with Type 1 diabetes for more than 20 years, described the experience of managing Type 1 diabetes as '…an unrelenting cognitive burden… with us 24/7, 365 days a year. There is no holiday from diabetes, no break and it can be challenging and exhausting.'[124]

4.75 Patients with insulin-dependent Type 2 diabetes manage their condition in a similar manner as Type 1 diabetes patients. Type 2 diabetes that is not insulin-dependent is generally managed through lifestyle factors, such as a healthy diet that maintains adequate blood glucose levels, exercise to regulate insulin in the body and regular blood glucose monitoring.[125] Some people may need medication to manage their Type 2 diabetes. These measures can also slow the progression of Type 2 diabetes.[126] Keeping blood glucose levels under control is crucial to preventing diabetes complications.

4.76 Gestational diabetes is managed with a good diet, regular exercise and blood glucose monitoring.[127] Some women may require medication or insulin replacement to manage their gestational diabetes if blood glucose levels cannot be maintained within target range with diet and exercise alone.[128] ADIPS indicated that about half of women with gestational diabetes require insulin injections, and therefore need support with further education and close review.[129]

4.77 If they are insulin-dependent, people living with other types of diabetes (Maturity Onset Diabetes of the Young, Latent Autoimmune Diabetes in Adults, or Type 3c diabetes) manage their disease in a similar way to people with Type 1 diabetes using insulin injections.[130]

4.78 Some of the approaches for managing diabetes and obesity in Australia include:

- Annual cycle of care
- Chronic Disease Management Plans (CDMPs) and other MBS subsidies
- Diabetes in Schools Program.

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122 Professor Steve Robson, President, Australian Medical Association (AMA), *Committee Hansard,* Canberra, 15 September 2023, p. 57.

123 Diabetes Australia, *Managing type 1 diabetes,* accessed 30 April 2024, www.diabetesaustralia.com.au/managing-diabetes/type-1/

124 Ms Jane MacDonald, Submission 79, p. 1.

125 Diabetes Australia, *Managing type 2 diabetes,* accessed 30 April 2024, www.diabetesaustralia.com.au/managing-diabetes/type-2/

126 Royal Australian College of General Practitioners, Submission 427, p. 5.

127 Diabetes Australia, *Managing gestational diabetes,* accessed 30 April 2024, www.diabetesaustralia.com.au/managing-diabetes/gestational/

128 ADIPS, Submission 318, p. 6.

129 ADIPS, Submission 318, p. 6.

130 Diabetes Australia, Submission 248, p. 16.

Annual cycle of care

4.79 People living with all forms of diabetes are encouraged to review their diabetes management and general health checklist with their doctor each year as part of the 'Diabetes Annual Cycle of Care.'[131] The annual cycle of care aims to support people to manage their diabetes and identify and treat complications early.[132]

4.80 As part of the annual cycle of care, diabetes patients are encouraged to undergo the following health checks:

- Blood Glucose (HbA1c) check: Every 3 months
- Emotional wellbeing check-in: Every visit
- Kidney check: Yearly
- Blood fats check: Yearly
- Blood pressure check: 6 monthly
- Eye check: Every 2 years
- Foot check: 6 monthly
- Medication review: Yearly
- Dietary intake check: At least yearly
- Physical activity check: At least yearly
- Smoking status check: Every visit if applicable.

4.81 More information about the annual cycle of care is available from the National Diabetes Services Scheme.[133]

4.82 Diabetes Australia observed that

> most Australians living with diabetes are not getting regular health checks including:
>
> - 50% not getting HbA1c checks
> - 29% not getting their blood pressure checked
> - 51% not getting their cholesterol checked
> - 73% not getting their kidneys checked
> - 41% not getting their weight checked.[134]

4.83 Diabetes Australia submitted that the removal by the Government of the annual cycle of care MBS incentive in 2022 has further hindered the already low uptake of health

131 Name withheld, Submission 392, n.p.
132 National Heart Foundation, Submission 319, p. 6.
133 See: National Diabetes Services Scheme, *Fact sheet: Your diabetes annual cycle of care,* accessed 17 April 2024, www.ndss.com.au/wp-content/uploads/fact-sheets/fact-sheet-your-diabetes-annual-cycle-of-care.pdf
134 Diabetes Australia, Submission 248, p. 7.

checks: 'While the uptake of the incentive was low (around 18%), its existence helped reinforce the importance of these checks with GPs.'[135] Similarly, NSW Health recommended the MBS items be reintroduced to support the annual cycle of care as this process is time consuming and appropriate remuneration is therefore needed to support GPs.[136]

Chronic Disease Management Plans and other Medicare Benefits Schedule subsidies

4.84 People with diabetes are eligible for five sessions subsidised by Medicare under a Chronic Disease Management Plans (CDMPs) over a 12-month period with health professionals identified by the treating GP to form part of the patient's care.[137]

4.85 Concerns about the limited utility and scope of CDMPs were common issues raised in the evidence received to the inquiry. Submitters and witnessed generally agreed that five sessions were not enough to provide the necessary support to diabetes patients and called for CDMPs for diabetes patients to be expanded.[138]

4.86 Some submitters called for the number of sessions subsidised by the MBS through a CDMP to be increased from five to ten,[139] and others suggested the number of sessions be increased to 15 or 20.[140] Further, the National Retail Association recommended CDMPs be expanded to allow people with diabetes to access five visits with each allied health professional every year, rather than five sessions in total.[141]

4.87 The Australian Diabetes Educators Association drew attention to the low uptake of CDMPs by Aboriginal and Torres Strait Islander people due to socio-economic barriers, such as a lack of access to Credentialed Diabetes Educators (CDEs), dietitians, exercise physiologists, and other health practitioners, as well as the lack of culturally appropriate health care.[142]

4.88 More broadly, NSW Health highlighted that despite the subsidised access to allied health services facilitated by a CDMP, many patients were faced with large gap payments, which presents a barrier for patients from lower socio-economic backgrounds to access the services.[143]

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135 Diabetes Australia, Submission 248, p. 7.
136 NSW Health, Submission 349, p. 35.
137 National Association of Clinical Obesity Services, Submission 354, n.p; Type 1 Voice, Submission 462, p. 13.
138 See, for example, Southern Cross University, Submission 76, p. 2; Diabetes Australia, Submission 248, p. 11; NSW Health, Submission 349, p. 35; Name withheld, Submission 446, n.p.
139 Diabetes Australia, Submission 248, p. 24; Diabetes SA, Submission 395, n.p; Exercise and Sport Science Australia, Submission 410, p. 3; Mrs Judy Powell, Policy and Advocacy Manager, Exercise and Sports Science Australia, *Committee Hansard,* 20 November 2023, p. 21.
140 cohealth, Submission 302, p. 8; Name withheld, Submission 446, n.p.
141 National Retail Association, Submission 372, p. 21. See also: Name withheld, Submission 380, p. 9.
142 Australian Diabetes Educators Association, Submission 221, p. 12.
143 NSW Health, Submission 349, p. 35.

4.89 People with pre-diabetes, gestational diabetes or obesity are currently ineligible to access CDMPs based on these factors alone.[144] People with pre-diabetes are eligible for a CDMP only if they have another chronic health condition, even though pre-diabetes is a key risk factor for both cardiovascular disease and Type 2 diabetes.[145] People living with obesity are ineligible to access CDMPs as this condition is not recognised as a chronic disease in Australia.[146] Women with gestational diabetes are also ineligible to access CDMPs as their disease is not considered chronic.

4.90 In this context, Diabetes Australia recommended access to CDMPs be expanded 'to cover people living with prediabetes to support them in accessing expert evidence-based preventive healthcare including nutrition, physical activity, stress management and sleep.'[147] Furthermore, the Royal Australasian College of Physicians (RACP) recommended MBS items for obesity management should be introduced to support primary health management, covering weight assessment, examination of complications, and physical and psychological support.[148]

4.91 ADIPS noted the costs of accessing allied health professionals privately for women with gestational diabetes and recommended an MBS care plan for women with gestational diabetes be introduced to support their care.[149] The Australian Diabetes Educators Association made a similar recommendation to provide MBS-reimbursed visits for women with gestational diabetes to see a CDE during both pregnancy and the postpartum period.[150]

4.92 Private Healthcare Australia explained that the Private Health Insurance (Health Insurance Business) Rules 2018 prevent health funds from paying nurses and nurse practitioners to provide CDMP services.[151] This peak body recommended the definitions for CDMPs set out in rules be amended to allow private health funds to facilitate a more flexible health care for people living with diabetes, or who are at risk of developing diabetes.[152]

4.93 Submitters also called for longer MBS-funded consultations for people with chronic diseases.[153] For example, the Australian Diabetes Educators Association submitted:

> Current MBS item numbers for diabetes education do not adequately reflect the time and expertise required by CDEs to deliver comprehensive care. Introducing new MBS item numbers, such as a 60-minute initial consultation, an extended 30-minute regular consultation, and a new double length 40-minute consultation,

144 See, for example: Diabetes Australia, Submission 248, p. 28; National Retail Association, Submission 372, p. 21; Exercise and Sports Science Australia, Submission 410, p. 3; Ms Taryn Black, Chief Strategy Officer, Diabetes Australia, *Committee Hansard,* Canberra, 15 September 2023, p. 26.

145 Diabetes Australia, Submission 248, p. 28. See also: National Retail Association, Submission 372, p. 21.

146 See, for example: National Association of Clinical Obesity Services, Submission 354, n.p; National Retail Association, Submission 372, p. 21; Name withheld, Submission 380, p. 9.

147 Diabetes Australia, Submission 248, p. 11.

148 Royal Australasian College of Physicians (RACP), Submission 174, p. 7.

149 ADIPS, Submission 318, p. 5.

150 Australian Diabetes Educators Association, Submission 221, p. 4.

151 Private Healthcare Australia, Submission 321, p. 2.

152 Private Healthcare Australia, Submission 321, p. 3.

153 See, for example: Diabetes Australia, Submission 248, p. 21.

> with appropriate fee adjustments, will allow CDEs to provide evidence-based, patient-centred care. Adequate reimbursement will support longer consultations, ensuring individuals receive the necessary education and support to manage their diabetes effectively. A blended funding model for diabetes management ensures that patients receive not only medical interventions but also essential access to a multi-disciplinary care team. A blended funding model can address the complicated factors that cause diabetes and result in optimal health outcomes, while decreasing healthcare costs into the future.[154]

4.94 Diabetes Australia recommended case conferencing – which brings together relevant medical professionals to discuss a patient's condition – to be improved to ensure rural and remote general practices have access to diabetes care and management by endocrinologists and CDEs in private practice or at tertiary diabetes centres.[155]

4.95 NSW Health's submission discussed innovative and alternative models currently being developed and implemented across NSW to enhance the primary care sector's capacity to support people with diabetes.[156] For example:

> South Western Sydney is working with the PHN [primary health network] to deliver an integrated model of care for diabetes. Primary care clinicians have been provided with referral pathways and consistent referral criteria and referral forms to clearly guide appropriate escalation of care to Diabetes Specialist Services (embedded into GP software and HealthPathways) or referral to GP case conferencing.
>
> South Western Sydney has implemented an evidence-based case conferencing model shown to achieve significant improvements in glycaemic control in Type 2 diabetes. This model redirects referrals away from tertiary services and provides capacity building for primary care clinicians including GPs and Practice Nurses. Type 2 diabetes case conferencing clinic days are in high demand.
>
> The GP case conferencing is funded by the PHN [primary health network], on a contract basis year by year. It requires ongoing funding to ensure it is embedded into usual care.[157]

4.96 NSW Health recommended funding and incentives for primary care and private providers to participate in joint general practice and specialist case conferencing, and integrated care services.[158]

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154 Australian Diabetes Educators Association, Submission 221, p. 9.

155 Diabetes Australia, Submission 248, p. 18. See also: Maridulu Budyari Gumal (SPHERE), Submission 263, n.p.

156 NSW Health, Submission 349, pp. 32–35.

157 NSW Health, Submission 349, p. 34. See also: Ingham Institute for Applied Medical Research, Submission 364, p. 3.

158 NSW Health, Submission 349, p. 43. See also: Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, South Australian Health and Medical Research Institute (SAHMRI), Submission 459, n.p.

Diabetes in Schools Program

4.97 The Department of Health and Aged Care supports Diabetes in Schools, a program providing information and training to families and schools to help them to better support students with Type 1 diabetes.[159]

4.98 Diabetes in Schools is an information program aimed at students living with Type 1 diabetes.[160] The program was launched in 2020 to provide information and education for families and school staff to support safe diabetes management and medication administration.[161] More than 5000 schools and 100,000 school staff have voluntarily participated in the program.[162]

4.99 The program is currently offered in some regional and remote locations in Victoria, Western Australia and South Australia. Diabetes Australia submitted that:

> A number of pilots are currently underway to further expand the reach of the program in regional and remote Australia beyond existing delivery in many regional and remote locations across WA, SA and Victoria.
>
> - Queensland Childrens Hospital is adopting a hub and spoke train the trainer and telehealth model to support delivery of Level 3 Training in schools across Mackay and Townsville (and the broader region via telehealth).
> - John Hunter Hospital is servicing schools across Tamworth and Taree via a train the trainer model.
> - The Canberra Hospital will expand outside of the ACT into country NSW.
> - Royal Children's Hospital is focussing their pilot on students with complex needs in regional Victoria.[163]

4.100 Dr Helen Woodward described the Diabetes in Schools program as a 'resounding success' because it allowed parents of children with diabetes to return to work as school staff are supported with the necessary skills to look after children with diabetes.[164]

4.101 Several submitters called for the Diabetes in Schools Program to be expanded to include:

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159 Department of Health and Aged Care, *What we're doing about diabetes*, accessed 22 April 2024, www.health.gov.au/topics/chronic-conditions/what-were-doing-about-chronic-conditions/what-were-doing-about-diabetes

160 Diabetes Australia, Submission 248.3, p. 9.

161 Australia and New Zealand Society for Paediatric Endocrinology and Diabetes, Submission 378, n.p; Response to submission 462 from Diabetes Australia, n.p.

162 Response to submission 462 from Diabetes Australia, n.p.

163 Response to submission 462 from Diabetes Australia, n.p.

164 Dr Helen Woodward, Submission 357, n.p.

- Type 2 diabetes, to support early detection, referral and management for young people living with Type 2 diabetes[165]
- Aboriginal and Torres Strait Islander school students living with Type 2 diabetes[166]
- Preschool and childcare settings.[167]

4.102 The Committee also received evidence expressing concerns about the Diabetes in Schools program.[168] For example, one submitter stated:

> We feel completely let down by the so called 'Diabetes in Schools' program as supplied by Diabetes Australia and to date, have not seen any evidence of this program supporting us, or being relevant to our child or our school.[169]

4.103 Some submitters called for the Diabetes in Schools program to be suspended and reviewed.[170] For example, the Australian Paediatric Society expressed serious concerns over:

> a. how complex care can be delivered to ALL Australian students with T1D [type 1 diabetes].
>
> b. how non-medical staff can receive the requisite accreditation and qualifications from a Registered Training Organisation.
>
> c. legal compliance requirements to protect children, school personnel and Health care professionals.[171]

4.104 A parent of a child recently diagnosed with Type 1 diabetes shared the experience with the program and noted that it:

> …sets an unrealistic expectation on the school, and medically untrained teachers to fulfil complex health care and medical management for children/students with a chronic health condition within a school setting. Since having a child in our school who has recently been diagnosed with Type 1 Diabetes, I have come to understand that there are serious and potentially catastrophic outcomes for the child if the wrong action is undertaken, medication or treatment was provided. It has highlighted that tasks required of teaching staff are outside of a teacher's scope of practice. Additionally, through my own enquiries it is my understanding that the decisions and medication management (of the potent S4 drug 'insulin') are to be performed by a nurse or equivalent, and that there is no training course

165 Diabetes across the Lifecourse Partnership, Submission 66, p. 1; Royal Darwin Hospital and Alice Springs Hospital Department of Endocrinology and Diabetes, Submission 294, p. 5; Diabetes SA, Submission 395, n.p.

166 Diabetes Australia, Submission 248.3, pp. 9–10.

167 Diabetes SA, Submission 395, n.p.

168 See, for example: Name withheld, Submission 386, p. 1; Name withheld, Submission 436, n.p; Dr Peter Goss and Ms Jenny Goss - Team Diabetes, Submission 440, n.p.; Type 1 Voice, Submission 462, p. 3.

169 Name withheld, Submission 289, p. 3.

170 Type1 Foundation, Submission 340, p. 10; Australian Paediatric Society, Submission 463, p. 2.

171 Australian Paediatric Society, Submission 463, p. 2.

> that meets this requirement… Some staff have opted not to administer insulin as it has high risks associated with it.[172]

Role of the health care system in managing diabetes, obesity and related complications

4.105 Effective management of diabetes and obesity requires the support of a multidisciplinary health care team, which may include any combination of different professionals such as general practitioners, diabetes nurse educators, endocrinologists, CDEs, dietitians, optometrists, podiatrists, dentists and psychologists.

4.106 In examining how Australia's health care system is positioned with respect to diabetes management, the inquiry focused predominantly on following themes:

- Challenges accessing health care and specialist support
- Challenges impacting the health care workforce
- The lack of awareness of diabetes within the healthcare system.

Challenges accessing health care and specialist support

4.107 There are a range of challenges experienced by people with diabetes and obesity that prevent them from accessing health care and specialist support. The access is particularly challenging in regional, rural and remote locations.

4.108 Mr Ray Messom, Chief Executive Officer at Western Sydney Primary Health Network, emphasised that rising out-of-pocket costs are making Australia's health care system 'less equitable and a far cry from universal.'[173] As one submitter reflected on the cost of managing Type 1 diabetes:

> Personally, I have experienced financial hardship due to being a Type1. Due to the ongoing complications I now have from being Type1, an average month between medication, consumable and health insurance, I am out of pocket over $400 before I have medical appointments.[174]

4.109 Limited access to GPs, especially bulk-billed GPs, was a common barrier identified in the evidence to the inquiry.[175] For example, in her submission to the inquiry, Dr Kathryn Williams pointed out that:

> While there is a strong movement to have obesity addressed in primary care, issues related to low access to affordable GP consultations in rural and remote

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172 Name withheld, Submission 386, p. 1.

173 Mr Ray Messom, Chief Executive Officer, Western Sydney Primary Health Network, *Committee Hansard,* Campbelltown, 18 September 2023, p. 19.

174 Name withheld, Submission 436, n.p.

175 See, for example: Western Sydney Leadership Dialogue, Submission 236, n.p.

> areas and for those with adverse social determinants of health who are also at risk of more severe obesity and its complications need to be addressed first to avoid potential inequity that may be exacerbated as a result.[176]

4.110 Some submitters discussed the advantages of telehealth as a means to improve access to care. For example, the Rural Doctors Association of Australia submitted that virtual care could improve the timeliness and connectedness of healthcare when complemented with in-person care and a multi-disciplinary approach to diabetes.[177] The RACP recommended funding to reinstate telehealth base specialist consultations, including complex consultations to support access and equity for people with obesity and comorbid health risks.[178]

4.111 The AMA highlighted the barriers to accessing health care for people living in rural and remote locations, who:

> …commonly experience significant health disadvantages because of geographical barriers and reduced access to healthcare compared with metropolitan communities. This leads to worse health outcomes especially for people living with chronic conditions like diabetes, who are facing longer waiting times and higher-out-of-pocket costs. The Australian Institute of Health and Welfare… revealed that hospitalisation rates for diabetes in 2019-20 were almost three times higher for people living in remote Australia compared to those in major cities. In 2020, diabetes death rates were also twice as high for people living in remote and very remote areas.[179]

4.112 The Albury Wodonga Diabetes Support Group called for funding for diabetes educator training to increase the numbers of CDEs working in regional, rural and remote areas as many patients living in these areas do not have the financial means or ability to travel long distances for health care.[180]

4.113 The Committee heard that accessing screening and treatment for diabetic retinopathy is particularly challenging for many patients across Australia in both metropolitan and regional areas. Mr Stephen Bali MP, Member for Blacktown in the New South Wales Legislative Assembly, noted that a key challenge for diabetes retinopathy patients in Western Sydney was finding accessible treatment locations.[181] Dr Ashim Sinha, Director of Diabetes and Endocrinology at Cairns Hospital and Health Service District, told the Committee:

176 Dr Kathryn Williams, Submission 73, n.p.
177 Rural Doctors Association of Australia, Submission 407, p. 7.
178 RACP, Submission 174, p. 8.
179 AMA, Submission 219, p. 3.
180 Albury Wodonga Diabetes Support Group, Submission 86, p. 1.
181 Mr Stephen Bali MP, Submission 234, p. 7.

> …there's lack of screening availability. Not every place has fundus cameras, which are so easy to use, can be put into each of these communities and health workers can be easily trained to man. It is not rocket science.[182]

4.114 Optometry Australia explained that patients often have to pay 'substantial out-of-pocket' costs for intravitreal injections, which are administered in the private system with low rates of bulk-billing, and stated that: 'As a result, the necessary numbers of injections that are required for effective treatment are not always administered.'[183]

Challenges impacting the health care workforce

4.115 Throughout the inquiry the Committee heard from a range of health care sector peak bodies about the challenges they face in providing care to people living with diabetes and obesity.

4.116 Mr Simon Carter, Chief Executive Officer of Jade Diabetes, noted in his submission that 'GPs lack the time, scale and specialised training to manage diabetes effectively, but they are largely in denial about this' and called for better use of nurse practitioners to support patients with diabetes.[184] In drawing attention to the increasing demand for diabetes management, the Australian College of Nurse Practitioners suggested that improved Medicare rebates for Nurse Practitioners would improve access to affordable care for people with diabetes.[185]

4.117 RACP recommended consistent guidance for weight management in clinical settings and support for health professionals to understand and reduce weight bias.[186]

4.118 Expanding access to CDEs for patients will all forms of diabetes was a common issue raised throughout the evidence received by the Committee. CDEs play a central role in supporting people with diabetes to manage their disease through lifestyle interventions.[187] The Australian Diabetes Educators Association recommended that people diagnosed with pre-diabetes should immediately be referred to a CDE.[188]

4.119 Optometry Australia explained that optometrists are well-positioned to play a role in diabetes prevention and inform patients about the impact of diabetes on eye health during routine examinations.[189] As such, Optometry Australia recommended optometrists should be considered part of the team care arrangement for all people diagnosed with diabetes, and that a national strategy be introduced to ensure people

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182 Dr Ashim Sinha, Director of Diabetes and Endocrinology, Cairns Hospital and Health Service District, *Committee Hansard,* Cairns, 22 November 2023, p. 6.
183 Optometry Australia, Submission 322, n.p.
184 Simon Carter, Submission 456, p. 1.
185 Australian College of Nurse Practitioners, Submission 403, p. 4.
186 Royal College of Physicians, Submission 174, p. 3.
187 Australian Diabetes Educators Association, Submission 221, p. 9.
188 Australian Diabetes Educators Association, Submission 221, p. 9.
189 Optometry Australia, Submission 322, n.p.

with diabetes receive eye examinations to enable early detection and treatment of diabetic retinopathy.[190]

4.120 The Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, South Australian Health and Medical Research Institute (SAHMRI) submitted that foot health is often poorly understood among professionals working in the non-podiatry workforce.[191] SAHMRI recommended improving knowledge among health care professionals about the impact of diabetes on foot health and the importance of timely footcare.[192]

4.121 Mr Stuart McGrath, Medical Dhawu, Dhawu Yolngu Project Worker at Miwatj Health Aboriginal Corporation, highlighted the challenges impacting Aboriginal health workforce in East Arnhem Land:

> Right now, we're stuck in this concept of creating Yolngu positions that are subordinate, meaning assistant Yolngu worker or Yolngu project worker. Instead of doing that, why don't we approach the tertiary? Right now, the professions that Yolngu people have are stuck in that sector, and that's it… So perhaps focus on VET and then talk about transitioning to higher ed…
>
> I'm the only one in East Arnhem Land in 100 years to walk out with a bachelor's degree in nursing. It doesn't really create trust and continuity of care with a familiar face. This is not just East Arnhem Land; we're talking remote Australia. It's become a lucrative business running on agency staff, so it's a very transient population of clinicians. How can you create trust with the patient if it's just different faces every six weeks and then you ding the Yolngu patient for being non-compliant on medication? Well, hang on. I'm seeing different faces. I haven't created trust. For Yolngu people, it's always about relationship.[193]

4.122 Miss Sumaria Mary Corpus, an Aboriginal Health Practitioner and Diabetes Educator at Royal Darwin Hospital, told the Committee about public perceptions of Aboriginal health care workers in the Northern Territory, and stated: 'We were looked at as bus drivers or interpreters. Actually, I'm clinical, and every time healthcare professionals see me they think I'm a liaison officer.'[194]

4.123 In light of the fact that Aboriginal and Torres Strait Islander communities often have high numbers of diabetes cases, and that their members are more likely than the general Australian population to develop diabetes-related complications, it was suggested that there is merit in strengthening the Aboriginal and Torres Strait Islander health workforce to support these communities. For example, Ms Sian Lee

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190 Optometry Australia, Submission 322, n.p.

191 Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, SAHMRI, Submission 451, n.p.

192 Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, SAHMRI, Submission 451, n.p.

193 Mr Stuart McGrath, Medical Dhawu, Dhawu Yolngu Project Worker, Miwatj Health Aboriginal Corporation, Darwin, 8 March 2024, p. 12.

194 Miss Sumaria Mary Corpus, Aboriginal Health Practitioner and Diabetes Educator, Royal Darwin Hospital, *Committee Hansard,* Darwin, 7 March 2024, p. 43.

Graham, Senior Researcher and Chair of the Aboriginal and Torres Strait Islander Advisory Group at the Menzies School of Research told the Committee:

> I think we need to spend time investing in the Aboriginal and Torres Strait Islander workforce in the health systems. There are ways that you can utilise Aboriginal and Torres Strait Islander people in the health system, by having them deliver information that's appropriate. They know how to talk to this mob. They speak language. We get these resources developed for urban, non-Indigenous people, so they're not culturally appropriate for our mob. And they're just full of words. We need to have resources developed in our own languages. We need to build on workforce.[195]

4.124 Professor Trent Twomey, National President of the Pharmacy Guild of Australia, highlighted the role that pharmacists can play in health care:

> The average Australian visits their community pharmacy 18 times a year, which is more than any other primary healthcare access point. Specifically, you've mentioned First Nations Australians, who… have higher rates of undiagnosed diabetes and higher rates of diabetes. The specific training that we have deals with the specific therapeutic guidelines for First Nations people. There are different eligibility criteria. There are at times different treatment guidelines, and that is to take into account the uniqueness of providing care to First Nations Australians…[O]ur pharmacy is co-located and embedded with Gurriny Yealamucka, the community controlled health organisation over there... There are other community controlled health organisations in our footprint, such as Wuchopperen, Mamu and Apunipima, if we're looking at the Cape... Working with these organisations is just part of what we do on an everyday basis. Just as we coordinate with our local general practitioner, we also coordinate with the community controlled health organisation… We are not trained to treat diseases. We're trained to treat people. We do a full examination for—as this cardiovascular risk reduction says, it's hypertension and dyslipidaemia as well as diabetes. We treat the whole person. We can't just screen for one of these things in isolation. If anything flags, whether it's renal function, liver function or any of the levels in the AUSDRISK or any of the other screening profiles outside of a particular range, we don't treat; we refer, as per guidelines. Though our focus of evidence today is specifically on diabetes, we just wanted to make the point we don't treat disease states; we treat people.[196]

4.125 The Melbourne Dental School suggested that oral health care providers should play a greater role in supporting diabetes screening and management. Its submission highlighted that for some people, a dental visit may be their only interaction with the health care system each year. Oral health disease, such as periodontitis, 'may be an

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195 Ms Sian Lee Graham, Senior Researcher and Chair, Aboriginal and Torres Strait Islander Advisory Group, Menzies School of Research, *Committee Hansard,* Darwin, 7 March 2024, p. 18.

196 Professor Trent Twomey, National President, The Pharmacy Guild of Australia, *Committee Hansard,* Canberra, 22 March 2024, pp. 54–55.

early sign of diabetes and therefore be a useful risk indicator for diabetes screening.'[197] The Melbourne Dental School thus recommended that a new MBS item number in the diagnostic services category be created for diabetes screening using the AUSDRISK as part of routine dental examinations.[198]

The lack of awareness of diabetes within the health care system

4.126 Submitters and witnesses described a general lack of awareness of diabetes across the health care system. For example, in her submission to the inquiry Ms Pamela Meredith described a poor understanding of Type 1 diabetes among hospital staff:

> …when I go to hospital they always muck the levels up I know how to treat with my insulin and how much I need the staff would listen to me so I know what I need for me I have been a type 1 diabetic for many seeing many changes in treatments.[199]

4.127 In her submission, Ms Siba Diqer stated she could not find a knowledgeable GP in Melbourne and needed to change endocrinologists because they were unable to provide answers to her questions, with one specialist telling her that '…he did not want to overwhelm me with information.'[200]

4.128 Mr Michael Pipe, who lives with Type 3c diabetes, explained in his submission that the condition is 'largely unrecognised or ignored by many in the medical profession, including hospital staff.'[201] The lack of knowledge from hospital staff resulted in Mr Pipe being unable to control his insulin independently.[202] He further recounted an incident where hospital staff confiscated his insulin to prevent him from administrating too much, which led to 'massive swings' in his blood glucose levels.[203]

4.129 Diabetes Australia observed a lack of awareness among aged care staff about how diabetes contributes to other health issues such as unexplained falls and urinary tract infections, which can result in avoidable transfers to hospitals.[204]

4.130 This lack of awareness can also lead to misdiagnosis.[205] Miss Nicola Hames, who lives with Type 1 diabetes, was first diagnosed with Type 2 diabetes and given a prescription for metformin.[206] Seven months later, Miss Hames became ill and was then diagnosed with Type 1 diabetes:[207]

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197 Melbourne Dental School, University of Melbourne, Submission 92, n.p.
198 Melbourne Dental School, University of Melbourne, Submission 92, n.p.
199 Pamela Meredith, Submission 99, p. 1.
200 Siba Diqer, Submission 458, n.p.
201 Mr Michael Pipe, Submission 142, p. 1.
202 Mr Michael Pipe, Submission 142, p. 1.
203 Mr Michael Pipe, Submission 142, p. 1.
204 Diabetes Australia, Submission 248, p. 17.
205 See, for example: Name withheld, Submission 39, n.p; Miss Nicola Hames, Submission 46, n.p; Dr Robert Szabo, Submission 141, p. 1, Mr Michael Pipe, Submission 142, p. 1; Name withheld, Submission 265, n.p.
206 Miss Nicola Hames, Submission 46, n.p.
207 Miss Nicola Hames, Submission 46, n.p.

> When I attended my first outpatient appointment, I had done some research and realised a pump was an option, but I failed to realise that I had missed the cut off for a subsidised pump by a measly five months, as my 16th birthday was the December prior to my diagnosis. This lead [sic] to a deep resentment for myself and the system that failed me in November. It also resulted in a string of serious hospitalisations due to Diabetic Keto-Acidosis, which prior to my first hospitalisation post-diagnosis, I had no information on, nor understanding of. My parents could not afford the insurance coverage that would allow me to be issued an insulin pump, much less the outright cost of a pump without any assistance.[208]

4.131 Professor Rowena Barrett was similarly also first misdiagnosed with Type 2 diabetes and prescribed metformin after seeing her doctor about changes to her eyesight.[209] After being unwell for more than six weeks, her doctor correctly diagnosed her with Type 1 diabetes.[210]

4.132 Some submitters also reported the inappropriate food options offered to patients with diabetes in hospital settings.[211] For example, one submitter explained:

> Hospital policies for inpatient care often seem rigged against the health and safety of patients with type 1 diabetes in every way. The ridiculous "diabetic menu" in hospitals, which usually offers inappropriate high glycaemic index (GI) foods, high levels of artificial sweeteners, less choice than a normal menu and little if any carbohydrate information (the only thing that would actually make a menu appropriate for patients with type 1 diabetes) is forced on patients, with it being left to the patient to figure out how to get put on a normal menu. The diabetic menu seems to exist because it's the cheapest way hospitals can pretend they care about our health and safety – instead of recruiting and training more CDEs, properly training doctors and nurses to care for patients with type 1 diabetes, and making hospital policies that allow patients with type 1 diabetes to self-manage except in circumstances where there is a proven risk of self-harm.[212]

Committee comment

4.133 Screening programs are a valuable way to identify people who are at risk of developing diabetes. They offer an opportunity to both delay the onset of, and better treat the condition.

4.134 The Committee acknowledges the body of evidence indicating that many Australians with diabetes are not receiving adequate health monitoring. Patients can face a range of personal, financial and geographical barriers that prevent the optimal

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208 Miss Nicola Hames, Submission 46, p. 2.
209 Professor Rowena Barrett, Submission 54, p. 1.
210 Name withheld, Submission 54, p. 1.
211 Miriam Johnston, Submission 41, n.p.; Name withheld, Submission 172, n.p. See also: Dr James Muecke, Submission 67, Attachment 2, p. 9.
212 Name withheld, Submission 164, n.p.

management of the disease. These factors must be addressed as part of any overall effort to improve diabetes treatment and management in Australia.

4.135 Managing any form of diabetes is a daily challenge, with far-reaching impacts across all aspects of a person's life. Ensuring that all those living with diabetes have access to competent, informed support and care from a multidisciplinary team of health care professionals is essential. Furthermore, health care for patients with diabetes must include access to mental health care services. There is no doubt that diabetes has an adverse impact on mental health, especially in young people, and the Committee believes that more attention should be given to this aspect of diabetes management.

4.136 Throughout the inquiry, it was pressed upon the Committee that BMI was an inadequate indicator for measurement of obesity. Indeed, this is particularly evident for patients with normal-weight obesity syndrome, which is characterised by excess body fat in individuals with adequate BMI. With obesity, including normal-weight obesity, associated with increased risks of cardiovascular morbidity, insulin resistance, and other chronic conditions, greater emphasis should be placed on developing better screening and education strategies for this patient cohort.

4.137 The Committee also recognises the vast challenges facing the Australia's health care system in providing care to people living with diabetes and obesity. While the Committee acknowledges that the challenges within the heath sector are significant, it is disappointing to hear assertions as to a lack of awareness of diabetes among health care providers. All patients should have equitable access to health care providers who have received adequate training in diabetes prevention and treatment.

Recommendation 8

4.138 The Committee recommends that the Australian Government explores the potential for effective national screening programs for all forms of diabetes, particularly Type 2 diabetes.

Recommendation 9

4.139 The Committee recommends that the Australian Government implements a national public health campaign to increase public awareness of the early signs of all forms of diabetes mellitus.

4.140 The Committee recognises the importance of early, timely diagnosis for all forms for diabetes. A diabetes diagnosis has life-changing impact a person's life, as well as the lives of their families and friends. Greater awareness of the symptoms of diabetes and the implications of diabetes on a person's overall health is essential to uptake of diabetes screening.

Recommendation 10

4.141 The Committee recommends that the Australian Government funds the development of education-based obesity screening information and resources.

4.142 The Committee recognises that obesity screening based solely on BMI is inadequate. Obesity screening should therefore have a greater focus on education.

Recommendation 11

4.143 The Committee recommends that the Australian Government implements a national public health campaign to increase awareness of the importance of prevention, identification of early signs, and good management of all forms of diabetes mellitus.

Recommendation 12

4.144 The Committee recommends that equitable access to health care for people living with all forms of diabetes be improved through:

- **Access to longer appointments with a health care provider subsidised by the MBS**
- **Access to case conferencing models of health care, especially in rural and remote areas**
- **Access to telehealth services**
- **Increase in the number of item numbers for allied health consultation for those with diabetes for diabetes educators and dieticians and other allied health providers**
- **Access to diabetes educators, including in high-risk outer metropolitan, rural and remote communities.**

4.145 The Committee is aware of the many barriers that people face when trying to access the health care they need. The Committee recognises the difficulty of people in outer metropolitan, rural and remote areas in particular in accessing health care, including in relation to treatment of and education about diabetes. The Committee agrees that people with diabetes should be able to access longer appointments subsidised by the MBS, better access to case conferencing models healthcare, and greater opportunities for remote consultations.

Recommendation 13

4.146 The Committee recommends that the Australian Government reviews the limits for accessing juvenile mental health and diabetes services, with a view to enabling young people to continue receiving support for longer.

Recommendation 14

4.147 The Committee recommends the Australian Government work with the state and territory governments to develop education tools and resources to support all staff across the health care system to improve understanding of diabetes, its different forms, the early signs and management. The Diabetes in Schools program should be funded to allow all schools to access it.

5. Diabetes technologies

Overview

5.1 Owing to advancements in medical and digital health technologies, the treatment of diabetes has changed substantially over the past two decades.[1] The development of new medical devices in particular has had a transformative effect on diabetes management. The introduction of continuous glucose monitors (CGM) has allowed for real-time reading of the blood glucose levels on a continual basis – a significant improvement compared to periodical readings obtained by drawing blood from a finger.

5.2 Equally significant has been the shift away from the use of needles and syringes for the administration of insulin, which has been enabled by products such as the insulin pump. The integration of CGMs and insulin pumps through applications that allow for these two devices to share user's data has allowed for the almost fully-automated management of diabetes – a major advancement that has been hailed as the gold standard for diabetes management.

5.3 The inquiry received substantial evidence regarding the many promising technologies that have been and are being developed for the prevention and diagnosis of diabetes. The ensuing discussion focuses specifically on the new methods for monitoring glucose levels, including the use of CGMs and their integration with insulin pumps. Evidence regarding the advantages and challenges presented by new diabetes treatment technologies is also considered, along with the issue of patient access to and the current framework for the assessment and reimbursement of new diabetes technologies.

Glucose monitoring methods

5.4 Controlling blood glucose levels is the principal goal of diabetes treatment. Maintaining levels in a target range helps to reduce the risk of adverse health events, and prevent complications of the disease.

5.5 Traditionally, glucose levels were monitored using urine samples, with the first commercial urine glucose tests becoming available at the beginning of the 20th century.[2] The first blood glucose tests were developed in the mid-1960s, and during

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1 See, for example: Department of Health and Aged Care, Submission 152; Medical Technology Association of Australia (MTAA), Submission 426.

2 IB Hirsch, 'Introduction: History of Glucose Monitoring,' in *Role of Continuous Glucose Monitoring in Diabetes Treatment*, American Diabetes Association, Arlington, 2018, p. 1.

the 1980s the self-monitoring of blood glucose (SMBG) method, which involves taking regular finger-prick blood samples, became the standard of care.[3]

5.6 SMGB continued to improve throughout the 1980s, 1990s and early 2000s. Patients with diabetes used test strips and portable meters to obtain a reading of their glucose levels; daily injections of insulin would be then manually administered based on the patient's reading of glucose from the blood sample.

5.7 In its submission to the inquiry, the Medical Technology Association of Australia (MTAA) suggested that the SMBG method 'whilst safe and effective and still widely employed today, came with significant disadvantages, including routine pain and discomfort for patients.'[4] As a consequence, patients might avoid the test, which limits the usefulness of this treatment.

5.8 Multiple submissions to the inquiry have highlighted the fact that these manual monitors provide only a snapshot of blood glucose levels at a particular moment in time, and thus tend to miss any fluctuations that might occur throughout the day.

5.9 In addition to SMBG being ineffective at providing comprehensive information about the glucose levels, the method of administering insulin with a needle and syringe or insulin pen had its own drawbacks. MTAA highlighted that while effective, 'insulin pens and injections, as tools of treatment, present significant challenges for diabetes care.'[5] Administering multiple injections during the day presents difficulty for many patients. Furthermore, 'the use of syringes is associated with poor dose accuracy, a long training period, unpleasant psychological impact, and difficulties in conveyance.'[6] The challenges with these traditional methods of both monitoring glucose levels and administering insulin often results in non-adherence, and as a consequence, poor glycaemic control.

New diabetes technologies

5.10 The most significant advancement in diabetes technology in recent years has been the development of the hybrid closed loop (HCL) system, also referred to as the automated insulin delivery (AID) or an artificial pancreas. The HCL consists of three main components: a CGM, an insulin pump, and an algorithm that uses data from the monitor and the pump to automatically adjust the amount of insulin delivered.

Continuous glucose monitoring

5.11 A CGM is a device that provides real time, continuous data about an individual's glucose levels throughout the day and night. CGM systems consist of a small, flexible sensor, a transmitter, and a monitoring device. The sensor, which is inserted just

3 Hirsch, 'Introduction: History of Glucose Monitoring,' p. 1.
4 MTAA, Submission 426, p. 4.
5 MTAA, Submission 426, p. 6.
6 MTAA, Submission 426, p. 6.

beneath the skin, continuously measures glucose levels in the interstitial fluid, which is found in the space surrounding the body cells.[7]

5.12 This system provides detailed data about a person's glucose levels, with a more accurate and a more dynamic understanding of blood glucose fluctuations than the finger-prick method. In appearing before the Committee, Dr Sarah Price, Director of Obstetric Medicine at the Royal Women's Hospital, Melbourne, commented that '[t]he technology in terms of diabetes has absolutely revolutionised care,'[8] and highlighted its advantages for her patients:

> …at the moment they do four finger stick tests a day, and really that's four points in time. If you have continuous glucose monitoring you get 288 points per day, so you know where you are in time.[9]

5.13 In its submission to the inquiry, CGM manufacturer Dexcom explained that the access to this real-time glucose data enables users to make timely adjustments to insulin dosing, dietary choices, and physical activity, which helps them to better control their glucose levels and keep them within the target range.[10]

5.14 The Committee received numerous submissions from patients with diabetes describing the impact of CGMs as being life changing. In presenting evidence before the Committee, Ms Jessica Hart, who lives with Type 1 diabetes, described her experience with CGM:

> With the CGMs, you have visibility. Prior to that manual testing, you get a number and five minutes later it could have changed, but you don't know. When you eat a particular food or have something to drink, you can see what is happening and the effect it is having. So you go from that and then try and navigate that the next time you have that same intake.[11]

5.15 Mr Omar Alim, who was diagnosed with Type 2 diabetes 15 years ago and has been reliant on insulin to manage his condition, described the introduction of CGM into his diabetes management routine as 'a game-changer,' and explained that:

> With its real-time glucose monitoring and almost real-time feedback capabilities, I am now able to effectively monitor and adjust my diet and insulin dosages which enabled me to achieve normal blood sugar levels, something I struggled to accomplish before the use of my CGM.[12]

5.16 In addition to providing real-time awareness of blood glucose levels, CGM is also less invasive than traditional forms of monitoring. In generating critical trend data, the system can also produce alerts and alarms in case of emergency. Furthermore, the

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7 Dexcom, Submission 375, n.p.

8 Dr Sarah Price, Director of Obstetric Medicine, Royal Women's Hospital, *Committee Hansard*, Melbourne, 23 November 2023, p. 8.

9 Dr Price, Royal Women's Hospital, *Committee Hansard*, Melbourne, 23 November 2023, p. 9.

10 Dexcom, Submission 375, n.p.

11 Ms Jessica Hart, Private capacity, *Committee Hansard*, Canberra, 1 March 2024, p. 8.

12 Omar Alim, Submission 134.

ability to share CGM data allows health care providers to remotely monitor patients and provide targeted guidance on changes in treatment methods.[13]

5.17 The ability to share this data is also invaluable for family members of diabetes patients. Professor Daryl Higgins, who lives with Type 1 diabetes, explained the advantages of data-sharing:

> Previously, I've had instances of having a hypo where I was unaware, and not responding to my phone (which was on silent as I had been in meetings). My partner was left worried as he didn't know whether my BGLs [blood glucose levels] were OK or not, and whether or not he needed to do something.
>
> Now, he can easily check my BGLs in real time, know whether they are rising or falling, and knows whether he needs to do anything to support me or not.[14]

5.18 Dexcom submitted that this feature has been transformative in paediatric diabetes management, as it helps parents and caregivers monitor children's glucose levels more effectively.[15]

5.19 The use of CGMs has also shown to have a positive effect on patient behaviour, by helping patients to adopt habits that improve their health outcomes.[16] The ability to see the immediate impact of their diet or physical activities helps them to understand and calibrate their behaviour to better manage their glucose levels.

Insulin pump therapy

5.20 Patients with insulin-dependent diabetes can currently use several different methods to administer insulin: multiple daily injections (MDI); continuous subcutaneous insulin infusion (CSII) or insulin pump therapy; or a sensor-augmented pump (SAP) that includes a pump and a CGM sensor that wirelessly transmits glucose readings to a receiver or to the pump (or HCL).[17]

5.21 The common approach to administering insulin includes MDI, usually using needle and syringe. Insulin pens – which are an injection device that patients use to deliver preloaded insulin into their subcutaneous tissue (the innermost layer of skin) – are a type of MDI. These devices look like writing pens, with a single-use needle at their point and an insulin reservoir. Also available are 'smart' insulin pens, which can track and share insulin dosing data to enable more accurate dosages.[18]

5.22 The CSII method – or insulin pump – is a small, portable, programmable, battery-powered pump used to infuse insulin subcutaneously via a specifically designed fine tube (cannula) inserted into the body. Insulin is stored in a reservoir contained within

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13 MTAA, Submission 426, p. 4.
14 Professor Daryl Higgins, Submission 120.
15 Dexcom, Submission 375, n.p.
16 Dr Greg Norman, Director, Health Economics and Outcomes Research, Dexcom/Australasian Medical and Scientific Limited, *Committee Hansard*, Canberra, 22 March 2024, p. 22.
17 Medtronic, Submission 397, p. 6.
18 MTAA, Submission 426, p. 6.

the pump. The infusion rates are accurately controlled by the pump, and can be adjusted with a slow baseline rate administered around the clock, and supplementary boosts (bolus shots) given at, or shortly before, mealtimes. The pump thus mimics the natural multi-rate insulin delivery of a healthy pancreas.[19]

5.23 The information used by insulin pumps is obtained either through traditional finger-prick readings or, more commonly, through being integrated with CGM as part of the HCL system. When used with CGM, insulin pumps can both deliver insulin when blood glucose levels are above the target range, and withhold insulin when levels are trending down towards low blood glucose levels.[20] This method allows the patient to maintain good metabolic control automatically, or with little manual intervention.

5.24 Glucose self-management is a complex process whereby, according to Diabetes Australia, patients make more than 180 diabetes-related decisions per day.[21] The new technology significantly reduces this burden of care and decision making.[22] As such, HCL systems are considered to be the optimal form of care for patients with insulin-dependent diabetes.[23]

Telehealth

5.25 The introduction of new technologies in diabetes management has allowed for remote monitoring of patient data, and by extension, greater opportunities for the use of remote health-related services, which is often referred to as telehealth. Evidence received throughout the inquiry highlighted the increasingly important role of telehealth in diabetes management.[24] This form of care provision helps with onboarding new patients, monitoring existing patients, and improving accessibility to services. As the MTAA submitted, 'modern remote monitoring tools can help track blood glucose levels, dietary intake, and physical activity, providing healthcare professionals with comprehensive data to personalise treatment plans.'[25]

The use of continuous glucose monitors

5.26 A substantial amount of evidence gathered during the inquiry related to different contexts in which CGMs and HCL systems are used.

5.27 As is the case internationally, in Australia HCL systems are considered to be the optimal method of care for patients with Type 1 diabetes. In aiming to provide this level of care, the Australian Government subsidises CGMs for all patients with Type

19 Medtronic, Submission 397, p. 6.
20 Medtronic, Submission 397, pp. 6–7.
21 Diabetes Australia, Submission 248, p. 20.
22 See Hon Emily Suvaal MLC, Submission 472.
23 MTAA, Submission 426, p. 14.
24 Department of Health and Aged Care, Submission 152, p. 24; MTAA, Submission 426, p. 8.
25 MTAA, Submission 426, p. 8.

1 diabetes. In addition, a portion of patients within this group are also eligible for an insulin pump.[26]

5.28 The Committee heard that HCL systems represented the optimal form of care not only for patients with Type 1 diabetes, but for all insulin-dependent diabetes patients. Mr Samy Saad, Senior Director of Commercial Operations at Dexcom, submitted that 'a person with type 2 diabetes needing injections of insulin has similar medical needs and requirements for access to CGM devices as a person with type 1 diabetes.'[27] Regardless of the type, Mr Saad highlighted:

> …the consequences of not properly managing diabetes are significant for individuals, the health system, and the economy in terms of morbidity, mortality, quality of life and hospital admissions due to complications as well as productivity losses.[28]

5.29 Other groups of patients that require insulin include those suffering from cystic fibrosis. There are approximately 3600 Australians living with this disease, which is a genetic condition that causes severe damage to the lungs, digestive system and other organs in the body, and does not have a cure.[29] Cystic Fibrosis Australia submitted that up to a third of people with cystic fibrosis also suffer from diabetes and require insulin.[30]

5.30 Equally dependent on insulin treatment are those patients who have undergone a pancreatectomy – the surgical removal of all or part of the pancreas (most frequently due to tumours or pancreatitis). The burden of care and treatment requirements for these groups of patients are frequently the same as for those living with Type 1 diabetes.[31] Mr Michael Pipe, who lives with Type 3c diabetes, submitted that this condition was particularly difficult to manage: unlike Type 1 diabetes, which is characterised by a total absence of insulin, with Type 3c 'the pancreases may randomly produce insulin in variable and unpredictable quantities,' making it harder to maintain a controlled glucose level.[32]

5.31 Although the use of CGM and HCL is more readily available for people living with Type 1 diabetes, there is broad consensus among health care professionals and patient groups that this technology would be equally beneficial for all insulin dependent patients.

5.32 The benefits of using CGM have been also recognised among patients with non-insulin therapies. In discussing the use of CGMs for women with diabetes during pregnancy, Dr Nisha Khot, Vice President of the Royal Australian and New Zealand

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26 Department of Health and Aged Care, Submission 152, pp. 18–19.

27 Mr Samy Saad, Senior Director, Commercial Operations, Australia and New Zealand, Dexcom/Australasian Medical & Scientific Limited, *Committee Hansard*, Canberra, 22 March 2024, p. 17.

28 Mr Saad, Dexcom/Australasian Medical & Scientific Limited, *Committee Hansard*, Canberra, 22 March 2024, p. 17.

29 Cystic Fibrosis Australia, Submission 71.

30 Cystic Fibrosis Australia, Submission 71. See also: Dr Shanal Kumar, Submission 74.

31 Adult Cystic Fibrosis Centre, TPCH Brisbane, Submission 145.

32 Mr Michael Pipe, Submission 142, p. 1.

College of Obstetricians and Gynaecologists, told the Committee that these devices should be available in respect of both Type 1 and Type 2 diabetes, noting that:

> From a pregnancy point of view, certainly we know that having better sugar control means better outcomes. So from a pregnancy point of view, absolutely it's important; otherwise, from a lifelong health point of view, it is just as important.[33]

5.33 To date the use of CGM to improve glycaemic control in gestational diabetes has only been tested in smaller studies, but there are indications of their beneficial impact on health outcomes in this context as well. As Dr Greg Norman, Director of Health Economics and Outcomes Research at Dexcom, explained:

> The evidence does suggest improvements in glycaemic control. I know that physicians, OB-GYNs in the US [United States] do use them more proactively for any patient who is at high risk. […] The American Association of Clinical Endocrinologists guidelines recommend CGM for women with GDM [gestational diabetes] on insulin and may recommend for women who are not on insulin. Their guidelines are pretty progressive in that sense.[34]

5.34 CGMs have also been used as biofeedback tools in the context of pre-diabetes. In this situation, a person diagnosed with pre-diabetes uses the device for a specific period of time in order to better understand the impact of (and regulate) dietary and lifestyle choices, and in doing so delay or prevent the onset of diabetes. According to Dr Norman, available testimonials suggest that CGMs can be an effective tool in diabetes prevention:

> From a behaviour change perspective, it's almost like you can have these micro interventions; so you're getting that feedback—what happens when I eat this? What happens if I take a walk after I eat this food? Should I avoid this because my glucose is already running a bit high? It's not randomised evidence, but there are indications that people are using this for behaviour change.[35]

5.35 Professor Robyn Langham, Chief Medical Adviser within Health Products Regulation at the Department of Health and Aged Care, noted, however, that CGMs in Australia are indicated for patients with Type 1 diabetes and patients with Type 2 diabetes who require insulin, explaining further that:

> Their utility is really just in those patients who use insulin. For patients with type 2 diabetes who are not necessarily on insulin but take medications in oral form, there's not a lot of evidence that sort of technology helps with their diabetes control.[36]

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33 Dr Nisha Khot, Vice President, Royal Australian and New Zealand College of Obstetricians and Gynaecologists, *Committee Hansard*, Melbourne, 23 November 2023, p. 31.

34 Dr Norman, Dexcom/Australasian Medical and Scientific Limited, *Committee Hansard*, Canberra, 22 March 2024, p. 22.

35 Dr Norman, Dexcom/Australasian Medical and Scientific Limited, *Committee Hansard*, Canberra, 22 March 2024, p. 22.

36 Professor Robyn Langham, Chief Medical Adviser, Health Products Regulation, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 16.

5.36 As part of the inquiry, the Committee also investigated whether there were significant differences between different brands of CGMs currently available in Australia. Reflecting on this question, Dr Shanal Kumar, endocrinologist at the Prince Charles and Princess Alexandra Hospitals in Brisbane, explained:

> There are differences in accuracy. There are differences in warm-up times, so how long they take to start working. There are differences in compatibility, so what other diabetes technology they link up to. Then there is patient preference. I think cost has been the biggest driver that we've seen for preference of one of the types of continuous glucose monitors that we have available in Australia, despite there being three different ones available at this stage.[37]

Issues with the new technology

5.37 Although CGMs and HCL systems have significant advantages over other available methods of diabetes management, the Committee received evidence relating to the potential drawbacks of these technologies.

5.38 In its submission, the Department of Health and Aged Care drew attention to the fact that CGM systems worked by measuring glucose levels in the interstitial fluid, which could lag behind levels present in blood.[38] According to Diabetes Australia, CGM readings lag behind blood glucose readings by 5–10 minutes, and as a result devices may require calibration during the day.[39]

5.39 User intervention is also required in the context of current HCL systems, which are not fully automated. In their appearance before the Committee, insulin pump manufacturer Ypsomed explained that CGM and the pump are linked via an algorithm, which is on the user's mobile phone.[40] The algorithm adjusts the insulin dosing, but the patient has to announce meals and prompt the pump via the phone application to deliver the insulin boost. Ypsomed Head of Australian Operations, Mr James Mayjor, explained to the Committee that in their experience the level of technological literacy necessary to manage this process has not been a barrier for users across different age and language groups; the aim for the next generation of products, however, is to be a 'fully closed loop' without the need for meal announcements.[41]

5.40 The Australian Diabetes Educators Association (ADEA) submitted that it is important to provide formal support for patients so that they can learn how to best use the technology.[42] ADEA suggested that offering five hours of support by a diabetes health professional with training and experience in diabetes technology would optimise the

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37 Dr Shanal Kumar, Private capacity, *Committee Hansard*, Brisbane, 20 November 2023, p. 39.

38 Department of Health and Aged Care, Submission 152, p. 9.

39 Diabetes Australia, *Blood glucose monitoring*, accessed 4 June 2024, www.diabetesaustralia.com.au/managing-diabetes/blood-glucose-monitoring/

40 Mr James Mayjor, Head of Australian Operations, Ypsomed, *Committee Hansard*, Canberra, 17 November 2023, p. 35.

41 Mr Mayjor, Ypsomed, *Committee Hansard*, Canberra, 17 November 2023, pp. 35–36.

42 Australian Diabetes Educators Association (ADEA), Submission 221, p. 5

use of these devices. This suite of training would include one visit to an endocrinologist or a Credentialled Diabetes Educator (CDE) to support the initiation of diabetes technology, and up to four additional hours of either in-clinic or out-of-clinic advice on how to interpret and respond to changing blood glucose data. Such training may reduce emergency department presentations, and help people living with diabetes better manage their glucose levels.[43]

5.41 Patients living in remote parts Australia face additional challenges in the use and maintenance of these devices. In appearing before the Committee, Dr Kristen Neal, endocrinologist from Alice Springs Hospital, highlighted some practical difficulties that remote patients face:

> …it can be quite diabolical to manage pumps in terms of hygiene, having to change the sets every three days, using the technology remotely and often needing to have a mobile phone for the continuous glucose monitor to talk to the pump. Remote patients are gone because they don't have any reception. There are a lot of barriers for type 1 patients in these communities. For type 2 patients, I think the practicalities would be the same in terms of safety and all the paraphernalia that goes with the access to technology.[44]

5.42 The Committee also heard about the challenges presented by inconsistent advice regarding the sensitivity of diabetes devices to X-ray machines and body scanners. According to one submitter some manufactures state that these devices should not be scanned to ensure their accuracy is not impacted; meanwhile security screening machines are often categorised as being safe for scanning of medical devices by their manufacturers.[45] The lack of clear guidelines on whether diabetes devices can be scanned has been a source of confusion and frustration for users, often resulting in delays and distressing experiences at security check points.

5.43 Finally, the issue of trust in technology can also be a significant barrier to the take-up of new diabetes devices. Ypsomed submitted that their market research suggested that some patients are reluctant to go onto insulin pump therapy as they 'don't trust a device to deliver their insulin.'[46] In addition, some patients simply do not like the notion of 'being attached to a device.'[47] In reflecting on her experience with using an insulin pump, Ms Jessica Hart told the Committee about her initial reservations:

> It took me quite a long time to decide to move to pump therapy because of the prosthetic attachment. To be honest, I am glad that I did. It is now a way of life. I certainly believe that, for me in particular, there is a lot of body shaming around having a device attached to your body and the changes that your body goes through when you are diagnosed.[48]

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43 ADEA, Submission 221, p. 5.
44 Dr Kristen Neal, Endocrinologist, Alice Springs Hospital, *Committee Hansard*, Alice Springs, 6 March 2024, p. 34.
45 Jessica Hart, Submission 466, n.p.
46 Mr Mayjor, Ypsomed, *Committee Hansard*, Canberra, 17 November 2023, p. 35.
47 Mr Mayjor, Ypsomed, *Committee Hansard*, Canberra, 17 November 2023, p. 35.
48 Ms Hart, *Committee Hansard*, Canberra, 1 March 2024, p. 5.

5.44 The Committee heard from many submitters and witnesses who indicated that their experience using new technologies has been positive, and that health professionals, patient groups, and manufacturers support greater access to these devices.

5.45 These innovations in diabetes management are foreshadowing the future of personalised approach to health care.[49] By integrating scientific and clinical data and applying this information to individual patient profiles, these new technologies are able to optimise the diagnosis, prediction, prevention and treatment of diabetes. The control of diabetes that uses personalised devises, artificial intelligence, and allows for remote monitoring by clinician, as MTAA further highlighted, provides 'a window into the future of personalised management and prevention for all chronic disease.'[50]

Access to new technology

5.46 In Australia there are five key pathways that enable patient access to medication and other technologies for the treatment of diabetes:

- Pharmaceutical Benefits Scheme (PBS)
- National Diabetes Service Scheme (NDSS)
- Insulin Pump Program (IPP)
- Prescribed List for Medical Devices and Human Tissue Products (formerly known as the Prosthesis List)
- Self-funded Care.[51]

5.47 The Australian Government provides support to people with diabetes through the PBS, the NDSS, the IPP and Medicare.[52]

5.48 Essential medicines such as insulin are subsidised under the PBS; furthermore, a range of medicines currently listed on the PBS may be used in the management of diabetes. Some of these are subsidised only where a patient meets certain eligibility criteria, while others are unrestricted.[53]

5.49 The NDSS provides subsidised products and support services to people with diabetes. The scheme has been administered by Diabetes Australia since 1987. Subsidies for CGMs and insulin pump consumables are made available to patients who meet the eligibility criteria through the NDSS.[54]

5.50 In April 2017, the NDSS began providing subsidised CGM products to children and adolescents under the age of 21 with Type 1 diabetes. In 2019, the scheme was

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49 Department of Health and Aged Care, Submission 152, p. 9.
50 Mr Paul Dale, Director, Policy, Medical Technology Association of Australia (MTAA), *Committee Hansard*, Canberra, 22 March 2024, p. 44.
51 MTAA, Submission 426, p. 13.
52 Department of Health and Aged Care, Submission 152, p. 3.
53 Department of Health and Aged Care, Submission 152, p. 17.
54 Department of Health and Aged Care, Submission 152, p. 17.

expanded to include women with Type 1 diabetes who are actively planning pregnancy, pregnant, or immediately post-pregnancy; children and young people under 21 years with conditions similar to Type 1 diabetes who require insulin also gained access to this technology.[55] In July 2022, the eligibility criteria for this scheme were further expanded to provide a partial or full subsidy of these products to all registrants with Type 1 diabetes – meaning that this scheme is now available to more than 130,000 Australians.[56]

5.51 The Department of Health and Aged Care's submission noted that the Juvenile Diabetes Research Foundation (JDRF) Australia conducts research on behalf of the Department into the effectiveness of CGM use in the self-management of Type 1 diabetes. This data, the submission stated, 'indicates funding of CGM for people with Type 1 diabetes in Australia has led to sustained improvements in HbA1c (the amount of blood sugar (glucose) attached to a person's haemoglobin) and a reduction in diabetic ketoacidosis episodes with continued use.'[57]

5.52 The IPP, which is administered by the JDRF and funded by the Australian Government, provides means-tested subsidies for patients under the age of 21 with Type 1 diabetes whose family cannot afford or does not have private health insurance.[58] The Department of Health and Aged Care submitted that the program aimed to provide 315 insulin pumps per year to eligible people.[59] Pumps are given with approximately one month initial supply of pump consumables with ongoing consumables accessed via the NDSS for approved persons.[60]

5.53 In appearing before the Committee, Ms Adriana Platona, the Department's First Assistant Secretary for Technology Assessment and Access, explained that multiple suppliers currently provide CGM products for the Department. Last year, the Department announced a new request for tenders for a CGM supplier, and is currently in the process of assessing the tenders received.[61]

5.54 In the case of insulin pumps, the Department issued a request for tenders last year, with Ypsomed becoming the sole provider for the IPP.[62] Previously, the Department used exclusively Medtronic products for four years. The Committee queried about the rationale for selecting a single supplier and the issue of the lack of choice for the users. Ms Platona noted that Ypsomed offered a price that allowed the Department to obtain more pumps with its caped budget, and thus support more patients with diabetes. The price, however, was not the sole factor with Ms Platona explaining that the Department also considered access to uninterrupted supply and user acceptability and quality of life, as best as those criteria could be appraised.[63]

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55 Dexcom, Submission 375, n.p.
56 Department of Health and Aged Care, Submission 152, p. 18.
57 Department of Health and Aged Care, Submission 152, p. 19.
58 Department of Health and Aged Care, Submission 152, p. 19. See also: Ypsomed, Submission 416, p. 5.
59 Department of Health and Aged Care, Submission 152, p. 19.
60 Ypsomed, Submission 416, p. 5.
61 Ms Adriana Platona, First Assistant Secretary, Technology Assessment and Access, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 18.
62 Ms Platona, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 18.
63 Ms Platona, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, pp. 18–19.

5.55 Insulin pumps are also available for individuals with private health insurance via the Prescribed List for Medical Devices and Human Tissue Products (formerly known as the Prosthesis List). Ypsomed data suggests that around 83 percent of patients with Type 1 diabetes have private health insurance. Most insurers, according to Ypsomed, allow a member to claim an insulin pump replacement after a set period of time, which is not fixed or regulated; currently the interval is commonly between four and five years.[64]

5.56 In addition to the devices themselves, software applications are a critical part of CGMs and HCL systems. There is currently no routine reimbursement for digital health applications in Australia.[65]

5.57 It is therefore the case that CGMs are currently available for all Type 1 diabetes patients in Australia and pumps to a small subset of these patients who are either eligible for the IPP, or who have gold tier private health insurance.[66] For most people living with diabetes, however, there are significant barriers to accessing new technologies designed to assist in the management of this disease.

5.58 In noting that current pathways to accessing new technologies are fragmented and inequitable, MTAA highlighted the 'unique limitations which combine to restrict access to innovations in treatment options for Australians living with diabetes.'[67] MTAA further expressed concern that none of the pathways provide comprehensive diagnostic, treatment, or management options to Australians living with diabetes.

5.59 In examining the current prices of new diabetes technologies, the Committee learned that the cost of CGM is currently approximately $330 per month, and that the out-of-pocket cost of an insulin pump is between $6,000 and $10,000 every four years.[68]

5.60 In support of the inquiry, the Parliamentary Budget Office (PBO) undertook cost modelling of insulin pump subsidies for all Australians living with Type 1 diabetes. The following six options were considered:

- Option 1: Fully subsidise Medtronic, AMSL Tandem, YpsoPump and Omnipod DASH insulin pumps for all Australians living with type 1 diabetes.
- Option 2: Partially subsidise (50 per cent) Medtronic, AMSL Tandem, YpsoPump and Omnipod DASH insulin pumps for all Australians living with type 1 diabetes.
- Option 3: Fully subsidise the Medtronic insulin pump only for all Australians living with type 1 diabetes.
- Option 4: Fully subsidise the AMSL Tandem insulin pump only for all Australians living with type 1 diabetes.

64 Ypsomed, Submission 416, pp. 5–6.
65 MTAA, Submission 426, p. 15.
66 Department of Health and Aged Care, Submission 152, pp. 18–19; MTAA, Submission 426, p. 14.
67 MTAA, Submission 426, p. 13.
68 Mr Saad, Dexcom/Australasian Medical & Scientific Limited, *Committee Hansard*, Canberra, 22 March 2024, p. 19; Ypsomed, Submission 416, p. 6.

- Option 5: Fully subsidise the Ypsomed insulin pump only for all Australians living with type 1 diabetes.
- Option 6: Fully subsidise the Omnipod DASH insulin pump only for all Australians living with type 1 diabetes.[69]

5.61 In submitting its analysis, PBO noted that the demand for insulin pumps and the departmental impacts were the same under all options. The only variance between the options was the price of the pumps. For Options 1 and 2, the price is the average of the four pumps while the remaining four options use the price of the specified pump.[70]

5.62 The PBO advised that the introduction of:

> The options in the proposal would be expected to decrease the fiscal and underlying cash balances by between around $348 million (Option 2) and $749 million (Option 6), over the 2023-24 Budget forward estimates period.[71]

5.63 Private Healthcare Australia (PHA), private health industry's peak representative body, provided the Committee with additional information regarding the current cost of insulin pumps. The price for insulin pumps is set by the government through its prescribed list for medical devices. When the pumps were originally added to the list, they were new to the market. Since then, their price has decreased, but this is not reflected on the government prescribed list as pricing changes require a lengthy review process. As Mr Ben Harris, PHA Director of Policy and Research, noted:

> …our system has a set and forget. So the market price was $8,000 when [the insulin pumps] were put on. The market price is now 4½ and they're still $8,000.[72]

5.64 Although private health insurers are one of the largest collective buyers of these devices, they are unable to obtain globally competitive rates due to the protected pricing system maintained by the prescribed list.[73] According to PHA, one of the most common pumps in Australia costs Australians $8,574 while the same devise costs NZ$4,500 for people in New Zealand.[74]

5.65 There is a general consensus among medical professionals and patient groups that all insulin dependent patients, regardless of diabetes type, should have access to subsidised new technologies. Dr Ashim Kumar Sinha, Director of Diabetes and Endocrinology at Cairns Hospital and Health Service District emphasised that access to technology should be based on patient's clinical need, rather than the type of diabetes they have:

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69 Parliamentary Budget Office (PBO) costings, Appendix F, p. 1.
70 Parliamentary Budget Office (PBO) costings, Appendix F, p. 2.
71 Parliamentary Budget Office (PBO) costings, Appendix F, p. 2.
72 Mr Ben Harris, Director, Policy and Research, Private Health Australia (PHA), *Committee Hansard*, Canberra, 16 February 2024, p. 5.
73 Mr Harris, PHA, *Committee Hansard*, Canberra, 16 February 2024, p. 2.
74 Mr Harris, PHA, *Committee Hansard*, Canberra, 16 February 2024, p. 2.

> I think the availability of continuous glucose monitoring should be patient centred and focused and not diabetes focused. Whether they have type 1 or type 2 diabetes, we have complex patients with type 2 diabetes who have multiple complications and are on complex medical treatment, including multidose insulin therapy as well as many other medications, which requires continuous monitoring at least over a period of time.[75]

5.66 Dr Sinha further noted that to mitigate the cost of this technology for patients who do not have access to subsidies, CGMs were used sporadically at critical points in care management:

> We're not using it continuously for type 2. We say to use it for a short period, then once you are stabilised, come off it and use finger prick. If we make any major change to your treatment, use it for that period. They simply can't afford to use it for a longer period, but they can probably afford that $100 or $200.[76]

5.67 The Committee received a substantial number of submissions from Australians living with insulin dependent diabetes who rely on CGMs, but often struggle to meet the costs of the technology as they are not eligible for subsidies.

5.68 Mr Thomas Francis, electrical engineer and pancreatic cancer survivor, explained in his submission that since his pancreatomy he has relied on his CGM to help him manage his condition, enabling him to 'focus on challenges at work without being anxious about hypoglycaemia.'[77] Although suffering complex clinical needs since the complete removal of his pancreas, he is not eligible for NDSS subsidies as the scheme does not recognise Type 3c diabetes. As such, Mr Francis faces a significant financial burden in securing access to this critical piece of technology.

5.69 In Australia, approximately 25 per cent of people with Type 2 diabetes are insulin dependent.[78] This cohort is similarly not eligible for the CGM subsidy, and as a consequence a number of these patients only use the devices sporadically. In sharing his experience as an insulin-dependent Type 2 diabetes patient, Dr David Rose explained:

> I can achieve satisfactory monitoring with frequent finger pricks but even better and more continuous monitoring is available from skin patches measuring interstitial fluid glucose levels. Such patches are expensive and are not subsidised for type 2 diabetes, so that I use them only on special occasions such as on extended bushwalks.[79]

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75 Dr Ashim Kumar Sinha, Director of Diabetes and Endocrinology, Cairns Hospital and Health Service District, *Committee Hansard*, Cairns, 22 November 2023, p. 1.

76 Dr Sinha, Cairns Hospital and Health Service District, *Committee Hansard*, Cairns, 22 November 2023, p. 7.

77 Mr Thomas Francis, Submission 4.

78 National Diabetes Support Service (NDSS), *Diabetes Data Snapshots*, accessed 4 June 2024, www.ndss.com.au/about-diabetes/diabetes-facts-and-figures/diabetes-data-snapshots/

79 Dr David Rose, Submission 20.

5.70 The Committee received an overwhelming body of evidence pointing to the significant benefits and increase in quality of life among non insulin-dependent diabetes patients who use CGM. Ms Susan Lloyd, for example, submitted that since being diagnosed with Type 2 diabetes in 2021 she has been unsuccessful in managing the disease through diet and lifestyle changes. She has found that CGM has enabled her to better manage her condition than the use of regular finger prick, but noted that the technology was not affordable on an ongoing basis without a subsidy.[80]

5.71 The need for greater access to both CGMs and insulin pump technology has also been raised in the context of managing diabetes in pregnancy. As Dr Price from the Royal Women's Hospital, Melbourne, explained:

> Our key recommendations for providing diabetes management in pregnancy would include consideration of subsidised access to insulin pumps for women with type 1 diabetes who are pregnant or planning pregnancy. This will allow women to use closed loop in pregnancy, which has been shown to improve glycaemic control and reduce diabetes distress. Secondly, consideration of subsidised access to CGM for women with type 2 diabetes. These women have similar pregnancy outcomes to women with type 1 diabetes, but they're more likely to come from minority groups, women who don't speak English or women with mental illness or who are affected by drug and alcohol dependence. This tool will allow them to improve glycaemic control.[81]

5.72 Many submissions provided to the Committee argued that access to the new diabetes technologies should be based on patient's clinical needs, echoing Dr Sinha's maxim: 'treat the patient, not the type of diabetes.'[82]

Assessment process for new technologies

5.73 As part of the inquiry, the Committee heard evidence regarding the impact that assessment and reimbursement processes have on patient access to new diabetes technologies. The Australian Government regulates the use and supply of medical devices, along with medicines, biologicals (goods that contain or are derived from human cells or tissues), and other therapeutic goods. Under the *Therapeutic Goods Act 1989* (Cth), this regulatory responsibility rests with the Secretary of the Department of Health. This responsibility has been delegated to the Department's Therapeutic Goods Administration (TGA), which ensures that therapeutic goods are safe and fit for purpose.[83]

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80 Ms Susan Lloyd, Submission 12.

81 Dr Price, Royal Women's Hospital, *Committee Hansard*, Melbourne, 23 November 2023, p. 7.

82 Dr Sinha, Cairns Hospital and Health Service District, *Committee Hansard*, Cairns, 22 November 2023, p. 7.

83 House of Representatives Standing Committee on Health, Aged Care and Sport, *The New Frontier – Delivering better health for all Australians, Inquiry into approval processes for new drugs and novel medical technologies in Australia*, November 2021, pp. 12–13.

5.74 Reimbursement for the cost of therapeutic goods in Australia occurs through the health technology assessment (HTA) process.[84] The reimbursement programs for medicines include the Pharmaceutical Benefits Scheme, the Repatriation Pharmaceutical Benefits Scheme, and the Life Saving Drugs Program. The Pharmaceutical Benefits Advisory Committee (PBAC) is designated as a relevant body that recommends drugs to the Minister for Health for listing. Reimbursement for the cost of medical devices is provided through the Medicare Benefits Schedule and the NDSS, with the Medical Services Advisory Committee (MSAC) charged with recommending medical devices to the Minister for public reimbursement.[85]

5.75 In its submission to the inquiry, the Department of Health and Aged Care highlighted the importance of balancing timely access to technological advances in diabetes management with regulation 'to ensure the intended use matches available evidence.'[86] The Department further noted:

> The TGA aims to achieve this balance by applying an appropriate extent of assessment that is proportionate to the level of risk. This aligns with the TGA's role to safeguard and enhance the health of the Australian community through the effective and timely regulation of therapeutic goods.[87]

5.76 In 2020, the Australian Government designated MSAC as the relevant HTA body to assess diabetes-related products for subsidisation under the NDSS.[88] According to MTAA, this process has proven to be both lengthy – taking up to four years in some cases – and not designed to account for technologies with digitally-enabled components such as CGM systems or digitally-based technologies such as glucose data monitoring, transmitting and disease self-management applications.[89] As Mr Paul Dale, MTAA Director of Policy observed:

> It's not like a pharmaceutical life cycle, where you can collect enormous amounts of data and then the product is pretty stable over time. It's a very different way of assessing.[90]

5.77 In appearing before the Committee, Ms Platona explained that MSCA first examined CGMs in July 2021 but that the assessment processed was placed on hold once the decision was made to expand the eligibility criteria for the device:

> It's hard to do health technology assessments while the eligibility criteria are all expanding at the same time, so MSAC stopped and allowed government to make its decisions and for the program to be expanded. We are hoping that MSAC will

84 House of Representatives Standing Committee on Health, Aged Care and Sport, *The New Frontier,* p. 23.
85 House of Representatives Standing Committee on Health, Aged Care and Sport, *The New Frontier,* pp. 22–29.
86 Department of Health and Aged Care, Submission 152, p. 9.
87 Department of Health and Aged Care, Submission 152, p. 9.
88 MTAA, Submission 426, p. 14.
89 MTAA, Submission 426, p. 14.
90 Mr Dale, MTAA, *Committee Hansard*, Canberra, 22 March 2024, p. 47.

> recommence its evaluation of both type 1 and type 2 towards the end of this year. We'll have to redo all the evaluation documents and all the evidence gathering.[91]

5.78 MSAC is expected to provide advice in 2025.[92]

5.79 The MTAA highlighted the fact that the pace of innovation in diabetes 'has been nothing short of remarkable,' with this trend likely to continue and even accelerate into the future.[93] Medtronic, a medical technology producer, further noted that the future for innovation in diabetes management will be in the evolution of software and algorithms. Australia's regulatory and reimbursement frameworks need to be prepared for this evolution, and it would be appropriate to establish suitable evaluation frameworks to ensure these innovations are recognised and included in models of care.[94]

5.80 In November 2021, the House of Representatives Standing Committee on Health, Aged Care and Sport published a report entitled *The New Frontier – Better Health for All Australians* following its inquiry into approval processes for new drugs and novel medical technologies in Australia.[95] This report examined the opportunities to deliver better health care through regulatory and assessment processes for medicines and medical technologies, and highlighted the importance of developing 'a more flexible system to provide for timely access to the latest medicines, devices and treatment.'[96]

5.81 Evidence provided in support of the inquiry into diabetes in Australia echoes many of the issues that were raised during the inquiry into approval processes for new drugs and technologies. In particular, the Committee has heard concerns regarding the assessment complexity and review times. In addition, manufacturers of medical equipment have reiterated the fact that there is presently no parallel assessment process for medical devices: unlike the assessment of medicines, which allows for simultaneous TGA and PBAC review, it is presently not possible for a device to undergo parallel review with both TGA and MSAC. The unsuitability of Australia's regulatory and reimbursement system, particularly in respect to advanced medicines and technologies, has also been frequently raised.

5.82 On 30 November 2023, the Government issued its response to the *New Frontier report*, agreeing in principle or in part to all of the report recommendations relating to the assessment of medical devices.[97] More details will be available with the completion of current HTA Review, which is due to report in May 2024.

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91 Ms Platona, Department of Health and Aged Care, Committee Hansard, Canberra, 1 March 2024, p. 17.
92 Ms Platona, Department of Health and Aged Care, Committee Hansard, Canberra, 1 March 2024, p. 17.
93 MTAA, Submission 426, p. 1.
94 Medtronic, Submission 397, p. 3.
95 House of Representatives Standing Committee on Health, Aged Care and Sport, *The New Frontier*.
96 House of Representatives Standing Committee on Health, Aged Care and Sport, *The New Frontier,* p. iv.
97 Australian Government response to the Standing Committee on Health, Aged Care and Sport report *The New Frontier – Delivering better health for all Australians, Inquiry into approval processes for new drugs and novel medical technologies in Australia*, November 2023.

5.83 This current inquiry has accordingly not canvassed in detail the issues related to the regulatory and reimbursement system for medicines and new medical technologies.

Committee comment

5.84 Diabetes technology has come a long way since the introduction of the first glucose tests and insulin injections. The Committee was encouraged by the overwhelmingly positive patient experience with continuous glucose monitors and insulin pumps, and the prospects of further innovation and technological advancement in this field.

5.85 It is evident that the expansion of the CGM subsidy to cover all patients with Type 1 diabetes has produced positive health outcomes for this cohort. Ensuing better access to this technology for all Australians must be a priority. The Committee recognises that all patients with insulin dependent diabetes have similar clinical needs, and should thus be supported regardless of diabetes type.

5.86 The Committee recognises that insulin pumps have had a positive impact on the ability of patients to manage their diabetes. The price of these devices in Australia, however, is prohibitive, with only a small cohort of patients currently being able to use insulin pumps.

5.87 In providing access to new diabetes technologies, patient preferences should be taken into consideration, and individuals should be able to access the type of technology that best suits their clinical requirements and lifestyle.

5.88 The Committee understands that technological literacy is also vital in ensuring that these new devices are used in an optimal manner. Greater support should be given to health professionals and patients to familiarise themselves with the technologies that are available, and their inherent features.

Recommendation 15

5.89 The Committee recommends that subsidised access to Continuous Glucose Monitors (CGMs) be further expanded. In the first instance, all access limitations in relation to patients with Type 1 diabetes should be removed. Furthermore, individuals with insulin-dependent Type 3c diabetes and patients with gestational diabetes should be made eligible for subsidised CGMs and for those with Type 2 diabetes requiring regular insulin. The Committee recommends prioritising the removal of age limitations on access to subsidised access for Type 1 diabetes patients.

5.90 The Committee acknowledges that patients living with Type 3c diabetes should be prioritised in the eligibility expansion due to equal and at times even more complex needs than Type 1 diabetes patients.

5.91 The priority should also be given to patients with gestational diabetes due to risks that the condition presents to both the mother and the child.

5.92 The eligibility expansion should subsequently continue to gradually encompass all Australians with insulin-dependent diabetes.

5.93 The first priority should be to ensure that people with Type 1 diabetes with current subsidised access to CGMs are not disadvantaged when they turn 21 due to reduction of subsidies.

Recommendation 16

5.94 The Australian Government should explore expanding subsidised access to insulin pumps for all Australians with Type 1 diabetes. A gradual increase, such as expanding access to those aged 40 and under, would be useful as an initial step.

5.95 Insulin pumps are vital for the optimal management of diabetes. Australians should have equitable access to these devices.

Recommendation 17

5.96 The Committee recommends that the Australian Government undertakes a review of the price and choice of insulin pumps in Australia.

5.97 The Committee acknowledges concerns related to the price of insulin pumps in Australia, including in comparison to peer countries. The review of current prices is necessary to ensuring greater access to this vital technology.

6. Medications and other interventions for diabetes and obesity

6.1 Pharmacotherapy – treatment through the use of pharmaceutical products as medication – is a critical component of diabetes treatment for a significant portion of patients.

6.2 Since its discovery more than a century ago, insulin has been the principal medication for treatment of insulin-dependent forms of diabetes. Today there are also a range of medications used in the treatment of both insulin-dependent and non-dependent patients. In recent years, however, there have been major advancements in diabetes medicines with the introduction of Glucagon-like Peptide-1 receptor agonists (GLP-1 RAs). In examining the current state of diabetes pharmacotherapy, the ensuing discussion places particular focus on GLP-1 receptor agonists, examining their function, suitability for treatment of both diabetes and obesity in different cohorts, and their availability.

6.3 In considering additional procedures for the treatment of diabetes and obesity, the final sections also discuss the use of bariatric surgery. Acknowledged by medical professionals, health experts and patient groups as one of the most effective methods for managing obesity and obesity-related conditions such as diabetes, the following discussion considers current barriers to access to this treatment, as well as its compatibility with the new generation of diabetes and obesity medications.

Insulin

6.4 The discovery of insulin in 1921 enabled the first meaningful treatment of diabetes. A meeting between Canadian physician Frederick Banting and Scottish biochemist John Macleod at the University of Toronto in late 1920 set this process of discovery in motion. With the help of undergraduate student Charles Best, Banting and Macleod made considerable progress with their experiments in isolating and administering insulin to dogs.[1]

6.5 Biochemist James Collip subsequently improved the methods for extracting and purifying insulin, and the first human patient with diabetes, 14-year-old Leonard Thomson, was treated in January 1922. By March the *Canadian Medical Association*

[1] S Lee and K Yoon (2021), 'A Century of Progress in Diabetes Care with Insulin: A History of Innovations and Foundation for the Future', *Diabetes and Metabolism Journal* 45(5):630–631.

Journal reported on the effect of insulin in several patients. Soon after, pharmaceutical companies Eli Lilly (Indianapolis, Indiana, United States (US)) and Nordisk (Bagsværd, Denmark) commercialised the production of insulin.[2]

6.6 The discovery of insulin saw Bantin and Macleod receive a Nobel Prize in 1923, which they shared with Best and Collip.[3] Over the ensuing century, insulin has evolved continuously from being extracted from the pancreas of animals, to genetically engineered, synthetic human insulin that first became available in the early 1980s.[4]

6.7 Today, Type 1 diabetes is still managed primarily through insulin therapy. In recent years there have been significant advances in blood glucose monitoring and insulin delivery technologies, which has allowed patients to better manage their condition. Combined with healthy eating and regular exercise, for some patients these methods have shown to slow down the progression of long-term complications associated with Type 1 diabetes.

6.8 Indeed, in his submission Mr Richard Rains, who has had Type 1 diabetes for 38 years, noted that he has enjoyed 'a relatively normal life' by watching his diet closely, exercising regularly, and being able to use new technologies such as a continuous glucose monitor (CGM) and an insulin pump.[5] Mr Rains has even appeared before a university class run by his endocrinologist as a proof that 'it is possible to have Type 1 Diabetes for such a length of time and have zero complications.'[6]

Oral diabetes medication

6.9 While some patients with Type 2 diabetes who are insulin dependent rely on regular insulin administration similar to patients with Type 1 diabetes, the majority of people with this form of diabetes use oral diabetes medications to manage the disease.

6.10 There are several different classes of oral diabetes medications that are used to help manage blood sugar levels:

- Alpha-glucose inhibitors (Acarbose)
- Biguanides (Metformin)
- Bile acid sequestrants (BASs)
- Dopamine-2 agonists
- Dipeptidyl peptidase-4 (DPP-4) inhibitors (Gliptins)
- Meglitinides (Glinides)

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2 R Bilous, R Donnelly and I Idris, *Handbook of Diabetes*, 5th edition, John Wiley & Sons, Hoboken NJ, 2021, pp. 7–8; Lee and Yoon, 'A Century of Progress in Diabetes Care with Insulin', pp. 630–631.

3 Lee and Yoon, 'A Century of Progress in Diabetes Care with Insulin', p. 631.

4 Lee and Yoon, 'A Century of Progress in Diabetes Care with Insulin', p. 632.

5 Richard Rains, Submission 77.

6 Richard Rains, Submission 77.

- Sodium-Glucose co-transporter-2 (SGLT2) inhibitors
- Sulfonylureas
- Thiazolidinediones (Glitazones).[7]

6.11 Metformin is a class of medication that is often first prescribed for Type 2 diabetes. This medication helps the insulin that the body makes work more effectively, and reduces insulin resistance and the amount of stored glucose released from the liver.[8]

6.12 In addition to metformin, the most common class of medications are DPP-4 inhibitors and SGLT2 inhibitors. DPP-4 and SGLT2 are often used as a second or third form of medication. DPP-4 inhibitors work by increasing the amount of insulin the pancreas releases after eating and reducing the amount of stored glucose released from the liver. SGLT2 inhibitors achieve the increase of glucose by removing it from the body via urine. This class of medications can reduce cardiovascular risks and delay the progression of kidney decline.[9]

6.13 Patients who use insulin or certain types of glucose lowering medications can be at risk of hypoglycaemia – a situation when patients with diabetes have too little glucose in their blood (i.e. a glucose level lower than 4 mmol/L). If it occurs, hypoglycaemia must be addressed quickly to avoid adverse outcomes such as a loss of consciousness.

Glucagon-like Peptide-1 receptor agonists

6.14 As part of the inquiry, the Committee investigated the latest diabetes pharmacotherapies, placing particular focus on a new generation of medications that have the potential to revolutionise treatment of diabetes and obesity. These medications include Glucagon-like Peptide-1 (GLP-1) receptor agonists such as semaglutide and dulaglutide. The most well-known medications in this group are Ozempic and Wegovy (both semaglutide) produced by Novo Nordisk, and Trulicity (dulaglutide) launched by Eli Lilly.

6.15 Glucagon-like peptide-1 (GLP-1) is a naturally occurring hormone produced in the stomach and released in response to food intake. GLP-1 targets hormones that are responsible for the metabolism of glucose in the body – insulin and glucagon.

6.16 Insulin is produced in beta cells in the pancreas, and its role is to allow glucose to leave the bloodstream and move into cells where it is used for energy. As glucose moves into the cells, the level of blood glucose decreases. Glucagon in turn is a hormone produced in alpha cells in the pancreas that stimulates glucose production

7 Diabetes Australia, *Medicines for your diabetes,* accessed 4 June 2024, www.diabetesaustralia.com.au/managing-diabetes/medicines/
8 Diabetes Australia, *Medicines for your diabetes,* accessed 4 June 2024, www.diabetesaustralia.com.au/managing-diabetes/medicines/
9 Pharmacy Guild of Australia, Submission 223, p. 4.

by signalling the release of excess glucose stored in the liver and muscle cells. The activities of glucagon thus counteract the action of insulin.[10]

6.17 GLP-1 receptor agonists work by simultaneously triggering an enhanced rate of insulin production and an inhibition of glucagon secretion.[11] They reduce appetite and delay glucose absorption because the hormone slows the emptying of the stomach, which makes patients feel fuller for longer.[12] According to the Pharmacy Guild of Australia, GLP-1 receptor agonists are capable of lowering plasma glucose levels in a manner comparable to insulin regimes.[13] In addition, these medications present a lower risk of hypoglycaemia, and have the added benefit of weight loss and the ability to prevent cardiovascular complications in high-risk patients.[14]

6.18 There is also currently an effort to boost efficacy of these drugs by combining GLP-1 with other agonists. Eli Lilly has already launched Mounjaro (tirzepatide), which impacts both GLP-1 and another hormone that is involved in blood sugar control called glucose-dependent insulinotropic polypeptide (GIP).

6.19 Professor Rachel Batterham, Senior Vice-president for International Medical Affairs at Eli Lilly, explained to the Committee how tirzepatide worked:

> It's based on GIP and GLP-1 that act together to regulate blood sugar, so it acts on the pancreas to increase insulin in response to food intake, but it also acts on the brain, to tell your brain that you've eaten and really switch off appetite and that's the way that it reduces body weight. It also impacts on the distribution of body fat, so it moves body fat from around your abdomen, where it's particularly bad in terms of cardiometabolic risk, more subcutaneously, so that it has an impact on body composition as well.[15]

6.20 This new generation of medications is delivered by injection under the skin, similar to insulin (these medications are thus categorised as non-insulin injectables). They are administrated once a week, which according to the Department of Health and Aged Care, has the potential to improve treatment compliance.[16]

6.21 Giving evidence before the Committee, Mr Cem Ozenc, Corporate Vice-President and General Manager for Oceania at Novo Nordisk, similarly highlighted the advantage of this dosage regime especially for patients in remote communities.[17]

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10 P V Roder et al (2016), 'Pancreatic regulation of glucose homeostasis', *Experimental and Molecular Medicine* 48(3):1.

11 Miwatj Health, Submission 449, p. 9.

12 S Furness, 'The rise of Ozempic: how surprise discoveries and lizard venom led to a new class of weight-loss drugs,' *The Conversation*, 2 April 2024.

13 Pharmacy Guild of Australia, Submission 223, pp. 3-4.

14 Pharmacy Guild of Australia, Submission 223, pp. 3-4.

15 Professor Rachel Batterham, Senior Vice-president, International Medical Affairs, Eli Lilly, *Committee Hansard*, Canberra, 22 March 2024, p. 5.

16 Department of Health and Aged Care, Submission 152, p. 10.

17 Mr Cem Ozenc, Corporate Vice-president and General Manager, Oceania, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 13.

6.22 In her response to the Committee's question about her experience with GLP-1 medications, Mrs Elizabeth Watkins, Clinical Nurse Manager and Diabetes Educator at the Royal Darwin Hospital also emphasised this point:

> In the remote context […] rather than having to come everyday [sic] for insulin injections, it's like a thing, where every week the bus goes around, picks everybody up and brings them back to the clinic. They can do everything else while they're there that they might need to, as well as get that weekly injection. It seems to have worked really well.[18]

6.23 According to recent media reports, the development of a pill version is also currently underway.[19]

6.24 The early introduction of this class of medication in the treatment course has the potential to break what has been termed the 'treat to fail' approach in managing Type 2 diabetes. Professor Batterham told the Committee that this approach entailed starting the patient on the cheapest drug, then adding another and another as the previous treatment proves inefficient in achieving glucose control. Better results – including achieving normoglycaemia (normal levels of blood sugar) – can be obtained by putting patients onto these new medications early.[20]

6.25 Primary Care Diabetes Society of Australia submitted that the Pharmaceutical Benefits Scheme (PBS) is positioning these drugs as a third line of intervention. In noting that these drugs are most beneficial when used earlier, especially for young people, the organisation echoes the need to reconsider the current treatment approach.[21]

6.26 The main counterindication for these drugs include nausea and diarrhoea. Between six and 13.5 per cent of patients stop the medication because of the side effects not being tolerable.[22] As Professor Batterham explained to the Committee:

> If I gave you a dose, you would feel either completely full or slightly nauseous. It's a bit like eating the most food you've ever eaten, and you go from feeling 'that's good' to 'I feel like I'm going to be sick'. That's because it's telling the brain that you've had a huge amount of food, because that's the signal that goes to the brain.[23]

6.27 Furthermore, the positive effects of the medication only last with continued use. Once use stops, patients feel hungry again, their blood sugar increases and, over the long

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18 Mrs Elizabeth Watkins, Clinical Nurse Manager and Diabetes Educator, Royal Darwin Hospital, *Committee Hansard*, Darwin, 7 March 2024, p. 48.

19 'A frenzy of innovation in obesity drugs is under way,' *The Economist*, 7 March 2024.

20 Professor Batterham, Eli Lilly, *Committee Hansard*, Canberra, 22 March 2024, p. 3.

21 Primary Care Diabetes of Australia, Submission 214, p. 2. See also Dr Lisa Amato, Paediatric Endocrinologist, Campbelltown Hospital, *Committee Hansard*, Campbelltown, 18 September 2023, p. 31.

22 N Yates, 'What happens when I stop taking a drug like Ozempic or Mounjaro?' *The Conversation*, 16 April 2024.

23 Professor Batterham, Eli Lilly, *Committee Hansard*, Canberra, 22 March 2024, p. 6.

term, people experience weight regain, and a return to previous blood pressure and cholesterol levels.[24]

6.28 The recent shortage of these medications has meant that access to the drug has often been sporadic. Mrs Watkins explained the challenges that patients face in going off GLP-1 receptor agonists:

> It's so dangerous. You have to then stabilise them as well. It takes time. You've got to start the insulin, whether that's once a day or multiple times a day, and then it's regular titration and stabilisation. Then we get a supply, so they're off it, and they're back on their weekly injection. Then it's gone, and we can't get it again. So it's dangerous, and they're up and down. It's not a good reflection on us as well.[25]

GLP-1 receptor agonists and obesity

6.29 The reduction of weight that is caused by this class of medications has major implications for the treatment of Type 2 diabetes. The Australian and New Zealand Metabolic and Obesity Surgery Association (ANZMOSS) explained that obesity interferes with insulin sensitivity and insulin production. Diabetes, ANZMOSS submitted, is seven times as prevalent in obese populations compared to those with normal weight, and the risk of Type 2 diabetes indeed increases exponentially with increasing severity of obesity.[26]

6.30 Evidence received throughout the inquiry indicated that obesity is the principle modifiable risk factor for diabetes, and that both international as well as Australian guidelines recommend weight reduction alongside blood glucose control as the optimal diabetes management approach. According to Novo Nordisk, 53 per cent of the diabetes burden in Australia is due to overweight or obesity. As such, weight loss has been identified as vital in preventing or delaying the onset of the disease, and in some cases even leading to remission.[27]

6.31 According to the Department of Health and Aged Care, Australia has one of the highest rates of overweight and obesity in the world:[28]

- Two in three Australians live with overweight or obesity
- One in four children aged between 5 and 17 live with overweight or obesity
- One in two young people between 18 and 24 live with overweight or obesity.[29]

6.32 As outlined in Chapter 2, the number of adults living with obesity has doubled in the last ten years, and it is estimated that at this rate 40 per cent of the Australian

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24 Yates, 'What happens when I stop taking a drug like Ozempic or Mounjaro?'
25 Mrs Watkins, Royal Darwin Hospital, *Committee Hansard*, Darwin, 7 March 2024, p. 49.
26 Australian and New Zealand Metabolic and Obesity Surgery Association (ANZMOSS), Submission 201.
27 ANZMOSS, Submission 201; Novo Nordisk, Submission 246, n.p.
28 Department of Health and Aged Care, Submission 152, p. 12.
29 Novo Nordisk, Submission 246, n.p.

population will be living with obesity in the next ten years. People living in regional and remote areas are more at risk, as are older Australians (aged between 65 and 74), with men in this group 1.25 times more likely to be affected than women. People with disability are similarly at higher risk of being overweight or obese, and First Nations peoples are 1.2 times more likely to be either overweight or obesity than non-Indigenous Australians.[30]

6.33 Weight regulation is a complex process that is influenced by multiple physiological, social and environmental factors. As the Novo Nordisk submission outlined:

> Many of these factors we cannot control ourselves, including an underlying biology that prevents people from achieving and sustaining weight loss. Studies have shown that up to 70% of the cause of obesity can be linked to genetics, family history and ethnicity.[31]

6.34 Weight management has conventionally been understood as an individual responsibility, and a matter of one's will power to alter lifestyle choices. Current research, however, goes beyond this simplistic view to demonstrate the complex interplay between the social, environmental, economic, cultural, biomedical, and commercial factors that impact achieving and maintaining weight loss.[32]

6.35 The notion that obesity can be addressed through the principle 'eat less and move more' has thus proven ineffective for a majority of patients. According to the data provided by Johnson and Johnson, most non-surgical treatment programs often result in weight loss, but long-term maintenance of weight loss is much less likely to be achieved.[33] Between 30 and 60 per cent of patients, according to Johnson and Johnson, regain weight within 12 months and almost all by five years: 'Diet and life-style behavioural interventions have health benefits and can generate between 1–4% weight-loss, however little is sustained beyond two years.'[34]

6.36 The introduction of GLP-1 receptor agonists, which have demonstrated an ability to tackle obesity and by extension obesity-related complications (which amounts to over 200 health issues, including strokes, kidney problems, and fatty liver),[35] has thus understandably been described as a revolutionary change in diabetes pharmacotherapy.

6.37 The Committee, however, heard that these medications have their limitations, and that long term management remains challenging. Sydney Low Carb Specialists submitted that:

> Today we have a plethora of glucose lowering drugs, including the latest and most expensive GLP1 agonists, as the most common initial therapy for T2DM. Even in the best-case scenarios with good medication compliance […] in this

30 Novo Nordisk, Submission 246, n.p.
31 Novo Nordisk, Submission 246, n.p.
32 Department of Health and Aged Care, Submission 152, p. 5.
33 Johnson and Johnson Medtech, Submission 230, n.p.
34 Johnson and Johnson Medtech, Submission 230, n.p.
35 'Could weight loss drugs eat the world?', *The Economist*, 30 March 2024.

> standard of care patients often become progressively more reliant on multiple medication agents, none of which completely mitigate the complications of diabetes.[36]

GLP-1 receptor agonists shortage

6.38 Since its release onto the market, this new generation of diabetes medications has been in high demand. The two pharmaceutical companies with significant history in providing diabetes pharmacotherapy – Eli Lilly and Nordisk (operating as Novo Nordisk since the 1980s) – are expected to together capture more than 90 per cent of the market for these medications in the coming years.[37]

6.39 In recent times there has been a global shortage GLP-1 agonists, which has also impacted Australia. These shortages appear to be caused by insufficient supply of both the active ingredient semaglutide and the 'skinny pens' used to inject the medicine.[38]

6.40 In Australia, the shortages might also be exacerbated by the size of the market, and pricing that may not be highly attractive to manufacturers. In reflecting on this point, Associate Professor Neale Cohen, Head of Clinical Diabetes at the Baker Heart and Diabetes Institute noted:

> I think it's got a lot to do with funding of these agents and the fact that we don't pay as much as other countries. We wouldn't be top of their list, in terms of supply […] you won't see these sort of shortages in the US, let's put it that way. They pay a lot more for these agents, and we're a long way away and a small market. We just need to think about how we manage this. It's going to be a cost related issue. We're not going to be top of these companies' lists at all. But these are important drugs. It's really important that we don't fall behind.[39]

6.41 While being registered as a Type 2 diabetes treatment, since early 2022 medications such as Ozempic have been prescribed off-label in high volumes for weight-loss treatment.[40] When therapeutic goods are entered onto the Australian Register of Therapeutic Goods (ARTG), the entry will specify therapeutic uses (or indications) for that drug. 'Off-label' use refers to a situation where a health professional is

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36 Sydney Low Carb Specialists, Submission 84, p. 2.

37 'Slim pharma,' *The Economist*, 9 March 2024.

38 Department of Health and Aged Care, Therapeutic Goods Administration, *About the Ozempic (semaglutide) shortage 2022 and 2024*, accessed 4 June 2024, www.tga.gov.au/safety/shortages/information-about-major-medicine-shortages/about-ozempic-semaglutide-shortage-2022-and-2024. See also: 'A frenzy of innovation in obesity drugs is under way,' *The Economist*, 7 March 2024; 'Slim pharma,' *The Economist*, 9 March 2024.

39 Associate Professor Neale Cohen, Head of Clinical Diabetes, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 43. See also: Mrs Victoria Brown, President and General manager, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 4.

40 Department of Health and Aged Care, Submission 152, p. 14.

prescribing the use of the drug for indications other than those recorded on the ARTG.[41]

6.42 According to the Department of Health and Aged Care 'off-label prescribing is not illegal and a decision to prescribe a medicine for a condition other than the registered indication is made by the prescriber in consultation with their patient.'[42] This practice is particularly common in the treatment of rare and paediatric diseases.[43] In the case of medications such as Ozempic, however, frequent off-label prescription has contributed to shortages and an inability to secure supply for patients who rely on it to manage diabetes.

6.43 When appearing before the Committee, Mr Ozenc emphasised that the level of demand far exceeded the Novo Nordisk's original expectations.[44] Mrs Victoria Brown, President and General Manager for Eli Lilly Australia and New Zealand, expressed a similar sentiment: 'We didn't expect to stock out; we brought enough in to think we'd have an ample supply.'[45] Seeking to meet demand for this medicine, Novo Nordisk has made significant investments into new manufacturing sites, which will allow the company to increase supply in the future.[46] Eli Lilly is taking similar steps.[47]

6.44 In the short term, Novo Nordisk is managing the current imbalance between demand and supply by working together with the TGA to advise health professionals not to start new patients on these drugs due to limited supply.[48] Novo Nordisk submitted that before approaching the TGA to discuss current shortages almost 40 per cent of these medications were being used off-label; since TGA advice was issued, it has decreased to 20 per cent.[49] The shortages are, however, likely to continue throughout 2024.[50]

6.45 In addition to off-label prescription, there are a number of other ways in which medical practitioners are able to access and prescribe medicines through unapproved pathways. As Professor Anthony Lawler, Deputy Secretary, Health Products Regulation within the Department of Health and Aged Care, explained: 'The pathways themselves are approved, but it's for medicines that are not on the register under that specific medication.'[51] Access to therapeutic goods that are not on the

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41 House of Representatives Standing Committee on Health, Aged Care and Sport, *The New Frontier – Delivering better health for all Australians*, *Inquiry into approval processes for new drugs and novel medical technologies in Australia,* November 2021, p. 21.

42 Department of Health and Aged Care, Submission 152, p. 14.

43 House of Representatives Standing Committee on Health, Aged Care and Sport, *The New Frontier,* p. 21.

44 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 11.

45 Mrs Brown, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 6.

46 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 11.

47 Professor Batterham, Eli Lilly, *Committee Hansard*, Canberra, 22 March 2024, p. 4. See also: 'Slim pharma', *The Economist*, 9 March 2024.

48 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, pp. 11–12.

49 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, pp. 14-15.

50 Department of Health and Aged Care, Therapeutic Goods Administration*, About the Ozempic (semaglutide) shortage 2022 and 2023*, accessed 4 June 2024, www.tga.gov.au/safety/shortages/information-about-major-medicine-shortages/about-ozempic-semaglutide-shortage-2022-and-2024

51 Professor Anthony Lawler, Deputy Secretary, Health Products Regulation, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 21.

ARTG is possible through the Special Access Scheme (SAS) and the Authorised Prescriber Scheme (APS), where medicines that are not registered can be ordered, and provided and dispensed.[52]

6.46 Another pathway for accessing this new generation of medications is through compounding. Compounding is a practice of combining and altering the ingredients of a drug to create a medication tailored to an individual patient. Pharmacists are allowed to compound medication where commercially manufactured products are not suitable for a patient, although these products are not necessarily at the same level of safety, quality or efficacy.

6.47 Pharmacies in Australia have used compounding rules to access semaglutide and produce off-brand Ozempic for sale to consumers around the country.[53] As Professor Lawler explained to the Committee: 'It's really important to note that this is not Ozempic; this is semaglutide. This is a substance that has been imported through the SAS or AP [sic] mechanisms and then is being compounded.'[54]

6.48 On 29 February 2024, TGA commenced consultation on removing GLP-1 receptor agonists from Australia's compounding exemptions, which would effectively ban pharmacies from making off-brand Ozempic.[55] The Committee heard from Professor Robyn Langham, Chief Medical Adviser at the Department of Health and Aged Care that:

> we've just taken a step to undertake a focused consultation on the proposal, which is to carve out all GLP-1 receptor agonists from the compounding exemptions. Following consultation, should that be the final decision, the plan would be that GLP-1 agonists would no longer be able to be compounded by pharmacists. That's really being done on a safety basis because of the scale of what we can see is happening with some providers.[56]

6.49 On 18 June 2024, the TGA announced that GLP-1 receptor agonists would no longer be able to be compounded by pharmacists and supplied to patients. This amendment, according to the TGA, 'will apply to all medicines containing GLP-1 RA analogues, regardless of dosage form, compounded on or after 1 October 2024.'[57]

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52 Professor Lawler, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 22.

53 J Pace, A Bartlett and N Wheate, 'Ozempic isn't approved for weight loss in Australia. So how are people accessing it?' *The Conversation*, 4 April 2024.

54 Professor Lawler, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 22.

55 Department of Health and Aged Care, Therapeutic Goods Administration, *Consultation to remove glucagon-like-peptide-1 (GLP-1_ receptor agonist analogues from the pharmacist extemporaneous compounding exemption*, accessed 4 June 2024, www.tga.gov.au/news/media-releases/consultation-remove-glucagon-peptide-1-glp-1-receptor-agonist-analogues-pharmacist-extemporaneous-compounding-exemption

56 Professor Robyn Langham, Chief Medical Adviser, Health Products Regulation, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 22.

57 Department of Health and Aged Care, Therapeutic Goods Administration, *Update on the glucagon-like peptide-1 receptor agonists (GLP-1 RAs) pharmacy compounding changes*, accessed 18 June 2024, https://www.tga.gov.au/news/media-releases/update-glucagon-peptide-1-receptor-agonists-glp-1-ras-pharmacy-compounding-changes

Ring-fencing the GLP-1 receptor agonists for at-risk patients

6.50 Both Novo Nordisk and Eli Lilly told the Committee that they have started 'ring-fencing,' or reserving, some of their supply of these medications for remote communities that have high numbers of at-risk patients.

6.51 According to Mr Ozenc, the ability to access medications such as Ozempic has been a major game-changer in these communities. Ozempic appears to be particularly suitable for the phenotypes of Indigenous Australians. Furthermore, the Committee heard that medication delivers immediate improvements – the patients 'can see results very quickly and they feel good.'[58] Equally important is the fact that it is administered once a week, unlike insulin which is more complicated and where benefits are not so immediately obvious. With these advantages, Ozempic has been positively received in the community.[59]

6.52 There are, however, significant logistical challenges in supplying these medications to remote communities. According to Mr Ozenc, 'it's almost impossible to send medicines to targeted places in Australia.'[60] Novo Nordisk was able to partner with Central Pharmacy to ring-fence both Ozempic and insulin for distribution in Northern Queensland. The company also has arrangements with the Kimberley and Broome in Western Australia, but the process is 'very manual and not really easy to do […] in a systematic way.'[61] Eli Lilly similarly explained that they were able to ring-fence supply of Trulicity for Indigenous communities in partnership with healthcare providers in the Kimberley and the Northern Territory and with distributors, but there was much 'logistical clunkiness.'[62]

6.53 GLP-1 receptor agonists come in injectable form that requires refrigeration. The Committee heard that lack of cold-chain logistics further complicates the supply process, with Novo Nordisk stating that in the middle of a shortage some of the products sent to the Northern Territory 'were scrapped because of the heat, because they were not taken inside.'[63]

6.54 Mrs Brown of Eli Lilly recognised that at the moment there are patients who are getting the medications but perhaps they do not need it the most:

> As we think about Australia specifically, we have some opportunities to think about how we can look at the right population who has the most need for this product, making sure that the innovative medicines are valued in a way that's representative of a global norm or a Westernised country and then making sure that we can secure that supply accordingly.

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58 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 13.
59 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 13.
60 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 12.
61 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 12.
62 Dr Gabrielle Reppen, Associate Vice-president, Corporate Affairs and Market Access, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 4.
63 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 12.

> But the key is making sure that we have those controls in place and that they are the patients who are getting it and it's not leaking to somebody else.[64]

6.55 A government-led initiative to ensure remote communities receive priority access to these medications would be much welcome intervention in this domain.

Assessment processes for new medications

6.56 Assessment processes for the registration and reimbursement of the new generation of medications for diabetes was a common feature of much of the evidence gathered by the Committee through the course of the inquiry.

6.57 Responsibility for the assessment and registration of new medications in Australia rests with the TGA. Novo Nordisk's Ozempic and Wegovy (semaglutide) and Eli Lilly's Trulicity (dulaglutide) and Mounjaro (trizepatide) are registered by the TGA for use in Australia.[65]

6.58 Access to subsidised medications in Australia occurs primarily through the PBS. The assessment of which medications should be funded via the PBS is performed by the Pharmaceutical Benefits Advisory Committee (PBAC) – an independent body comprising doctors, health professionals, health economics and consumer representatives. An application for assessment by the PBAC is generally initiated by the pharmaceutical company responsible for the supply of the medicine in Australia.[66]

6.59 The Department of Health and Aged care explained that 'the Government cannot list a new medicine on the PBS unless the PBAC makes a recommendation in favour of its listing.'[67] The PBAC is also consulted when the Government considers changes to the circumstances under which existing PBS medicines are listed. As part of the assessment process, the PBAC takes into account the cost effectiveness of the medicine, and how well it works compared to other available therapies.[68]

6.60 In Australia, Ozempic and Trulicity are subsidised under the PBS for Type 2 diabetes treatment.[69] Wegovy and Mounjaro are not subsidised. Wegovy is not presently available in Australia.[70] Mounjaro has been launched on the private market; it has a

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64 Mrs Brown, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 4.

65 Dr Ana Svensson, Senior Director, Clinical, Medical and Regulatory, Oceania, Novo Nordisk Pharmaceuticals Pty Ltd, *Committee Hansard*, Canberra, 22 March 2024, p. 14; Department of Health and Aged Care, Therapeutic Goods Administration, *Ozempic (Novo Nordisk Pharmaceuticals Pty Ltd),* accessed 4 June 2024, www.tga.gov.au/resources/prescription-medicines-registrations/ozempic-novo-nordisk-pharmaceuticals-pty-ltd; Trulicity, www.tga.gov.au/resources/artg/217965; Therapeutic Goods Administration, *Mounjaro*, accessed 4 June 2024, www.tga.gov.au/resources/auspmd/mounjaro

66 Department of Health and Aged Care, Submission 152, p. 45.

67 Department of Health and Aged Care, Submission 152, p. 45.

68 Department of Health and Aged Care, Submission 152, p. 45.

69 Dr Reppen, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 3; Dr Svensson, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 14.

70 Professor Langham, Department of Health and Aged Care, *Committee Hansard*, Canberra, 1 March 2024, p. 21; Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, pp. 14–16.

recommended retail price of $315 per month for a 5-milligram dose, $515 a month for a 10-milligram dose, and $645 a month for a 15-milligram dose.[71]

6.61 While pharmaceutical companies that appeared before the Committee noted that their experience with the TGA registration process has generally been positive, the PBS assessment process was raised as an impediment to accessing new therapies in Australia. In their appearance before the Committee, Mr Ozenc of Novo Nordisk confirmed 'the registration is fast, but when we get [medicines] onto the PBS is where we are probably lagging behind other countries similar to this economy.'[72]

6.62 Indeed, in its submission to the inquiry, Novo Nordisk cited data from Medicines Australia, the peak body for Australia's research-based pharmaceutical industry, outlining that it takes on average 391 days for an innovative medicine to go from registration to funding in Australia, compared to 101 days in Japan, 121 in Germany and 167 in the UK. Australian patients, that is, are currently waiting seven to ten months longer on average for new medicines to become available through the PBS than is the case in these other nations.[73]

6.63 In addition to the length of the process, witnesses noted that the PBAC takes 'a fairly conservative view' in its assessment of new medications.[74] Dr Gabrielle Reppen, Associate Vice-President at Eli Lilly explained:

> Of course, when we bring a new medicine to market we don't have very long-term data, we don't have all the evidence, and I think that the PBAC takes a conservative view and assumes that those benefits over the longer term don't occur. So what we've found across all classes of diabetes is that the PBAC has never recommended a new medicine on the basis of superior efficacy. Every time we have a head-to-head trial, which has a superior HbA1c reduction, it's deemed either to be not big enough to be clinically significant or does not translate into long-term outcomes.[75]

6.64 In investigating how new therapies for managing Type 2 diabetes are currently accessed, the Committee also learned that the Department of Health and Aged Care has recently considered the request to broaden the subsidised access to GLP-1 receptor agonists and SGLT2 inhibitors in dual therapy with metformin. In June 2024 the Government announced an expansion of the subsidy for GLP-1 receptor agonists. These medications were originally only available if treatment with other diabetes medicines had failed to reduce blood glucose, or had produced an adverse reaction. The rules have now been changed to increase access by requiring that only one other medicine has been tried (for example, metformin).[76]

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71 Dr Reppen, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 3.
72 Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 13.
73 Novo Nordisk, Submission 246, n.p.
74 Dr Reppen, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 3.
75 Dr Reppen, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 3.
76 Diabetes Australia, *Government rules changed to ensure availability of GLP-1 RAs*, accessed 12 June 2024, www.diabetesaustralia.com.au/news/government-rules-changed-to-ensure-availability-of-glp-1-ras/

6.65 In support of the inquiry, the Parliamentary Budget Office (PBO) undertook cost modelling for subsidising GLP-1 receptor agonists on the PBS for people who are obese and people with Type 2 diabetes requiring intensive insulin therapy. The following eight options were considered:

- Option 1: Fully subsidise the patient PBS co-contribution for all GLP1 receptor agonists available in Australia for people with Type 2 diabetes requiring intensive insulin therapy.
- Option 2: Fully subsidise the patient PBS co-contribution for all GLP1 receptor agonists available in Australia for people with Type 2 diabetes and who are obese requiring intensive insulin therapy.
- Option 3: Fully subsidise the patient PBS co-contribution for all GLP1 receptor agonists available in Australia for people with Type 2 diabetes, with or without requiring intensive insulin therapy.
- Option 4: Fully subsidise the patient PBS co-contribution for all GLP1 receptor agonists available in Australia for people with Type 2 diabetes and who are obese, with or without requiring intensive insulin therapy.
- Option 5: Partially subsidise (50%) the patient PBS co-contribution for all GLP1 receptor agonists available in Australia for people with Type 2 diabetes requiring intensive insulin therapy.
- Option 6: Partially subsidise (50%) the patient PBS co-contribution for all GLP1 receptor agonists available in Australia for people with Type 2 diabetes and who are obese requiring intensive insulin therapy.
- Option 7: Partially subsidise (50%) the patient PBS co-contribution for all GLP1 receptor agonists available in Australia for people with Type 2 diabetes, with or without requiring intensive insulin therapy.
- Option 8: Partially subsidise (50%) the patient PBS co-contribution for all GLP1 receptor agonists available in Australia for people with Type 2 diabetes and who are obese, with or without requiring intensive insulin therapy.[77]

6.66 The PBO advised that the introduction of such a measure would be 'expected to decrease the fiscal balance by between around $1.1 million and $55.6 million, and the underlying cash balance by between $1.1 million and $54.4 million over the 2023-24 Budget forward estimates period […].'[78]

6.67 In appearing before the Committee, Mrs Victoria Brown, President and General manager for Eli Lilly Australia and New Zealand, emphasised that increased interest in accessing the new generation of diabetes medications stands as evidence of the lack of obesity treatment options. According to Mrs Brown, 'the lack of available treatment for people with obesity shows the need to ensure that the medicines are

77 Parliamentary Budget Office (PBO) costings, Appendix G, pp. 1–2.
78 PBO costings, Appendix G, p. 2.

available and reimbursed […] no contemporary medicines are available in Australia to treat obesity and only a very small number of patients can get bariatric surgery.'[79]

6.68 In addition to current concerns regarding the reimbursement assessment processes and limited access to new medication, the issue of access to medications approved for Type 2 diabetes by Type 1 diabetes patients was also raised during the inquiry.[80] JDRF Australia submitted that medications such as metformin can be prescribed off-label for Type 1 patients to help with their blood glucose management. The lack of formal approval for such use, however, tends to discourage doctors from prescribing these medications, and thus undermines the optimal management of the disease. Similarly, while medications such as Ozempic have only been approved for Type 2 diabetes, according to JDRF they have shown to be beneficial for Type 1 diabetes patients as well. There is, however, currently no effective pathway for repurposing medications for other conditions that have shown to be beneficial for Type 1 diabetes patients.

6.69 The Committee acknowledges concerns regarding the reimbursement assessment processes that have been raised during the inquiry, many of which echo those associated with the assessment of new medical technologies. The Committee reiterates that many of these concerns have been outlined in the November 2021 report by the House of Representatives Committee on Health, Aged Care and Sport entitled *The New Frontier – Delivering better health for all Australians*, and that as such the current inquiry has not canvassed issues relating to the regulatory and reimbursement system for medicines and new medical technologies in detail.[81] The Committee again expresses its support for the complete and efficient implementation of the changes set out in the *New Fronter* report.

6.70 The Committee recognises that there is a need for greater access to the new generation of medications for the treatment of both diabetes and obesity, particularly for high-risk patients.

Bariatric surgery

6.71 Bariatric (or metabolic) surgery is a surgical procedure that involves making changes to the digestive system to achieve weight loss. The procedure can apply several mechanisms: alternation of gut hormones; physical reduction of the gut size; reduction or blockage of nutrient absorption; or a combination of these three mechanisms.

6.72 Giving evidence before the Committee, Professor Batterham explained:

> Over the last 30 years, we've now come to understand that the gut plays a critical role in regulating body weight. When you eat, there are cells throughout your GI

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79 Mrs Brown, Eli Lilly Australia and New Zealand, *Committee Hansard*, Canberra, 22 March 2024, p. 1. See also: Mr Ozenc, Novo Nordisk Pharmaceuticals, *Committee Hansard*, Canberra, 22 March 2024, p. 12.

80 Juvenile Diabetes Research Foundation (JDRF) Australia, Submission 64.1, p. 5.

81 House of Representatives Standing Committee on Health, Aged Care and Sport, *The New Frontier.*

> tract that release hormones that regulate appetite and tell your body that you've eaten. That's how bariatric surgery works; it alters all of those hormones, when you replumb the gut.[82]

6.73 According to the American Society for Metabolic and Bariatric Surgery (ASMBS) and the guidelines of the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO), bariatric surgery is recommended for:

- Individuals with a BMI higher than 35, regardless of presence, absence, or severity of comorbidities
- Individuals with a BMI higher than 30 and Type 2 diabetes
- Individuals with a BMI between 30 and 34.9 who do not achieve substantial or durable weight loss or comorbidity improvement using nonsurgical methods.[83]

6.74 ASMBS and IFSO further noted that BMI thresholds should be adjusted in the Asian population, with a BMI over 25 in that population suggesting clinical obesity, and individuals with a BMI higher than 27.5 offered bariatric surgery. Appropriately selected children and adolescences should also be considered for the procedure.[84]

6.75 In its submission to the inquiry, the Department of Health and Aged Care noted that bariatric surgery is currently the most efficacious long-term treatment for adults with obesity.[85] According the Centre for Diabetes, Obesity and Endocrinology Research at Westmead Institute of Medical Research in Sydney, the use of bariatric surgery early in Type 2 diabetes reverses the condition in more than 75 per cent of people.[86] The benefits of bariatric surgery have been emphasised in a number of submissions to this inquiry, including by the ANZMOSS and the Australian Academy of Health and Medical Sciences.[87]

6.76 The Committee heard that despite its efficacy, however, bariatric surgery is significantly underutilised as method for treating obesity. According to the Bariatric Surgery Registry, in 2022 there were 16,308 primary (or first) bariatric surgeries in Australia.[88] The Registry also recorded 3,914 revision procedures (a subsequent procedure performed upon a person who has previously undergone the bariatric procedure) in the same year.[89]

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82 Professor Batterham, Eli Lilly, *Committee Hansard*, Canberra, 22 March 2024, p. 5.

83 American Society for Metabolic and Bariatric Surgery*, 2022 ASMBS and IFSO: Indications for Metabolic and Bariatric Surgery*, accessed 4 June 2024, https://asmbs.org/resources/2022-asmbs-and-ifso-indications-for-metabolic-and-bariatric-surgery/

84 American Society for Metabolic and Bariatric Surgery*, 2022 ASMBS and IFSO: Indications for Metabolic and Bariatric Surgery*, accessed 4 June 2024, https://asmbs.org/resources/2022-asmbs-and-ifso-indications-for-metabolic-and-bariatric-surgery/

85 Department of Health and Aged Care, Submission 152, p. 15.

86 Centre for Diabetes, Obesity and Endocrinology Research, The Westmead Institute of Research, Submission 157, p. 2.

87 ANZMOSS, Submission 201; Australian Academy of Health and Medical Sciences, Submission 224; Johnson and Jonhson Medtech, Submission 230.

88 *The Bariatric Surgery Registry Annual Report – 2022*. Central Clinical School, Monash University, June 2023, Report No. 10, p. 30.

89 *The Bariatric Surgery Registry Annual Report – 2022*, p. 30.

6.77 In 2023 the IFSO published its 8th Global Registry Report, which captures data from 24 countries and two regional registries, representing 81.4 per cent of known registries.[90] The number of procedures offered for each combines primary and revisional procedures. According to the report, 20,222 procedures were completed in total in Australia; in the same period there were 2108 in New Zealand; 6734 in the United Kingdom and 38,890 in France. Over 230,000 procedures were undertaken in the US.[91]

6.78 Bariatric surgery is not a widely accessible treatment option in Australia. The Department of Health and Aged Care's submission noted that 'bariatric surgery for obesity is delivered through the public hospital system and funded through the National Health Reform Agreement. Relatively few such procedures take place as public hospital services, however, and the majority are being delivered through private hospitals.'[92]

6.79 According to the Bariatric Surgery Registry, in 2022 96.8 per cent of primary bariatric surgeries in Australia were privately funded.[93] This procedure is accessible to private patients paying the highest premiums for private hospital insurance; alternatively patients are paying high out of pocket costs for surgery, often accessing superannuation to afford the procedure.[94]

6.80 In its submission, Johnson and Johnson highlighted the fact that Australians with the highest clinical need for bariatric surgery belong to the lowest socioeconomic groups:

> Adults living in the lowest socioeconomic areas were 1.2 times more likely to be overweight or obese than those in the highest socioeconomic areas, and Indigenous Australians aged 15 and over were less likely than non-Indigenous Australians to be overweight but 1.5 times as likely to be obese.[95]

6.81 These patients face prolonged waiting times to access the procedure in the public health system, as private health services remain beyond their financial means.[96] Furthermore, the submission also notes the adverse effect that the COVID-19 outbreak has likely had on the access to this treatment due to the need for a pause in elective surgery services during the pandemic.

6.82 The National Obesity Strategy 2022–2032, developed by the Commonwealth and all the states and territories, recognised the need for Australian governments to provide equitable access to this treatment.[97] Reiterating the findings from investigations such

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90 International Federation for Surgery for Obesity and Metabolic Disorders, *8th Global Registry Report*, 2023, p. 3.

91 International Federation for Surgery for Obesity and Metabolic Disorders, *8th Global Registry Report*, 2023, p. 14.

92 Department of Health and Aged Care, Submission 152, p. 15.

93 *The Bariatric Surgery Registry Annual Report – 2022*, p. 9.

94 Johnson and Jonhson Medtech, Submission 230; Royal Australian College of Physicians (RACP), Submission 74, pp. 9–10.

95 Johnson and Jonhson Medtech, Submission 230.

96 Johnson and Jonhson Medtech, Submission 230.

97 Commonwealth of Australia, Health Ministers Meeting, *The National Obesity Strategy 2022–2032*, p. 61.

as those conducted by the Senate Select Committee into Obesity Epidemic in Australia in 2018 and of the Parliament of Western Australia inquiry into the role of diet in Type 2 prevention and management in 2019, the Strategy states that 'bariatric surgery is currently the most efficacious long-term treatment for adults with obesity,' and calls for 'a shift in the health system […] to provide equitable access to medical and surgical obesity treatment.'[98]

6.83 As part of the inquiry, the Committee investigated whether access to the new generation of GLP-1 receptor agonists would render this procedure less relevant. According to Professor Batterham, medications and bariatric surgery relate to different patient groups. In case of patients with severe obesity (BMI 50), bariatric surgery is the first line of treatment. For this cohort 'pharmacotherapy is not going to bring them down and they're still going to have a BMI in the 40s,'[99] emphasising that ultimately 'you need to get the right treatment to the right person at the right time.'[100]

6.84 Dr Anna Wood, Head of Endocrinology at the Royal Darwin Hospital, also noted that while the GLP-1 medications are effective, bariatric surgery remains an important treatment option:

> I think the GLP-1, particularly the dual agonists, like tirzepatide, are certainly becoming as effective as bariatric surgery. However, you need to be on them lifelong and we don't have the long-term evidence for their effectiveness and the long-term safety profile, whereas we do have that for bariatric surgery. We do have long-term mortality data showing that bariatric surgery works and saves lives. […] I would not say that there is no role for bariatric surgery. I still think, if you have an individual in front of you who has access to bariatric surgery, I would still be recommending it for those reasons.[101]

Committee comment

6.85 The Committee acknowledges that the introduction of a new class of medications for the treatment of diabetes and obesity has been game-changing. These medications have the ability to break the cycle of obesity and related complications in patients suffering from morbid obesity who are resistant to other treatments. Ensuring those with the greatest need have access to these drugs should be a priority, and the Committee welcomes the changes to the restrictions of GLP-1 receptor agonists that were introduced on 1 June 2024. Similarly, the 18 June 2024 announcement by the TGA that GLP-1 receptor agonists would no longer be able to be compounded by

98 Commonwealth of Australia, Health Ministers Meeting, *The National Obesity Strategy 2022–2032*, p. 61; Senate Select Committee into the Obesity Epidemic in Australia, *Final Report*, December 2018; Parliament of Western Australia, Education and Health Standing Committee, *The Food Fix, The role of diet in type 2 diabetes prevention and management*, April 2019.

99 Professor Batterham, Eli Lilly, *Committee Hansard*, Canberra, 22 March 2024, p. 5.

100 Professor Batterham, Eli Lilly, *Committee Hansard*, Canberra, 22 March 2024, p. 2.

101 Dr Anna Wood, Head of Endocrinology, Department of Endocrinology, Royal Darwin Hospital, *Committee Hansard*, Darwin, 7 March 2024, p. 41.

pharmacists is a timely, positive step in the right direction for the treatment of diabetes and obesity in Australia.

6.86 The cost of these medications, however, along with the side effects and the fact that we are unsure of the long-term impact of their use are all major concerns. In the coming years, there will be an avalanche of these types of medications available for use, and Australia needs to be prepared to manage this change in pharmacotherapy. Here the TGA has a critical role to play, as do GPs and pharmacists who need to be well informed about these medications.

6.87 The Committee further recognises that the successful treatment of diabetes and obesity involves numerous strategies and treatments. As such, the introduction of new medications does not render other methods (such as bariatric surgery) obsolete, and ensuing greater access to different treatment options should be regarded as a priority.

Recommendation 18

6.88 The Committee recommends that the Australian Government, subject to a positive recommendation from the Pharmaceutical Benefits Advisory Committee, expands the eligibility criteria for Glucagon-like Peptide-1 (GLP-1) receptor agonists, particularly for high-risk patients.

6.89 The Committee recognises that GLP-1 receptor agonists have shown to be highly effective in particular cohorts of diabetes patients. Providing more widespread access to these medications would be a positive step in managing diabetes in Australia.

Recommendation 19

6.90 The Committee recommends that the Australian Government establishes mechanisms for securing supplies of Glucagon-like Peptide-1 (GLP-1) receptor agonists for disadvantaged and remote communities, including Aboriginal and Torres Strait Island communities.

Recommendation 20

6.91 The Committee recommends that the Australian Government considers expanding access to bariatric surgery within the public system for eligible patients.

7. Research and data

Overview

7.1 Research is the foundation for advancing our knowledge of what causes diabetes, and how we can effectively prevent and manage the disease. The strength of both basic and applied research will continue to play a critical role in Australia's ability to manage all types of diabetes. Australia boasts world-class scientists in this field, many of whom are consistently producing high-impact research.

7.2 The inquiry generated substantial evidence on issues pertaining to the funding of diabetes research. The ensuring discussion thus examines the current sources and levels of funding in Australia. The diabetes research workforce and physical and digital research infrastructure is also critically examined.

7.3 The question of how best to conduct research in such a complex area is a consistent feature of evidence received in support of this inquiry. As such, the final section of this chapter examines potential strategies for better coordinating current research efforts and making research more inclusive of patient's voice through research co-design. The question of the future of research in the field of diabetes and obesity is also examined.

Diabetes research funding in Australia

7.4 In its submission to the inquiry, the Australian Centre for Accelerating Diabetes Innovations Research (ACADI) highlighted: '[the] behind-the-scene story to every new drug, every new technology, every new treatment for diabetes […] is research.'[1] In Australia, research into diabetes is primarily funded by the Australian Government through the National Health and Medical Research Council (NHMRC), the Australian Research Council (ARC), and the Medical Research Future Fund (MRFF).[2]

7.5 The Department of Health and Aged Care submission outlined the scale of government investment in this field:

- Since 2013, the NHMRC has provided $513.8 million in funding for diabetes research
- Between 2015 and 2023, the MRFF has invested $104.19 million in 19 grants with a focus on diabetes research

1 Australian Centre for Accelerating Diabetes Innovations (ACADI), Submission 316, p. 2.
2 Department of Health and Aged Care, Submission 152, p. 7.

- From 2023, the MRFF Preventive and Public Health Research initiative will provide $596.5 million over 10 years to fund targeted research into new ways to address risk factors for chronic and complex diseases in Australia, including diabetes
- Between 2021 and 2023, the ARC has invested over $14 million for research into diabetes and obesity.[3]

7.6 Alongside government granting agencies, Diabetes Australia represents one of the leading national funding bodies for diabetes research. Established in 1937, Diabetes Australia is a not-for-profit organisation that operates as a support group and raises funds to invest in research, health services, the provision of self-management products and services, and public awareness programs. Diabetes Australia has also delivered the government's National Diabetes Services Scheme (NDSS) since its establishment in 1987. Over the past 12 years, Diabetes Australia's Research Program has invested $36 million into research.[4]

7.7 Juvenile Diabetes Research Foundation (JDRF) Australia is the Australian partner in a global alliance that funds research to find a cure for Type 1 diabetes. Since its establishment in the early 1970s, the organisation has invested $226 million in Australian Type 1 diabetes research.[5] In 2010, JDRF established the Type 1 Diabetes Clinical Research Network (T1DCRN) – an initiative that had capitalised on the Australian Government's continued investment to 'address research gaps and fast-track breakthroughs across JDRF's two key research pillars: finding cures and improving lives.'[6]

7.8 For patients with Type 1 diabetes, research is 'the only course of action.'[7] In discussing the work of T1DCRN, JDRF submission emphasised that research 'holds the key to finding a cure, easing the burden, and preventing T1D [Type 1 diabetes].'[8] The current pace of innovation in the field of diabetes research indeed offers great promise. JDRF noted:

> We are on the brink of major advances in T1D research and their implantation into clinical guidelines, clinical care and policy. The T1D field is undergoing rapid changes due to the expansion of our understanding of the trajectory of the disease, better strategies in screening for risk, and new and emerging treatments.[9]

3 Department of Health and Aged Care, Submission 152, p. 7.
4 Diabetes Australia, *Research*, accessed 6 June 2024, www.diabetesaustralia.com.au/research/
5 JDRF Australia, *About JDRF*, accessed 6 June 2024, https://jdrf.org.au/about-us/
6 JDRF Australia, *Type 1 Diabetes Clinical Research Network: a decade of impact*, July 2023, p. 4.
7 Mrs Melissa Eveille, Advocacy Program Manager, JDRF Australia, *Committee Hansard*, Canberra, 16 February 2024, p. 22.
8 JDRF Australia, Submission 64.1, p. 2.
9 JDRF Australia, Submission 64.1, p. 2.

7.9 Throughout the inquiry, the Committee received substantial evidence indicating that, despite the increasing rates of diabetes, support for research in this field has steadily declined.[10]

7.10 Early Career Network (ENC) of the Australian Diabetes Society (ADS) submitted that NHMRC funding for diabetes research has reduced by 35 per cent since 2013.[11] Professor Jonathan Shaw, Deputy Director at Baker Heart and Diabetes Institute, noted that while some of this decrease would have been countered by MRFF grants, the level of funding overall 'is below where it should be.'[12] Support from the Diabetes Australia Research Program has also declined from 50 General Grants awarded per year from 2014–21, to 32 in 2022, and 15 in 2023.[13]

7.11 The submission from ACADI, which was established in 2022 through a $10 million, four-year MRFF grant, similarly emphasised that 'Australia has significantly underinvested in diabetes research for many years. This has resulted in an underlying research base that is internationally high performing but […] severely under resourced and at risk of collapse due to a dearth of future researchers.'[14] Although currently producing high quality research with minimal investment, chronic underfunding of the sector has placed the future of diabetes research and innovation at risk.

7.12 The ENC submission drew attention to the fact that 'the current state of funding for diabetes research in Australia sends a message that diabetes research is not a priority for funders.'[15] This sentiment is echoed in the submission from the Westmead Institute's Centre for Diabetes, Obesity and Endocrinology Research (CDOER), which pointed out that the number of scientific abstracts provided in support of the Australian Diabetes Society Annual Meeting declined by 60 percent between 2012 and 2023. CDOER suggested this decrease indicated that researchers 'have recognised that the lack of funding in obesity and diabetes research means it is currently a poor career option.'[16]

7.13 Basic research, which relies to a significant extent on government funding, is at particular risk. Associate Professor Sofianos Andrikopoulos, Chief Executive Officer of the Australian Diabetes Society, told the Committee:

> If you look at the system in a broad sense, basic science is dependent on NHMRC funding, and there aren't that many other opportunities to put grants in

10 See, for example, Early Career Network (ENC) of the Australian Diabetes Society (ADS), Submission 225; ACADI, Submission 316; Centre for Diabetes, Obesity and Endocrinology Research (CDOER), Submission 157; Associate Professor Milan Piya, Clinical Academic Endocrinologist, Campbelltown Hospital, *Committee Hansard*, Campbelltown, 18 September 2023, p. 26.

11 ENC ADS, Submission 225, p. 2.

12 Professor Jonathan Shaw, Deputy Director, Clinical and Population Health, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 37.

13 ENC ADS, Submission 225, p. 2.

14 ACADI, Submission 316, p. 2.

15 ENC ADS, Submission 225, p. 2.

16 CDOER, Submission 157, p. 8.

> to get funding. In diabetes, we are totally reliant on the NHMRC for basic science research support.[17]

7.14 The reduction in support has placed a number of laboratories across the country that are engaged in basic science research in diabetes at risk of closing, which further 'limits the opportunities for basic and clinical researchers to collaborate and accelerate new discoveries.'[18] Professor Josephine Maree Forbes, President-Elect and Chair of Research Advisory Committee of the ADS, emphasised that therapeutic and technical advances made in diabetes in the past two decades were all discovered through basic research, and that underfunding of this area had consequences for the entire research pipeline.[19]

7.15 Throughout the course of the inquiry the research community highlighted the need for urgent and targeted investment to support at-risk research infrastructure, as well as a long-term strategic investment in the field of diabetes and obesity research. The Committee heard that while 'Australia has been punching above its weight' in diabetes science,[20] greater support for and better coordination of the research effort in this area was urgently required.

Diabetes research workforce

7.16 The adverse effect that inadequate levels of funding and the short-term nature of grant schemes have on the diabetes research workforce emerged as a common thread in the inquiry evidence. In reflecting on the future of diabetes research in Australia, Associate Professor Andrikopoulos told the Committee that the insufficient investment in the sector:

> is going to have implications for research in diabetes over the next five- to 10-year period. There is no doubt in my mind we will lose good people and we will go backwards in diabetes research. Why is this important? Because we've got all of these new therapies, new interventions, new treatments that are coming and we need to embed them in our health system. The only way we're going to embed these new treatments, new therapies into our system is by doing research in Australia and by supporting diabetes research in Australia.[21]

7.17 The erosion of the diabetes research workforce has also been raised as a major concern by Professor Forbes:

> we are losing our clinician researchers at a rate of knots, because they just cannot get funding. They have to write 20 grants instead of having to write 10 in

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17 Associate Professor Sofianos Andrikopoulos, Chief Executive Officer, ADS, *Committee Hansard*, Canberra, 16 February 2024, p. 33

18 ENC ADS, Submission 225, p. 4.

19 Professor Josephine Maree Forbes, President-Elect and Chair of Research Advisory Committee, ADS, *Committee Hansard*, Canberra, 16 February 2024, p. 29.

20 Professor Anthony Russell, President, ADS, *Committee Hansard*, Canberra, 16 February 2024, p. 32.

21 Associate Professor Andrikopoulos, ADS, *Committee Hansard*, Canberra, 16 February 2024, p. 33.

> the past, because of the success rates in diabetes. Increasingly, we are losing them and they are deciding not to work in diabetes […][22]

7.18 In reflecting on the amount of time that researchers spend identifying and applying for a diminishing pool of funds, ACADI Director, Professor Elif Ekinci, told the Committee:

> A lot of my valuable time, unfortunately, is still spent on applying for future funding, to secure funding of my staff. It really breaks my heart when we can no longer employ people, after all the years of upskilling people and getting them to the level where they are performing and doing well.[23]

7.19 The challenges of securing research funding have a disproportionate impact on PhD candidates and early career researchers (commonly defined as a cohort of researchers who are within five to eight years of receiving their PhD). In its submission to the inquiry ACADI explained:

> An important element of research funding is the support it provides for research training in the form of PhD scholarships and early-career fellowships. The paucity of diabetes research funding doesn't only impact on current research into diabetes and its complications, it narrows opportunities for new researchers to enter the field and make Australian diabetes research a viable, long-term career.[24]

7.20 In its analysis of PhD theses completed between 2010 and 2019, ACADI found that the number of diabetes-related PhDs was a quarter of those focused on cancer. Furthermore, less than 25 per cent of PhD graduates manage to secure full-time research careers after completing their postgraduate training.[25] The low number of PhDs focusing on diabetes combined with small portion of PhD graduates from that pool who ultimately find employment in the field underscores the sector's workforce concerns.

7.21 The question of inequity in research careers was also raised with the Committee. ENC noted that funding for research training such as a PhD stipend is financially unattractive compared to other professional opportunities. Research positions, furthermore, tend to be restricted in duration and often require relocation. They demand long and irregular working hours, which is fuelled by a 'publish or perish' culture in the academic sector, where an outstanding publication record is a prerequisite for grant funding. This form of employment thus makes research careers viable for only a small pool of scientists.[26]

7.22 Researchers who are working outside of academia face additional barriers to accessing funding. ENC explained that significant administrative effort is required to

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22 Professor Forbes, ADS, *Committee Hansard*, Canberra, 16 February 2024, p. 33.
23 Professor Elif Ekinci, Director, ACADI, *Committee Hansard,* Canberra, 22 March 2024, p. 38.
24 ACADI, Submission 316, p. 5.
25 ACADI, Submission 316, p. 5.
26 ENC ADS, Submission 225.

complete grant proposals.[27] Application processes for grants such as the NHMRC or the ARC are indeed notoriously complex, with universities establishing separate research offices to support grant applications made by their staff.[28] Researchers operating outside the university system, such as physicians who train through the Royal Australian College of Physicians (RACP), do not necessarily receive adequate support for developing their research proposals, which hinders their prospects of winning grants.[29]

7.23 For junior scientists, failure to secure a grant at the right time often means the end of a research career. Dr Shanal Kumar, endocrinologist at the Prince Charles and Princess Alexandra Hospitals in Brisbane and Chair of the Early Career Network of the Australian Diabetes Society, highlighted:

> As a collective, early- and mid-career researchers drive innovation and form the backbone of the research community. […] We seek funding not only for our work but to also secure our professional livelihoods. Over the last decade it's become increasingly difficult for us to get started and keep going if we miss out on funding.[30]

Diabetes research ecosystem

7.24 Fragmentation of the diabetes research sector in Australia has been identified as an additional impediment to diabetes research in Australia. 'Traditionally, diabetes research in Australia has been highly siloed,' the ACADI submission noted, 'with multiple areas of world-class research isolated in pockets of expertise across numerous universities and research institutes.'[31] This fragmentation of expertise, ACADI added, and the highly competitive nature of research funding, has hindered the articulation of a collaborative and coordinated research strategy for diabetes.

7.25 Entities such as ENC and Research Australia, a national alliance representing the health and medical research sector, proposed the establishment of a national research agenda for diabetes that would provide a 'clear consensus on areas of diabetes research priorities.'[32] Research Australia submitted that:

> While it is certainly true that there is existing funding for diabetes research from several sources, there is currently no body that can coordinate diabetes research funding across different funding bodies, or coordinate funding along the pipeline from basic research to implementation.[33]

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27 ENC ADS, Submission 225, p. 3.
28 See, for example: House of Representatives Standing Committee on Employment, Education and Training, *Australian Government Funding Arrangements for non-NHMRC Research*, 2018.
29 ENC ADS, Submission 225, p. 3.
30 Dr Shanal Kumar, Private capacity, *Committee Hansard*, Brisbane, 20 November 2023, pp. 36–37.
31 ACADI, Submission 316, p. 4.
32 ENC ADS, Submission 225, p. 6.
33 Research Australia, Submission 335, p. 10.

7.26 Research Australia also explained that outcomes of major research funding streams in Australia such as NHMRC and MRFF, are investigator led: in their grant applications, researchers propose the area in which they wish to undertake work, and the application is then assessed based on the quality and novelty of research, feasibility, and the capacity and track record of researchers. This model presents significant challenge for the coordination of research efforts:

> Responsibility for the existing funding streams (NHMRC MRFF etc.) rest with different individuals and entities which have their own strategies and agendas; this makes coordination of the funding they provide for diabetes research by any one body difficult but also essential if the potential of research to improve lives is to be realised.[34]

7.27 Research Australia drew the Committee's attention to entities such as Cancer Australia, which was established by the Australian Government in 2006 with the aim of coordinating research and other activities to achieve optimal outcomes in diagnosing and treating cancer.[35] There is a broad consensus across the inquiry evidence that a similar coordinating entity in the field of diabetes research would be beneficial.

7.28 The establishment of the Australian Centre for Disease Control (CDC) has also been identified in the evidence as an opportunity for introducing a more coordinated approach to diabetes research.

7.29 In 2022, the Government undertook consultation on the establishment of the CDC in order to improve the country's response and preparedness for public health emergencies. In addition to ensuring ongoing pandemic preparedness, CDC will also lead national response to future health emergencies and prevent and control non-communicable and communicable (infectious) diseases. Research Australia submitted that although research was not envisaged as part of the role of the Australian CDC, the Centre is well positioned to 'undertake the function of coordinating the application of research to the prevention and control of disease, including diabetes.'[36]

Diabetes datasets

7.30 Collection of comprehensive data on diabetes in Australia is vital both for the advancement of research, and the ability to measure progress of government initiatives in this field, such as the National Diabetes Strategy.

7.31 The National Diabetes Services Scheme (NDSS), through which diabetes patients register in order to access services and subsidised diabetes products, is one of the most significant data sources for the sector.

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34 Research Australia, Submission 335, p. 10.
35 Research Australia, Submission 335, p. 13.
36 Research Australia, Submission 335, p. 15.

7.32 The Australian Institute of Health and Welfare (AIHW) – an independent statutory government agency for health and welfare data – also holds a number of data collections on diabetes and obesity. AIHW's National (insulin-treated) Diabetes Register, for examples, records all new cases of people using insulin since 1 January 1999, combining data from the NDSS and the Australasian Paediatric Endocrine Group state and territory registers.[37]

7.33 The Australasian Diabetes Data Network (ADDN) is a platform that has been established as part of JDRF's Type 1 Diabetes Clinical Research Network. ADDN captures clinical information from thousands of people living with Type 1 diabetes, bringing together de-identified data from 25 centres across Australia and New Zealand onto a single platform.[38]

7.34 The Australian Medical Association submitted that there was a critical need for improving our current data collection on diabetes.[39] This position is further emphasised by ACADI, with its submission noting that major datasets such as NDSS and AIHW are flawed:

> The NDSS data relies on people who are registered with the Service, and not all people with Type 2 diabetes have registered. Additionally, AIHW data audits have found issues in the correct classification of people with Type 1 versus Type 2 diabetes.[40]

7.35 In his appearance before the Committee, Professor Shaw of the Baker Heart and Diabetes Institute explained that the limitations of NDSS stem for its profile as a service rather than a registry:

> NDSS is effectively almost a register of people with diabetes and gives us, effectively, the largest national register of diabetes, except that it's designed as a service and hasn't quite been set up as a registry. We've done a lot of academic work and published a lot of data on it, but it just falls this much short of what a registry should be.[41]

7.36 The limitations of NDSS data are particularly evident in areas such as the Northern Territory. Aboriginal and Torres Strait Islander people often do not register with the NDSS; furthermore, many people access diabetes supplies directly from a clinic rather than through NDSS registration, resulting in underrepresentation of diabetes patients within this dataset.[42]

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37 Australian Institute of Health and Welfare (AIHW), *Our data collections*, accessed 6 June 2024, www.aihw.gov.au/about-our-data/our-data-collections. The collection of APEG data ceased in 2022; since then, the National Diabetes Register has been derived only from the NDSS.

38 JDRF, *The Australasian Diabetes Data Network (ADDN)*, accessed 6 June 2024, https://jdrf.org.au/research/addn/

39 Australian Medical Association, Submission 219, p. 3.

40 ACADI, Submission 316, p. 1.

41 Professor Shaw, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 37.

42 Dr Matthew Hare, Senior Research Fellow, Menzies School of Health Research, *Committee Hansard*, Darwin, 7 March 2024, pp. 18–19.

7.37 In discussing limitations of diabetes-related datasets held by the AIHW, ACADI cited the example of the National Hospital Morbidity Database, in which diabetes is recorded as an additional diagnostic rather than a causal condition in around 95 per cent of hospitalisations that mention diabetes.[43] Where deaths occur in people with diabetes, the cause of death is usually listed as some other event (for example, a cardiovascular event) rather than diabetes. The nature of reporting of hospital presentations and mortality may thus provide distorted data on the impact of diabetes:

> Under-reporting the significance of diabetes as a primary cause of hospitalisation, disease and death through the data captured by our health system entrenches the misunderstanding of the causes, complexity and severity of diabetes and its treatment – and the associated costs. It also results in the minimisation of the impact of diabetes on individuals and the health system and potentially results in less funding for prevention, diagnosis, and research.[44]

7.38 Dr Kumar also emphasised that diabetes was often overshadowed by its complications in reporting, which has implications for funding:

> The diabetes complications involve cardiovascular complications and other complications, and I don't think that we always capture that it's secondary to diabetes. So it's not the primary cause. How we can fix that is by having diabetes-specific research funding.[45]

7.39 ACADI recommended recording diabetes as the cause of more illness and death instances instead of ascribing these to other principal events.[46] The Royal Melbourne Hospital, for example, suggested including 'diabetes status' as a mandated field for every person admitted to hospital and on death certificates in every state and territory.[47] These practices would provide a foundation for the development of a more accurate and comprehensive dataset, and by extension a more accurate understanding of diabetes in Australia.

7.40 Research Australia further emphasised that the lack of adequate diabetes-related data presented a significant problem for measuring the effectiveness of diabetes-related programs and initiatives.[48] In reflecting on the National Diabetes Strategy 2016-2020, Research Australia noted that the AIHW was unable to provide measures for 20 out of 55 indicators designed to track the effectiveness of the Strategy.[49]

7.41 This problem was reiterated by Dr Matthew Hare, Senior Research Fellow at the Menzies School of Health Research who told the Committee that:

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43 ACADI, Submission 316, pp. 1–2.
44 ACADI, Submission 316, p. 2.
45 Dr Kumar, *Committee Hansard*, Brisbane, 20 November 2023, p. 37.
46 ACADI, Submission 316, p. 2.
47 The Royal Melbourne Hospital, Submission 295, pp. 2–3.
48 Research Australia, Submission 335, pp. 5–8.
49 Research Australia, Submission 335, p. 6.

> For example, the 2021 to 2030 National Diabetes Strategy is a fantastic resource, and it's got some great goals, but what we need to see in the implementation plan when it's refreshed from the previous version are some actual targets and metrics to report against. For example, for diabetes in pregnancy goal 4 in the previous Diabetes Strategy there were no metrics provided in the implementation strategy because there were no data sources identified to report against. With investment, which I think is goal 7 of the strategy, in data sources and these things we can actually provide quite a bit more impetus to actually make these changes to policies nationally.[50]

7.42 Research Australia submitted that the AIHW should review the indicators for the purpose of the current National Diabetes Strategy 2021–2030, and advise on the new data collections that are required in order to accurately track the progress of the Strategy.

7.43 ENC identified that some of the current issues hindering better collection of data owe to a lack of electronic medical record systems at some services; an inability to share data between community and hospital-based facilities; and an inability to share data with private pathology and radiology services.[51]

7.44 In discussing the collection of health data, Dr Jason King, Director of Clinical Services, Gurriny Yealamucka Health Service Aboriginal Corporation, drew the Committee's attention to the importance of understanding contemporary notions of data sovereignty when dealing with health records, especially in relation to Indigenous Australians:

> The collection of data from Aboriginal communities has been an issue since colonisation in the 19th century or 18th century, when artefacts, remains […] were taken away and never returned. Health data is no different. Health data needs to be something that is obtained with consent, and then the people who hold that data need to see themselves as custodians. The communities need to have ownership of that, primarily, and give permission to be able to use it. I think that's increasingly a factor which health research needs to understand, particularly primary health, which is so intimately connected with communities.[52]

7.45 In addition to better data, many of those who provided evidence in support of the inquiry identified a need for developing data linkage methods and information sharing platforms for the diabetes sector.

7.46 In its submission, ACADI noted that are many good examples in Australia of platforms that bring together disparate research strands in some particular field under one umbrella, such as the Peter Doherty Institute for Infection and Immunity, the Florey Institute of Neuroscience and Mental Health, the Olivia Newton-John Cancer

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50 Dr Hare, Menzies School of Health Research, *Committee Hansard*, Darwin, 7 March 2024, p. 25.

51 ENC ADS, Submission 225, p. 7.

52 Dr Jason King, Director of Clinical Services, Gurriny Yealamucka Health Service Aboriginal Corporation, *Committee Hansard*, Yarrabah, 21 November 2023, p. 6.

Research Institute and the Victor Chang Cardiac Research Institute.[53] Virtual platforms that link different entities working in the same research area – which is the logic underpinning ACADI's establishment – can go a long way toward addressing the fragmentation of the research sector, including in respect of data collection.

Research co-design

7.47 In the course of the inquiry, the Committee investigated the question of research translation in Australia. In this context, the importance of co-design in diabetes research has been strongly emphasised. Participation by people with diabetes should occur in a significant proportion of all research projects relating to diabetes, 'from basic research into the causes of diabetes to consumer-directed product development.'[54]

7.48 In registering his support for investment in diabetes prevention research, Associate Professor Freya MacMillan, Board Director of the Australian Health Promotion Association, highlighted that policies, programs and strategies to prevent diabetes must be tailored to their local context. She explained that:

> it's paramount that communities and those with lived experience are central to the co-design and co-delivery of the programs that will then maximise engagement and effectiveness.[55]

7.49 Participation of Indigenous communities in the development and delivery of diabetes research projects is particularly important. ACADI submitted that:

> Researching the First Nations experience of diabetes and its management must be seated within cultural context and First Nations ownership of the research lifecycle. For example, ACADI operates with an embedded Indigenous Advisory Group, ensuring that First Nations People are consulted on new projects and initiatives and their lived experience of diabetes is an integral part of the research design.[56]

7.50 In reflecting on the impact of diabetes research in the Northern Territory and remote Australia, Professor Alan Cass, Director of Menzies School of Health Research, similarly emphasised the importance of building research collaboration with communities:

> I think it's place-based strong collaborations like those evidenced here, working with communities and community controlled services where the patient or consumer voice is upfront, that make a difference. […] I think that's about addressing issues of the highest priority with the right community members and Aboriginal and non-Aboriginal researchers coming together in deep partnership

53 ACADI, Submission 316, p. 4.
54 ACADI, Submission 316, p. 5.
55 Associate Professor Freya MacMillan, Board Director, Australian Health Promotion Association, *Committee Hansard*, Canberra, 16 February 2024, p. 15.
56 ACADI, Submission 316, p. 7.

> with health services and government, and able to enunciate and show the likelihood of impact.[57]

7.51 Ms Ema Vueti, President of the Pacific Islands Council of Queensland, also discussed participatory approach in research, and highlighted the example of Pacific communities that have been involved in diabetes management research and education conducted through the Pasifika Women's Alliance and the Queensland University of Technology to ensure better health outcomes for these cohorts.[58]

7.52 In addition to placing the voices of those living with diabetes at the centre of research design, the inquiry evidence also makes it apparent that there is a need for closer collaboration between research centres and primary care providers. As Professor Cass explained:

> I think we as a country have been much better at funding research and building research capability within big universities, research institutes and hospitals. Still, the ability for primary care—community controlled, government services and GPs—to step up and partner in research that will make a difference in the community in the prevention and management of diabetes and related chronic disease is still terribly limited.[59]

The future of diabetes research

7.53 The advances made in the field of diabetes research to date have had an enormous impact on the lives of people living with the disease. In appearing before the Committee, Miss Emily Klimek, volunteer advocate at JDRF, reflected:

> research has made it possible for many people like me to live a happy and productive life. I am grateful for the research that went into the insulin pump and continuous glucose monitor, my CGM, that I wear 24/7. It really helps me to manage my type 1, and I am very grateful for the bipartisan commitment so that the CGM is accessible to all. But most of all I look forward to the day when I can say I used to have type 1 diabetes, I am now needle and anxiety free and I can live a long and happy life. I think that with the research and the partnership with JDRF that will one day be accessible.[60]

7.54 The quest for more sophisticated methods of diabetes detection and management, along with efforts to find a cure for the disease, remains at the frontier of diabetes research.

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57 Professor Alan Cass, Director, Menzies School of Health Research, *Committee Hansard*, Darwin, 7 March 2024, p. 28.

58 Ema Vueti, President, Pacific Islands Council of Queensland, *Committee Hansard*, Brisbane, 20 November 2023, p. 53.

59 Professor Cass, Menzies School of Health Research, *Committee Hansard*, Darwin, 7 March 2024, p. 29.

60 Miss Emily Klimek, Volunteer Advocate, JDRF Australia, *Committee Hansard*, Canberra, 20 June 2023, p. 13.

7.55 The Department of Health and Aged Care highlighted the importance of advancing precision medicine in the field of diabetes:

> Personalised approach to the management of diabetes involves optimising the diagnosis, prediction, prevention, and treatment of diabetes. This is achieved by integrating multi-dimensional scientific and clinical data and applying to individual patient profiles by accounting for the individual's health status.[61]

7.56 JDRF similarly emphasised the importance of precision medicine in the context of Type 1 diabetes, noting that advancement in this area:

> …will allow us to develop a broader understanding of personalised treatment, to not only encompass the biological bases of T1D heterogeneity, but also psychosocial and personal preferences within a patient-centric model.[62]

7.57 In addition, the application of nanotechnology holds great promise in diabetes management. The Department of Health and Aged Care explained that 'nanotechnology is utilised in the application of drugs or diagnostic molecules which generally improves their ability to target specific cells or tissues.'[63] According to the Department, 'Novel nanotechnology-based glucose measurement and insulin delivery techniques are increasingly being used in the field of diabetes,' in order to improve 'the overall treatment outcome in diabetes.'[64]

7.58 Better understanding of the genetic architecture for both Type 1 and Type 2 diabetes will continue to be a major focus of research, as will the interplay between genetics and external factors. Research into, for example, the relationship between the genetic component and viruses in triggering diabetes is currently underway;[65] equally the question as to why some individuals at risk for Type 2 diabetes develop the disease and others do not will likely be answered with further knowledge of our genetics.[66]

7.59 Research related to the prevention of diabetes and its potential remission will remain important, including the work on the effect of a low-carbohydrate diet and physical activity.[67] Diabetes, as witnesses repeatedly highlighted during the inquiry, is a complex multiorgan disease, with a range of complications and focus should be on research that acknowledges that complexity. As Professor Cass explained:

> People will have kidney disease, diabetes, vascular disease and everything together, so encouraging the very multidisciplinary and cross-organ—not organ-

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61 Department of Health and Aged Care, Submission 152, p. 9.
62 JDRF Australia, Submission 64.1, p. 2.
63 Department of Health and Aged Care, Submission 152, p. 9.
64 Department of Health and Aged Care, Submission 152, pp. 9–10.
65 Dr Dorota Pawlak, Chief Scientific Officer and Director, Type 1 Diabetes Clinical Research Network, JDRF Australia, *Committee Hansard*, Canberra, 20 June 2023, p. 14; Department of Health and Aged Care, Submission 152, p. 6.
66 Dr Lisa Amato, Paediatric Endocrinologist, Campbelltown Hospital, *Committee Hansard*, Campbelltown, 18 September 2023, p. 31.
67 Dr Liz Fraser, Private capacity, *Committee Hansard*, Canberra, 17 November 2023, p. 30.

> specific—approach will have the maximal chance of difference. We're getting better at directing research that way.[68]

7.60 The establishment of a clinical research network for diabetes will also be vital for future diabetes research in Australia. ACADI submitted that clinical trials 'are a critical step in the research and development process for new drugs, vaccines, medical devices, and diagnostics.'[69] As Professor Ekinci explained to the Committee: 'In order to change practice—observational studies are not going to do it. You need clinical trial evidence.'[70]

7.61 Clinical trials also provide early access to potentially life-changing new treatments. Currently diabetes clinical trial activity exists in isolated pockets, concentrated primarily in metropolitan areas on the eastern seaboard.[71] A coordinated clinical trial activity to provide access to clinical trials of the newest technologies, medications or behaviour interventions for people living with diabetes will be vital for the future of research and research translation in diabetes.

Committee comment

7.62 The Committee learned that Australian scientists are currently making ground-breaking advancements in the field of diabetes and obesity research. This work is vital for developing a better understanding of the causes of diabetes, for devising better screening and treatment approaches, and for creating pathways to reach the ultimate goal of finding a cure for the disease.

7.63 The Committee acknowledges the importance of embedding the experiences of people living with diabetes within the research process, and welcomes the commitment to this practice across the Australian research sector.

7.64 Australia's ability to maintain and build research capacity in the field of diabetes is a cause of great concern among the research community. The Committee acknowledges that the level of funding ought to better reflect the burden of diabetes and that short-term nature of funding models hinders the sector's ability to deliver best research outcomes and support the research workforce now and into the future.

7.65 The urgent need for better coordination of diabetes-related research effort is also a clear priority. The Committee recognises that entities such as the Australian Centre for Disease Control can play a leading role in streamlining current research efforts.

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68 Professor Cass, Menzies School of Health Research, *Committee Hansard*, Darwin, 7 March 2024, p. 28.
69 ACADI, Submission 316, p. 4.
70 Professor Ekinci, ACADI, *Committee Hansard*, Canberra, 22 March 2024, p. 41.
71 ACADI, Submission 316, p. 4.

Recommendation 21

7.66 The Committee recommends that the Australian Government takes steps to manage diabetes research efforts through the Australian Centre for Disease Control (CDC) by coordinating with the peak bodies such as JDRF and Diabetes Australia research priorities with an emphasis on equitable access and prevention. The Committee also recommends that the Australian Government considers increased funding for Type 1 diabetes research and clinical trials.

7.67 The short-term nature of funding schemes and the fragmentation of the diabetes research ecosystem in Australia has had an adverse effect on research productivity. Placing diabetes-related research efforts under the coordination of the Australian CDC would address the issue of fragmentation, while also providing the opportunity to articulate a long-term diabetes research strategy.

Recommendation 22

7.68 The Committee recommends that the Australian Government undertakes a survey of current diabetes-related data, with a view to developing strategies for establishing new and improving current data sources and for establishing a national diabetes mellitus register within the CDC.

7.69 Data is central to research, as well as being the foundation for measuring the success of current national strategies related to diabetes and obesity. Data is also vital for understanding the impact of diabetes on both our health system and the national economy.

8. Diabetes and obesity in at-risk cohorts

Overview

8.1 'The impact of poor health,' as the Department of Health and Aged care emphasised in its submission, 'is expressed unevenly in Australian communities.'[1] Throughout the course of this inquiry, it has been repeatedly impressed upon the Committee that people in lower socio-economic groups are at greater risk of poor health. Furthermore, the Department submitted that:

> Social, environmental, structural, economic, cultural, biomedical, commercial, and digital determinants of health contribute to health inequity and inequality experienced in Australia.[2]

8.2 Indeed, different groups across Australia often have significantly different health needs. In gathering evidence for the inquiry, the Committee travelled across Australia to hear from people about their experiences living with diabetes and obesity. This chapter focuses on cohorts that are acutely impacted by – and often face additional challenges managing – diabetes and obesity. Particular emphasis is placed on Aboriginal and Torres Strait Islander people, with sections covering their access to health care and some of the most common diabetes complications that impact these communities, as well as challenges securing access to healthy food. Equally, members of culturally and linguistically diverse communities, people living with disability, those who reside in rural or remote areas, and older Australians all experience additional barriers to the optimal management of diabetes and obesity.

8.3 This chapter places specific emphasis on evidence provided by those living with diabetes and obesity. Throughout the inquiry, the Committee heard from many people across different communities in Australia about their experiences living with these diseases. While this chapter recounts only a fraction of these exchanges, these stories make clear how important it is to respond urgently to the rising tide of diabetes and obesity in Australia.

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1 Department of Health and Aged Care, Submission 152, p. 5. See also: Western Sydney Leadership Dialogue, Submission 236, n.p.

2 Department of Health and Aged Care, Submission 152, p. 5.

Aboriginal and Torres Strait Islander communities

8.4 In comparison to the Australian population overall, Aboriginal and Torres Strait Islander people are three times more likely to live with diabetes and five times more likely to be hospitalised with diabetes-related complications.[3] Evidence received throughout the inquiry about barriers experienced by Aboriginal and Torres Strait Islander people living with diabetes and obesity focuses in particular on issues related to:

- Seeking medical help and specialised care
- Access to healthy food and
- Social factors.

Access to primary and specialised care

8.5 At a public hearing in Darwin, the Committee heard from Dr Hasthi Dissanayake and Professor Beverley-Ann Biggs, along with local elders who are working with the Elcho Island community to establish an Elcho Health and Wellbeing project. This project is evaluating a community developed and led nutrition and lifestyle program aimed at reducing weight and improving metabolic health among the residents of Elcho Island. The project also seeks to determine the effects of the program on diet, physical activity and quality of life as well as to understand Yolŋu perspectives on the program's benefits and challenges.

8.6 Professor Beverley-Ann Biggs explained some of the challenges faced by the Elcho Island communities:

> There are two healthcare services on Elcho Island. One is Miwatj Health at Galiwin'ku. The other is Marthakal Homelands, and they do all the homelands. They struggle to get doctors and they struggle to get nurses. They usually come for, at most, 12 weeks at a time. It's better at Miwatj now that we have [inaudible] in charge, but there were periods in the last eight years where there were no doctors on Elcho Island.[4]

8.7 Ms Ruth Gulamanda, an elder from Galiwin'ku on Elcho Island and Chief Investigator for the Elcho Health and Wellbeing project, told the Committee about diabetes and heart problems within the community:

> People have got higher rates at Galiwin'ku and through east Arnhem. At Galiwin'ku, there are a lot of people who have the sickness of sugar and chronic disease. There are so many that some of them start dying. Sometimes they are ashamed to go to the clinic. Sometimes they make excuses and say, 'I'll go to the clinic later on.' Sometimes the nurses go out to get them for testing and all that,

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3 Diabetes Australia, Submission 248.3, p. 2.

4 Professor Beverley-Ann Biggs, Private capacity, *Committee Hansard,* Darwin, 8 March 2024, p. 9.

but they say, 'Wait, I'll come around later.' Sometimes they don't get their results back from the doctors or from the workers.[5]

8.8 The Committee also spoke to Mr Raymond Sambo at its public hearing in Cairns. Mr Sambo is an Indigenous man who was diagnosed with Type 2 diabetes and recently received '…a kidney transplant after 5 long years on the wait list'.[6] Mr Sambo told the Committee about his initial response to being diagnosed with diabetes:

> My journey started most probably 20-odd years ago. I was seeing my local doctor at the workshop in the Aboriginal medical centre, and he said to me, 'Keep on going the way you're going, and you'll end up with diabetes.' The unfortunate thing about diabetes is you don't really see any symptoms… I just ignored that advice from the doctor. …I've never really seen an Aboriginal health worker or, if I have, it's been very limited… The biggest thing is I was drinking too much, eating the wrong food, not exercising and all those sorts of things…
>
> When you first start diabetes, the doctor said to me, 'You can control this through changing your lifestyle and cutting back on the grog.' I never smoked, thank goodness, but through exercise and eating properly, he said, 'You can control this.' Again I chose not to listen. I then progressed to medication. You start on the tablets, metformin and so on… I wasn't taking my tablets regularly. Then I progressed to insulin. Once again I never used to take my insulin regularly... I'd make sure to have a beer regularly, but that was, again, my choosing. I didn't see the symptoms of what was occurring to my body.[7]

8.9 As the disease progressed, Mr Sambo faced additional complications:

> It really struck home to me when they said, 'You're going up to the renal clinic.' When I walked into the renal clinic, that's when it hit me like I'd walked into a brick wall—bang… I've obviously changed my diet, and I'm still recovering a little bit from my transplant. I haven't drunk for over 10 years, but it was 10 years too late. If I'd stopped and made those changes earlier, I mightn't have been in the situation I found myself in.
>
> That's my journey. I was one of the lucky ones, as an Indigenous patient, to get a transplant. It'll be five months tomorrow. As I said, I'm still recovering. Touch wood everything keeps on working. We know it can be rejected.[8]

8.10 Ms Tanya Hosch gave evidence at a public hearing on behalf of the South Australian Health and Medical Research Institute (SAHMRI) about her experience living with Type 2 diabetes and associated foot complications. In 2021, Ms Hosch lost her lower-leg to Charcot foot, a complication of diabetes-related neuropathy. She explained:

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5 Ms Ruth Gulamanda, Chief Investigator, University of Melbourne and Galiwin'ku Community through Helen Burumbil Dhurrkay, interpreter, *Committee Hansard,* 8 March 2024, p. 3.

6 Mr Raymond Sambo, Submission 247, n.p.

7 Mr Sambo, Private capacity, *Committee Hansard,* Cairns, 22 November 2023, p. 8.

8 Mr Sambo, Private capacity, *Committee Hansard,* Cairns, 22 November 2023, p. 8.

> I'd been living with type 2 diabetes for about a decade and had no concept that Charcot foot was a potential complication... Now that I look back, what I realise is that early experiences with healthcare professionals who were there to help me understand the potential risks to my health were the fork in the road that I think took me down the path of losing my leg. The first endocrinologist I saw privately, and the racism I experienced in her care was so extreme that every time I went to see her my blood pressure would go up. I went back to my GP, who said, 'Maybe see someone in the public system.' The public system was almost impossible to get into. I just gave up on endocrinology.
>
> …while I feel like the care I've had at the acute and tertiary level of the health system has been excellent as a public patient, I shouldn't have been there. The primary health care is where I feel terribly let down, because I never understood the risks that were possible having type 2 diabetes…[9]

8.11 Reflecting on the importance of ensuring that patients living with diabetes understand the nature and progression of the disease, Ms Hosch noted:

> [When] I was diagnosed with type 2 diabetes... I just thought taking my tablets was all I needed to do. The fact that there was actually no mechanism to make sure I understood the potential problems from diabetes is where I think there was a major failure. Then, of course, Charcot foot proved very difficult to diagnose. The first thing they tell you to do when you are diagnosed is to cease weight-bearing. I was seeing a physio for months before that, doing exercises on my foot, just doing further and further harm. I was very fortunate that someone recommended a GP to me who had worked in Aboriginal communities and took me off to get the right tests. I had three years of complications before I ended up losing my leg, having attempted a foot reconstruction.[10]

8.12 Efforts to promote lifestyle changes that can help to reverse the progression of diabetes and obesity in Indigenous communities are also vital. In his submission to the inquiry, Mr Ray Kelly, a Kamilaroi man who is currently completing a PhD at the University of Melbourne School of Medicine, shared his experience about reversal of Type 2 diabetes through lifestyle change by Indigenous people in Australia. Mr Kelly established the Too Deadly for Diabetes program, which has supported Aboriginal people in regional and remote communities across NSW with weight loss and to reduce their HbA1c levels.[11] Mr Kelly submitted:

> In 2017 I decided to focus on regional and remote Aboriginal communities. Since then, I have partnered with 16 Indigenous communities across NSW to provide my 'Too Deadly for Diabetes' program. This has seen patients lose a total weight loss of over 5,800kg, at an average weight loss of 7% of their starting weight. The average reduction in HbA1c has been 1.6%. Many participants also reduce or

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9 Ms Tanya Hosch, Person with lived experience, South Australian Health and Medical Research Institute (SAHMRI), *Committee Hansard,* Canberra, 16 February 2024, p. 36.

10 Ms Hosch, SAHMRI, *Committee Hansard,* Canberra, 16 February 2024, p. 36.

11 Mr Kelly, Submission 388, n.p.

> eliminate medications for type 2 diabetes and hypertension. These results are impressive when compared to the whole Australian population, however it must be stated that these communities have many challenges and would be considered some of the most difficult locations in NSW to provide a lifestyle program. In addition, the program is provided within the primary care setting by nurses and Aboriginal Health Workers/Practitioners. We have been able to show that even in the most challenging environments, Aboriginal people will achieve great health outcomes if provided with the right information and support.[12]

8.13 The Diabetes across the Lifecourse Partnership at the Menzies School of Health Research recommended greater support for the primary health care sector to promote routine health checks and screening for Type 2 diabetes, and to provide education to Aboriginal and Torres Strait Islander communities about preventing, detecting and managing diabetes.[13]

Kidney disease

8.14 Aboriginal and Torres Strait Islander people living with diabetes are disproportionately affected by diabetes-related kidney disease and kidney failure.[14] As Diabetes Australia highlighted, 'The fact that there are more than 30 dialysis clinics in regional and remote communities across Australia highlights the impact of diabetes-related kidney disease.'[15]

8.15 The National Aboriginal Community Controlled Health Organisation stated:

> The burden of diabetes and associated complications in Aboriginal and Torres Strait Islander populations looks set to worsen. Diabetes accounts for more than 70% of new cases of kidney failure, and Aboriginal and Torres Strait Islander people with diabetes are five times more likely to report kidney disease than people without diabetes. Regardless of locality, Aboriginal and Torres Strait Islander people are five times more likely than non-Indigenous Australians to develop kidney disease, and four times more likely to die from kidney disease. Incidence of kidney failure is up to 20 times higher than non-Indigenous Australians in remote areas.[16]

8.16 Miwatj Health told the Committee that people living with diabetes and chronic kidney disease are 'more vulnerable to diabetic retinopathy and foot complications requiring close monitoring and comprehensive care plans.'[17] This cohort is also more prone to

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12 Mr Kelly, Submission 388, n.p.
13 Diabetes across the Lifecourse Partnership, Menzies School of Health Research, Submission 66, p. 1.
14 Diabetes Australia, Submission 248.3, p. 10. See also: Miwatj Health, Submission 449, n.p.
15 Diabetes Australia, Submission 248.3, p. 10.
16 National Aboriginal Community Controlled Health Organisation (NACCHO), Submission 244, pp. 9–10, citations omitted. See also: Australian Medical Association (AMA), Submission 219, p. 4, citations omitted.
17 Miwatj Health, Submission 449, n.p.

other health issues such as anaemia, metabolic bone disease and infections resulting in acute complications and hospitalisations.[18]

8.17 The Australian Medical Association (AMA) observed that Aboriginal and Torres Strait Islander people 'with kidney failure are less likely to be wait-listed for transplantation than non-Indigenous Australians' due to a range of barriers, such as lack of 'service availability and likelihood of referral for transplant evaluation, cultural bias and individual patient factors such as co-morbidities which affect the acceptability of a kidney transplant.'[19] As such, the AMA recommended the Australian Government invest in addressing systemic healthcare inequality, and improve diabetes prevention and early detection of diabetes for Aboriginal and Torres Strait Islander people.[20]

8.18 Mr Sambo explained that there are significant social, emotional and wellbeing impacts for Aboriginal and Torres Strait Islander people who need to relocate away from their communities for dialysis:

> They have to relocate from the outer islands to TI [Thursday Island] if, again, there are fortunately enough chairs there for dialysis. Otherwise, they have to come to Cairns. Now, when they come to Cairns, you've got to imagine it: they're uprooted from their community and they're uprooted from their family, connection to culture and connection to community—all things that contribute to our wellbeing. Again, looking at the medical side of it, we really need to start, as they said, looking at the holistic side of it. This is the other part of the holistic side—looking at those things that affect Aboriginal and Torres Strait Islander people, which is that soul removal from community.
>
> Then, for Queensland Health, I know there's a limited budget, but look at some of the accommodation that they're putting patients in here in Cairns. …if you've got family coming from the Aboriginal communities or the Torres Strait—if they're a husband and wife with six kids or eight kids—some women are living in… two-bedroom old motels... They are old motels that really should be bulldozed, but, because they're getting subsidised by Queensland Health, they know they're going to have a full room. Their vacancy rate will be zero, because, again, they're getting fully subsidised by Queensland Health. Again, you talk about diet and things like that, but, when you're living in some of these accommodations, you haven't even got proper cooking facilities—a full-sized fridge. These are some of the things that really need to be looked at as far as accommodation when you bring your patients down.[21]

8.19 Diabetes Australia recommended funding for an Aboriginal and Torres Strait Islander focused Diabetes-related Kidney Disease Screening Program to support early detection and intervention.[22]

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18 Miwatj Health, Submission 449, n.p.
19 AMA, Submission 219, p. 4, citations omitted.
20 AMA, Submission 219, p. 4, citations omitted.
21 Mr Sambo, Private capacity, *Committee Hansard,* Cairns, 22 November 2023, p. 10.
22 Diabetes Australia, Submission 248.3, p. 14.

Foot complications

8.20 Aboriginal and Torres Strait Islander people are more likely to be hospitalised for lower limb amputation. According to SAHMRI, hospitalisation rates are 11 times higher for females and five times higher for males compared to Australia's non-Indigenous population.[23]

8.21 SAHMRI recommended a national scheme to subsidise medical grade custom footwear, orthoses, foot protective devices, offloading and wound care products for Aboriginal and Torres Strait Islander people at risk, or living with, diabetes-related foot complications.[24]

Access to healthy food

8.22 The Committee received a substantial amount of evidence regarding the lack of access to healthy food in many Aboriginal and Torres Strait Islander communities. For example, Ms Gulamanda told the Committee about the lack of affordable healthy food on Elcho Island:

> Sometimes at the shop, it's very expensive. We don't have enough money to buy the right groceries, like vegetables and greens, and the prices keep rising at the store. When we buy from there, we can't get a lot of healthy foods because of the prices. Some of us are still being paid by Services Australia, and we have to get money out of our own pockets. For instance, in Darwin for $100 I can get four plastic bags, whereas in Elcho you only get half a brown paper bag.
>
> We try to give advice to the community to stop eating takeaway food there and to instead cook their own meals. Sometimes we see adults walking around. They go to the takeaway store to buy breakfast. Coke is their favourite thing on the menu. Sometimes they eat chicken and chips for breakfast. We'd like to change that, and to support them to start eating healthily again. We've got to help each other by providing good food for everybody, so we can come together and talk about this disease.[25]

8.23 Dr Dissanayake explained that the challenge of buying healthy food in store on Elcho Island was exacerbated by the fact that many households do not have equipment to cook food, such as pots, pans and knives.[26] Professor Biggs explained that a similar issue existed in relation to access to cold drinks:

> Not everyone has a fridge on Elcho Island... There are no cold drinks. It's very hot, as you know and as I'm sure you're experiencing, so people go to the store

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23 Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, SAHMRI, Submission 451, n.p.

24 Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, SAHMRI, Submission 451, n.p.

25 Ms Gulamanda, University of Melbourne and Galiwin'ku Community through Helen Burumbil Dhurrkay, interpreter, *Committee Hansard,* Darwin, 8 March 2024, p. 3.

26 Dr Hasthi Dissanayake, Senior Research Fellow, University of Melbourne, *Committee Hansard,* Darwin, 8 March 2024, p. 6.

> to buy something cold to drink. There are no water fountains. On the one hand, I think it's addictive—both the sugar and the caffeine. On the other hand, there aren't any easy alternatives to get cold drinks. Most people are dehydrated.[27]

8.24 Ms Jacinda Roberts told the Committee about the situation in town camps with poor access to healthy food around Alice Springs:

> …look at where our town camps are, and many of them are actually placed opposite where there are fast food delis. I think about one of the supermarkets, which is well placed in the gap, where the cost of fruit and veg is at least eight times what it would cost in Coles and Woolworths, but you can't walk to Coles and Woolworths. You can only walk there. So of course you're going to go next door and grab some fast food. I've seen a food truck go into a town camp at six o'clock at night. Once again, it's that exploitation. In a town camp, you're very limited. People don't necessarily have the means to cook and prepare food, so you have a food truck which is selling hot dogs and Slurpees going in at dinner time to effectively the most vulnerable people to sell their food. You can educate as much as you can, but when your settings aren't conducive to health it makes no difference.[28]

8.25 Alice Springs Town Council Mayor, Matt Paterson, also told the Committee that the Alice Springs KFC is '…the busiest KFC in the country. It sold more chicken than any other postcode in the country. Our takeaway, our fast food, is very popular.'[29]

8.26 During the inquiry, the Committee travelled to Yarrabah in Far North Queensland to speak to Dr Jason King, Director of Clinical Services at Gurriny Yealamucka Health Service Aboriginal Corporation. Dr King said that poor water supply and quality was a common issue in many remote communities:

> One of the first instructions I got from local people when I came here was not to drink the locally supplied water. Often it's unpalatable, and that's due to the high iron content in the water from piping, for example. In March this year it was discovered that several of the outlets had raised levels of certain metals such as copper and lead, and arsenic was found in some of the water outlets. Subsequent testing showed that most of that was from first-flush samples due to water stasis and the hyperchlorination of the water supply. But historically, water supply has been a problem. If we're giving people advice not to drink sugary drinks and they can't drink local tap water, they're then faced with the choice of trying to purchase their water. The commodification of an essential human right to water is major issue internationally, and Australia is no different with a bottle of water costing more than a bottle of coke in a community like Yarrabah.[30]

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27 Professor Biggs, Private capacity, *Committee Hansard,* Darwin, 8 March 2024, p. 8.

28 Ms Jacinda Roberts, Private capacity, *Committee Hansard,* Alice Springs, 6 March 2024, p. 18.

29 Mr Matt Paterson, Mayor, Alice Springs Town Council, *Committee Hansard,* Alice Springs, 6 March 2024, p. 7.

30 Dr Jason King, Director of Clinical Services, Gurriny Yealamucka Health Service Aboriginal Corporation, *Committee Hansard,* Yarrabah, 21 November 2023, p. 2.

8.27 Dr King also emphasised the need to examine the transportation of essential products to remote locations like Yarrabah, and to look at how businesses can support transportation more effectively.[31] Dr King elaborated:

> Where you can go in and pay $10 for a head of lettuce, for example, while a Coke is cheaper than water—that is a problem. Those decisions are made on a financial basis, but the impacts to health are direct. A very quick turnaround can see changes in lifestyle and organ damage from diabetes, for example, within a generation. I think we could see significant changes if real choices were available for patients.[32]

8.28 Mr Sambo described addiction to sugary drinks as being similar to an addiction to smoking or alcohol:

> I think they were talking about diabetes last night on the news and they said, 'Let's up the cost of soft drink.' One thing, in the communities, is the water is at least a dollar, so the soft drink is still higher. Again, as I said, I was watching the news, and there was a non-Indigenous lady living in a major centre, and they said, 'Would this work for you if we upped the price of soft drink?' She said: 'Most probably not. It wouldn't make any difference.' So that's the thinking. It's the same in Aboriginal communities. Unfortunately, Coke is a bit of an addiction, as is smoking and alcohol. That's a really hard one to break—getting people to go off that soft drink and to drink water. I have that same problem with my own kids at home. I say, 'Look, you've got to drink more water.' I'm just trying to drum that message into them, and I'm even struggling at home with my own kids.[33]

8.29 Ms Edwina Murphy, a young Jawoyn woman living with Type 2 diabetes in the Northern Territory, said that '[p]roviding food and transport to go in town to get medication and food' would help to improve access to healthy food.[34]

8.30 Ms Laura Baddeley, Nutrition Manager at the Arnhem Land Progress Aboriginal Corporation described '…reliable access to food and essentials as a basic human right.'[35] Ms Baddeley recommended access to healthy food could be improved through:

> …freight subsidies across the board. There's really good evidence that people will buy more healthy foods if there is a freight subsidy and if we can reduce the price of healthy products. If it's affordable, people can buy what they need. The other thing would be around the starting cost of products. Like we talked about

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31 Dr King, Gurriny Yealamucka Health Service Aboriginal Corporation, *Committee Hansard,* Yarrabah, 21 November 2023, p. 4.

32 Dr King, Gurriny Yealamucka Health Service Aboriginal Corporation, *Committee Hansard,* Yarrabah, 21 November 2023, p. 4.

33 Mr Sambo, Private capacity, *Committee Hansard,* Cairns, 22 November 2023, pp. 11–12.

34 Ms Edwina Murphy, Participant, Youth Diabetes Peer Support Group, Wurli-Wurlinjang Health Service, *Committee Hansard,* 7 March 2024, Darwin, p. 71.

35 Ms Laura Baddeley, Nutrition Manager, Arnhem Land Progress Aboriginal Corporation, *Committee Hansard,* 7 March 2024, Darwin, p. 72.

> earlier, our buying power is very small, and we can't negotiate with big food like big retailers in Australia.[36]

8.31 Professor Julie Brimblecombe, who gave evidence at a public hearing in Darwin, told the Committee about the work being undertaken across many remote stores to improve access to healthy food:

> Many remote stores are doing what they can to address food affordability and the high cost of food. For example, they provide subsidies for fruit and vegetables. They work with suppliers to try to reduce the cost of different types of foods. But you can see from that figure too, from what was reported by these 29 stores, that costs of repairs and maintenance to stores, cost of freight and cost of break-ins are barriers reported by stores. What's really required to bring down the cost of food, to have viable stores and to address food affordability is a subsidy. What this subsidy looks like requires quite a lot of work that different inquiries have recommended. The national food security inquiry has just recommended a subsidy for remote stores to address food affordability.[37]

Social factors

8.32 Throughout the inquiry, the Committee heard about a range of complex social factors preventing people from managing their diabetes and obesity, such as a lack of access to adequate housing and economic disadvantage. For example, Dr King told the Committee that there are 414 houses for 4200 people in Yarrabah.[38] There are thus on average ten people living in each house, with up to 20 people living in three-bedroom houses.[39] Many houses in Yarrabah also are not connected to electricity, which makes refrigeration difficult and creates serious problems for storing certain types of insulin that need to be temperature stabilised.[40] Dr King explained: 'That can place increased stress on people's confidence in the quality and safety of their medication.'[41]

8.33 Mr Sambo pointed out the limited social housing available in the Torres Strait:

> We talk about housing in the Torres Strait. There's limited social housing. A lot of the housing is subsidised by government. Those workers flying in get the houses. Private real estate can up the price of those because they know they'll get the rent. They can charge whatever, and the rent is subsidised by their employer. All

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36 Ms Baddeley, Arnhem Land Progress Aboriginal Corporation, *Committee Hansard,* 7 March 2024, Darwin, p. 75.

37 Professor Julie Brimblecombe, Private capacity, *Committee Hansard,* 7 March 2024, Darwin, p. 57.

38 Dr King, Gurriny Yealamucka Health Service Aboriginal Corporation, *Committee Hansard,* Yarrabah, 21 November 2023, p. 2.

39 Dr King, Gurriny Yealamucka Health Service Aboriginal Corporation, *Committee Hansard,* Yarrabah, 21 November 2023, p. 2.

40 Dr King, Gurriny Yealamucka Health Service Aboriginal Corporation, *Committee Hansard,* Yarrabah, 21 November 2023, p. 2.

41 Dr King, Gurriny Yealamucka Health Service Aboriginal Corporation, *Committee Hansard,* Yarrabah, 21 November 2023, p. 2.

> the other private houses are out of reach for the local population, because how can you afford $600 a week if you're on unemployment benefits? That's the problem. How do people, as I said, get private rentals? They might be working, but even still the cost of private accommodation is so expensive that it cuts out the locals for that sort of stuff. Accommodation probably isn't as bad in Aboriginal communities, but we still have overcrowding in Aboriginal communities. If you have 10 mob in a house, how do you maintain a good diet when you have that many people in the house? As they spoke about, there's always a shortage of food. With overcrowding come hygiene issues. All those things lead to poor health.[42]

8.34 SAHMRI recommended funding to address the social determinants of health contributing to inequitable burden of diabetes, such as 'income, environment, housing, education, food security […]'.[43]

Culturally and linguistically diverse communities

8.35 In Australia, people belonging to some culturally and linguistically diverse communities tend to be at higher risk of developing Type 2 diabetes.[44] According to Diabetes Australia, this includes people from the Pacific Islands, the Middle East, South Asia and Africa.[45] In addition to facing language barriers and other cultural challenges, these cohorts may also experience difficulties navigating the health system.[46] To manage these challenges, Diabetes Australia submitted that diabetes resources and education should be available in culturally appropriate formats in key languages.[47]

8.36 During the inquiry, the Committee heard about diabetes prevention programs implemented within Pacific Islands communities. For example, NSW Health told the Committee about the Pasifika Preventing Diabetes Program, which 'is a church based, community owned lifestyle program aiming to improve detection, prevention and management of diabetes and its risk factors.'[48] NSW Health elaborated on this program:

> The program is being conducted across 48 churches attended by a high proportion of people of Pasifika origin to reduce the risk of developing of type 2 diabetes and to improve self-management among those with type 2 diabetes.
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> The project is funded by a National Health and Medical Research Council… Partnership Grant, with an additional funding contributed from 13 partner

42 Mr Sambo, Private capacity, *Committee Hansard,* Cairns, 22 November 2023, pp. 9–10.
43 Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, SAHMRI, Submission 451, n.p.
44 Diabetes Australia, Submission 248, p. 17.
45 Diabetes Australia, Submission 248, p. 17.
46 NSW Health, Submission 349, p. 11.
47 Diabetes Australia, Submission 248, p. 18.
48 NSW Health, Submission 349, p. 11. See also: Ingham Institute for Applied Medical Research, Submission 364, p. 5.

> organisations.38 This includes NSW Ministry of Health, NSW Pathology and four metropolitan Sydney LHDs [local health districts].
>
> The programme seeks to empower participants and their communities by providing a framework to help the community build their own sustainable lifestyle changes. Trained, peer support facilitators deliver formal and informal sessions related to healthy eating, physical activity, and diabetes. Participants are consented for participation as family groups and attend interactive activities such as walking and cooking groups. Participant resources are developed in consultation with peer facilitators and translated into relevant languages. A total of 480 participants have been recruited so far.[49]

8.37 The Committee also heard about the Maridulu Budyari Gumal (SPHERE) Le Taeao Afua (LTA) project, that was implemented across four South Western Sydney Samoan Churches for a six-month period.[50] The project was led by a Samoan community reference group, and expanded to include representation from other Pacific communities across Sydney.[51] Maridulu Budyari Gumal (SPHERE) submitted:

> The LTA intervention had a train-the-trainer approach, using Peer Support Facilitators (PSFs) to deliver support to the wider community. A Community Activator (CA) trained and supported the PSFs. GP attendance was promoted in parallel to the community approach through referral letters for those who received abnormal results.
>
> The LTA program confirmed that recruitment and delivery of the intervention via churches is feasible. During the 12-month period, over 110 intervention activities were delivered across the three churches. Churches are well attended by Pacific communities in Australia. Pre-post evaluation showed an overall reduction in HbA1c and diastolic blood pressure, with near doubling of self- reported total physical activity, and an increase in low fat choices (such as removing fat from chicken during food preparation). The program greatly benefited the local Samoan community of South Western Sydney. The Pacific Reference Group who manages the program would like to extend the program across GWS. Through an NHMRC [National Health and Medical Research Council] Partnership Grant the project is current being expanded across the Sydney Pasifika Community to include 48 more churches.[52]

8.38 Maridulu Budyari Gumal (SPHERE) recommended support to enable intervention programs like LTA to be implemented in other culturally and linguistically diverse communities.[53]

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49 NSW Health, Submission 349, p. 11. See also: Ingham Institute for Applied Medical Research, Submission 364, p. 5.

50 Maridulu Budyari Gumal (SPHERE), Submission 263, n.p.

51 Maridulu Budyari Gumal (SPHERE), Submission 263, n.p.

52 Maridulu Budyari Gumal (SPHERE), Submission 263, n.p.

53 Maridulu Budyari Gumal (SPHERE), Submission 263, n.p.

People with disability

8.39 Just over ten per cent of people living with a disability also live with diabetes.[54] Diabetes Australia suggested that disability support workers would benefit from training to support people with diabetes, 'particularly people who are unable to self-administer insulin or appropriately monitor their diabetes themselves.'[55]

8.40 The submission from Diabetes WA explained that people with disability living with diabetes can access funding from the National Disability Insurance Scheme (NDIS) for a disability-related diabetes management plan:

> Enabling people living with a disability and diabetes to access support workers to assist with insulin administration is essential for ensuring cost is not a prohibitive factor in receiving quality, best practice diabetes care plans. For some diabetes management supports, the NDIS can fund a registered nurse to train and delegate key tasks to a support worker or enrolled nurse. This includes insulin administration and use of new diabetes technologies for the delivery of insulin and measurement of blood glucose levels. There has been confusion in WA regarding the interpretation of the legislation with regards to this delegation of care, resulting in inconsistencies. Diabetes WA is also unaware of any national quality standards, competencies, or accreditation of training for support workers involved in delegated diabetes care.[56]

People living in rural and remote areas

8.41 People living in rural and remote areas are almost three times more likely to be hospitalised for diabetes, and mortality is twice as high compared to people living in major cities.[57] Diabetes Australia's National Community Consultation Survey found that 40 per cent of people living in regional areas reported difficulties accessing doctors' appointments or appointments with other health professionals.[58] As a result, people in rural and remote areas have poorer access to medicines and diabetes management.[59]

8.42 Diabetes Australia recommended case conferencing arrangements be improved to ensure people in rural and remote general practices have access to proper diabetes care by an endocrinologist and a credentialled diabetes educator.[60]

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54 Diabetes Australia, Submission 248, p. 18.
55 Diabetes Australia, Submission 248, p. 18. See also: Diabetes Victoria, Submission 310, p. 15.
56 Diabetes WA, Submission 421, p. 24.
57 Diabetes Australia, Submission 248, p. 18.
58 Diabetes Australia, Submission 248, p. 18.
59 Diabetes Australia, Submission 248, p. 18.
60 Diabetes Australia, Submission 248, p. 18.

Older people

8.43 Older people are disproportionately affected by diabetes. According to statistics provided by Diabetes Australia, one million (67.5 per cent) of people living with diabetes are aged over 60, and more than 250,000 people are aged over 80.[61]

8.44 Diabetes Australia submitted that one in five people and one in four First Nations people currently living in residential care live with diabetes.[62] Many require assistance with special dietary requirements, their glucose monitoring and insulin administration. In many cases, Diabetes Australia noted, these needs are unmet, which in turn:

> …can lead to very poor quality of life, unnecessary complications, avoidable hospitalisations, and premature death.[63]

8.45 Diabetes Australia also discussed the situation in aged care and submitted:

> There is often a lack of awareness among aged care staff about the contribution of diabetes to other problems such as unexplained falls and urinary tract infections. This results in potentially avoidable transfers to hospital.
>
> Additionally, Standard 3, Personal care and clinical care of the Aged Care Quality Standards, requires that all people in residential aged care can access safe and effective, best practice clinical care that is tailored to their needs and optimises their health and wellbeing, Sadly, when it comes to diabetes this Standard is rarely met.
>
> A new national Diabetes In Aged Care training program for all aged care workers would improve the capability of aged care workers and service providers. A tiered training program, with training appropriately aligned to the level of care and support staff provide to people living with diabetes, is the most cost-effective way to upskill Australia's aged care light.[64]

8.46 Diabetes Australia highlighted that longer life expectancy over the next 40 years 'will drive a significant increase in the number of people living with diabetes in aged care.'[65]

8.47 As part of its investigation into new diabetes technologies, the Committee heard evidence pertaining of the advantage that devices such as continuous glucose monitors and insulin pumps have in these contexts, as they allow for nearly automated administration of medications. Professor Alicia Jenkins, Head of Clinical Research Domain and Lab Head at the Baker Heart and Diabetes Institute told the Committee that:

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61 Diabetes Australia, Submission 248, p. 16.
62 Diabetes Australia, Submission 248, p. 17.
63 Diabetes Australia, Submission 248, p. 17.
64 Diabetes Australia, Submission 248, p. 17.
65 Diabetes Australia, Submission 248, p. 17.

> …with this newer technology, even with the commercial version which is short of the closed-loop that you've heard about, patients with mild to moderate cognitive impairment are actually able to keep really good control, stay on their pumps and not need a lot of support from their healthcare professionals or their families.[66]

8.48 Professor Jenkins further emphasised the results of survey conducted by the Institute, which indicated that Australians living with Type 1 diabetes are especially concerned about diabetes management in older age. As she explained:

> A survey that we've done showed us that there is a concern for Australians living with type 1 diabetes of, 'I'm fine now; what happens as I age?'[67]

Patients in assisted living or residential care, she noted, should have access to current technology, and support from staff who are trained in diabetes management.[68]

Committee comment

8.49 The Committee acknowledges the significant challenges and hardship experienced by people living with diabetes and obesity. The Committee also recognises that diabetes and obesity affect people differently.

8.50 The Committee believes more can be done to increase awareness about diabetes and obesity among at-risk cohorts. There is evidence, however, that improving awareness can only be successful if people have the access to the resources they need, such as the right medical help, access to healthy food and social support.

8.51 As the Committee noted earlier in this report, the Aboriginal Healthcare workforce remains a priority for Indigenous communities.

8.52 The Committee notes that the House of Representatives Standing Committee on Agriculture tabled a report entitled *Australian Food Story: Feeding the Nation and Beyond* tabled in November 2023.[69] The Government response to this report remains outstanding.

8.53 The Committee recognises food security as a priority issue that must be addressed. The Committee therefore urges the Australian Government to consider the recommendations made in the *Australian Food Story* report as outlined in Chapter 3.

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66 Professor Alicia Jenkins, Head of Clinical Research Domain and Lab Head, Diabetes and Vascular Medicine, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 38.

67 Professor Jenkins, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 38.

68 Professor Jenkins, Baker Heart and Diabetes Institute, *Committee Hansard*, Melbourne, 23 November 2023, p. 38.

69 House of Representatives Standing Committee on Agriculture, *Australian Food Story: Feeding the Nation and Beyond,* November 2023, pp. xix–xxv.

Recommendation 23

8.54 The Committee recommends that the Australian Centre for Evaluation in the Department of Treasury commits to the ongoing assessment of any actions taken in respect of Committee recommendations made in this report.

8.55 The Committee acknowledges that this report includes several complex recommendations that, if accepted, will require coordinated effort across multiple levels of government to be implemented successfully. Ongoing assessment and evaluation is important for ensuing that actions taken in respect to any recommendations are effective, particularly over the long term.

Dr Mike Freelander MP
Chair

A. Submissions

1	Dr Victoria Hargraves Farrington
2	*Name Withheld*
3	*Name Withheld*
4	Mr Thomas Francis
5	Ms Rebecca Phillips
6	Mr Andrew Retchford
7	The Figure Life
8	Ian Whitehead
9	*Name Withheld*
10	John Ockenden
11	*Name Withheld*
12	Susan Lloyd
13	Mr Stuart Lynch
14	*Name Withheld*
15	Michael Bennetts
16	Geoffrey Tye
17	Brian Moshal
18	William Larkin
19	Toria Tiwari
20	Dr David Rose
21	Royal Women’s Hospital, Melbourne

22 Department of Education

23 *Name Withheld*

24 *Name Withheld*

25 Federation of Canteens in Schools

26 *Name Withheld*

27 *Name Withheld*

28 Bep Gomperts

29 Mr Mark Clohesy

30 Ms Liz Klar

31 *Name Withheld*

32 Nella Cortese

33 Michael Power

34 *Name Withheld*

35 Angie Robinson

36 *Name Withheld*

37 *Name Withheld*

38 Mr Valentino Bulaon

39 *Name Withheld*

40 *Name Withheld*

41 Miriam Johnston

42 Mr John Collins

43 *Name Withheld*

44 Mrs Carla Veith-Carter

45 Nicholas Edwards

46 Miss Nicola Hames

47 *Name Withheld*

48 Maree Dalton

49 *Name Withheld*

50 Madalyn Mitchell

51 Dr Agnieszka Etubus

52 *Name Withheld*

53 Dr Naomi Harris

54 Professor Rowena Barrett

55 *Name Withheld*

56 Mr Hayden Dikeman, Ms Jane MacDonald and Dr Gary Fettke

57 Mrs Isobel Burchell

58 Anne Michelle Ebert

59 Mr Richard Affannato

60 *Name Withheld*

61 *Name Withheld*

62 *Name Withheld*

63 Mr Norman Netterfield

64 Juvenile Diabetes Research Foundation (JDRF) Australia

- 64.1 Supplementary to submission 64
- Attachment 1

65 *Name Withheld*

66 Diabetes across the Lifecourse Partnership, Menzies School of Health Research

- Attachment 1
- Attachment 2

67 Dr James Muecke

- 67.1 Supplementary to submission 67
- Attachment 1
- Attachment 2

68 Mr Danny Vagg

- 68.1 Supplementary to submission 68

69 Rachelle Martin

- Attachment 1

70 National Health and Medical Research Council (NHMRC)

71 Cystic Fibrosis Australia

72 *Name Withheld*

73 Dr Kathryn Williams

74 Dr Shanal Kumar

- 74.1 Supplementary to submission 74

75 *Name Withheld*

76 Southern Cross University

77 Richard Rains

78 *Name Withheld*

79 Ms Jane MacDonald

80 *Name Withheld*

81 Mr Bevan Bruse

82 *Name Withheld*

83 *Name Withheld*

84 Sydney Low Carb Specialists

85 Western Sydney Diabetes

86 Albury Wodonga Diabetes Support Group

87 Dr Anne-Marie Newton

88 Murdoch Children's Research Institute

89 Aileen McColl

90 Yoel Morag

91 Ms Julie Allerton

92 Melbourne Dental School, University of Melbourne

93 Dr Andre Priede

94 Mr Daniel Rianto

95 Professor Tracey Wade, Associate Professor Deborah Mitchison and Mikayla Hussey

96 Dr Naomi Blake

97 Mr Paul Afflick

98 *Name Withheld*

99 Pamela Meredith

100 Marcia Colmar-Fastag

101 *Name Withheld*

102 Mr James Blockley

103 DANII Meads-Barlow (DANII) Foundation

104 *Name Withheld*

105 Vlasta Schlehofer

106 *Name Withheld*

107 David Adams

108 Associate Professor Kate Hughes

109 John Trigt

110 *Name Withheld*

111 Mr Alain Watson

112 Kimm O'Connor

113 Miss Debra Connley

114 *Name Withheld*

115 Mrs Suzanne and Mr Ronald Scharff

116 *Name Withheld*

117 Mr Ian McKenzie

118 Peter Pak

119 *Name Withheld*

120 Professor Daryl Higgins

121 Mr Peter Kym Harvy

122 Mrs Nicole Read

123 Mr Jeffrey Hamer

124 Ms Morgan Bell

125 *Name Withheld*

126 *Name Withheld*

127 *Name Withheld*

128 Christine Marks

129 *Name Withheld*

130 Prof Peter Brukner

- Attachment 1
- Attachment 2
- Attachment 3
- Attachment 4

131 Derek Everson

132 Mr Glyn Atkinson

133 Mr Ian Porter

134 Mr Omar Alim

135 *Name Withheld*

136 Mrs Wendy Ryan

137 Dory Goudswaard

138 Mr Donald Ruse

139 Ms Roslyn Menzies

140 Mrs Sharmila Kabir

141 Dr Robert Szabo

142 Mr Michael Pipe

143 Luca Picci

144 Mr Richard Hunter

145 Adult Cystic Fibrosis Centre, TPCH Brisbane

- 145.1 Supplementary to submission 145

146 *Name Withheld*

147 *Name Withheld*

148 Mrs Bianca Ward

149 *Name Withheld*

150 Ms Belinda Moore

151 CRE EPOCH-Translate

152 Department of Health and Aged Care

153 Sandy McCormick

154 Mr Bryce Riches

155 Mr Kevin Connor

156 Ms Linda Carroll

157 Centre for Diabetes, Obesity and Endocrinology Research (CDOER)

158 Dr. Robert Lustig

159 Melanie Moor

160 *Name Withheld*

161 Northern Territory (NT) Health

162 Miss Kaylah Hau

163 Mr Venkata Kasarla

164 *Name Withheld*

165 *Name Withheld*

166 AstonRX

- Attachment 1
- Attachment 2

167 Mr Brad Russell-Lane

168 Mr David Gillespie

169 Defeat Diabetes

170 *Name Withheld*

171 *Name Withheld*

172 *Name Withheld*

173 CRANAplus

174 Royal Australasian College of Physicians (RACP)

175 Dr Lyn Wren

176 *Name Withheld*

177 *Name Withheld*

178 Naomi Adams

179 Dr Derek Yull

180 *Name Withheld*

181 *Name Withheld*

182 Dr Penny Figtree and collaborating health professionals

- Attachment 1

183 Cathie Plowman

184 *Name Withheld*

185 Mrs Kristie Hopkins

186 Mr Jaime Dormer

187 Mr Raymond Hille

188 *Name Withheld*

189 Dr Jessica Turton

190 *Name Withheld*

191 Mr Simon Gray

192 *Name Withheld*

193 Cara Jamieson

194 Australian Psychological Society

195 Wayne Rogers

196 *Name Withheld*

197 Mr David Dawes

198 Confidential

199 Lauren Rowbottom

200 Mr John Bell

201 Australian and New Zealand Metabolic and Obesity Surgery Society (ANZMOSS)

- Attachment 1
- Attachment 2
- Attachment 3
- Attachment 4
- Attachment 5

202 *Name Withheld*

203 Mr Athula Bogoda

204 *Name Withheld*

205 Dr Ashley Ng

206 *Name Withheld*

207 Nina Andrews

208 Dr Stephanie Williams

209 Ms Dianne Carpenter

210 Miss Tanika Penkara-Bush

211 *Name Withheld*

212 Ms Carli Leishman

213 *Name Withheld*

214 Primary Care Diabetes Society of Australia

215 Jennifer Thompson

216 Endo Axiom Pty Ltd

217 Mrs Kate Razmovski

218 Australian Patients Association (APA)

219 Australian Medical Association (AMA)

- 219.1 Supplementary to submission 219
- Attachment 1
- Attachment 2
- Attachment 3

220 Public Health Association of Australia (PHAA)

- 220.1 Supplementary to submission 220
- 220.2 Supplementary to submission 220
- 220.3 Supplementary to submission 220
- Attachment 1

221 Australian Diabetes Educators Association (ADEA)

222 Allied Health Professions Australia (AHPA)

223 Pharmacy Guild of Australia

224 Australian Academy of Health and Medical Sciences (AAHMS)

225 Early Career Network (ECN) of the Australian Diabetes Society (ADS)

226 Central Australian Aboriginal Congress

227 Mrs Catharina Felton

228 Mark Ashton

229 Bolton Clarke

230 Johnson & Johnson MedTech

231 Stephanie Alexander Kitchen Garden Foundation

232 Mrs Elvira Jagels

233 Healthy Living NT

234 Mr Stephen Bali MP

235 Western Sydney Primary Health Network (WentWest)

236 Western Sydney Leadership Dialogue

237 Confidential

238 Confidential

239 Confidential

240 *Name Withheld*

241 Mr Andris Zalite

242 *Name Withheld*

243 Robin Brooke

244 National Aboriginal Community Controlled Health Organisation (NACCHO)

- 244.1 Supplementary to submission 244

245 Australian College of Nursing

- 245.1 Supplementary to submission 245

246 Novo Nordisk Pharmaceuticals Pty Ltd

247 Mr Raymond Sambo

- 247.1 Supplementary to submission 247

248 Diabetes Australia

- 248.1 Supplementary to submission 248
- 248.2 Supplementary to submission 248
- 248.3 Supplementary to submission 248

- 248.4 Supplementary to submission 248
- Attachment 5

249 Australian Dental Association

250 Health and Wellbeing Queensland

- Attachment 1

251 *Name Withheld*

252 *Name Withheld*

253 Northern Queensland Primary Health Network

254 Mr Peter Johnson

255 Dr Jedha Dening

- Attachment 1

256 Type 1 Diabetes Family Centre

257 Ms Cheryle Brider

258 *Name Withheld*

259 Institute for Physical Activity and Nutrition (IPAN), Deakin University

260 Will Butters

261 Nadia Dugec

262 Mito Foundation

263 Maridulu Budyari Gumal (SPHERE)

- 263.1 Supplementary to submission 263

264 The Rio Tinto Children's Diabetes Centre; a JDRF Global Centre of Excellence.

265 *Name Withheld*

266 *Name Withheld*

267 *Name Withheld*

268 The Glycemic Index Foundation

269 *Name Withheld*

270 Insulet Australia

271 Ms Bernadette O'Brien

272 Ms Frances Wiig

273 Mr Russell Gould

274 Mrs Amber Evans

275 Dr Alexia Pape

276 Australasian Society of Lifestyle Medicine

277 Impact Obesity

278 Ms Katherine Hooke

279 Mr Duncan Read

280 *Name Withheld*

281 *Name Withheld*

282 *Name Withheld*

283 *Name Withheld*

284 Queensland Nurses and Midwives' Union

285 Alfred Alliance in Diabetes

286 The Society of Hospital Pharmacists of Australia

287 Ms Chloe Currie

288 Eversana

289 *Name Withheld*

290 St Vincent's Hospital Melbourne

291 *Name Withheld*

292 Brisbane South PHN

293 Ms Lauren Davies

294 Royal Darwin Hospital and Alice Springs Hospital Department of Endocrinology and Diabetes

295 Royal Melbourne Hospital

296 Australasian College For Emergency Medicine

297 Mrs Beverley Stewart

298 Cancer Council Australia

299 Mr Michael Pengelly

300 Star Pharmacy Group

- 300.1 Supplementary to submission 300

301 Institute of Urban Indigenous Health

302 cohealth

303 Roche

304 Centre for Safe Air

305 Infant & Toddler Foods Research Alliance

306 The Australian Clinical Psychology Association

307 Australian Sports Commission

308 Be Fit Food

309 Dairy Australia

310 Diabetes Victoria

311 Mr Russell Imer

312 Nestle Health Science

313 *Name Withheld*

314 Australian Podiatry Association Limited

315 *Name Withheld*

316 Australian Centre for Accelerating Diabetes Innovations (ACADI)

317 Australian Diabetes Society

- 317.1 Supplementary to submission 317

318 Australasian Diabetes In Pregnancy Society (ADIPS)

319 National Heart Foundation of Australia

320 Aarian Health Pty Ltd

321 Private Healthcare Australia

- 321.1 Supplementary to submission 321

322 Optometry Australia

323 Doctors For Nutrition

324 Dr Megan Jensen

325 FlashGM Study

326 Abbott Diabetes Care

327 *Name Withheld*

328 Mr Keith Miller

329 Ms Claire McDonnell

330 Diabetes Feet Australia

331 Butterfly Foundation

332 *Name Withheld*

333 Ms Lorraine Pitman

334 Ms Kate Oetsch

335 Research Australia

336 *Name Withheld*

337 Australian Food & Grocery Council

- 337.1 Supplementary to submission 337

338 *Name Withheld*

339 Diabetes Research WA

340 Type1 Foundation

341 *Name Withheld*

342 Institute for Health Transformation, Deakin University

343 The Obesity Collective

344 Ms Rachel McKeown

345 Mrs Kaylene Pedretti

346 Mrs Janet Firth

347 Sanofi

348 Alice Springs Hospital Endocrinology Department on behalf of the Department of Medicine

349 NSW Health

350 Ms Tamara Boyer

351 Cystic Fibrosis Community Care

352 *Name Withheld*

353 The Australian Centre for Behavioural Research in Diabetes

354 The National Association of Clinical Obesity Services

355 Princess Alexandra Hospital

356 *Name Withheld*

357 Dr Helen Woodhead

358 Mrs Meagan Tennyson

359 Australian Health Promotion Association

360 Health Consumers' Council WA

361 *Name Withheld*

362 *Name Withheld*

363 Dr Debra Blackmore

364 Ingham Institute for Applied Medical Research

365 Mr Clive Conway

366 Victorian Health Promotion Foundation (VicHealth)

367 Consumers Health Forum of Australia

368 Dr Monique Francois

369 PDC Health Hub by Perth Diabetes Care

- 369.1 Supplementary to submission 369
- 369.2 Supplementary to submission 369
- 369.3 Supplementary to submission 369
- Attachment 1
- Attachment 2

370 Food for Health Alliance

371 Professor Stephen Colagiuri

- Attachment 1

372 National Retail Association

373 AusCycling and WeRide Australia

374 Australian Beverages Council

375 Dexcom/AMSL Diabetes

376 Mr Grant Ennis

377 Royal Australian and New Zealand College of Ophthalmologists (RANZCO), Orthoptics Australia and the Macular Disease Foundation Australia

378 Australia and New Zealand Society for Paediatric Endocrinology and Diabetes (ANZSPED)

379 Australian and New Zealand Obesity Society (ANZOS)

380 *Name Withheld*

381 Dr Chris Knobbe

382 Mrs Liz Blackburn

383 Rosemary Elliot

384 *Name Withheld*

385 Mrs Georgia Green

386 *Name Withheld*

387 Kidney Health Australia

388 Mr Ray Kelly

389 The Australasian Association and Register of Practicing Nutritionists

390 Dietitians Australia

391 AstraZeneca Australia

392 *Name Withheld*

393 *Name Withheld*

394 *Name Withheld*

395 Diabetes SA

396 Synod of Victoria and Tasmania, Uniting Church in Australia

397 Medtronic

398 Royal Flying Doctor Service

- Attachment 1
- Attachment 2

399 Miss Madeleine O'Keeffe

400 *Name Withheld*

401 Endocrine Society of Australia

402 Dr Paul Mason

403 Australian College of Nurse Practitioners

404 Coalition for Healthy Remote Stores

405 La Trobe University

406 The George Institute for Global Health

407 Rural Doctors Association of Australia

- Attachment 1

408 Macintyre Health Australasia Pty Ltd

409 Royal Australian and New Zealand College of Psychiatrists (RANZCP)

410 Exercise & Sports Science Australia (ESSA)

411 National Rural Health Alliance

412 Hon Jeremy Rockliff MP, Premier of Tasmania

413 Dr Ben Nash

414 Australian Chronic Disease Prevention Alliance (ACDPA)

415 Aboriginal Medical Services Alliance NT (AMSANT)

416 Ypsomed Australia

417 Kathryn Anne Taylor

418 Maternal Health Matters Inc.

419 Mrs Alison Turner

420 Phil Vukic

421 Diabetes WA

422 Mary Anne Patton

423 Kellie-Ann Smith

424 Wesfarmers Health

425 *Name Withheld*

426 Medical Technology Association of Australia (MTAA)

427 Royal Australian College of General Practitioners (RACGP)

428 Australian College of Rural & Remote Medicine (ACRRM)

429 Queensland Aboriginal and Islander Health Council

430 Department of Infrastructure, Transport, Regional Development, Communications and the Arts

431 Mrs Catherine McLaine

432 *Name Withheld*

433 Genetic Technologies Limited

434 Kayla Mounsey

435 Diverse Personal Training

436 *Name Withheld*

437 *Name Withheld*

438 Terri Runciman

439 Global Diabetes Solutions

440 Dr Peter Goss and Ms Jenny Goss - Team Diabetes

- Attachment 1
- Attachment 2
- Attachment 3
- Attachment 4
- Attachment 5
- Attachment 6
- Attachment 7

441 Ms Rachelle Ward

442 Australian College of Midwives

443 Lisa Mackay

444 Australian Orthotic Prosthetic Association

445 Glenys McNamara

446 *Name Withheld*

447 Aboriginal Health Council Western Australia (AHCWA)

448 The Australian Youth Advocacy Network

449 Miwatj Health

450 *Name Withheld*

451 Australasian Diabetes Data Network (ADDN)

452 Ian Watson

453 Emeritus Professor John Boulton AM

- Attachment 1
- Attachment 2
- Attachment 3
- Attachment 4

- Attachment 5
- Attachment 6

454 National Pharmaceutical Services Association

455 Victorian Aboriginal Community Controlled Health Organisation (VACCHO)

456 Simon Carter

457 National Association of People With HIV Australia (NAPWHA)

458 Siba Diqer

459 Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, South Australian Health and Medical Research Institute (SAHMRI)

- Attachment 1
- Attachment 2

460 Dr Liz Fraser

- Attachment 1

461 Australasian Metabolic Health Society

462 Type 1 Voice

463 Australian Paediatric Society

- Attachment 1
- Attachment 2
- Attachment 3
- Attachment 4

464 Associate Professor Emily Hibbert

- Attachment 1

465 Confidential

466 Jess Hart

467 Hunter New England Local Health District

468 Mr Ian Cavanagh

469 Trina Thomson

470 Australian Olympic Committee

- Attachment 1
- Attachment 2
- Attachment 3
- Attachment 4

471 Grattan Institute

472 Hon Emily Suvaal MLC

473 Confidential

B. Additional documents

1 Dr Robyn Barnes, Diabetes Coordinator, South Western Sydney Local Health District – answers to questions taken on notice at public hearing on 18 September 2023

2 Dr Robyn Barnes, Diabetes Coordinator, South Western Sydney Local Health District – answers to questions taken on notice at public hearing on 18 September 2023

3 Professor Glen F Maberly, Director, Western Sydney Diabetes – answers to questions taken on notice at public hearing on 18 September 2023

4 Professor Glen F Maberly, Director, Western Sydney Diabetes – answers to questions taken on notice at public hearing on 18 September 2023

5 Mrs Katrina Tran, Senior Diabetes Dietitian, Campbelltown Hospital – answers to questions taken on notice at public hearing on 18 September 2023

6 Dr Jessica Lai, Clinical Endocrinologist, South West Sydney Local Health District – answers to questions taken on notice at public hearing on 18 September 2023

7 Dr James Muecke AM – answers to questions taken on notice at public hearing on 17 November 2023

8 Dr James Muecke AM – answers to questions taken on notice at public hearing on 17 November 2023

9 Dr James Muecke AM – answers to questions taken on notice at public hearing on 17 November 2023

10 Dr James Muecke AM – answers to questions taken on notice at public hearing on 17 November 2023

11 Dr James Muecke AM – answers to questions taken on notice at public hearing on 17 November 2023

12 Professor David Simmons, President, Australasian Diabetes in Pregnancy Society – answers to questions taken on notice at public hearing on 17 November 2023

13 Leah Hardiman – answers to questions taken on notice at public hearing on 20 November 2023

14 Professor Hugh Taylor AC – answers to questions taken on notice at public hearing on 23 November 2023

15 National Heart Foundation of Australia – answers to questions taken on notice at public hearing on 23 November 2023

16 Dr Heena Akbar – answers to questions taken on notice at public hearing on 20 November 2023

17 Grant Ennis – additional information

18 Royal Australasian College of Physicians (RACP) – answers to questions taken on notice at public hearing on 15 September 2023

19 Dr James Muecke AM – answers to questions taken on notice at public hearing on 17 November 2023

20 Professor David Simmons, President, Australasian Diabetes in Pregnancy Society – answers to questions taken on notice at public hearing on 17 November 2023

21 Dr Sarah Price, Royal Women's Hospital Melbourne – answers to questions taken on notice at public hearing on 23 November 2023

22 Ypsomed Australia – answers to questions taken on notice at public hearing on 17 November 2023

23 Dietitians Australia – answers to questions taken on notice at public hearing on 17 November 2023

24 Exercise & Sports Science Australia – answers to questions taken on notice at public hearing on 20 November 2023

25 The George Institute for Global Health – answers to questions taken on notice at public hearing on 20 November 2023

26 Baker Heart and Diabetes Institute – answers to questions taken on notice at public hearing on 23 November 2023

27 The Obesity Collective – answers to questions taken on notice at public hearing on 17 November 2023

28 Royal Australian College of General Practitioners – answers to questions taken on notice at public hearing on 23 November 2023

29 National Retail Association – answers to questions taken on notice at public hearing on 20 November 2023

30 Professor David Simmons, President, Australasian Diabetes in Pregnancy Society – clarification of evidence given at public hearing on 17 November 2023

31 Professor Jenny Doust – clarification of evidence given at public hearing on 20 November 2023

32 Professor Susan Thompson, Member & Fellow, Planning Institute of Australia – answers to questions taken on notice at public hearing on 16 February 2024

33 Northern Territory Primary Health Network – answers to questions taken on notice at public hearing on 7 March 2024

34 Juvenile Diabetes Research Foundation Australia – answers to questions taken on notice at public hearing on 16 February 2024

35 Dr Hasthi Dissanayake, Senior Research Fellow, The Peter Doherty Institute for Infection and Immunity, The University of Melbourne – additional information

36 Professor Beverley-Ann Biggs, Professor, Group Head, The Peter Doherty Institute for Infection and Immunity, The University of Melbourne – additional information

37 Professor Julie Brimblecombe, Professor Public Health Nutrition, Monash University – additional information

38 Saraid Martin, Podiatrist, Walk Strong, Walk Tall co-ordinator, South Australian Health and Medical Research Institute – clarification of evidence given at public hearing on 16 February 2024

39 Australian Health Promotion Association – answers to questions taken on notice at public hearing on 16 February 2024

40 Jacinda Roberts, private capacity – additional information

41 Professor Julie Brimblecombe, Public Health Nutrition, Monash University – additional information

42 Master Builders Australia – answers to questions taken on notice

43 Department of Health and Aged Care - answers to questions taken on notice at public hearing on 1 March 2024

44 Department of Infrastructure, Transport, Regional Development, Communications and the Arts – answers to questions taken on notice at public hearing on 16 February 2024

45 Confidential

46 Confidential

47 Confidential

48 Jessica Hart – answers to questions taken on notice at public hearing on 1 March 2024

49 Dr Matthew Hare – answers to questions taken on notice at public hearing on 7 March 2024

50 Confidential

51 Confidential

52 Novo Nordisk – answers to questions taken on notice at public hearing on 22 March 2024

53 Dexcom – answers to questions taken on notice at public hearing on 22 March 2024

54 Department of Education – answers to questions taken on notice at public hearing on 1 March 2024

C. Hearings and witnesses

Tuesday, 20 June 2023 – Canberra

Diabetes Australia and the Australian Diabetes Society

- Dr Sof Andrikopoulos, Chief Executive Officer, Australian Diabetes Society
- Ms Taryn Black, Chief Strategy Officer, Diabetes Australia
- Ms Justine Cain, Group Chief Executive O Diabetes Australia
- Dr Gary Deed, Consultant, Diabetes Australia, Royal Australian College of General Practitioners
- Mr Liam Ferney, National Corporate Affairs Manager, Diabetes Australia
- Ms Deanne Minniecon, National Manager, Aboriginal and Torres Strait Islander Engagement, Diabetes Australia

Juvenile Diabetes Research Foundation (JDRF) Australia

- Ms Suzanne Culph, Head, Government Relations and Advocacy
- Mrs Mel Eveille, Advocacy Program Manager
- Miss Emily Klimek, Volunteer advocate
- Dr Dorota Pawlak, Chief Scientific Officer and Director, Type 1 Diabetes Clinical Research Network
- Mr Mike Wilson OAM, Chief Executive Officer
- Mrs Julie Klimek, Volunteer advocate

Friday, 15 September 2023 – Canberra

Australian Patients Association

- Mr David Clarke, Chief Executive Officer [by video link]

Public Health Association of Australia

- Professor Caroline Miller, Vice President, Policy and Board Member
- Mr Terry Slevin, Chief Executive Officer

National Aboriginal Community Controlled Health Organisation

- Dr Jason Agostino, Senior Medical Adviser

Diabetes Australia

- Ms Taryn Black, Chief Strategy Officer [by video link]
- Ms Justine Cain, Group Chief Executive Officer [by video link]
- Associate Professor Roger Chen, Adviser [by video link]

Australian Diabetes Society

- Associate Professor Anthony Russell, President

Australian College of Nursing

- Mr John Flannery, Director, Government Relations
- Adjunct Professor Kylie Ward, Chief Executive Officer

Australian Diabetes Educators Association

- Ms Amanda Barlett, President
- Ms Susan Davidson, Chief Executive Officer
- Ms Melanie Gray Morris, Manager, Policy, Advocacy and Communications

Australian Medical Association

- Professor Steve Robson, President
- Ms Sally Witchalls, Policy Adviser

Royal Australasian College of Physicians

- Professor Louise Baur, Fellow

Monday, 18 September 2023 – Campbelltown

Mr Stephen Bali MP, Private capacity

Western Sydney Diabetes, Integrated and Community Health, Western Sydney Local Health District

- Professor Glen Maberly, Director
- Ms Janine Dawson, Diabetes Prevention Manager

Nepean Hospital

- Dr Kathryn Williams, Head of Department of Endocrinology, Clinical Lead of the Family Metabolic Health (Obesity) Service
- Mrs Elizabeth Trevor-Jones, Clinical Nurse Specialist and Credentialled Diabetes Educator, Lithgow Hospital [by audio link]
- Mrs Rossana van Meeuwen, Nurse Unit Manager, Nepean Hospital Diabetes Services, Nepean Hospital
- Mrs Amber Evans, Senior Dietitian, Nepean Diabetes Service, Nepean Hospital

- Mr Andrew Wilson, Private capacity

Western Sydney Primary Health Network (WentWest)

- Mr Ray Messom, Chief Executive Officer
- Conjoint Professor Diana O'Halloran, Board Chair

Western Sydney Diabetes

- Professor Glen Maberly, Director, Integrated and Community Health, Western Sydney Local Health District

Campbelltown Hospital

- Dr Lisa Amato, Paediatric Endocrinologist
- Associate Professor Milan Piya, Clinical Academic Endocrinologist
- Mrs Fiona Taylor, Clinical Nurse Specialist and Credentialed Diabetes Educator, Diabetes Service
- Mrs Katrina Tran, Senior Diabetes Dietitian

Tharawal Aboriginal Medical Service

- Dr Annette Bemand, General Practitioner
- Dr Nic Kormas, Senior Staff Specialist Endocrinologist, Tharawal Aboriginal Corporation and South Western Sydney Local Health District
- Ms Jill Snow, Diabetes Educator

South West Sydney Local Health District

- Dr Jessica Lai, Endocrinologist

Campbelltown Hospital

- Dr Raymond Chin, Head of Paediatrics and Neonatology
- Associate Professor Vincent Wong, Director of Diabetes and Endocrine Service, Liverpool and Fairfield Hospitals

South Western Sydney Local Health District

- Dr Robyn Barnes, Diabetes Coordinator

Dr Emily Hibbert, Private capacity

Friday, 17 November 2023 – Canberra

Australian College of Midwives [by video link]

- Dr Zoe Bradfield, Vice President
- Ms Alison Weatherstone, Chief Midwife [by video link]

Australasian Diabetes In Pregnancy Society

- Professor David Simmons, President

The Obesity Collective

- Ms Tiffany Petre, Director

Butterfly Foundation

- Ms Melissa Wilton, Head of Communications and Engagement [by video link]
- Miss Sienna Wiltshire, [by video link]

Dr Elizabeth (Liz) Fraser, Private capacity

Ypsomed

- Mr James Mayjor, Head of Australian Operation

Dr James Muecke AM, Private capacity

Dietitians Australia

- Miss Tara Diversi, President
- Ms Natalie Stapleton, General Manager Policy and Advocacy, Acting Chief Executive Officer

Monday, 20 November 2023 – Brisbane

National Retail Association

- Dr Alan Barclay, Health and Nutrition Consultant
- Mr David Stout, Director, Policy

The George Institute for Global Health

- Ms Veronica Le Nevez, Head, Impact and Engagement Australia
- Professor Jason Wu, Head, Nutrition Science

Exercise and Sports Science Australia

- Miss Ashley Boniface, Accredited Exercise Physiologist
- Mrs Judy Powell, Policy and Advocacy Manager

Australian College of Rural and Remote Medicine

- Dr Dan Halliday, President [by video link]

Dr Shanal Kumar, Private capacity

Miss Leah Hardiman, Private capacity

Professor Jenny Doust, Private capacity

Professor Paul Glasziou, Private capacity

Triple P - Positive Parenting Program

- Associate Professor Alina Morawska, Program Author

Pacific Islands Council of Queensland

- Ema Vueti, President
- Dr Heena Akbar, Senior Lecturer, Faculty of Medicine, University of Queensland; and Member, Pasifika Women's Alliance [by audio link]
- Dr Lisa Ward, Board Member, Oceania Pacific Health Association [by audio link]

Tuesday, 21 November 2023 – Yarrabah

Gurriny Yealamucka Health Service Aboriginal Corporation

- Dr Jason King, Director of Clinical Services

Wednesday, 22 November 2023 – Cairns

Dr Ashim Kumar Sinha, Private capacity

Mr Raymond Sambo, Private capacity

Northern Queensland Primary Health Network

- Mrs Ruth Azzopardi, Executive Director, Health Services Commissioning
- Ms Deearne Lee, NQ Health Priorities Chronic Conditions Manager
- Ms Gilyan Thorn, North Queensland Health Priorities Lead

Thursday, 23 November 2023 – Melbourne

National Heart Foundation of Australia

- Professor Garry Jennings, Chief Medical Advisor

Royal Women's Hospital, Melbourne

- Dr Sarah Price, Director of Obstetric Medicine

Royal Australian College of General Practitioners

- Dr Gary Deed, Chair Diabetes Specific Interest Group [by audio link]

Ms Saba (Siba) Diqer, Private capacity

Royal Australian and New Zealand College of Obstetricians and Gynaecologists

- Dr Nisha Khot, Vice President

Baker Heart and Diabetes Institute

- Associate Professor Neale Cohen, Head of Clinical Diabetes
- Professor Alicia Jenkins, Head of Clinical Research Domain and Lab Head, Diabetes and Vascular Medicine
- Professor Jonathan Shaw, Deputy Director, Clinical and Population Health

Professor Peter Brukner OAM, Private capacity

Professor Hugh Taylor AC, Private capacity

Friday, 16 February 2024 – Canberra

Private Healthcare Australia

- Mr Ben Harris, Director, Policy and Research
- Julia Medew, Public Affairs and Policy Officer

Australian Food and Grocery Council

- Ms Tanya Barden, Chief Executive Officer
- Dr Duncan Craig, Director, Nutrition and Regulation

Australian Health Promotion Association

- Dr Dimitri Batras, Board Director and Company Secretary [by video link]
- Associate Professor Freya MacMillan, Board Director [by video link]

JDRF Australia

- Dr Dorota Pawlak, Chief Scientific Officer, Director, Type 1 Diabetes Clinical Research Network
- Miss Emma Shipley, Head, Communications and Public Relations
- Mrs Melissa Eveille, Advocacy Program Manager

Australian Diabetes Society

- Associate Professor Sofianos Andrikopoulos, Chief Executive Officer
- Professor Josephine Maree Forbes, President-Elect, and Chair of Research Advisory Committee [by video link]
- Professor Anthony Russell, President

Aboriginal and Torres Strait Islander Diabetes-related Foot Complications Program, South Australian Health and Medical Research Institute

- Ms Courtney Hammond, Community Engagement and Education Officer, Walk Strong, Walk Tall
- Ms Tanya Hosch, Person with lived experience
- Ms Saraid Martin, Podiatrist, State Program Coordinator, Walk Strong, Walk Tall
- Ms Kim Morey, Theme Co-Lead, Aboriginal Health Equity

Professor Alex Brown, Professor of Indigenous Genomics and Director, National Centre for Indigenous Genomics, Australian National University; and Telethon Kids Institute

Planning Institute of Australia

- Professor Susan Thompson, Member and Fellow [by video link]

Department of Infrastructure, Transport, Regional Development, Communications and the Arts

- Ms Michelle Gannon, Director, Territories Health and Wellbeing
- Mr David Mackay, Deputy Secretary, Regions, Cities and Territories
- Ms Sarah Vandenbroek, First Assistant Secretary
- Dr Jodie McCoy, Medical Superintendent, Norfolk Island Health and Residential Aged Care Service [by video link]

Friday, 1 March 2024 – Canberra

Ms Jessica Hart, Private capacity

Department of Education

- Genevieve Watson, Assistant Secretary, Teaching Practice Branch
- Ms Rachel O'Connor, Assistant Secretary, Student Engagement and Wellbeing

Department of Health and Aged Care

- Mr Chris Carlile, Assistant Secretary, Hearing Services and Chronic Conditions
- Ms Tiali Goodchild, Acting First Assistant Secretary, Population Health
- Dr Leanne Laajoki, Director, Chronic Conditions Strategic Policy
- Professor Robyn Langham, Chief Medical Adviser, Health Products Regulation
- Professor Anthony Lawler, Deputy Secretary, Health Products Regulation
- Ms Adriana Platona, First Assistant Secretary, Technology Assessment and Access

Wednesday, 6 March 2024 – Alice Springs

Alice Springs Town Council

- Mr Matt Paterson, Mayor

Central Australian Aboriginal Congress

- Ms Donna Ah Chee, Chief Executive Officer
- Dr John Boffa, Chief Medical Officer Public Health
- Ms Laura Stuart, Health Policy Officer

Ms Jacinda Roberts, Private capacity

Alice Springs Hospital, Department of Medicine

- Dr Elna Ellis, Head of Endocrinology
- Dr Kirsten Neal, Endocrinologist

Alice Springs Hospital - Diabetes Educators

- Ms Licke Lewis, Diabetes Educator
- Ms Doreen Quian, Diabetes Educator
- Ederina Tsvanhu, Diabetes Nurse Educator

Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation, The Purple House

- Ms Sarah Brown, Chief Executive Officer

Mr Patrick Torres, Private capacity

Ms Shiree Mack, Private capacity

Mrs Dawn Ross, Private capacity

Ms Rosemary Hodgkinson, Private capacity

Ms Joeanne Silverton, Private capacity

Thursday, 7 March 2024 – Darwin

Northern Territory Primary Health Network

- Dr Roxane Craig, Royal Darwin and Palmerston Hospital General Practice Liaison
- Ms Michelle Pollard, Health Workforce Access Team Lead
- Mrs Lisa Sparrow, Health Strategy and Planning Manager
- Mrs Gillian Yearsley, Chief Executive Officer

Aboriginal Medical Services Alliance NT

- Dr Ruwani Peiris, Public Health Registrar

Diabetes across the Lifecourse Partnership

- Mrs Sian Lee Graham, Senior Researcher and Chair, Aboriginal and Torres Strait Islander Advisory Group, Menzies School of Health Research
- Dr Matthew Hare, Senior Research Fellow, Menzies School of Health Research
- Professor Louise Maple-Brown, Deputy Director of Research, Menzies School of Health Research

Menzies School for Health Research

- Professor Alan Cass, Director
- Mrs Sian Lee Graham, Senior Researcher and Chair, Aboriginal and Torres Strait Islander Advisory Group
- Dr Matthew Hare, Senior Research Fellow
- Professor Louise Maple-Brown, Deputy Director of Research

Royal Darwin Hospital - Endocrinologists

- Dr Diana MacKay, Endocrinologist and Clinical Lead
- Dr Anna Wood, Head of Endocrinology, Department of Endocrinology

Royal Darwin Hospital - Diabetes educators and dietitian

- Miss Sumaria Mary Corpus, Aboriginal Health Practitioner and Diabetes Educator
- Mrs Elizabeth Watkins, Clinical Nurse Manager and Diabetes Educator

Northern Territory Health

- Dr Elna Ellis, Head of Endocrinology, Alice Springs Hospital; and Chair, Northern Territory Diabetes Clinical Network
- Professor Louise Maple-Brown, Deputy Director of Research, Menzies School of Health Research
- Dagmar Schmitt, Director, Preventive Health Strategy

Professor Julie Brimblecombe, Professor, Public Health Nutrition, Department of Nutrition Dietetics and Food, Monash University

Miss Edwina Murphy, Participant, Youth Diabetes Peer Support Group, Wurli Wurlinjang Health Service [by video link]

Dr Michelle Scerri, Clinical Lead, Women's and Children's Program, Wurli-Wurlinjang Health Service [by video link]

Dr Angela Titmuss, Paediatric Endocrinologist, Royal Darwin Hospital; and Senior Research Fellow, Diabetes across the Lifecourse: Northern Australia Partnership, Menzies School of Health Research

Arnhem Land Progress Aboriginal Corporation

- Ms Laura Baddeley, Nutrition Manager

Friday, 8 March 2024 – Darwin

The Peter Doherty Institute for Infection and Immunity, The University of Melbourne

- Professor Beverley-Ann Biggs, Private capacity [by video link]
- Ms Helen Burumbil Dhurrkay, Private capacity
- Dr Hasthi Dissanayake, Senior Research Fellow, University of Melbourne
- Ms Ruth Gulamanda, Chief Investigator, University of Melbourne and Galiwin'ku Community through Helen Burumbil Dhurrkay, interpreter
- Mr George Gurruwiwi, Chief Investigator, University of Melbourne and Galiwin'ku Community, through Helen Burumbil Dhurrkay, interpreter

Miwatj Health Aboriginal Corporation

- Ms Hilary Bloomfield, Chronic Conditions Lead
- Rebekah Clancy, Nutrition Team Lead and Public Health Nutritionist
- Mr Nathan Garrawurra, Regional Renal Coordinator
- Mr Stuart McGrath, Medical Dhawu, Dhawu Yolngu Project Worker
- Ms Natarsha Whelan, Clinical Outreach Dietitian

Wednesday, 20 March 2024 – Canberra

Australian Olympic Committee

- Mr Lewis Matthew Carroll AM, Chief Executive Officer and Secretary General
- Professor Richard Telford AM, Professorial Fellow, Research Institute for Sport and Exercise, University of Canberra

Friday, 22 March 2024 – Canberra

Eli Lilly Australia

- Professor Rachel Batterham, Senior Vice-president, International Medical Affairs
- Mrs Victoria Brown, President and General Manager
- Dr Gabrielle Reppen, Associate Vice-president, Corporate Affairs and Market Access

Novo Nordisk Pharmaceuticals Pty Ltd

- Mr Cem Ozenc, Corporate Vice-president and General Manager, Oceania
- Dr Ana Svensson, Senior Director, Clinical, Medical and Regulatory, Oceania

Dexcom/AMSL Diabetes

- Dr Greg Norman, Director, Health Economics and Outcomes Research
- Mr Donald Rentoul, Director, Market Access and Policy, Asia-Pacific
- Mr Samy Saad, Senior Director, Commercial Operations, Australia and New Zealand
- Mr Paul Sim, Lead Market Access Specialist, Asia-Pacific

Global Diabetes Solutions

- Lord Timothy Benson, Consultant
- Ms Helen Jackson, Co-founder; Credentialed Diabetes Educator; and Dietitian
- Dr Sook Mei Khor, Lecturer, University of Malaya [by video link]
- Professor Kashif Latif, Partner and Adviser [by video link]
- Dr Desmond Dev Menon, Medical Scientist, R3GEN [by video link]

Aarian Health Pty Ltd

- Dr Alan Barclay, Program Author and Scientific Adviser
- Dr George Koumantakis, Medical Director
- Mr Hemant Verma, Director
- Mrs Simmi Verma, Director

Australian Centre for Accelerating Diabetes Innovations

- Professor Elif Ekinci, Director; Sir Edward Weary Dunlop Professorial Fellow in Metabolic Medicine; and Dame Kate Campbell Fellow, University of Melbourne
- Ms Naomi Hodgson, Council Member
- Mr Ray Kelly, Chairperson, Indigenous Advisory Committee

Medical Technology Association of Australia

- Mr Paul Dale, Director, Policy

Johnson and Johnson MedTech

- Mr Daniel Kildea, Director, Government Affairs and Policy

Medtronic

- Ms Liz Carnabuci, Vice-president, Diabetes Asia Pacific and Greater China, and Vice-president, Enterprise Accounts and Services, Japan and Australia and New Zealand

Insulet Australia

- Ms Joanna Sader, Country Manager

Pharmacy Guild of Australia [by videoconference]

- Mrs Demi Pressley, Private capacity
- Professor Trent Twomey, National President

Ms Jane MacDonald, Private capacity

Australian Beverages Council

- Ms Cathy Cook, Head, Corporate Affairs
- Mr Geoff Parker, Chief Executive Officer

D. Parliamentary Budget Office costing: 20% tax on sugar sweetened beverages

1.1 Person/party requesting the costing: Dr Mike Freelander MP, Australian Labor Party.

1.2 Date costing completed: 3 April 2024.

1.3 Expiry date of the costing: Release of the next economic and fiscal outlook report.

1.4 Status at time of request: Submitted outside the caretaker period.

1.5 Not confidential.

Summary of proposal

1.6 The proposal would apply a 20% tax on all sugar-sweetened beverages (SSB).

1.7 Sugar-sweetened beverages include all non-alcoholic water-based beverages with added sugar and include soft drinks, cordial, energy drinks, sports drinks, fruit drinks and flavoured mineral waters.

1.8 The request also sought distributional analysis of the impact.

1.9 The proposal would commence from 1 July 2025.

Costing overview

1.10 The proposal would be expected to increase the fiscal and underlying cash balances by around $1.4 billion over the 2023-24 Budget forward estimates period (see Table 1). This reflects an increase in tax revenue partially offset by departmental costs to administer the tax.

1.11 The proposal would have an impact beyond the 2023-24 Budget forward estimates period. A breakdown of the financial implications (including separate public debt interest (PDI) tables) over the period to 2033-34 is provided at Attachment A.

1.12 Distributional analysis relating to expenditure on sugar-sweetened beverages (SSBs) is included in Attachment B.

1.13 The financial implications are uncertain and sensitive to forecast SSB sales, and the behavioural response of customers and manufacturers to the price increase.

Figure D.1 20% tax on sugar sweetened beverages – Financial implications ($m)[(a)(b)]

	2023-24	2024-25	2025-26	2026-27	Total to 2026-27
Fiscal balance	-	-	682.1	704.8	**1,386.9**
Underlying cash balance	-	-	682.1	704.8	**1,386.9**

(a) A positive number represents an increase in the relevant budget balance; a negative number represents a decrease.

(b) PDI impacts are not included in the totals.

- Indicates nil.

Key assumptions

1.14 The Parliamentary Budget Office (PBO) has made the following assumptions in costing this proposal.

- The tax is levied on the Goods and Services Tax (GST)-inclusive price of SSBs at the point of retail sale.
- SSB sales would be approximately $4.4 billion in 2025-26 and grow by 2% annually.
  - This is informed by a 2023 IBISWorld analysis that estimates a small decline in real sales of SSBs of around -0.5% per annum, which is more than offset by price inflation resulting in an estimated nominal growth of 2%.
- Consumers are assumed to respond to the tax by lowering their demand. The PBO has assumed that a 20% increase in price (due to the tax) would reduce demand by approximately 20%.
  - This is informed by weighting the price elasticities for different beverages by available data on the volume of the respective beverage types.
- Due to the decrease in demand, the proposal is expected to have an impact on the amount of GST collected. This is included as a separate line item in Attachment A.
- Departmental costs are based on policies with a similar degree of administrative complexity.
- Flow on impacts to the Consumer Price Index (CPI) or consequential CPI-related impacts on transfer payments are not considered.

Methodology

1.15 The PBO used the following methodology to estimate the financial impacts of the tax:

- Total baseline SSB sales were estimated as per Key Assumptions.
- The reduction in consumption due to the tax was estimated based on price elasticities.
- The decline in GST revenue was estimated by multiplying the decline in sales by the GST rate.
- The revenue from the SSB tax was estimated by multiplying total sales (adjusted for the reduction in consumption) by the SSB tax rate.

1.16 Financial implications were rounded consistent with the PBO's rounding rules as outlined on the PBO Costings and budget information webpage.[1]

Data sources

- Australian Medical Association (2021) *A tax on sugar sweetened beverages*, accessed 13 March 2024.[2]
- Capps and Hanselman (2012), 'A Pilot Study of the Market for Energy Drinks', *Journal of Food Distribution Research*
- Cawley and Frisvold (2015), 'The Incidence of Taxes on Sugar-Sweetened Beverages: The Case of Berkeley, California', *National Bureau of Economic Research Working Paper*
- IBISWorld (2023) *Australian soft drink market valuation*, accessed 13 March 2024.[3]
- Sharma et al (2014), 'The Effects of Taxing Sugar-Sweetened Beverages Across Different Income Groups', *Health Economics*

Note: The PBO's attachments have not been provided in this appendix. The full costings document, including the attachments, will be available on the PBO's website.

1 www.pbo.gov.au/for-parliamentarians/how-we-analyse/pbo-rounding-rules
2 www.ama.com.au/sites/default/files/2022-10/A%20tax%20on%20sugar-sweetened%20beverages.pdf
3 www.ibisworld.com/au/market-size/soft-drink-manufacturing/

E. Parliamentary Budget Office costing: Limit marketing of unhealthy foods on radio television, print and social media, especially for children

1.1 Person/party requesting the costing: Dr Mike Freelander MP, Australian Labor Party.

1.2 Date costing completed: 3 April 2024.

1.3 Expiry date of the costing: Release of the next economic and fiscal outlook report.

1.4 Status at time of request: Submitted outside the caretaker period.

1.5 Not confidential.

Summary of proposal

1.6 The proposal would limit the advertising of 'unhealthy foods' under 7 options from 1 July 2025.

- Option 1: Marketing unhealthy foods on radio, television, print and social media is banned entirely.
- Option 2: Marketing unhealthy foods on radio only is banned entirely.
- Option 3: Marketing unhealthy foods on television only is banned entirely.
- Option 4: Marketing unhealthy foods in print only is banned entirely.
- Option 5: Marketing unhealthy foods on social media only is banned entirely.
- Option 6: Marketing unhealthy foods on radio and television are banned during prime time hours (e.g. 6pm–9pm).
- Option 7: Marketing of unhealthy foods on social media is banned for children and adolescents only.

1.7 Under the proposal, 'unhealthy foods' are defined in accordance with the definition for 'junk food' provided by the Australian Government health direct website as

'…foods that lack nutrients, vitamins and minerals, and are high in kilojoules (energy), salts, sugars, or fats…'. Examples include but are not limited to:

- cakes and biscuits
- fast foods (such as hot chips, burgers and pizzas)
- chocolate and sweets
- processed meat (such as bacon)
- snacks (such as chips)
- sugary drinks (such as sports, energy and soft drinks)
- alcoholic drink.

Costing overview

1.8 All options in the proposal would decrease the fiscal and underlying cash balances over the 2023-24 Budget forward estimates period (Table 1). This reflects an increase in departmental expenses primarily related to administration of the bans and legal costs.

1.9 The underlying cash balance impacts differ from the fiscal balance impacts due to time lags between when services are provided, and payments are made by the relevant departments.

1.10 Distributional analysis on the impacts for relevant priority groups was requested, however, due to the limitations on suitable available data, additional analysis is unable to be provided.

1.11 A breakdown of the financial implications (including separate public debt interest (PDI) tables) over the period to 2033-34 is provided at Attachment A.

Figure E.1 Limit marketing of unhealthy foods on radio, television, print and social media, especially for children – Financial implications ($m)(a)(b)

	2023-24	2024-25	2025-26	2026-27	Total to 2026-27
Option 1: Marketing ban on radio, television, print and social media					
Fiscal balance	-	-	-27.3	-19.1	**-46.4**
Underlying cash balance	-	-	-26.4	-19.3	**-45.7**
Option 2: Marketing ban on radio					
Fiscal balance	-	-	-2.0	-1.3	**-3.3**
Underlying cash balance	-	-	-2.0	-1.3	**-3.3**
Option 3: Marketing ban on television					
Fiscal balance	-	-	-14.3	-10.0	**-24.3**
Underlying cash balance	-	-	-13.9	-10.0	**-23.9**
Option 4: Marketing ban in print					
Fiscal balance	-	-	-1.1	-0.7	**-1.8**
Underlying cash balance	-	-	-1.1	-0.7	**-1.8**
Option 5: Marketing ban on social media					
Fiscal balance	-	-	-9.6	-6.7	**-16.3**
Underlying cash balance	-	-	-9.4	-6.8	**-16.2**
Option 6: Marketing ban on radio and television between prime times					
Fiscal balance	-	-	-13.4	-9.4	**-22.8**
Underlying cash balance	-	-	-13.0	-9.5	**-22.5**
Option 7: Marketing ban on social media for children and adolescents					
Fiscal balance	-	-	-4.9	-3.4	**-8.3**
Underlying cash balance	-	-	-4.7	-3.4	**-8.1**

(a) A positive number represents an increase in the relevant budget balance; a negative number represents a decrease.

(b) PDI impacts are not included in the totals.

- Indicates nil.

Uncertainties

1.12 The financial implications of this costing are highly uncertain as the Parliamentary Budget Office (PBO) is not able to quantify a number of expected costs associated with an advertising ban due to a lack of available data. In addition to the estimated financial implications, the proposals may incur further unquantifiable costs including:

- Flow-on impacts to the Commonwealth as a result from shifts in budget revenue associated with the change in the value of advertising.
- Costs associated with the buy-out of existing sponsorships from unhealthy food providers (e.g.major sporting events and other publicly broadcast events).
- Settlements provided as a result of litigation.

1.13 Additionally, the scope of financial implications from advertising presented in this costing are limited to only radio, television, print and social media. Advertising not banned under any of the policy options include:

- Labelling and point-of-sale displays
- Digital audio advertising, such as advertising in podcasts
- Product placement in films and television shows
- Promotions (on non-banned advertising platforms) by social influencers, celebrities and athletes
- Product packaging
- Subscriptions
- Websites and advergames
- In-app advertising

1.14 The financial implications of the proposal are sensitive to assumptions related to the size of the 'unhealthy food' industry and their use of the various advertising mediums under each policy option, as well as the advertiser's response to the proposed policy change.

- Internationally, many other countries have implemented laws that limit certain types of advertising to children, including the times advertising is permissible or types of advertising that can be marketed. However, the options in the proposal are more comprehensive than those applied internationally, therefore, there is limited data available on the response bans of this type may engender from advertisers.
- It is also highly uncertain what the final litigation expenses resulting from challenges to the new legislation under this proposal would be. The cost has been estimated based on the legal challenges to tobacco plain packaging legislation, however the final cost of litigation will depend on the specific circumstances of the reform – as outlined in the legislation – and the availability of legal frameworks to initiate the dispute (e.g. the tobacco plain packaging measure was challenged in the Australian High Court, World Trade Organisation and under the Australian Hong-Kong Bilateral Investment Treaty).

Key assumptions

1.15 The PBO has made the following assumptions in costing this proposal.

- Policy options under this proposal would be implemented by the Department of Health and Aged Care and able to mostly reuse the existing ICT infrastructure currently used in the administration of the tobacco advertising ban.
    - Additional ICT infrastructure would only be required to service the increased demand created by Options 1, 3, 5 6 and 7. Options 2 and 4 would not require additional ICT infrastructure due to the very small impact.

- State and territories would agree to the implementation of the ban and pass supporting legislation as required.
- Implementation and compliance with the ban would require a communication strategy aimed at informing stakeholders. This would be undertaken by the Department of Health and Aged Care.
    - Communications with major stakeholders affected by the new advertising prohibitions would be undertaken over a 4-year period between 2025-26 to 2028-29.
    - An advertising campaign aimed at communicating the new advertising prohibitions to small and medium size business, as well as consumers, would be undertaken over a 2-year period between 2025-26 to 2026-27.
- Compliance activities relating to the advertising ban would be proactive between 2025-26 to2027-28, before gradually reducing to a responsive state in 2031-32.
- Growth rates for legal expenses (excluding court settlements) would be consistent with the Wage Price Index (WPI).
- Growth rates for communication and ICT expenses would be consistent with the Consumer Price Index (CPI).
- Legal expenses relating to challenges of the new advertising ban would be equally distributed across years and span the full forward estimates and medium-term period.

Methodology

1.16 The financial impacts of the new advertising prohibitions have been modelled on the impacts from the plain packaging tobacco laws that came into effect in 2012 as per Key assumptions.

1.17 Costs associated with the introduction of the tobacco plain packaging legislation were increased by an industry size loading that was calculated based on the estimated size difference of the Australian tobacco industry and the Australian unhealthy food industry. The costs were then grown as per Key assumptions.

1.18 Options 2 through 7 were calculated by apportioning the total cost in Option 1 (for a whole of industry ban) by the current market share of each advertising medium.

1.19 Departmental staffing costs have been estimated based on the staffing profile provided by the Department of Health and Aged Care for the tobacco advertising ban, adjusted to reflect both proactive and reactive stages of administration.

1.20 Financial implications were rounded consistent with the PBO's rounding rules as outlined on the PBO Costings and budget information webpage.[1]

[1] www.pbo.gov.au/for-parliamentarians/how-we-analyse/pbo-rounding-rules

Data sources

- The Department of Health and Aged Care provided information on staffing and other expenses related to the administration of the advertising ban on tobacco.
- Live Lighter 'Australian Junk Food Industry', accessed on 22 March 2024.[2]
- Deloitte Access Economics (2023) 'Advertising Pays: Second Edition', accessed on 22 March 2024.[3]
- We are social (2024) 'Digital 2024 Australia: The essential guide to the latest connected behaviours', accessed 22 March 2024.[4]
- The Department of Finance 'Australian Government Campaign Expenditure from 1 July 2012 to 30 June 2013', accessed 22 March 2024.[5]
- Statista (2024) 'Advertising and Media', accessed 22 March 2024.[6]
- Logicsoft (2020) 'Television Advertising Costs in Australia', accessed 22 March 2024.[7]

Note: The PBO's attachments have not been provided in this appendix. The full costings document, including the attachments, will be available on the PBO's website.

2 https://livelighter.com.au/health-professionals/clinical-health-professionals/the-junk-food-industry-in-australia
3 https://advertisingpays.com.au/wp-content/uploads/2023/10/Advertising-Pays-ONLINE-FINAL.pdf
4 https://wearesocial.com/au/blog/2024/02/digital-2024-australia-highlights-a-power-shift-towards-social-media/
5 www.finance.gov.au/sites/default/files/2019-11/full-year-report-2012-13.pdf
6 www.statista.com/outlook/amo/advertising/australia
7 www.logicsofts.com.au/blog/television-advertising-costs-australia.html#:~:text=The%20Cost%20of%20TV%20Ads%20Based%20on%20the%20Duration%20of%20the%20Ad&text=On%20channel%209%2C%20the%20cost,duration%20comes%20to%20around%20%242500.

F. Parliamentary Budget Office costing: Subsidise insulin pumps for all Australian living with type 1 diabetes

1.1 Person/party requesting the costing: Dr Mike Freelander MP, Australian Labor Party.

1.2 Date costing completed: 28 March 2024.

1.3 Expiry date of the costing: Release of the next economic and fiscal outlook report.

1.4 Status at time of request: Submitted outside the caretaker period.

1.5 Not confidential.

Summary of proposal

1.6 The proposal would provide Commonwealth subsidies for insulin pumps for all Australians living with type 1 diabetes, with 6 options, from 1 July 2025.

- Option 1: Fully subsidise Medtronic, AMSL Tandem, YpsoPump and Omnipod DASH insulin pumps for all Australians living with type 1 diabetes.
- Option 2: Partially subsidise (50%) Medtronic, AMSL Tandem, YpsoPump and Omnipod DASH insulin pumps for all Australians living with type 1 diabetes.
- Option 3: Fully subsidise the Medtronic insulin pump only for all Australians living with type 1 diabetes.
- Option 4: Fully subsidise the AMSL Tandem insulin pump only for all Australians living with type 1 diabetes.
- Option 5: Fully subsidise the Ypsomed insulin pump only for all Australians living with type 1 diabetes.
- Option 6: Fully subsidise the Omnipod DASH insulin pump only for all Australians living with type 1 diabetes.

1.7 The request also sought distributional analysis of the impact of providing Commonwealth subsidies for insulin pumps under each option.

Costing overview

1.8 The options in the proposal would be expected to decrease the fiscal and underlying cash balances by between around $348 million (Option 2) and $749 million (Option 6), over the 2023-24 Budget forward estimates period (Table 1). The impacts on the fiscal and underlying cash balances reflect increases in expenditure on insulin pumps and consumables, as well as departmental costs to administer the program.

1.9 The demand for insulin pumps and the departmental impacts are the same under all options. As such, the only variance between the options is the price of the pumps. For Options 1 and 2, the price is the average of the four pumps while the remaining four options use the price of the specified pump.

1.10 The proposal would have an impact beyond the 2023-24 Budget forward estimates period. A breakdown of the financial implications over the period to 2033-34 is provided at Attachment A. Distributional information in relation to Australians living with type 1 diabetes is provided at Attachment B.

1.11 The financial implications of the proposal are highly uncertain and are sensitive to the assumptions outlined below. In particular, only a complete procurement process and commercial discussions with vendors would be able to confirm the prices that could be achieved by the Australian government for the insulin pumps. The costs estimated in this response should therefore be considered on an order of magnitude basis. Other assumptions to which the estimated costs are particularly sensitive include:

- Changes to the demand for insulin pumps and prices of pumps over time under the policy.
- Availability of the specified insulin pumps to meet any changes in demand.

1.12 The financial implications of Options 3 and 4 are similar due to price similarity between the Australasian Medical & Scientific Limited (AMSL) and Medtronic insulin pumps. The split of costs between pump acquisition and insulin pump consumables differs in option 6 relative to the other options due to the different operation of the Omnipod DASH insulin pump. The Omnipod DASH system uses a tubeless, wearable pod that provides up to 72 hours of non-stop insulin delivery, compared with the other insulin pumps being based around a standard tubed system.

Figure F.1 Subsidise insulin pumps for all Australians living with type 1 diabetes – Financial implications ($m)[(a)]

	2023-24	2024-25	2025-26	2026-27	Total to 2026-27
Option 1: Fully subsidise Medtronic, AMSL Tandem, YpsoPump and Omnipod DASH insulin pumps for all Australians living with type 1 diabetes					
Fiscal balance	-	-	-306.0	-356.4	**-662.4**
Underlying cash balance	-	-	-306.0	-356.4	**-662.4**
Option 2: Partially subsidise (50%) Medtronic, AMSL Tandem, YpsoPump and Omnipod DASH insulin pumps for all Australians living with type 1 diabetes					
Fiscal balance	-	-	-162.0	-186.4	**-348.4**
Underlying cash balance	-	-	-162.0	-186.4	**-348.4**
Option 3: Fully subsidise the Medtronic insulin pump only for all Australians living with type 1 diabetes					
Fiscal balance	-	-	-345.0	-393.4	**-738.4**
Underlying cash balance	-	-	-345.0	-393.4	**-738.4**
Option 4: Fully subsidise the AMSL Tandem insulin pump only for all Australians living with type 1 diabetes					
Fiscal balance	-	-	-345.0	-393.4	**-738.4**
Underlying cash balance	-	-	-345.0	-393.4	**-738.4**
Option 5: Fully subsidise the Ypsomed insulin pump only for all Australians living with type 1 diabetes					
Fiscal balance	-	-	-190.0	-233.4	**-423.4**
Underlying cash balance	-	-	-190.0	-233.4	**-423.4**
Option 6: Fully subsidise the Omnipod DASH insulin pump only for all Australians living with type 1 diabetes					
Fiscal balance	-	-	-343.0	-406.4	**-749.4**
Underlying cash balance	-	-	-343.0	-406.4	**-749.4**

(a) A positive number represents an increase in the relevant budget balance; a negative number represents a decrease.

(b) PDI impacts are not included in the totals.

- Indicates nil.

Key assumptions

1.13 The Parliamentary Budget Office (PBO) has made the following assumptions in costing this proposal.

- Pricing for the Medtronic, AMSL Tandem and Omnipod DASH insulin pumps would be in line with the reported retail prices for a private individual in 2023-24, grown across the medium term in line with the Consumer Price Index (CPI).
    - On the basis of limited available information about commercial arrangements for bulk purchase of insulin pumps, and in the absence of a full procurement process, the PBO has not factored in any potential discounted pricing that could be negotiated for these brands of insulin pump due to the Government's purchasing power.

- Pricing for the Ypsomed insulin pump would be in line with the pricing achieved by the Department of Health and Aged Care as part of its 2023 open tender process for a supplier for the Insulin Pump Program.[1]
- Insulin pumps would be available from their respective manufacturers in sufficient quantities to meet the demand.
    - This is a particularly sensitive assumption given the large volume of pumps that would be prospectively acquired under any options of the policy.
    - For Options 1 and 2, insulin pump procurement would be in even proportions across the four specified brands. This would assist in mitigating any potential supply constraints from any particular brand under these two options.
- An insulin pump acquired under the program will need to be replaced after 4 years, in line with standard insulin pump warranty periods.
- Australians with existing insulin pumps acquired privately will roll onto the program as warranties for their privately-sourced pumps expire.
    - Warranties for these privately-sourced insulin pumps will expire evenly over the first 4 years from the policy start date, 1 July 2025.
- 12 Australians per 100,000 will be newly diagnosed with type 1 diabetes in each year to the end of the medium term (2033-34), informed by Australian Institute of Health and Welfare data.
- Insulin pump uptake across Australians with type 1 diabetes would reach 80% after 4 years of the policy, with the growth in uptake evenly distributed over the four years, and then remain at 80%.
    - This is consistent with evidence from a study[2] over the period January 2015 to June 2018 that found a 20% insulin pump discontinuation rate in patients after 18 months.
    - While individuals may have certain brand or product preferences, there are minimal clinical limitations in terms of the interchangeability of one insulin pump brand for another. Factors that would limit full uptake of insulin pumps under a policy where there are no longer cost constraints, per the disadvantages listed in the Monash Children's Hospital Insulin Pump Therapy guide[3], include:

      » Potentially higher risk of Diabetic Ketoacidosis (DKA) in a situation where insulin is interrupted.

      » Skin infections and irritations due to the adhesive tape.

      » Constant attachment of the device, 24 hours per day.

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1 Juvenile Diabetes Research Foundation (2023) *Changes to the Federal Government's Insulin Pump Program*, accessed 27 March 2024, https://jdrf.org.au/changes-to-the-insulin-pump-program/

2 Gargouri, I., et al (2022) *Factors Associated With Insulin Pump Discontinuation in Adults With Diabetes: A Time-to-Invent Analysis and Prediction Model*, accessed 27 March 2024, www.sciencedirect.com/science/article/abs/pii/S1530891X21014154

3 Monash Children's Hospital (2023) *Insulin pump therapy 2023*, accessed 27 March 2024, https://monashchildrenshospital.org/wp-content/uploads/2023/06/insulin-pump-therapy-2023.pdf

» Increased monitoring of glucose levels, 6-8 tests per day or continuous glucose monitoring.

» Steep learning curve for individuals commencing with an insulin pump.

- Departmental costs for the Department of Health and Aged Care to administer the program would be in proportion to the costs of administering the existing Insulin Pump Program, based on the number of pumps to be acquired and distributed.

Methodology

1.14 The administered expenses were estimated as follows:

- The number of Australians with type 1 diabetes was forecast over the medium term (to 2033-34) based on the number of existing diagnoses and the number of new diagnoses assumed each year per Key assumptions.
- The number of Australians with type 1 diabetes with an existing insulin pump as at the policy start date was then projected, to form a baseline from which new pumps would be acquired.
  - This projection was based on data from the AIHW and Diabetes Australia that in 2011 and 2014 there were respectively 10,500 and 15,000 Australians with type 1 diabetes using an insulin pump. The PBO projects that as at 1 July 2025, there will be 30,670 insulin pumps in use by Australians with type 1 diabetes.
  - Taking into account existing insulin pumps and their warranty expiries, demand from Australians with existing type 1 diabetes with no existing insulin pump, and new diagnoses, the total pump acquisition requirement was then projected in each year to 2033-34.
  - These volumes were then multiplied by the assumed prices of each pump brand in each year to determine the total pump acquisition cost.
- A similar process was followed to determine the additional funding for the National Diabetes Services Scheme (NDSS) to provide subsidised insulin pump consumables.
  - The additional cost was calculated as the number of new pump users under the policy multiplied by the estimated net cost to the NDSS resulting from 1 additional insulin pump user (annual cost of insulin pump consumables per user less the annual cost to the NDSS of needles and syringes per individual with type 1 diabetes not using an insulin pump).

1.15 The departmental expenses were estimated as the number of pumps provided under the policy, multiplied by the departmental cost per pump under the existing Insulin Pump Program administered by the Department of Health and Aged Care.

- The departmental costs would be the same under each option of the policy – that is, even though option 2 provides for a 50% subsidy instead of a full subsidy, departmental costs would be the same as the Department of Health and Aged Care would performing the same role under all options.

1.16 Financial implications were rounded consistent with the PBO's rounding rules as outlined on the PBO Costings and budget information webpage.[4]

Data sources

- The Department of Health and Aged Care provided data on the current Insulin Pump Program, including details of the program funding from 2023-24 to 2026-27; information about the 2023 procurement process for a supplier for the Insulin Pump Program; background on insulin pump technology; and distributional information of Australians with type 1 diabetes as at 31 January 2024.
- The PBO spoke anonymously with representatives from Medtronic and AMSL to obtain current private pricing information for the 780G and Tandem insulin pumps respectively.
- The Department of Finance and the Treasury provided economic parameters as at the 2023-24 MYEFO.
- Australian Bureau of Statistics (2024) *Provisional Mortality Statistics*, Jan - Dec 2023, accessed 27 March 2024[5]
- Australian Institute of Health and Welfare (2023) *Diabetes: Australian facts, Type 1 diabetes*, accessed 27 March 2024[6]
- Australian Institute of Health and Welfare (2012) *Insulin pump use in Australia*, accessed 27 March 2024[7]
- Diabetes Australia (2014) *Insulin Pump Therapy in Australia: The Case for Action*, accessed 27 March 2024[8]
- Gargouri, I., et al (2022) *Factors Associated With Insulin Pump Discontinuation in Adults With Diabetes: A Time-to-Invent Analysis and Prediction Model*, accessed 27 March 2024[9]
- Insulet Australia (2024) *Omnipod DASH Insulin Management System Order Form*, accessed 27 March 2024[10]
- Juvenile Diabetes Research Foundation (2022) *All about insulin pumps*, accessed 27 March 2024[11]

4 www.pbo.gov.au/for-parliamentarians/how-we-analyse/pbo-rounding-rules
5 www.abs.gov.au/statistics/health/causes-death/provisional-mortality-statistics/latest-release#:%7E:text=Overall%20the%20standardised%20death%20rate,compared%20to%20509.0%20in%202021).
6 www.aihw.gov.au/reports/diabetes/diabetes/contents/how-common-is-diabetes/type-1-diabetes
7 www.aihw.gov.au/reports/diabetes/insulin-pump-use-in-australia/summary
8 www.diabetesaustralia.com.au/wp-content/uploads/Insulin-Pump-Therapy-in-Australia-The-Case-for-Action.pdf
9 www.sciencedirect.com/science/article/abs/pii/S1530891X21014154
10 www.omnipod.com/sites/default/files/Insulet%20Australia%20Initial%20Order%20Form_Subsidy.pdf
11 https://jdrf.org.au/all-about-insulin-pumps/

- Juvenile Diabetes Research Foundation (2023) *Changes to the Federal Government's Insulin Pump Program*, accessed 27 March 2024[12]
- Monash Children's Hospital (2023) *Insulin pump therapy 2023*, accessed 27 March 2024[13]
- National Diabetes Services Scheme (2024) *Insulin pump consumables*, accessed 27 March 2024[14]
- Royal Children's Hospital Melbourne (2024) *Diabetes at the RCH: Process for upgrading an insulin pump*, accessed 27 March 2024[15]
- Telethon Kids (2022) *Insulin Pump Comparison Table*, accessed 27 March 2024[16]

Note: The PBO's attachments have not been provided in this appendix. The full costings document, including the attachments, will be available on the PBO's website.

[12] https://jdrf.org.au/changes-to-the-insulin-pump-program/
[13] https://monashchildrenshospital.org/wp-content/uploads/2023/06/insulin-pump-therapy-2023.pdf
[14] www.ndss.com.au/products/insulin-pump-consumables/
[15] www.rch.org.au/diabetes/Diabetes-technology/Process_for_upgrading_an_insulin_pump/#:%7E:text=Insulin%20pumps%20are%20covered%20under,for%20your%20next%20insulin%20pump.
[16] https://diabetes.telethonkids.org.au/contentassets/2a064fa16d9a4064b853951816aa1eb0/pump-comparison-table-2022.pdf

G. Parliamentary Budget Office costing: Subsidising glucagon-like peptide 1 receptor agonist drugs (GLP-1 RAs) on the Pharmaceutical Benefits Scheme (PBS) for obesity and individuals with type 2 diabetes requiring intensive insulin therapy

1.1 Person/party requesting the costing: Dr Mike Freelander MP, Australian Labor Party.

1.2 Date costing completed: 4 April 2024.

1.3 Expiry date of the costing: Release of the next economic and fiscal outlook report.

1.4 Status at time of request: Submitted outside the caretaker period.

1.5 Not confidential.

Summary of proposal

1.6 The proposal would subsidise GLP-1 RAs on the PBS for people who are obese and people with type 2 diabetes requiring intensive insulin therapy.

1 Fully subsidise the patient PBS co-contribution for all GLP1-RAs available in Australia for people with type 2 diabetes requiring intensive insulin therapy

2 Fully subsidise the patient PBS co-contribution for all GLP1-RAs available in Australia for people with type 2 diabetes and who are obese requiring intensive insulin therapy.

3 Fully subsidise the patient PBS co-contribution for all GLP1-RAs available in Australia for people with type 2 diabetes, with or without requiring intensive insulin therapy.

4 Fully subsidise the patient PBS co-contribution for all GLP1-RAs available in Australia for people with type 2 diabetes and who are obese, with or without requiring intensive insulin therapy.

5 Partially subsidise (50%) the patient PBS co-contribution for all GLP1-RAs available in Australia for people with type 2 diabetes requiring intensive insulin therapy.

6 Partially subsidise (50%) the patient PBS co-contribution for all GLP1-RAs available in Australia for people with type 2 diabetes and who are obese requiring intensive insulin therapy.

7 Partially subsidise (50%) the patient PBS co-contribution for all GLP1-RAs available in Australia for people with type 2 diabetes, with or without requiring intensive insulin therapy.

8 Partially subsidise (50%) the patient PBS co-contribution for all GLP1-RAs available in Australia for people with type 2 diabetes and who are obese, with or without requiring intensive insulin therapy.

1.7 The proposal would commence from 1 July 2025.

Costing overview

1.8 The options in this proposal would be expected to decrease the fiscal balance by between around $1.1 million and $55.6 million, and the underlying cash balance by between $1.1 million and $54.4 million over the 2023-24 Budget forward estimates period (Table 1). This reflects an increase in administered expenses. The underlying cash balance impact differs slightly from the fiscal balance due to claims processing lags. This results in a very small proportion of claims processed in the year after the Pharmaceutical Benefits Scheme (PBS) prescription is dispensed and the expense is recorded.

1.9 The proposal would have an ongoing impact beyond the 2023-24 Budget forward estimates period. A breakdown of the financial implications (including separate public debt interest (PDI) tables) over the period to 2033-34 is provided at Attachment A. Additional distributional information of recent patient usage is provided at Attachment B.

1.10 The financial implications of this proposal are highly uncertain and sensitive to a range of assumptions, including the projections of prescription volume of the affected PBS items, the proportion of prescription volume associated with the treatment of type 2 diabetes in patients with obesity in the baseline over the costing period, any substitution effects associated with supply shortages and the introduction or discontinuation of GLP-1 RAs in the Australian market (for instance, Exenatide which was discontinued from the Australian market in December 2022), and any substitution effects between other treatments for type 2 diabetes. In particular, projections of prescription volume are significantly uncertain, reflecting an

assumption that the availability of GLP-1 RA products will continue to be limited due to a worldwide shortage.[1]

1.11 There are further inherent uncertainties around the behavioural responses to the proposed policy change from patients, pharmacies, and medical practitioners.

1.12 The proposal may also have further flow-on impacts to other public health expenditure such as the Medicare Benefits Schedule (MBS). However, these broader flow-on impacts are highly uncertain and, as such, have not been included in this costing.

Figure G.1 Subsidising GLP-1 RA on the PBS – Financial implications ($m)[(a)(b)]

	2023-24	2024-25	2025-26	2026-27	Total to 2026-27
Option 1: Fully subsidise for people with type 2 diabetes requiring intensive insulin therapy					
Fiscal balance	-	-	-4.6	-4.0	**-8.6**
Underlying cash balance	-	-	-4.4	-4.1	**-8.5**
Option 2: Fully subsidise for people with type 2 diabetes and who are obese requiring intensive insulin therapy					
Fiscal balance	-	-	-1.2	-1.1	**-2.3**
Underlying cash balance	-	-	-1.2	-1.1	**-2.3**
Option 3: Fully subsidise for people with type 2 diabetes with or without requiring intensive insulin therapy					
Fiscal balance	-	-	-29.4	-26.2	**-55.6**
Underlying cash balance	-	-	-28.2	-26.2	**-54.4**
Option 4: Fully subsidise for people with type 2 diabetes and who are obese with or without requiring intensive insulin therapy					
Fiscal balance	-	-	-7.8	-6.9	**-14.7**
Underlying cash balance	-	-	-7.5	-7.0	**-14.5**
Option 5: 50% subsidise for people with type 2 diabetes requiring intensive insulin therapy					
Fiscal balance	-	-	-2.3	-2.0	**-4.3**
Underlying cash balance	-	-	-2.2	-2.0	**-4.2**
Option 6: 50% subsidise for people with type 2 diabetes and who are obese requiring intensive insulin therapy					
Fiscal balance	-	-	-0.6	-0.5	**-1.1**
Underlying cash balance	-	-	-0.6	-0.5	**-1.1**
Option 7: 50% subsidise for people with type 2 diabetes with or without requiring intensive insulin therapy					
Fiscal balance	-	-	-14.7	-13.1	**-27.8**
Underlying cash balance	-	-	-14.1	-13.1	**-27.2**
Option 8: 50% subsidise for people with type 2 diabetes and who are obese with or without requiring intensive insulin therapy					
Fiscal balance	-	-	-3.9	-3.5	**-7.4**
Underlying cash balance	-	-	-3.7	-3.5	**-7.2**

(a) A positive number represents an increase in the relevant budget balance; a negative number represents a decrease.

- Indicates nil.

[1] The Therapeutic Goods Administration (TGA) has advised health professionals not to prescribe semaglutide to new patients. See: www.tga.gov.au/safety/shortages/information-about-major-medicine-shortages/about-ozempic-semaglutide-shortage-2022-and-2023/ozempic-semaglutide-shortage-collection

Key assumptions

1.13 The Parliamentary Budget Office (PBO) has made the following assumptions in costing this proposal.

- The prescription volume for the affected PBS items would be consistent with the estimates provided by the Department of Health and Aged Care over the period to 2028-29. Beyond this period, the volume of prescriptions is expected to increase at a steady rate, in line with the growth trends projected for the 2028-29 period.
- Around 27% of patients who are prescribed GLP-1 RAs for the treatment of type 2 diabetes would be obese.
- The proportion of prescription volume of GLP-1 RAs that are prescribed in combination with insulin would be around 18%, consistent with the average proportion of GLP-1 RA prescriptions associated with Streamlined Authority Code 5469 over the period from 2019-20 to 2022-23, as provided by Department of Health and Aged Care.
- The average PBS co-contribution per patient who is prescribed GLP-1 RAs for the treatment of type 2 diabetes and is obese would be consistent with the average PBS co-contribution per patient who is prescribed GLP-1 RAs for the treatment of type 2 diabetes.
- There would be no impact on departmental resources for the administering agencies, as the proposal is not likely to necessitate significant investment in ICT or other system upgrades.

Methodology

- The average PBS co-contribution per patient who is prescribed GLP-1 RAs for the treatment of type 2 diabetes was calculated for each type of PBS beneficiary (general patients and concessional patients) by dividing the total PBS patient contribution by the prescription volume under the parameters specified for each option, over the period from 2019-20 to 2022-23, and then grown in line with the Consumer Price Index (CPI).
- The increase in administered expenditure was estimated by multiplying the average PBS co-contribution per patient by the projected volume of prescriptions dispensed under each option, consistent with the Key *assumptions* discussed above.

1.14 Financial implications were rounded consistent with the PBO's rounding rules as outlined on the PBO Costings and budget information webpage.[2]

[2] www.pbo.gov.au/for-parliamentarians/how-we-analyse/pbo-rounding-rules

Data sources

- The Department of Health and Aged Care provided data on historical patient contribution and prescriptions from 2019-20 to 2022-23, and prescription volume projections over the forward estimates for eligible PBS items.
- The Department of Finance and the Treasury provided indexation parameters as at the 2023-24 Mid-Year Economic and Fiscal Outlook.
- ADEA (2022). BYETTA® (exenatide) 5mcg & 10mcg pre-filled pens – Discontinuation from Australian Market. Accessed 20 March 2024.[3]
- Australian Bureau of Statistics (2023). National Health Survey, reference period 2022. Accessed 26 March 2024.[4]
- Australian Institute of Health and Welfare (AIHW) (2021). Australian Burden of Disease Study 2018: Interactive data on risk factor burden. Accessed 20 March 2024.[5]

Note: The PBO's attachments have not been provided in this appendix. The full costings document, including the attachments, will be available on the PBO's website.

[3] www.diabetesconnekt.com.au/blogs/verena-lark/2022/11/08/byetta-exenatide-5mcg-10mcg-pre-filled-pens-discon

[4] www.abs.gov.au/statistics/health/health-conditions-and-risks/national-health-survey/latest-release#data-downloads

[5] www.aihw.gov.au/reports/burden-of-disease/abds-2018-interactive-data-risk-factors/contents/overweight-including-obesity

Dissenting Report by Coalition members of the Committee

Introduction

1.1 The Coalition members of the Standing Committee on Health, Aged Care and Sport propose this Dissenting Report in response to the *Inquiry into Diabetes Final Report*.

1.2 Coalition members of the Committee are grateful to the Chair, Dr Mike Freelander MP, for his management of this inquiry. Dr Freelander's professionalism in conducting the inquiry, his deep passion on the issue of diabetes and his expertise developed over years as a health practitioner is noted and appreciated.

Recommendations

1.3 With the exception of one recommendation, Coalition members of the Committee agree with the recommendations of this report. Of particular note are the recommendations regarding diabetes impact analysis, increased screening, development of a best practice framework to tackle obesogenic environments in coordination with State and Territory Governments and broader public awareness and promotion of healthy lifestyle choices.

1.4 Coalition members of the Committee also agree that equitable access to health care for people living with all forms of diabetes be considered as detailed in recommendation 12.

1.5 We strongly support a review into the limits for accessing juvenile mental health and diabetes services, with a view to enabling young people to continue receiving support for longer.

1.6 Coalition members of the Committee concur that subsidised access to Continuous Glucose Monitors (CGMs) should be further expanded as outlined in recommendation 15. Having established the Continuous Glucose Monitoring Scheme in 2017 and committing to further expanding the scheme in the previous government, Coalition members of the Committee support the need for continued and increased support for those living with diabetes.

1.7 Furthermore, Coalition members of the Committee agree with the need to investigate measures to lower the cost of treatment of diabetes as was recommended in multiple submissions and expanded on by various witnesses through the course of the inquiry.

1.8 Coalition Committee members also agree with the recommendation 19 regarding mechanisms for priority access to GLP-1 receptor agonists for disadvantaged and remote communities of high need including Aboriginal and Torres Strait Islander communities.

Disagreement with Recommendation 4

1.9 Whilst there are many points of concurrence with the recommendations in the Committee's report, Coalition members of the Committee disagree with recommendation 4 in the Committee's report.

1.10 Recommendation 4 is a new tax proposal and comes in the midst of a cost of living crisis. The recommendation calls for an increase by way of a levy on the cost of sugar-sweetened beverages (SSBs) with graduation according to the sugar content.

1.11 We believe the case for a sugar tax at this time is not made out.

1.12 When considering the case for and against a sugar tax as proposed, Coalition members of the Committee examined evidence provided at this inquiry, previous inquiries and related studies. While not discounting the evidence base surrounding the link between SSBs and contribution to obesity and obesity-related conditions such as Type 2 diabetes, we are not convinced that a tax on SSBs would be an effective or targeted measure or that it could be implemented without disproportionate impact on the community.

1.13 The regressive nature of a tax on SSBs weighs heavily against the proposal. This was the position of Labor senators when arguing against an SSB levy as part of the 2018 Senate Select Committee into the Obesity Epidemic in Australia inquiry.[1] In their Dissenting Report Labor senators stated "*Labor Senators are particularly concerned that an Australian SSB would likely be regressive, meaning that it would impact lower-income households disproportionately*."[2]

1.14 In addressing the question of a sugar tax at that 2018 inquiry, the Grattan Institute noted "*Low-income households spend a higher proportion of their disposable income on drinks (but less in absolute terms), so an SSB tax will likely be regressive – they will pay a higher proportion of their income in tax ... Modelling of the suggested sugar content tax (at the rate of 40 cents per 100 grams) indicates the financial burden is modest because spending on beverages accounts for a small share of household income ... but will be slightly higher for people from lower socio-economic areas, meaning lower socioeconomic households will pay a higher proportion of their disposable income in tax. A recent analysis of SSB tax studies also found that an SSB tax will likely result in a slightly larger tax burden for lower socioeconomic groups (in dollar terms).*"[3]

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1 Page 91, Final report from the Select Committee into the Obesity Epidemic in Australia, December 2018

2 Page 1, Labor Senators' Dissenting Report to the Final Report from the Senate Select Committee into the Obesity epidemic in Australia

3 Senate Select Committee into the Obesity Epidemic in Australia, The Grattan Institute, Submission 50, p. 8

1.15 Coalition members also draw attention to observations of the Mayor of Alice Springs, one of the most disadvantaged communities in Australia, who told the committee that he thought that sugar tax would be ineffective:

> My gut tells me it won't work. You're just targeting the most disadvantaged people anyway who are going to use it. If you go into a remote community, it's already so high for a can of Coke now. Will people still buy it? I think the answer is yes. We've got a floor price on our alcohol in Alice Springs, so it means that a minimum standard drink is a certain price. Some would say that's worked to a certain extent, but we're still having alcohol issues. So I don't know if adding a sugar tax is necessarily going to address all of those or if it's just targeting the most disadvantaged as well.[4]

1.16 The National Retail Association notes in their submission to this inquiry[5] that there is, by way of the Goods and Services Tax (GST), an existing tax applied to discretionary foods such as confectionary, carbonated drinks, biscuits, ice cream, and restaurant or takeaway foods. The GST, it should be noted, does not apply to a range of products such as fresh fruit, vegetables, fish and bottled water.

1.17 In their submission to the inquiry the Australian Beverages Council notes analysis of the UK's Soft Drink Industry Levy (SDIL) which found that it "*incentivised many manufacturers to reduce sugar in soft drinks. Some of the cost of the levy to manufacturers and importers was passed on to consumers as higher prices but not always on targeted drinks*."[6] It is highly speculative that a tax on SSBs would have a tangible impact on consumer behaviour and instead have a flow on impact to the consumer.

1.18 Finally, the economic equity case for a tax on SSBs is not supported by data produced by the Parliamentary Budget Office (PBO). The PBO this year found that the proposal for a sugar tax on SSBs at 20 per cent would cost Australians $1.4 billion over the 2023-24 Budget forward estimates period. The same PBO analysis also showed that the lowest income quintile spends vastly more, as a percentage of gross income, on SSBs.[7]

1.19 Coalition members of the Committee hold concerns that with a cost of living crisis, which shows no signs of abating, a proposal for a new tax applied to SSBs would hit hardest those who can afford it the least.

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4 Mr Matt Paterson, Mayor, Alice Springs Town Council, Committee Hansard, Alice Springs, 6 March 2024, p. 5

5 Page 17, National Retail Association submission to the Standing Committee on Health, Aged Care and Sport's inquiry into Diabetes

6 Peter Scarborough, et al. (Impact of the announcement and implementation of the UK Soft Drinks Industry Levy on sugar content, price, product size and number of available soft drinks in the UK, 2015-19) February 11, 2020

7 Parliamentary Budget Office analysis, a 20% tax on sugar sweetened beverages, 27 March 2024

Recommendation 24

1.20 Coalition members recommend that the Australian Government oppose a levy on sugar sweetened beverages at this time.

Mr Julian Leeser MP

Mrs Melissa McIntosh MP

Ms Jenny Ware MP

Hon Mark Coulton MP