Submission to the House of Representatives Standing Committee on Health Inquiry into Diabetes from the Diabetes Technology Research Group in Melbourne.

We thank the Steering Committee for the opportunity to provide a submission to the Parliamentary Inquiry into Diabetes**.** Our responses will focus three of the five terms of references (TOR):

TOR#2: New evidence-based advances in the prevention, diagnosis, and management of diabetes, in Australia and internationally.

TOR#3: The broader impacts of diabetes on Australia's health system and economy.

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

Who We Are:

The Diabetes Technology Research Group (https://diabetestechnologyresearchgroup.com.au) represents a multidisciplinary team of biomedical researchers committed to advancing technology to improve glucose control and the quality of life of people living with diabetes. Our team has a specific focus on type 1 diabetes. We have been engaged in research in this field for over 20 years and comprise a team of clinician researchers, trial coordinators, diabetes educators, scientists, industry specialists, and exercise physiologists based at the University of Melbourne in the Department of Medicine at St Vincent's Hospital Melbourne. We are also closely affiliated with the Australian Centre for Accelerating Diabetes Innovations (ACADI).

Our Engagement with the Diabetes Community:

People living with diabetes are the focus of our endeavours. We engage with them and their representative bodies such as Diabetes Victoria. We also engage with healthcare professionals who are experts in diabetes clinical practice, engineers, and industry. We use the principles of co-design to advance the development of automated insulin delivery systems (also known as an artificial pancreas). We have facilitated studies providing direct feedback from people with diabetes to software designers and engineering teams that have translated into devices which are more effective and acceptable to the user.[1] These automated insulin delivery devices are now commercially available, not just in Australia but in many other countries.

Employing a co-design approach, we have recently conducted a national survey of people living with type 1 diabetes who use diabetes care related technologies.[2] The survey was designed and led by people with lived experience of diabetes with support from endocrinologists, diabetes nurse educators, industry representatives and psychologists. It was conducted prior to the 2022 expansion of the continuous glucose monitoring (CGM) subsidy to all Australians with type 1 diabetes. There were 3,380 respondents proportionally represented across all Australian states which included 59 people who identified as Indigenous Australians. The findings of the survey overall showed:

- 98% of respondents considered diabetes technology 'extremely important or important' for maintaining target glucose levels and reducing low glucose (hypoglycaemia) severity and frequency.

- More than 90% indicated that technology contributed positively to emotional well-being, and was associated with device effectiveness in maintaining glucose in range, comfort, and convenience.
- A major barrier to accessing diabetes technologies included the affordability of devices. While the recent CGM subsidy would have had a substantial positive impact upon responses, it should be noted that insulin pumps remain unsubsidised and 70% of insulin pump users expressed this opinion.
- The need for education support was also identified as a barrier to technology use.

Major Priorities Identified:

From our research and engagement with stakeholders, we have identified the major priorities for people living with diabetes and their use of life changing technologies. The priorities described below do not relate to uncertain outcomes of future research but to the implementation of effective evidence based therapies that many living with type 1 diabetes currently are unable access though with the appropriate pathways in place could be made immediately available to Australians living with this condition:

1) *Equity of access to new technologies for people living with diabetes and appropriate funding pathways to facilitate this access*. Automated insulin delivery systems comprise a CGM, and an insulin canula (separate devices both partially inserted in the skin) linked to an insulin pump with a computerised control algorithm to determine insulin dosing. These devices are rapidly becoming the standard of care for people with type 1 diabetes in advantaged countries such as Australia. They have resulted in dramatic improvements in glucose levels with more recent devices also reducing the burden placed on the individual.[3, 4, 5] These diabetes devices have also been shown to be cost-effective resulting in health-economic advantages.[6] In Australia CGMs are free or low cost for people with type 1 diabetes, and the cannulas already receive a substantial Federal Government subsidy. However, insulin pumps are available only to those with private health insurance or those who can self-fund these devices. Accessing an insulin pump currently requires either Gold-Level private health insurance or a significant out of pocket pay >~AUD 8,000 every four years. Private health insurance membership has fallen continuously for the last 5 years and none of the Government's recent reforms have reversed this decline.[7] This results in major inequities impacting a substantial proportion of the type 1 diabetes population whereby some of the most vulnerable people will be the most disadvantaged by the current system – these people will never be able to access an insulin pump. This will impact both their physical and emotional well-being and ability to manage their diabetes, reducing complications and improving quality of life. In addition, newer insulin delivery devices such as patch pumps which are minimally intrusive, do not have a clear funding pathway moving forward.

2) *Appropriate resourcing of the support for people with diabetes who use new technologies to manage their glucose levels.* People living with type 1 diabetes, especially those using new technologies, require the support of an appropriately skilled multidisciplinary team. Education support was identified as a matter of importance in our national survey and access to this expertise was also identified as a significant barrier. It is essential that access to new technologies goes hand in hand with the provision of resources to ensure that significant funds expended in accessing devices result in the best possible outcomes. This will require not only the funding of these resources but ensuring that the workforce is upskilled appropriately.

3) *Regulatory pathways which do not compromise safety while at the same time facilitate the timely approval of new devices in an environment where the research and development cycle of new technologies is accelerating.* The time interval between device development and commercialisation is becoming shorter as sensor and artificial pancreas technology is

advancing very rapidly. The progressive ecosystem of algorithms, pumps, sensors, and software that we see currently is only set to develop further. We will continue to see increased interoperability of technology solutions that rely on multiple components to derive a therapeutic benefit. The current regulatory processes for medical technology assessment (via the TGA) are not structured or adequately funded to enable rapid and timely subsidised access to new and emerging technologies. Where technology has shown to have a significant beneficial impact on health outcomes (through overseas experience or Australian research) particularly in improving physical well-being and quality of life, it should be made available to ensure significant positive impact on daily living for people with type 1 diabetes, caregivers and families.

Our Recommendations:

We therefore suggest the following actions be prioritised:

1) **There is a substantial body of evidence in support of the metabolic, psychological, and health economic benefits associated with the use of new technologies in people with type 1 diabetes. Access to these life changing devices should be provided according to need rather than financial means. This includes the recognition as part of the funding decision process of automated insulin delivery systems as a single entity comprising an insulin pump / insulin delivery set controlled by a computerised algorithm, and a CGM sensor. (TOR #2, TOR#3, and TOR#5)**

2) **An upskilled workforce with increased resourcing of and access to multidisciplinary teams that are expert in diabetes devices to support people who use technology to manage their glucose levels. (TOR#5)**

3) **A review of the regulatory pathways for the informed assessment and approval of new diabetes technology to ensure that people have timely access to the best available therapies. (TOR#5)**

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