

The House of Representatives,  
Standing Committee on Health, Aged Care and Sport,  
PO Box 6021,  
Canberra ACT 2600

8 August 2023.

To the Hon. Members of the Committee,

Thank you for the opportunity to contribute to the Inquiry into Diabetes in Australia. I note the Terms of Reference, and my submission addresses:

- New evidence-based advances in the prevention, diagnosis, and management of diabetes in Australia and internationally.
- The effectiveness of current Australian government policies and programs to prevent, diagnose and manage diabetes.

I have been living with diabetes for 24 years, having been diagnosed with Type 1 Diabetes at age 35. I would like to invite you to hear my personal diabetes story first-hand, via the short talk I presented at a conference last year 'My Type 1 Diabetes Story- Jane MacDonald':  
<https://youtu.be/3SIdbFT8xYY>

I was always a very compliant patient, strictly adhering to all medical and dietary advice recommended to me by my medical and health professionals. This provided me with almost 20 years of rollercoaster blood sugar levels, increasing weight, diabetic complications, depression, and anxiety. I was resigned to the prospect of enduring a future of deteriorating health and increasing diabetes-related difficulties; complications just like those experienced by my Type 1 Diabetic brother who, by the time he died at age 42, was completely blind, had required multiple amputated toes and had the onset of kidney failure. My future seemed bleak. I was worried about the burden my later care would impose on my family.

Living with Type 1 Diabetes brings with it an unrelenting cognitive burden. It's with us 24/7, 365 days a year. There is no holiday from diabetes, no break and it can be challenging and exhausting. There are 42 factors that can impact the blood sugar of a Type 1 Diabetic.<sup>1</sup> Can you imagine juggling 42 balls at once, and the energy this takes? Can you imagine that the 'carbohydrate ball', the most influential/heaviest of these balls (a medicine ball!) has the biggest impact on blood sugars, and yet is the easiest to resolve and remove?

Today- having found a more effective approach to managing my Type 1 Diabetes- I am filled with hope. For the past 5 years I have practised Low Carbohydrate Nutritional Therapy. I also now understand the impact of protein and fat on my blood sugar levels, and now dose insulin accordingly.

Since adopting this approach- i.e., by going *against* the current standard of diabetes care and clinical guidelines, I have enjoyed a HbA1c in the non-diabetic range (low-mid 5%), using *half* the amount of insulin I had previously needed. I have maintained this for five years. Please note the photo below, showing the improved HbA1c on my pathology report. Compare results after the time I commenced this approach (5.3% and 5.4%), with the HbA1c prior (6.8%).

CLINICAL NOTES: insulin dependant diabetes

BIOCHEMISTRY

HAEMOGLOBIN A1c

SPECIMEN: WHOLE BLOOD

| Date     | Coll Time | Req. No. | IFCC<br>HbA1c (mmol/mol) | DCCT<br>HbA1c (%) |
|----------|-----------|----------|--------------------------|-------------------|
| 24/05/19 | 08:50     | 4231822  | 36                       | 5.4               |
| 01/10/18 | 08:45     | 8114646  | 34                       | 5.3               |
| 17/05/18 | 09:50     | 6877580  | 51                       | * 6.8             |

4231822 HbA1c remains within target of <53 mmol/mol (7%).

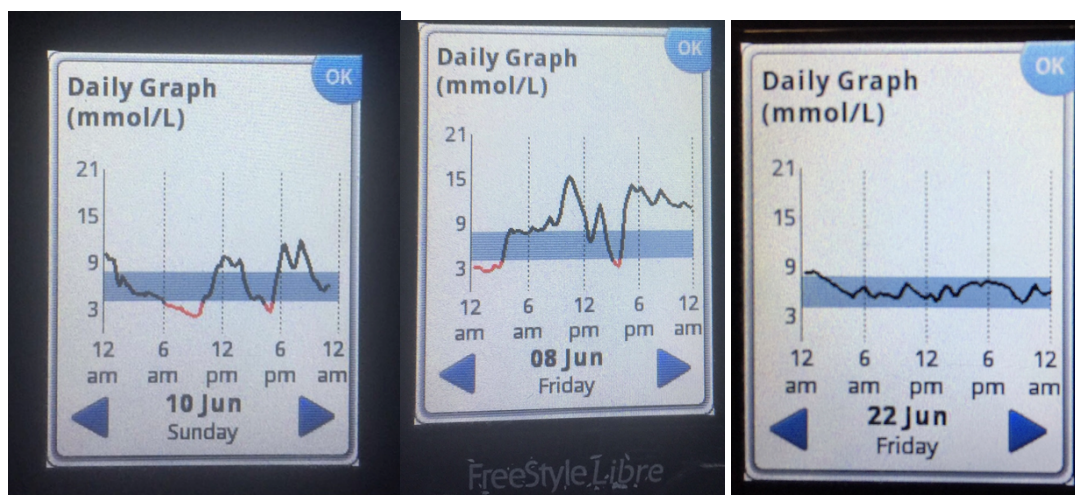
RECOMMENDATIONS  
Suggest repeat HbA1c in 6 months.

INTERPRETATION CRITERIA  
DIAGNOSIS.  
A HbA1c greater than or equal to 48 mmol/mol ( 6.5 %) is consistent with diabetes  
MONITORING.  
The usual treatment target is less than or equal to 53 mmol/mol (7%) but may vary depending on the clinical situation.

Please note that Hb A1c results may be influenced by conditions affecting red cells or their survival times such as haemoglobinopathies,

Even though the 6.8% HbA1c was deemed satisfactory by my Diabetes healthcare team, it was accompanied by frequent hypoglycaemic events and large swings and standard deviations from my target blood sugar levels. I discovered this Low Carbohydrate Nutritional Therapy approach via a YouTube talk, and asked my Endocrinologist whether it would be appropriate for me to “give this a try?” I was cautioned that this way of life was “unsustainable”. I have since discovered that this way of eating is completely sustainable. I enjoy eating a low carbohydrate, high protein diet of real, whole food. I also enjoy having more energy, better mood and sleep, and no fear of repercussions of the ‘blood glucose roller-coaster’.

I no longer suffer from unpredictable or debilitating hypoglycaemic events. Since additionally discovering Dr Richard Bernstein’s book, ‘*Dr. Bernstein’s Diabetes Solution: The Complete Guide to Achieving Normal Blood Sugars*’, I know from my own experience that his ‘Law of Small Numbers’ works. Small amounts of carbohydrate require small doses of insulin, and result in small deviations or excursions from target blood sugars. Any episodes of hypoglycaemia are mild and require only a small amount of glucose to correct. Please note the photos of my blood sugar levels below, with the first two showing a typical day when following the current conventional standard of care: the roller-coaster. The third photo shows the improvement after adopting Dr Bernstein’s methods.

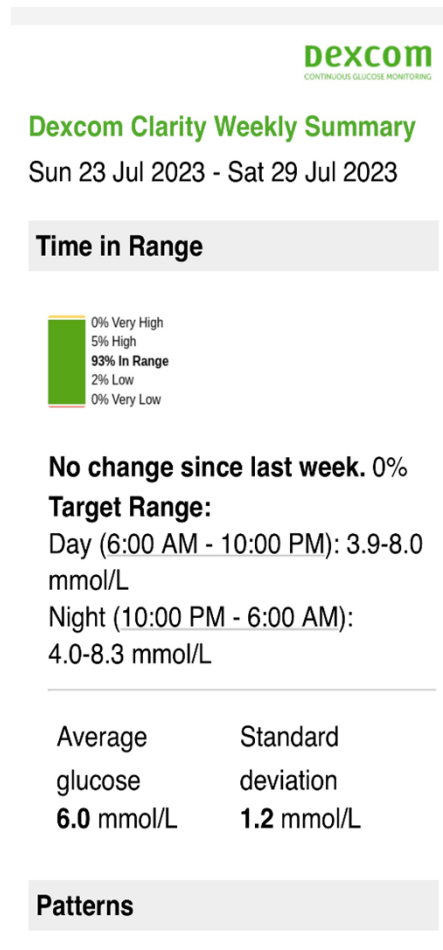
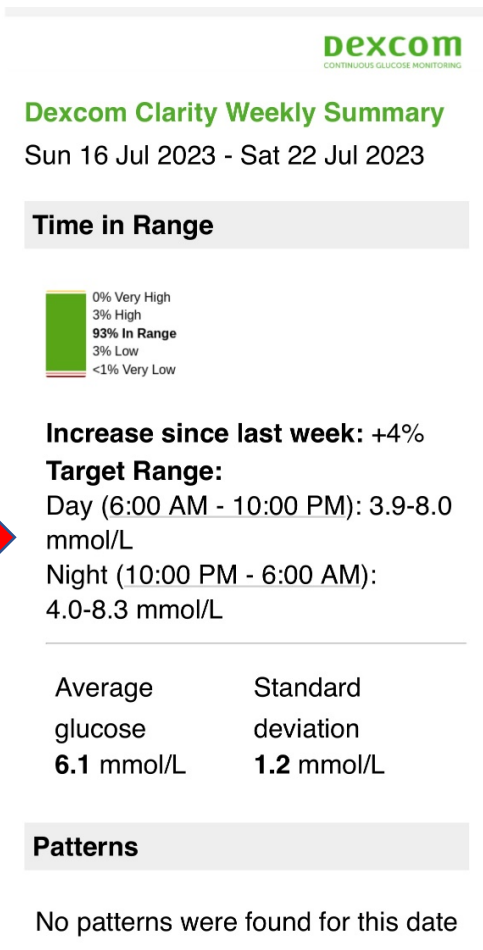


Dr Bernstein's book also educated me about the delayed rise in blood sugar levels after eating protein, due to gluconeogenesis, and how a fatty meal can cause insulin resistance. Once I understood this, I could adapt my insulin pump regimen to accommodate these factors. Because my Endocrinologist at the time was not fully supportive, I figured out my new insulin doses myself. I use an App (Cronometer) to calculate the amount of protein in each meal and use an 'extended' or 'dual wave' delivery of insulin via my insulin pump to address the delayed rise in blood glucose caused by the protein portion of my meal, whilst taking a portion of the insulin dose with the meal to cover the carbohydrate portion of my meal.

Once I understood that every 4gm of carbohydrate is broken down to the equivalent of 1 teaspoon of sugar, I was able to reappraise food labels and make better dietary choices. Dr David Unwin's Sugar Infographics<sup>3</sup> were very educational. For example, now that I know that 3/4 cup of rice contains the equivalent of 10 teaspoons of sugar, when eating casseroles or curries, I substitute rice with cauliflower and enjoy normal blood sugar afterwards. I eat zucchini noodles instead of pasta, avoid starchy vegetables and eat low-carbohydrate bread. My diet lacks nothing!

It was inspiring to find the very supportive TYPEONEGRIT Facebook Group, with over 3,800 members internationally- people managing their diabetes this way. Reading the articles '*Management of Type 1 Diabetes with a Very Low-Carbohydrate Diet.*'<sup>4</sup>, and '*Effects of a low-carbohydrate diet in adults with type 1 diabetes management: A single arm non-randomised clinical trial*'<sup>5</sup> confirmed my experience.

Please note the two photos below, showing a Dexcom Continuous Glucose Monitor notification for two consecutive weeks, highlighting my blood sugar 'time-in-range'. \*Please also note that I have changed the target levels to levels I feel more comfortable with (see the red arrow). This shows that for 93% of the time that fortnight, my blood sugar was in-range of my self-determined targets (3.9-8.3 mmol/L). It also shows that I was not troubled by hypoglycaemia, and that the excursions, or the standard deviation from my targets, were very small (1.2 mmol/L). Had my target range been what is set by Dexcom, I would have been in range for almost 100% of the time.



\*Red arrow above= self-set blood sugar range (3.9-8.0 mmol/L), lower than standard Dexcom settings.

Please see the photos below which show my Libre flash monitor readings before and after commencing Low Carbohydrate Nutritional Therapy. The photos show the grey dots (my blood sugar level), the blue line (my average blood sugar) and the two horizontal black lines (my target range). The photos also show my daily average blood sugar and estimated HbA1c.

The first photo, (28/6/16- 12/9/16) following the current conventional health and dietary standard of care, illustrates my blood sugars 'all over the place'. My average is never in target. My average blood sugars and estimated HbA1c are too high. This is in contrast with the second photo, (1/8/18- 26/8/18) where the deviation from normal is significantly lower, the average is mostly in target and the average blood sugars and estimated HbA1c are in the non-diabetic range. This was achieved using *half* the amount of insulin being used in the first photo. This data from 2018 was when I had recently commenced this approach and my results today are even better.

I cannot over-state the degree of improvement these changes have contributed to my quality of life! Not only did my blood sugar levels improve- my general health also improved. The diabetes complications I'd had disappeared relatively quickly. Within three months I lost the 14kg I'd gained since commencing insulin. I was no longer anxious or depressed. I had more energy and slept better. I was no longer worried I would have 'a bad hypo' at work, whilst driving, or whilst home alone. Three times over the course of the 20 years I followed the conventional diabetes management I experienced a severe hypoglycaemic episode that, had I been alone, would have killed me.

PAGE 3 / 47  
DATE: 2016/09/12

DATA SOURCE: FreeStyle Libre 2.2.9  
FreeStyle Libre 1.0

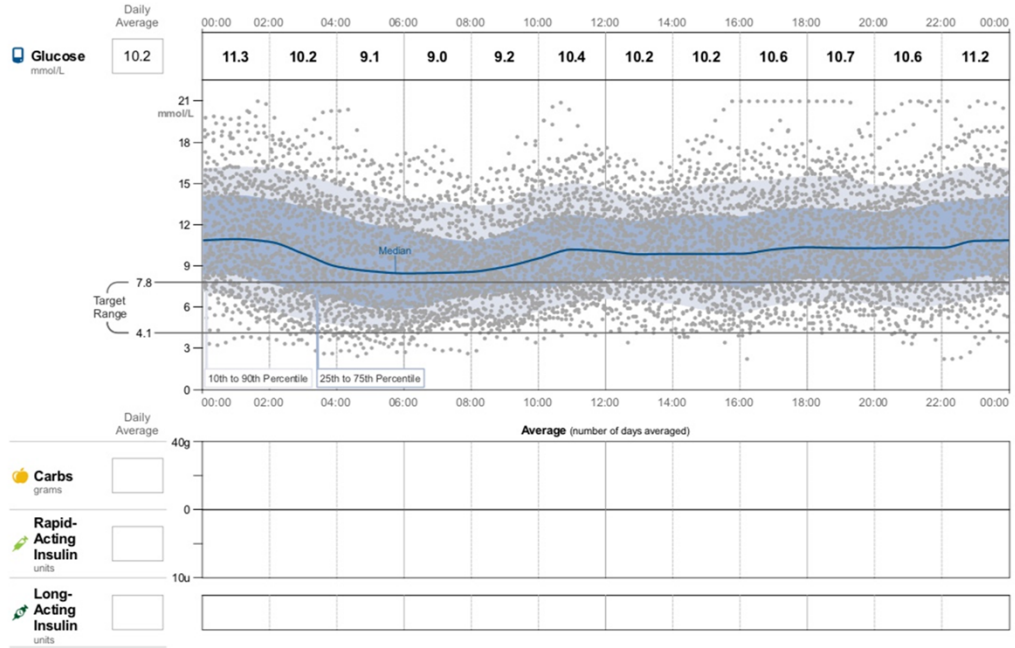
Jane MacDonald  
ID#:

### Daily Patterns (with glucose readings)

28 June 2016 - 12 September 2016 (77 days)



Estimated A1c **8.0%** or **64 mmol/mol**



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DATE: 2018/08/26

DATA SOURCE: FreeStyle Libre 2.2.9  
FreeStyle Libre 1.0

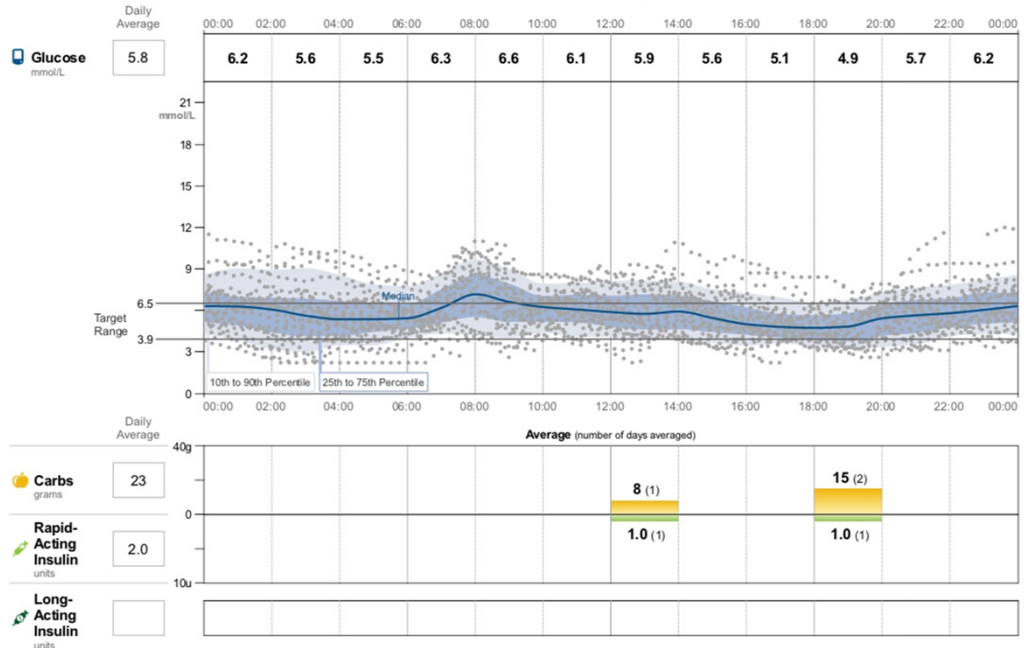
Jane MacDonald  
ID#:

### Daily Patterns (with glucose readings)

1 August 2018 - 26 August 2018 (26 days)



Estimated A1c **5.3%** or **34 mmol/mol**



I no longer feel like a failure during my medical appointments, sitting across the desk from the medical team, as they considered the data from my insulin pump, glucometer, and continuous glucose monitor. Those appointments used to be humiliating- I had followed all their advice and my best results were never good enough.

Today's diabetes standard of care sets us diabetics up to fail. I imagine a day when this has been shelved. Advising Type 1 Diabetics to make carbohydrates the basis of every meal, to include carbohydrate-rich snacks as well, and to take large doses of insulin to cover this, is madness. People with a nut allergy are not advised to eat as many nuts as they like and just take the adrenalin required to cover it. To me, advising someone who is unable to metabolise carbohydrate to eat a lot of it, and to take a lot of insulin to cover it, is just as unfathomable.

Please consider exploring a change to the current conventional medical and dietary management of diabetes to include Low Carbohydrate Nutritional Therapy and Dr Bernstein's approach of insulin dosing. With this change, I imagine the potential improvement of the health of Australians living with diabetes (Type 1, Type 2 and Gestational). I imagine the improvement in health outcomes for our First Nations people. Diabetes Australia acknowledges that Aboriginal and Torres Strait Islander people are almost four times more likely than non-Indigenous Australians to have diabetes or pre-diabetes.<sup>6</sup>

I imagine the astronomical financial savings to the federal and state health budgets, with the resulting reductions in diabetes-related complications, with reduced insulin needs and with resulting reductions in the incidence of obesity and concurrent improvements in health this would also achieve. I imagine the other areas to which governments could direct those monetary savings and the further benefits the Australian population could enjoy as a result.

I am grateful for the era I live in, and the country I live in- for access to subsidised medication and technology, and to tele-health. I imagine a time when, in addition to this, all diabetics, and those caring for diabetics, receive education and instruction about Low Carbohydrate Nutritional Therapy and the insulin dosing I now practice. I imagine then the many Australians whose quality of life would soar. I imagine then that people wouldn't need to stumble across this information via Facebook and YouTube but were instead supported by medical and health practitioners in using these methods to achieve long-term Normoglycaemia. Please consider updating the clinical guidelines for all Australians living with diabetes to make this achievable.

Thank you for reading my submission and please contact me if you have any questions- I am happy to discuss or elaborate on my experiences.

Yours faithfully,

Jane MacDonald

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#### References:

<sup>1</sup> Adam Brown, '42 Factors that Affect Blood Glucose' <https://brightspotsandlandmines.org/wp-content/uploads/2019/09/42FactorsExplainedOctober2019.pdf>

<sup>2</sup> Bernstein, R. K. (2011). *Dr. Bernstein's Diabetes Solution: The Complete Guide to Achieving Normal Blood Sugars*. Little Brown.

<sup>3</sup> Dr David Unwin's Sugar Infographics: <https://phcuk.org/sugar/>

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<sup>4</sup> Lennerz, B. S., Barton, A., Bernstein, R. K., Dikeman, R. D., Diulus, C., Hallberg, S., Rhodes, E. T., Ebbeling, C. B., Westman, E. C., Yancy, W. S., & Ludwig, D. S. (2018). *Management of Type 1 Diabetes With a Very Low-Carbohydrate Diet*. *Pediatrics*, 141 (60). doi: 10.1542/peds.2017-3349.

<sup>5</sup> Jessica L. Turton, Grant D. Brinkworth, Helen M. Parker, David Lim, Kevin Lee, Amy Rush, Rebecca Johnson, Kieron B. Rooney (2023) *Effects of a low-carbohydrate diet in adults with type 1 diabetes management: A single arm non-randomised clinical trial*. *PLoS ONE* 18(7): e0288440.

<https://doi.org/10.1371/journal.pone.0288440>

<sup>6</sup> Diabetes Australia <https://www.diabetesaustralia.com.au/atsi/resources/>