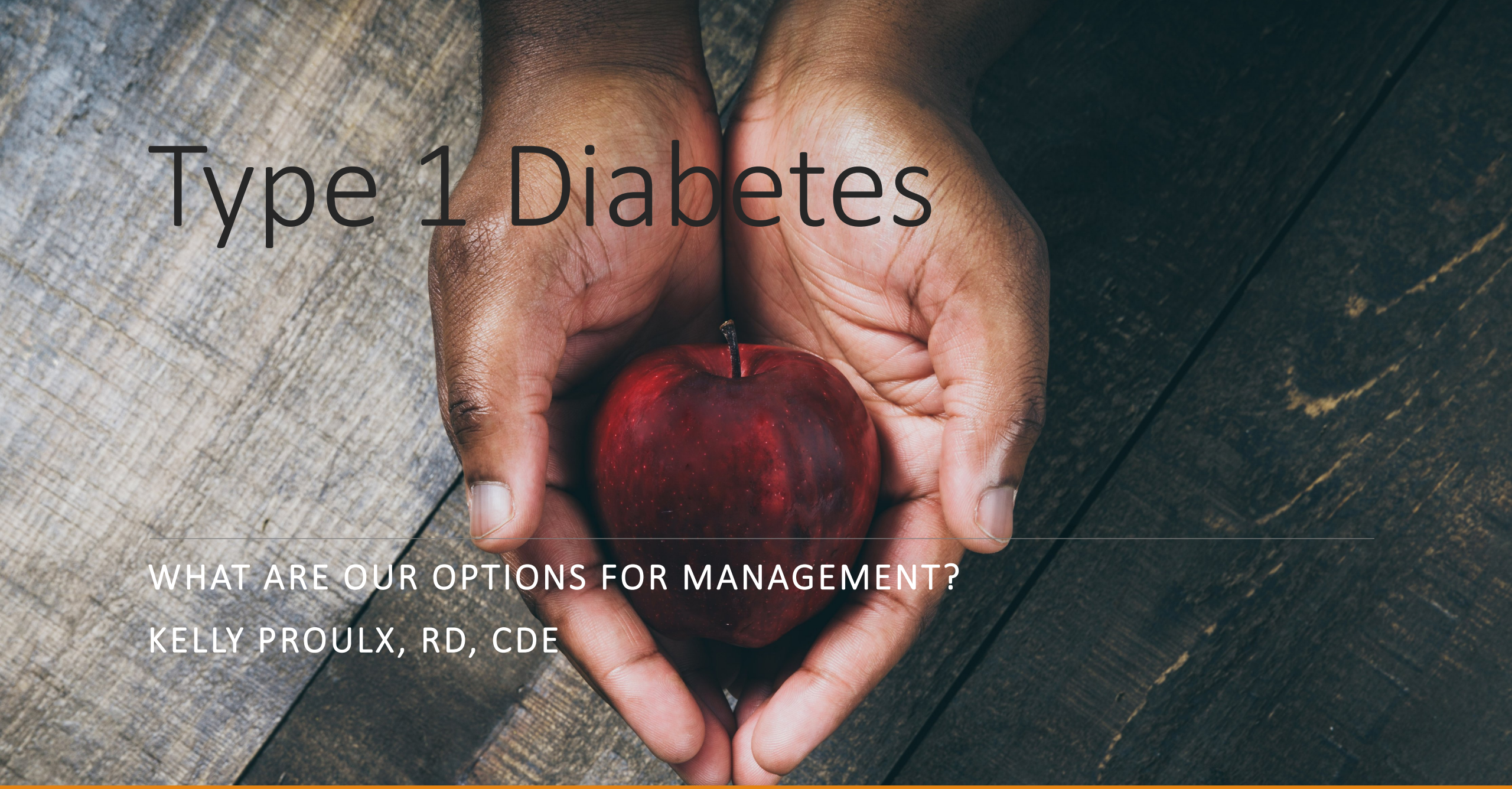


Type 1 Diabetes

WHAT ARE OUR OPTIONS FOR MANAGEMENT?

KELLY PROULX, RD, CDE

Faculty/Presenter Disclosure

Faculty: Kelly Proulx, RD, CDE

Relationships with financial sponsors:

- **Grants/Research Support:** n/a
- **Speakers Bureau/Honoraria:** Waterloo Wellington Diabetes
- **Consulting Fees:** n/a
- **Patents**: n/a
- **Other:** Employee of Peterborough Regional Health Centre, Diabetes Program

Disclosure of Financial Support

This program has not received financial support.

This program has not received in-kind support.

Potential for conflict(s) of interest:

I am receiving an honorarium from the Waterloo Wellington Self-Management Program supporting this program

I receive no other financial or in-kind support from industry, or any other for profit/not-for-profit organizations and has no potential conflicts of interest.

Mitigating Potential Bias

My presentation is limited to the scope of the requested learning objectives of the scientific planning committee

Outline

1. My Personal Journey
2. My Type 1 Diabetes Experience
3. Some Great Patients and Families willing to Share Their Information
4. Research and Resources to Share
5. Next Steps

Polling Question #1

What is your comfort level in supporting a patient and/or family with Low Carb or Keto in Diabetes?

1. Not at all comfortable
2. Could support for Type 2 diabetes
3. Could support for Type 1 and Type 2 diabetes
4. Could support Low Carb but not Keto
5. Unsure at this time

Polling Question #2

What would you need to support a child/family with a low carb or keto lifestyle?

1. I would not feel comfortable supporting a low carb or keto lifestyle in a type 1 diabetic.
2. I am comfortable supporting a child/family and do not need resources.
3. I would need further resources and education (ex. Webinars and handouts).
4. I would prefer to wait until the guidelines support this lifestyle as an option.

My Story

- Dr. Wendy Thomas-Type 1, LCHF
- My “n” of 1
- Some Education
- My Awesome Patients and CGM

What is important in managing T1D's?

Blood sugars-hyperglycemia, hypoglycemia, glycemic variability, time in range?

Long term health/consequences of above?

Quality of Life for someone living with T1? Their parents, partners, families?

Managing diabetes distress and burnout?

Supporting a family living with a chronic disease?

68

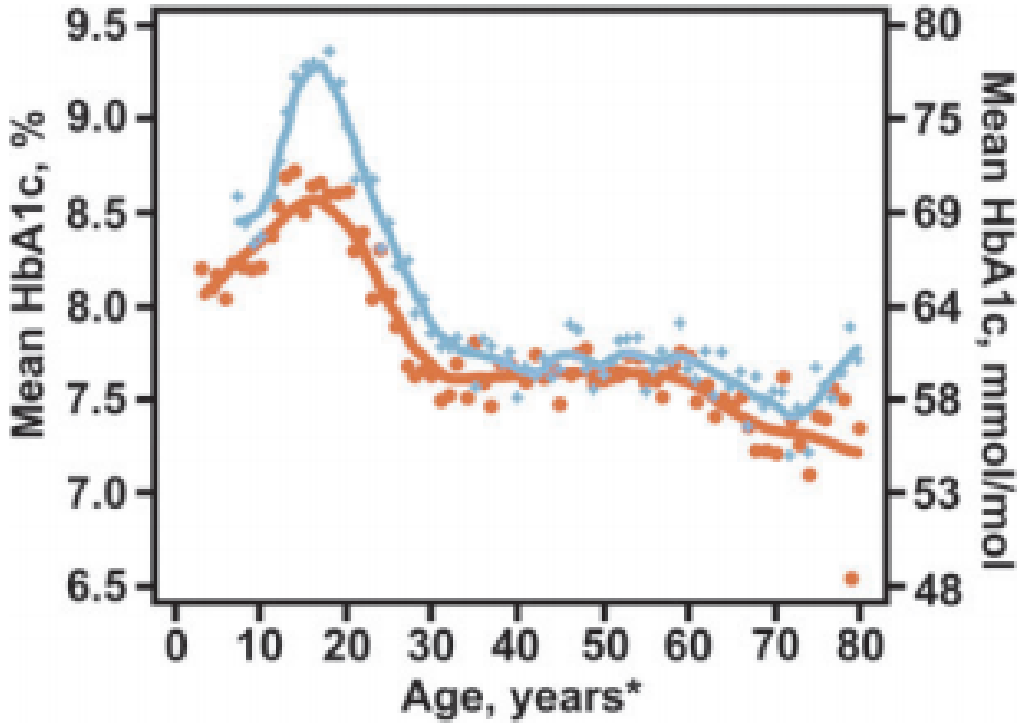
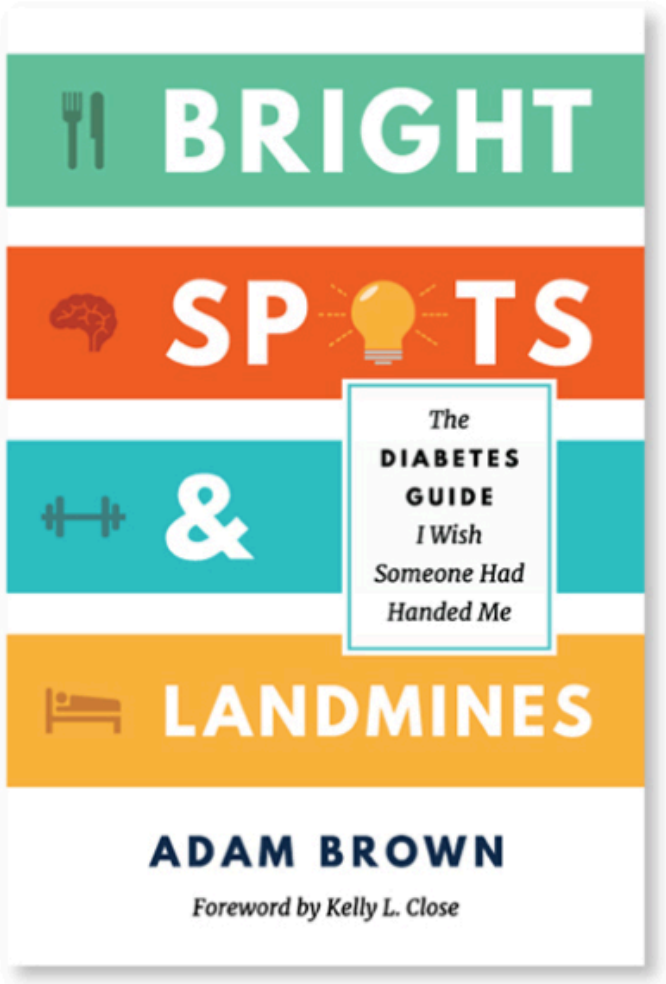


FIG. 2. Average HbA1c by year of age: 2010–2012 versus 2016–2018. Orange line represents 2010–2012 cohort, and blue line represents 2016–2018 cohort. Participants must be contained in both cohorts with at least a 3-year duration for the 2010–2012 collection. * ≥80 years old are pooled.

https://www.siditalia.it/images/T1D_exchange_registry.pdf



WHAT ARE YOUR

Bright Spots & Landmines?

Adam Brown's acclaimed diaTribe column, Adam's Corner, has brought life-transforming diabetes tips to over 1 million people since 2013. In this highly actionable guide, he shares the food, mindset, exercise, and sleep strategies that have had the biggest positive impact on his diabetes – and hopefully yours too! *Bright Spots & Landmines* is filled with hundreds of effective diabetes tips, questions, and shortcuts, including what to eat to minimize blood sugar swings; helpful strategies to feel less stressed, guilty, and burned out; and simple ways to improve exercise and sleep.

Download a PDF*

***You will have the opportunity to make an tax-deductible donation to diaTribe**

Get it in Paperback **Get it on Kindle**

Adam Brown

Bright Spots & Landmines, The Diabetes Guide I Wish Someone Had Handed Me

- Type 1 diabetic since 2001
- Wears a CGM-Dexcom
- 20 grams of carbs per meal is his goal
- Thinks back on the advice he received: eat what you want as long as you take insulin for it

✓**Diabetes Bright spots: Identify what works and focus on doing those things *more* often**

✓**Diabetes Landmines: Uncover what doesn't work and find ways to do those things *less* often**

What's in This Chapter:

- What to eat to minimize blood sugar swings.
- How to navigate breakfast, grocery shopping, and restaurants.
- How to avoid challenging diabetes foods.

What's in This Chapter:

- How to conquer diabetes stress, guilt, burnout, and frustration.
- Dealing with perfectionism and low motivation.
- Finding TODAY reasons to care.

What's in This Chapter:

- How to avoid highs and lows during exercise.
- Tips to fit activity into a busy life.
- How to actually enjoy exercise.

What's in This Chapter:

- Why sleep matters for diabetes.
- Tweaking your sleeping environment.
- How to optimize bedtime routines.

42 Factors that affect Blood Glucose

FOOD

- ↑↑ 1 Carbohydrate quantity
- →↑ 2 Carbohydrate type
- →↑ 3 Fat
- →↑ 4 Protein
- →↑ 5 Caffeine
- ↓↑ 6 Alcohol
- ↓↑ 7 Meal timing
- ↑ 8 Dehydration
- ? 9 Personal microbiome

MEDICATION

- →↓ 10 Medication dose
- ↓↑ 11 Medication timing
- ↓↑ 12 Medication interactions
- ↑↑ 13 Steroid administration
- ↑ 14 Niacin (Vitamin B3)

ACTIVITY

- →↓ 15 Light exercise
- ↓↑ 16 High-intensity & moderate exercise
- →↓ 17 Level of fitness/training
- ↓↑ 18 Time of day
- ↓↑ 19 Food and insulin timing

BIOLOGICAL

- ↑ 20 Too little sleep
- ↑ 21 Stress and illness
- ↓ 22 Recent hypoglycemia
- →↑ 23 During-sleep blood sugars
- ↑ 24 Dawn phenomenon
- ↑ 25 Infusion set issues
- ↑ 26 Scar tissue / lipodystrophy
- ↓↓ 27 Intramuscular insulin delivery
- ↑ 28 Allergies
- ↑ 29 A higher BG level (glucotoxicity)
- ↓↑ 30 Periods (menstruation)
- ↑↑ 31 Puberty
- ↓↑ 32 Celiac disease
- ↑ 33 Smoking

ENVIRONMENTAL

- ↑ 34 Expired insulin
- ↓↑ 35 Inaccurate BG reading
- ↓↑ 36 Outside temperature
- ↑ 37 Sunburn
- ? 38 Altitude

BEHAVIOR & DECISIONS

- ↓ 39 More frequent BG checks
- ↓↑ 40 Default options and choices
- ↓↑ 41 Decision-making biases
- ↓↑ 42 Family and social pressures

The arrows show the general effect these 42 factors seem to have on blood glucose based on scientific research and/or our experiences at diaTribe. However, not every individual will respond in the same way, so the best way to see how a factor affects you is through your own data: check your blood glucose more often with a meter or wear a CGM and look for patterns.

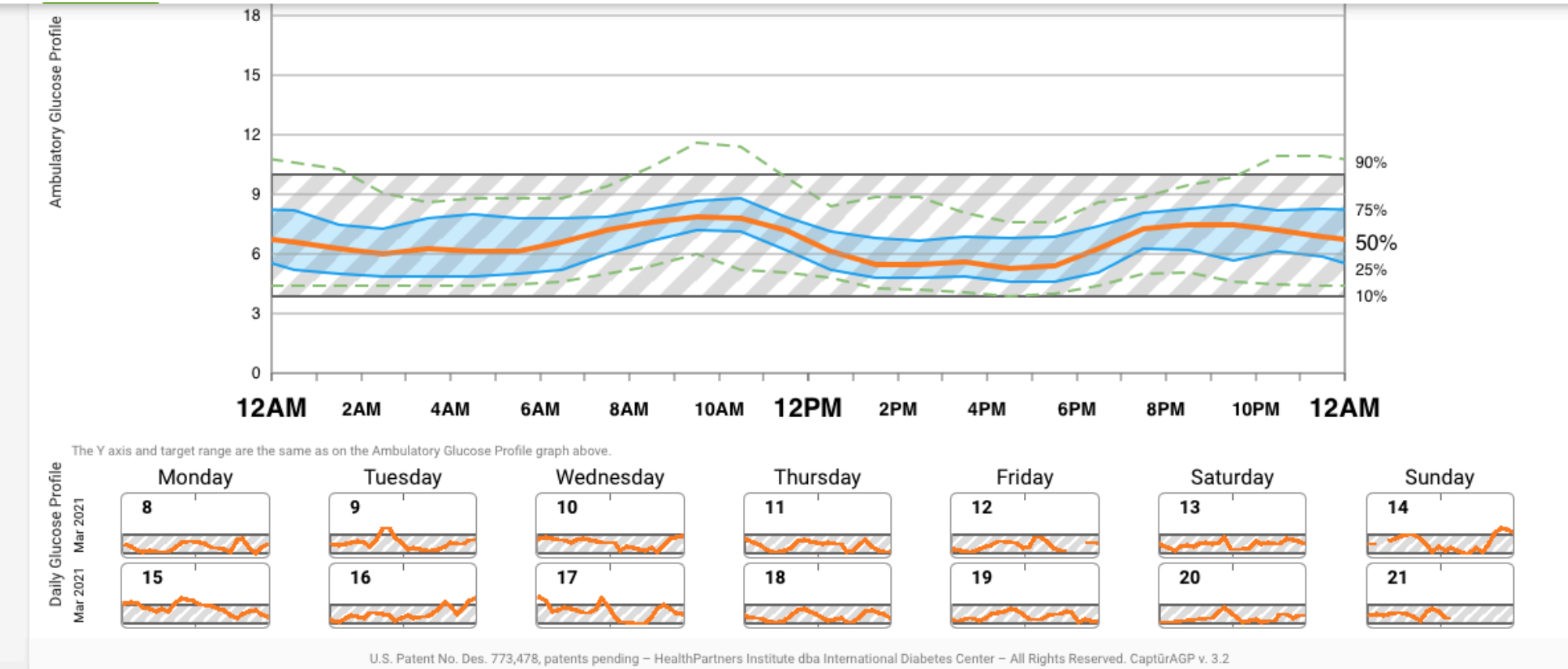
diaTribe

Read more about the 42 Factors at diaTribe.org/42FactorsExplained
Sign up for diaTribe's updates at diaTribe.org/join

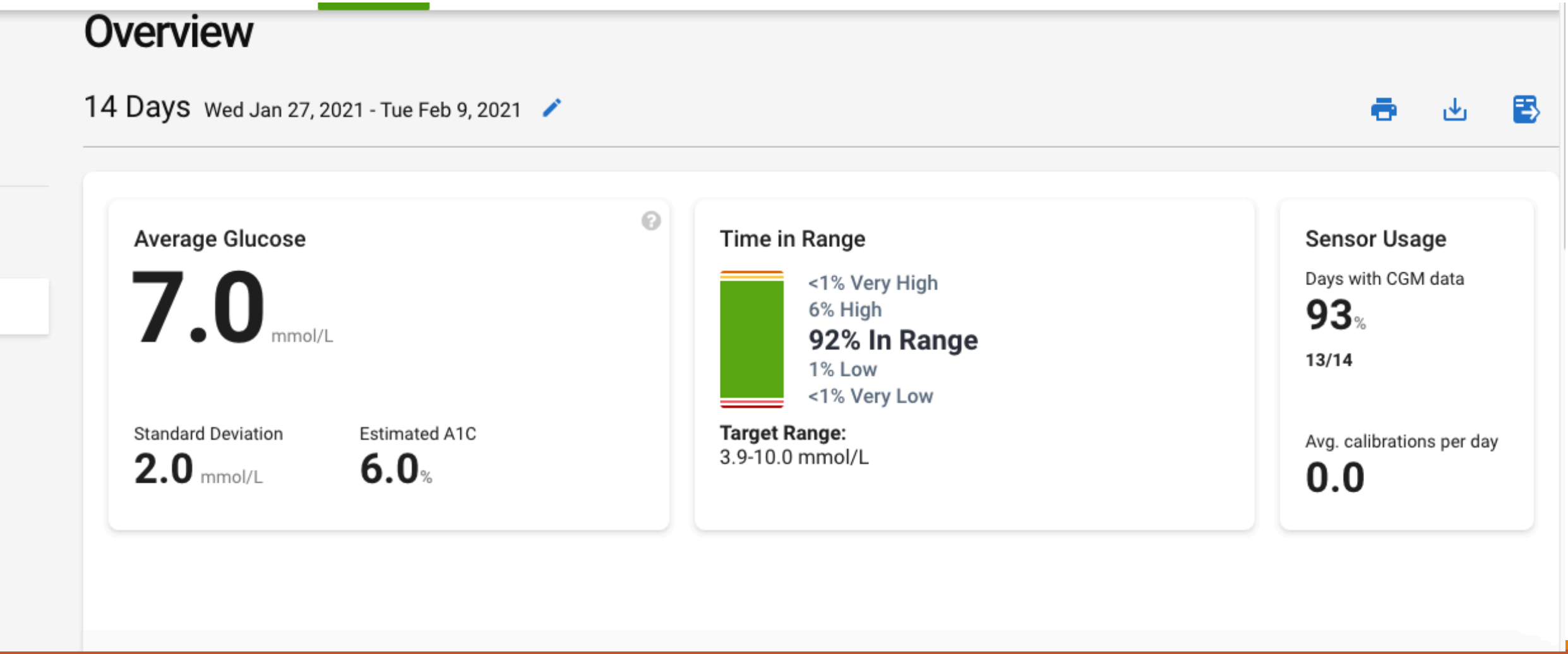
My First Keto Patient

- Mom is a RN who works in Cardiology
- Was already Keto herself x 2 years
- Dad had already experienced some cardiac issues in his 40's
- Her son gets diagnosed with Type 1 diabetes
- We have the pleasure of meeting them in the clinic after diagnosis
- What would you do?

Patient A

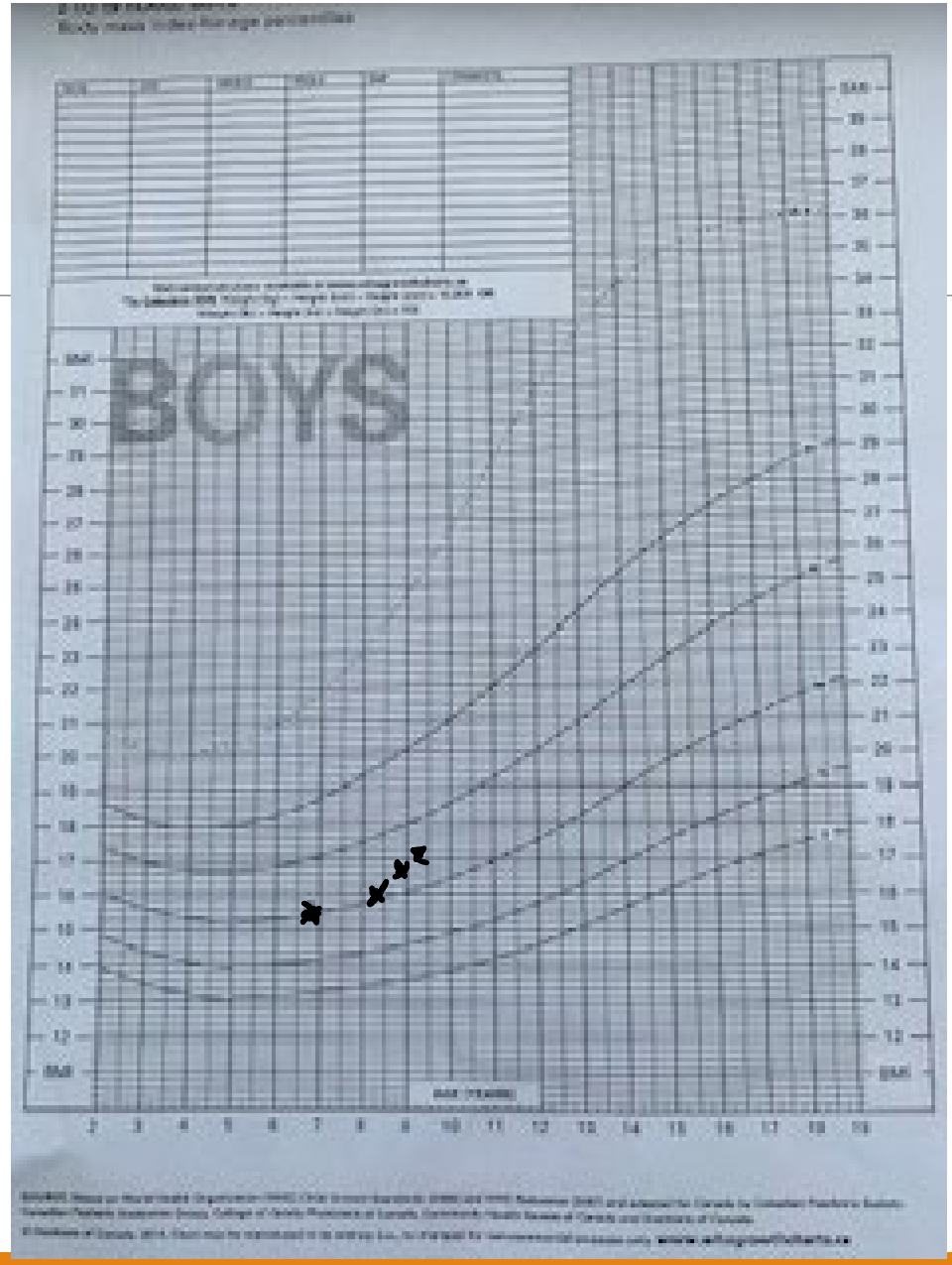

Ambulatory Glucose Profile
18
15
12
9
6
3
0
90%
75%
50%
25%
10%
12AM
2AM
4AM
6AM
8AM
10AM
12PM
2PM
4PM
6PM
8PM
10PM
12AM
The Y axis and target range are the same as on the Ambulatory Glucose Profile graph above.
Daily Glucose Profile
Mar 2021
Mar 2021
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
8
9
10
11
12
13
14
15
16
17
18
19
20
21
U.S. Patent No. Des. 773,478, patents pending – HealthPartners Institute dba International Diabetes Center – All Rights Reserved. CaptürAGP v. 3.2

Patient A


Overview
14 Days Wed Jan 27, 2021 - Tue Feb 9, 2021
Average Glucose
7.0 mmol/L
Standard Deviation
2.0 mmol/L
Estimated A1C
6.0%
Time in Range
<1% Very High
6% High
92% In Range
1% Low
<1% Very Low
Target Range:
3.9-10.0 mmol/L
Sensor Usage
Days with CGM data
93%
13/14
Avg. calibrations per day
0.0

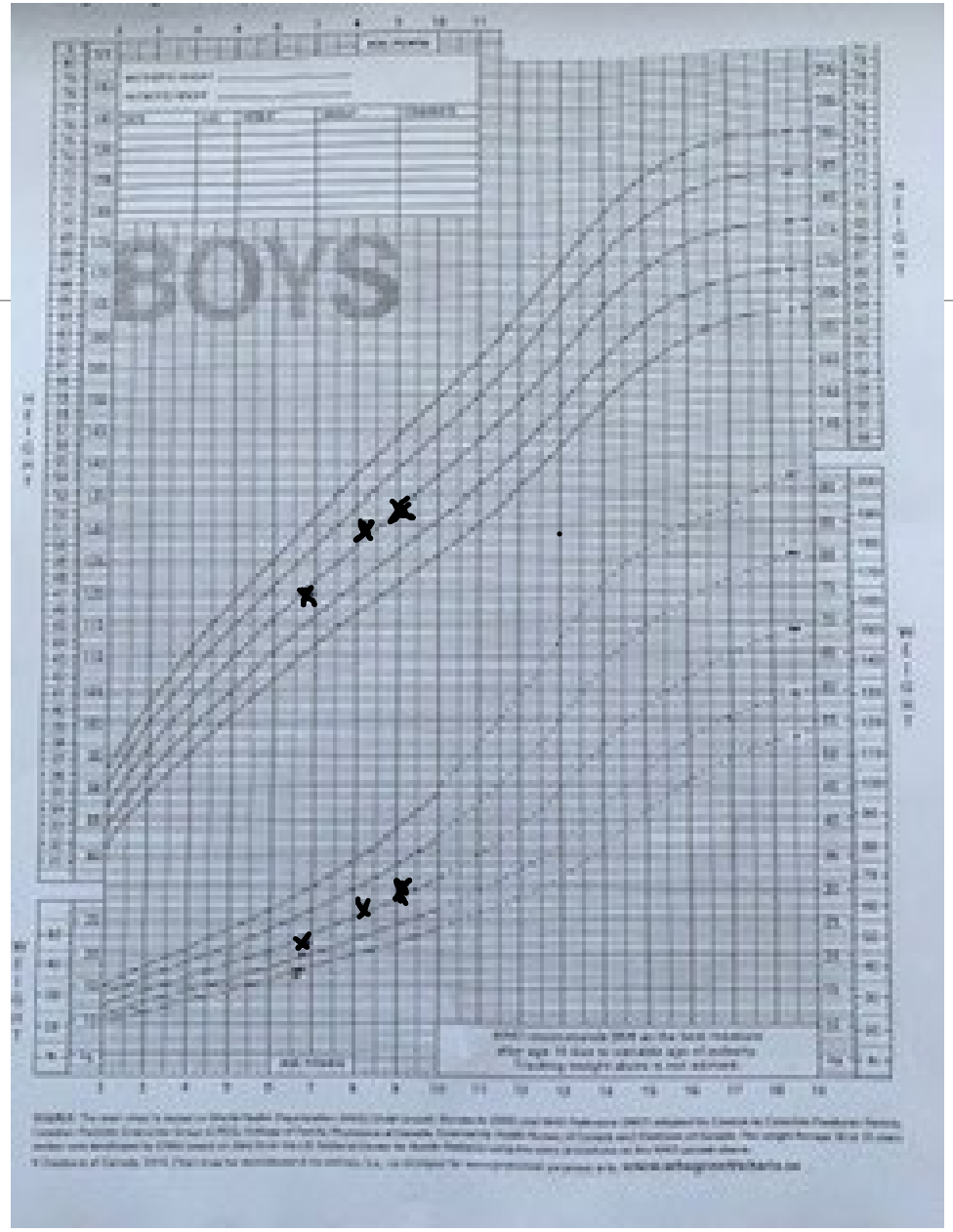
BMI

- June 2019 – Diagnosis HT: 119.6 cm WT: 21.9kg. BMI: 15.3
  November 2019 – HT: 121.4 cm WT: 23.3kg
  BMI: 15.7
  December 2020 – HT: 130 cm. WT: 27 kg
  BMI: 16
  April 2021 – HT: 130.8m, WT: 27.8 kg
  BMI: 16.7
  November 2021 – HT: 132.2cm, WT: 29.8kg BMI: 17.2



Height/Weight

June 2019 – Diagnosis HT: 119.6 cm WT: 21.9kg. BMI: 15.3
November 2019 – HT: 121.4 cm WT: 23.3kg
BMI: 15.7
December 2020 – HT: 130 cm. WT: 27 kg
BMI: 16
April 2021 – HT: 130.8cm, WT: 27.8 kg
BMI: 16.7
November 2021 – HT: 132.2cm, WT: 29.8kg
BMI: 17.2



My second Keto patient- Millie

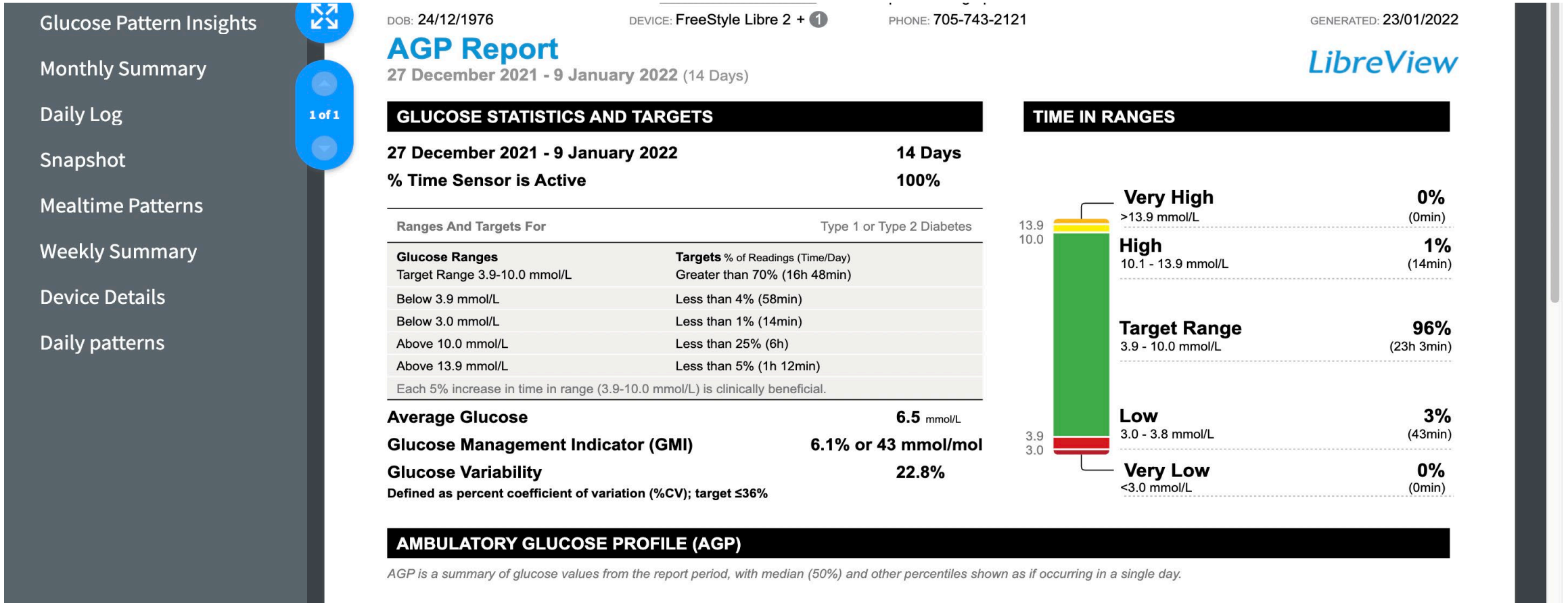
Diagnosed May 7/21 at 5 years, 9 months. Wt 24 kg, AIC 10.6%

June 24/21 Wt: 25.3kg, Ht: 121 cam, BMI: 17.3, AIC: 7.7%

Octo 28/21 Wt: 26.6kg, Ht: 124 cm, BMI 17.3, AIC: 5.4%

Average carbs/day: 30grams, 85% time in range, 6.4 mmol/L average sugar on Libre.

Millie


Glucose Pattern Insights
Monthly Summary
Daily Log
1 of 1
Snapshot
Mealtime Patterns
Weekly Summary
Device Details
Daily patterns
DOB: 24/12/1976
DEVICE: FreeStyle Libre 2 + 1
PHONE: 705-743-2121
GENERATED: 23/01/2022
AGP Report
27 December 2021 - 9 January 2022 (14 Days)
LibreView
GLUCOSE STATISTICS AND TARGETS
27 December 2021 - 9 January 2022 14 Days
% Time Sensor is Active 100%
Ranges And Targets For Type 1 or Type 2 Diabetes
Glucose Ranges
Target Range 3.9-10.0 mmol/L
Targets % of Readings (Time/Day)
Greater than 70% (16h 48min)
Below 3.9 mmol/L Less than 4% (58min)
Below 3.0 mmol/L Less than 1% (14min)
Above 10.0 mmol/L Less than 25% (6h)
Above 13.9 mmol/L Less than 5% (1h 12min)
Each 5% increase in time in range (3.9-10.0 mmol/L) is clinically beneficial.
Average Glucose 6.5 mmol/L
Glucose Management Indicator (GMI) 6.1% or 43 mmol/mol
Glucose Variability 22.8%
Defined as percent coefficient of variation (%CV); target ≤36%
TIME IN RANGES
13.9
10.0
3.9
3.0
Very High
>13.9 mmol/L
0%
(0min)
High
10.1 - 13.9 mmol/L
1%
(14min)
Target Range
3.9 - 10.0 mmol/L
96%
(23h 3min)
Low
3.0 - 3.8 mmol/L
3%
(43min)
Very Low
<3.0 mmol/L
0%
(0min)
AMBULATORY GLUCOSE PROFILE (AGP)
AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if occurring in a single day.

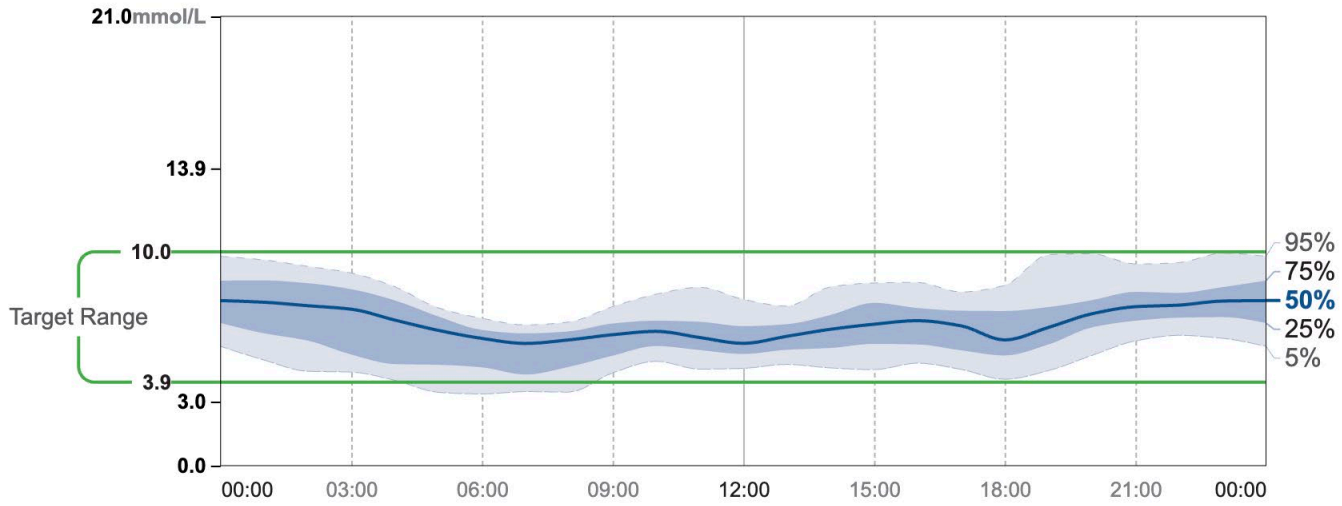
Millie

- AGP Report
- Glucose Pattern Insights
- Monthly Summary
- Daily Log
- Snapshot
- Mealtime Patterns
- Weekly Summary
- Device Details
- Daily patterns

1 of 1

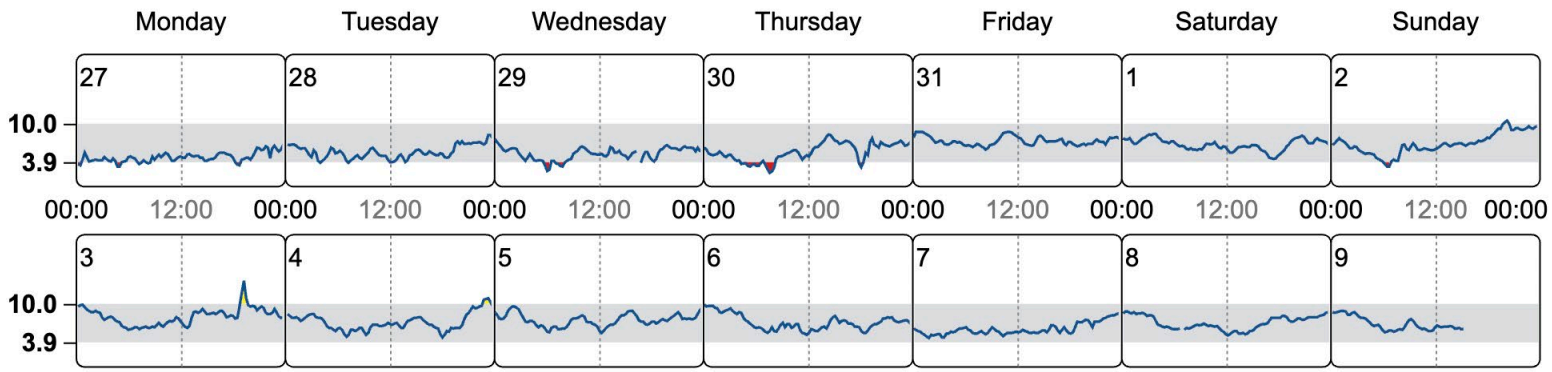
AMBULATORY GLUCOSE PROFILE (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if occurring in a single day.



DAILY GLUCOSE PROFILES

Each daily profile represents a midnight to midnight period with the date displayed in the top-left corner.



Another Awesome Patient

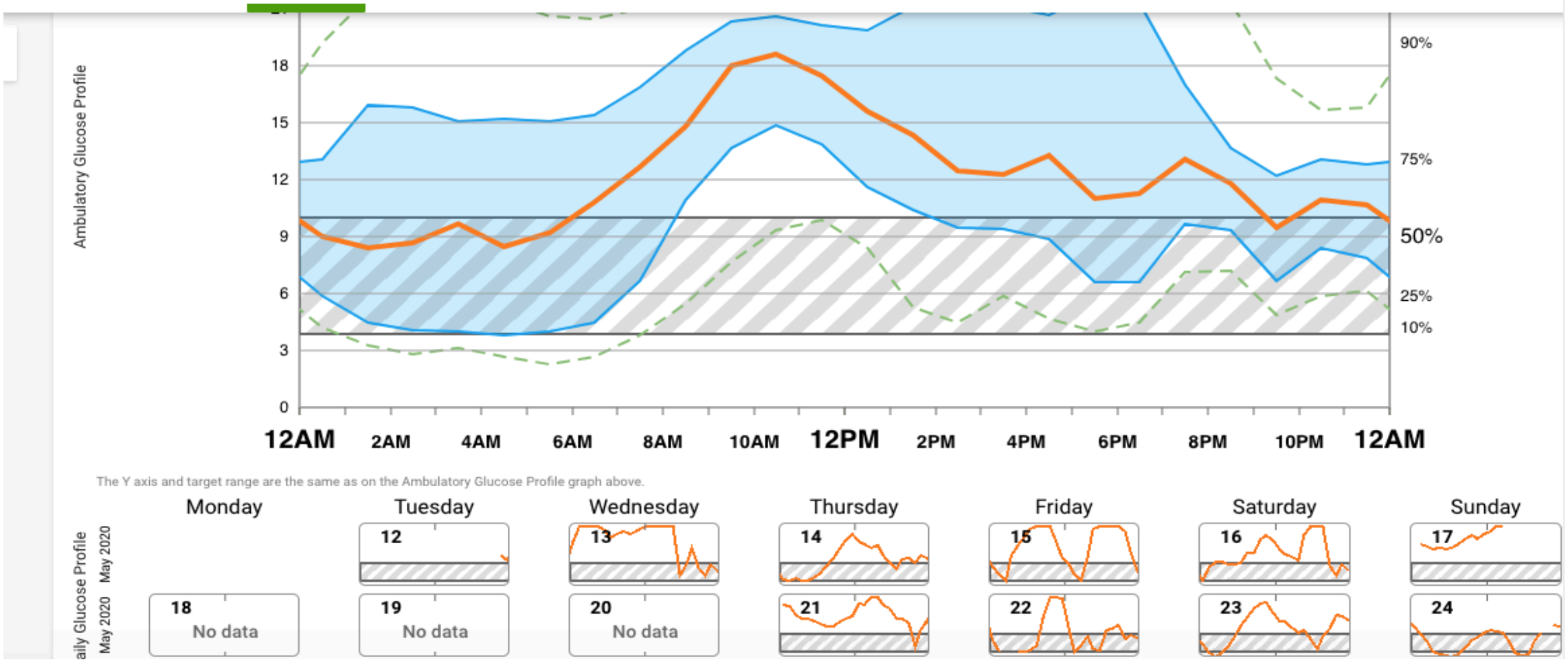
Very involved parents

Working hard on diabetes

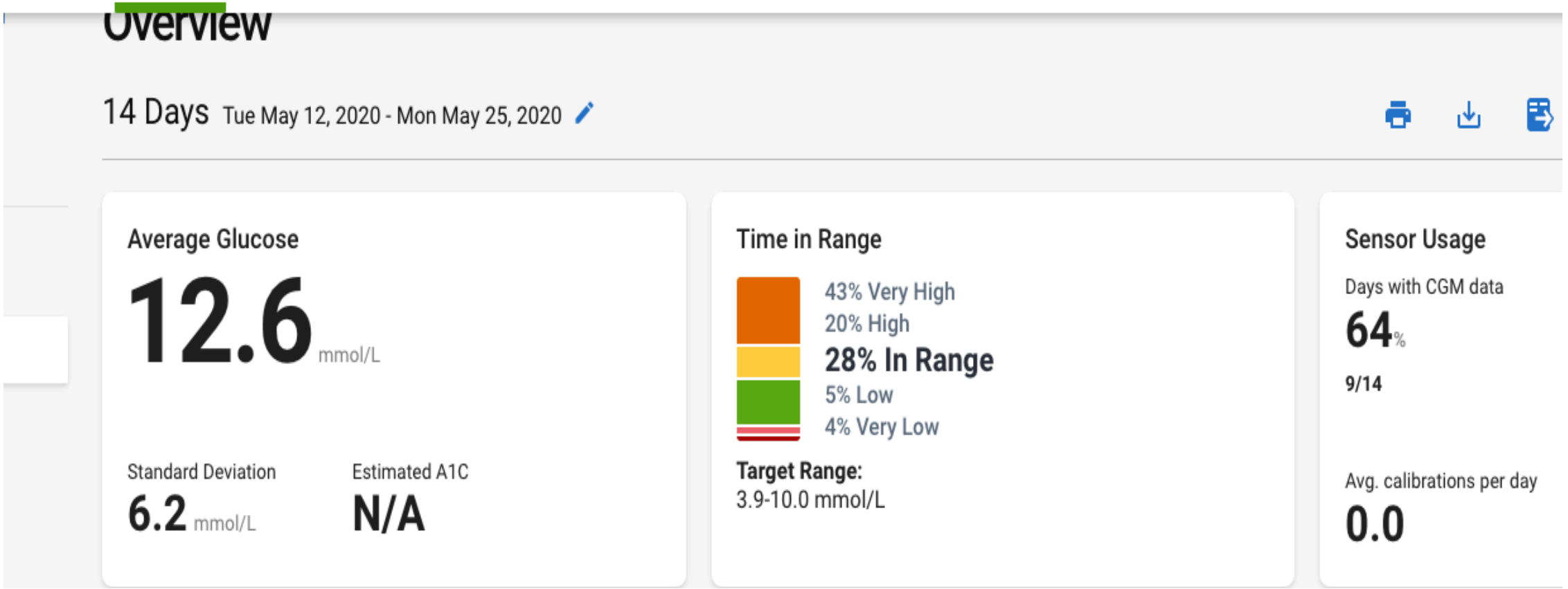
Not on a pump but cgm with Novorapid 3-4 times per day and Lantus 1/day

Let’s have a look at his numbers

Patient B

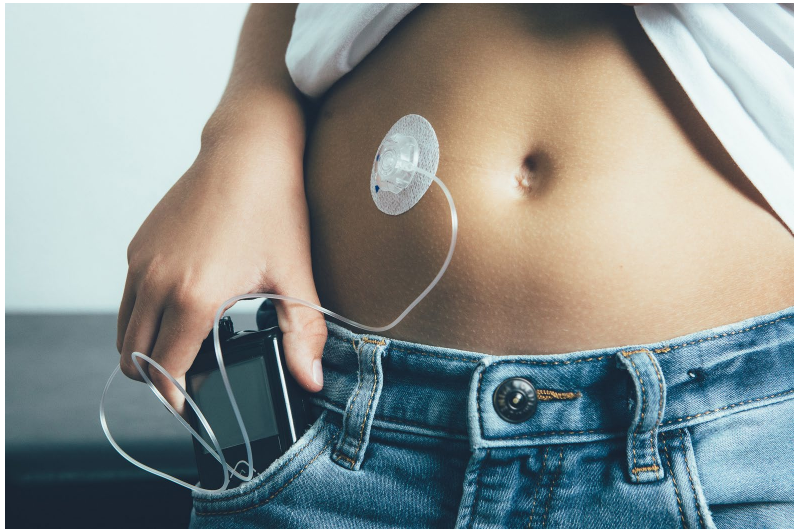

Ambulatory Glucose Profile
18
15
12
9
6
3
0
90%
75%
50%
25%
10%
12AM
2AM
4AM
6AM
8AM
10AM
12PM
2PM
4PM
6PM
8PM
10PM
12AM
The Y axis and target range are the same as on the Ambulatory Glucose Profile graph above.
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
aily Glucose Profile
May 2020 May 2020
18
No data
19
No data
20
No data
12
13
14
15
16
17
21
22
23
24

Type 1 Patient, cgm on pens

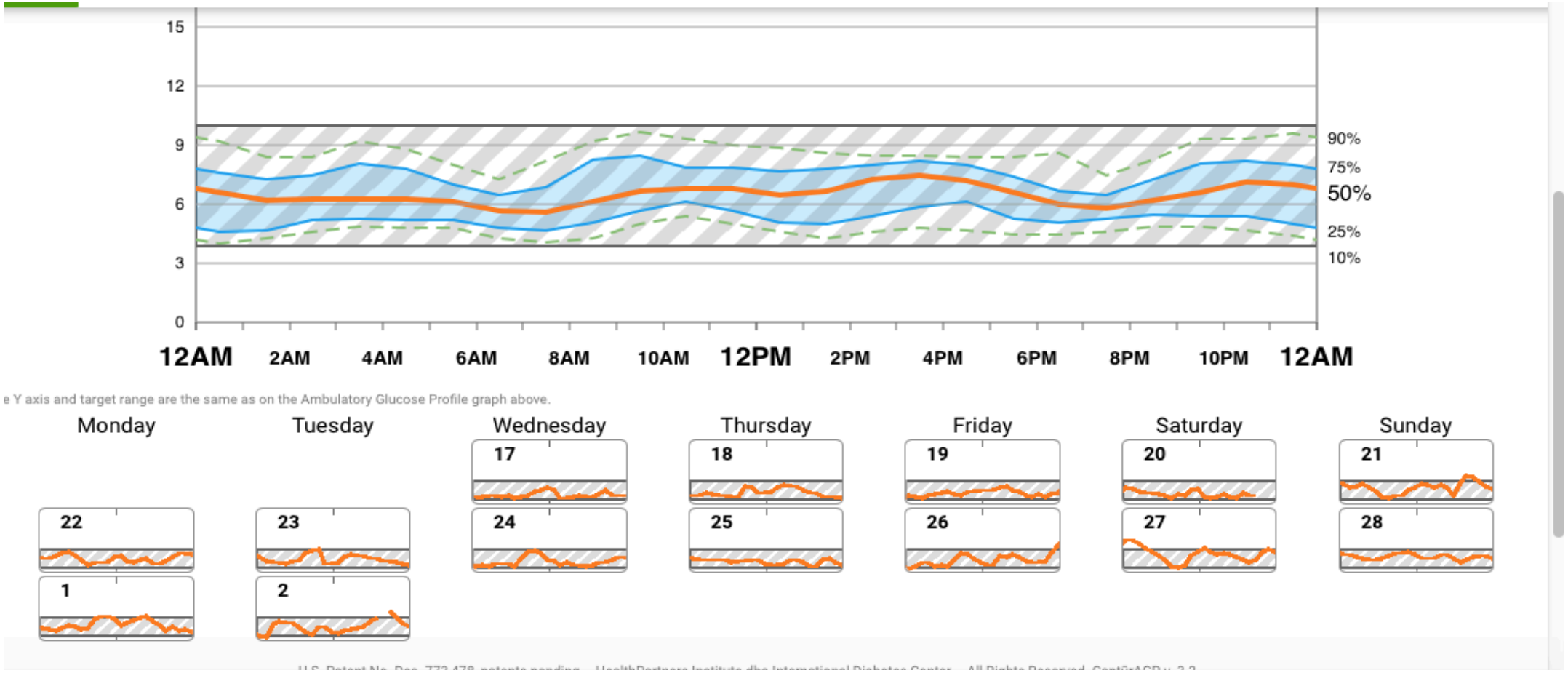


Some great Type 1's

- Type 1 on cgm and pump, Keto, Omni Pod, Dexcom
- Type 1 on cgm and pump, moderate carb, Tandem Basal IQ, Dexcom
- Type 1 on cgm and pump, moderate carb, Tandem, Dexcom



1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12AM
e Y axis and target range are the same as on the Ambulatory Glucose Profile graph above.
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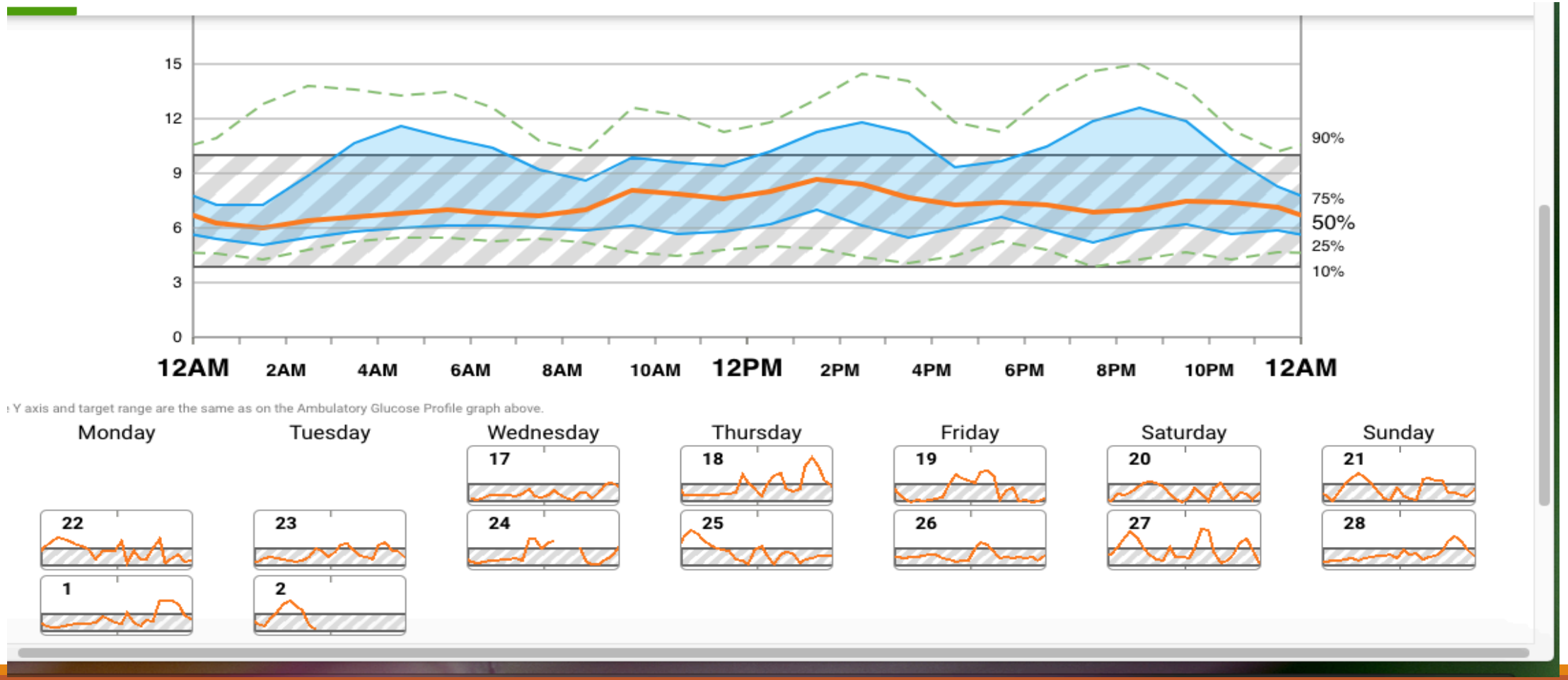
28
1
2

#2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8AM
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2PM
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8PM
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12AM
Y axis and target range are the same as on the Ambulatory Glucose Profile graph above.
Monday
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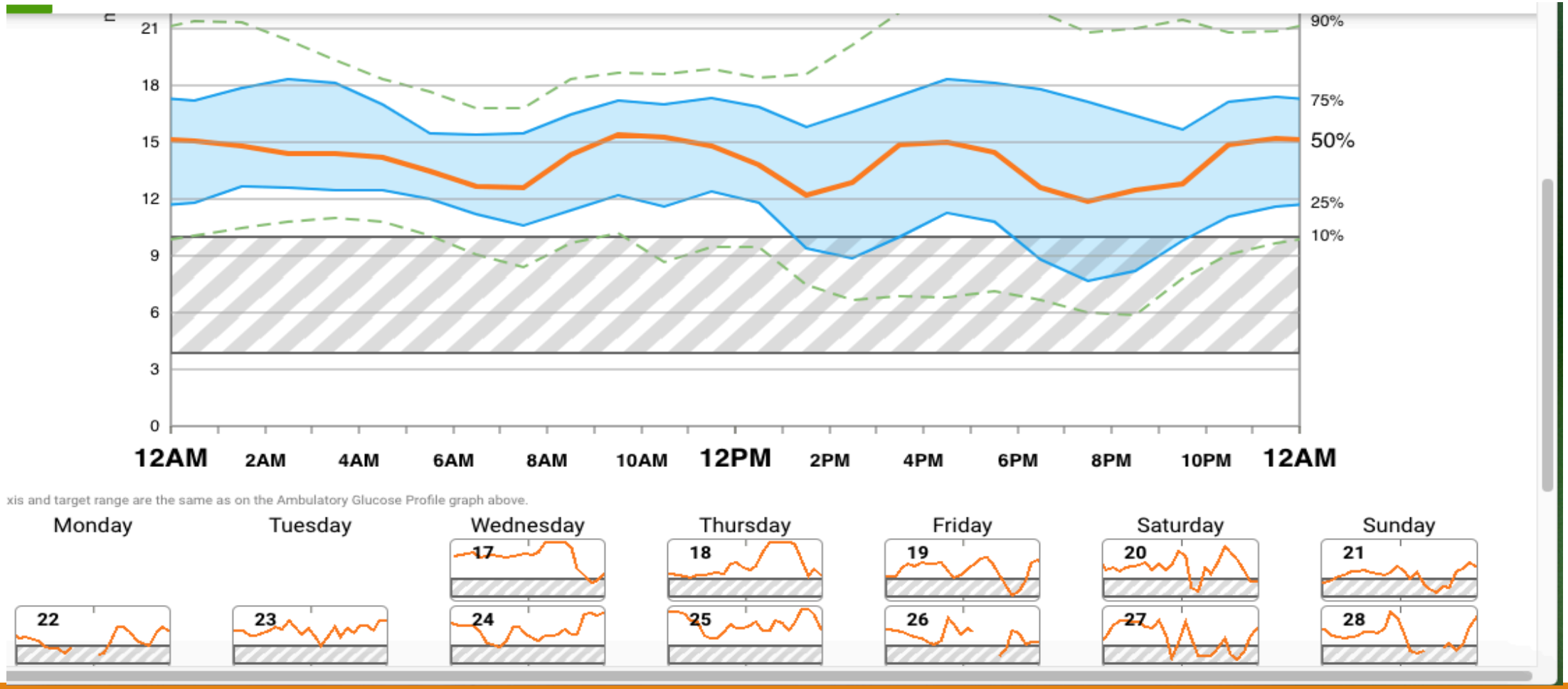
26
27
28

3


21
18
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90%
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12AM
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Monday
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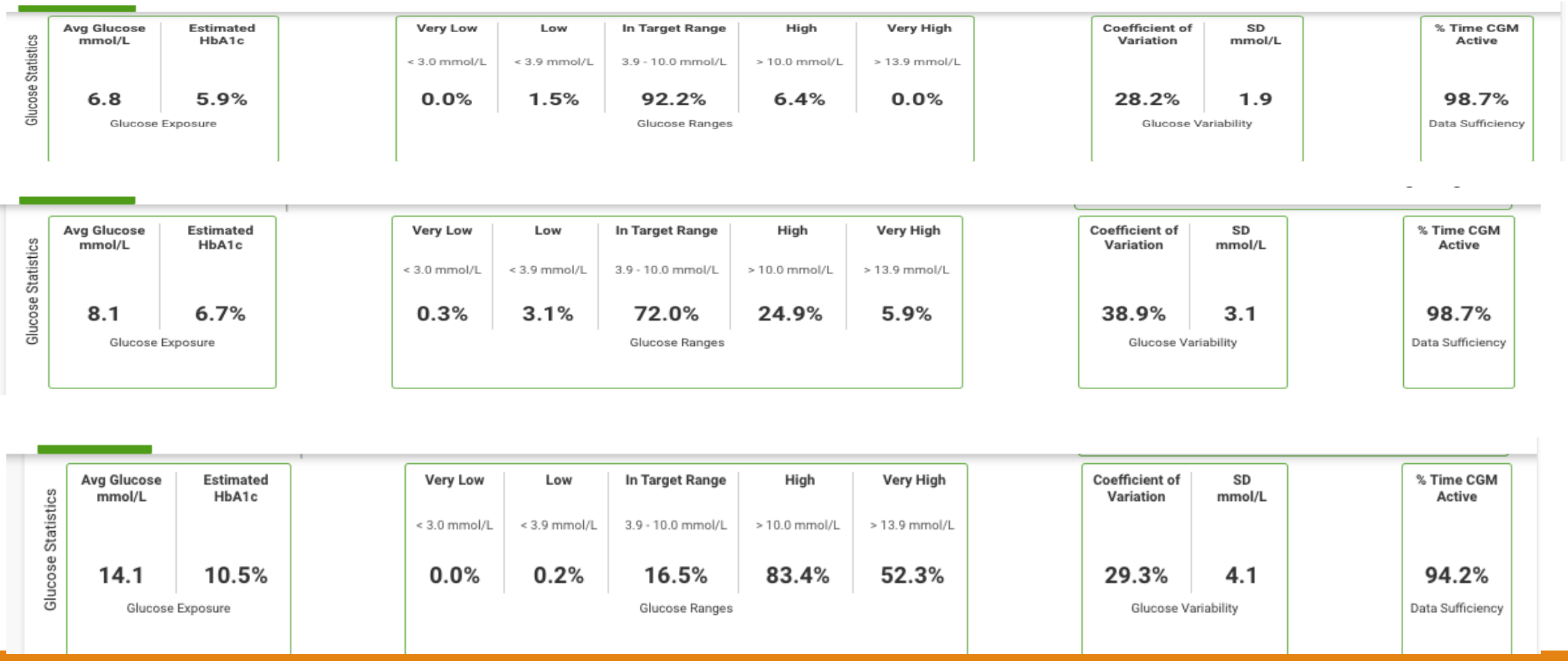
28

1,2 and 3


Glucose Statistics
Avg Glucose mmol/L
Estimated HbA1c
6.8
5.9%
Glucose Exposure
Very Low
< 3.0 mmol/L
0.0%
Low
< 3.9 mmol/L
1.5%
In Target Range
3.9 - 10.0 mmol/L
92.2%
High
> 10.0 mmol/L
6.4%
Very High
> 13.9 mmol/L
0.0%
Glucose Ranges
Coefficient of Variation
28.2%
SD mmol/L
1.9
Glucose Variability
% Time CGM Active
98.7%
Data Sufficiency
Glucose Statistics
Avg Glucose mmol/L
Estimated HbA1c
8.1
6.7%
Glucose Exposure
Very Low
< 3.0 mmol/L
0.3%
Low
< 3.9 mmol/L
3.1%
In Target Range
3.9 - 10.0 mmol/L
72.0%
High
> 10.0 mmol/L
24.9%
Very High
> 13.9 mmol/L
5.9%
Glucose Ranges
Coefficient of Variation
38.9%
SD mmol/L
3.1
Glucose Variability
% Time CGM Active
98.7%
Data Sufficiency
Glucose Statistics
Avg Glucose mmol/L
Estimated HbA1c
14.1
10.5%
Glucose Exposure
Very Low
< 3.0 mmol/L
0.0%
Low
< 3.9 mmol/L
0.2%
In Target Range
3.9 - 10.0 mmol/L
16.5%
High
> 10.0 mmol/L
83.4%
Very High
> 13.9 mmol/L
52.3%
Glucose Ranges
Coefficient of Variation
29.3%
SD mmol/L
4.1
Glucose Variability
% Time CGM Active
94.2%
Data Sufficiency

Points to Ponder

- BG Control-who is working harder?
- Law of Small Numbers-see next page
- What it feels like to be high and low- quote from one of our Type 1 patients Mom when her sugars were in range: “I finally have my daughter back”.
- Insulin on board
- Safety


The Law of Small Numbers
Big inputs make big mistakes; small inputs make small mistakes.
To prevent roller coaster blood sugars, use:
SMALL amounts of carbohydrates
+
SMALL doses of insulin
=
SMALL chances of error
(adapted from Dr. Bernstein's "Diabetes Solution")
LET ME BE 83
#LETMEBE83
LETMEBE83.ORG

Law of Small Numbers-Dr. Richard Bernstein

- Bernstein's approach is based around his 'law of small numbers' which states that that smaller doses of insulin will result in smaller errors of judgment and therefore improved blood glucose control.

- If you inject 10 units of insulin to cover your lunch but make up to a 25% error, you could end up injecting up to 2.5 units too many or too few which could lead to much too high or low blood sugar levels.

- By contrast an injection of 4 units of insulin with the same error would result in on over- or under-dose of up to 1 unit. In this case, any error won't be as problematic or dangerous as it would be for the 10-unit dose.

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Article

Management of Type 1 Diabetes With a Very Low–Carbohydrate Diet

Belinda S. Lennerz, Anna Barton, Richard K. Bernstein, R. David Dikeman, Carrie Diulus, Sarah Hallberg, Erinn T. Rhodes, Cara B. Ebbeling, Eric C. Westman, William S. Yancy and David S. Ludwig

Pediatrics June 2018, 141 (6) e20173349; DOI: https://doi.org/10.1542/peds.2017-3349

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Abstract

OBJECTIVES: To evaluate glycemic control among children and adults with type 1 diabetes mellitus (T1DM) who consume a very low–carbohydrate diet (VLCD).

METHODS: We conducted an online survey of an international social media group for people with T1DM who follow a VLCD. Respondents included adults and parents of children with T1DM. We assessed current hemoglobin A1c (HbA1c) (primary measure), change in HbA1c after

Harvard Study in the Journal Of Pediatrics

Study of children and adults with T1 diabetes

Mean age of diagnosis: 16 years, duration of diabetes: 11 years

Time following a VLCD (<20 grams-50 grams/day): 2.2 years

Average Carbs per day: 36

Reported mean HbAIC: 5.67%

7 respondents (2%) reported diabetes related hospitalization in the past year including 4 (1%) for ketoacidosis and 2 (1%)for hypoglycemia.

Management of Type 1 Diabetes With a Very Low–Carbohydrate Diet

Belinda S. Lennerz, MD, PhD,[a,b] Anna Barton, MD,[c] Richard K. Bernstein, MD,[d] R. David Dikeman, PhD,[e] Carrie Diulus, MD,[f] Sarah Hallberg, DO,[g] Erinn T. Rhodes, MD, MPH,[a] Cara B. Ebbeling, PhD,[a,b] Eric C. Westman, MD,[h] William S. Yancy Jr, MD,[h] David S. Ludwig, MD, PhD[a,b]

abstract

OBJECTIVES: To evaluate glycemic control among children and adults with type 1 diabetes mellitus (T1DM) who consume a very low–carbohydrate diet (VLCD).

METHODS: We conducted an online survey of an international social media group for people with T1DM who follow a VLCD. Respondents included adults and parents of children with T1DM. We assessed current hemoglobin A1c (HbA1c) (primary measure), change in HbA1c after the self-reported beginning of the VLCD, total daily insulin dose, and adverse events. We obtained confirmatory data from diabetes care providers and medical records.

RESULTS: Of 316 respondents, 131 (42%) were parents of children with T1DM, and 57% were of female sex. Suggestive evidence of T1DM (based on a 3-tier scoring system in which researchers took into consideration age and weight at diagnosis, pancreatic autoimmunity, insulin requirement, and clinical presentation) was obtained for 273 (86%) respondents. The mean age at diagnosis was 16 ± 14 years, the duration of diabetes was 11 ± 13 years, and the time following a VLCD was 2.2 ± 3.9 years. Participants had a mean daily carbohydrate intake of 36 ± 15 g. Reported mean HbA1c was 5.67% ± 0.66%. Only 7 (2%) respondents reported diabetes-related hospitalizations in the past year, including 4 (1%) for ketoacidosis and 2 (1%) for hypoglycemia.

CONCLUSIONS: Exceptional glycemic control of T1DM with low rates of adverse events was reported by a community of children and adults who consume a VLCD. The generalizability of these findings requires further studies, including high-quality randomized controlled trials.

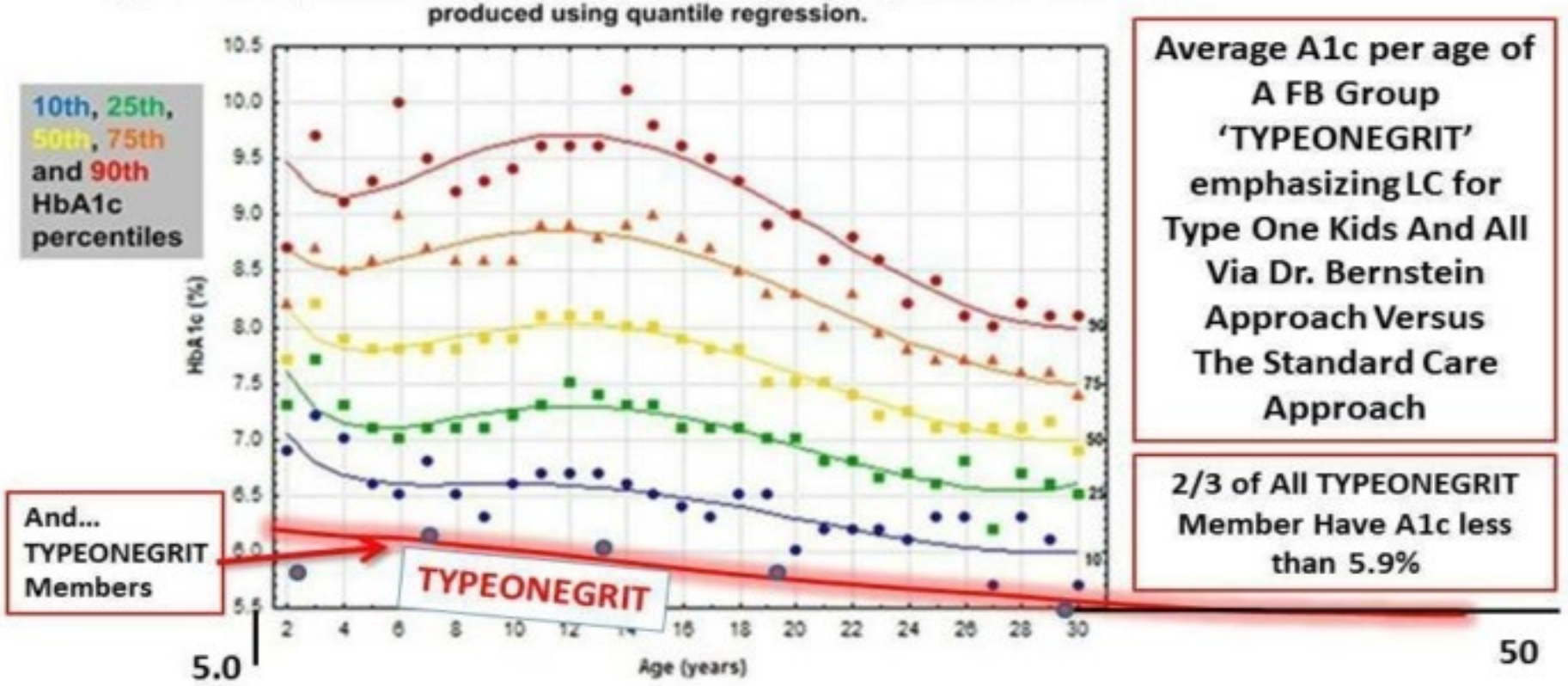
WHAT'S KNOWN ON THIS SUBJECT: Despite pharmacological and technological advances, optimal glycemic control of type 1 diabetes remains elusive, putting millions of people worldwide at increased risk of micro- and macrovascular complications. One conceptually promising but poorly studied approach is dietary carbohydrate restriction.

WHAT THIS STUDY ADDS: Exceptional glycemic control of type 1 diabetes without high rates of acute complications may be achievable among children and adults with a very low–carbohydrate diet. However, the generalizability of these findings and long-term safety of carbohydrate restriction remain unknown.

To cite: Lennerz BS, Barton A, Bernstein RK, et al. Management of Type 1 Diabetes With a Very Low–Carbohydrate Diet. *Pediatrics*. 2018;141(6):e20173349

TYPEONEGRIT: A LC Approach to Type One Diabetes Management

Figure 1. Crude percentiles of HbA1c for each age for all patients, and the modeled curves produced using quantile regression.



Pinhas-Hamiel O, Hamiel U, Boyko V, Graph-Barel C, et al. (2014) Trajectories of HbA1c Levels in Children and Youth with Type 1 Diabetes. PLoS ONE 9(10): e109109. doi:10.1371/journal.pone.0109109
http://www.plosone.org/article/info:doi/10.1371/journal.pone.0109109

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0109109

PLOS | ONE

Low Carb

Benefits

Prevents sharp spikes in blood glucose after meals

Reduces risk of severe hypos

Can make diabetes easier to manage

Can help reduce HbA1c levels

Can help reduce body weight

May help prevent diabetes complications

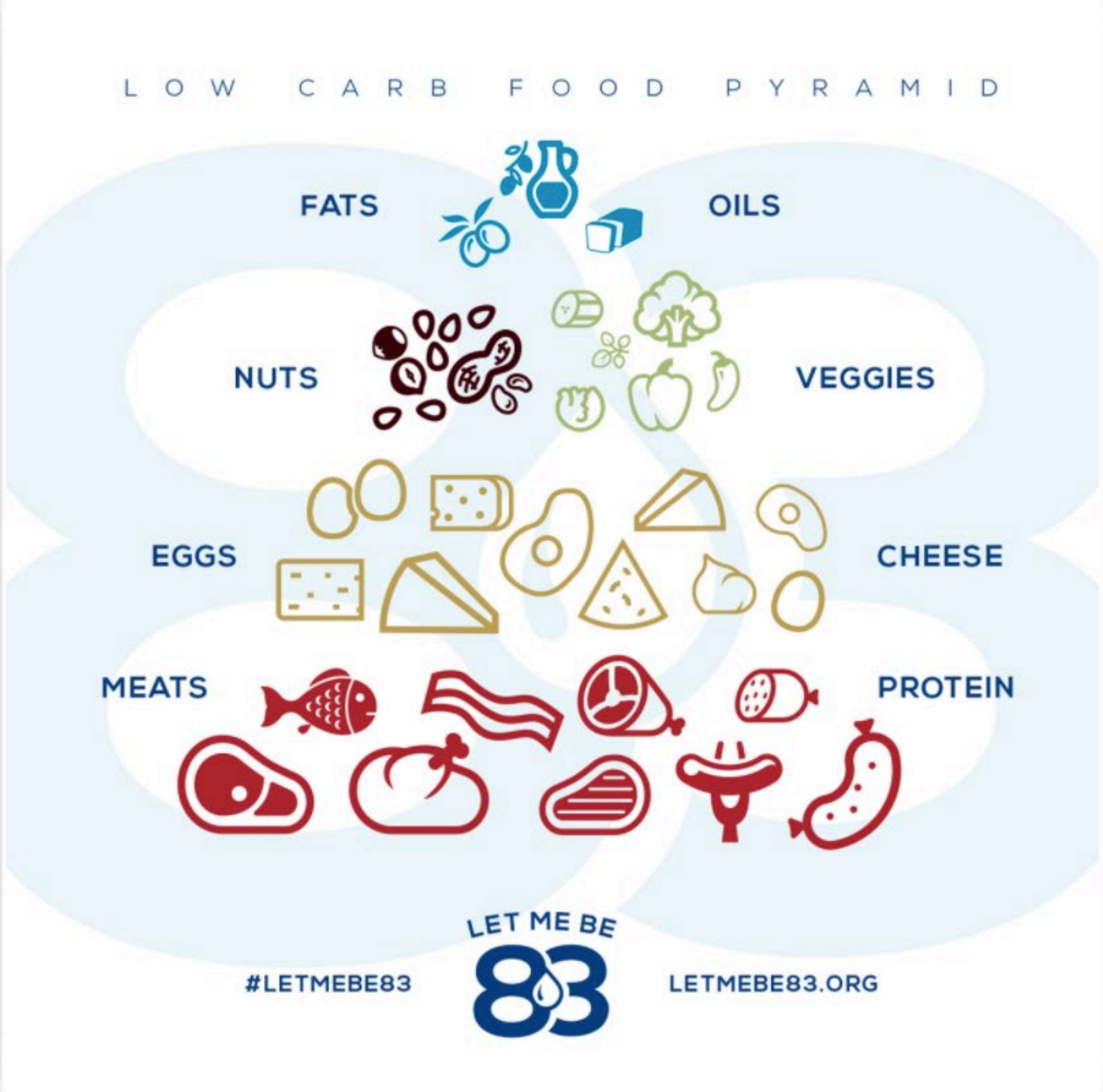
Other benefits can include.

Reduction in tiredness through the day

Less hunger between meals

Improvement in clarity of thought

https://www.diabetes.co.uk/diet/low-carb-and-type1-diabetes.html


LOW CARB FOOD PYRAMID
FATS
OILS
NUTS
VEGGIES
EGGS
CHEESE
MEATS
PROTEIN
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SPECIAL ARTICLE | VOLUME 44, ISSUE 4, P295-299, JUNE 01, 2020

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Diabetes Canada Position Statement on Low-Carbohydrate Diets for Adults With Diabetes: A Rapid Review

Published: April 24, 2020 • DOI: https://doi.org/10.1016/j.jcjd.2020.04.001 • Check for updates

PlumX Metrics

Purpose and Background

Carbohydrates (CHO) are biomolecules that are available in the form of starches, sugars and fibre. Evidence suggests that excess calorie intake and over-consumption of refined CHO are major drivers of the epidemic of obesity and type 2 diabetes, while obesity is emerging as a challenge for people with type 1 diabetes. The *Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada* (CPG) emphasise the importance of nutritionally balanced, calorie reduced diets to achieve and maintain a healthier body weight, which can be achieved by several dietary patterns based on individual preferences and treatment goals

diabetes.ca/DiabetesCanadaWebsite/media/Advocacy-and-Policy/Diabetes-Canada_Low-Carb-Diet_Summary_May-2020.pdf

Diabetes-Canada Low Carb Diet Summary May 2020 1 / 2 100%

Low Carbohydrate Diets for Adults with Diabetes

Summary

Diabetes Canada's position statement on "Low Carbohydrate Diets for Adults with Diabetes: A Rapid Review" gives an overview of the latest evidence about this dietary pattern as it relates to diabetes.

Diabetes Canada believes that people with diabetes should have the best information available to guide their choices about diabetes management and this review will not only inform them of the most current research conducted on low carbohydrate diets and diabetes, but also offer some recommendations for care.

Background

Carbohydrates (CHO) are molecules that are present in the form of starches, sugars, and fibre. We know that excess calorie intake and over-consumption of refined CHO are major drivers of the epidemic of obesity and type 2 diabetes, while obesity is emerging as a challenge for people with type 1 diabetes. *The Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management*

We hope that this update will facilitate meaningful communication between health-care teams and people with diabetes and clearly identify key safety issues and clinical monitoring requirements.

Summary of the Research

Research on lower-CHO diets have shown improvements in people with type 1 diabetes, including lower A1C levels (average blood glucose levels over three months), reduced insulin requirements, less glucose variability, and weight loss.

Studies on lower-CHO diets in people with type 2 diabetes have shown similar improvements when compared to higher-CHO diets or low-fat diets. Some also show higher rates of diabetes remission, improved triglyceride levels and a reduced need for medication in the short term.

It is unknown if the improvements seen in the current research will be maintained long-term or will result in lower rates of cardiovascular disease or other diabetes complications or mortality. Research has also reported that many individuals have difficulty following a lower-CHO diet with less success over time. It is

Resources-Patients/Families

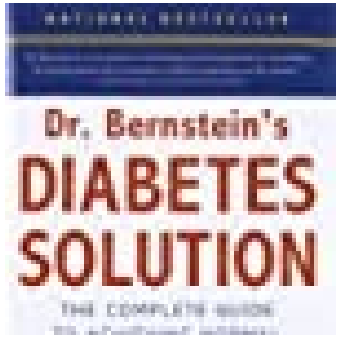
Dr. Bernstein's Diabetes Solution– Dr. Richard K. Bernstein, MD

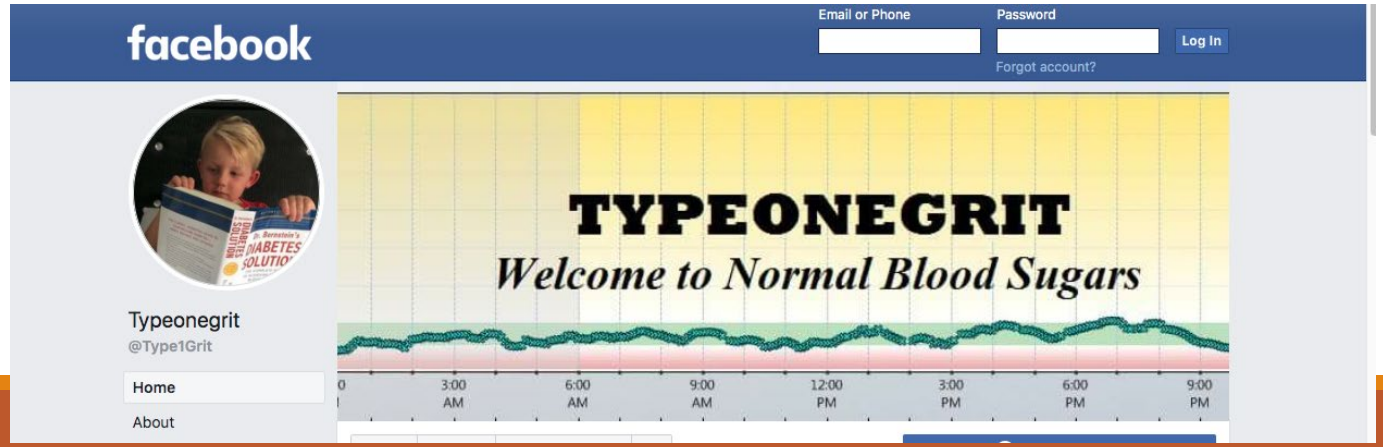
www.diatribe.org

http://www.dietdoctor.com

www.asweetlife.org

https://www.facebook.com/Type1Grit/





Professional Resources

Institute for Personalized Therapeutic Nutrition (IPTN)

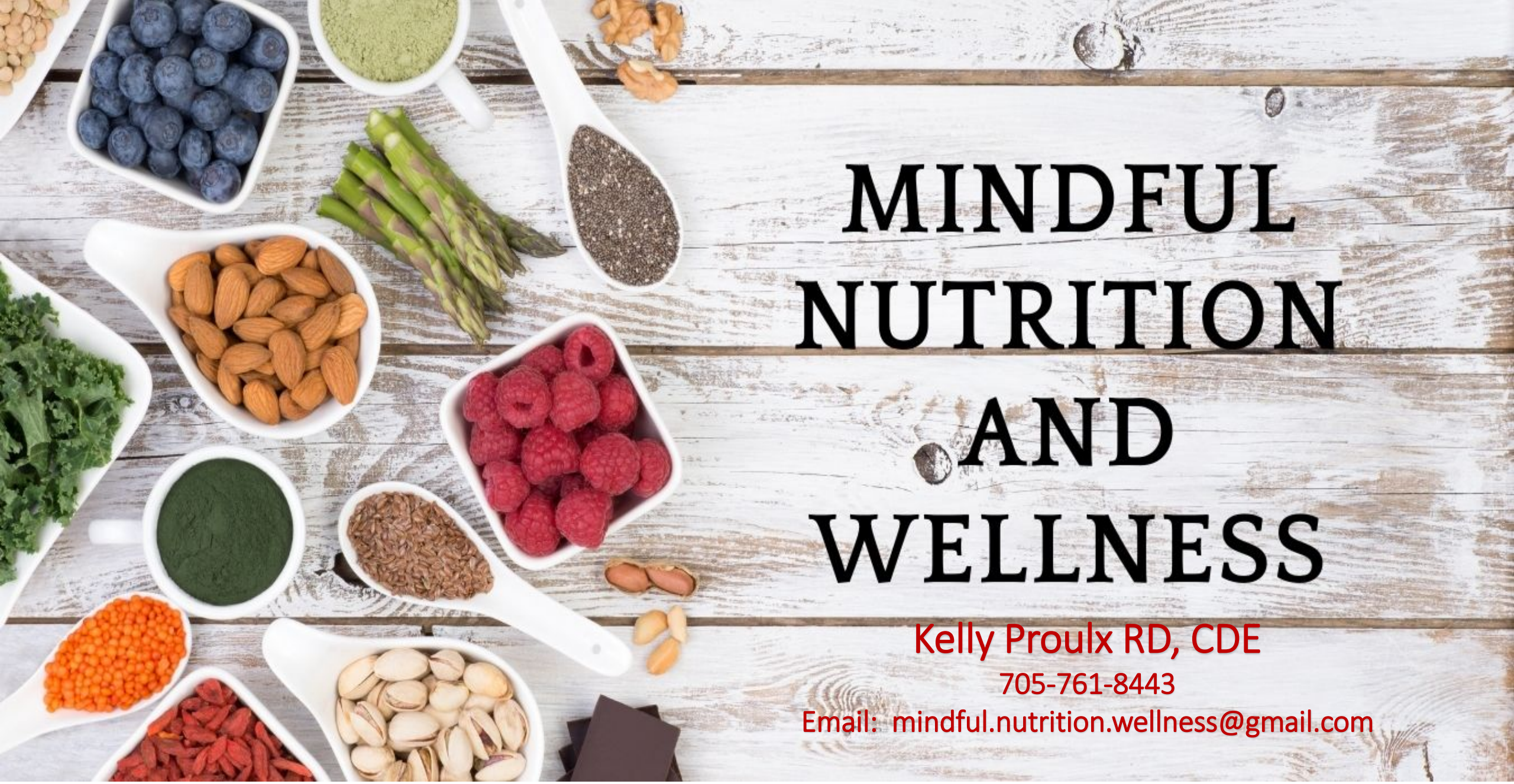
Canadian Clinicians for Therapeutic Nutrition

Low Carb Down Under: Australian organization with education videos: https://www.youtube.com/user

Here is a link to an excellent scientific review on low carb approaches to diabetes that favors LCHF:
http://www.nutritionjrnl.com/article/S0899-9007(14)00332-3/abstract

Podcast of Low Carb and Type 1: https://sigmanutrition.com/episode186/

Thank you!



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