Pattern Management & Sensor Usage

Diabetes Care Coaching

OKAKI

Before We Begin ...

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- Our goal is to create a safe space where all participants are comfortable to learn, share, ask questions
  - Everyone brings knowledge and expertise
  - I am always learning too
  - We won't record discussions, but will share monthly education videos

- The coaching sessions will focus on practical pieces of working in diabetes. For details, it is always best to reference the Diabetes Canada Clinical Practice Guidelines (guidelines.diabetes.ca)

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Questions from last session?
Anything to share?

What We Plan to Cover Today

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- Intro to pattern management
- Sensors:
  - Freestyle Libre
  - Dexcom

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An Intro to Pattern Management

Pattern Management

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- Trends that happen at the same time of day for 2 or more consecutive days = pattern

- What can the pattern tell you about:
  - Hyperglycemia
  - Hypoglycemia
  - Variability

Pattern Management

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1. **Celebrate wins**

2. Hypoglycemia?

3. Fasting and post-prandial targets
   - Glucose should hold stable within 1.7 mmol/L overnight
   - 2 hour post prandial rise < 3 mmol/L
   - 4 hour post prandial +/- 1 mmol/L pre-meal value

Pattern Management

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- You don’t need to have all the answers, it’s a conversation!

- Think about:
  - What caused lows?
  - What contributed to the more even blood sugar days?
  - Stress? Illness? Pain?
  - Timing of medication?
  - Consistency with medication (missed doses)?

- A1C 7.1%

Morning	After Lunch	After Supper
8.1	10.6	
7.5		
6.3		
7.4.		
7.0		
8.7		
6.0		
5.8		

Hemoglobin A1c

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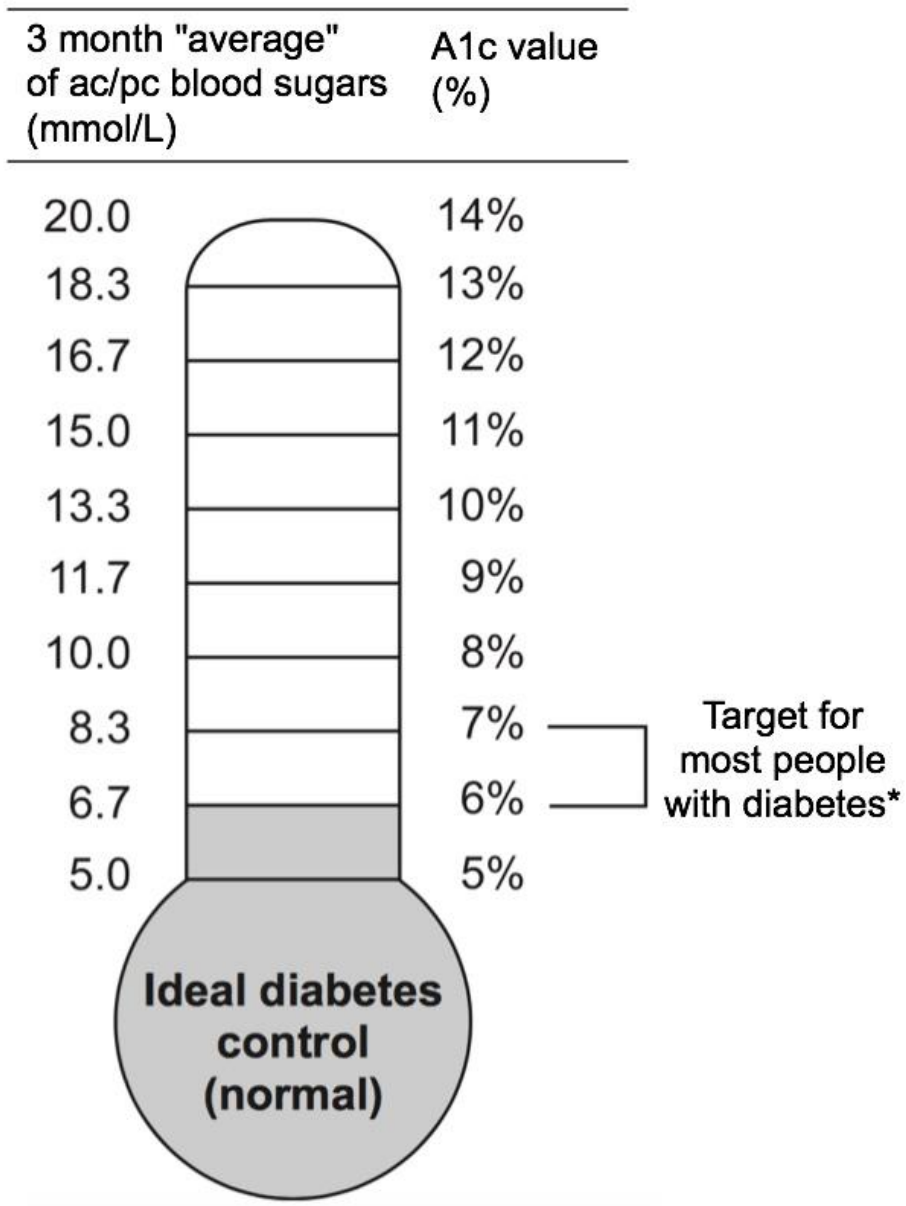
A1c and Average Glucose Level



*A1c targets are individualized. (c) Alberta Health Services

- A1C 9.9%

Before-Break	2 Hours After-Break	Before-Lunch	2 Hours After-Lunch	Before-Supper	2 Hours After-	Bedtime
7.5		8		11		
6.2		9		7.3		
12.2		11.1		8.4		
6.2		7.1		9.3		
12.4		8.9		7.9		
6.3		7.1		7.5		

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Sensors

Two Brands of Sensors in Canada

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Freestyle Libre 2

- Only approved for back of upper arm
- 4 years+
- Scan and Bluetooth

Freestyle Libre 3

- Only approved for back of upper arm
- 2 years+
- Bluetooth only - rtCGM

Two Brands of Sensors in Canada

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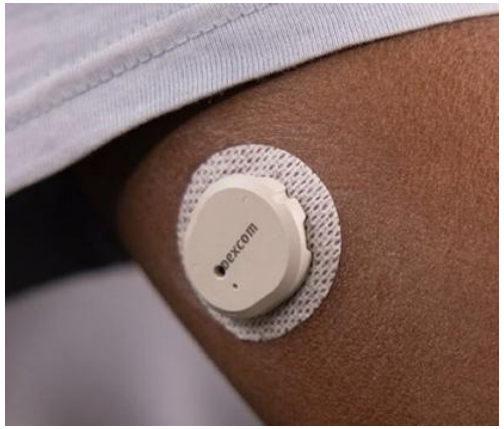
Dexcom

- G7 (G6 still in use too, though will be discontinued this year)
- Approved for abdomen, back of the upper arm (and upper buttocks for children)
- 2 years+



Real-Time Continuous Glucose Management

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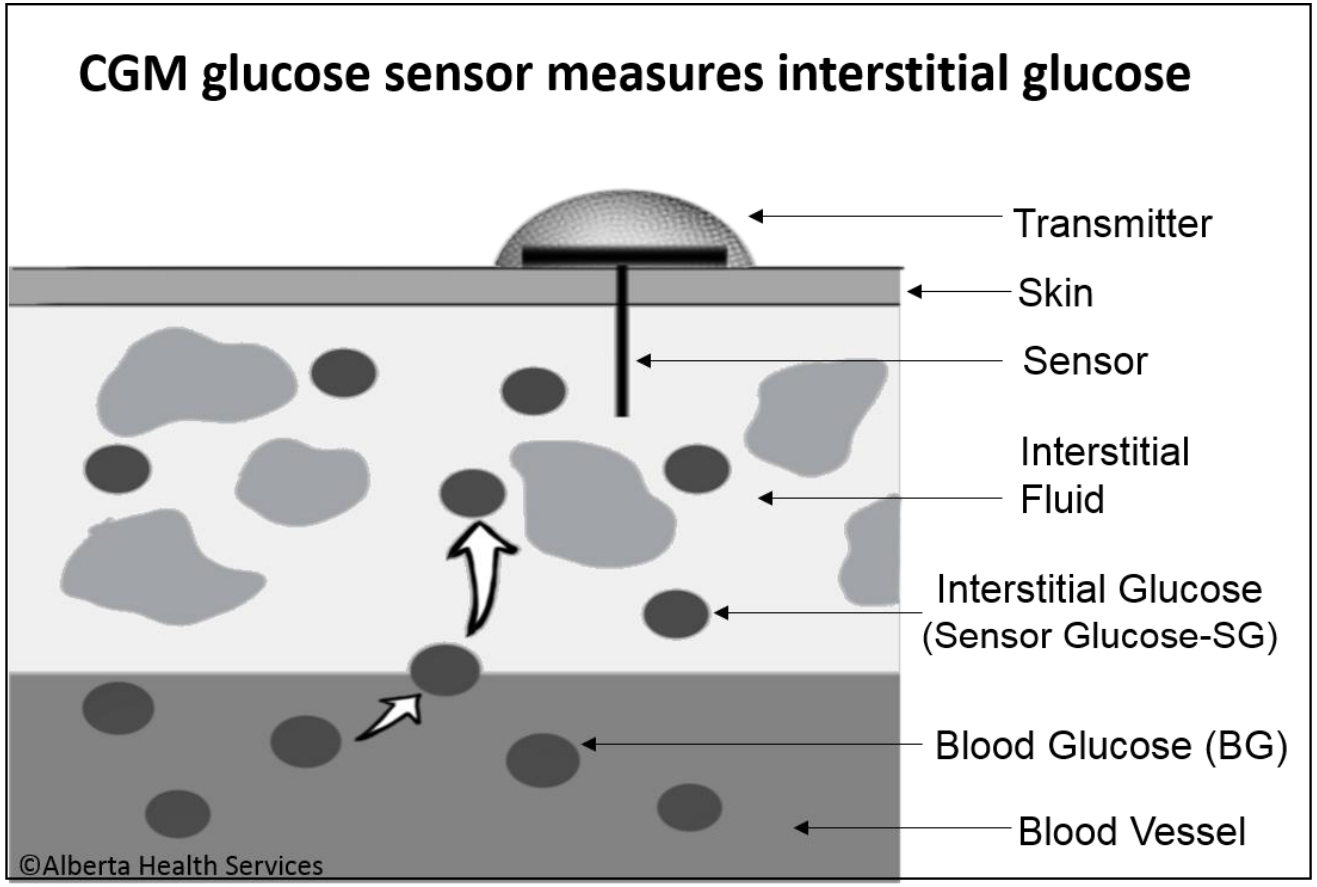

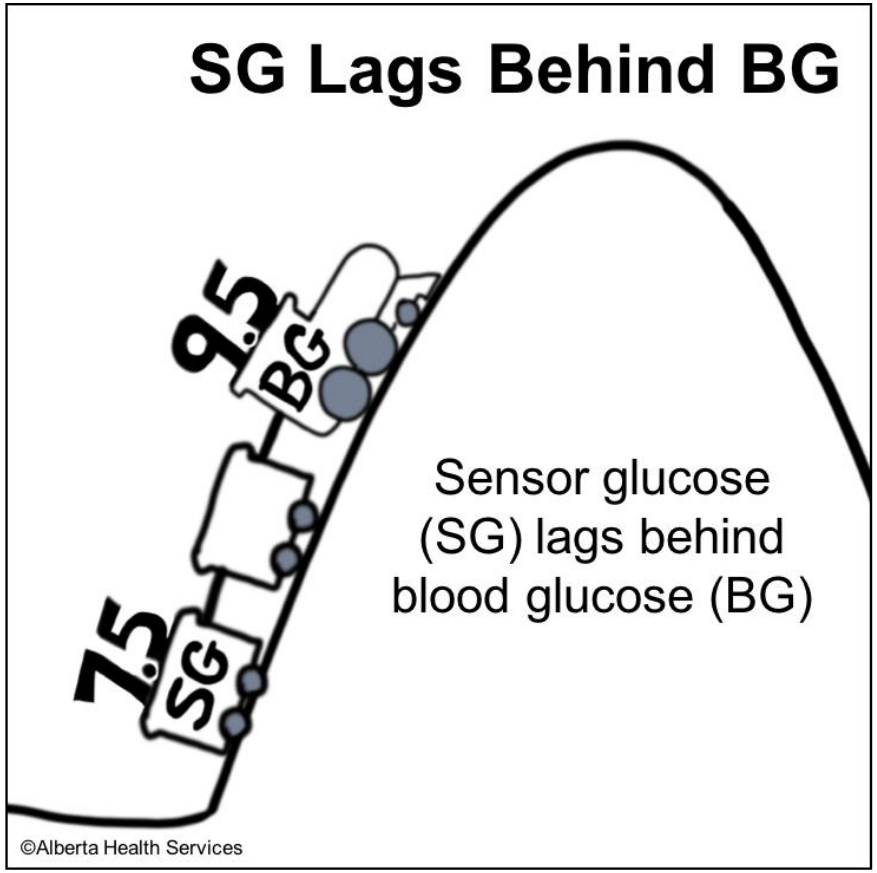

Potential Benefits of Sensors

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- Less finger pokes and more information
- Improved glycemic control
  - Improved A1C for type 1 and type 2 diabetes
  - Reduced hypo and hyperglycemia
- Can help with self-management
  - Insight into food, exercise, stress, sleep, menstruation, timing of meds …
  - It’s all personalized feedback!

Potential Limitations/Challenges

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- Accuracy:
  - Can be inaccurate at low blood sugars
  - Lag can be frustrating for patients
- Irritation, site selection, adhesion, sensor failure
- Cost/coverage
- Too much information? Unrealistic expectations?

Sensors can be scary!

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- Technology
- Always on/always watching
- Fear it will be painful

- What have you done to help clients work through this?

Applying the Sensor

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Libre 2:

Libre 3:

Dexcom G7:

Dexcom G6:

Libre 2 Application: https://www.youtube.com/watch?v=rnxwMIIFeBw&t=24s

Libre 3 Application: https://www.youtube.com/watch?v=HA3NMBOX_T4

Dexcom G7 Application: https://www.youtube.com/watch?v=1WxOa6UUNI4

Connecting to App/Reader

- Freestyle Libre
  - Libre 2 Simulator: https://ca.fsllsimulator.app/fsl2/hcp-as
- Dexcom (G7 or G6 and Clairty)
- Can use receivers with all the sensors also
  - Need to be plugged-in to download reports

Accessing Reports: Libreview

- Visit www.libreview.com and click “Sign-Up” in the top right corner

- Once you have a professional account, set-up a clinic
  - Click the three bars in top right corner > “My Practices” > “Create a New Practice”
  - Customize your Practice ID

- If share patients with ODVCC, we can also set-up a shared practice

Accessing Reports: Libreview

- For patients to connect to a practice in the app:
  - Click the three bars in top left to open menu
  - Click “Connected Apps”
  - Click “Manage” next to LibreView in blue
  - Click “Connect to a Practice”
  - Enter your clinic’s practice ID
  - Click “Next” then “Confirm” once you see the correct clinic

Accessing Reports: Dexcom Clarity

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- Visit https://clarity.dexcom.com/professional/registration

- Change your clinic code
  - In Clarity, choose “Settings” in the top menu bar, then can choose “Change Clinic Code”

Accessing Reports: Dexcom Clarity

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- For patients to connect to a practice in the app:
  - Open G7 app
  - Click “Connections” in the bottom menu
  - Click “Clarity Connections”
  - Enter your clinic code
  - Click “Continue” then “Confirm” once you see the correct clinic

Interpreting CGM Reports

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- http://agpreport.org/agp/sites/default/files/CGM_Clinical_Guide_AGP.pdf

Example of a Report

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GLUCOSE STATISTICS AND TARGETS

30 October 2024 - 12 November 2024 — **14 Days**

Time Sensor Active: — **37%**

Ranges And Targets For	Type 1 or Type 2 Diabetes
Glucose Ranges	**Targets** % of Readings (Time/Day)
Target Range 3.9-10.0 mmol/L	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.	

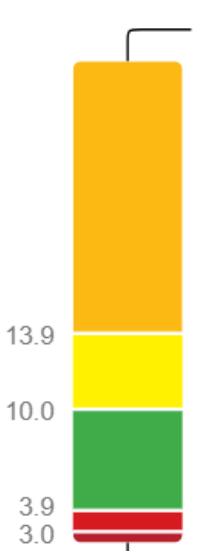
Average Glucose — **15.7** mmol/L

Glucose Management Indicator (GMI) — **-**

Glucose Variability — **40.7%**

Defined as percent coefficient of variation (%CV); target ≤36%

TIME IN RANGES



Very High >13.9 mmol/L — **62%** (14h 53min)

High 10.1 - 13.9 mmol/L — **15%** (3h 36min)

Target Range 3.9 - 10.0 mmol/L — **21%** (5h 2min)

Low 3.0 - 3.8 mmol/L — **2%** (29min)

Very Low <3.0 mmol/L — **0%** (0min)

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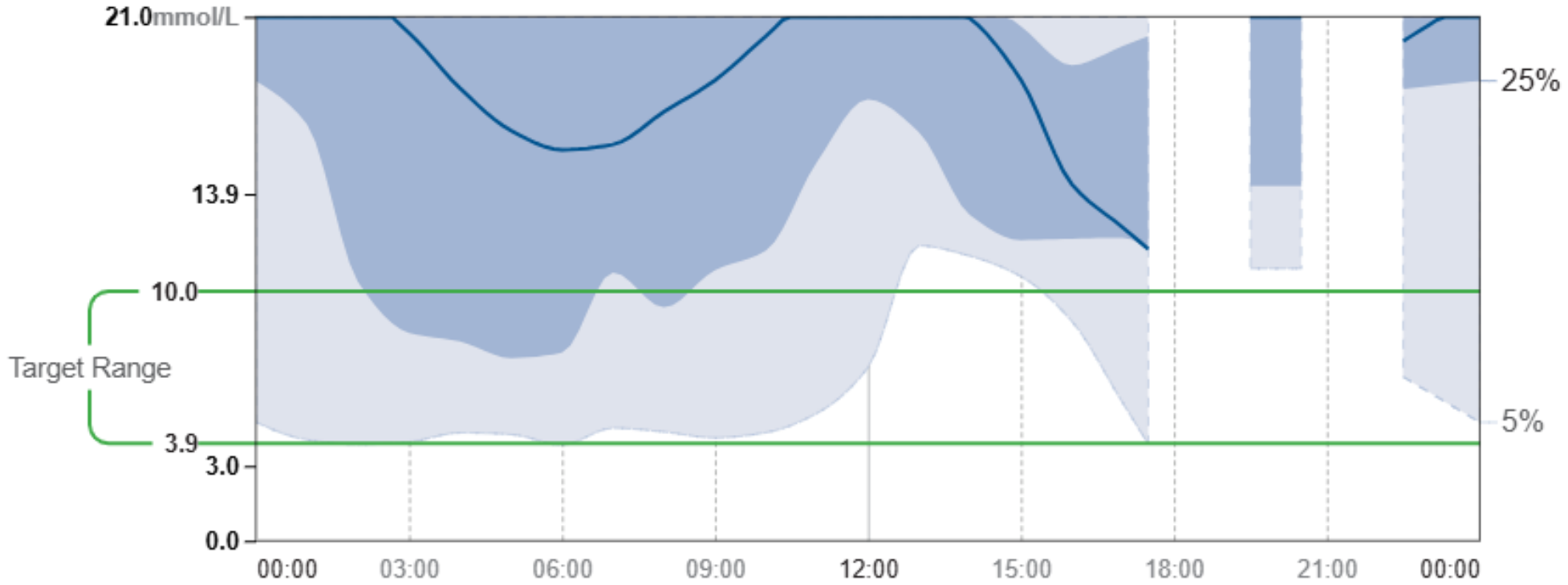
AMBULATORY GLUCOSE PROFILE (AGP)

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.



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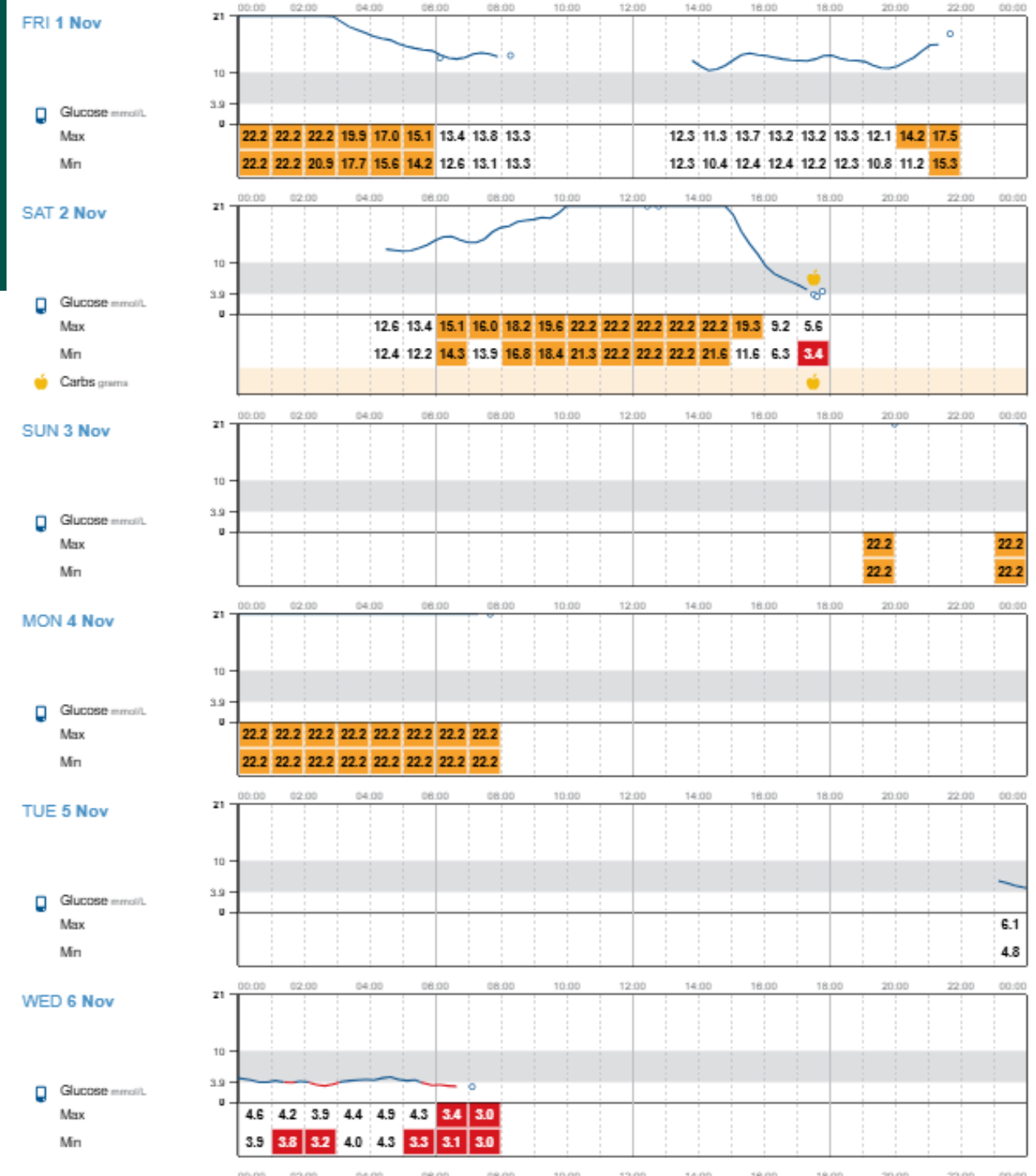

Another Example of a Report

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GLUCOSE STATISTICS AND TARGETS

29 October 2024 - 11 November 2024	**14 Days**
Time Sensor Active:	**73%**

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	**7.2** mmol/L
Glucose Management Indicator (GMI)	**6.4% or 47 mmol/mol**
Glucose Variability	**21.8%**

Defined as percent coefficient of variation (%CV); target ≤36%

TIME IN RANGES

Very High	>13.9 mmol/L	**0%**	(0min)
High	10.1 - 13.9 mmol/L	**5%**	(1h 12min)
Target Range	3.9 - 10.0 mmol/L	**95%**	(22h 48min)
Low	3.0 - 3.8 mmol/L	**0%**	(0min)
Very Low	<3.0 mmol/L	**0%**	(0min)

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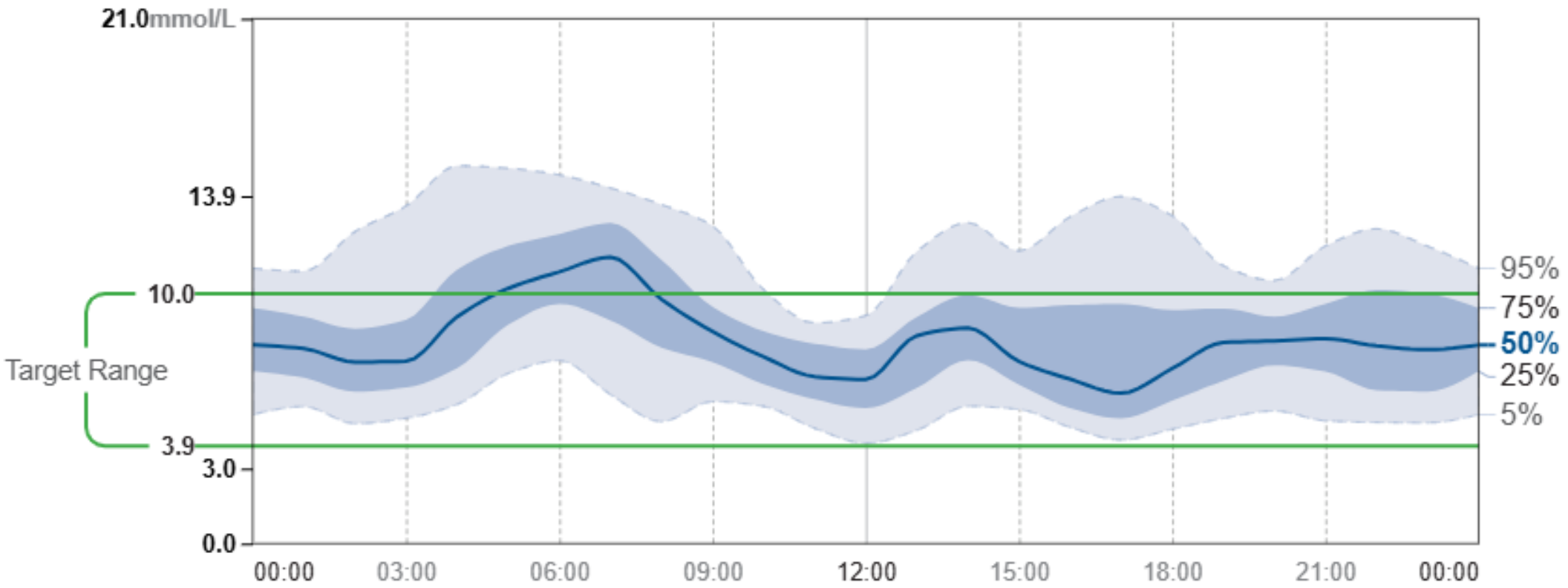
AMBULATORY GLUCOSE PROFILE (AGP)

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.



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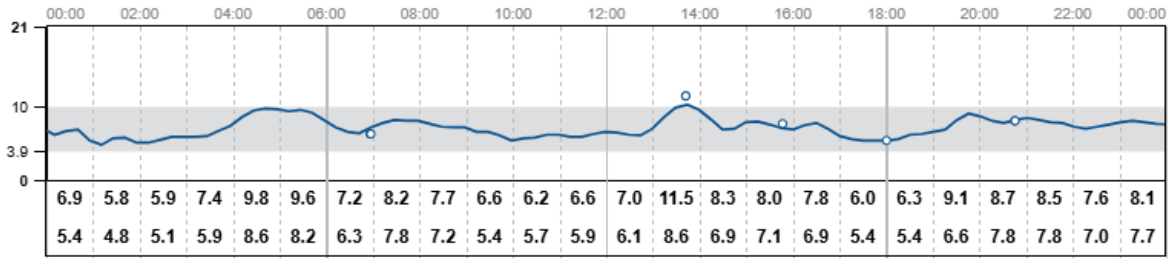
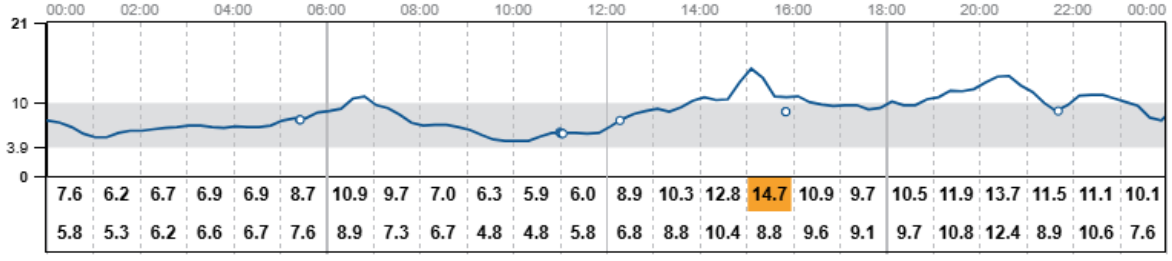
THU **31 Oct**



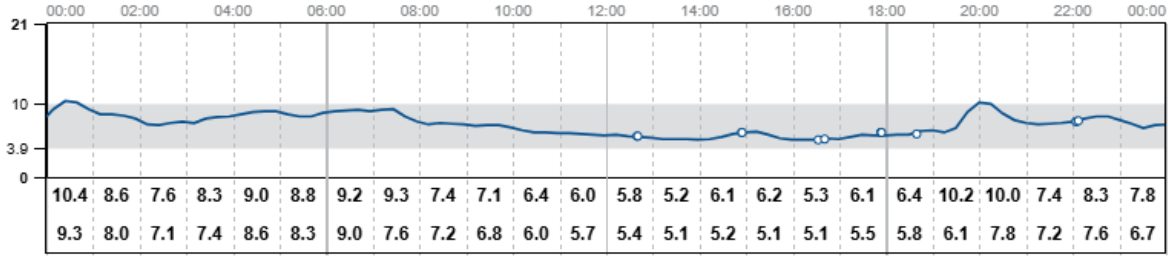
Glucose mmol/L	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Max	6.9	5.8	5.9	7.4	9.8	9.6	7.2	8.2	7.7	6.6	6.2	6.6	7.0	11.5	8.3	8.0	7.8	6.0	6.3	9.1	8.7	8.5	7.6	8.1
Min	5.4	4.8	5.1	5.9	8.6	8.2	6.3	7.8	7.2	5.4	5.7	5.9	6.1	8.6	6.9	7.1	6.9	5.4	5.4	6.6	7.8	7.8	7.0	7.7

FRI **1 Nov**



Glucose mmol/L	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Max	7.6	6.2	6.7	6.9	6.9	8.7	10.9	9.7	7.0	6.3	5.9	6.0	8.9	10.3	12.8	14.7	10.9	9.7	10.5	11.9	13.7	11.5	11.1	10.1
Min	5.8	5.3	6.2	6.6	6.7	7.6	8.9	7.3	6.7	4.8	4.8	5.8	6.8	8.8	10.4	8.8	9.6	9.1	9.7	10.8	12.4	8.9	10.6	7.6

SAT **2 Nov**



Glucose mmol/L	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Max	10.4	8.6	7.6	8.3	9.0	8.8	9.2	9.3	7.4	7.1	6.4	6.0	5.8	5.2	6.1	6.2	5.3	6.1	6.4	10.2	10.0	7.4	8.3	7.8
Min	9.3	8.0	7.1	7.4	8.6	8.3	9.0	7.6	7.2	6.8	6.0	5.7	5.4	5.1	5.2	5.1	5.1	5.5	5.8	6.1	7.8	7.2	7.6	6.7

More information on CGM

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- https://diabeteseducatorscalgary.ca/lifestyle/glucose-monitoring/continuous-glucose-monitors.html

- This is a great site to bookmark for all kinds of helpful information!

Wrapping Up…

- Do you have one or two takeaways that you can use in your work?

- Next Session: Tuesday, February 10th on Diabetes Medications