

Monitoring Blood Sugars

Diabetes Care Coaching



OKAKI



Before We Begin ...



- 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](https://www.diabetes.ca/guidelines))

What We Plan to Cover Today



- Hemoglobin A1C
- Testing and targets
- Low blood sugars

Hemoglobin A1c



- Provides average measure of glucose for past 8-12 weeks
 - 50% of value comes from last 30 days
- Measured every 3 months
 - Can extend to 6 months if at target and stable

Diabetes Lab Work



- Should have 2 lab results or 1 lab result + symptoms

	Pre-diabetes	Diabetes
Fasting BG	6.1-6.9 mmol/L	≥7 mmol/L
Random BG	7.8-11.0 mmol/L	≥11.1 mmol/L
2-hour PG	7.8-11.0 mmol/L	≥11.1 mmol/L
Hgb A1C	6.1-6.4%	≥6.5%

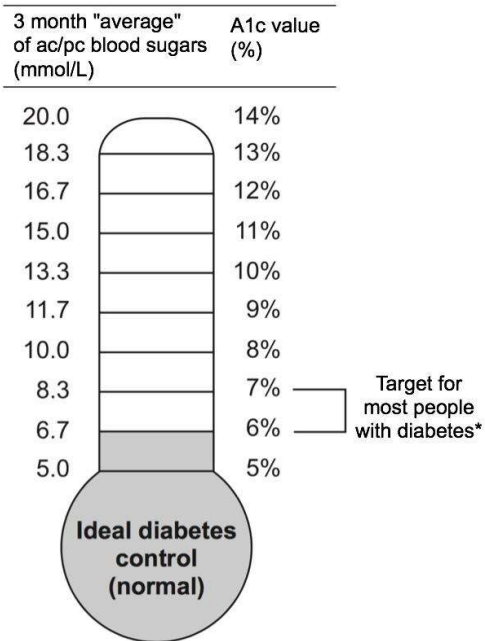
Hemoglobin A1c



- Target A1C for most adults with diabetes is 7.0% or less
- Diagnosis:
 - Prediabetes: 6.0 – 6.4%
 - Diabetes : 6.5% or higher

Hemoglobin A1c

A1c and Average Glucose Level



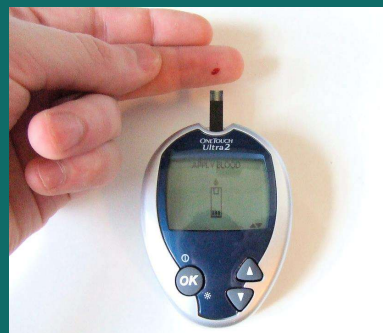
*A1c targets are individualized. (c) Alberta Health Services



Capillary Blood Glucose Monitoring



- Day to day testing



When to Test Blood Sugars?

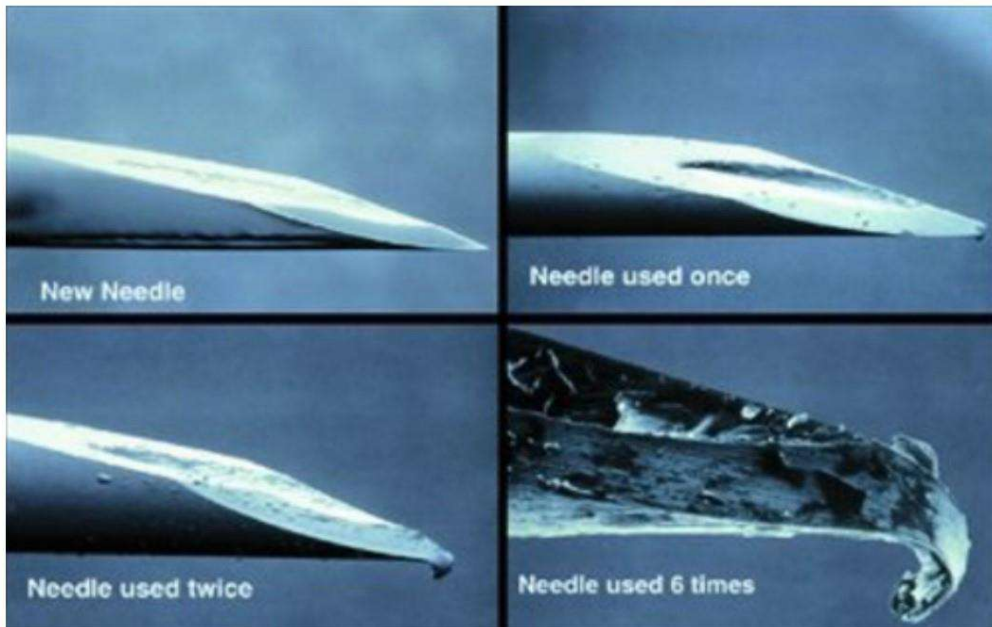


- Fasting
- 2 hours after eating



What barriers are there to testing?





NIHB Coverage for Test Strips

- On insulin:
 - 800 test strips per 100 days, can test up to eight times per day.
- On diabetes medication with a high risk of causing low blood sugar:
 - allowed 400 test strips per 365 days, can test once daily.
- On diabetes medication with a low risk of causing low blood sugar OR diet/lifestyle therapy only
 - 200 test strips per 365 days, can test three to four times per week.

Accuracy

- Comparison with lab value – “lab to meter test”
- Should be compared annually
- When BG > 4.2 mmol/L difference should < 15%



Importance of Clean Hands!

Exposure	Washed Hands	Exposed Finger (No Washing)	One Alcohol Wipe	Five Alcohol Wipes
Peeling an Orange	100 mg/dL 5.6 mmol/L	170 mg/dL 9.4 mmol/L	120mg/dL 6.7 mmol/L	118 mg/dL 6.6 mmol/L
Peeling a Grape	94 mg/dL 5.2 mmol/L	360 mg/dL 20.0 mmol/L	273 mg/dL 15.2 mmol/L	130 mg/dL 7.2 mmol/L
Peeling a Kiwi	90 mg/dL 5.0 mmol/L	184 mg/dL 10.2 mmol/L	145 mg/dL 8.1 mmol/L	106 mg/dL 5.9 mmol/L

Low Blood Sugars

Hypoglycemia

Defined as

1. Glucose < 4 mmol/L
2. Symptoms
3. Symptoms alleviated with treatment

<https://www.diabetes.ca/DiabetesCanadaWebsite/media/Managing-My-Diabetes/Tools%20and%20Resources/hypoglycemia-low-blood-sugar-in-adults.pdf?ext=.pdf>

Hypoglycemia low blood sugar in adults

What are the signs?
Each person will have their own way of recognizing low blood sugar.

Some of the signs include:

Sweating	Trembling	Palpitations	Anxiety
Hunger	Nausea	Headache	Tingling
Disturbed sleep	Weird dreams	Weakness/dizziness	Difficulty concentrating
Vision changes	Drowsiness	Difficulty speaking	Unconsciousness

HOW to take action

If able to swallow, EAT fast-acting sugar

- 15 g of glucose in the form of glucose tablets
- 1 tablespoon (15 mL) of honey
- 1 tablespoon (15 mL) sugar in water
- 2/3 cup (150 mL) of juice or regular soft drink
- 15 g fast-acting sugar (e.g. 6 Life Savers® or 2 rolls Rocket Candy)

With more severe signs (affecting mental/physical ability):

- If able to swallow → EAT 20g fast-acting sugar
- If unable to swallow → Call 3 mg glucagon intranasal or 1 mg SCIM

WAIT 15 minutes and CHECK

If blood sugar is 3.9 mmol/L or ABOVE AND next meal is in the hour	If blood sugar is 3.9 mmol/L or ABOVE AND next meal is LONGER than 1 hour away	If blood sugar is BELOW 3.9 mmol/L REPEAT steps above
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Eat ONE of:

Starch: ex. 7 crackers OR 1 slice of bread

AND Protein: ex. 1 piece of cheese OR 2 tablespoons of peanut butter

Are you Driving?
After treating a low, Wait until your blood sugar is above 5 mmol/L to start driving. Your brain might need up to 40 minutes to recover before you can safely drive again.

Why does low blood sugar happen?

Have you:

- Eaten less than planned?
- Eaten later than normal?
- Taken more medication than planned?
- Been more active than planned?
- Drunk any alcohol within the past 24 hours?

Fear of lows is common and may cause excess anxiety, stress, reducing the ability to function and quality of life. If you are having lows, speak with your diabetes health-care team:

- Doctor • Nurse practitioner • Pharmacist
- Nurse • Dietitian

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DIABETES CANADA

Pseudo-hypoglycemia



- Symptoms of hypoglycemia when blood glucose > 4 mmol/L
- Often the result of ongoing hyperglycemia
- Mitigate by slowly lowering blood glucose
- Can offer ideas to help with symptom relief

Causes

- Eating less food
- Taking more insulin
- Increased physical activity
- Alcohol

- Who is at risk?
 - Type 1 diabetes
 - Type 2 diabetes treated with insulin
 - Type 2 diabetes treated with insulin secretagogues

Risk Factors

- History of severe hypoglycemia
- A1C < 6%
- Hypoglycemia unawareness
- Long-time use of insulin
- Autonomic neuropathy
- CKD
- Low SES, food insecurity
- Low health literacy
- Preschool-aged children
- Adolescence
- Pregnancy
- Elderly
- Cognitive impairment

Treatment – Severe Hypoglycemia



Severe = needs assistance treating

If conscious:

- 20 grams glucose in tablet form
- Wait 15 mins
- Test and retreat with 15 grams if needed

If unconscious:

- Call 911
- Provide glucagon
- Once alert, provide fast-acting carbohydrate then snack

Glucagon

- 1 mg subcutaneously
- OR
- 3 mg nasal powder



- Less effective if:
 - Prolonged fasting
 - >2 standard drinks
 - Hepatic failure



Goal – Prevention of Low Blood Sugars



- Education is key!
 - Prevention
 - Treatment
 - Risk factors
 - Monitoring

Wrapping Up...



- Do you have one or two takeaways that you can use in your work?
- Next Session: Thursday, January 15th
 - All about sensors ... Libre/Dexcom