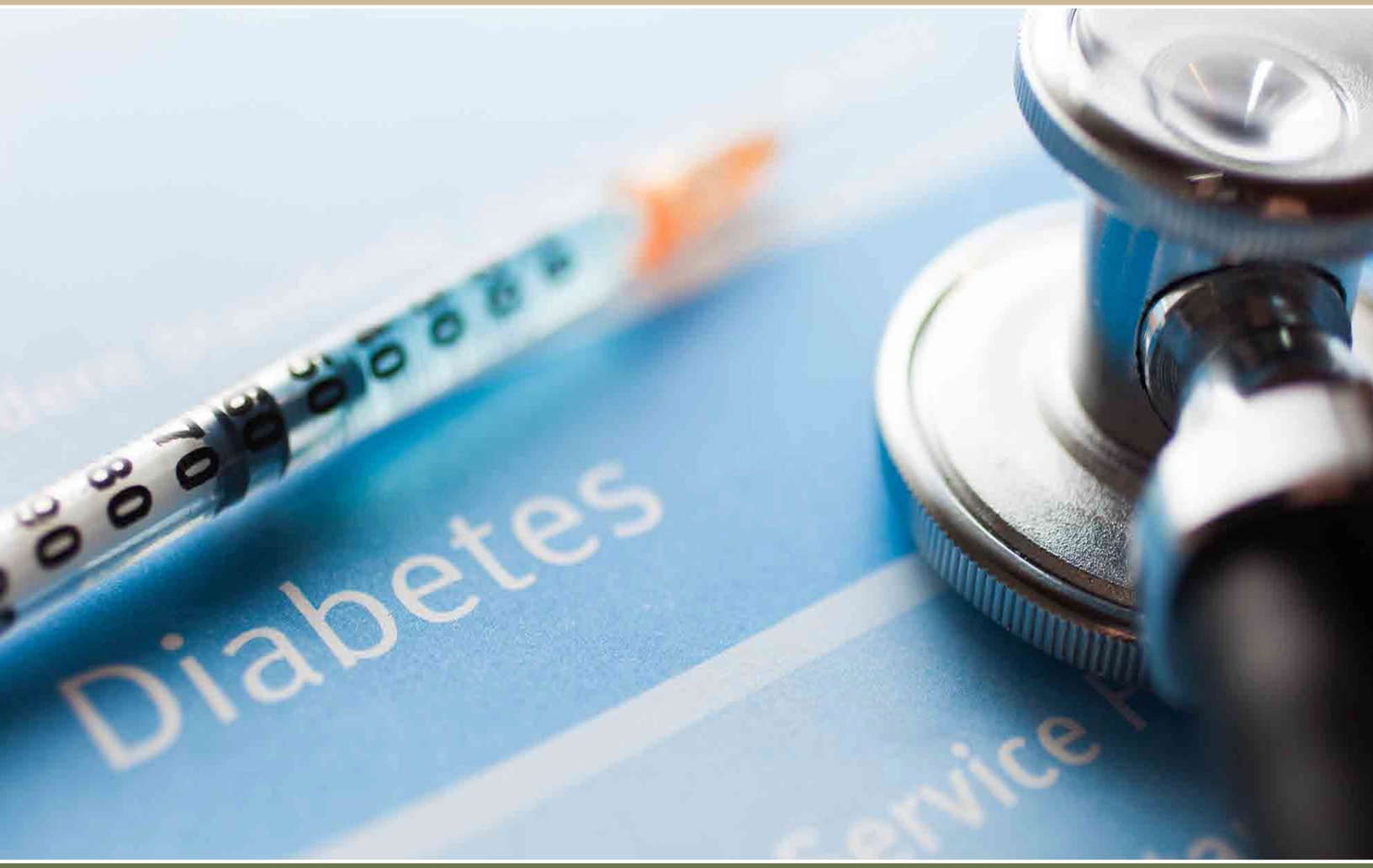
Updated: August 2026



Diabetes Self-Management Education and Support

MONITORING

Disclaimers

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AI-enabled tools were used to assist in the development of select content within this presentation. All outputs were reviewed, validated and approved by the authors prior to use/dissemination.

Welcome to the DHA Diabetes Self-Management Education and Support (DSMES) Program

This program has a core of 8 modules that focus on Type 2 Diabetes with additional modules available for Type 1 and Gestational Diabetes. These are available in-person, virtually, and recorded so they are available at your convenience.
warfighterwellness.org/diabetes

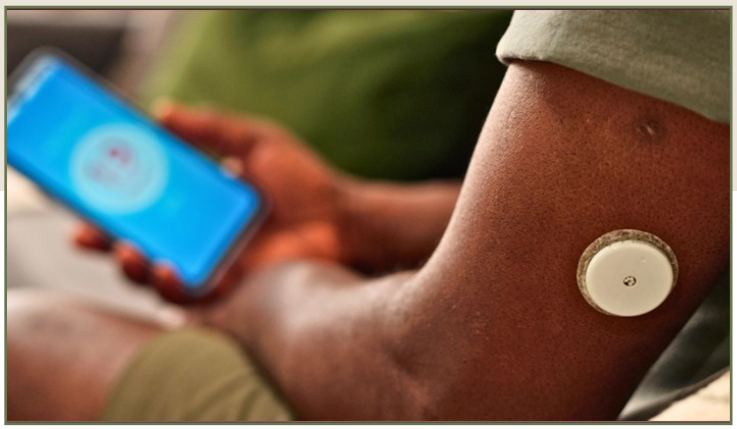
All handbooks, contain:

- Reading materials.
- Notetaking pages.
- Glossary.
- Additional resources.

- Diabetes Demystified
- Healthy Coping
- Healthy Eating
- Being Active
- Taking Medications
- Monitoring
- Reducing Risk
- Tools & Solutions

In This Module You Will:

- Recall what an A1C is and why it is important to monitor.
- Discuss how personal targets should be set with your healthcare team.
- Compare the three different types of monitoring devices.
- Relate how monitoring helps make decisions about self-managing diabetes.
- Recognize symptoms and solutions for hypoglycemia (low blood glucose) and hyperglycemia (high blood glucose).



Glossary

Hemoglobin: A complex, iron-rich protein found only in red blood cells. It acts as the primary transport of oxygen in the circulatory system. It also helps to transport carbon dioxide to the lungs. Glucose clings to this protein based on how much glucose is in the blood stream.

Interstitial fluid: The water filling all the tiny gaps and spaces between skin cells. This fluid acts as a bridge, delivering nutrients and oxygen from your blood vessels directly to your cells and carrying away cellular waste.

Post prandial: After eating.

Health Literacy

Health literacy is the ability to understand and use information to make informed health decisions. The aim of this program is to increase diabetes health literacy for our people with diabetes and their families. This will help guide questions and better understand answers received.

Language Matters

Glucose is the simple sugar that acts as the fuel that keeps your brain, muscles and organs running. To call it “sugar” is broad and misleading. It can lead people to believe that simply eating sugar is the reason they have diabetes. We use the term glucose, as it is the correct term for the form of sugar at work in the body.

- **Blood glucose** is the glucose in the blood. This is what is tested with a Blood Glucose Meter and over time can increase the level of the A1C.
- **Interstitial glucose** is the glucose in the skins interstitial fluid. This is what’s tested when using a continuous glucose meter or an over the counter biosensor.
- The above two measurements may not be the same at any given point in time because of the movement of glucose through the body.

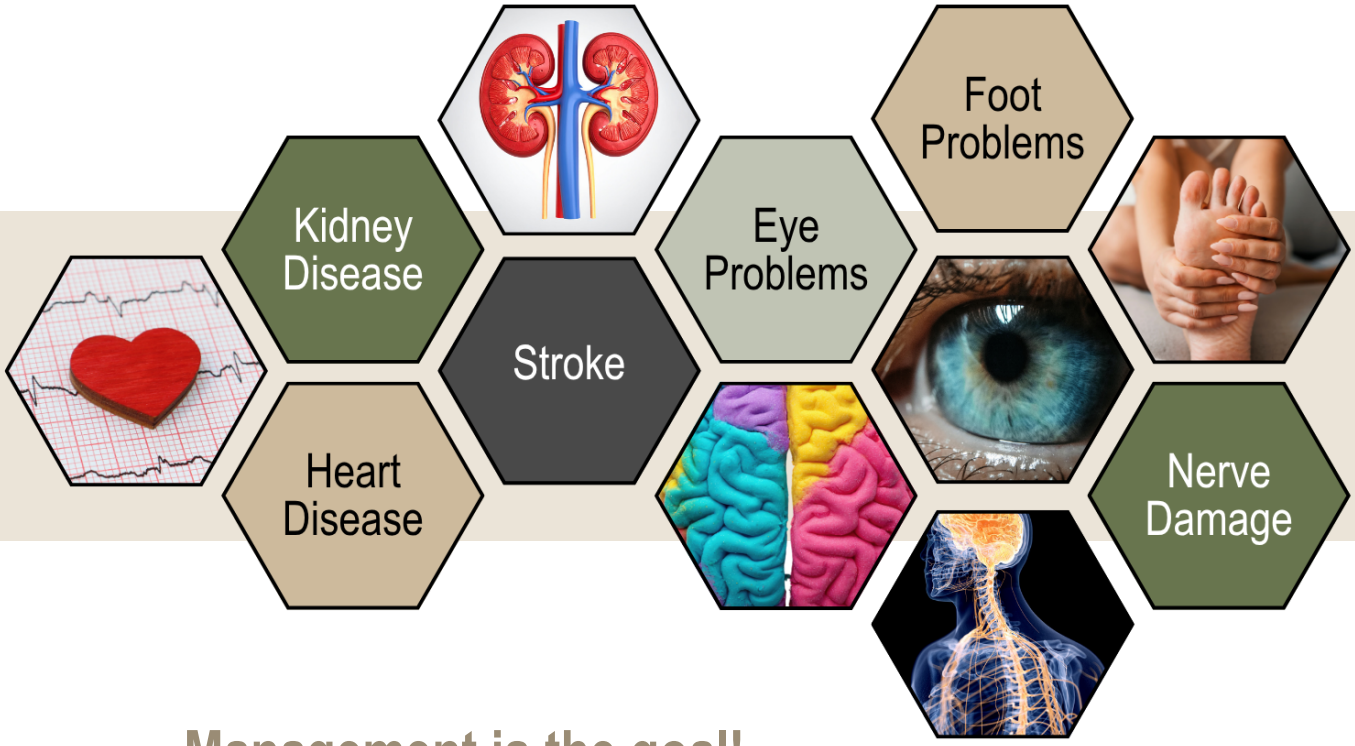
Why is Monitoring Important?

Knowing how to monitor glucose levels is a critical first step. Understanding how to use that data to influence healthy lifestyles is key to managing diabetes. Reaching your targets for glucose will aim your A1C to a target level.

An A1C test (also called hemoglobin A1C) is a blood test used to measure your average glucose over the last three months. Glucose attaches naturally to hemoglobin, a protein in your red blood cells. These red blood cells typically live for about 3 months. The test shows the percentage of hemoglobin with glucose attached to it and reflects the long-term glucose average.

An A1C lower than 8.5% significantly decreases risk for complications. A1C targets should be individualized.

What is your A1C Target? _____



Management is the goal!

General Glucose Targets

A1C Goal	≤ 7%	7-8%	8-9%
Fasting	80-130	90-150	100-180
After Meal	<180	N/A	N/A
Bedtime	90-150	100-180	110-200

- For most, A1C targets range between 7-8.5%.
- Fasting glucose is no intake for at least 8 hours.
- After meals, also called post prandial, is about 2 hours after your first bite.
- Discuss your individual targets with your clinician or healthcare team.

A1C (%)	Mg/dL
5	97 (76-120
6	126 (100-152)
7	154 (123–185)
8	183 (147-217)
9	212 (170-249)
10	240 (193-282)
11	269 (217-314)
12	298 (240-347)

A1C vs Estimated Average Glucose

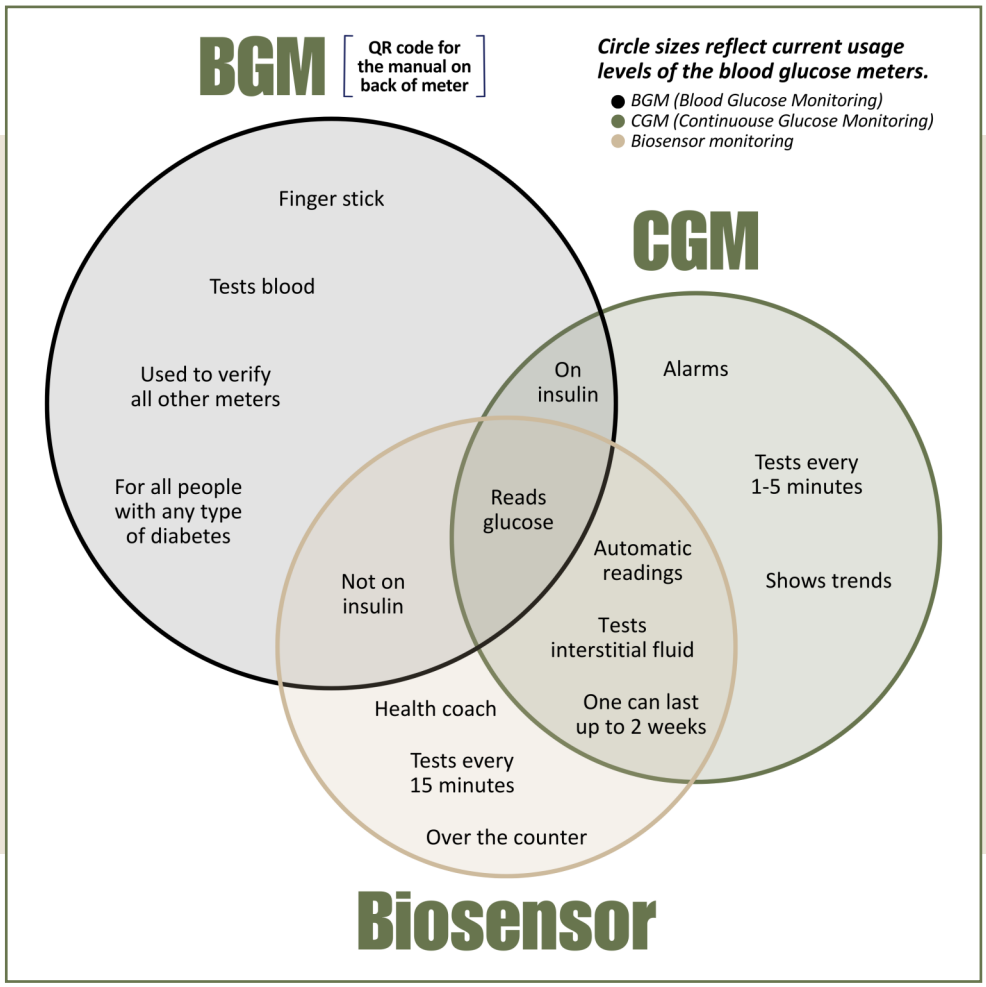
Your A1C relates to your estimated glucose levels and targets should be individualized as every BODY is different.

Considerations for A1C targets:

- Health.
- Hypoglycemia risks.
- Treatment risks and burdens.
- Medications.
- Cardiovascular complications.
- Comorbidities (other diagnoses).

Monitoring Glucose

Checking Glucose is a powerful way to see how lifestyle choices make a difference. It doesn't matter which method is used. What matters is what you do with the results.



Blood Glucose Monitor (BGM)

Have your healthcare team show you and your family how to use it. For more information, review the Monitoring module of the Core DSMES at (link).

Continuous Glucose Monitor (CGM)

There is an app to display results, show reports and glucose trends.

Over the Counter Biosensor

These are a form of CGMs available for sale over the counter. They do not do everything a CGM does, but are very helpful in seeing effects of lifestyle on glucose.

Blood Glucose Monitor (BGM)

Not everyone needs or will be prescribed a blood glucose meter, such as those with prediabetes. The data received from these can be used to adjust food intake, exercise or medications to achieve specific goals.



How to Use a BGM

- Wash hands with warm soapy water and dry. Alcohol pads are not necessary, but if using, be sure to allow to dry completely. Alcohol can cause pain and impact glucose reading if still moist.
- If unable to wash hands and have any residue on hands (food, lotion, fruit juice, sanitizer, etc.), wipe away the first drop of blood with a clean tissue/ gauze and use the second drop on the test strip.
- Insert an unexpired test strip into the meter.
- Insert a new lancet solidly into the lancing device.
- Lance the side of fingertip, avoiding recently used sites. Don't test the pad of the finger as it hurts more. Can gently squeeze finger to form drop of blood.
- Touch drop of blood to the side edge of the test strip or as directed.
- Read and document results.
- Dispose of the lancet per local laws.

Teach others how to check your glucose in case you are unable.

BGM Tips & Tricks

- Be aware of strip expiration dates and keep them in the original sealed container.
- Store meter, lancet and strip container in supplied carrying case.
- Control solution tests validity of test strips. Follow instructions in manual.
- Become familiar with meter error codes.
    - Refer to your meter manual.
    - Scan QR code (also on back of meter) for electronic user guide.
    - Call the phone number on the back of the meter.
- Replace Batteries as needed.
- Do not expose meter or strips to extreme temperatures or humidity.



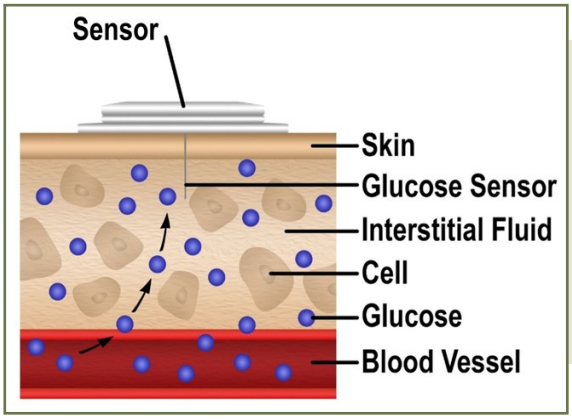
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Notes:

Continuous Glucose Meters (CGM)

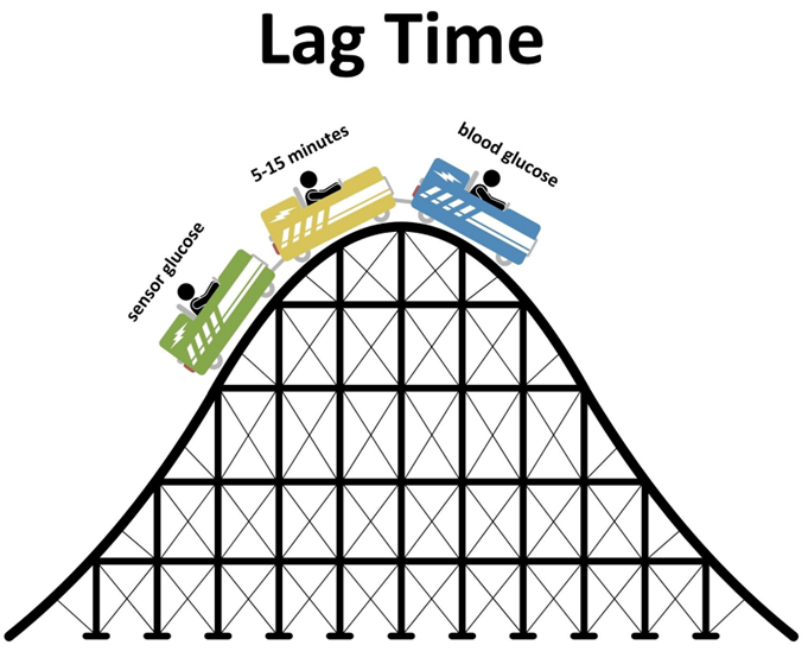
This sensor measures glucose in the skins interstitial fluid every 1-5 minutes. Most have an app that can be used to see results. They show arrows with possible trends. These guide management decisions as glucose levels head out of target range. If glucose levels do get out of range, an alarm can sound.

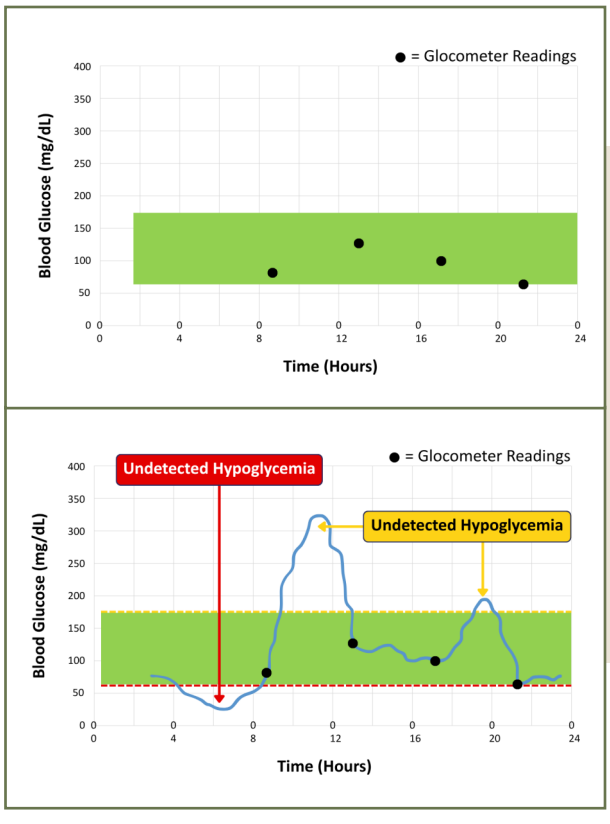




Sensor Glucose (SG) vs Blood Glucose

Since the sensor checks glucose more often than the BGM, it makes it possible to see peaks and valleys that may be missed. Because it tests interstitial fluid, the readings may be close to the BGM readings at the same time, but rarely the same results. SG readings lag behind BG readings about 5-15 minutes. When changes are quick, the numbers will be very different.

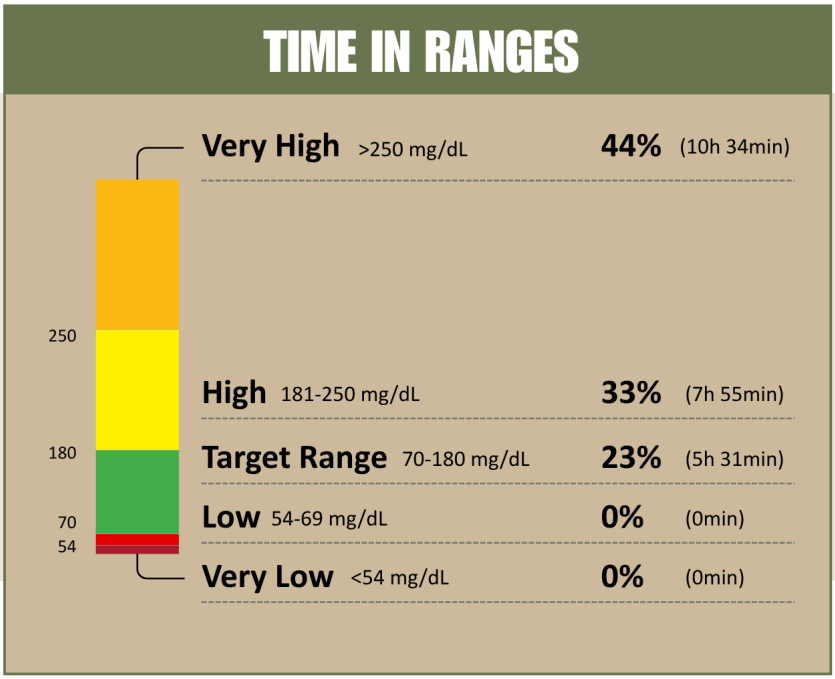




CGM Time in Range (TIR)

TIR is the amount of time the body's glucose is within a target range. Most ranges are 70-180. However, your medical team may recommend a different range. The TIR and alarms are customizable as needed.

Aim for a TIR 70% of the time or more.



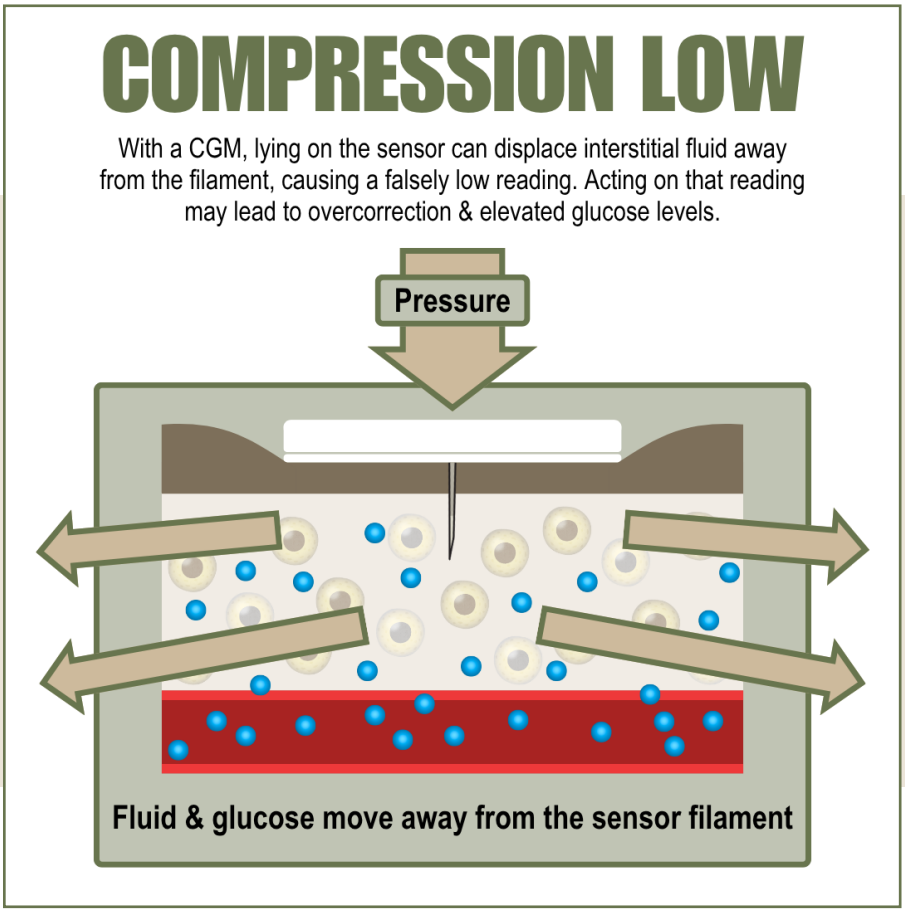
Does this report meet the TIR target?

Tips for CGM Application

- Do not place sensor before exercising, shower, bed or after applying lotion.
- Don't place the sensor on outside of your arm as it will be easy to displace.
    - Place on back of arm or other locations as stated by manufacturer.
- Shave area if hair may prevent proper adhesion.
- Avoid inserting over tattoos or scar tissue.
- Tape overlays and wipes are available over the counter to assist sensor staying in place.
- Use allergy nasal spray or skin barrier applied to the area if it causes a rash.
- If sensor becomes loose, remove and replace with a new one.
- Contact the manufacturer's customer service line or website for demonstration videos, troubleshooting and more.

Other CGM Information

- All sensors are safe to go through metal detectors.
- Check your manufacture's recommendations for swimming and imaging safety.
- You can (and should) share results with family and healthcare team.
- Be aware of the potential for compression lows when laying down or sleeping on sensor.



Notes:

Over the Counter Biosensors

These are a new option that can be purchased over the counter at most commercial pharmacies (not military pharmacies) and online. They run less than $100, enough to cover about 30 days. Review brand websites for more information before purchasing. Sites also include education available, review tracking options and more. Not recommended for those on insulin.

These are not the exact same as CGMs. They check every 15 minutes and there are no alarms. They are considered a pocket health coach, as they do show the effects of health behaviors on glucose levels.

What type of meter are you using? _____

_____

What questions came up during this module that you want to address with your health care team? _____

_____

Notes: _____

_____

_____

Hypoglycemia

Review the information on low blood glucose in the DHA DSMES Diabetes Explained module if you have not. It is important to know what to look for and how to take action.

Low Glucose Variances

Hypoglycemia Unawareness

- When people with diabetes, particularly those using insulin or sulfonylureas, lose the ability to sense the typical warning signs of low blood glucose.
- They don't sense the early warning signs of low blood glucose.
- They may not recognize when their glucose drops dangerously low until severe symptoms like confusion, unconsciousness or seizures occur.
- May need to rely on others to recognize the symptoms and take action.

Relative Hypoglycemia

- Having symptoms (like shakiness, sweating or confusion) when their blood glucose level is not below the typical threshold for level 1 (below 70 mg/dL).
- This can happen when glucose has been extremely high and then drops to lower levels.

S.M.A.R.T. Goal Review: How Are You Doing?

Summary

This session introduced the importance of monitoring glucose levels and the three different glucose meter. We reviewed when and how the meters or sensors are used, tips and tricks and, most importantly, how to use the data to influence your diabetes management. This session reinforced the causes, symptoms and treatment of hyperglycemia (high blood glucose) and hypoglycemia (low blood glucose) and identified emergencies related to blood glucose.

Key Points

- Discuss your personal glucose targets with your health care team.
- Monitoring glucose levels is a critical tool for diabetes self-management.
- BGM and CGM readings are not often the same, but this is expected.
- Verify CGM readings with a BGM when in doubt or have low glucose symptoms.
- Use the Rule of 15 when you have symptoms of low blood glucose.

Before Next Class

- Review next session: Healthy Coping.
- Write down your questions.
- Work on your health care goal or changing a habit/behavior.



Notes:

American Diabetes Association®
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The American Diabetes Association Recognizes this education service as meeting the National Standards for Diabetes Self-Management Education and Support.

If you have any concerns about the diabetes education you receive:

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