

CONTINUOUS GLUCOSE MONITORING (CGM) #1: THE BASICS

Continuous glucose monitoring (CGM) is a tool for diabetes management. It can be used alone and some can be used as part of an integrated insulin pump system. CGM provides real-time continuous glucose monitoring. It consists of a transmitter and a sensor, inserted separately from a pump site, as well as a receiver. The receiver can be a handheld device or a phone, or it can be an insulin pump. CGM measures glucose in the interstitial fluid under the skin, rather than in the blood. It displays and updates a glucose value every 5 minutes.

CGM can assist in identifying glucose trends and patterns. CGM can show what the glucose was in the past, what it is now, and it can predict what direction it is heading with the use of graphs and trend arrows. The Medtronic Guardian® 3 and Guardian™ Connect systems need to be calibrated every 12 hours using a blood glucose meter; the Dexcom G6® and FreeStyle Libre do not require calibration.

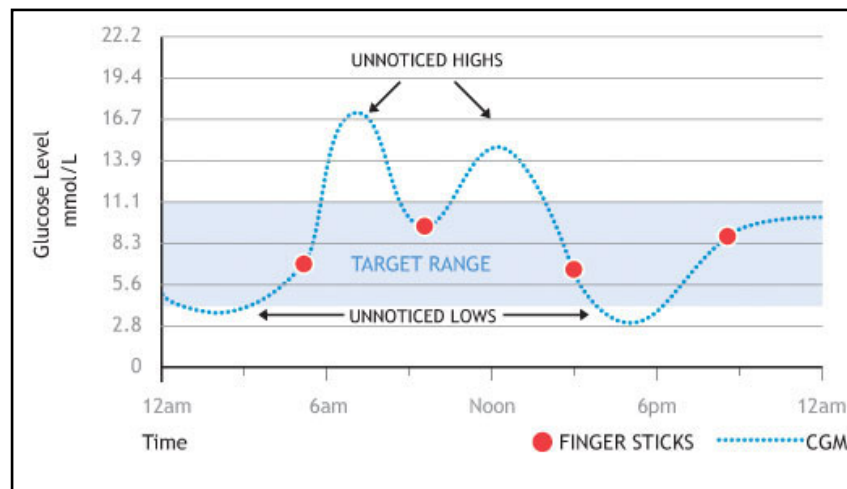


Figure 1 (courtesy of Animas.ca)

Glucose monitoring with a meter provides the blood glucose reading at exactly the moment it is checked. For most people, this is 4-6 times a day. CGM provides more information. It can "fill in the blanks" of what is happening between meals and how the body reacts to food, insulin and activity.

CGM has two main types of benefits:

- Reactive: setting appropriate alerts to catch the highs and lows before they happen
- Preventative: regularly looking back at the upload for patterns and trends to make changes to prevent the highs and lows

It is important to look at this information regularly (we suggest every week) and use it correctly to help plan treatment decisions. CGM data should be looked at in a logical order, using what we call the **TAG** system—**T**rend-**A**rrow-**G**lucose:

- **T**rend: view the graph on the screen to see where the glucose has been and is going
- **A**rrows: 1, 2 or 3 arrows tells you how fast the glucose is changing
- **G**lucose: the current glucose at that moment

Example: A meter blood glucose of 6.8 mmol/L at bedtime is within target range. With CGM, you can look at what the graph and trend arrows are predicting. Is the 6.8 mmol/L flat and steady? Are there arrows pointing up or down because the glucose is changing rapidly? This extra information is used to make decisions on what action or treatment may be needed.

For more information on **Continuous and Flash Glucose Monitoring**:

- **Dexcom**: dexcom.com/en-CA or Canada toll-free number: 1-844-832-1810
- Dexcom G6® continuous glucose monitoring system
- Contact: Anthony Petrovich (anthony.petrovich@dexcom.com), phone 604-363-8776
- Training videos: www.dexcom.com/en-CA/ca-dexcom-g6-training-videos and www.dexcom.com/en-CA/downloadsandguides/search
- **Medtronic Diabetes**: www.medtronicdiabetes.ca or Canada toll-free number 1-800-284-4416
- MiniMed® 670G insulin pump with SmartGuard™ technology
- Guardian™ Connect continuous glucose monitoring system
- Contact: Brenda Heaney (brenda.heaney@medtronic.com), phone 604-312-7101
- Online product information:
 - Connect: <https://www.medtronic.com/ca-en/diabetes/home/products/cgm-systems/guardian-connect.html>
 - 670G: <https://www.medtronic.com/ca-en/diabetes/home/products/insulin-pumps/minimed-670g.html>
- **FreeStyle Libre and FreeStyle Libre 2***: <https://myfreestyle.ca/en/>
- Online product information:
 - Libre: www.freestyle.abbott.ca/en/products/libre/video.html
 - Libre 2: <https://www.freestyle.abbott.ca/en/products/libre-2.html>

*FreeStyle® Libre 2 is Health Canada-approved for those 4 years and older and is **coming soon**. FGM is not continuous. The Libre is calibrated at the factory and so does not require meter calibrations. The handheld device must be swiped over the sensor at least once every 8 hours to obtain intermittent glucose data. **Note: The FreeStyle Libre 2 has arrows on the screen, and 3 optional alerts that can be set.**

For more information on using CGM, see our handout
[*Continuous Glucose Monitoring \(CGM\) #2: Getting Started*](#)

Continuous Glucose Monitoring (CGM) #1: The Basics (continued)