Continuous glucose monitoring (CGM) allows you to see glucose readings 24 hours a day while doing few or no finger stick tests. CGM uses a small wearable device to measure interstitial glucose (glucose that has left the blood and moved into the tissues).

Interstitial glucose readings are “older” than blood glucose readings by about 4-5 minutes. This lag can be as long as 15 minutes if blood glucose levels are changing quickly e.g. after eating meals or treating a low blood sugar.

**How CGM Works**

A glucose sensor (small electrode) is inserted under the skin and measures interstitial glucose every 1-5 minutes. The readings are sent wirelessly to a device, either automatically or by manually scanning the sensor with a reader. There are two major types of CGM.

**Types of CGM**

Real-time CGMs (rtCGM) have a transmitter attached to a sensor. The transmitter sends glucose readings to an app on a smart phone, a hand held receiver or an integrated insulin pump. Each of these can display results. They can also be programmed to alarm when glucose levels reach certain limits. Finger stick testing may be needed at times to verify results and, depending on the model, to calibrate.

Flash sensors have no transmitter piece. The user manually scans the sensor with a handheld reader or app on a phone to see current and stored glucose results. There are no alarms. Finger stick testing is not needed for calibrations but may be needed at times to verify results. Flash sensors have also been called iCGM for intermittently viewed CGM.
Continuous Glucose Monitoring (CGM): The Basics

**Benefits**

- CGM use may help improve glucose levels. It may help you find glucose patterns and make daily management decisions.
- CGM provides more information than finger stick tests. CGM provides a current glucose reading, a graph of previous hours’ readings and rate of change (ROC) arrows. A reading of 5.2 mmol/L ↓↓ (dropping quickly) would likely require action to prevent a low, whereas a 5.2 mmol/L → (stable) might not.

**Challenges**

- Some challenges of CGM include cost, alarm fatigue, feeling overwhelmed by data (this could lead to too many insulin adjustments), unrealistic expectations, skin irritation and still needing finger stick glucose tests for some situations.
- Another challenge is remembering that sensor glucose (SG) readings can lag behind blood glucose (BG) readings at times.

**Brands** – please contact companies for accurate pricing.

1. Abbott’s Libre [https://myfreestyle.ca](https://myfreestyle.ca) (Flash)
   - 2019 approximate pricing: $89 per sensor (2 weeks). Requires smart phone app (free) or reader ($49).
2. Dexcom G6 [www.dexcom.com](http://www.dexcom.com) (rtCGM)
   - 2019 approximate pricing: $100 per sensor (10 days) and $289 per transmitter (112 days). Requires smart phone app (free) or receiver ($500).
3. Medtronic CGM [https://www.medtronicdiabetes.ca](https://www.medtronicdiabetes.ca) (rtCGM)
   - 2019 approximate pricing: $65 CAD per sensor (6 days). A Medtronic insulin pump and a transmitter are required.