What is a Glucose Sensor?

- A small wearable device
- “Hair-like” filament sits under the skin in interstitial fluid
- Measures interstitial glucose concentration continuously
- As the glucose concentration in the bloodstream changes, so does the glucose concentration in the interstitial fluid
- Sensor is typically inserted on the back of the arm, upper buttocks, or abdomen
- Respective devices have recommendations for insertion sites (see next page) based on how they were studied
Check for adequate data
% time CGM is active should be > 70% as this indicates that there is sufficient data for decision making.

Look for lows
In this patient, there is no evidence of hypoglycemia

Look at TIR
TIR is below the target of >70% and there is no hypoglycemia. Review the 24-h glucose profile (below) to identify the time(s) when hyperglycemia is occurring.

Check glycemic variability
The CV is at goal indicating that this patient's glucose level is relatively stable

Images provided for illustration purposes only. Not actual data from a person living with diabetes. TIR, time in range; CV, coefficient of variation; CGM, continuous glucose monitor; GMI, glucose management index
1. Czupryniak L, et al. Diabetes Ther. 2022;13:811-821.
Is the median line in range?
What’s the shape of the line?

The solid line is the median or 50% line (half of all glucose values are above and half are below this value). Ideally, the line should be mostly flat and inside the green target range. In this case, we see that the patient is hyperglycemic for a large portion of the day, particularly between 7 pm and 5 am.

How wide is the shaded area (“the river”)?

The darker shaded area (often referred to as “the river”) represents the interquartile range – the 25th and 75th percentile curves. The lighter shaded area represent the 5th to 95th percentile curves, which indicates where most of the readings are. Ideally, the “river” should be narrow, indicating low variability.

A wider ‘billowing’ or ‘ballooning’ river means unwanted glucose fluctuations on most days, which suggests a need to adjust management of therapeutic parameters such as insulin doses and/or timings, or to review meal planning.
## Summary of No-Calibration, Standalone CGM Systems Available in Canada

| Model               | Indicated for                      | Integration with Insulin Pumps | Access to glucose data                                                                 | Sensor Placement Site(s)                | Sensor Wear Duration | Alerts/Alarms                                                                 | Remote Monitoring | Known Interferences                  |
|---------------------|-----------------------------------|--------------------------------|----------------------------------------------------------------------------------------|----------------------------------------|---------------------|--------------------------------------------------------------------------------|------------------|---------------------------------------|
| FreeStyle Libre 1   | ≥18 years†                         | No                             | Users need to scan sensor with a paired reader and/or compatible smartphone to retrieve the latest glucose data and transfer up to 8 hrs of data between scans | Back of upper arm                      | 14 days             | No                                                                              | Remotely notified each time a user scans the sensor with their smartphone and can view scanned data remotely | High-dose vitamin C, high-dose ASA |
| FreeStyle Libre 2*  | ≥4 years                           |                                |                                                                                        |                                        |                     | Yes                                                                              | Remotely notified each time a user scans the sensor, receives and dismisses an alarm. They can also view scanned data remotely | High-dose vitamin C |

### Intermittently-scanned continuous glucose monitors (isCGM)

- **FreeStyle Libre 1**: Indicated for ≥18 years†.
  - Users need to scan sensor with a paired reader and/or compatible smartphone to retrieve the latest glucose data and transfer up to 8 hrs of data between scans.
  - Integration with Insulin Pumps: No.
  - Sensor Placement Site(s): Back of upper arm.
  - Sensor Wear Duration: 14 days.
  - Alerts/Alarms: No.
  - Remote Monitoring: Remotely notified each time a user scans the sensor with their smartphone.
  - Known Interferences: High-dose vitamin C, high-dose ASA.

### Real-time continuous glucose monitors (rtCGM)

- **G6**: Indicated for ≥2 years.
  - Glucose data is continuously and automatically sent via Bluetooth to a paired receiver or compatible smartphone without the need to scan.
  - Integration with Insulin Pumps: Yes.
  - Sensor Placement Site(s): Abdomen (≥2 years), Back of upper arm (≥18 years), Upper buttocks (2-17 years).
  - Sensor Wear Duration: 10 days.
  - Alerts/Alarms: Yes.
  - Remote Monitoring: Remotely notified each time a user scans the sensor, receives and dismisses an alarm. They can also view scanned data remotely.
  - Known Interferences: Hydroxyurea.

- **G7**: Indicated for ≥2 years including pregnant women.
  - Integration with Insulin Pumps: TBD.
  - Sensor Placement Site(s): Abdomen (all ages except pregnant women), Back of upper arm (all ages plus pregnant women), Upper buttocks (2-6 years).
  - Sensor Wear Duration: 10 days + 12 hours.
  - Alerts/Alarms: Yes, all of the above plus additional alert features including: delayed first alert and silence all.
  - Remote Monitoring: Followers can receive their own customizable alerts, and monitor remotely without scanning.

- **FreeStyle Libre 3**: Licensed in Canada on July 19, 2023 but details regarding Canadian indication, sensor placement sites and wear, etc. not yet available.

*New app to be available in the future that will allow FreeStyle Libre 2 to function as an rtCGM. Specific details about this app and timing of availability have not yet been specified.*

CGM, continuous glucose monitor; ASA, acetylsalicylic acid; TBD, to be determined.

1. Freestyle Libre User’s Manual [ART34745-107 Rev. A 12/16; ART42121 Rev. A 02/20].
2. Using Your G6: Instructions for Use. [https://s3-us-west-2.amazonaws.com/dexcompdf/OUS+Specific+PDFs/Canada+G6/LBL016368+Artwork%2C+UYG6+Guide%2C+CA.pdf](https://s3-us-west-2.amazonaws.com/dexcompdf/OUS+Specific+PDFs/Canada+G6/LBL016368+Artwork%2C+UYG6+Guide%2C+CA.pdf)
3. FreeStyle Libre 2: [https://www.freestyle.abbott/ca-en/home/freestyle-libre-2.html](https://www.freestyle.abbott/ca-en/home/freestyle-libre-2.html)
4. Dexcom G7 CGM System User Guide, 2023.
5. Health Canada: [https://health-products.canada.ca/mdall-limh/information?lang=eng&companyId=134918](https://health-products.canada.ca/mdall-limh/information?lang=eng&companyId=134918)