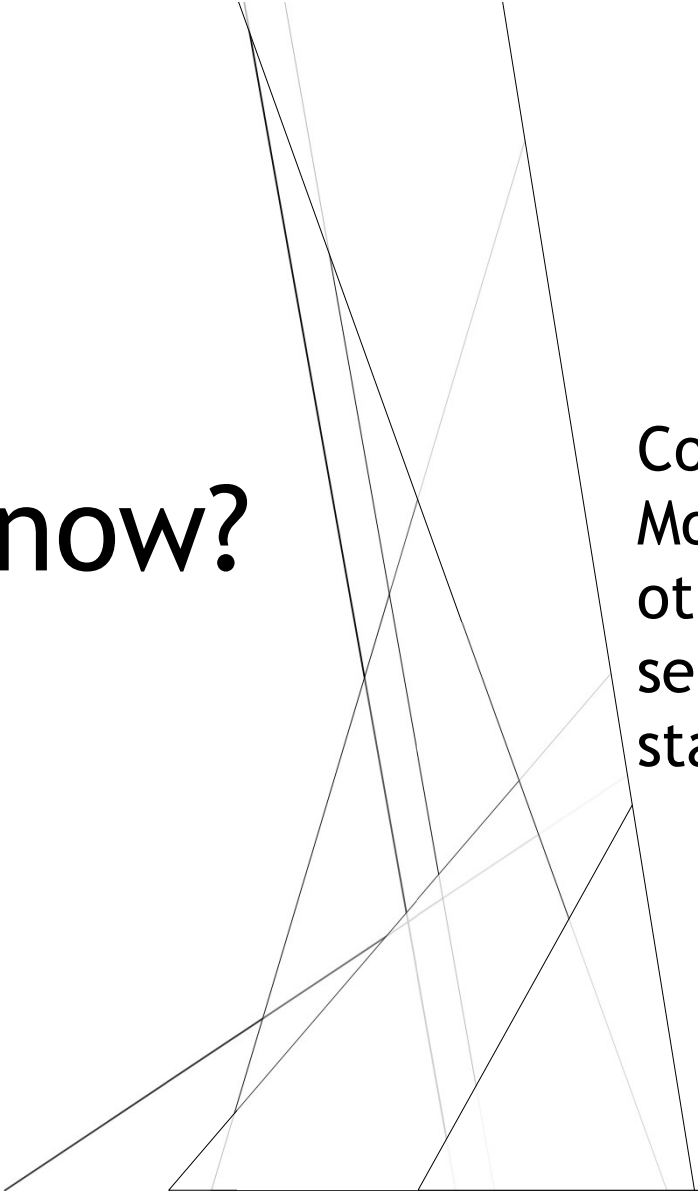




Everything you ever wanted to know about continuous glucose monitors...

Geneva Foncannon RD, CDCES

Abstract geometric lines in black and light gray, intersecting to form various triangular and quadrilateral shapes, primarily located in the center and right side of the slide.

Did you know?

Continuous Glucose Monitors (CGM's), otherwise known as sensors are now the standard of care

According to...

- AACE in 2021, CGM is recommended for all people with diabetes treated with intensive insulin therapy
- ADA in 2022, CGM is for people with any form of diabetes and a variety of insulin regimens, and even for some people with T2D on non-insulin regimens

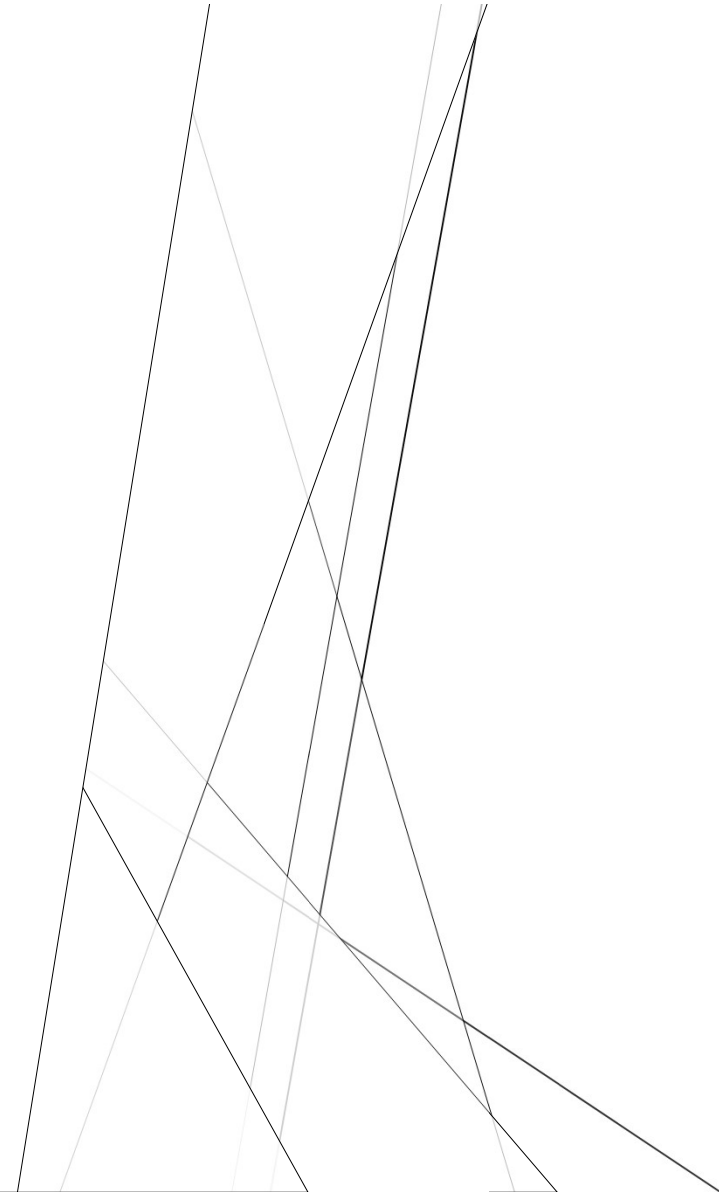
....but why are sensors now preferred over glucose meters??

→CGM reliability, accuracy and evidence of improved clinical markers (reduced A1c, hypoglycemia, body weight)

▷ →improved awareness of health behaviors

→integration with hybrid closed loop insulin pumps

→decreased diabetes burden!!!



How are sensors and meters different?

Meter



Measures the glucose in the blood



Gives you only one value at that moment in time (limited pattern management)



Results within 15% of a lab value are considered accurate



User burn out!

Sensor

- ▶ *Measures the glucose in the interstitial fluid*
- ▶ *Obtains a value every 1-5 minutes depending on the sensor (trend arrows for pattern management and predictive alerts)*
- ▶ *More accurate than most meters (MARD = Mean Absolute Relative Difference)*
- ▶ *Ability to share data*
- ▶ *Improved user quality of life!!*

Setting Expectations

- Two different types of body fluids: interstitial fluid (Dexcom G6) and blood (meter)
 - ***Most inaccurate time is the first day so test blood sugar to confirm but limit calibrations
- Readings can be different and still be considered accurate
 - ***Remember, there is a “lag time” of 5-15 minutes between a sensor and finger stick value

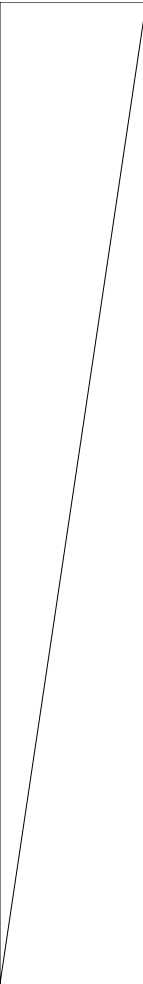


ZERO FINGERSTICKS*

There is a difference between calibrations and fingersticks

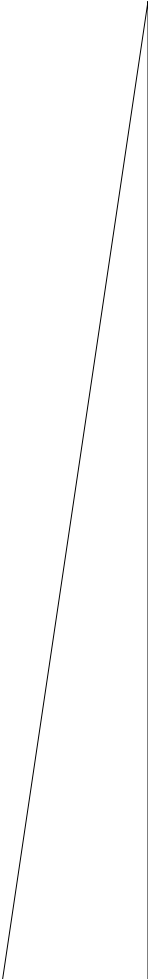
- **Calibrations** teach the sensor its accuracy (Example: Dexcom G6 in calibration mode). For G6, calibrations are not needed when a sensor code is entered.
- **Fingersticks** help patients to trust the sensor and are needed if symptoms don't match readings or the G6 sensor reading or trend arrow is missing

*If your glucose alerts and readings from the G6 do not match symptoms or expectations, use a blood glucose meter to make diabetes treatment decisions.



Trend Arrows...

...and why we love them so!



Trend Arrows

Trend Arrows show the direction and speed of glucose change. Catch highs and lows before they happen.



Constant

0-30 mg/dL up or
down in ½ hour



Slowly Rising

30-60 mg/dL
up in ½ hour



Rising

60-90 mg/dL
up in ½ hour



Rapidly Rising

90 or more mg/dL
up in ½ hour



Slowly Falling

30-60 mg/dL down
in ½ hour



Falling

60-90 mg/dL
down in ½ hour



Rapidly Falling

90 or more mg/dL
down in ½ hour

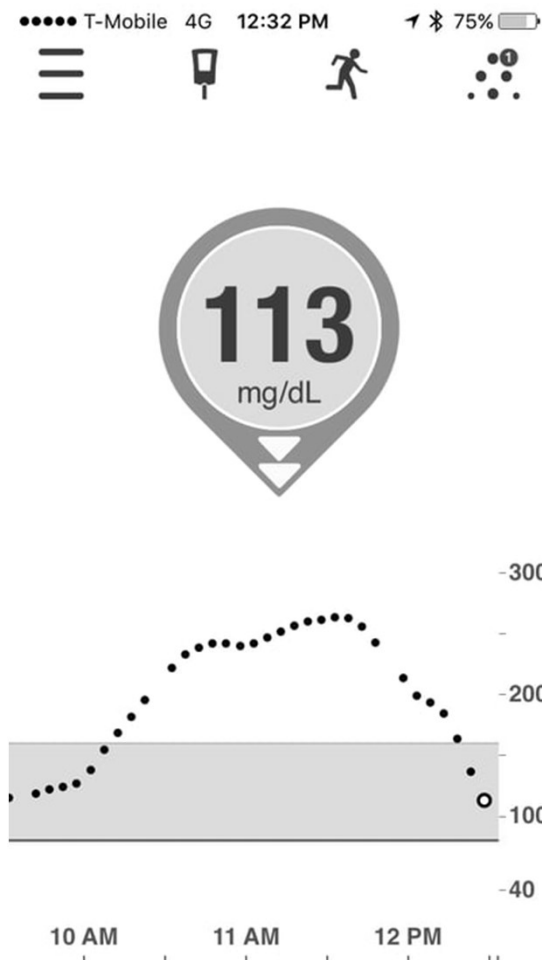
This is so much more information than just one finger stick!

If a student was about to sit down to take a math test at school...

*a meter reading of 113 mg/dL would seem ideal

*a sensor reading with double arrows down indicates a drop of 100 points in the next 30 minutes

...this information increases safety around diabetes care and hopefully prevents a future make up test too!



Diabetes Treatment Decisions

No number or arrow? Always use your meter.



Symptoms don't match readings? Use your meter.



Which sensor
should a
child
choose??

Dexcom G6

Dexcom G7

Freestyle Libre 2

Freestyle Libre 3

Guardian 3

...so many choices!

Dexcom G6

- FDA approved for 2 year old and older with placement on abdomen or backside
- can use Receiver or phone app (IOS and Android compatible)
- ability to share with up to 5 people if using the phone app
- wear for 10 days
- 2 hour warm up
- separate transmitter device that is used for 3 months
- integration with Tslim with Control IQ and Omnipod 5 pumps
- MARD of 9%



Smart device sold separately*

Dexcom G7

- FDA approved for 2 years old and older with placement on the upper arm if >2 years old, upper buttocks for 2-6 years old
- can use Receiver or phone app (IOS and Android compatible)
- ability to share with up to 5 people if using the phone app
- wear for 10 days
- 30 minute warm up
- future integration with pumps (awaiting FDA approval)
- MARD of 8.2%



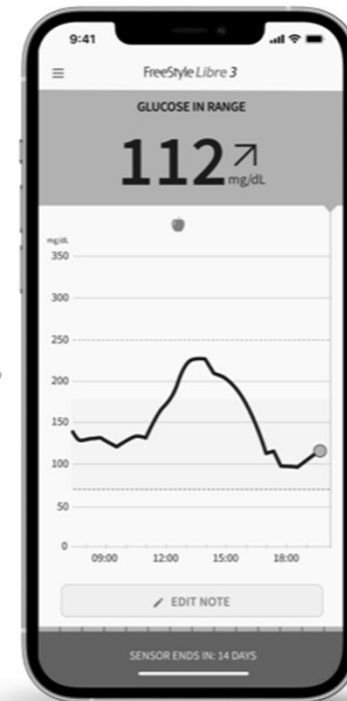
Freestyle Libre 2

- FDA approved for 4 years old and older with placement on upper arm only
- can use receiver or phone (IOS and Android compatible)
- ability to share with up to 20 people
- wear for 14 days
- need to “scan” the sensor to get readings with a directional arrow
- 60 minute warm up
- NO pump integration
- MARD of 9.7%



Freestyle Libre 3

- FDA approved for 4 years old and older with placement on upper arm only
- no receiver, app based only (see website for phone compatibility)
- wear for 14 days
- continuous glucose sensing every minute
- 60 minute warm up
- future integration with pumps (awaiting FDA approval)
- MARD of 7.9%



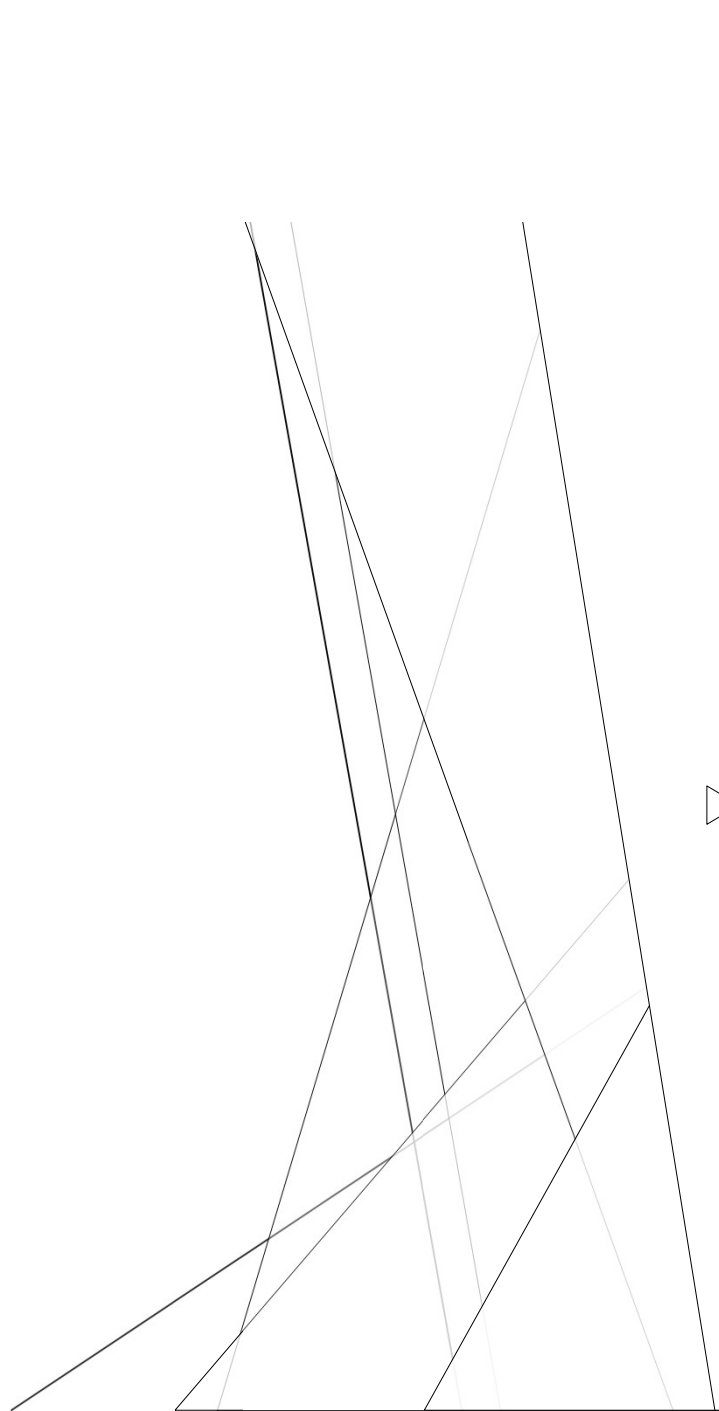
Medtronic Guardian 3

- FDA approved for 14-75 years old
- no receiver, app based only (Android only)
- wear for 7 days
- requires calibration with finger stick every 12 hours
- ability to share with up to 5 people
- 2 hour warm up
- integration only with Medtronic 670g and 770g pumps
- MARD of 8.7%





Smaller,
Smarter, and
with pump
integration is
the name of
the game in
the world of
diabetes
technology!!



...but as always, the
best sensor is the one
▷ that *you* want to wear!

Questions??

Resources

- ▶ Diabetes Care 2021;44:464-472 | <https://doi.org/10.2337/dc20-1060>
- ▶ <https://provider.dexcom.com/education-research/clinic-resources/webinars-and-presentations/getting-started-presentation-using-0>
- ▶ <https://www.freestyleprovider.abbott/us-en/home.html>
- ▶ <https://www.dexcom.com/en-us/g7-cgm-system>
- ▶ <https://www.medtronic.com/us-en/healthcare-professionals/products/diabetes/continuous-glucose-monitoring-systems/guardian-connect.html>
- ▶ *The Journal of Clinical Endocrinology & Metabolism*, Volume 107, Issue 4, April 2022, Pages 998–1008, <https://doi.org/10.1210/clinem/dgab859>