Using Technology for Optimal Diabetes Outcomes

There are more new types of diabetes technology (devices, tools) today than ever before. The main purpose of this tech is to make it simple and easier to manage diabetes tasks and cognitive burden.

The tech options to consider should help with a diabetes task that people with diabetes of any type want to address. Some examples of diabetes tasks include: checking glucose; calculating amounts of insulin or other medications to take; taking the insulin or other meds; counting carbohydrates; keeping track of food eaten and activity times/amounts; and showing data trends.

Tech options can help increase the amount of time blood glucose is in someone's desired range (TIR); meet their desired A1c goal; decrease the amount of time their blood glucose is low or high and outside their TIR; and spend more time feeling good/increased quality of life.

When learning about new diabetes tech, take the time you need to decide what's right for you. Check out the product or device official website and videos; research online reviews from current users; do a short trial run if possible. Discussing, or switching to a new technology, with a health care provider or diabetes educator can be helpful.

MONITORING GLUCOSE LEVELS

- Glucose meters and monitors measure & send glucose data to an external device and/or a smartphone app.
- Self-monitoring blood glucose meters (SMBG) use a small drop of blood on a one-use, disposable strip.
- Continuous glucose monitors (CGM) use a small sensor to automatically check fluid under the skin for glucose every few minutes.
- Flash CGMs use a small sensor that is scanned by the user intermittently.
- Implantable CGM sensors are inserted under the skin by a health care provider; they can be used for up to 180 days.

TAKING INSULIN & OTHER MEDICATIONS

- Syringe – 90% or more of PWD who use insulin inject it with disposable syringes
- Injection pen – used to inject insulin, semaglutide, liraglutide, GLP-1 agonist, glucagon
- Smart insulin pen – calculates & tracks insulin doses; reduces stacking boluses; alerts to remember meal/planned insulin; calculates pre-meal or other boluses
- Insulin infusion pumps, with tubes or without
- Inhaled insulin & glucagon

SHARING DATA WITH CARE TEAM

- Most CGM & insulin pump apps can email summary reports of diabetes data ranging from 2, 7, 14, 30, 60, or 90 days directly to healthcare providers.
- Some companies offer packages of SMBG supplies with cloud connectivity to HCP or DCES; at home labs; medications; & virtual/online health visits.

AUTOMATED INSULIN DELIVERY SYSTEMS

- Automated Insulin Delivery (AID) systems have 3 parts: a CGM sensor, a device to deliver insulin, & an algorithm that automatically sends dosing commands based on CGM data to the insulin device.
- Several commercial systems are currently available.
- Automated systems called DIY Loop and OpenAPS are built using open-source code & considered Do-It-Yourself systems.

TRACKING FOOD, EXERCISE, OR OTHER

- Note: most smartphone apps, including health and/or diabetes apps, are not regulated. Users' results may vary.
- Many apps offer nutritional information for foods including carbohydrate counts for standard serving sizes.
- Other apps offer food logbooks for entering and keeping track of types and amounts of food eaten.
- Many smartphone and smartwatch apps offer tracking and/or logging of activity (type, amount of time spent) along with body measurements such as weight & heart rate.
- Devices & strips are available without a prescription to check for ketones in either blood or urine.

TASKS SPECIFIC TO WOMEN

- Some smartphone apps track menstrual cycles and symptoms, peri/menopause symptoms; or ovulation & fertility, yet none include diabetes tasks as of yet.