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Ohio Cardiovascular and Diabetes Health Collaborative

Optimizing the Telehealth Diabetes Visit: Glucose Monitoring Data

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Managing diabetes via telehealth has positive benefits on A1C, body mass index, quality of life, and other outcomes,[1,2] particularly when used in conjunction with automatic mobile transmission of data or real-time feedback to patients.[3]

However, there are disparities by age, geography, socioeconomic status, and race/ethnicity in access to video visits.[4] Patients need access to a reliable internet connection, a device with a webcam, and must have adequate digital literacy to conduct the visit. The additional skills and infrastructure needed to transmit glucose data could further magnify gaps in outcomes among at-risk populations. Therefore, it is critical to conduct appropriate planning and capacity building for patients and primary care teams to facilitate successful telemedicine encounters for patients with diabetes.

Methods of Glucose Monitoring and Interpretation of Data

Methods of glucose monitoring and glucose targets are discussed in detail in the Cardi-OH resources, Beyond the A1C: Targets for Blood Glucose and Methods of Measurement and Interpretation of Continuous Glucose Monitoring in Primary Care: A Case-Based Approach.

Self-Monitored Blood Glucose (SMBG)

Patients not on insulin therapy may benefit from periodic structured monitoring if there is a plan to use the information or provide feedback.[5] Patients requiring insulin should test more regularly, including before and occasionally after meals, before driving, at bedtime, during symptoms of hypoglycemia or hyperglycemia, and prior to physical activity. For examples of approaches see the Diabetes QIP Toolkit.

An approach to interpretation of glucose monitoring data is shown in Figure 1.

Figure 1. Blood Glucose Pattern Management

1. Review medication-taking behaviors.
2. Assess presence and timing of meals and snacks, particularly overnight.
3. Evaluate patterns related to physical activity or work.
4. Address hypoglycemia. If hypoglycemia occurs overnight or with skipped meals, reduce basal insulin or sulfonylurea.
5. Address morning glucose. If morning glucose is consistently above goal without bedtime or overnight snacks, increase basal insulin.
6. Assess patterns after meals, particularly the largest meal of the day.
7. Additional recommendations are available at Cardi-OH.org.
8. If there is no pattern, get more data or utilize continuous glucose monitoring (CGM).

Continuous Glucose Monitoring (CGM)

Consider patient-owned CGM for individuals who require insulin, experience hypoglycemia, or are willing to wear the device to support behavioral changes, provided cost and insurance coverage are not barriers.

Table 1. CGM and A1C Goals

A1C Goal (%)	7	7.5	8
% TIR 70-180 mg/dL	>70	>60	>50
% Time below 70 mg/dL	<4	Not specified	<1

For CGM, principles of glucose monitoring are further supported by the addition of the Ambulatory Glucose Profile (AGP), which is a standardized report that displays 14 days of glucose data.[6-9] Key components of the AGP include:

- Percent **Time in Range (TIR) 70-180 mg/dL:** As with A1C, the TIR goal should be individualized based upon age, comorbidities, and hypoglycemia risk (Table 1).
- **Glucose Management Indicator (GMI):** The GMI is valuable for estimating A1C (requiring 14 days of data).

Recommendations and Considerations for Data Sharing

The following is meant to provide an overview of a general approach to telehealth. A formal process for implementing remote glucose monitoring within a clinic is recommended.[10] Clinics may choose to focus on one or two devices or platforms, especially as they roll out telehealth diabetes visits. Remote monitoring reimbursement codes can also be considered for device setup (99453 or 99454), staff communication (99457-8), and physician/advanced practice provider interpretation of digital data (99091 for SMBG, 95251 for CGM) to support the process of setting up remote monitoring. For details on conducting a successful telehealth visit, see the Diabetes QIP Toolkit (pages 16 & 43). Additional Resources on team-based care and digital literacy are available at the end of this document.

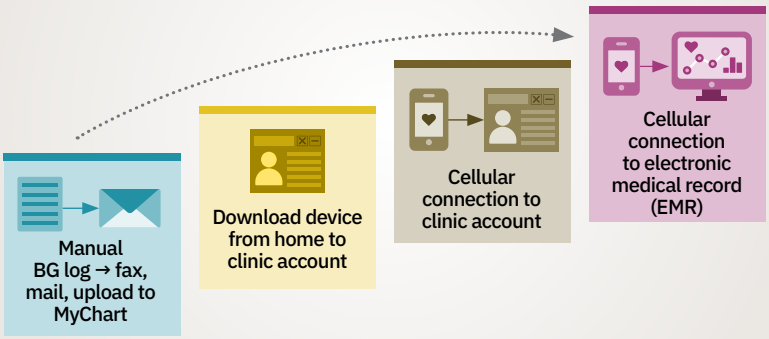
All clinical team members can play a role in ensuring the success of data collection.

- **Administrative and Clinical Staff:** Provide glucose logs or standardized device-specific instructions.
- **Diabetes Clinicians and Providers:** Certified diabetes care and education specialists (CDCES), pharmacists, or other trained staff can assess patient readiness and barriers, set up apps and connections on a patient's phone, and train patients on how to download devices or connect to clinic accounts.[10]
- **Nurses/Medical Assistants:** A pre-call with a patient reduces the frequency of a failed video visit by half.[4] A nurse or medical assistant can ensure that glucose monitoring data is obtained in advance of a visit.

How to Share Glucose Data Remotely

The following methods of sharing data (Figure 2) are useful for virtual visits and may also be useful for streamlining in-person visits. See Additional Resources for specific applications.

Figure 2. Hierarchy of Strategies for Successful Remote Glucose Monitoring



- **Continuous Glucose Monitors:** Several continuous glucose monitors are approved by the U.S. Food and Drug Administration (FDA) and most can transmit data via a mobile app to a device-specific clinic account, agnostic platform, or be integrated within the EMR via an intermediary platform.[11] The following devices are covered under Ohio Medicaid:
  - **FreeStyle Libre**: Data can be shared with the provider via a mobile app or by connecting the reader to a computer using a USB cable. The clinic can send an invitation email that guides the patient through the process or provide a clinic code for manual entry into the app.
  - **Dexcom CLARITY:** Data can be shared automatically via an app or computer download, depending on whether the patient is using a smart phone or the receiver to view data. Teams can share a clinic-specific code with the patient, or the patient can generate their own code that is good for up to one year.
- **Device Downloads:** Downloading patient data from a device helps to eliminate errors and missing data and facilitates faster, more accurate analysis.[12]
  - **Connected Meters** (Figure 3): Ohio Medicaid covers glucose meters that link via Bluetooth to the patient's mobile phone (OneTouch Verio Flex®).[13] Patients can generate a screenshot or upload a PDF of reports to a patient portal. Electronic medical records (EMRs) can connect certain devices directly to the glucose flowsheet via an intermediary service, such as Apple HealthKit or another intermediary platform (Figure 3).[14]

Figure 3. Steps for Transmitting Connected Glucose Meter Data to the Clinic

1. Glucose meter or CGM with Bluetooth transmits data to device specifc app.
2. Patient creates PDF report or takes screenshots and uploads to EMR, or data is automatically transmitted to EMR via device app or intermediary platform.
3. Provider views data in EMR.

Figure 4. Glucose/Insulin Report from Tidepool

Images from Tidepool used with permission.

- **Device Agnostic Platforms:** Numerous platforms provide the ability to download and integrate data from multiple devices and organize data into standardized reports, facilitating efficient interpretation of data.[14] Platforms vary in features, including cost, availability of a mobile application, and ability to integrate within the EMR. Tidepool is a free web service and app compatible with over 50 diabetes devices. Patient data PDF reports can be generated and downloaded (Figure 4) from a website or dedicated software. A mobile app can be used to add meals, exercise, and other events that will be displayed with glucose monitoring data.

- **Glucose Logs:** Logs that organize data in graphic or tabular format by date and time of day are preferred to a list of values.
  - **Written Logs:** Patients can take a picture and send it to the clinic electronically or by mail/fax.
  - **Apps:** Patients can collect data about medications, blood glucose values, and meals that can be saved and shared with the team as a PDF or screenshots.
  - **Patient Portal/MyChart:** Many EMR systems have a portal where patients can enter SMBG data into a flowsheet, although data needs to be entered manually. Ordering providers may be able to set up inbox notifications at regular intervals to review data or thresholds for more timely notification of high or low values.
- **Patient Recall:** This method is the least reliable. If the patient is not able to send data, staff should record one week of values from the meter memory to a standard template prior to the telehealth visit.

Future Directions

The current process for obtaining glucose monitoring data generally involves multiple steps, and there are few options to directly link data from a device to the EMR.[15] Glucose monitoring devices that can link directly to a mobile phone show the most promise in this regard. In low resource populations, there is an opportunity to leverage CDCES support[10] and community health workers[16] to assist with collection of glucose monitoring data. Additional research is needed to optimize workflows within primary care practices. While improvements are implemented to streamline data sharing from home monitoring devices, a preplanned team approach can optimize data acquisition.

It is important to be aware that the FDA does not regulate all mobile medical applications. The FDA only regulates mobile applications that are considered medical devices, meaning they deliver clinical outcomes. In addition, patients should only use diabetes management devices authorized by the FDA in the United States and only use them for their intended purpose according to manufacturer instructions.[17,18] Concerns remain about information security and data sharing, but there is limited evidence from clinical trials about how these are addressed, which represents an important opportunity for additional research.[19]

Additional Resources

- **Association of Diabetes Care & Education Specialists**
  adces.org/practice/practice-resources#educatorguidance
- **American Diabetes Association Education Library**
  Worksheets include Blood Glucose Log, Tracking Blood Glucose, and Checking Blood Glucose
  professional.diabetes.org/clinical-support/patient-education-library
- **Remote Patient Monitoring Information**
  - Telehealth for Providers: What You Need to Know
    cms.gov/files/document/telehealth-toolkit-providers.pdf
  - FAQs on Coding and Billing for 99091 and 99457
    endocrine.org/-/media/endocrine/files/advocacy/qpp-macra-documents/2021-summary-and-final-rules/faqs-on-coding-and-billing-for-99091-and-99457.pdf
  - Navigating Digital Medicine Coding and Payment
    ama-assn.org/system/files/2018-12/playbook-resources-step-5-coding-payment-REV1.pdf
  - AAFP Coding for Remote Patient Monitoring and Continuous Glucose Monitoring
    aafp.org/family-physician/practice-and-career/getting-paid/coding/coding-remote-patient-monitoring-continuous-glucose-monitoring.html
- **Tidepool**
  - Getting Started Tips for Clinicians
    support.tidepool.org/hc/en-us/articles/360029368832-Getting-Started-With-Tidepool
  - Sharing Your Data (Patient Instructions)
    support.tidepool.org/hc/en-us/articles/360029684951-Sharing-your-Data

- **FreeStyle LibreView Website and LibreLink App**
  - Clinic Set-Up and Data Sharing
    freestyleprovider.abbott/us-en/setting-up-practice.html
  - Patient Instructions
    - Connecting With Your Doctor:
      freestyle.abbott/bh-en/discover-freestyle-libre/getting-started-with-freestyle-libre/connecting-with-your-doctor.html

- **Dexcom Clarity**
  - User Guide for Clinics
    productstore.clarity.dexcom.com/Documentation/en/Dexcom_Clarity_User_Guide_Clinic.pdf
  - Clinic Set-Up and Data Sharing
    dexcompdf.s3-us-west-2.amazonaws.com/HCP_Website/Dexcom+CLARITY+Resources/LBL014349+Dexcom+CLARITY+Clinic+Reference.pdf
  - Patient Instructions
    - With a Clinic Code
      dexcompdf.s3-us-west-2.amazonaws.com/HCP_Website/Dexcom+CLARITY+Resources/LBL013937+Dexcom+CLARITY+Patient+Sharing+Handout.pdf
    - Without a Clinic Code
      dexcom.com/faqs/how-do-i-share-data-with-my-clinic-using-dexcom-clarity-app

- **Cardi-OH**
  - **Beyond the A1C: Targets for Blood Glucose and Methods of Measurement:** A1C targets and results interpretation and glucose monitoring methods.
    cardi-oh.org/resources/beyond-the-a1c-targets-for-blood-glucose-and-methods-of-measurement
  - **Diabetes Quality Improvement Project (QIP) Toolkit:** change principles and best practices to achieve optimal management.
    cardi-oh.org/resources/diabetes-qip-clinical-toolkit
  - **Hypertension Management: Tips for Telehealth:** helpful tips for clinicians to manage patients' hypertension in a telehealth visit.
    cardi-oh.org/resources/hypertension-management-tips-for-telehealth
  - **Using Team-Based Care to Increase the Use of Home Blood Pressure Monitoring (HBPM):** tips to leverage the team-based care model to increase the use of HBPM by patients.
    cardi-oh.org/resources/capsule-6--using-team-based-care-to-increase-the-use-of-home-blood-pressure-monitoring-hbpm
  - **Utilizing Huddles to Improve Team-Based Care:** descriptions of different types of huddles in clinical practice and suggested strategies for successful implementation
    cardi-oh.org/resources/utilizing-huddles-to-improve-team-based-care
  - Optimizing Telehealth for Diabetes Care (podcast)
    cardi-oh.org/resources/podcast-18--optimizing-telehealth-for-diabetes-care
  - Hypertension Management in the Era of Telehealth (podcast)
    cardi-oh.org/resources/podcast-3--hypertension-management-in-the-era-of-telehealth

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