A Supplement to CareManagement

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Continuous Glucose Monitoring: Interpreting the Data Update 2023

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Introduction

With the influx of more technological tools to assist in the management of diabetes, health care professionals (HCPs) are tasked with gaining a working knowledge of popular devices that will support people with diabetes (PWD) who are striving to achieve and maintain glucose goals and reduce their risk of diabetes-related complications. The mainstays of diabetes care and education have moved beyond focusing on lifestyle modifications, antihyperglycemic pharmacologic agents, and glucose monitoring, which includes blood glucose monitoring (BGM) and continuous glucose monitoring (CGM) to inform treatment adjustments. (ElSayed et al 5. 2023, ElSayed et al 7. 2023) This supplement will explore the role of the care manager in incorporating use of CGM into diabetes care. We will discuss how to educate and support PWD to review CGM data with their health care team to develop healthier behaviors, improve glycemic outcomes, and ultimately enhance quality of life.

Benefits of Choosing a CGM vs a BGM

In recent years, a growing number of clinicians and PWD have discovered the value of CGM over the gold standard of using a BGM. The fundamental difference between using a BGM and a CGM is that a BGM provides data at a single moment in time, whereas CGM provides a continuous stream of data every 1 to 5 minutes throughout the day and night. (ElSayed et al 7. 2023) Since most people with type 2 diabetes (T2D) only use a BGM once or twice a day, wearing a CGM greatly increases the ability to identify key patterns such as postprandial rises and nocturnal hypoglycemia that require changes in therapy. (Edelman 2018, Janapala 2019) Another unique benefit of CGM is the opportunity to predict and take action to prevent hypo- or hyperglycemia through use of trend arrows and customizable alerts and alarms. (Longo 2019) Because CGM can be used to inform in-the-moment treatment and long-term therapeutic management decisions, the American Diabetes Association (ADA) supports recommending CGM for adult PWD who are receiving insulin therapy.

Data from randomized controlled trials with real-time CGM (rtCGM) have shown that people with T2D who are receiving multiple daily injections, basal insulin alone, and mixed therapies all had reductions in HbA1c. (ElSayed et al 7. 2023) The Dexcom G6 and G7, Senseonics Eversense® E3, and Medtronic Guardian™ Sensor 3 rtCGM systems transmit the glucose data continuously every 5 minutes to a receiver or other connected device such as a smartphone (Table 1). Similarly, data from observational and retrospective studies with intermittently scanned CGM (isCGM) show HbA1c reductions in multiple daily injections, basal insulin, and basal insulin plus noninsulin therapies in adults with T2D. (ElSayed et al 7. 2023) In the past, the Abbott Freestyle CGM systems (Freestyle Libre 14-day and Libre 2) were limited to isCGM systems that required the wearer to scan the glucose sensor to view the glucose data in a reader or other connected device such as a smartphone. The Freestyle Libre 3 is a rtCGM, which also sends real-time data along with optional alarms to a compatible smartphone every minute. (FDA 2022)

How Does CGM work?

CGM measures glucose levels in interstitial fluid via a glucose sensor placed in the subcutaneous tissue just beneath the skin. When a new sensor is placed, there is a brief warm-up period that varies by device. During this warm-up period, no data are displayed until the sensor is ready to provide reliable results. (Edelman 2018) In addition, the Eversense E3 and Medtronic Guardian™ Sensor 3 sensors require daily calibrations with a fingerstick blood sample to test blood glucose in order to maintain accuracy. Because CGMs measure interstitial fluid instead of blood, there may be a lag time of several minutes when the glucose levels are rapidly rising or falling, such as after eating and during and after physical activity. (Ajjan 2018) Of note, no CGM system has been cleared by the FDA for use in dialysis or hospitalized patients. The Dexcom G7 and the Freestyle Libre 2 and 3 are FDA approved for use in pregnancy and gestational diabetes (GDM). See Table 1 to compare features of commercially available CGMs in the United States.

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TABLE 1 **COMPARISON OF COMMERCIALLY AVAILABLE CGMs**

CGM system	Dexcom G6	Dexcom G7	Eversense® E3	FreeStyle Libre 3	FreeStyle Libre 2	Guardian™ Sensor 3
Company	Dexcom	Dexcom	Senseonics Ascensia Diabetes Care	Abbott	Abbott	Medtronic
Sensor	Yes	Yes	Yes. Inserted by HCP	Yes	Yes	Yes
Warm-up period	2 hours	30 minutes	24 hours	1 hour	1 hour	2 hours
Sensor wear time	10 days	10 days	180 days	14 days	14 days	7 days
Transmitter	Yes. Approximately 90-day battery life	Yes, built into the sensor	Yes. Removable, rechargeable	Yes, built into sensor	Yes, built into sensor	Yes. 1 year, rechargeable
Receiver	Yes, or can use compatible device	Yes, or can use compatible device	Compatible device	Yes, or can use compatible device	Yes, or can use compatible device	Compatible device
Alerts	Yes	Yes	Yes	Yes	Yes	Yes
Non-adjunctive Indication (can make treatment decisions without a BGM)	Yes	Yes	No BGM required every 12 hours for the first 21 days then 1–2 times per day	Yes	Yes	No BGM required 2–4 times per day
Adult MARD	9.8%	8.2%	8.5%	8.9%	9.2%	8.7%–10.6%
Integration with insulin pump	Yes	Yes	No	No	No	Yes
How often system measures glucose levels	Every 5 minutes	Every 5 minutes	Every 5 minutes	Every 1 minute	Every 1 minute	Every 5 minutes
Age of approved indication (years)	≥2	≥ 2	≥18	≥4	≥4	≥2
Approved for use in pregnancy (pre-existing diabetes and GDM	No	Yes	No	Yes	Yes	No

Abbreviations: BGM, blood glucose monitoring; GDM, gestational diabetes mellitus; HCP, health care professional; MARD, mean absolute relative difference;

Sources: Abbott. Freestyle Libre 2 User's Manual. 2021. Accessed June 18, 2023. https://freestyleserver.com/Payloads/IFU/2021/q3/ART44416-001_rev-A_WEB.pdf. Abbott. Freestyle Libre 3 User Guide. June 10, 2022. Accessed June 18, 2023. https://freestyleserver.com/Payloads/IFU/2022/q2/ART43911-001_rev-B.pdf. Ascensia Diabetes Care. Eversense E3 Support. 2023. Accessed June 18, 2023. https://www.ascensiadiabetes.com/eversense/user-guides/ . Dexcom. Dexcom G6 and G7 User Guides. Accessed June 18, 2023. https://www.dexcom.com/en-us/guides. Medtronic. Guardian Sensor 3. Updated February 2022. Accessed October 13, 2023. https://www.medtronic.com/us-en/health-care-professionals/products/diabetes/continuous-glucose-monitoring-systems/guardian-sensor-3.html

Commercial and public insurance continues to expand reimbursement for CGM and billable services, especially professional CGM, which can be anywhere from twice a year to monthly depending on coverage.

Can CGM Be Used to Dose Insulin?

The FDA has labeled some CGMs as "nonadjunctive" or therapeutic based on performance data, meaning the wearer can safely use CGM data to make treatment decisions such as dosing insulin or treating hypoglycemia. Currently, Abbott FreeStyle Libre CGMs, the Dexcom G6 and G7, and Senseonics Eversense E3 have nonadjunctive clearance. In contrast, an adjunctive CGM requires confirmation with a BGM before making treatment decisions. (Edelman 2018) Currently, no CGM has been cleared by the FDA for use in the inpatient setting. Many studies have been done since the start of the COVID-19 pandemic, with the hope of gaining FDA approval in the future.

Coding and Reimbursement

Commercial and public insurance continues to expand reimbursement for CGM and billable services, especially professional CGM, which can be anywhere from twice a year to monthly depending on coverage. Billing codes are available for the initiation and interpretation of both professional and personal CGM using Current Procedural Terminology (CPT) codes 95249 and 95250 for startup and training (CPT code 95249 for personal CGM and 95250 for professional CGM). The CPT code 95251 can be billed by a prescriber for data review, data interpretation, and data-driven recommendations if there is a minimum of 72 hours of CGM data available. (AACE 2022, Janapala, 2019) Medicare's coverage of personal CGM has expanded, currently providing coverage for PWD taking insulin or wearing an insulin pump. (CMS 2022)

TABLE 2 PROFESSIONAL CGM SYSTEMS AVAILABLE IN THE UNITED STATES

CGM system	Freestyle LibrePro	Dexcom Pro	Medtronic iPro2
Blinded vs unblinded	Blinded only	Option for use blinded or unblinded with smart device	Blinded only
Sensor wear	14 days	10 days	7 days
Glucose alerts and alarms	No	Yes, if connected to smart device with unblinded option	No
Calibration required	No	No	Yes

Who Is a Candidate for Professional CGM?

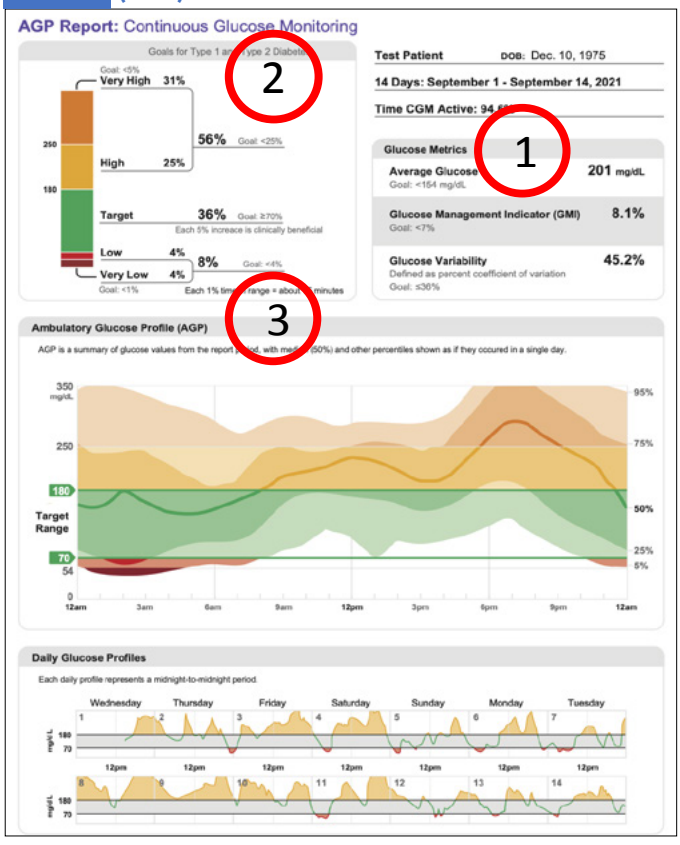
The decision to monitor glucose with a blood glucose monitor, and/or wear a continuous glucose monitor, just as for all diabetes management strategies, should be individualized (ElSayed et al 7. 2023). The choice to not wear a CGM may be based on a multitude of reasons including resistance to wearing a device full time, inability to correctly place and manage the device, real or imagined annoyance with alerts and alarms, and out-of-pocket cost. For those who do not want a personal CGM, use of professional CGM intermittently and alternating with a BGM when the CGM is not worn may be a strategy to obtain helpful data.

Professional CGM systems are available as "blinded" so that the wearer does not see any data until the sensor is downloaded by an HCP and reviewed retrospectively. Dexcom also offers an "unblinded" option, in which PWD are able to view glucose data on a smartphone or tablet in real time. The advantage of a blinded professional CGM is that the clinical practice purchases and places the device on the PWD, and thus the PWD does not need to learn how to use the device at that time. Unblinded professional CGM can provide the benefits of personal CGM for individuals who are not reimbursed or who would like to "test drive" CGM without committing to purchasing a personal CGM system. The power of shared decision-making when downloading and interpreting professional CGM data and making collaborative data-driven modifications in diabetes management in real time and retrospectively when reviewing reports can be instrumental in motivating PWD to try a personal CGM some of the time. Although blinded professional CGM data are retrospective, the ability to identify patterns of previously undetected hypo- and hyperglycemia can successfully inform data-driven changes in meals, physical activity, and initiation, titration, and timing of diabetes medications. (ElSayed et al 7. 2023, Kesavadev 2017). Professional CGM systems available in the United States are shown in Table 2.

Who Is a Candidate for a Personal CGM?

The ADA recommends that personal CGM systems should be offered to adults with type 1 and type 2 diabetes who are using insulin or wearing an insulin pump. In addition, several personal CGMs are now approved for pregnancy and GDM. Most CGMs are worn 7 to 14 days, with the exception of the Senseonics Eversense E3, which is inserted completely under the skin by an HCP and worn for 180 days. Unlike a blinded professional CGM, a personal CGM will continuously transmit glucose data to a personal receiver, smartphone, smartwatch, or other compatible device and can sound alerts and alarms as well as vibrate in response

FIGURE 1 A SAMPLE AMBULATORY GLUCOSE PROFILE (AGP) REPORT FROM CGM



Permission pending. International Diabetes Center. AGP – Ambulatory Glucose Profile. Accessed October 11, 2023. http://agpreport.org/agp/agpreports

to rapidly changing glucose levels and preset glucose thresholds. (ElSayed et al 7. 2023, Longo 2019) A CGM that uses a smart device to display glucose data can share glucose data remotely with family members, caregivers, and HCPs. Determining which CGM system to use is a personal decision made between PWD and their HCP. When an individual starts wearing a CGM, it is important that they have a basic understanding of how to use the trend arrows, interpret the alerts and alarms, and take appropriate actions when needed. Over time, this education is key in motivating PWD to see the value of CGM in guiding self-care management activities daily in addition to making long-term lifestyle and medication adjustments in collaboration with their care team.

We will discuss a standardized method of interpreting CGM data and apply this knowledge to reviewing and interpreting data downloads from two typical cases.

Downloading and Interpreting CGM Data

It is critical for HCPs to be trained in interpreting CGM data to assist PWD with understanding how to use trends and patterns for treatment plan changes and real-time decisions. CGM devices can manually or automatically upload the data to cloud-based platforms that can be viewed by the PWD and remotely by HCPs after the individual grants access to their data. If using a smart device to view the data, uploading will occur automatically. If a receiver is used to view data, it must be manually uploaded from the receiver to a computer. Most diabetes clinics and some primary care offices upload CGM data as well.

While CGM glucose data can then be viewed in a variety of reports, the Ambulatory Glucose Profile (AGP) Report is the most highly recognized, standardized report (Figure 1 and Table 3).

TABLE 3 PARAMETERS INCLUDED IN AGP REPORTS

	Definition	Target	Clinical Pearls
1: Glucose Statistics and Targets			
Percentage of time CGM active	Percentage of time the CGM was actively worn and collecting data. For isCGM, each scan downloads the previous 8 h of CGM data	Active at least 70% of time	Recommended to have at least 10 d of CGM data (or 70% CGM active time) available to confidently use data for treatment decisions (Danne 2017)
Average glucose	All glucose values are added together and divided by number of readings (mean)	<154 mg/dL	Glucose targets should be individualized (ElSayed et al 6. 2023)
Glucose management indicator (GMI)	Calculated from average glucose, provides a rough estimate of HbA1c based on the average glucose during the report period	<7%	14 d of CGM data has been shown to provide a good estimation of glucose metrics for the last 3-mo period. (Riddlesworth 2018) The glucose management indicator can serve as an educational and motivational tool to allow PWD to reflect on anticipated HbA1c if the conditions during the reporting period are continued for the next 2–3 mo
Glucose variability	Indicates how much glucose levels fluctuate throughout the day and night	< 36% of the time	In general, lower glucose variability is preferred since it usually indicates less hyper- and hypoglycemia. (Monnier 2021, Zhou 2020) To decrease glucose variability, it is important to help PWD prevent and appropriately treat hypoglycemia with15 g of fast-acting carbohydrates followed by glucose recheck in 15 min until the hypoglycemia is resolved. Dosing mealtime insulin within15 min of the first bite of the meal and consuming more complex carbohydrates as part of a balanced meal plan may also help minimize glucose variability

(continues)

TABLE 3 **PARAMETERS INCLUDED IN AGP REPORTS** *(continued)*

	Definition		Target	Clinical Pearls
2: Time in Glucose Ranges: Percentage of time and hours/minutes of a 24-hour day spent in glucose range				
Time above range (TAR)	Very High	>251 mg/dL	<5% of the time	Discuss frequency of missed antihyperglycemic medication and insulin doses and troubleshoot cause
	High	181-250 mg/dL	<25% of the time	A target of < 50% TAR may be appropriate for older adults and high-risk PWD (Battelino 2019) Reviewing appropriate timing of mealtime medications and encouraging a balanced meal plan and regular physical activity may help reduce hyperglycemia
Time in range	Glucose 70-180 mg/dL		>70% of the time	TIR has become a key metric for CGM wearers to guide diabetes therapy. May be individualized to clinical situation (ie, target 70-140 mg/dL), although AGP Report will always use 70-180 mg/dL as target range. Every 5% increase in TIR has clinically significant benefits (Battelino 2019)
Time below range	Low	55-69 mg/dL	<4% of the time	Low glucose patterns may be present on the same day as high glucose patterns and are often interrelated. Addressing hypoglycemia is always the priority. Discuss the timing of medications, variability in meals (timing and carbohydrate content), and the role of physical activity
	Very Low	<54 mg/dL	<1% of the time	Immediate attention is required if the percentage is above 1%. Often associated with cognitive impairment. Particularly dangerous for PWD and individuals with cardiovascular disease (Battelino 2019)
3: Ambulatory Glucose Profile: Daily glucose profiles are combined to represent the glucose patterns over a single 24-hour day				
Heavy (middle) line	Represents median glucose value		Ideally mostly flat and inside the target (70-180 mg/dL)	Presents "average day"; ideally is stable and in target range
Darker shading	Represents 50% of the glucose values		Ideally is narrow	The narrower the area the less the glycemic variability
Lighter shading	Represents 95% of glucose values		Ideally is close to darker shaded area	The wider the area the higher the glycemic variability
Daily glucose profile	Thumbnail boxes displaying a single day's glucose pattern. Time below range is shaded red, time above range is shaded yellow			Reviewing daily profiles helps identify patterns related to variation in schedule (ie, weekends versus weekdays), changes in self-care behaviors, and stress.

Abbreviations: CGM, continuous glucose monitoring; isCGM, intermittently scanned continuous glucose monitoring.

Figure 1 shows an example of the AGP Report. (International Diabetes Center 2023, Battelino 2019) The AGP is a standardized single-page glucose report that includes summary glucose statistics, a glucose profile graph, and individual daily glucose trend graphs. (International Diabetes Center 2023) This report is incorporated into proprietary CGM reporting software and helps to translate the glucose data into a graphic display for quick and easy interpretation. This standardized report is similar to an electrocardiogram (ECG) report, which includes standardized metrics and should be interpreted in a uniform manner regardless of the machine used. Table 3 describes each of the parameters included in the AGP Report as well as clinical pearls for interpreting the data.

Step 1: Assess for adequacy of data. It is recommended that CGM be used for at least 70% of the time or about 10 of the 14 days included in the AGP Report. (Battelino, 2019) If data collected are insufficient, gaps in the AGP graph will exist as seen in Figure 2. In this example, a PWD is using an isCGM. You can see in the Daily Glucose Profiles that the individual is scanning 1 to 2 times per day, resulting in the CGM being active 45% of the time. Because the amount of sensor data is inadequate, the glucose management indicator (GMI) was not calculated, and care should be taken when evaluating all of the metrics for therapy changes. This AGP Report example can still be useful for counseling about the significant postprandial rise seen on several daily graphs (Figure 3).

TABLE 4 SIMPLE STEPS TO INTERPRET CGM DATA

Step 1	Assess for adequacy of data
Step 2	Assess for hypoglycemia
Step 3	Review overnight trends and patterns
Step 4	Assess for hyperglycemia
Step 5	Assess for glycemic variability
Step 6	Develop an action plan using data-driven shared decision-making

Source: Minimed 2017, Dexcom 2022, Abbott 2021

Before beginning to identify patterns and make recommendations, it is important to orient the CGM data report with the individual's daily schedule, noting when the individual typically sleeps, eats, takes diabetes medication, and is physically active. PWD should be encouraged to interpret the data with their HCP to promote data-driven shared decision-making. One helpful strategy is to draw circles around patterns directly on a copy of the AGP Report and ask PWD what they see. (Johnson 2019)

Step 2: Assess for patterns of hypoglycemia. Review the results and targets for time spent in hypoglycemia. When reviewing the AGP Report, remember that if the lighter shading is touching or below 70 mg/dL, this indicates at least 5% of all glucose values are <70 mg/dL during that time. Immediate action is needed to address hypoglycemia if the darker shading is touching or below the 70 mg/dL line or the lighter shading touches 54 mg/dL. (Johnson 2019) It is important to assess hypoglycemia reported by the PWD and to review the daily glucose profiles together to determine if hypoglycemia occurs on particular days (ie, weekends vs weekdays) or following periods of hyperglycemia or physical activity.

Step 3: Review overnight trends and patterns. Ideally the glucose is stable and in target range. For PWD who are overtreated with basal insulin (ie, glargine, detemir, degludec), you may see a downtrend overnight with an accompanying increased risk of nocturnal hypoglycemia. (Cowart 2020) Fasting hyperglycemia may be the result of rebound from overnight hypoglycemia, an effect called the Somogyi phenomenon. (Klonoff 2016) CGM has been proven to reduce or prevent nocturnal hypoglycemia. (Olafsdottir, 2018)

Step 4: Assess for hyperglycemia. Discuss meal choices and portion sizes, timing of diabetes medications (premeal, postmeal, or missed), and stress if there is a large amount of glucose variability (wider area of shading). It can be helpful to assess the daily glucose profile to review specific examples.

Step 5: Assess for glycemic variability. Reviewing the daily glucose profiles may be helpful in identifying key contributing factors to variation in glucose levels.

Step 6: Set goals and make an individualized and mutually agreed upon follow-up plan for adjustment in therapy. PWD may be motivated by the knowledge that a 10% increase in time in range (TIR) can translate into a 0.5% decrease in HbA1c, a clinically meaningful benefit. (Battelino, 2019)

Case Study 1

Mr. G is living in assisted living, and his diabetes management plan includes metformin 850 mg by mouth (PO) twice daily and glargine 35 units subcutaneously at 9 p.m. His HbA1c has remained between 8% and 8.5% despite an increase in his glargine insulin dose. Mr. G requires assistance from his wife, who checks his fasting blood glucose daily and reports a blood glucose range of 90 to 135 mg/dL. To learn more about Mr. G's blood glucose levels throughout the day and night, a professional CGM system was placed in the practice with the following report (Box 1) that we can review.

BOX 1 CGM REPORT

Start with a stepwise approach to reviewing data:

- Assess for adequate amount of data for use: yes, 97% (Goal > 70%)
- Assess for hypoglycemia: yes, nocturnal hypoglycemia after a steady decline in glucose overnight. Goal < 4 % low, < 1% very low)
- Review overnight trends and patterns: steady decline in glucose overnight with hypoglycemia
- Assess for hyperglycemia: yes, 48% TIR (Goal > 70%) with 28% high and 21% very high (Goal < 25% high, < 5% very high). Hyperglycemia appears to occur postprandially and is often preceded by a drop in glucose (review 12-5 a.m. and 3-6 p.m. time periods in the AGP summary of glucose values graph)
- Assess glycemic variability: 44% is above target of less than percent of the time. Hypoglycemia and rebound hyperglycemia are likely the causes
- Develop an action plan using data-driven shared decision-making: reduce basal insulin dose and add a glucagon-like peptide-1 receptor agonist (GLP-1 RA)

Mr. G has a sharp downtrend overnight with occasional mild hypoglycemia. His HbA1c is elevated due to postprandial hyperglycemia, and he is at risk for nocturnal hypoglycemia if his dinner is low in carbohydrates or if he skips dinner. After discussion with the care team and the PWD, the basal insulin dose is lowered to reduce overnight hypoglycemia and a GLP-1 receptor agonist (RA) (dulaglutide) is added to the diabetes management plan since a GLP-1 RA will blunt postprandial hyperglycemia without causing hypoglycemia.

Care managers are perfectly positioned to identify PWD who could benefit from CGM and assess their willingness to try it. In the process of downloading and interpreting the data, the care manager will help to unlock the power of CGM as a dynamic tool to help manage diabetes.

Case Study 2

Mrs. E is a 52-year-old woman. She takes 25 units of glargine every night at 10 p.m. and 4 units of insulin aspart with each meal. She has been waking up with hypoglycemia and, therefore, has been skipping her morning insulin aspart dose but continues to take insulin aspart with lunch and supper. Mrs. E began wearing a CGM but does not have alarms because she fears interrupting her partner's sleep.

BOX 2 REVIEW OF DATA

- Assess for adequate active CGM data: yes,100% of the time
- Assess for hypoglycemia: fasting hypoglycemia 4% of the time below 54 mg/dL (Goal < 1%) calls for immediate action. Note the frequent steady decline in glucose overnight
- Review overnight trends and patterns: steady decline overnight
- Assess for hyperglycemia: consistent pattern of rebound hyperglycemia following hypoglycemia
- Assess glycemic variability: 38% is above target of less than 36% of the time. Fasting hypoglycemia with subsequent post-breakfast rise as well as variability of glucose in the evening may be contributing
- Develop an action plan using data-driven shared decision-making: reduce basal insulin, educate on need for prandial insulin dosing after correcting hypoglycemia to > 70 mg/dL with 15 grams of fast-acting carbohydrate

As you can see, Mrs. E is experiencing fasting hypoglycemia. As a result, she skipped her breakfast prandial insulin dose, which led to significant post-meal hyperglycemia. You work with Mrs. E and her care team and agree to reduce her glargine dose to reduce fasting hypoglycemia. You educate Mrs. E on the importance of treating hypoglycemia first and then taking mealtime insulin at the start of her meal. Mrs. E and her partner discuss the importance of prevention, early identification, and treatment of hypoglycemia with you while you assist in enabling hypoglycemia alarms in the CGM. This illustrates that using CGM and shared decision-making can empower PWD to understand glucose trends, make "smart" treatment decisions in real time, and improve quality of life.

Conclusion

Despite the many advantages of using CGM data to guide diabetes management, the adoption of CGM among people with T2D who do not receive their health care from diabetes specialists remains limited. We hope that this paper will be a call to action for care managers to be advocates for personal and professional CGM for PWD, caregivers, and the health care team. Care managers are perfectly positioned to identify PWD who could benefit from CGM and assess their willingness to try it. In the process of downloading and interpreting the data, the care manager will help to unlock the power of CGM as a dynamic tool to help manage diabetes. ■

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Continuous Glucose Monitoring: Interpreting the Data Update 2023

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Questions

1. **CGM data will allow a patient and their health care team to:**
   a. Develop healthy behavior
   b. Improve glycemic control
   c. Enhance quality of life
   d. All of the above
2. **The major difference between using a blood glucose meter (BGM) and a continuous glucose monitor (CGM) is that BGMs provides data at a single moment in time whereas CGMs provide a continuous stream of data.**
   a. True
   b. False
3. **Benefits of using CGM include which of the following?**
   a. Identifying glucose patterns
   b. Finding opportunities to take action to prevent hypo- and hyperglycemia
   c. Customizing alerts and alarms
   d. All of the above
4. **The American Diabetes Association suggests recommending CGM for adults with diabetes who are receiving insulin therapy.**
   a. True
   b. False
5. **It is critical for health care professionals to be trained in interpreting CGM data to assist the patient with a CGM device.**
   a. True
   b. False
6. **The Ambulatory Glucose Profile (AGP) is a standardized report providing data that includes:**
   a. Summary of glucose statistics
   b. A glucose profile graph
   c. An individual daily glucose trend graph
   d. All of the above
7. **A CGM works via a glucose sensor placed in the subcutaneous tissue just beneath the skin that measures glucose levels in interstitial fluid.**
   a. True
   b. False
8. **What is the target goal of glucose variability?**
   a. < 26%
   b. < 32%
   c. < 36%
   d. None of the above
9. **Time in range has become a key metric for CGM wearers to guide diabetic therapy.**
   a. True
   b. False
10. **Which of the following activities should be considered when identifying patterns and making recommendations from the CGM data report:**
    a. Sleeping
    b. Eating
    c. Physical activity
    d. All of the above
11. **For adequacy of CGM data, what percentage of time is recommended for the CGM device to be used?**
    a. 40%
    b. 50%
    c. 60%
    d. 70%
12. **Assessing the glycemia variability may be helpful in identifying key contributing factors in variation of glucose levels.**
    a. True
    b. False

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Continuous Glucose Monitoring: Interpreting the Data Update 2023

Objectives

1. State 3 benefits of choosing a continuous glucose monitor vs a blood glucose monitor.
2. State how CGM works.
3. State 3 data points provided by the Ambulatory Glucose Profile.

Answers

Please indicate your answer by filling in in the letter:

1. _____ 2._____ 3._____ 4._____ 5._____ 6._____ 7._____ 8._____ 9._____ 10._____ 11._____ 12._____

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