

Guidance for the Use of Continuous Glucose Monitoring in **School Setting**

The purpose of this guidance document is to provide general information to parents/guardians (referred to in this guide collectively as “parents”), school nurses and administrators, school staff, diabetes health care providers, and others about the use of continuous glucose monitors (CGMs) in the school setting to monitor a student’s blood glucose (blood sugar). The student’s individualized Diabetes Medical Management Plan (DMMP), developed and approved by the student’s diabetes health care provider or diabetes health care provider’s orders, contain directives for managing the student’s CGM at school and should be followed and implemented by the school.

The student’s individualized Section 504 Plan, Individualized Education Program (IEP), or other written accommodations plan, should be consistent with the DMMP/provider’s orders. Specific questions unique to individual students should be directed to the student’s diabetes health care provider. This document will be updated as new evidence-based research emerges and devices are approved by the U.S. Food and Drug Administration (FDA)—so we encourage you to check back frequently.

The use of CGMs by students with diabetes has increased dramatically in recent years. According to data from a large type 1 diabetes registry, over 50% of children with type 1 diabetes under the age of 18 have adopted CGM use.¹ As the technology becomes more accessible, easier to use, and further reduces disease burden, these numbers are rising to closer to 80% of children at large diabetes centers.² Youth with type 2 diabetes may also use a CGM depending on their needs. The Standards of Care in Diabetes from the American Diabetes Association® recommends that children with type 1 and type 2 diabetes on insulin be offered a CGM soon after diagnosis, and students should be supported in the use of their diabetes technology at school.³

How does a CGM work?

A CGM consists of a thin, flexible sensor that sits in the skin, a transmitter that works with a sensor, and a receiver or another device which displays the blood glucose reading. The sensor measures blood glucose concentrations in the interstitial fluid (the fluid found just below the skin between cells) and converts that information to an estimated blood glucose.

Why use a CGM?

CGMs collect and communicate valuable information about current blood glucose levels and trends. CGMs update blood glucose data every one to five minutes, depending on the system, which adds significantly more information than a static blood glucose meter (BGM) reading. CGMs have trend arrows that, in combination with the current blood glucose level, allow the user to know how blood glucose levels are changing. Studies have demonstrated the safety of direct dosing from CGM data

without confirmatory fingersticks.⁴ The data provided by the CGM assists health care providers and parents in making changes to insulin doses and can enable the parent, school nurse, or trained staff to institute preventative measures to ensure the safety of a student in school.

A BGM should be available for use if the CGM sensor becomes detached, fails, or may not be working properly. This may include if the child has symptoms which do not match the CGM reading, sensor data shows inconsistent or intermittent gaps in the readings, or sensor readings are not available. Other times blood glucose may be checked using a BGM would be during the first 12 hours of sensor wear (when it is least accurate) and to confirm a low blood glucose (hypoglycemia) or high blood glucose (hyperglycemia) reading if instructed in the students’ DMMP/medical orders.

A Summary of Benefits⁵

1. Immediate access to blood glucose levels. CGMs continuously provide updated blood glucose data.

2. Personalized alarms are displayed on the device (e.g., receiver, pump, or smart phone or other device) to identify the need for an immediate response to high or low blood glucose levels—and hopefully minimize the frequency of unnecessary educational disruptions.

3. Trend arrows that demonstrate the direction and speed of the change in a student’s blood glucose, and in some cases, the ability to predict hypoglycemia so actions can be taken to avert it.

4. Insight into cause and effect. Using event tracking, users can learn how different foods,

activities, illness, stress, and other factors may affect blood glucose levels.

5. Retrospective data review of blood glucose trends which can inform changes to the student’s insulin regimen or behavior.

6. Remote monitoring, allowing parents and other caregivers to view the CGM tracing in real time and receive customizable alarms.

7. Pairing between certain CGMs and insulin pumps in an automated insulin delivery (AID) system which can make insulin adjustments based on CGM readings.

Types of CGMs

Common features of CGMs currently approved for pediatric use are included in the table. These include:

- **Dexcom G6 or G7 CGM**
- **Abbott FreeStyle Libre 2 and Libre 3 CGM**
- **Medtronic Guardian 3 or 4 CGM System**

	Dexcom G6	Dexcom G7	Abbott FreeStyle Libre 2	Abbott FreeStyle Libre 3	Medtronic Guardian 3	Medtronic Guardian 4
Reading frequency	5 minutes		1 minutes		5 minutes	
Integrated sensor and transmitter	No	Yes	Yes		No	
Warm up	2 hours	30 minutes	1 hour		2 hours	
Wear time	10 days		14 days		7 days	
Approved for dosing	Yes		Yes		No	Yes
Calibrations required	No		No		Yes	No
Interfering medications	Tylenol>4000 mg/day Hydroxyurea		Vitamin C>500 mg/day Salicyclic acid		Tylenol	
Receiver options	Receiver, Smart phone, Smart pen, Tandem T: Slim X2, Tandem Mobi, Beta Bionics iLet, Omnipod 5	Receiver, Smart phone, Smart pen, Tandem T: Slim, Control IQ, Tandem Mobi, Beta Bionics iLet	Receiver, Smart phone, Tandem T: Slim X2 (Libre2 Plus)	Receiver, Smart phone	Smart phone, Medtronic 670G, 770G, and 780G	Smart phone, Medtronic 780G pump
Remote monitoring app	Dexcom follow	Dexcom follow	LibreLinkUp	LibreLinkUp	CareLink Connect	CareLink Connect

Please note that device compatibility with each CGM system is continuing to change. This list is up to date as of June 2024.

General Guidelines

A school cannot prohibit the use of a CGM if it is ordered by the DMMP/provider's orders. The DMMP/provider's orders should specify whether a student uses a CGM for blood glucose monitoring. As nearly all CGMs are Food and Drug Administration (FDA)-approved for insulin dosing in children, the DMMP/provider's orders should indicate if there are special circumstances when a sensor would not be used for dosing. Current CGMs on the market are highly accurate and readings do not need to be confirmed by or directly compared to a BGM reading.^{6,7} BGM and sensor readings may differ slightly as they measure different things, and CGM readings may lag behind BGM readings by 5–10 minutes depending upon the device. More notable discrepancies with a BGM may occur when the students' glucose level is changing rapidly.

Blood glucose monitoring is required for diabetes management. If a student with diabetes uses a CGM for their blood glucose monitoring, the school nurse and/or trained school staff are expected to use the CGM in accordance with the student's DMMP/provider's orders. CGM readings and trend arrows should be reviewed at times when blood glucose levels would ordinarily be checked with a BGM (e.g., before meals, with physical activity, before getting on the bus, with symptoms of low or high blood glucose) as outlined in the DMMP/provider's orders.

The use of trend arrows and other advanced CGM features may be enumerated in the DMMP/provider's orders. Trend arrows should be considered when providing interventions with insulin and carbohydrates. Trend arrows and predicted low alarms should allow preventative measures to avoid hypoglycemia while the student is still in range. This is done automatically with AID systems and should be afforded to all students regardless of how they administer insulin.

For some children with diabetes, their management plan may include dose adjustments based on trend arrows at routine dosing times. How to monitor for and respond to trend arrows and related concerns should be discussed with the student's diabetes health care provider and enumerated in their DMMP/provider's orders.

Trained school staff are expected to promptly respond to CGM alarms in the school setting. This may include alarms for hypoglycemia, hyperglycemia, or the rate blood glucose is changing. Trained staff should be able to respond to alarms wherever the child is during the school day. For example, in the classroom, at lunch, or during recess. All school staff assuming supervision or responsibility for children using a CGM should be provided basic training on CGMs, blood glucose levels, alarms, and interventions for hypoglycemia—including emergency measures.

The parent should ensure their child is equipped with a device showing CGM data and/or that communicates alarms to school staff, such as a receiver, smart device, or insulin pump. Students should be provided with access to the school's wireless network if using a smart device for their CGM and/or engaging in remote monitoring (see below). The school district should assure parents they will review CGM readings at appropriate check times and respond to alarms in a timely manner.

Frequent alarms or interventions related to the CGM sensor readings can be disruptive to class time for students.⁸ The goal should be to manage diabetes needs while also promoting student wellbeing and minimizing unnecessary interruptions in the school day.

Remote Monitoring

CGMs use Bluetooth to connect to a smart phone, allowing users to view their CGM data. This enables an added feature whereby children may be remotely monitored, or “followed,” by specified caregivers. These caregivers can view the CGM data on their phone or other device (even if they are not near the student) and receive customizable alarms. The student’s CGM data is shared via an app on a smart device using a wireless network or cellular data. Remote monitoring by parents has been associated with improved glycemia⁹ and improved parent psychosocial outcomes,¹⁰ particularly sleep and worry over hyperglycemia. Other caregivers may be invited to remotely monitor as well, which may include additional family members, the school nurse, and trained staff at the school. In some studies, school or daycare caregivers have reported increased reassurance when they are remotely monitoring CGM readings.^{11,12}

Remote monitoring by school staff adds another layer of supervision for diabetes management. The utility and need for school nurses and trained school staff to remotely monitor should be individualized for each student based on their age and unique circumstances. The DMMP/provider’s orders should indicate if remote monitoring by school staff may be medically necessary for the safety of the student. Contributing factors may be the frequency and severity of hypoglycemia, age and developmental stage of the student, and student’s ability to respond to, understand, or notify staff of alarms. School districts should remove barriers to remote monitoring by school nurses or trained school staff if this is medically necessary for the student. The school nurse and parent, which may include the 504/IEP team, should discuss each student’s circumstances and plan for remote monitoring if needed. Different factors may influence the school’s capacity to provide remote monitoring.

In all cases, schools should follow the DMMP/provider’s orders to use the CGM for routine/periodic and emergent blood glucose monitoring and ensure a timely response to all CGM alarms. Additionally, parents should work with the school to set up a communication system with the school nurse to provide actionable updates on trends throughout the school day, if needed, and to establish expectations regarding the frequency of such communication.⁵ Examples of actionable updates may include hyperglycemia requiring a correction bolus and/or impending hypoglycemia with downward trend arrows on the CGM tracing requiring immediate treatment.

For school nurses who remotely monitor a student’s CGM, we recommend:

- The school/school district or parent should provide a device (e.g., tablet) to link to the CGM sharing app for the student’s system in accordance with the student’s DMMP/provider’s orders. School nurses and trained school staff generally should not be expected to use their personal device to follow students.
- School nurses and trained school staff can follow multiple students on one device using respective applications associated with each device.
- The school district and parent should discuss expectations for CGM remote monitoring during the school day. Specifically, what alarms will be set on the school device, who will be remotely monitoring the student, the response to alarms, timing of remote monitoring, and delineating actions/communication to be taken in response to alerts and/or blood glucose trends. This may be included in the 504 Plan/IEP.
- Where a school nurse and trained school staff member is remotely monitoring the CGM, this should not supersede other strategies to identify and manage hypoglycemia as outlined in the student’s DMMP/provider’s orders.

Parent Considerations

Please discuss the use of a CGM with your designated school team members, including the school nurse and/or other trained school staff (preferably those who participate in the development of your child's 504 Plan/IEP). Schools are expected to use the CGM for blood glucose monitoring and respond to alarms from the device as per your child's DMMP/provider's orders. Responding to alarms can be accomplished with your child's personal receiver/smart phone. Your school may also engage in remote monitoring of your student on the school's smart device as an additional layer of supervision, if indicated by the DMMP/provider's orders. You should review expectations for actionable communication between the school team, yourself, and your child's health care provider. Information from your child's

DMMP/provider's orders will guide this discussion as it prescribes the plan for your child's diabetes management at school directly from your child's diabetes health care provider. The plan for CGM management at school should be consistent with your child's DMMP/provider's orders and included in your child's Section 504 Plan, IEP, or other written accommodations plan.

- If possible, have this discussion with your child's educational team prior to the start of the student's first day school or as soon as possible.
- Keep in mind that the school team members, including school nurses and school staff, who are trained to care for students with diabetes, aim to provide support that will promote the student's safety and facilitate learning. Developing a collaborative relationship between yourself, the diabetes health care provider, and school staff is key.
- Students should have access to their smart device during standardized exams to manage their diabetes. These students may want to seek accommodations such as keeping the student's smart phone within 20 feet of the student.
- Students with a CGM should have access to supplies needed to check their blood glucose levels with a BGM in school in the event the CGM fails.

Hypoglycemia (Low Blood Glucose)

The DMMP will specify a threshold for hypoglycemia requiring treatment. This may correspond with the CGM low alarm, though some parents chose to set the alarm at a higher threshold to identify impending hypoglycemia.

- Follow the DMMP/provider's orders for treatment related to low CGM alarms, including whether a confirmatory BGM measurement is needed. It is prudent to test blood glucose if the child has symptoms of hypoglycemia which do not match the CGM reading.
- Following treatment for low glucose, due to sensor lag times and rapidly changing blood glucose levels, the improvement in blood glucose levels may not yet be visible by a CGM. To avoid over-treating lows, use a blood glucose meter reading before treating a second time if the sensor reading continues to appear low.

- **For all CGM users**, if the student exhibits symptoms of hypoglycemia and a blood glucose meter is not readily available for confirmation of the blood glucose level, the priority should be to treat the low blood glucose level per the DMMP/provider's orders.

Hyperglycemia (High Blood Glucose) and Ketones

The student's DMMP/provider's orders will indicate a threshold high sensor reading which may require action. This could include checking a confirmatory BGM measurement, encouraging water intake, administering an insulin correction dose, and/or checking for urine ketones.

Concerns related to CGM supplies:

- If a CGM sensor falls off at school, the school nurse should help the student place all pieces into a sealable plastic bag to be sent home with the student. No portion of the CGM should be discarded while at school unless instructed by the parent.
- Until the sensor is replaced, the student should be monitored with a BGM.
- It is recommended that the sensor be replaced by the student's family if the student is unable to insert a new sensor themselves.
- Students who have been approved to self-manage their diabetes at school should be permitted to insert a new sensor while at school. The student's DMMP/provider's orders should be referenced to confirm this is appropriate for the student.
- Confirm appropriate diabetes care supplies are available at school and schedule routine inventory of the supplies. Maintain inventory to ensure supplies (e.g., test strips) have not expired.

The information provided in this guide does not constitute medical or legal advice. For medical advice, contact your child's diabetes health care provider. For legal advice, contact an attorney. Find additional Safe at School training resources and tools at diabetes.org/safeatschool.

Thank you to the **ADA's Safe at School Working Group** members for their contributions to this guidance.

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