

LOS ANGELES UNIFIED SCHOOL DISTRICT
Medical Services Division
District Nursing Services Branch

**CONTINUOUS GLUCOSE MONITORING (CGM)
IN SCHOOL SETTING**

I. GENERAL GUIDELINES

A. PURPOSE

The CGM measures the students' glucose levels at designated times during the school day to manage diabetes properly. CGM is a powerful tool that tracks glucose levels through a device attached to the body. It provides real-time updates every 2-5 minutes, empowering individuals to see real-time trends and take action to prevent low and high glucose levels, which can cause serious health issues.

CGM may also be integrated with insulin pumps for automated insulin adjustments based on CGM readings.

B. GENERAL INFORMATION

1. Device Components

A Continuous Glucose Monitoring (CGM) system typically includes:

- A small, flexible sensor inserted just under the skin.
- A transmitter that sends glucose data from the sensor.
- A display device, such as a receiver, compatible insulin pump, or smart device, that shows real-time glucose readings and trend data.

2. How CGM Works

The sensor measures glucose levels in the interstitial fluid (the fluid surrounding cells), while a Blood Glucose Meter (BGM) measures glucose in the capillary blood. These readings may vary slightly due to physiological differences in measurement sites.

3. Sensor Lag Time

Since glucose enters the bloodstream before diffusing into the interstitial fluid, CGM readings typically lag behind BGM readings by approximately 5 to 15 minutes. This lag must be considered when interpreting data, especially during rapidly changing glucose levels.

4. Data Transmission and Alerts

Most CGMs use Bluetooth to transmit glucose data to a smartphone, insulin pump, or receiver. This allows students and caregivers to view glucose trends and receive customizable alerts for highs and lows. Some CGMs also support remote monitoring by parents (e.g., Dexcom Follow, LibreLinkUp).

5. Role of the Diabetes Medical Management Plan (DMMP)

The DMMP or provider's order must clearly define:

- a. Whether CGM is to be used for routine and/or emergency glucose monitoring.
- b. Specific situations when a BGM must be used instead of CGM readings.
- c. Frequency and timing for reviewing CGM readings during the school day.
- d. Guidance for using trend arrows and other CGM-specific features.
- e. Required interventions in response to alarms and glucose trends.
- f. Whether remote monitoring by school personnel is medically necessary. If not specified, CGM monitors remain with the student.

6. Parent/Guardian Responsibilities

Parents or guardians must provide a functioning display device (e.g., receiver, smart device, or insulin pump) to communicate CGM readings and alarms to licensed nurse (RN/LVN) or designated trained personnel. Devices should be fully charged and in working order each school day.

7. School District Responsibilities

Upon receipt of a student's DMMP and completion of necessary training, designated trained personnel or licensed nurse must:

- **Check CGM readings at the times ordered.**
- Promptly respond to CGM alarms, following the DMMP.
- Document responses as per school health protocols.

8. Backup with Blood Glucose Meter (BGM)

A BGM must always be available at school as a backup to CGM. The DMMP should specify when BGM use is required, including but not limited to:

- a. CGM Malfunctions:
 - Sensor detachment or failure.
 - Missing or inconsistent CGM data.
 - Student symptoms do not match CGM reading.
 - Sensor error or communication issues.
- b. Specific Circumstances for BGM Use:
 - During the first 12 hours of wearing a new sensor (when CGM readings may be less reliable).
 - To confirm hypoglycemia (<70 mg/dL) or hyperglycemia (>180–250 mg/dL) as required by the DMMP or provider's orders.

C. PERSONNEL

1. Licensed Nursing Provider
2. Designated trained personnel under the direct or indirect supervision of the school nurse.
3. Students monitored by designated and trained school personnel as appropriate.

4. Students who are designated as independent for these purposes by their licensed healthcare provider.

D. EQUIPMENT

1. Provided by Parent:
 - a. Receiver/smartphone/Controller
 - b. CGM
 - c. Blood Glucose Meter
 - d. Finger-lancing device with disposable lancets
 - e. Blood glucose testing strips for specific electronic meter
 - f. Portable/temporary sharps container if testing outside of health office (firm plastic container with tightly closing lid (e.g. empty test strip canister).
 - g. Antiseptic wipes (e.g. Alcohol wipes) if used
 - h. Ketostix
2. Provided by School:
 - a. Disposable non-latex gloves
 - b. Plastic bag (if the device comes off)
 - c. Cotton ball or tissues
 - d. Sharps container
 - e. Plastic bag for disposal of waste

II. PROCEDURE

1. Check CGM readings at the ordered times to reduce interruptions during class hours.
2. Confirm CGM results with BGM under the following conditions as indicated in the DMMP/provider's orders:
 - a. If CGM alerts for hypoglycemia and hyperglycemia
 - b. If there is no sensor glucose value
 - c. If the student is symptomatic
 - d. If two trend arrows are pointing either up or down
 - e. When in doubt
3. School staff should not use personal devices to monitor students.
4. Do not calibrate.
5. Ensure a prompt response to alarms:
 - A. Hypoglycemia (Low Blood Glucose):
 - a. Remotely monitoring the CGM should not replace other strategies to identify and manage hypoglycemia as outlined in the student's DMMP/provider's orders.
 - b. Follow the DMMP/provider's orders for treatment related to low CGM alarms, including whether a confirmatory BGM measurement is needed. Test blood glucose if the individual has symptoms of hypoglycemia that do not match the CGM reading.

- c. After low glucose treatment, improvement may not show on CGM immediately due to sensor lag times. To avoid over-treating lows, use a blood glucose meter reading before treating again if the sensor reading remains low.
- d. If a student using CGM shows symptoms of hypoglycemia, and a blood glucose meter is not accessible to confirm their blood glucose level, the priority is to treat the low blood glucose level according to the DMMP/provider's orders.

B. Hyperglycemia (High Blood Glucose) and Ketones:

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

6. Concerns related to CGM supplies:

- a. If a CGM sensor falls off at school, put all parts of the sensor into a sealable plastic bag to send home.
- b. Until the sensor is replaced, monitor the student with a BGM.
- c. Student's family replaces the sensor if the student cannot insert a new one.
- d. Students who are independent to self-manage their diabetes should be permitted to insert a new sensor at school, as outlined in the DMMP/provider's orders.
- e. Check the supplies at school regularly to ensure they have not expired.

7. Understanding trend arrows from manufacturers:

What do the arrows means?



Increasing/decreasing less than 1 mg/dL each minute



Glucose could increase/decrease 30-60 mg/dL in 30 minutes



Glucose could increase/decrease 60-90 mg/dL in 30 minutes



Glucose could increase/decrease more than 90 mg/dL in 30 minutes

8. Types of CGMs:

DEVICE NAME	Dexcom G6 Dexcom G7	Freestyle Freestyle Libre 2 Libre 3	Medtronic Medtronic Guardian 3 Guardian 4
READING FREQUENCY	Transmit result q5 min	Measures q min Records q15 min	Transmit result q5 min
LOCATION FOR PLACEMENT	Abdomen Back of upper arm Upper buttocks	Back of upper arm	Abdomen; Back of upper arm
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
CALIBRATION REQUIRED	No	No	Yes No
INTERFERING MEDICATIONS	Tylenol >400 mg/day Hydroxyurea	Vitamin C >500 mg/day Salicylic acid	Tylenol
RECEIVER OPTIONS	Receiver Smartpen T:Slim x2 Tandem Mobi Beta Bionics Omnipod 5 Dexcom	Receiver Smartphone T:Slim x2	Smartphone 780G pump 670G pump 770G pump
REMOTE MONITORING	Dexcom follow	LibreLinkUp	CareLink Connect
LINKS	Info for Patients Infor for HCP LINK LINK	Information for Patients LINK	Information for Patients LINK

	LINK	LINK	Information for HCPs LINK	Information for HCPs LINK
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REFERENCES:

- Abbott Freestyle Libre: <https://freestyle.abbott>
- ADA Safe at School: <https://diabetes.org/sites/default/files/2024-06/CGMguidane-6-20-24.pdf>
- Dexcom Provider Info: <https://provider.dexcom.com/dexcom-cgm>
- Medtronic Guardian: <https://www.medtronicdiabetes.com/products/guardian-connect-continuous-glucose-monitoring-system>
- NASN Guidelines: <https://www.nasn.org>

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