

Collaborative Guidelines for Dexcom G5 & G6: Therapeutic Dosing in the School Setting -Colorado

The FDA has approved both the Dexcom G5 and G6 Continuous Glucose Monitoring (CGM) for therapeutic use¹⁻³, meaning that with proper technique, these CGMs can be used directly to make treatment decisions without needing to test finger-stick blood glucose (BG) values. The G6 has also been approved to be factory calibrated, meaning that no routine finger-sticks are necessary as part of its use. The *Colorado Kids with Diabetes Care and Prevention Collaborative* is supportive of these changes in labeling. The G5 and G6 CGMs have different operating procedures, which will be addressed in these guidelines.

The REPLACE-BG study⁴ demonstrated the safety of direct dosing from CGM values without confirmatory finger-sticks. The Endocrine Society⁵ has also come out with expert guidelines for pediatric dosing from CGM values. In addition, Dexcom provides some clinical guidance on non-adjunctive use that are available at Dexcom.com/guides. After over two years of clinical experience with therapeutic dosing, we are recommending the following guidelines be used in schools for therapeutic CGM dosing.

Guidelines for Safe Use of the Dexcom G5 CGM for Therapeutic Dosing

General

1. The CGM should be calibrated twice a day generally when the blood sugar is stable (such as before a meal).. This is usually done at home, but can be verified in the CGM calibration history. Calibration should be provided if needed during an off-site school-sponsored activity. *Note: Calibrating more than twice a day may cause the CGM to give inaccurate glucose readings.*
2. If the sensor glucose reading does not have any arrows with it then the CGM may not be measuring correctly and should not be used for dosing (use a finger-stick blood glucose to dose in this case).
3. Acetaminophen (Tylenol) can falsely elevate CGM values, and the CGM readings should not be used for dosing within 4-8 hours of acetaminophen administration. Be cautious as many combination “cold and flu” medications contain acetaminophen without having “Tylenol” in the name.
4. Child should be treated *immediately (i.e. classroom, playground)* if symptomatic or if blood glucose is below *Target Range*. Remember that if a child is sent to the school health office, another responsible person must always accompany the child.

Meals:

5. For correction boluses at mealtime, the CGM value may be used in place of finger-stick testing provided the value is in the range of 80 to 250 mg/dL. If the CGM value is less than 80 mg/dL or greater than 250 mg/dL, then a finger-stick BG value should be obtained and correction dosing should occur based on the finger-stick value, as per the health care provider orders/Diabetes Medical Management Plan (DMMP).
6. Trend Arrows: The health care provider may indicate on the DMMP the use of trend arrows at mealtime in determining insulin dosing/treatment.

Lows

7. If a child feels that his/her blood sugar is low or if the CGM is reading < 80 mg/dL, then check a finger-stick BG and provide carbohydrates based on the finger-stick BG reading and symptoms and recheck finger-stick BG in 15 min. If still low, repeat the above.
8. If the CGM is reading low, but the child is not symptomatic, confirm glucose with a finger-stick prior to treating. Treat according to the finger-stick value, as per the health care provider’s school orders/DMMP.
9. For the DEXCOM G5 CGM: these trend arrows may be used in treatment decisions (as agreed upon by the school nurse and parent or per DMMP):
 - CGM 70-80 with 1 arrow facing down give 7.5gm of carbohydrates
 - CGM 70-80 with 2 arrows facing down give 15gms of quick sugar
 - CGM 70-80 with level arrow consider giving complex carb snack (10-15gms of carbs) without insulin bolus per parent and school nurse as indicated on the IHP.

Highs

10. If the CGM is reading >250 mg/dL then check BG with a finger-stick and correct based on the finger-stick value, as per the health provider's school orders/DMMP.
11. If the finger-stick BG is >300 mg/dL x 2 in a row for child's getting insulin by injection or BG > 300 once for a child on a pump, check for serum or urine ketones (if possible) and treat as per the child's health care provider orders/DMMP. Follow the **Standards of Care for Diabetes Management in the School Setting & Licensed Child Care Facilities – Colorado 2019**. www.coloradokidswithdiabetes.org

Guidelines for Safe Use of the *Dexcom G6 CGM* for Therapeutic Dosing

General

1. No calibrations are needed at any time.
2. Check the blood glucose via finger-stick if the child's symptoms do not match the sensor readings (e.g. the child feels low but the sensor is not reporting a low value).
3. If the CGM is reading "LO" or "HI" then check blood glucose with a finger-stick.
4. If the sensor glucose reading does not have any arrows with it then the CGM may not be measuring correctly and should not be used for dosing (use a finger-stick blood glucose to dose in this case).
5. Acetaminophen does not affect the G6 CGM.
6. Child should be treated *immediately (i.e. classroom, playground)* if symptomatic or if blood glucose is below *Target Range*. Remember that if a child is sent to the school health office, another responsible person must always accompany the child.

Meals

7. For correction boluses at mealtime, the G6 sensor value may be used in place of finger-stick testing and correction dosing should occur as per the provider's school orders/DMMP.
8. Trend Arrows: The health care provider may indicate on the DMMP the use of trend arrows at mealtime in determining insulin dosing/treatment.

Lows

9. If a child feels that his/her blood sugar is low then the CGM sensor reading may be used to determine treatment. Provide carbohydrates based on the sensor reading and symptoms and recheck sensor reading BG in 15 min. If still low, repeat the treatment.
10. The Dexcom G6 has an "Urgent Low Soon Alert" which notifies you when the reading is predicted to reach 55 mg/dL within 20 minutes. It is OK to treat with carbohydrates for an urgent low soon alert even if the current CGM value is not low.
11. If the CGM is reading low, but the child is not symptomatic, confirm glucose with a finger-stick prior to treating. Treat according to the finger-stick value, as per the health care provider's school orders/DMMP.
12. For the DEXCOM G6 CGM: these trend arrows may be used in treatment decision (as agreed upon by the school nurse and parent or per DMMP):
 - CGM 70-80 with 1 arrow facing down give 7.5gm of carbohydrates
 - CGM 70-80 with 2 arrows facing down give 15gms of quick sugar
 - CGM 70-80 with level arrow consider giving complex carb snack (10-15gms of carbs) without insulin bolus per parent and school nurse as indicated on the IHP.

Highs

13. The CGM sensor reading may be used for correction and dosing per the physician's school order form.
14. If the sensor glucose reading is >300 mg/dL x 2 in a row for child's getting insulin by injection or BG > 300 once for a child on a pump, check for serum or urine ketones (if possible) and treat per the health care provider's school orders/DMMP. Follow the **Standards of Care for Diabetes Management in the School Setting & Licensed Child Care Facilities – Colorado 2019**. www.coloradokidswithdiabetes.org

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