Standards of Care for Diabetes Management in the School Setting & Licensed Child Care Facilities – Colorado 2023

These are general standards of care for children with Type 1 Diabetes, which are integrated and to be used with Colorado Provider Orders (aka Diabetes Medical Management Plan [DMMP]) & Individualized Health Plans (IHP). Children diagnosed with Type 2 Diabetes who are receiving medical therapies described may utilize these standards. The child's diabetes health care provider may individualize and indicate exceptions to these standards on the child's individual orders/DMMP. (www.coloradokidswithdiabetes.org)

Terms used in document:

ADA	American Diabetes Association (in this document ADA does not refer to Americans with Disability Act)
BG	Blood Glucose
CGM/ iCGM	Continuous Glucose Monitor Integrated Continuous Glucose Monitor (works with another compatible device)
Child/children	The term child is used to include students, children in child care settings and children participating in school-sponsored activities.
CCHC	Child Care Health Consultant: As defined in Colorado, a medical professional who assists the child care program in meeting and exceeding basic health and safety standards. These professionals also serve licensed camps, school-age programs, & family child care by offering training. Child care centers are required to have monthly visits in Colorado.
DMMP	Diabetes Medical Management Plan
FERPA	Family Educational Rights to Privacy Act of 1974 protects all personally identifiable information of students/children enrolled in institutions that receive federal funding and requires parent written authorization to share student record information (included in authorization language on standardized car plans.) http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html
HCL	Hybrid Closed-Loop (regarding insulin pumps integrated with CGMs)
HIPAA	Health Insurance Portability and Accountability Act: Signed into law in 1996, it provides for clarification of and coordination of care between the prescribing provider and the health professional carrying out the orders/DMMP without additional written authorizations by patient. https://www.hhs.gov/hipaa/for-professionals/faq/513/does-hipaa-apply-to-an-elementary-school/index.html
IHP	Individualized Health Plan
MDI	Multiple Daily Dose/Injection
Non-adjunctive	In this context, the device (such as a CGM) has been FDA approved to be used for glucose treatment decisions and does NOT need a finger stick glucose test for treatment decisions.
SG	Sensor Glucose (glucose level determined by a Continuous Glucose Monitor sensor)
UAP	Unlicensed Assistive Personnel: Any unlicensed person (i.e. school staff, administrator, teacher), regardless of title, who performs tasks delegated by a nurse.
>	Greater than the number to the right of the symbol
<	Less than the number to the right of the symbol
~	"Approximately."

Introduction:

Under federal and state laws (see *Resources* Section), all schools, camps, child care facilities and community programs ***which receive federal funding*** and/or are places of public accommodation such as many private schools, child care facilities, and camp and community programs are prohibited from discriminating against children with disabilities such as diabetes. These schools/child care facilities have an obligation under federal and state laws to provide care so that children with disabilities such as diabetes can safely and fully access the setting including school-sponsored field trips and extracurricular activities such as before and after-hours school-sponsored events. The school nurse/CCHC leads the "team" to ensure that appropriate and timely care prescribed by the child's individualized DMMP is provided to children enabling the school/child care facility to meet its obligations under federal and state laws.

References:

https://adata.org/faq/what-are-public-accommodations
www.diabetes.org/safeatschool or call 1-800-diabetes for advocacy.

1. **Communication:**
   - To facilitate appropriate execution of the Diabetes Health Care Provider's orders/DMMP and to ensure safety of the child, the school nurse/CCHC will have authorization to exchange health information with the health care provider to assist in developing, updating and carrying out the IHP. Authorization for this coordination of care is per parent-signed diabetes health care provider orders/DMMP and IHP, which aligns with both HIPAA and FERPA regulations. The school nurse/CCHC and health care provider may seek consultation with Colorado's Diabetes Resource Nurses (www.coloradokidswithdiabetes.org) for support and assistance in providing diabetes care in the school and child care setting.
   - Communication of care of the student/child will occur following FERPA guidelines. https://studentprivacy.ed.gov/resources/joint-guidance-application-ferpa-and-hipaa-student-health-records
     Communication of blood glucose readings and coordination of care between child, school nurse/CCHC, health care providers, school staff/teachers and/or parents may include a variety of options, e.g. cell phone applications, web-based applications, email, and texting, which will be noted in the child's DMMP/IHP/Section 504 plan/IEP or an agreement with the child care facility. Due to frequent integration between CGMs and insulin pumps, smart devices such as phones are considered a medical necessity and need to be accessible to the student at all times.
   - Schools are strongly encouraged to provide guest internet access if available as remote monitoring is becoming standard pediatric care. The American Diabetes Association's position is that schools have an obligation to make Wi-Fi accessible to students to meet medical needs. Shared cellular data plans and/or Wi-Fi may need to be provided by the parents as necessary for cellphone service and/or remote site monitoring if school wi-fi guest sign in is not available.
   - Parents and school nurses will create a communication plan regarding diabetes care while at school (e.g. communicating changes in dosing from parent to school nurse) using logs, texting/emails or through the independent child's communication with parent and/or school nurse. School nurses should be aware of all communication arrangements.
   - Substitute teachers will be notified of students' diagnosis and plan of care.
   - **References for exchange of health info:** https://www.hhs.gov/hipaa/for-professionals/faq/517/does-hipaa-allow-a-health-care-provider-to-disclose-information-to-a-school-nurse/index.html
     For more general info go to https://www.hhs.gov/hipaa/for-professionals/faq/ferpa-and-hipaa/index.html\

2. **Additional Information/504 Plan:**
   - The child's IHP developed by the school nurse/CCHC must be consistent with the DMMP or physician's order and developed in collaboration with the parent/guardian(s). (See The Delegatory Clause of the Colorado Nurse Practice Act [12-38-101 C.R.S]) and 1.13 **Rules and Regulations Regarding the Delegation of Nursing Tasks** (3 CCR 716)
   - Administrators of camps and private child care programs should be aware of the legal protections afforded children with diabetes. Commonly Asked Questions about Child Care Centers and the Americans with Disabilities Act
   - Section 504 Plan (generally for school age children): Section 504 of the Rehabilitation Act of 1973, an Individualized Education Program (IEP): Individuals with Disabilities Education Act (IDEA) or other

written accommodation plan: Prohibits discrimination in any program or activity (academic, nonacademic, extracurricular) that receives federal funding and applies to all public *and* private schools including religious schools that receive federal money. The identification for Section 504/IEP services must be based upon evaluations and conducted by a team of individuals knowledgeable about the child, including the parents, school nurse, administration, teachers, etc. It should be consistent with and incorporate the provider orders/DMMP for reference (please communicate with providers if discrepancies occur).

3. **Diabetes Health Care Provider Orders/DMMP:**
   - **The orders/DMMP should be obtained annually at the start of each school year and on an ongoing basis as needed or annually/ongoing based on enrollment in a child care facility for coordination of care.**
   - **The orders/DMMP should be obtained annually at the start of each school year and as needed annually/based on enrollment in a child care facility. For MDI or non-HCL insulin administration, routine dosing should follow the DMMP. Parentally recommended modifications of +/- 3 units per dose are permissible on an occasional basis in accordance with CO Nursing Delegation Rules 1.13. If dosing is being routinely adjusted, then new DMMP orders should be obtained.***
   - **Barbara Davis Center Health Care Provider orders/DMMP and the American Diabetes Association DMMP are approved by this collaborative and acceptable for the administration and delegation of medication. Therefore, additional school or district specific medication forms are NOT necessary unless they contain additional information not specified for this child's diabetes care or are needed for the care of another chronic condition.**
   - The health care provider may individualize the DMMP per the child's individual needs, which may vary from the Standards but fall within reasonable and safe accommodations.

   Note: **Students with new onset diabetes may require frequent insulin dose adjustments** which are communicated from clinic to parents. Parents may share updated insulin doses (ratios, correction factors, glucose targets, etc) with school health personnel. Once a new and consistent dose setting has been established, an updated order should be obtained.

4. **Monitoring Blood Glucose:**
   - **Standard Target Ranges:** The student's target ranges are indicated by the health care provider on the orders/DMMP. If the target range is not indicated, please refer to ADA recommendations of 70-180mg/dL. *Children and Adolescents: Standards of Medical Care in Diabetes-2021: (Diabetes Care Volume 44, Supplement 1, January 2021)* *https://care.diabetesjournals.org/content/44/Supplement_1/S180.full-text.pdf*

     Notification to Parents*:
     Low < target range and **High** > 300 mg/dl (unless otherwise indicated on Provider orders/DMMP)
     **See Hypoglycemia and Hyperglycemia Sections for notification recommendations*

   - The frequency of routine blood glucose monitoring should take into consideration the child's schedule and participation in classroom learning/activities. Too frequent routine glucose monitoring may impact learning and school participation. On average, a child would have routine glucose monitoring 1-3 times during the school day unless otherwise indicated on orders/DMMP.

5. **Hypoglycemia: General Guidelines for all children with or without a pump:**
   - **Refer to *Table 1* (Page 11)**
   - Child should be treated ***immediately and onsite*** *(i.e. classroom, playground)* if symptomatic or if blood glucose is below *Target Range.* If the child needs to go to the health office, the student should be accompanied by a responsible person (to be determined in collaboration with the parent, child and school nurse/CCHC) as indicated in the child's IHP and/or Section 504 plan.
   - The school nurse/CCHC should encourage the parent to contact the health care provider for insulin dose adjustments if hypoglycemia occurs frequently (when there are 3 or more days per week with 3 or more blood glucose readings **below target range** at the *same time* of day).
   - The amount of carbohydrates used in treatment of mild-moderate hypoglycemia (with or without pump) is based on child's sensitivity to carbohydrates and may be individualized by the parents/guardians and/or specified in the provider's orders/DMMP.

- Do not give insulin for carbohydrates (do not enter in pump) given to treat low blood glucose. The School Nurse/CCHC should discuss with the parent whether the child is given an insulin bolus for snacks immediately following hypoglycemia (school nurse/CCHC to make note on the IHP).
- **Notify Parents after child has been treated for hypoglycemia to avoid delaying treatment. However, in the case of mild hypoglycemia (> 60mg/dl and NO symptoms), the parent may indicate they want to be contacted prior to treatment to determine treatment. This should be indicated on the child's IHP. If parent cannot be contacted, then treatment should be provided immediately per *Table 1* (Page 11).**

6. Hyperglycemia: General Guidelines:

- **Student on Injections: Refer to *Table 2* (Page 12)**
- **Student on Insulin Pump: Refer to *Table 3* (Page 13)**
- The school nurse/CCHC should take into consideration upcoming activities including PE, lunch dosing, walking home, afterschool activities, etc. when giving insulin corrections.
- For all children (with or without pump), the school nurse/CCHC should encourage the parent to contact the health care provider for insulin dose adjustments if hyperglycemia occurs frequently (when there are 3 or more days per week with 3 or more blood glucose readings **above target range** at the *same time* of day).
- Check ketones whenever a child with T1D has symptoms of illness, nausea, vomiting, and/or stomachache. If the school is unable to test for ketones, and the child has any of these symptoms, notify the school nurse/CCHC. At this point, the child should be treated/monitored by parent/guardian *outside of school. The presence of ketones may indicate impending* diabetic ketoacidosis (DKA). If symptoms of nausea, vomiting and/or stomachache persist or worsened while at school, and parent is unable to be contacted, call 911.
- Potential pump malfunction: The concern for a student on a pump w/ hyperglycemia is a malfunctioning pump/infusion site failure and the risk of quickly going into DKA. UAPs should contact school nurse/CCHC for further instructions re: insulin by injection or new infusion set by parent or independent student.
    - If pump calculator is not working, the school nurse/CCHC may calculate and give insulin according to the child's insulin dosing using this formula:*

$$\frac{\text{(Current BG – upper target)}}{\text{Sensitivity/Correction factor}} + \frac{\text{Grams of carbohydrates}}{\text{Carbohydrate Ratio}} = \text{Units of insulin}$$

Example: $\frac{(275-150)}{50} + \frac{60}{15} = 6.5$ **Units**

**Once dose is calculated, the school nurse/CCHC may reference previous doses to verify the calculated dose is in the child's range.*

**Alternatively, the school nurse/CCHC may contact the health care provider for a one-time order for insulin dosing or correction if carb ratio/correction factor dosing is not provided on orders/DMMP.*

7. Exercise and School Attendance

- **Refer to *Table 4* (Page 14)**
- Always check blood glucose and/or ketones (if supplies are available) before exercise if the child is not feeling well or is experiencing moderate to severe symptoms of hyperglycemia. *
- School nurse/CCHC should determine if type of exercise is appropriate, weather conditions (e.g. very hot weather – exercise may not be appropriate), child's hydration status, school's ability to monitor symptoms during exercise, etc.

*Moderate to severe symptoms include stomachache, nausea, vomiting, labored breathing, slurred speech, change in mental status, dehydration.

8. Insulin Management

Rapid-acting insulins are interchangeable (e.g. Humalog/Admelog [insulin lispro], Novolog [insulin aspart], Apidra [insulin glulisine]) unless child is allergic to a certain brand or otherwise indicated on provider orders/DMMP. Ultra-rapid insulins (e.g. Fiasp [insulin aspart], Lyumjev [insulin lispro-aabc]) act and peak sooner than rapid-acting insulins and would require new orders.

- The parent and/or UAP should notify the school nurse/CCHC for changes in insulin dosing so the IHP can be updated per orders/DMMP and any further delegation can occur.
- In the school/child care setting, fast-acting insulin is generally given ~5-15 minutes prior to lunchtime, unless otherwise indicated on provider orders/DMMP. Since it is difficult to determine precisely when the child will actually eat their meal at school due to varying factors, fast-acting insulin is not given earlier than

10-15 minutes to avoid an episode of hypoglycemia. Ultra-rapid insulins should be administered immediately prior to the meal/snack.

- The two-digit rule (a rule using the first 2 digits of the blood glucose reading to determine how much in advance to give insulin prior to a meal, e.g. if blood glucose is 200 then give insulin 20 minutes before eating) for giving insulin prior to meals is not practical in the school setting due to the inability to predict the exact timing of the meal.

- Refer to child's individualized orders/DMMP for snack dosing.
- After 28 days, opened vials/cartridges/pens of insulin will begin to lose their potency and be susceptible to bacteria contamination; therefore the insulin should no longer be used in the school/child care setting.
  - School nurse/CCHC should notify parent of insulin and glucagon expiration dates in advance so parents can bring in new medication.
  - Please check with parents to see if they would like the expired insulin to be returned to them or discarded.
- Long-acting insulin may be given during school / when indicated by the provider (e.g. when adherence to insulin regimen is not occurring at home).

9. Pump Management

- The computerized feature/calculator of the pump should be used for insulin boluses.
- **At meal times,** both blood glucose values and carbohydrate grams (with the exception of treatment for hypoglycemia) must be entered into the pump for delivery of pump-recommended boluses. For other times such as for snacks, reference the IHP/DMMP for specific instructions.
- Parents/guardians are responsible for ensuring all pump settings align with orders/DMMP.
- The pump bolus calculator rarely should be overridden, nor fake carbs entered (e.g. in dosing changes). Encourage parents to follow-up with their health care provider for insulin pump dose adjustments if frequent overrides are being requested.
- **UAPs must always get approval from their school nurse/CCHC to override pump insulin calculations.**
- Due to the infrequency of changing sites and the school staff/school nurse/CCHC's ability to maintain expertise in insertion of pump infusion sets/CGM sensors, insulin will be given by injection if pump site fails and the BG meter will be used if the CGM fails.
- In the event of pump infusion set malfunctions, the school staff should contact the school nurse/CCHC for further instructions regarding insulin by injection or new infusion set/CGM sensor insertion by parent or independent child. The school nurse/CCHC will coordinate this with parents/guardians.

10. Continuous Glucose Monitors/Integrated Continuous Glucose Monitors (CGM/iCMG)

- CGM systems use a tiny sensor inserted under the skin to monitor glucose levels (ongoing or short term) in interstitial fluid. Some CGMs need to be calibrated using a finger stick glucose reading when readings are stable, approximately two to three times/day, typically outside of school. Parents/independent children are responsible for changing sensor/site. Calibrations may need to occur in school if prompted by CGM and should ideally occur when the blood glucose levels are stable (not rising or falling rapidly), typically before meals, and not after meals.
- In the school setting, UAPs should respond to low and high BG alarms rather than the constantly fluctuating trends and numbers.
- The FDA has approved non-adjunctive use of the **G6 & G7 CGM**, **Freestyle Libre 2 & 3 iCGMs, and Medtronic Guardian 4 continuous glucose monitors**. Please refer to the *Collaborative Guidelines for CGM/iCGM Therapeutic Dosing in the School Setting –Colorado 2023*, *www.coloradokidswithdiabetes.org*.
- The **benefits of a CGM** in the school/child care setting includes real-time, dynamic glucose information, which enhances the safety of the child and their diabetes control. The school nurse/CCHC should support the use of CGMs and establish parameters so that there is little disruption to the student's school activities, thereby enhancing their education. The use of the CGM in the school setting includes using alarms sparingly and setting alarms for blood glucose levels that require an immediate action/response. This will help the child avoid alarm fatigue and enhance learning by avoiding unnecessary disruption to their learning in the classroom. Alarms should be set for low BG and high BG when treatment/action is needed (e.g. when sensor glucose is <80 or >250).

- School and child care staff are responsible for keeping all children safe in the school setting. School staff do not have the staffing capacity to support unique requests for frequent glucose pattern management techniques at school (e.g. sugar surfing). Diabetes care at school will be provided in accordance with the regimen prescribed in the child's medical orders.
- Remote monitoring of the CGM in the school/child care setting by school/child care staff is generally not required as the child is usually adult supervised by trained staff and alarms are used to identify urgent blood glucose levels requiring action. However, in certain unique cases (e.g. preschool age, non-verbal, impaired cognition, severe hypoglycemia unawareness) remote monitoring may be appropriate and the school nurse/CCHC, along with the Section 504 Team, will do an assessment and determine the accommodations based on the child's individual need(s) and the DMMP. When determined appropriate, the school nurse/CCHC will indicate these accommodations on a Section 504 plan and the Individualized Health Plan. Parent(s) or school may provide the remote monitoring device. School nurse/CCHC/UAP personal devices should never be used for remote monitoring.
- Parents are responsible for setting the alarms and notifying the school nurse/child care health consultant of the parameters. Alarms should be used sparingly and for safety to avoid unnecessary disruption of the child's activities/education. The recommendation is to set alarms for blood glucose levels that require an immediate action/response.
- Predictive alarms: actions and/or treatment will be determined by parent and school nurse.
- Trend Arrows: The health care provider may indicate on the DMMP the use of trend arrows at mealtime in determining insulin dosing/treatment. These trend arrows vary per manufacturer and may be used in individualized treatment decisions as agreed upon by the school nurse, parent and provider.
- Certain CGMs (ex: Medtronic Guardian 3 & 4) have wording on use of acetaminophen (Tylenol) possibly causing interference with SGs while using these devices. If child needs this medication during the school day, contact parents for instruction.

Note: Using features of systems designed to minimize hypoglycemia during activities: Hybrid-closed loop systems all have a feature designed to minimize hypoglycemia (e.g. with exercise and activities). It is safe and appropriate to use this feature in the school setting.

11. **New/Emerging Diabetes Technologies and Therapies/Trials in the school setting: *(See Addendum A for current FDA approved)***
Collaboration with parents, children, health care providers and school nurses to individualize use and treatment with new and emerging technology is important. (For example: allowing or assisting the child in checking blood glucose levels to enter back into auto mode with the Medtronic 670G or 770G pump) **When students are participating in clinical trials the school nurse/CCHC should follow medical orders.**

12. **Do-It-Yourself (DIY)** Artificial Pancreas (AP) Systems (e.g. looping): The *Collaborative* does not endorse DIY AP systems due to concerns regarding tampering with a medical device, outside the bounds of rigorous scientific research, potential coding errors, and/or potential malfunctions. HOWEVER, the school nurse and school staff may support the student with a DIY AP system if the student has a current DMMP/provider order. Support may include inputting glucose and carbohydrate numbers into the pump for insulin dosing and hypo-hyperglycemia management.

13. **Multiple Interventions Per Day Outside of DMMP/Provider Orders and/or overriding insulin pump:** In general, regarding care when parents request multiple interventions per day to override or change the DMMP and/or insulin pump's dose calculations - this type of care is beyond "reasonable accommodations" due to the frequent disruptions to the child's education and the potential for error (e.g. causing hypoglycemia). Therefore, the school nurse and school staff cannot provide this type of care in the school or child care setting. *However, the school nurse and school staff may provide hypo-hyperglycemia treatment for the child per Tables 1, 2 & 3 or per DMMP. Note:* This does not include the occasional changes to insulin dosing as noted above in *#3 Diabetes Healthcare Provider Orders/DMMP*.

14. **InPen Smart Pen:** The InPen is a reusable injector pen that tracks dosing and assists with diabetes management by calculating bolus insulin doses (similar to a bolus calculator in an insulin pump) using a mobile app. It takes into account insulin on board and subtracts insulin when the child is below target range. In the school setting, the insulin dosing may be calculated per the smart pen (InPen) app calculator. All blood glucose levels should be

entered into the app calculator for administration of app-calculated doses unless otherwise indicated on the orders/DMMP. If the child is eating additional carbs within 2 hours of previous insulin dose, only the carbohydrate amount should be entered in the app calculator. Parents are responsible for maintaining the insulin dose settings within the InPen app.

15. **iPort**: An iPort is a patch that sticks to the student's skin allowing for direct insulin delivery from a syringe or pen. The needles used in the iPort are greater than 3/16" (5mm) and less than 5/16" (8mm) with a needle diameter less than 28 gauge. If the site fails, the parent or guardian will need to replace the device. https://www.medtronicdiabetes.com/products/i-port-advance

16. **Self-Care Management:** Ability level is to be determined by the parent and provider with consultation from the school nurse and specified on the provider orders/DMMP (which may direct parent and school nurse to set ability level) and then applied to the school setting as specified in the IHP. All children regardless of age or expertise require a plan (e.g. Emergency Action plan, and/or hypo/hyperglycemia flow sheet) and may need assistance with hypoglycemia and illness.

17. **Bus Transportation to Home/Walking Home:** Prior to riding bus or walking home, the child's glucose levels should be above 80mg/dl (unless otherwise indicated in DMMP/IHP) and stable (no down arrow on CGM unless above target). For hyperglycemia, if glucose level is above target range but child's ketone levels are negative-small (check ketones per Tables 2 & 3) and child is asymptomatic, the child may ride the bus or walk home unless otherwise indicated on DMMP/IHP.

18. **Mental Health Considerations:** Children that have been in Day treatment, hospitalized, or have active mental health concerns (e.g. suicide watch) should have a transition plan in place prior to returning to school. The providers, social workers, parents, school staff and school nurse/CCHC should collaborate to develop the transition plan (e.g. determine safe use of pump, BG monitoring, insulin administrative oversight by school staff).

19. **Non-adherence to diabetes care:** For children not adhering to treatment (not checking BG, not taking insulin, not checking ketones), the school nurse/CCHC, parent and providers should communicate concerns and collaborate on problem-solving interventions as possible.

20. **Children with private duty nurses:** If a child has a private duty nurse, the *Standards of Care* may be individualized or exempt at the discretion of the parents and/or health care provider and per any agreement with the school district.

21. **Emergency Preparedness:** Schools, child care programs and parents should develop a plan to have emergency diabetes supplies available for the child in the event of fires, tornados, lockdowns, evacuations, etc. and practice the emergency plan during the school drills. The specifics of the plan may be addressed on the child's Section 504 plan.

NOTE: School nurses and CCHC's should determine their individual scope of practice regarding new diabetes treatment therapies and/or diabetes care practices.
https://www.colorado.gov/pacific/dora/Nursing_laws.

REFERENCES:

1. Standards of Medical Care in Diabetes-2020 2020;43(Suppl. 1):S1163-S182 | DOI: 10.2337/dc20-S013, https://care.diabetesjournals.org/content/43/Supplement_1/S163 American Diabetes Association (2017, January). Standards of medical care in diabetes—2017. *Diabetes* Care 40 (Supplement 1). www.diabetes.org/diabetescare
2. Battelino, T. et al. (2019). Clinical Targets for Continuous Glucose Monitoring Data Interpretation: Recommendations From the International Consensus on Time in Range
   Diabetes Care, 43(7). dci190028; **DOI:** 10.2337/dci19-0028
3. Chase H., & Frohnert B., (2019). *Understanding Diabetes (14th Ed).* Denver, CO. Paros Press.
4. Chase, H., & Messer, L., (2017). *Understanding Insulin Pumps, Continuous Glucose Monitors and the Artificial Pancreas).* Denver, CO. Paros Press.
5. Forlenza GP, Argento NB, Laffel LM. Practical Considerations on the Use of Continuous Glucose Monitoring in Pediatrics and Older Adults and Nonadjunctive Use. *Diabetes Technol Ther.* 2017;19(S3):S13-s20.
6. Goss PW, Middlehurst A, Acerini CL, Anderson BJ, Bratina N, Brink S, Calliari L, Forsander G, Goss JL, Maahs D, Milosevic R, Pacaud D, Paterson MA, Pitman L, Rowley E, Wolfsdorf J. (2018, Oct 1). ISPAD position statement on type 1 diabetes in schools. *Pediatric Diabetes*. 2018 Nov;19(7):1338-1341. doi: 10.1111/pedi.12781.
7. Jackson, C. C., et al., (2015). Diabetes care in the school setting: a position statement of the American Diabetes Association. *Diabetes Care*, *38*(10), 1958-1963.
8. National Association of School Nurses. (2017). *Diabetes management in the school setting* (Position Statement). Silver Spring, MD: Author.
9. National Diabetes Education Program [NDEP]. (2016). Helping the student with diabetes succeed: A guide for school personnel. Retrieved from: https://www.niddk.nih.gov/health-information/communication-programs/ndep/health-professionals/helping-student-diabetes-succeed-guide-school-personnel
10. Siminerio, L.M., et al., (2014, October). Care of young children with diabetes in the child care setting: a position statement of the American Diabetes Association. *Diabetes Care*, 37 (10) 2834-2842
11. Sherr, J., Tauschmann, M., Battelino, T., de Bock, M., Forlenza, G., Roman, R., Hood, K., Maahs, D. (2018, Oct). ISPAD clinical practice consensus guidelines 2018: diabetes technologies. *Pediatric Diabetes* October 2018; 19 (Suppl. 27): 302–325.
12. Danne, T., et.al. (2017, December). International consensus on use of continuous glucose monitoring. *Diabetes Care*, 40 (12) 1631-1640; DOI: 10.2337/dc17-1600. https://care.diabetesjournals.org/content/40/12/1631
13. American Diabetes Association Safe at School (2022).
14. Add SAS CGM guidance, diabetes.org/sascgm

RESOURCES:

1. Colorado Office of Early Childhood: http://coloradoofficeofearlychildhood.force.com/oec/OEC_Providers?p=providers&s=Rules-and-Regulations&lang=en
2. Healthy Child Care Colorado: https://healthychildcareco.org/health/child-care-health-consultation/
3. Colorado Nurse Practice Act: https://dpo.colorado.gov/Nursing/Laws

Addendum A
Emerging Pump Technologies: FDA Approved

- **Medtronic's MiniMed 670G/770G/* with Smartguard Technology** consists of the 670G/770G insulin pump and Guardian 3 CGM. It can operate in two modes: **Manual Mode** and **Auto Mode**.

    - **In Manual Mode**, the insulin pump delivers basal and bolus insulin per the programmed basal rates and bolus calculator settings, and when using the CGM, also contains two levels of hypoglycemia prevention technology: 1) *Suspend On Low* and 2) *Suspend Before Low*. The user can choose to use either one. *Suspend on Low* is described above. With *Suspend Before Low*, the pump automatically suspends insulin delivery when hypoglycemia is predicted to occur within the next 30 minutes (before the sensor glucose is low), in an attempt to prevent hypoglycemia. The pump then automatically resumes insulin (with or without alerts) when hypoglycemia is no longer predicted.

    - **In Auto Mode**, basal insulin is NOT delivered per the basal rates programmed in the pump, but instead the pump automatically calculates basal insulin delivery every 5 minutes in response to the sensor glucose values, aiming to keep glucose levels in target range more often. There is a special feature while in Auto Mode called "Temp Target" that can be turned on to reduce basal insulin delivery. This may be useful for exercise (e.g., PE or recess) or other times when reduced insulin needs are anticipated (e.g., field trips). Temp Target can be accessed from the main menu and is simply turned on and set for a desired duration of use. When the programmed duration expires, the system will return to the normal Auto Mode. When on, Temp Target can also be cancelled prior to the set duration time and return to normal Auto Mode delivery. When using Auto Mode, there are some situations where the system will exit the user from Auto Mode to Manual Mode **(this is not an emergency).** When the pump exits to Manual Mode, it stops calculating the basal insulin and starts delivering the programmed basal rates. Most often, users can return to Auto Mode by entering a BG level, as prompted by the pump. All children should be allowed and/or assisted in checking a BG for re-entry into auto mode. For more information: Contact the Colorado Diabetes Resource Nurse for your area, Medtronic pump representative and/or www.coloradokidswithdiabetes.org.

    - *770G uses the same program as 670G except that it is a blue-tooth compatible pump and allows connectivity to a smart phone app that permits remote monitoring.

- **Minimed 780G system** is a hybrid closed loop system that consists of the 780G pump and Guardian 4 CGM. It can operate in two modes: Manual Mode and SmartGuard Mode.

    - In **Manual Mode**, the insulin pump delivers basal and bolus insulin per the programmed basal rates and bolus calculator settings, and when using the CGM, also contains two levels of hypoglycemia prevention technology: 1) *Suspend On Low* and 2) *Suspend Before Low*. The user can choose to use either one. *Suspend on Low* is described above. With *Suspend Before Low,* the pump automatically suspends insulin delivery when hypoglycemia is predicted to occur within the next 30 minutes (before the sensor glucose is low), in an attempt to prevent hypoglycemia. The pump then automatically resumes insulin (with or without alerts) when hypoglycemia is no longer predicted.

    - When **SmartGuard** is on, basal insulin is calculated by the algorithm based on the current CGM glucose trends and adjusted every 5 minutes. SmartGuard also has automated correction bolus doses that may be delivered as often as every 5 minutes to help reduce hyperglycemia. Pre-bolusing for meals is still required using the bolus wizard to enter total grams of carbohydrates. The SG value will auto populate into the bolus wizard and SmartGuard will adjust the suggested bolus dose based on CGM glucose and future glucose predictions. There is a special feature in SmartGuard called "Temp Target" that can be turned on to reduce basal insulin delivery and prevent auto-correction boluses (auto corrections are disabled when temp target is on). This may be useful for exercise (e.g., PE or recess) or other times when reduced insulin needs are anticipated (e.g., field trips). Temp Target can be accessed from the main menu and is simply turned on and set for a desired duration of use. When the programmed duration expires, the system will return to the usual SmartGuard operation. When on, Temp Target can also be cancelled prior to the

- set duration time and return to normal SmartGuard delivery. When using SmartGuard, the pump may request the user enters BG values into the pump periodically. When the pump requests a BG, a "time to exit" will display on the screen indicating how long the user has to enter a BG value until the system will exit out of SmartGuard and back to manual mode. ***A SmartGuard exit to manual mode is not an emergency.*** If pump exits to manual mode, user will receive the programmed basal rate delivery. As with any HCL system, the child may require less carbohydrates when treating hypoglycemia (collaborate with guardians indicated in the health care provider orders).

- **Tandem's Basal-IQ system** consists of the t:slim X2 pump and Dexcom G6 CGM. Basal IQ is a predictive low glucose suspend (PLGS) feature, which will automatically suspend basal insulin delivery when hypoglycemia is predicted to occur within the next 30 minutes. It will automatically resume insulin delivery once the glucose levels start to rise. *May require less carbohydrates when treating hypoglycemia (collaborate with parent and/or as indicated in the health care provider orders).*

- **Tandem's Control IQ system** is a hybrid closed-loop system that consists of the t:slim X2 pump and Dexcom G6 CGM. Control IQ predicts glucose 30 min. into the future, and automatically adjusts the programmed basal rate delivery aiming to keep blood sugars within target. It increases basal insulin if glucose is predicted to rise, it reduces insulin delivery is glucose is predicted to drop, and it suspends insulin delivery if glucose is predicted to drop < 70 mg/dL. When suspended, it will automatically resume insulin delivery only when glucose begins to rise. Control IQ may also deliver automatic correction boluses for persistent hyperglycemia which will appear in the "insulin on board" calculations. It also includes an exercise and sleep mode option. The exercise activity will reduce basal insulin delivery and may be useful for exercise (e.g., PE or recess) or other times when reduced insulin needs are anticipated (e.g., field trip). The exercise feature can be turned on in the activity menu (under options) and simply turned off to return back to usual operation. As with any HCL system, the child may require less carbohydrates when treating hypoglycemia (collaborate with guardians indicated in the health care provider orders).

- **Insulet's Omnipod 5 system** is an automated insulin delivery system that consists of the tubeless Omnipod insulin patch pump and the Dexcom G6 CGM. When in automated mode, the Omnipod 5 predicts glucose 60 min. into the future and automatically adjusts basal insulin delivery. It uses the CGM to wirelessly "talk" to the pod and adjust insulin dosing in real time. The pod is controlled via the Omnipod 5 app, which may be installed on a "controller" device or on the user's cell phone, though the system will still operate in "closed loop" mode without the controller/phone present. Students using the Omnipod 5 will still need to give bolus doses for meals using the controller or their cell phone and, as with other closed loop systems and should pre-bolus for their meals, unless otherwise indicated. They may need less carbohydrates to treat a mild hypoglycemic event. The system also contains an "Activity Feature" when in Automated Mode which, when turned on, will reduce basal insulin delivery and may be useful for exercise (e.g., PE or recess) or other times when reduced insulin needs are anticipated (e.g., field trip).

- **iLet Bionic Pancreas** consists of the iLet insulin pump and the Dexcom G6 CGM. It is a fully closed loop system that automates all insulin delivery, including basal insulin and meal and correction boluses. For meal times, the user can announce a meal by indicating meal type and if the meal consists of a usual carb amount for them or less or more than usual. The meal announcements are relative to the person so the user should choose usual, more or less based on their usual eating habits for that meal. Over time, the iLet learns about insulin needs for each meal and adapts to optimize glucose control. There are no settings.

Table 1: Hypoglycemia
Glucose <70mg/dL or lower than target as indicated in orders/DMMP

Definition of *Symptomatic* included in each scenario below

Scenario	Action
Student reports feeling "low" and/or symptoms are noted by staff or CGM is alarming.	• **Check blood glucose (BG) with glucometer or use CGM (if non-adjunctive). If <80, check fingerstick. If CGM reads "LO" then check fingerstick** • **If no meter/sensor is available assume BG is low and treat per symptoms**
Mild Symptoms with or without BG below target range or Meter reads "LO": **Symptoms may include but are not limited to: Dizziness, irritability, moodiness, anxiety, hunger, shakiness, sweating (usually cold sweat), rapid heart beat**	• **If <5 y.o. treat with ~5-7g fast-acting carbohydrates*** • **If >5 y.o. treat with ~10-15g fast-acting carbohydrate*** • ***Do not give insulin for carbs given to treat hypoglycemia*** • **Recheck BG in 10-15 min (15-20min for CGM). Once glucose level is above 70mg/dl, and child is asymptomatic, child can return to class** • **If still below *Target Range*, repeat steps until within target range** • **Once in *Target Range*, consult IHP regarding follow-up snack instructions per parent** • **Follow Snack/Meal Protocol*** (see below)**
Moderate Hypoglycemic Symptoms with or without BG target below target range: **Symptoms may include but are not limited to: Confusion, headache, poor coordination**	• **Follow the same steps for "Mild Symptom" above** • **Follow Snack/Meal Protocol*** (see below)** • **If the child is unable to drink or eat, this is severe hypoglycemia. Proceed to "Severe Symptoms" below**
Severe Symptoms with or without BG below target range: **Symptoms may include but are not limited to: Severe drowsiness, fainting, loss of consciousness, seizures, unable or unwilling to eat or drink or take glucose gel**	• **Call 911!** • **Check BG with glucometer if available** • **Administer glucagon per manufacturer's instructions, orders/DMMP** ○ **Trained personnel should be available for administration of glucagon** • **Contact/Notify parent**

Note: In all cases, notify parents after student has been treated per DMMP/IHP.
*Fast-acting carbohydrates may include but are not limited to: juice, glucose tablets, Skittles, honey, regular soda, etc.
**Complex Carb Snack can include crackers and cheese, meat and crackers, apple and cheese, etc.
****Snack/Meal Protocol:* Do not give insulin (do not enter in pump) for carbohydrates given to treat low blood glucose. Refer to IHP for insulin dosing for follow-up snacks.**

Note: At mealtime, after blood glucose is within target range, send the student to lunch and give insulin after eating (If on a Hybrid Closed Loop System the meal bolus may need to be given before meal –see DMMP), based on the grams of carbs only unless otherwise indicated on orders/DMMP. **For Pumps: Immediately after eating** enter grams of carbs eaten into pump and use the pump calculator to determine amount of insulin to be given unless otherwise indicated on orders/DMMP, The BG should not be entered into the pump when determining insulin dose after a low event.

Table 2: Hyperglycemia for Students on Injections:
Glucose higher than target as indicated in orders/DMMP

Definition of *Symptomatic* as used below*: Flu-like symptoms, nausea and/or vomiting, abdominal pain, severe drowsiness, rapid, shallow or deep breathing, confusion.

Scenario	Action
Glucose (BG or SG) 150-300mg/dL Before Meal	• **Give correction per orders/DMMP correction table**

Glucose (BG or SG) 150-300mg/dL Outside of Mealtime
 	
OR Glucose >300mg/dL once and non-symptomatic*
	• **Non-Medical staff call school nurse for instruction**
	• **If < 3 hours since last insulin dose, wait and retest at 3 hours**
	• **If 3 hours or more since last insulin, give correction per DMMP**
	  ○ **If correction given between breakfast and lunch, give only carb dose at lunch**
	  ○ **If correction given after lunch inform parent/guardian when correction was given**

GLUCOSE > 300 mg/dl for at least 2 hours duration
 	
OR symptomatic as described above*
 	
OR meter reads "HI"
	• **Non-Medical staff call school nurse for instruction**
	• **Check ketones**
	  • **Ketones negative (less than 0.6 on meter)**
	  ○ **Give correction per DMMP if it has been at least 3 hours since last correction**
	  • **Ketones trace to small (0.6-0.9)**
	  ○ **Give correction per DMMP if it has been at least 3 hours since last correction**
	  ○ **Encourage oral fluids**
	  ○ **Recheck in 2 hours**
	  • **Ketones moderate to large (1.0 or greater)**
	  ○ **Call parent/guardian as child should be treated at home**
	  ○ **If unable to reach parent, monitor and call diabetes care provider for assistance**
	  ○ **Encourage oral fluids**
	  ○ **See note below**
	
	• **If Unable to check for ketones or child is symptomatic, follow plan for Table 4: Exercise and School Attendance**

• **Note:** ***If at any time a child (with or without a pump) has moderate to large ketones or blood ketones ≧ 1.0 and the student has labored breathing, change in mental status and/or may be dehydrated – call 911.***

Table 3: Hyperglycemia for Students on Insulin Pump Therapy: Glucose higher than target as indicated in orders/DMMP

***Definition of *Symptomatic* as used below: Flu-like symptoms, nausea and/or vomiting, abdominal pain, severe drowsiness, rapid, shallow or deep breathing, confusion.**

Scenario	Action
Glucose (BG or SG) 150-300mg/dL Before Meal	• **Give correction plus carb dose per pump calculator**
Glucose (BG or SG) 150-300mg/dL Outside of Mealtime	• **Non-Medical staff call school nurse for instruction** • **If >2 hours since last insulin dose, give correction per pump calculator**
Glucose (BG or SG) >300mg/dL Before Meal **Non-symptomatic***	• **Give correction plus carb dose per pump calculator** • **Recheck glucose in 2 hours** • **If Glucose remains >300 at recheck, follow instructions below**
Glucose (BG or SG) >300mg/dL Outside of Mealtime **Non-symptomatic***	• **If >2 hours since last insulin dose, give correction per pump calculator** • **Recheck in 2 hours** • **If Glucose remains >300 at recheck, follow instructions below**

GLUCOSE > 300 mg/dl for at least 2 hours of duration
 	
OR *symptomatic as described above
 	
Or meter reads "HI"
• **Use highest reading meter goes to**
• **Usually 400-600mg/dL**
	• **Non-Medical staff call school nurse for instruction**
	• **Check ketones***
	  • **Ketones negative (less than 0.6 on meter)**
	  ○ **If >2 hours since last insulin dose, give correction per pump calculator**
	  ○ **Recheck glucose in 2 hours. if >250mg/dl recheck ketones**
	  • **Ketones trace to small (0.6-1.0 on meter)**
	  ○ **Encourage oral fluids**
	  ○ **If >2 hours since last bolus, give correction per pump calculator**
	  ○ **Retest glucose and ketones in 2 hours**
	  • **Ketones moderate or greater (>1.0)**
	  ○ **Call parent/guardian as child should be treated at home**
	  ○ **If unable to reach parent, monitor and call diabetes care provider for assistance.**
	  ○ **Encourage oral fluids**
	  ○ **See note below**
	
	*** If Unable to check for ketones or child is symptomatic, follow plan for Table 4: Exercise and School Attendance**

- **Note:** ***If at any time a child (with or without a pump) has moderate to large ketones or blood ketones ≧ 1.0 and the student has labored breathing, change in mental status and/or may be dehydrated – call 911.***

Table 4: Exercise and School Attendance (for children on insulin injections and/or pump): ***Definition of *Symptomatic* as used below: Flu-like symptoms, nausea and/or vomiting, abdominal pain, severe drowsiness, rapid, shallow or deep breathing, confusion.**			
IF Child's Symptoms & BG level are…	**and Ketone Level is … then**	**Exercise**	**Stay in School**
≥300mg/dl first time, no symptoms	**Not required *unless on pump***	**Yes**	**Yes**
≥300mg/dl - 2 consecutive times (for 2 hours or more in duration), no symptoms	**Negative to small**	**Yes**	**Yes**
≥300mg/dl *with symptoms**	**Negative or any ketones**	**No**	**No**
≥300mg/dl, with or without symptoms and *urine ketones are moderate-large or blood ketones ≥1.0*	**Urine: Moderate-Large or Blood ketones ≥1.0**	**No**	**No**
≥300, 2 consecutive times (for 2 hours or more in duration), *no symptoms*	***Unable to check ketones***	**No**	**Yes**
≥300, with symptoms*	***Unable to check ketones***	**No**	**No**

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