

Standards of Care for Diabetes Management in the School Setting & Licensed Child Care Facilities – Colorado 2015

These are general standards of care for students with Type 1 Diabetes to be used in conjunction with the Colorado Provider Orders & Individualized Health Plans. The student's diabetes health care provider may indicate exceptions to these standards on the student's individual orders.

- 1. Communication:** To facilitate appropriate execution of the Health Care Provider's orders and to ensure safety of the student, the School Nurse/Child Care Nurse Consultant will have authorization to exchange health information with the provider to assist in developing, updating and carrying out the Individualized Health Care Plans. The student's health care plan is developed by the school nurse/child care nurse consultant in collaboration with the parent/guardians and health care provider. Communication of blood glucose readings and coordination of care between student, school nurse, health care providers, and/or parents may include a variety of remote site monitoring options, e.g. cell phone applications, web-based application, email, and texting.
Note: Shared data plans and/or Wifi will need to be provided by the parents as necessary for remote site monitoring.
- 2. Health Care Provider Orders: Provider Orders should be obtained on an annual basis for the start of each school year or annually based on enrollment into the child care facility. If permanent changes in insulin dosing are made to current orders on file outside the authorized adjustment per provider orders (+/-2 units of insulin for correction or +/- 5 units for insulin to carb ratio), then parents will provide new orders to reflect changes.**
- 3. Monitoring Blood Glucose:** *The student's health care provider should indicate individualized blood glucose target ranges on the student's individual orders.*

Standard Target Ranges Before Meals: If the student's target ranges are not indicated by the provider, then these are general standards to be used:

< 5 y.o.	80-200 mg/dl
5-8 y.o.	80-180 mg/dl
9-11 y.o.	70-180 mg/dl
12-18 y.o.	70-150 mg/dl
>18 y.o.	70-130 mg/dl

Notification to Parents:

Low < target range and **High** > 300 mg/dl (unless otherwise indicated on Provider orders)

Note: The frequency of routine blood glucose monitoring should take into consideration the student's schedule and participation in classroom learning/activities. Too frequent routine glucose monitoring may impact learning and school participation. On average, a student would have routine glucose monitoring one to three times during the school day unless otherwise indicated on Provider orders.

4. Hypoglycemia

Treatment for Hypoglycemia

- Student should be treated in the classroom if symptomatic or if blood glucose is below *Target Range*. If the student needs to go to the Health Office – he/she should be accompanied by responsible person (in most cases an adult).
- Check blood glucose - if blood glucose meters not available, treat symptoms.
- If blood glucose is below *Target Range* and/or student is symptomatic treat with ~15 gram fast-acting carbohydrate (if student < 5 y.o. give ~7.5gms of fast acting carbohydrate unless otherwise indicated). **Retest** in 10-15 minutes. Repeat 15gm fast acting carbohydrate until within *Target Range*. When blood glucose is within *target range*: follow with 15gm complex carb (protein & carbohydrate) snack or lunch (unless otherwise indicated on provider orders) - do not give insulin for this snack unless indicated. (see Note)
- **Mild symptoms:** Check blood glucose, treat with juice, glucose tabs, etc. until within *Target Range*. Follow with snack/lunch*(see Note below)

- **Moderate symptoms:** Check blood glucose, if unable to drink juice: administer glucose gel. Re-treat until within *Target Range*. Follow with snack or lunch* (see Note below)
- **Severe symptoms** which may include seizures, unconsciousness, unable or unwilling to take juice or gel: Check blood glucose level if meter is readily available and
 - **Administer Glucagon and call 911.** Disconnect/suspend pump unless indicated otherwise on provider orders.
 - Glucagon dose is indicated on the Provider orders and doses in 0.5 ml or 1.0 ml are encouraged for accurate administration in the school setting.
 - Trained personnel should be available for administration of Glucagon.

Note: Do not give insulin for carbohydrates given to treat low blood glucose. The School Nurse/Child Care Nurse Consultant should discuss with the parent whether the student is given an insulin bolus for snacks immediately following hypoglycemia and noted on the Individualized Health Plan. *At lunchtime, after blood glucose is within *target range*, send the student to lunch & give insulin after eating, based on pre-meal retest blood glucose level and grams of carbs unless otherwise indicated on Provider orders.

5. Hyperglycemia

Treatment for Hyperglycemia

No pump:

- Provide blood glucose correction as indicated in the Provider Orders. Recheck in 2 hours.
- Check urine/blood ketones if blood glucose is over 300 mg/dl twice in a row (greater than 2 hours apart) or with symptoms of illness/vomiting unless otherwise indicated on Provider orders. If urine ketones are moderate-large or blood ketones ≥ 1.0 , provide water and notify parents. (See Exercise and School Attendance re: ketone levels)
- If student's blood glucose level is ≥ 350 mg/dl once and student is symptomatic (illness, nausea, vomiting) and the school is unable to test for ketones, then the student must go home to be monitored by parent/guardian.
- When hyperglycemia occurs other than at lunchtime and it has been greater than **3 hours** since the last dose of insulin, the student may be given insulin via injection using the indicated correction factor on the provider orders ***if approved by the school nurse/child care nurse consultant and parent is notified.*** Upcoming activity including PE, lunch dosing, walking home, afterschool activities, etc. should be considered when giving insulin correction, as well as, other factors that can cause hyperglycemia should be assessed by the school nurse/child care nurse consultant when notified. *If the correction factor is not indicated, such as a sliding scale, contact the Provider for a one-time order.*

With Pump:

- Provide blood glucose correction bolus per pump calculator. All blood glucose levels should be entered into the pump for administration of pump-calculated corrections unless otherwise indicated on the provider orders.
- If blood glucose $>$ *target range* but less than 350mg/dl, give correction as indicated by pump calculation, and recheck in 2 hours. Then after rechecking, if blood glucose is still ≥ 300 , check ketones, give insulin by injection *as this may indicate pump/site malfunction* (use pump calculator for dosing) and notify parents of blood glucose level, ketone level & for site change (to be changed by parent/guardian/independent student). Contact the health care provider for one-time order if unable to use the pump calculator for insulin dosing.
- If blood glucose ≥ 350 mg/dl once, check ketones. If urine ketones are moderate-large or blood ketones ≥ 1.0 , give insulin by injection (can use pump calculator to determine bolus) and set change by parent/guardian or independent student. If ketones are negative, give an insulin bolus via pump and retest in 1-2 hours. Then if the blood glucose continues to be ≥ 350 mg/dl, the correction bolus should be given by injection (can use pump calculator to determine bolus) and set change (to be changed by parent/guardian or independent student). Notify parents of blood glucose results, ketone levels and actions.
- ***Potential pump malfunction:*** The concern for a student on a pump with hyperglycemia is a malfunctioning pump and the risk of quickly going into Diabetic Ketoacidosis (DKA). Unlicensed

Assistive Personnel should contact school nurse and parent for further instructions regarding insulin by injection or new infusion set.

- If the school is unable to test for ketones, and the student is symptomatic (illness, nausea, vomiting, and/or stomachache) and blood glucose level is ≥ 350 mg/dl then the student must go home to be monitored by parent/guardian.

Note: For all students (no pump or pump), the school nurse & parent should contact the health care provider if hyperglycemia occurs frequently other than at lunchtime.

6. Exercise and School Attendance (for students on insulin injections and/or pump):

Student Symptoms & BG level	Ketone Level	Exercise	Stay in School
>300mg/dl first time, no symptoms	None	Yes	Yes
>300mg/dl- 2 consecutive times (over 2 hours apart), no symptoms	None	Yes	Yes
>300mg/dl, no symptoms	Trace-Small	Yes*	Yes
>300mg/dl with symptoms	None	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 , no symptoms,	Unable to check ketones	No	Yes

*School Nurse/Child Care Nurse Consultant should determine if type of exercise is appropriate, weather conditions (e.g. very hot weather – exercise may not be appropriate), student’s hydration status, school’s ability to monitor symptoms during exercise, etc.

Note: always check blood gluco and/or ketones before exercise if the student is not feeling well.

7. Insulin Management

- Fast-acting insulins are interchangeable (e.g. Humalog, Novolog, Apidra) unless student is allergic to a certain brand or otherwise indicated.
- The parent and/or Unlicensed Assistive Personal (UAP) should contact the school nurse/ child care nurse consultant for changes in insulin dosing.
- In the school setting, fast-acting insulin is generally given approximately 5-15 minutes prior to lunchtime, unless otherwise indicated. Since it is difficult to determine precisely when the student 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.
- Generally, no insulin is given for a snack of less than or equal to 15gms of carbohydrates unless indicated by provider and/or parent.
- Opened vials of insulin will lose their potency after 28 days and should be discarded to ensure potency and avoid contamination.
- The two-digit rule for giving insulin prior to meals is not appropriate in the school setting due to the school being unable to predict precisely the time the meal will be eaten due to a variety of factors including time spent in lunch line, student socializing with friends and not eating immediately, etc.

8. Pump Management

- The computerized features/calculator of pump should be used for insulin boluses.
- All 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.
- All pump settings should align with provider orders.

9. Continuous Glucose Monitors (CGM)

- CGM systems use a tiny sensor inserted under the skin to monitor glucose levels (ongoing or short term) in interstitial fluid. The CGM is calibrated to the student using finger stick glucose when readings are stable, approximately three times/day, typically outside of school. It is not the responsibility of school personnel to calibrate the CGM.
- Since the FDA has not approved CGM for treatment, glucose levels must be confirmed with a finger stick/meter before making a change in treatment. *Under NO circumstances should the CGM reading*

be used to give an insulin dose or treat a low/high blood glucose. Always check finger stick blood glucose level regardless of CGM reading. (Do not enter sensor reading into pump for insulin calculation)

- Sensors remain in place for ~3 days up to a week. Parents/independent student are responsible for changing sensor/site.
- Parents will set the alarms and notify the school nurse/child care nurse consultant of the parameters. Alarms should be used conservatively to avoid unnecessary disruption of the student's school activities.
- Trend arrows showing lows/pending lows or highs/pending highs should be confirmed with a blood glucose meter and treated per Health Care Plan/Provider orders.
- It is not the responsibility of school personnel to monitor the CGM readings.

10. Medtronic Threshold Suspend Pump with sensor: Threshold Suspend is a feature on the Medtronic pump and CGM system, which automatically suspends insulin delivery if the sensor detects low glucose. When triggered the pump sounds a siren alarm and requires the user to choose between leaving the basal insulin off or restarting it. If no choice is made, the pump continues to alarm every 15 minutes and remains off for up to 2 hours or until the user chooses to resume insulin delivery. During this automatic suspension time, no bolus insulin can be given.

In general, If Threshold Suspend pump alarms go off: (see individual student's provider orders/health care plan)

- Check student's blood glucose immediately to validate the child is truly low via fingerstick, as false alarms occur frequently in children.
- If upon initial testing, the child is not found to be truly low, the basal should be restarted immediately
- If below the threshold suspend level (determined by the parent & provider), keep pump suspended, treat the hypoglycemia, and retest in 15 minutes. Retreat as needed till above 70mg/dl.
- Once the blood sugar rises above 70 mg/dl, restart the basal insulin.
- If the sensor reading drops back below 60 mg/dl within 20 minutes, the suspend feature will reactivate.
- Notify parents & school nurse immediately when pump is in suspend mode and/or incidences of hypoglycemia or false alarms.

11. Self-Care Management:

- Ability level to be determined by school nurse/child care nurse consultant & parent unless Provider indicates otherwise
- All student regardless of age or expertise require a plan (Emergency Action plan, and/or hypo/hyperglycemia flow sheet, etc) and may need assistance with hypoglycemia and illness

12. Student with private duty nurses: 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.