

Standards of care

Diabetes management in the school setting

These are general standards of care for students with Type 1 diabetes to be used in conjunction with the Utah diabetes medication management orders, individualized healthcare plans (IHP), and emergency action plans (EAP). The student's diabetes healthcare provider may indicate exceptions to these standards on the student's individual orders. The nurse ultimately is the one to determine if the order is safe and appropriate to follow.

Diabetes plans and forms

The diabetes medication management orders form is required for any student with diabetes who wants glucagon available at the school or needs accommodations made by the school. The IHP form is one option of a diabetes healthcare plan. The EAP form is an option for a diabetes emergency action plan. The school nurse may choose to use other forms instead of these; however, some kind of IHP and EAP should be on file for all students with diabetes.

IHP and EAP: students with diabetes should have both an IHP and an EAP on file with the school. These are written by the school nurse and the parent and will be based on the diabetes medication management orders which must be signed by a healthcare provider. Both the IHP and the EAP should be reviewed every year, and if the student transfers to another school.

- The IHP is the daily management plan for the student with diabetes. This should include information on checking blood glucose, the instructions for routine insulin administration during school hours, and other student-specific instructions.
- The EAP describes how to care for the student during hyperglycemia or hypoglycemia events.

Diabetes medication management orders: provider orders should be obtained at the start of each school year and ongoing as needed. The student's parents should contact the healthcare provider for new orders if changes to the insulin dosing are outside of the current orders on file. The diabetes medication management orders should be attached to the IHP so that the most current orders are available to the school nurse or school staff. The diabetes medication management orders form is required for any student with diabetes who wants glucagon available at the school, or needs accommodations made by the school.

Students may also need to have one of these forms on file at the school:

- Continuous glucose monitoring (CGM) addendum form

- Insulin pump addendum form
- Insulin injection addendum form
- These forms should be completed by the parent/guardian for students with those devices, or when the student receives their insulin via an injection.

Insulin administration

There are two parts to insulin calculations: 1) insulin to carbohydrate ratio which should be given with any food, and 2) correction dose that is restricted to mealtimes.

The insulin to carbohydrate ratio should be given for meals. Primary Children's Hospital has given the instruction that insulin should always be administered at least 3 hours apart (unless on a pump and the pump recommends administering it sooner). This would include dosing for snacks. The Utah Nurse Practice Act Rule only allows for delegation of "a scheduled dose of insulin" which has been defined as mealtime doses only (R156-31b-701b).

A plan should be in place for students with diabetes (without a pump) for parties and snacks. This may include having the parent provide a no-carb snack for the student to eat, or saving the snack for the next meal when the appropriate dose of insulin can safely be given. School nurses should work with the parents to determine the best course of action for their student.

Correction doses are those that can be done if it has been 3 hours since the last dose of fast-acting insulin or at mealtimes, unless on a pump and the pump recommends it. If the insulin is being injected via a syringe or insulin pen and it is being delegated, correction doses can only be given at mealtimes (R156-31b-701b).

Diabetes management

Monitoring blood glucose (BG): The student's healthcare provider should indicate individualized blood glucose target ranges on the student's diabetes medication management orders.

Standard target ranges before meals: The student's target ranges are indicated by the healthcare provider. If the target range is not indicated, then these general standards should be used:

- Younger than 6 years old: 100-200 mg/dl
- 6-17 years old: 80-150 mg/dl
- Older than 17 years old: 70-130 mg/dl

School nurses should determine their individual scope of practice regarding new diabetes treatment therapies and diabetes care practices.

Note: The frequency of routine blood glucose monitoring should take into consideration the student's schedule and participation in classroom learning and activities. Too frequent routine blood glucose monitoring may impact learning and school participation. On average, a student would have routine blood glucose monitoring 1 to 3 times during a full school day unless otherwise indicated on their diabetes medication management orders.

Hypoglycemia

It is considered hypoglycemia if the blood glucose is below target range. Treatment for a student with hypoglycemia is listed below:

- The student should be treated in the classroom if symptomatic or if their blood glucose is below target range. If the student must go to the health office, he/she should be accompanied by a responsible person, which in most cases would be an adult, unless otherwise indicated on the student's Section 504 plan.
- Check blood glucose. If a blood glucose meter is not available, treat symptoms.
- If blood glucose is below target range or the student is symptomatic, treat with 15 grams* fast-acting carbohydrate. Retest in 10-15 minutes. Repeat 15 grams* fast-acting carbohydrate until the student's blood glucose is within the target range. When blood glucose is within the target range, follow with 15 grams* complex carb (protein and carbohydrate) snack or lunch/meal (unless otherwise indicated on diabetes medication management orders). DO NOT give insulin for this snack.
- Mild symptoms: check blood glucose and treat with 15 grams* fast-acting carbohydrates until within target range.
- Moderate symptoms: check blood glucose and treat with 15 grams* fast-acting carbohydrates. Repeat and re-treat until within target range.
- Severe symptoms: these may include seizures, unconsciousness, or being unable or unwilling to eat or drink. Check blood glucose if meter is available and treat accordingly.
 - Call 911 and administer glucagon. Disconnect or suspend the pump unless the diabetes medication management orders say to not do this. If glucagon is ordered, trained personnel should be available to administer. ALWAYS call 911 if glucagon is administered.
 - Do not give insulin for carbohydrates given to treat low blood glucose. Students with a pump should not enter the carbohydrate grams into the pump that were given to treat a low blood glucose.

**Some students may need more or less than 15 grams of carbohydrates when treating hypoglycemia. Please follow the student's specific plan. Give 15 grams if no other amount is specified.*

Hyperglycemia

It is considered hyperglycemia if the student's blood glucose is over the target range.

Treatment for hyperglycemia for students with an insulin pump or smart insulin pen:

- Give a correction dose if the blood glucose is tested, entered into the pump, and the device recommends a correction dose. No adjustments are to be made to this recommended dose by school personnel (Primary Children's Diabetes Clinic, 2023).
- If blood glucose is greater than the target range but less than 350 mg/dl, give a correction dose as indicated by pump calculation and recheck blood glucose in 2 hours. There may be a pump or site malfunction if blood glucose is still 300 mg/dl or higher at this time. Contact the parent or guardian. They may want to come to check ketone levels and change the pump site.
- The school should have another means of administering insulin available if there's a failed site or pump. This would include an insulin pen, or syringe and vial.
- 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). Instructions on how to handle pump malfunctions should be included in the student's IHP and will typically include administration of insulin via another route and contacting the parent or guardian to replace the infusion set. An independent student can also insert a new infusion set.

Treatment for hyperglycemia for students NOT using an insulin pump:

- Based on Utah law, a correction dose for hyperglycemia may only be given at mealtimes (breakfast and lunch), unless the student is using an insulin pump or a smart pen that determines insulin doses by tracking insulin action time and insulin on board (Primary Children's Diabetes Clinic, 2023).
- Correction doses should not be given closer than every 3 hours since the last dose of fast acting insulin (Primary Children's Diabetes Clinic, 2023).
- Students should be allowed free and unrestricted access to the restroom, and to water or other non-sugar containing drinks.

For all students (pump or no pump) the school nurse and parent should contact the healthcare provider for insulin dose adjustments if hyperglycemia happens often.

If the student's blood glucose is 350 mg/dl or higher and the student is symptomatic (illness, nausea, vomiting) the student should go home to be monitored by the parent/guardian.

If the student's blood glucose is 350 mg/dl or higher and there are no symptoms the student may remain in school. Notify the parents of the blood glucose reading.

Pump management

The computerized features/calculator of a pump should be used for insulin boluses. Parents or guardians are responsible for making sure all pump settings align with the orders from a healthcare provider. The pump bolus calculator should not be overridden.

Changing infusion sets should not be done routinely at school. These are typically done every 2-3 days and should be done at home by a parent or guardian. If the student is independent, they can change the

site at school, or the parent or guardian can come to school to change the infusion set if necessary. A recent search online found more than 82 different kinds of infusion sets.

Diet and nutrition

All students should be encouraged to eat healthy foods. Students with diabetes are not restricted on food they can have but must take insulin to cover the carbohydrates eaten. Arrangements should be made between the teacher and parent on how to handle food given out during class parties.

Continuous glucose monitors (CGM)

- The school personnel or nurse should check a finger stick blood glucose if a CGM alarm sounds and then follow the diabetes medication management orders.
- The CGM alarms should be set so they do not alarm unnecessarily and disrupt the class, but set to warn of possible low blood glucose or high blood glucose levels.
- A parent or guardian or the independent student are responsible for changing the sensor/site. It is not the responsibility of school personnel to change a sensor/site or calibrate the CGM.
- Some CGMs are approved for making treatment decision based on the reading, others are not.
- Always confirm the blood glucose reading with a glucometer if the CGM is not approved for treatment decisions.
- Never enter the sensor reading into a pump.
- Parents should not ask school personnel to review the CGM prior to physical activity and determine—by this reading alone—if the child can participate.
- Monitoring of the CGM in the school setting is not required by school personnel unless the alarm sounds indicating a possible high or low blood glucose reading.
- If anything needs to be done with the CGM device a parent or guardian must come to the school and manage it.

Self-care management

Self-care ability level should be determined by the school nurse and the parent or guardian. All students, regardless of age or expertise, should have an IHP or EAP, and may need assistance with hypoglycemia and illness.

Do-it-yourself (DIY) artificial pancreas

The Utah Department of Health and Human Services does not endorse DIY artificial pancreas systems due to concerns regarding tampering with a medical device, outside the bounds of rigorous scientific research, potential coding errors, and potential malfunctions. However, the school nurse and school staff will still be available for reasonable routine care including hypoglycemia or hyperglycemia management.

Multiple interventions per day

In many cases routine interventions may be delegated to unlicensed personnel during school (monitoring for hypo or hyperglycemia, checking blood glucose before meals or when symptomatic, and scheduled mealtime doses of insulin). The Utah Nurse Practice Act Rules only allow delegation of a scheduled dose of insulin (R156-31b-701b). When parents request multiple routine interventions per day (dosing for highs in-between meals, checking blood glucose hourly, constant monitoring a CGM) this is (in most cases) beyond “reasonable accommodations” due to the frequent disruptions to the child’s education and the potential for error (causing hypoglycemia). However, the school nurse and school staff should still provide reasonable routine care for the student.

References

Colorado Kids with Diabetes Care and Prevention Collaborative, (2016). Standards of care for diabetes management in the school setting & licensed child care facilities.

National Diabetes Education Program, (2022). Helping the student with diabetes succeed: A guide for school personnel.

Primary Children’s Diabetes Clinic, (2023). Primary Children’s guidelines for diabetes management in the school setting.