

Standards of care

Diabetes management in the school setting

These are general standards of care for students with type 1 diabetes. They should be used in conjunction with the Utah diabetes medical management plan (DMMP). The student's diabetes healthcare provider may indicate exceptions to these standards on the student's individual orders. The school nurse is ultimately the one to determine if the order is safe and appropriate to follow.

Introduction

The school nurse should always determine their own practice, including when it is appropriate to delegate care given to students with diabetes. This should be based on a nursing assessment of the student and their situation, including whether available school staff are competent to provide care.

The school nurse has the knowledge, skills, and expertise to best manage the health needs of a student with diabetes while at school. In some cases, it is appropriate to delegate the daily care to unlicensed assistive personnel (UAP), or lay staff. The school nurse has the final say in when this is appropriate, and whether the UAP is competent to perform that care. The school nurse has the ability and training to take the student's entire clinical picture into account when determining the care appropriate for the student. An unlicensed assistive personnel (UAP) does not have this knowledge. For this reason, there are different guidelines for the care of the student with diabetes when the school nurse provides direct care, when the school nurse delegates care to a UAP, and when the student can take care of their own diabetes needs.

Diabetes plans and forms

The diabetes medical management order form is required for any student with diabetes who needs glucagon available at the school or other accommodations. The Utah Department of Health and Human Services has created a diabetes medical management plan (DMMP) which is a combination form that includes the plan to manage the student's diabetes, the physician's orders, and signatures of both the parent and the healthcare provider. The DMMP also includes the history of the student's diabetes and gives more specific information about the student's

care. This document should be reviewed at least once every year and kept on file at the school. It should also be sent in the student's file if the student is transferred to another school.

Insulin administration

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

The **insulin to carbohydrate ratio** should be given for meals. The best practice is that insulin should always be administered at least 3 hours apart (unless on a pump and the pump recommends administering it sooner). The Utah Nurse Practice Act Rule only allows for the delegation of “a scheduled dose of insulin” which has been defined as mealtime doses only (R156-31b-701b).

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

The **correction dose** is restricted to mealtimes because of the “3-hour rule” for fast-acting insulin (aka “insulin stacking”). Fast-acting insulin begins to work about 15 minutes after an injection. It peaks at about an hour and continues to work for 2 to 4 hours. The 3-hour rule prevents “insulin stacking” and low glucose or hypoglycemia (US Davis Health, 2024). Because of the 3-hour rule, correction doses and insulin-to-carbohydrate doses should only be given if it has been three hours since the last dose of fast-acting insulin unless the student is on an insulin pump (or smart insulin pen) and the device recommends it. These devices are designed to make necessary calculations and will adjust the dose based on insulin on board to avoid administering too much insulin.

A plan should be in place for students with diabetes (without a pump or smart pen) 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.

When the school nurse delegates care to an unlicensed assistive personnel (UAP) Insulin doses can only be given at mealtimes if the insulin is being injected via a syringe or a regular insulin pen, and this administration has been delegated by the school nurse to a UAP (R156-31b-701b). This includes both insulin-to-carbohydrate and correction doses.

When the school nurse provides direct care:

The school nurse may occasionally determine it to be appropriate to administer insulin for hyperglycemia or for snacks within the 3-hour range, but only after completing a nursing assessment of the student and situation. This should not be standard practice since it can lead to stacking insulin. All insulin dosing requires a healthcare provider order.

Multiple interventions per day

In many cases, routine interventions may be delegated to unlicensed personnel during school (monitoring for hypoglycemia or hyperglycemia, checking 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).

Tight micromanaging:

Tight micromanaging of students can be disruptive to not only the student with diabetes but also to the teacher and other students in the classroom. When parents request excessive interventions each day (dosing for highs in-between meals, checking glucose hourly, constant monitoring of a continuous glucose monitoring system (CGM) this may be considered beyond “reasonable accommodations.” Frequent interruptions may disrupt the child’s education and increase the potential for errors (causing hypoglycemia). Device alarms on insulin pumps and CGMs should be minimized to alarm at actionable levels.

Hypoglycemia

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

- The student should be treated in the classroom if symptomatic or if their glucose is below the target range. If the student must go to the health office, he or 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 glucose. If a glucose meter is not available, treat symptoms.
- If glucose is below the 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 glucose is within the target range. When glucose is within the target range, follow with 15 grams* complex carb (protein and carbohydrate) snack or lunch/meal (unless otherwise indicated on the diabetes medical management plan). **DO NOT give insulin for this snack.**

- **Mild symptoms:** check glucose and treat with 15 grams* fast-acting carbohydrates until within target range.
- **Moderate symptoms:** check glucose and treat with 15 grams* fast-acting carbohydrates. Repeat and retreat until within the target range.
- **Severe symptoms:** these may include seizures, unconsciousness, or being unable or unwilling to eat or drink. Check glucose if a meter is available and treat accordingly.
 - **Call 911 and administer glucagon.** Disconnect or suspend the pump unless the diabetes medical management plan says to not do this. If glucagon is ordered, trained personnel should be available to administer it. Always **call 911 if glucagon is administered.**
 - **Do not give insulin for carbohydrates given to treat low glucose.** Students with a pump should not enter the carbohydrate grams into the pump that was given to treat a low glucose level.

**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.*

It is recommended to recheck glucose after 15 minutes with a glucose meter even when a student has a CGM. This is because the CGM reading will usually lag behind a blood glucose reading. For this reason, some parents may want to wait 20 minutes instead of the recommended 15 minutes when treating for hypoglycemia, but DHHS does not endorse this practice.

Hypoglycemia before a meal:

For mild hypoglycemia: at mealtimes dose for all but 15 grams of carbohydrates if glucose is below the student's target range. Allow the student to eat, then retest in 15 minutes.

When the school nurse delegates care to an unlicensed assistive personnel (UAP):

If the school nurse has delegated the care of the student with diabetes to a UAP the care should be routine and not vary. Use the standard 15/15 rule as described above when treating a student for hypoglycemia.

When school nurse is providing direct care:

When a school nurse is providing direct care they may determine it to be appropriate to modify

aspects of the 15/15 rule, based on a nursing assessment. This decision would be determined by the school nurse and would be based on workload.

Hyperglycemia

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

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

- Give a correction dose for the glucose if 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).
- The school should have another means of administering insulin 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 DMMP and will typically include how to give 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 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 glucose is 350 mg/dl or higher **and there are no symptoms** the student may remain in school. Notify the parents of the glucose reading.

When the school nurse delegates care to an unlicensed assistive personnel (UAP):

Students using an insulin pump or smart pen may enter a correction dose into their devices. A student receiving insulin via a syringe can only receive insulin at mealtimes. Other treatment options may be used, such as allowing free and unrestricted access to the restroom, and to water or other non-sugar- containing drinks.

When the school nurse provides direct care:

When a school nurse is providing direct care, they may determine it to be appropriate to modify aspects of the hyperglycemia treatment, based on a nursing assessment. This may include administering a correction dose of insulin which would be determined by the school nurse and be based on workload, and then only with a current healthcare provider order.

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 the healthcare provider. The pump bolus calculator should not be overridden.

Changing infusion sets should not be done 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 backup insulin delivery option should be provided for pump failure. A recent search online found more than 82 different kinds of infusion sets and nurses are routinely not trained to change infusion sets.

When the school nurse delegates care to an unlicensed assistive personnel (UAP):

Unlicensed assistive personnel should never adjust the settings on an insulin pump.

When the school nurse provides direct care:

When a school nurse is providing direct care for the student on an insulin pump, they may determine it to be appropriate to modify aspects of treatment, based on a nursing assessment. This would be determined by the school nurse and be based on workload.

Diet and nutrition

All students should be encouraged to eat healthy foods. Students with diabetes are not restricted to 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 glucose if a CGM alarm sounds and then follow the diabetes medical management plan.
- The CGM alarms should be set so they do not alarm unnecessarily and disrupt the class but are set to warn of possible low glucose or high 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 decisions based on the reading, others are not.
- Always confirm the 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.
- If anything needs to be done with the CGM device a parent or guardian should come to the school and manage it.

When the school nurse delegates care to an unlicensed assistive personnel (UAP):

Continuous monitoring of a CGM is not required by school personnel unless the alarm sounds indicating a possible high or low glucose reading. UAPs should not be asked to follow CGM arrows, since this practice requires nursing judgment. The UAP should also understand if the student's CGM is approved for making treatment decisions, or if verification is needed with a glucometer before treatment.

When the school nurse provides direct care:

When a school nurse is providing direct care and the student has a CGM, the nurse may be able to follow the CGM arrows and respond when treatment is recommended based on a nursing assessment. Continuous monitoring of a CGM is not required unless the alarm sounds indicate a possible high or low glucose reading. All care is determined by the school nurse and is based on workload.

Necessary supplies

A three-day minimum of the following diabetes management supplies should be provided by the parent and be always accessible by the student:

- Insulin
- Syringe/needles
- Snacks for treating hypoglycemia
- Glucagon
- Alcohol wipes
- Blood glucose meter (with test strips, lancets, extra batteries), even for those with CGM
- Pump supplies (infusion set, cartridge, extra batteries, or charging cord)

Staff should review expiration dates and quantities each month and replace items prior to expiration dates. In the event of a disaster or extended field trip, a school nurse or other designated personnel should take the student's diabetes supplies and medication to the student's location.

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 a current signed DMMP on file with the school 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, there isn't enough rigorous scientific research on these, 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.

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.

University of Davis Health Children's Hospital, (2024). Pediatric diabetes: insulin for children.