

TEXAS TECH UNIVERSITY

HEALTH SCIENCES

Paul L. Foster School of Medicine

Department of Pediatrics

4800 Alberta Avenue

El Paso, Texas 79905

Information for School Personnel about Diabetes Mellitus

GENERAL INFORMATION

Diabetes is a condition in which the pancreas gland does not produce enough insulin. Insulin is a hormone that regulates blood glucose (sugar). As a result, the blood glucose level can be elevated. Most students have Type 1 diabetes and will require daily insulin administration. A balance between insulin, food intake, and exercise must be maintained to prevent blood glucose levels from being either too high or too low. Recurrent illness and requests to be excused from class should be discussed with the student, parents, and physician. Students may give their insulin via syringe, insulin pen or insulin pump.

BLOOD GLUCOSE TESTING

Blood glucose monitoring is required for most individuals with diabetes. This involves pricking a finger, placing a drop of blood on a test strip, timing and evaluating the results. This test procedure is usually performed at least 4-6 times daily. The information is then recorded and insulin doses adjusted by the student, depending on his/her age or the parents or the physician based on the results. The student may need to test his/her blood glucose before lunch and/or exercise, 2 hours after lunch, or during episodes of low blood glucose. School health personnel should be familiar with basic blood glucose monitoring techniques. The blood glucose equipment should be available in the classroom so the student can test him/herself when he/she feels low.

If the student is required to go to the nurse's office to test blood glucose when symptoms of low blood glucose are present, someone MUST accompany him/her to the nurse's office.

DIETARY MANAGEMENT

Students with diabetes are instructed to match their diet with their insulin doses and are able to select their food from a school menu or bring their own lunch from home. This is true whether they use an insulin pump or injections. The following are some general guidelines:

1. The general dietary guidelines for children with diabetes are those recommended for all people: emphasis on vegetables, fruits, and whole grains, and low in sugar, fat, and cholesterol.
2. Adequate time should be provided for finishing meals and snacks.
3. Additional food may be necessary before strenuous or unusual exercise.
4. Students who take rapid acting insulin before meals, such as Lispro (Humalog), Aspart (Novolog), or Glulisine (Apidra) MUST start to eat within 5-10 minutes after the insulin injection.
5. Whenever possible, insulin should be given prior to eating. Some students who do not consistently finish all of their meals may need to take rapid acting insulin after their meals.

2. If blood glucose is **below 70 mg/dl** and the child is unconscious, seizing or unable to swallow:
 - A. Activate emergency medical services.
 - B. Rub a small amount of glucose gel or cake frosting on child's gums and oral mucosa.
 - C. If available, inject Glucagon 1 mg subcutaneously.
 - D. Notify parent.

If the child uses an insulin pump, **the pump should be disconnected if loss of consciousness or seizures occurs. Do not pull the insertion set out; just disconnect the catheter tubing from the insertion set.**

If the student wears in insulin pump, the basal rate may be stopped for 30 minutes to help the glucose numbers come up more quickly. This is done by setting the temporary basal rate at 0% for 30 minutes or the pump can be disconnected. The pump can be disconnected but it is important to reconnect the pump once the glucose level is over 70 mg/dl.

HYPERGLYCEMIA : High Blood Glucose over 250 mg/dl)

Causes: Not enough insulin
 Too much food/miss-counted carbs
 Illness, infection, stress
 Decrease in usual activity

Additional causes if on a pump:
 Air in insulin pump line Empty
 insulin pump cartridge
 Dislodgement or kink in infusion set
 Depleted insulin pump battery malfunction of insulin pump

Symptoms:	Excessive thirst	Weight loss
	Frequent urination	Nausea/vomiting
	Fatigue	Stomach ache
	Dehydration	Breath with fruity odor

Hyperglycemia:

Urine or blood ketones should be tested when blood sugar is over **250 mg/dl** or when student is ill.

- a) If small or trace amounts of ketones are present, encourage water until ketones are negative.
- b) If moderate or large amounts of ketones are present:
 - 1) Student should remain in clinic for monitoring.
 - 2) Notify parent for pick up.
 - 3) Give 1-2 glasses of water every hour.
 - 4) If student remains in school, retest blood glucose and ketones every 2-3 hours or until ketones are negative.

While waiting for parents to pick up the student, the student needs to drink as much water as he/she can (1-2 glasses of water every hour). Rapid acting insulin (Humalog/Novolog/Apidra) doses need to be given every 2-3 hours, fluids

need to be encouraged and glucose levels need to be checked every 2 hours per physician or parent guidelines until urine ketones clear.

If the child is on an insulin pump, these additional guidelines may also be necessary. Because only short acting insulin is used in insulin pumps, if something happens to the delivery of insulin to the student, he/she can go into ketoacidosis relatively quickly. Therefore, if the student has two high glucose readings twice in a row, the student needs an injection of insulin with a syringe (the dose based on glucose levels). If the glucose level is over 250 and ketones are not present in the urine, a bolus via the pump needs to be given and the glucose number needs to be rechecked in 2 hours. If that 2nd number is over 250, the parents need to be notified and the insulin pump cartridge, tubing and infusion set needs to be changed. If there are ketones (moderate to large) in the student's urine at any time, the parents need to be notified. If ketones are present, then the pump cartridge, tubing and infusion set needs to be changed, after an injection of insulin is given to the student, the dose based on the glucose level and the amount of ketones present. Parents need to be notified as soon as possible. If the parents cannot be contacted and the student is vomiting, breathing heavily or the breath smells like ketones, 911 needs to be called.

INSERTION SET DISLODGEEMENT (For students wearing an insulin pump)

If the pump insertion set becomes dislodged, a new set must be inserted as soon as possible. Since the students with insulin pumps only receive short acting insulin, if they are without insulin via their pump for any reason, they can go into ketoacidosis very quickly. If the set becomes dislodged and parents cannot be reached to reinsert the set or the student cannot reinsert the set, then the student needs to be given an injection of short acting insulin (Humalog, Novolog, Apidra) –the dose based on their glucose level and carbohydrate intake—every 3 hours until the set is replaced.

SUPPLIES NEEDED AT SCHOOL

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| Glucose meter | Quick sugar to treat a low blood sugar levels |
| Glucose test strips | Insulin record book or record sheet |
| Skin cleaning pads | Insulin syringes or insulin pen with cartridges and needles |
| Extra batteries | Glucagon emergency kit |
| Vial or insulin pens with short acting insulin (Humalog, Novolog, or Apidra) | |
| Extra reservoirs and sets (if on an insulin pump) | |

If you have any questions or concerns about the student who has given this information to you, please do not hesitate to call us at (915) 215-5700.