

Type 1 Diabetes and School



Disclosure

The individual presenters are representatives of their respective organizations and are solely responsible for the content of their presentations. The sessions are intended as general public education and are not a substitute for accessing and consulting with child health services.

If you have questions following this presentation please speak with the parent of the student with diabetes.

Goals of Presentation

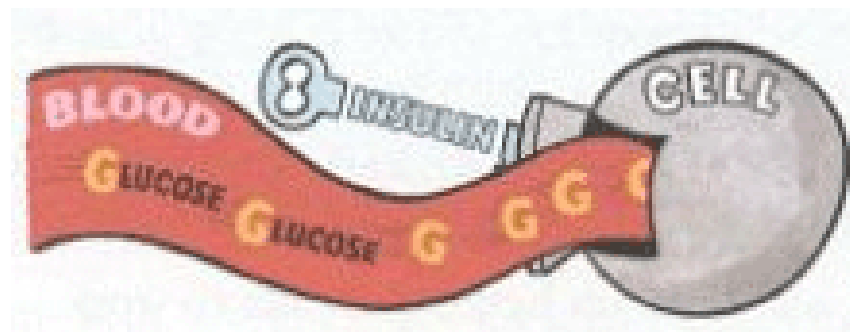
- Describe the basics of managing type 1 diabetes.
- Identify the roles of teachers and parents in diabetes management while the child is at school.
- State what steps to take if a student has high or low blood glucose.

Type 1 Diabetes: The Facts

- 1 in 500 children are affected by type 1 diabetes (T1D).
- T1D is an autoimmune disease. The insulin producing cells in the pancreas have stopped making insulin.
- T1D is not a lifestyle disease, nor is it contagious.
- T1D is not caused by eating too much sugar.

The Role of Insulin

After food is eaten it breaks down into glucose and is absorbed from the gut into the blood stream. The pancreas, which makes insulin, transfers the glucose into the muscle cells where it is used as energy. Without insulin, glucose builds up in the bloodstream and is passed into the urine.



Diabetes: Common Signs & Symptoms

- Excessive urination *
- Increased thirst *
- Fatigue
- Weight loss

If you notice * symptoms in a student not known to have diabetes, you should suggest that the child see a doctor.

Treatment of T1DM

- Balancing injected insulin with carbohydrate containing foods.
- Checking the blood glucose a minimum of 4 times per day.

Goals of Diabetes Management

- Near normal blood glucose levels.
- Avoid high and low blood glucose.
- Normal physical growth and psychological development.

Insulin

- Insulin is administered by a syringe, an insulin pen or an insulin pump.
- Many young children inject insulin only while at home (before breakfast, supper and bedtime), while older children and teens usually inject insulin at meals and large snacks.
- If a student injects insulin while at school, he will likely use an insulin pen.



Insulin Injections: The Teacher's Role

- If a student gives insulin at school, ensure:
 - A clean, private place to administer insulin and enough time to do so.
 - Safe storage of the injection device and disposal of “sharps”. It is recommended that the student transports the used needle home each day in a small puncture proof container such as a plastic vitamin or medication bottle.
- If school personnel agree to administer or supervise insulin injections, parents must provide staff with training.

Safety Alert!

If school personnel are administering insulin to a student they must use a “safety engineered” needle tip. This will eliminate the risk of a needle stick injury.

Insulin Pump Therapy (IPT)

- Insulin pump therapy is becoming a common way to manage T1D.
- A device continually pumps a small amount of background insulin into the body via a small needle or catheter which is inserted into fatty tissue.
- Whenever the child/teen eats she programs the pump to deliver a “bolus” or burst of insulin to cover the food.



Insulin Pump Therapy: The Teacher's Role

- School personnel *may* agree to supervise young students who administer their own insulin with a pump. Parents must provide staff with training on pump features.

Food and Diabetes

Carbohydrates affect blood glucose levels. They are found in:

- grain products
- starchy vegetables (eg. potatoes & corn)
- fruit
- milk and yogurt
- “sweets & treats”



Meals and Snacks at School

- Children who do not take insulin at school have fixed carbohydrate goals for lunch and afternoon snack.
- Children and teens who take insulin at school (either by injection or pump) will inject insulin based upon how much carbohydrate they plan to eat.
- Timing of meals and snacks:
 - If possible it is desirable to have at least two hours between morning snack and lunch to obtain an accurate blood glucose result.

Food: The Teacher's Role

For children who do not inject insulin while at school, ensure that:

1. Lunch and snack(s), are eaten **fully** and **on time**.
2. They do not have extra carbohydrate containing “treats” unless approved by the parent.

For children who give insulin while at school, ensure that:

1. Insulin is given at lunch and snacks (if indicated by the parent).
2. If insulin is given, that the carbohydrate containing food is eaten.
3. Insulin is given for carbohydrate containing “treats”.

More About Food

- It is important for all children to eat healthy food. Recommendations are made for all children based on Eating Well with Canada's Food Guide
- Do not judge the food choices your student brings to school. Parents must send foods that they know will be eaten. Do not expect a student with T1D to eat differently than other students.
- Carbohydrate requirements will vary among children depending on age, gender, size, and activity level.

Food: Some Helpful Hints

- Inform parents in advance of any events or celebrations so that “treats” can be incorporated into the child’s meal plan.
- If you can’t plan in advance, send the treat home so the parents can include it in the meal plan later in the day.
- It may be helpful for students to have a supply of snacks left at school in case the student forgets to bring one. These should be labeled “a.m. snack” or “p.m. snack.” It is the parent’s responsibility to re-stock or change them as the student’s needs change.
- “Free,” or zero-carbohydrate snacks are nice to have on hand when there is an impromptu snack during class and the parent has not had advance warning to work it into the meal plan.

Note: These are helpful ideas and should not be expectations.

Blood Glucose Monitoring



The student will check his blood glucose:

- Before lunch (and sometimes before snacks)
- If experiencing symptoms of low blood glucose

Steps:

- Wash and dry hands
- Prick finger with lancing device to obtain a small drop of blood
- Apply drop to strip that has been inserted into the monitor



DO NOT let anyone else use the student's finger poking device as blood born infection can be spread on the end cap.



Blood Glucose Levels

- Normal blood glucose is **4 – 7 mmol/L**. Do not expect all readings to be in the normal range.
- A blood glucose **< 4.0 mmol/L** requires immediate treatment.
- If the student's blood glucose is elevated (**> 15 mmol/L**) she may be thirsty and have to urinate frequently. She may also have trouble concentrating.

Monitoring: The Teacher's Role

- Students must be allowed enough time and have access to a clean, private place to check their blood.
- If school personnel agree to assist with or perform blood glucose monitoring, parents must provide staff with training.
- Very young children may require help interpreting the results.

Continuous Glucose Monitoring



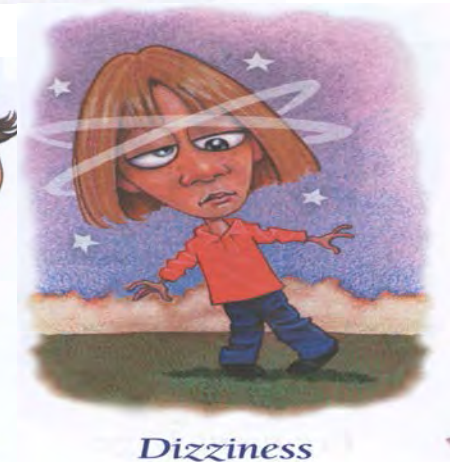
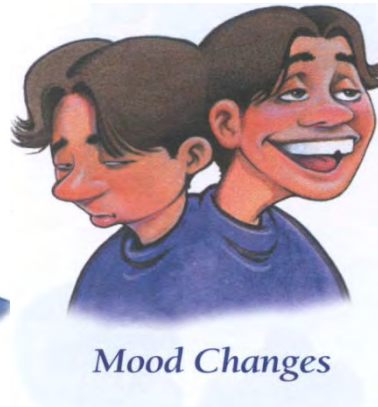
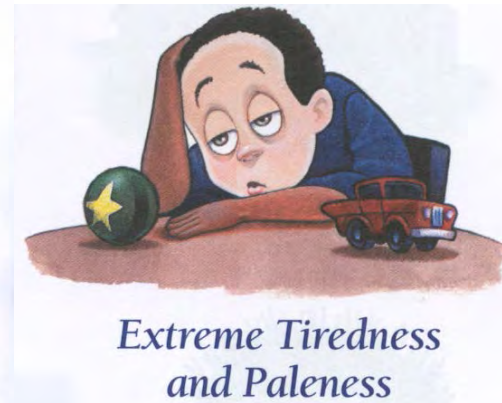
- Some children wear a continuous glucose monitoring device (CGM).
- A sensor is inserted into the abdomen, arm or hip. It sends glucose levels to a receiver which displays and graphs the results.
- The receiver can be programmed to alarm when glucose levels are rapidly falling. This will alert the child to eat before the blood glucose drops too low. (It can also be programmed to alert the user to rising blood glucose.)

The Parents Role: To discuss the use of CGM at school.

Low Blood glucose (Hypoglycemia)

- It is common for people taking insulin to experience low blood glucose.
- A blood glucose reading **< 4.0 mmol/L** is considered low and requires treatment.
- A low blood glucose often comes on quickly with obvious signs and symptoms.
- Younger children are often unable to recognize hypoglycemia.

Symptoms of Low Blood glucose



Low Blood Glucose: The Teacher's Role

When a student reports that he is having a low blood glucose or you suspect that he is low:

- Have the student check their blood glucose.
- If the blood glucose is less than 4, or if the student is unable to check their blood glucose, treat with rapid acting carbohydrate, such as:
 - ½ cup juice or regular pop
 - 15 skittles
 - 2 packages of Rockets
- The student should not go anywhere alone until the low blood glucose is resolved.

Note: See “Student Care Plan” for specific instructions

Low Blood Glucose: The Teacher's Role

- To prevent low blood glucose:
 - Ensure lunch and snacks are eaten fully and on time. Young children may require supervision.
 - Inform parents of P.E. class times and any events involving extra activity. They may have their child eat extra food to prevent an exercise induced low.
 - Inform parents of any low blood glucose. A good way to communicate lows is to record them in the student's agenda.

Low Blood Glucose: The Parent's Role

- To provide a Diabetes Care Plan to the teacher, including:
 - their child's specific signs and symptoms of low blood glucose.
 - treatment options for low blood glucose.
- To provide and maintain a supply of low blood glucose treatments for use at school.

Severe Low Blood glucose: The Teacher's Role

If a student:

Becomes confused or disoriented

Action: Take charge and coax the student to eat or drink a low treatment

Loses consciousness or has a seizure

Action: Roll the student on his side, do not put anything in the mouth, call **911**

High Blood Glucose

- High blood glucose poses no immediate danger.
- Common symptoms are: increased thirst and urination, lack of concentration and tiredness.
- Allow your student to take frequent bathroom breaks and drink lots of water. (Do not single him out and make him run laps or do jumping jacks to “burn off” the high glucose!)
- Many children confuse their symptoms of high blood glucose with those of low blood glucose.
 - If the student reports feeling low and is unable to test her blood (forgot meter at home or it is unavailable), treat it as a low and give rapid-acting carbohydrate.

Medical Alert Identification



- Children and teens are encouraged to wear medical identification indicating that they have type 1 diabetes.
- The Medic Alert Foundation Canada in partnership with Lions Club has a “No Child Without” program offering free membership.
- If your school is not enrolled, visit <http://www.nochildwithout.ca>

Student Diabetes Care Plan



It is advisable to have a written Diabetes Care Plan outlining:

- Signs and symptoms of low blood glucose with treatment instructions
- Management of food
- Blood glucose monitoring instructions

Need More Information?

The Canadian Diabetes Association

“Guidelines for the Care of Students Living with Diabetes at School” www.diabetes.ca

Alberta Children’s Hospital Diabetes Website

www.ucalgary.ca/achdiabetes