

DIABETES INFORMATION FOR SCHOOLS & DAY CARE PROVIDERS

Diabetes Overview

In people with diabetes, the body has lost its ability to self-regulate the process of turning food into energy. Food is digested and glucose goes out into the bloodstream. But without insulin, glucose builds up in the bloodstream and the cells are unable to convert it to energy. Left untreated, glucose levels can reach dangerous levels, leading to dehydration, nausea, vomiting, and, in severe cases, unconsciousness and coma. Insulin (or other medications in people with type 2 diabetes) enables cells to convert glucose to energy.

All people with diabetes must carefully balance their medication, food, and exercise in order to stay healthy. To do this, they use a combination of insulin injections (or other medication for type 2 diabetes), frequent blood glucose checks, careful meal planning, and exercise. It's a difficult balance to maintain, requiring constant vigilance. This is why careful diabetes care in the school is so important.

What is Diabetes?

In a healthy body, the pancreas secretes a hormone called insulin. Insulin acts as a key, unlocking cells and allowing glucose to enter and fuel them. In a body with diabetes, the pancreas either stops making insulin entirely, can't make enough insulin, or can't use the insulin it makes. Lack of insulin leads to a build up of glucose in the bloodstream (or "hyperglycemia," high blood sugar). Without a functioning pancreas, insulin must be obtained from another source— insulin injections. If the pancreas is still functioning at some level (as in type 2 diabetes), other medications may be taken instead of or in addition to insulin.

There are two main types of diabetes:

- Type 1 diabetes (formerly known as "juvenile diabetes")occurs when the pancreas stops making insulin all together. Type 1 diabetes is usually diagnosed in youth, although sometimes people develop type 1 well into their 30's.
- Type 2 diabetes occurs when the pancreas makes some insulin, but either it can't make enough or the insulin it does make doesn't work very well. Type 2 diabetes is traditionally associated with older people but these days, more and more youth are being diagnosed with type 2 diabetes.

The Importance of Insulin

Insulin is a vital part of the body's food use. In a healthy body, the stomach and digestive system break down much of the food we eat into glucose, a type of

sugar. This glucose is released into the bloodstream. All the cells of the body use glucose for energy. Insulin acts as a key, unlocking the cells and enabling glucose to enter and provide fuel and energy. In people with diabetes, that key is gone. Without insulin, there is no way for the glucose to travel from the blood into individual cells. Then two things happen: the cells begin to starve, and the level of glucose in the blood rises to unhealthy levels.

Signs & Symptoms

Signs and symptoms of **hyperglycemia**, or high blood sugar, include:

- Frequent urination
- Extreme thirst
- Unusual hunger
- Weight loss
- Exhaustion
- Weakness
- Blurry vision
- Dehydration
- Nausea
- Vomiting
- Fruity-smelling breath
- Drowsiness
- Stomach pain
- Unconsciousness/coma

Signs and symptoms of **hypoglycemia**, or low blood sugar, include:

- Shakiness
- Nervousness
- Sweating
- Irritability, sadness, or anger
- Impatience
- Chills and cold sweat
- Fast heartbeat
- Light-headedness or dizziness
- Hunger
- Drowsiness
- Stubbornness or combativeness
- Lack of coordination
- Blurry vision
- Nausea
- Tingling or numbness of lips or tongue
- Headaches
- Strange behavior
- Confusion
- Personality change
- Passing out

Care of Children with Diabetes in the School and Day Care Settings

American Diabetes Association Position Statement, Abridged

(for full statement, please visit our Web site at www.diabetes.org/cpr)

Diabetes is one of the most common chronic diseases of childhood, with an incidence of approximately 1.7 affected individuals per 1000 people younger than 20. In the U.S., approximately 13,000 new cases are diagnosed annually in children. About 125,000 individuals younger than 19 have diabetes in the U.S. The majority of these children attend school and/or some type of day care and need knowledgeable staff to provide a safe school environment. Both parents and the health care team must work together to ensure school systems and day

care providers have the information and training they need to allow children with diabetes to participate full and safely in school

Federal laws that protect children with diabetes include the Rehabilitation Act of 1973, Section 504, the Individuals with Disabilities Education Act of 1991, and the Americans with Disabilities Act of 1992. Under these laws, diabetes has been determined to be a disability, and it is illegal for schools and/or day care centers to discriminate against children with diabetes. Any school that receives federal funding or any facility considered open to the public must reasonably accommodate the special needs of children with diabetes. The required accommodations should be provided within the child's usual school setting with as little disruptions to the school's and the child's routine as possible and allowing the child full participation in all school activities. Federal law requires an individualized assessment of any child with diabetes.

Despite these protections, children in the schools and day care setting still face discrimination. For example, some day care centers have refused admission to children with diabetes. Children in those classrooms have not been provided the assistance necessary to monitor blood glucose and/or have been prohibited from eating needed snacks. Appropriate diabetes care in the school and day care setting is necessary for the immediate safety of the child and for the child's long-term well being and optimal academic performance.

School and day care personnel must have an understanding of diabetes and its management to facilitate the appropriate care of the child with diabetes. Knowledgeable personnel are essential if the child is to achieve the good metabolic control required to decrease risks for later development of diabetes complications.

Benefits of Effective Diabetes Management

Effective diabetes management at school has numerous positive outcomes. It can:

- Promote a healthy, productive learning environment for students with diabetes;
- Reduce absences of students with diabetes;
- Reduce classroom disruption;
- Help assure effective response in case of diabetes-related emergency; and
- Promote full participation in all areas of school curriculum and extra-curricular activities.

Diabetes Control

The key to good diabetes control is a careful balance between food, exercise, and insulin. It's a juggling act to keep blood sugar levels within the target range. In a nutshell, food makes blood sugar levels go up, and exercise and insulin

make blood sugar levels go down. People with diabetes have to check their blood sugar levels throughout the day using a blood glucose meter. The meter tells them how much sugar (glucose) is in their blood at that time, and they take insulin, eat, or modify activity to try to stay within their target range.

Hyperglycemia (high blood sugar) occurs when blood sugar levels are above the target range. Everyone has moderate hyperglycemia every now and then. In people with diabetes, hyperglycemia can be caused by skipping an insulin dose, using bad or expired insulin, or if there is a clog in insulin pump tubing. When blood sugar levels are high a lot or when the level is extremely high, the consequences can be very serious. Very high blood sugar levels can lead to diabetic ketoacidosis ("DKA"), or a "diabetic coma."

Hypoglycemia (low blood sugar) occurs when blood sugar levels are below the target range. Hypoglycemia can be caused by taking too much insulin, skipping a snack, too much exercise, or a combination of the three. Hypoglycemia can lead to dizziness, sweating, headaches, confusion, and unconsciousness. For these reasons, it's important that children with diabetes stick to their scheduled blood check, insulin injection, and snack times. Even small deviations from their diabetes care plan schedule can cause problems in blood glucose levels.

Diabetic Ketoacidosis ("DKA") occurs when the cells can't get the energy they need from glucose. They begin burning fat and other body tissues for energy. This causes the release of byproducts, called ketones. Small amounts of ketones are probably not harmful, but the fat burning that occurs when there's no insulin can cause dangerous levels of ketones. Ketones become like poison to the body. They build up in the blood and spill over into urine. Symptoms of diabetic ketoacidosis—when there are too many ketones in the blood—appear.

Three Elements of a School Plan

Your school may have different names for the written document(s) that make up a diabetes care plan. There are the three elements that should be included in the diabetes packet the parent gives to you (or the principal):

Information packet. The child's parent should put together a diabetes information packet. This packet may contain various brochures and articles with general information on diabetes. It should include information on what diabetes is and how it's treated, what hypoglycemia and hyperglycemia are and how they're treated, and anything else that will help you and the other school staff gain a better understanding of diabetes.

Health Care Plan. This plan should outline the child's diabetes treatment—his target blood sugar range, insulin schedule, eating plan, and usual blood sugar testing times. It should also include instructions on what to do in various situations (treatment for hypoglycemia, for example). This information may be

included in the Diabetes Care Plan instead of as a separate document, depending on the procedures in your state or school.

Diabetes Care Plan. This plan is often called a "504 Plan" or "IEP" after terminology used in federal laws on disabilities (see above for more details). The child's diabetes care plan should cover the responsibilities of both the parent and the school in specific detail. It should also list any accommodations that may need to be made for the child.

Roles and Responsibilities

A key part of ensuring good diabetes care for children at school is a clear understanding of who will be responsible for each task. In general, the parents are responsible for providing all diabetes equipment and snacks. They should also help you learn what you need to know about diabetes care. You and the your school should be willing and able to do the following, as needed by the child.

An adult and a back-up adult should be trained to test blood sugar, know what to do if the blood sugar is out of the target range, know when and how to test for ketones, and know what to do if the child's ketone level is abnormal.

An adult and a back-up adult should know how to recognize and treat hypoglycemia and hyperglycemia. If the child is mature enough to treat herself, she should be allowed to do so—but she should remain under the supervision of an adult at all times during a hypoglycemic reaction and should not be required to walk alone to another part of the school to test blood sugar or get treatment.

If the child needs an insulin injection(s) during school hours, an adult and back-up adult should be trained to give her insulin injections (and/or supervise her as she administers her own injection).

An adult and back-up adult should be trained to give a Glucagon injection. If the parent or child request it, the school should provide a location in which the child can check her blood sugar or take insulin privately (but still with adult supervision, if needed).

An adult and back-up adult should know the child's meal plan and work with the parent to coordinate it with the schedule of the other children in the class, if possible. They should also notify the parents whenever special events come up that might affect the meal plan.

All adults who have responsibility for the immediate custodial supervision or care of your child at school should be trained to recognize hypoglycemia and hyperglycemia and know emergency procedures.

Allow the child to see the school nurse or other school medical personnel whenever needed.

Allow the child to eat a snack anywhere and to use the restroom and drink water at any time.

Allow the child to miss school for doctor's appointments to monitor diabetes without negative consequences.

Provide a safe location for storage of insulin and Glucagon, and allow the child immediate access to diabetes supplies at any time.

Ensure the child's full participation in all sports, extracurricular activities, and field trips, with any necessary supervision provided.

Provide aids to help the child academically, if needed. Examples of situations in which this might be necessary include making up for class time missed due to diabetes care or academic problems that can be traced to frequent hypo- or hyperglycemia.

For more information on the roles and responsibilities of schools and day care centers, please visit your American Diabetes Association online at www.diabetes.org. If you have specific questions, please call us at 1-800-DIABETES (342-2383) or email wizdom@diabetes.org.