The Diabetes Research Institute at the University of Miami Miller School of Medicine leads the world in cure-focused research. As the largest and most comprehensive research center dedicated to curing diabetes, the DRI is aggressively working to develop a biological cure by restoring natural insulin production and normalizing blood sugar levels without imposing other risks. For the millions of families affected by diabetes, the Diabetes Research Institute is **the best hope for a cure.**

Diabetes Research Institute

Rowland and Sylvia Schaefer Building
University of Miami Miller School of Medicine
1450 NW 10th Avenue
Miami, FL 33136

Diabetes Research Institute Foundation

National Office/Florida Region
200 S. Park Road, Suite 100
Hollywood, FL 33021
T: (800) 321-3437
P: (954) 964-4040
F: (954) 964-7036

New York Office/Northeast Region
259 West 30th Street, Suite 402
New York, NY 10001
P: (212) 888-2217
F: (212) 888-2219

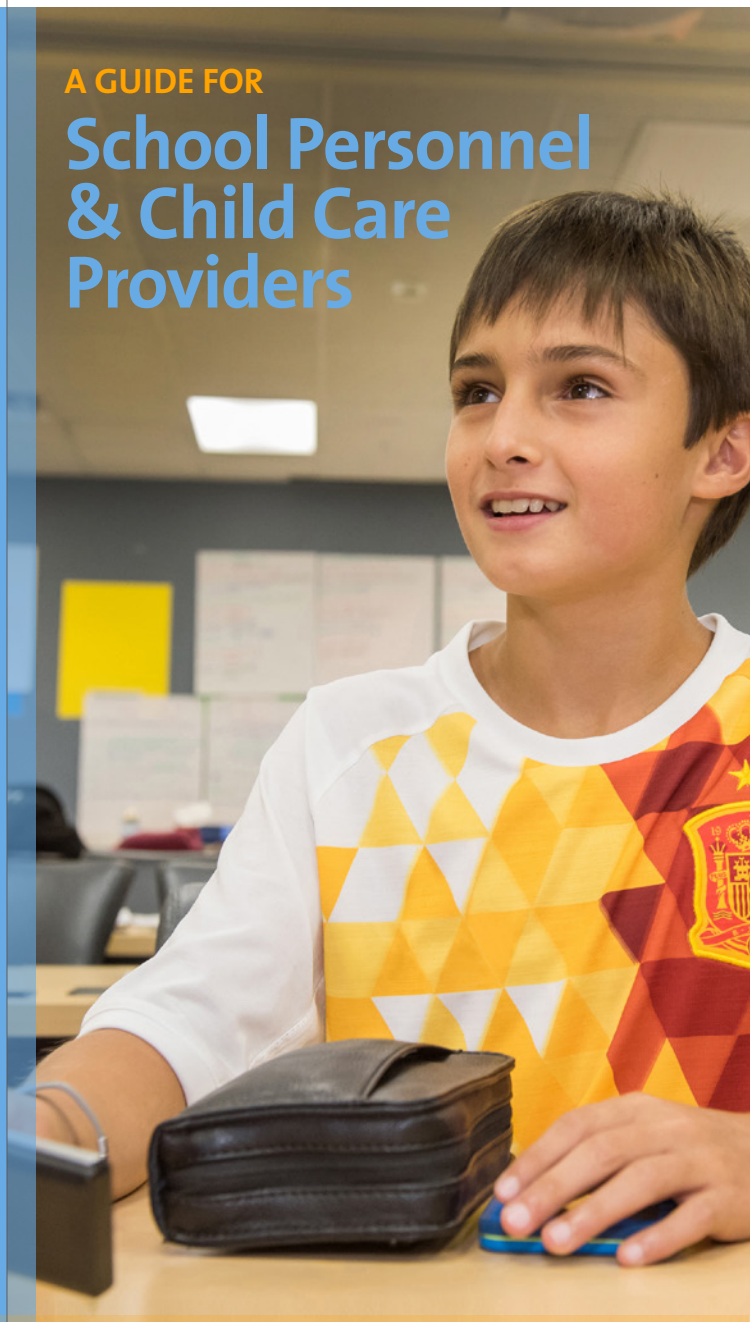
The Diabetes Research Institute Foundation is an independent 501(c)(3) not-for-profit corporation.

DiabetesResearch.org

"Facts about Diabetes: A Guide for School Personnel and Child Care Providers" was written by the Diabetes Education and Nutrition Service at the Diabetes Research Institute.

A GUIDE FOR

School Personnel & Child Care Providers



FACTS ABOUT DIABETES

Diabetes Research Institute Foundation

The Best Hope for a Cure®

Who Should Read This and Why

It is vital that school personnel and anyone who may come in contact with children who have diabetes be knowledgeable about the basic facts of diabetes care and what to do in case of an emergency. This guide can be a useful tool for all teachers, nurses, counselors, lunchroom staff, recreation leaders, hall supervisors, bus drivers, babysitters, and daycare workers, among others.

What is Diabetes?

Diabetes mellitus, the medical term for the condition, occurs when the body cannot make or effectively use its own insulin, a hormone produced by special cells in the pancreas. When you eat, your body turns food into sugars, or glucose. At that point, your pancreas is supposed to release insulin. Insulin serves as a "key" to open your cells for the glucose to enter and allows you to use the glucose for energy. But with diabetes, this system doesn't work.

There are two major types of diabetes. Children with diabetes usually have type 1, also known as insulin-dependent diabetes. This form of diabetes is an autoimmune disease and results from the body's destruction of its own insulin-producing cells. People with type 1 diabetes must take multiple daily insulin injections (usually four per day) or use an insulin pump.

The pump is an insulin-delivering device that is either clipped on clothing, carried in a pocket or pack, or attached to the skin in a "Pod." Pumps carry insulin in them and electronically deliver insulin all day long. When it is time for a meal, the child (or nurse) will need to enter the amount of carbohydrates the child is to eat and the current blood sugar; the pump will then calculate an insulin dose that will be infused through the "line" attached to the child or through the "Pod." For children using the "Pod," a hand-held remote device that looks a phone will be needed.

Type 1 diabetes is different from type 2 diabetes. Type 2 diabetes is the most common form of the disease and usually begins in adulthood. The dietary guidelines and caloric restrictions most commonly used in treating type 2 diabetes should not be applied to children with type 1 diabetes. Children's needs are different and dietary guidelines are individualized for them. Some parents may be restrictive in the foods their child eats and other parents may not have any restrictions on the types of foods permitted; either approach is acceptable.

Although diabetes cannot yet be cured, it can be effectively managed by monitoring blood sugar levels and balancing insulin injections with individual meal planning and exercise. Children with diabetes can participate in all organized activities and should not be excluded due to this medical condition. It is important for personnel with oversight responsibility to meet with parents of children with diabetes to obtain more detailed information about each child's abilities and individual requirements. Communication and cooperation between the parents, children, and school personnel or child care providers can help each child have a positive and productive experience.

Symptoms of Diabetes

It is not uncommon for child care providers or school personnel to help in the diagnosis of diabetes. The symptoms for uncontrolled or untreated diabetes are often the same and might include the following:

- *Frequent urination*
- *Unusual or excessive thirst*
- *Rapid and unexplained weight loss*
- *Extreme weakness or fatigue*
- *Nausea, vomiting and abdominal pain*
- *Infections or sores that are slow to heal*
- *Unusual or unexplained irritability*
- *Unusual or uncontrollable cravings for food*
- *Blurred vision*

Blood Testing

All children with diabetes must monitor their blood sugar levels. To effectively control diabetes, it is necessary to check blood sugar levels multiple times a day. If using a standard blood glucose meter, testing is always done before eating meals and usually before activity. This is done with a lancet device to prick the child's finger and a blood glucose meter. Younger children might require supervision or need to be assisted by a school nurse, while older kids are usually able to test independently.

Most children are now wearing what is known as a "Continuous Glucose Monitoring" system, which transmits the blood sugar to a receiver, a phone, and/or an insulin pump. These devices transmit the blood sugar every five minutes, show the direction that the blood sugar is going, and set off alarms if the blood sugar is reaching dangerous low or high levels. Some of these devices also allow parents to see the blood sugar remotely on their cell phones, which can relieve a lot of stress for both school personnel and parents. However, this requires that the child have a cell phone nearby in order for the device to transmit or "share" the information, and special accommodations may be needed so that this feature can be used.

Dietary Needs

Diet is an essential component of any diabetes management plan and is individualized for each child. Children with diabetes may select foods from a school menu or bring their own lunch. It is important to be aware of the child's dietary needs and note that children may require adequate time to consume mid-morning or mid-afternoon snacks to help avoid insulin reactions. Children also should carry juice packs and/or glucose tabs or gels to treat sudden drops in blood sugar that can occur at any time (see *Insulin Reactions*).

Special occasions, such as a birthday party or special school celebration, can be planned for in advance. Many children are taught how to handle these events if they suddenly occur, but planning ahead is preferred when possible. For example, extra insulin, or adjustment in the insulin dose, can be used for foods such as pizza, cake, or cupcakes and will not prevent the child with diabetes from joining in these celebrations along with their friends. If done correctly, this will not put the child's health at risk and will not single the child out as "different."

Exercise and Sports

Children with diabetes should be allowed and encouraged to participate in physical education classes, after-school sports, and other exercise-related activities. Before, during and after any strenuous physical activity, they might need to monitor their blood sugar levels and will possibly require a snack. A snack or some source of sugar should always be easily accessible to the child.

The School Health Plan

Each school district requires that children taking medications during school, or requiring special medical attention, complete forms to help direct the school staff in regard to children with special health needs. The Section 504 of the Rehabilitation Act is a federal law that requires a school district to provide free and appropriate public education to each child with a disability in the district. This form creates a blueprint for how the school will provide support and remove barriers for the student. Keep in mind that the 504 Plan might need to be modified during the school year if a child's treatment changes. Everything should be documented.

Insulin Reactions

Insulin reactions (hypoglycemia) occur when the amount of sugar in the blood is too low. This can be caused by an imbalance of insulin, omission of a prescribed meal, or extraordinary activity with too little food. Under these circumstances, the body usually sends out warning signs which, if recognized early, can be treated with any form of sugar. Insulin reactions can occur in anyone with insulin-dependent diabetes and are not necessarily a result of carelessness. Insulin reactions are easily treated. However, if a reaction is not treated, unconsciousness or convulsions may result. In many cases, the child with diabetes will be able to recognize the warning signs and should be encouraged to report them to the appropriate person for immediate treatment. However, some children may not be capable of identifying the insulin reaction and will require immediate assistance.

Normal blood sugar levels fluctuate between 70mg/dl and 120mg/dl. In general, a blood sugar below 70mg/dl is considered low. If the blood sugar drops below 55mg/dl, it is considered dangerously low. The health care team works with each parent individually and advises when treatment for low blood sugar should be implemented. For instance, a small child may require treatment at 80mg/dl. It is important to check the child's school health care plan to help decide when treatment is needed.

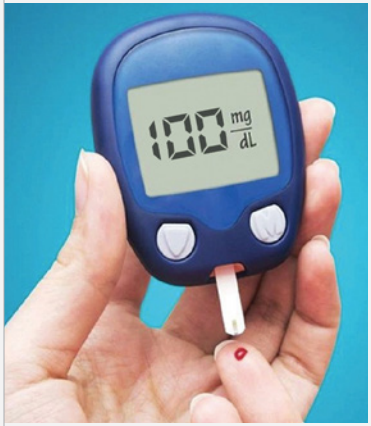
Common Warning Signs of Insulin Reactions

People with diabetes may experience one or more of these symptoms that cannot otherwise be explained:

- Trembling
- Perspiring
- Pallor
- Poor coordination
- Lack of concentration
- Confusion
- Dizziness
- Irritability
- Nervousness
- Unusual actions or responses
- Blurred or double vision
- Crying
- Headache
- Nausea
- Drowsiness
- Fatigue

IMPORTANT INFORMATION FOR TEACHERS:

In some school districts, it is the policy to send the child to the school office for testing and treatment for low blood sugar. Please be advised that when a person's blood sugar drops to low levels they may suffer severe confusion, visual distortion, and inability to communicate effectively. **PLEASE DO NOT SEND THE CHILD TO THE OFFICE UNACCOMPANIED BY A RESPONSIBLE PERSON!!!** If the school policy allows, it is much better to have the child check the blood sugar and drink juice or take glucose tablets in the classroom as soon as the low begins. This can prevent a simple situation from turning into a complicated or serious one.



Normal blood sugar level

Low blood sugar level

Treatment of Insulin Reactions

1. At the first indication of any of the warning signs, give sugar immediately in one of the following forms:

   Sugar - 4 packets or 4 teaspoons
   Fruit Juice - 4 ounces (1/2 cup)
   Milk - (regular or low fat) 8 ounces (1 cup)
   Soft drink - (Not diet) 6 ounces (1/2 of 12 ounce can)
   Candy - 7 Lifesavers or 3 hard candies

   While children may carry chocolate candy to treat hypoglycemia, it is not advisable since chocolate is slowly absorbed. It should only be used if no other form of sugar is available (1 ounce; check wrapper for ounces).

2. The student experiencing the insulin reaction may need coaxing or help to eat or drink. If the child is not swallowing well, gels or cake icing can be put under the tongue or between the cheeks, then gently rubbed to help the sugar get absorbed through the mucous membranes.

3. If no improvement is seen within 15 - 20 minutes, repeat the feeding. If the student does not improve, the parents or physician should be called.

4. If the insulin reaction occurs more than one hour before the next regular meal, the student should be given additional food such as 1/2 a sandwich or a glass of milk.

5. Regular activities may be resumed after the reaction is treated and symptoms have disappeared.

6. Insulin reactions should not occur frequently and parents should be advised of them.

7. If the child is combative and refuses the treatment, is having a seizure, or is unconscious, the nurse may be able to administer a glucagon emergency injection, as per the school health plan. If a nurse, or other authorized trained individual, is not able to give this injection, then 911 should be called immediately. In some school districts, 911 may need to be contacted even if glucagon was given. Do not attempt to feed the child while he/she is unconscious.

General Advice

Each child with diabetes may have a different view of his or her condition or capabilities. While some children may have good diabetes management skills and positive self-esteem, others may require assistance or not want to share information about their diabetes with other children. The emotional burden of feeling "different" may cause some children with diabetes to hide or avoid some aspects of their diabetes management when they are with their peers. Awareness of a child's individual needs and helping that child integrate the daily responsibilities of his or her diabetes with normal, everyday activities is vital for success and emotional well-being.

Diabetes is most effectively managed by constantly balancing the amounts and times of insulin injections, food and activity. If schedules are changed, adjustments in these three components will be necessary. Since exercise might lower blood sugar levels, it may be preferable to schedule physical education or recreation activities at the beginning of the day or after lunch. Many children with diabetes require additional food such as fruit or juice before strenuous exercise. Teachers, nurses, babysitters or recreation leaders should have some form of sugar on hand to treat insulin reactions. Insulin reactions must be treated immediately.

A diabetic coma is a serious complication of diabetes which can result from prolonged high blood sugar or illness. This condition does not occur suddenly, and generally should not impact school personnel or child care providers. However, if the child is experiencing the extreme symptoms of uncontrolled or untreated diabetes, you should report these signs to the parent or physician (see *Symptoms of Diabetes*). The school health plan should indicate when to contact the parents if a high blood sugar is present. Usually parents will ask to be contacted whenever the blood sugar rises to a certain level; that number could be listed as 250mg/dl or up to 400mg/dl depending on the advice of their doctor. **Be mindful that children with even mild high blood sugars (200 – 250mg/dl) will experience some increase in thirst and may need to use the bathroom more frequently. Please allow the child to drink additional water and use the bathroom when they ask as this is a valid request and should not be denied.**

The guidelines listed herein are general and because every child with diabetes is unique, he or she may require more or less supervision. Discuss the child's individuality with the parents and obtain all pertinent information about his or her condition and needs.

Important Information

Child's Name

Parent #1 Name

Cell phone

Work phone

Home phone

Address

Parent #2 Name

Cell phone

Work phone

Home phone

Address

Contact in Case of Emergency

Relationship

Phone Number

Address

Name of Physician

Phone Number

Address

Treatment/Medications (i.e. injections, pump, etc.)

Signs/symptoms which student usually exhibits during an insulin reaction

Time of day reaction is most likely to occur

Most effective treatment

Type of morning or afternoon snack

Will student be monitoring blood sugar at school?

At what times?

Is supervision required?

Additional Information: