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Overview of Diabetes in Illinois

Diabetes Background:

- Diabetes requires a unique, complex and inseparable blend of self and medical care.
- Controlling blood glucose levels has been shown to reduce the likelihood of unwanted complications.
- Early diagnosis of diabetes and control of glucose levels are proven elements in the prevention of complications related to diabetes.

Diabetes in Illinois:

- Approximately 5.6% (513,735) of adults in Illinois have been diagnosed with diabetes.\(^1\)
- Direct and indirect costs of diabetes exceed $7.6 billion annually.\(^2\)
- More than 4,176 school-age children were estimated to have a diagnosis of type 1 diabetes.\(^2\)
- Hospitalization charges for 1,911 children (age 0-19) were $16,230,550 in 2000, averaging $7,606 per child.\(^3\)
- In 2000, the most common causes of diabetes-related hospitalizations of children (age 0-19) were ketoacidosis (929), diabetes without complication (477), and diabetes without other specific manifestations (67).\(^3\)

Diabetes in Children:

- The majority of children with diabetes are diagnosed with type 1 diabetes.
- Literature reports an alarming growth in the diagnosis of type 2 diabetes in adolescents, attributed in part to the high number of obese and overweight school-age children and sedentary life-styles.
- The Centers for Disease Control and Prevention (CDC) reports that one of every three newly diagnosed adolescents has type 2 diabetes, once thought to impact only adults over age 40. According to CDC, young people affected tend to be 10-19 years old, with a strong family history of type 2 diabetes. They are slightly more likely to be girls than boys; to be African American, Hispanic or American Indian rather than other racial or ethnic groups; and obese rather than normal weight.

This manual is a compilation of resources designed to provide a reference for Illinois school health personnel to utilize in the school setting for the management of the student with diabetes. The complete needs of each individual student with diabetes must be evaluated by a health care provider who should develop an Individual Diabetes Management Plan to address those needs. The tools provided in this manual can assist school personnel in affecting positive health outcomes and helping students with diabetes improve self-management skills and fully participate in mainstream activities.

Diabetes - General Information

Diabetes is a disorder of metabolism -- the way in which your body converts the food you eat into energy. Most of the food you eat is broken down by digestive juices into the fuel you need to survive. One such fuel is a sugar called glucose. Glucose is the body’s main source of energy and the brain’s only source of energy. After digestion, glucose passes into your bloodstream, where it is available for cells to take in and use or store for later use.

In order for your cells to take in glucose, a hormone called insulin must be present in your blood. Insulin acts as a “key” that unlocks “doors” on cell surfaces to allow glucose to enter the cells. Insulin is produced by special cells (islet cells) in an organ called the pancreas, which is about 6 inches long and lies behind your stomach.

In people who do not have diabetes, the pancreas automatically produces the right amount of insulin to enable glucose to enter cells. Type 1 diabetes occurs when the pancreas stops making any insulin. In people who have type 2 diabetes, cells do not respond to the effects of the insulin that the pancreas produces. If glucose cannot get inside cells, it builds up in the bloodstream. The buildup of glucose in the blood -- sometimes referred to as high blood sugar or hyperglycemia -- is the hallmark of diabetes.

When the glucose level in your blood goes above a certain level, the kidneys (two organs that filter waste from the bloodstream) work to get rid of the glucose in the urine. The glucose takes water with it, which causes frequent urination and extreme thirst. These two symptoms -- frequent urination and unusual thirst -- may be the first noticeable signs of diabetes. Weight loss, the result of loss of calories and water, may also be noticed.

American Diabetes Association Recommendations for Diabetes Classification, Testing and Diagnosis (revised 1997)

Name Changes

Type 1 - Formerly (IDDM) - insulin dependent diabetes mellitus
Type 2 - Formerly (NIDDM) - non-insulin dependent diabetes mellitus

Simplified Testing and Diagnosis

Diabetes can be diagnosed using any one of these 3 methods, and must be confirmed on a different day, again using one of these methods:

1. A Fasting Plasma Glucose (FPG) of >126 mg/dl (after no caloric intake for at least eight hours.)*
2. A casual plasma glucose (taken at any time of day without regard to time of last meal) >200 mg/dl with the classic diabetes symptoms of increased urination, increased thirst and unexplained weight loss.
3. An oral glucose tolerance test (OGTT) value of >200 mg/dl in the two hour sample.

* Preferred test: ease of administration, convenience, acceptability to student, and lower cost.
Type 1 Diabetes

Type 1 diabetes usually has a very rapid onset. It was previously called Juvenile Diabetes because most people develop it as children or teenagers. This type of diabetes occurs when the pancreas stops making insulin. The underlying cause for this damage has not been identified yet, although research is currently underway. Approximately five to ten percent of all people with diabetes have type 1 diabetes, and the majority of students with diabetes have type 1.

There is no single way to treat type 1 diabetes. To date, insulin injection is necessary for survival. Each student’s life events vary and experienced diabetes teams are necessary to set up individualized treatment plans. For treatment plans to be most successful, an insulin regimen must be tailored to the needs of the student, as well as a meal plan and recommendations for physical activity. New information on diabetes management allows people with diabetes to be more liberal with food intake as well as meal and exercise times.

Students with diabetes must be allowed to participate fully in all school activities. Students need the cooperation and support of school staff members to help with the treatment plan.

Blood sugar monitoring may be ordered by the child’s health care provider to help assess how well the treatment plan is working. Most students can perform blood sugar checks by themselves but may need a private place to do so. Some students may need supervision to see that the procedure is done properly and results are recorded accurately. It is helpful for the student to have a meter at school so the blood can be checked when needed. The student should use the same brand and model meter at home and school. Use of the same meter will enable the student to accurately interpret results and make appropriate decisions regarding medication, food and/or exercise. Whether or not the student checks blood sugar levels at school, and how often, are decisions made by the student's diabetes team in conjunction with the student, family, and school personnel.

It is the local board of education's responsibility to ensure that staff, including school health personnel, have adequate training and current knowledge in order to assist students with diabetes. School health personnel are responsible for recognizing when additional staff training is needed to perform a particular procedure and determining where the appropriate training can be obtained.

Symptoms of High Blood Sugar that Characterize Type 1 Diabetes
- frequent urination (including during the night)
- unusual thirst
- extreme hunger/weakness
- unexplained weight loss
- extreme fatigue
- blurred vision
- slow healing of cuts and bruises
- frequent infections of skin/gums/vagina/bladder
- tingling/numbing in legs, feet, hands
Type 2 Diabetes

Type 2 diabetes is the most common form of the disease, representing ninety to ninety-five percent of adults with diabetes. It was previously known as adult-onset or non-insulin dependent diabetes because it was most often diagnosed after age 40. A recent trend has emerged in which type 2 diabetes is being diagnosed in children, adolescents and young adults. Studies are currently underway to better define the populations at highest risk for this form of diabetes, so that preventive measures may be taken and appropriate behavioral and medical therapies can be developed.

The latest findings from the Centers for Disease Control and Prevention’s (CDC) National Health and Nutrition Examination Survey (NHANES) show that increasing numbers of children and teens are overweight. The initial results for 1999 show 13 percent of children ages 6-11 are overweight, which is an 11 percent increase from the previous NHANES survey. The number of overweight teens ages 12-19 years increased from 11 percent to 14 percent in the same time period. In Illinois, there are an estimated 145,420 children in the 6-11 years age group and 199,833 teens in the 12-19 years age group who are overweight. Overweight students are at increased risk for cardiovascular disease, diabetes, and other serious health problems.

The Path Toward Type 2 Diabetes

One of the greatest risk factors for type 2 diabetes is excess weight. As an individual gains weight, the extra weight causes the cells of the body to become resistant to the effects of insulin. The pancreas responds by producing more and more insulin, which eventually begins to build up in the blood.

Impaired glucose tolerance (IGT) may be another precursor of type 2 diabetes. Impaired glucose tolerance occurs when the pancreas becomes exhausted and can no longer produce enough insulin to move glucose out of the bloodstream into cells. Glucose begins to build up in the blood. If it is not diagnosed and treated, this gradual rise in glucose may lead to type 2 diabetes, high blood pressure, and heart disease--in any order and in any combination.

While all of these harmful activities are going on inside the body, the affected individual may feel perfectly fine. Type 2 diabetes is considered a silent disease because it works its destruction over many years without causing any noticeable symptoms. One-third of the people who have type 2 diabetes do not know it.

Type 2 diabetes is treated by controlling food intake and activity level. Oral medication may be added to the treatment to help maintain glucose levels. If these management tools do not achieve normalization of blood sugar levels, the addition of insulin may be indicated.

Acanthosis Nigricans

Acanthosis nigricans (AN) is a skin problem often found on the neck, axilla, groin, and other flexural areas. Literally, AN means thick, coarse, and dark.

In students of color who are also overweight and have a family history of type 2 diabetes, AN may be an early warning sign of insulin resistance.

Acanthosis Nigricans is not a screening tool for type 2 diabetes.

The best way to help prevent and manage type 2 diabetes is to adopt and follow a healthy lifestyle. Healthy lifestyle recommendations are important for everyone.

Components of Healthy Living for Prevention and/or Management of Type 2 Diabetes

- ✔ Well-balanced diet
- ✔ Weight management
- ✔ Regular physical activity
- ✔ Blood glucose monitoring and management
- ✔ Medication, if prescribed
- ✔ Avoidance of tobacco use
- ✔ Stress management
- ✔ Avoidance of alcohol consumption
- ✔ Maintenance of normal blood pressure
- ✔ Maintenance of normal lipid levels

Gestational Diabetes Mellitus

Gestational Diabetes Mellitus (GDM) is a type of diabetes mellitus that can occur when a woman is pregnant. In the second half of pregnancy, the woman may have glucose (sugar) in the blood at a higher than normal level. However, when the pregnancy ends, the blood glucose levels return to normal in about 95 percent of all cases. Women who have gestational diabetes should work closely with their health care team to learn how to monitor their blood sugars, plan their meals, and adjust their activity levels in order to control blood sugar levels. Women who have had GDM are more likely to develop type 2 diabetes later in life.
Medical nutrition therapy is one of the cornerstone treatments of diabetes. The goals of nutrition therapy include: an adequate caloric and nutritional intake for optimal growth and development, and the proper balance of food, insulin and activity to achieve appropriate blood glucose levels.

A meal plan is developed by the health care provider to meet the individual needs of the student with diabetes, taking into consideration food preferences, cultural influences, family eating patterns and schedules, weight, activity level, and insulin action peaks. The student's health care provider will specify whether the student’s nutritional plan affords them the means of eating with flexibility and then calculate an insulin dose that is appropriate for their appetite or a plan which requires a controlled amount of carbohydrate at each meal. The meals and snacks should be timed appropriately to coincide with the peak effect of the student’s insulin. It is recommended that students with diabetes see a Registered Dietitian, who is also a Certified Diabetes Educator, once a year to discuss their meal plan.

The Food Guide Pyramid is a guide for choosing healthy foods.

There are 3 major nutrients found in the food groups identified on the Food Guide Pyramid: protein, fat, and carbohydrate.

Protein builds and repairs body tissues. Protein is important for normal growth and development.

Over the years, many popular body building and weight loss regimens have overemphasized the role protein plays in a healthy, well-balanced meal plan. It is not uncommon for individuals to turn to protein supplements in the forms of powders, shakes, and bars to boost their protein intake. It is important to note that protein needs for even vigorous athletes can be easily met with everyday food sources. It is especially important for students with diabetes to communicate with their health care provider if they are considering a protein supplement or any other nutritional supplement, due to the potential impact supplements may have on blood sugar levels.

**Food Group Sources of Protein:**
- **Meat and Others**
- **Milk and Yogurt**

Fats carry the flavor of our foods, and are a very concentrated source of energy for the body. They also slow the time it takes for the stomach to empty after a meal.

**Food Group Sources of Fats:**
- **Meat and Others**
- **Fats and Oils**
- **Sugary Foods**
Carbohydrates provide most of the energy we need to move, work and live. As such, the majority of calories consumed should come from carbohydrate sources, spaced appropriately throughout the day. Of all the food components, carbohydrates have the greatest effect on blood sugar. The total amount of carbohydrates consumed has more of an effect on blood sugar than the type of carbohydrate.

**Food Group Sources of Carbohydrates:**
- **Starches**
- **Fruit**
- **Milk and Yogurt**
- **Sugary Foods**

Carbohydrate information can be obtained from many sources, including the Food Guide Pyramid, food labels, and any number of books that contain the nutrient information of specific foods.

Knowing the carbohydrate content of given foods allows for more flexibility in the meal plan. One serving from the starch/grain, fruit, milk or sweets group contains 15 grams of carbohydrates. The following chart illustrates examples of foods that contain approximately 15 grams of carbohydrates.

<table>
<thead>
<tr>
<th>Choose More Often</th>
<th>Choose Less Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cup low fat milk</td>
<td>1 minibag potato chips</td>
</tr>
<tr>
<td>1 (4 ounce) juice box</td>
<td>1 small cupcake</td>
</tr>
<tr>
<td>1 piece fresh fruit</td>
<td>2 small cookies</td>
</tr>
<tr>
<td>8 animal crackers</td>
<td>1 snack pack pudding</td>
</tr>
<tr>
<td>1-1 1/2 whole graham crackers</td>
<td>1 small piece of cake</td>
</tr>
<tr>
<td>1 minibag pretzels</td>
<td></td>
</tr>
<tr>
<td>4 peanut butter &amp; cheese crackers</td>
<td></td>
</tr>
</tbody>
</table>

Meal planning for diabetes includes all the principles of good nutrition that are recommended for good health. Students with diabetes are encouraged to choose a well-balanced diet with an appropriate amount of carbohydrate at each meal and snack in order to help manage blood sugar levels.

Healthy carbohydrates from starches, fruits and milk are encouraged as part of the daily meal plan. Sweets (foods high in sugar and low in other nutrients) can be worked into a meal plan occasionally, as long as the carbohydrates they contain are taken into account.
Food Labels

Another method of determining how a food may fit into the student’s daily meal plan is through the nutrition information found on the “Nutrition Facts” label. This label can help determine the appropriate portion size to provide the right amount of carbohydrate needed at any given meal or snack. The sample nutrition fact label for macaroni and cheese lists the Serving Size, Servings Per Container and Total Carbohydrate. Using this information, you can determine that, if the student needs to eat 30 grams of carbohydrate, and macaroni and cheese is available, the student should have 1 cup macaroni and cheese. (One cup is the serving size, the container has two servings, total carbohydrate in one serving is 31 g.)

Special Nutrition Issues

School Parties:

Sweets can be eaten on a special occasion such as a birthday party or Halloween Party. The carbohydrates should be included as part of the student’s meal plan. The class might also consider planning the party snacks for a time when the student normally needs a snack or before a physical activity. Some students will need to check their blood glucose before the snack (or start of the party) to determine what treat is appropriate. Parents/guardians of all students in the classroom should be notified of the need to send appropriate serving size items to ensure that all students can participate.

Field Trips:

Students should carry convenient snacks when traveling away from school, on the bus and at field trips. Bus drivers and chaperones should be notified that the student has diabetes and may need to eat a snack on the bus or during the trip.

After Care:

The student should have a convenient snack available if staying after school or attending after school activities or programs. Notify school personnel that the student may need to eat during the session.

School Meal Programs:

Students with diabetes may participate in school meal programs. Families can review the school menu ahead of time and make modifications as needed. Families should be encouraged to contact the school food service director to discuss any modifications or additional foods they might send to complement the meal provided.

Label for Macaroni and Cheese

**Nutrition Facts**

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>1 cup (228g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servings Per Container</td>
<td>2</td>
</tr>
<tr>
<td>Total Fat</td>
<td>12g</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>3g</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>30mg</td>
</tr>
<tr>
<td>Sodium</td>
<td>470mg</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>31g</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>0g</td>
</tr>
<tr>
<td>Sugars</td>
<td>5g</td>
</tr>
<tr>
<td>Protein</td>
<td>5g</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>4%</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>2%</td>
</tr>
<tr>
<td>Calcium</td>
<td>20%</td>
</tr>
<tr>
<td>Iron</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Saturated Fat Less than 2g, Calories 2,000 2,500

Physical Activity

Children and teenagers are naturally active and play is their work. Physical activity is an important part of the overall management of diabetes. The benefits of physical activity include cardiovascular fitness, long term weight control, improved insulin sensitivity, social interaction and the promotion of self-esteem fostered by team play. Additionally, physical activity can help to lower blood sugar.

Physical activity is a fundamental part of a healthy life-style for all students including those with diabetes. Students with diabetes can participate in physical education class and after school sports. The student’s health care provider will determine adjustments in medication and food for appropriate blood glucose control during physical activity. Families should be encouraged to include more physical activity at home. The physical activity pyramid is a guide for increasing activity. (See pages 18 and 19.)

General Physical Activity Guidelines:

The student participating in sports or physical activity should do the following:
1. Drink lots of sugar free fluids, especially water.
2. Keep rapid acting carbohydrate sources available.
3. Test blood sugar before, during and after physical activity, as ordered by the health care provider.
4. Wear diabetes ID.
5. If low blood sugar is a problem after exercise, eat more carbohydrates or talk with the health care provider about reducing the amount of insulin taken prior to physical activity.

Carbohydrate Replacement for Physical Activity

The blood sugar should be checked according to the student’s individual health care plan and proper measures taken to keep the level in the appropriate range. The following chart illustrates actions that might be recommended by the student’s health care provider to maintain a safe blood sugar during physical activity.

<table>
<thead>
<tr>
<th>Type of Activity</th>
<th>If Blood Sugar Prior to Activity is:</th>
<th>Then eat the following carbohydrate before activity:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short Duration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 30 minutes</td>
<td>Less than 100</td>
<td>15 grams carbohydrate</td>
</tr>
<tr>
<td></td>
<td>Greater than 100</td>
<td>no carbohydrate necessary</td>
</tr>
<tr>
<td><strong>Moderate Duration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 hour</td>
<td>Less than 100</td>
<td>25-50 grams carbohydrate plus protein source</td>
</tr>
<tr>
<td></td>
<td>100 – 180</td>
<td>15 grams carbohydrate</td>
</tr>
<tr>
<td></td>
<td>180 – 240</td>
<td>no carbohydrate necessary</td>
</tr>
<tr>
<td><strong>Strenuous</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 hours</td>
<td>Less than 100</td>
<td>50 grams carbohydrate plus protein source</td>
</tr>
<tr>
<td></td>
<td>100 – 180</td>
<td>25-50 grams carbohydrate plus protein source</td>
</tr>
<tr>
<td></td>
<td>180 – 240</td>
<td>15 grams carbohydrate</td>
</tr>
</tbody>
</table>

*If blood sugar is greater than 240, check for presence of ketones in the urine. For more details on ketones, see section entitled Hyperglycemia and Monitoring for Presence of Ketones (page 27.)

According to the most recent position statement from the American Diabetes Association (Diabetes Care, Volume 23, Supplement 1, January 2001) regarding exercise and control of blood sugars, the following guidelines should be adopted:
- Avoid exercise if fasting glucose levels are >250 mg/dl and ketones are present, and use caution if glucose levels are >300 and no ketones are present.
- Eat additional carbohydrates if glucose levels are <100 mg/dl.

Issued April, 2002
<table>
<thead>
<tr>
<th>Day</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday</td>
<td></td>
</tr>
<tr>
<td>Monday</td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td></td>
</tr>
</tbody>
</table>
Student Activity Pyramid

CUT DOWN ON

T.V. watching
Video/computer games
Sitting more than 30 min. at a time

2-3 TIMES A WEEK

Leisure & Playtime
Swinging
Canoeing
Tumbling
Miniature Golf

Strength & Flexibility
Push-ups/pull-ups
Martial arts
Dancing
Rope climbing

3-5 TIMES A WEEK

Aerobic Exercises
(at least 20 minutes)
Roller blading
Biking
Skateboarding
Rope climbing
Swimming
Running

Recreational activities
(at least 20 minutes)
Volleyball
Basketball
Soccer
Skiing
Kickball
Relay races

EVERYDAY

Play outside
Take the stairs instead of the elevator
Help around the house or yard
Pick up your toys
Walk to the store
Go for a walk

Source: 2000 University of Missouri. Published by University Extension, University of Missouri-Columbia. http://muextension.missouri.edu/xplor
Snack Choices for Physical Activity

15 grams carbohydrate:
1 - 4 ounce juice box
1 cup Gatorade
1 sliced orange or apple
1 small box raisins
6 saltine crackers
1 cup light yogurt
3/4 cup dry unsweetened cereal

30 grams carbohydrate:
1 cereal bar
1 - 8 ounce juice box
2 slices bread
1 small bagel

45-50 grams carbohydrate
plus protein:
1 sports nutrition bar
1 package (6) cheese or peanut butter sandwich crackers plus 4 oz. juice

Protein Sources:
Peanut Butter
Sliced or String Cheese
Lunch Meat
Egg
Peanuts, Walnuts or Almonds

Physical Activity Special Issues:

A low blood sugar can occur long after a physical activity session.

Treatment:

1. Test blood sugar after physical activity, before bedtime and even during the night, as ordered by the health care provider.
2. Ensure that a snack, which includes carbohydrate and protein, is eaten before bedtime, as recommended by the health care provider.
Blood Sugar Monitoring

Blood sugar (glucose) monitoring is a necessary and useful tool in the management of diabetes. Monitoring helps detect patterns of blood sugar values as well as in identifying acute problems of high or low blood sugar. Students with an intensive management plan monitor their blood sugar before all meals to help them decide how much insulin to take.

There are numerous brands of monitors available, each with specific features that a student may find useful. School health personnel need to become familiar with the various monitors being used. In Illinois, most insurance companies cover the cost of monitors for persons with type 1, type 2 and gestational diabetes, regardless of whether or not they use insulin.

What is a normal blood sugar level?

For a person who does not have diabetes, a normal blood sugar level is 70-120 mg/dl. Blood sugar levels in a student with diabetes will vary depending on insulin action times, food consumed, and activity level.

The diabetes health care professional will advise the student’s family of an appropriate “target range” for the blood sugar level, and the necessary action to take when blood sugar levels are outside of this range. The professional will also specify how often the blood sugar should be checked.

Points to Consider

- Be positive when referring to blood sugar levels. Values are either “within range” or “out of range” which can be called “high” or “low”, rather than “good” or “bad. Use a non-judgmental approach when a result is abnormal.
- If the blood sugar reading is unusually high or unusually low, repeat the test. Treat for hyperglycemia or hypoglycemia according to the second test result.

Criteria for Determining Appropriateness of Self-Testing Blood Sugar at School

✔ The student demonstrates accurate blood sugar testing technique (as outlined on p. 22.)
✔ The student consistently uses appropriate infection control practices.
✔ The student appropriately disposes of sharps.
✔ The student is able to interpret blood sugar results and institute appropriate treatment if necessary.
Blood Sugar Testing

Preparation

1. Gather supplies and prepare work surface.
2. Ready the blood glucose meter and strip according to the manufacturer’s instructions.
3. The student washes hands in warm, soapy water.
4. If assisting in the procedure, wash your own hands and put on gloves.
5. Load the lancet into the lancet device.

Procedure

6. Select a site on the side of any fingertip.
7. The student stands with his/her arm below the level of the heart for 30 seconds.
8. Puncture the site with the lancet.
9. Gently massage from wrist to palm to finger with a downward motion to form an adequate drop of blood. (Do not squeeze the finger too tightly.)
10. Apply the drop of blood to the target site on the strip, being sure the target site is covered by blood and not smeared. Most meters begin testing when blood is detected on the strip. Review and follow the manufacturer’s instruction book.

Clean Up

11. Gently, but firmly, apply a tissue or cotton ball to the puncture site. Apply bandaid as needed.
12. Carefully remove the lancet from the lancet device and discard in a sharps container. **Do not reuse lancets!**
13. Discard the tissues, cotton balls, and other paper products in plastic-lined covered trash can.
14. Wash and sanitize the area. Use soapy water followed by a 1:10 bleach/water solution.
15. Remove gloves.

Documentation

16. Record result in the daily procedure log and in the student’s communication book. The result is recorded as ____mg/dl. (Example: 60 mg/dl)
17. Refer to the student’s **Care Plan** to determine if action is needed, such as:
   - Give snack or meal or fast acting glucose.
   - Give dose of insulin.
   - Call parent or guardian.
   - Call emergency medical services (911).
18. Return supplies to storage. Advise parent or guardian of supplies that need to be replenished. Allow at least one week’s notice.

Equipment

**Provided by parent/guardian**
- Alcohol wipes
- Lancet device
- Ultrafine lancets
- Blood glucose meter
- Meter owner’s guide
- Blood glucose testing strips-use the kind specifically required for student’s meter
- Communication log

**Provided by school**
- Latex or vinyl gloves-do not have to be sterile
- Tissues or cotton balls
- Disposable container for lancet and strip
- Procedure log and pen
- 1:10 bleach/water solution (1 part bleach to 10 parts water)
- Bandaids

Issued April, 2002
Hypoglycemia

Hypoglycemia: Low Blood Sugar (Insulin Reaction)

Warning signs and symptoms of low blood sugar (insulin reaction) happen suddenly. Signs and symptoms can easily be mistaken for misbehavior. The student may or may not be able to recognize symptoms developing. The severity of a low blood sugar reaction may rapidly progress from mild to severe if untreated.

Severe reactions are often preventable by early detection and treatment of low blood sugars. Be familiar with identification and treatment of low blood sugar to avert an emergency situation. Blood sugar can go too low if the student with diabetes has:
- Taken too much insulin
- Not eaten enough food
- Had extra exercise without extra food or decrease in insulin

If the student appears to be having signs or symptoms, check blood sugar immediately. If the blood sugar level cannot be determined, go ahead and treat the symptoms.

Never send a student suspected of having a low blood sugar to the health service office alone! Send another student to get help if needed.

Hypoglycemia-blood sugar between 50 and 70 mg/dl

Signs and Symptoms - A wide variety of symptoms and behaviors can occur
- Change in personality
- Acting quiet and withdrawn
- Being stubborn or restless
- Tantrums or sudden rage
- Confusion
- Inappropriate emotional responses (laughter, crying)
- Poor concentration or daydreaming
- Shakiness, dizziness, lightheadedness
- Lack of response to verbal communication
- Sweatiness
- Headache

Treatment

Optimally, check blood sugar before treating a student suspected of hypoglycemia. When in doubt, treat. To treat, give the student some quick-acting sugar (see chart on p.27 for age appropriate amounts) such as one of the following:
- ½ cup (4 oz.) of fruit juice (grape juice)
- 3/4 cup (6 oz.) of REGULAR (not diet) soda
- 3-4 glucose tablets
- 1 cup (8 oz.) sports drink

Check the blood sugar 15 minutes after treatment. If the blood sugar result is less than 70 mg/dl, or if the student still has symptoms, repeat the quick sugar treatment and blood sugar testing cycle until the student is symptom-free and the blood sugar result is above 70 mg/dl.

When the student feels better and the blood sugar result is above 70 mg/dl, give one (1) of the following foods if the student’s next meal is more than 1 hour away and/or the student will be participating in active play/sports following this low blood sugar episode:
- 4 graham cracker squares with 2 tablespoons peanut butter or 1 ounce cheese,
- 6 saltine crackers with 2 tablespoons peanut butter or 1 ounce cheese,
- or the equivalent combination of carbohydrate (approximately 15 grams) and protein (approximately 1 oz.).

The student may return to class after the blood sugar is above 70 mg/dl and he/she no longer has symptoms.
**Hypoglycemia-blood sugar**

40 mg/dl or less

**Signs and Symptoms**
- Staggering walk
- Pale appearance
- Uncontrollable crying episode
- Slurred speech
- Blank stare
- Inability or refusal to take anything by mouth

**Treatment**

Double the treatment amounts indicated in the treatment for hypoglycemia with blood glucose 50-70mg/dl. If the student has difficulty drinking but is able to swallow (student may not be able to follow directions), place cake gel or glucose gel in between the student’s cheek and gums. Administer the entire tube. Rub the cheek gently to make sure sugar is being absorbed. Check the blood sugar every 15 minutes until normal. Follow with food if more than 30 minutes until next meal or snack.

---

**What is Glucagon?**

Glucagon is a hormone which helps the liver release sugar, thus increasing the level of sugar in the blood. It must be injected with a syringe into the skin, like insulin.

**When To Use Glucagon**

Glucagon is administered when the student has low blood sugar and is unable to take liquid or food by mouth because of severe sleepiness, unconsciousness, or seizure activity. Check the student’s health care plan for orders from the health care provider about the use of glucagon.

**What You Need**

- Glucagon Emergency Kit. The parent or guardian will need a prescription to purchase the kit at a pharmacy. It is recommended that the student have one kit for home and a second kit for school.
- Use of glucagon should be part of a student’s health care plan and be supplied to the school by the parent or guardian with accompanying physician order.
- Keep glucagon at room temperature in a central location. Inform appropriate staff of the location of the kit.
- When possible, practice drawing up glucagon with an expired kit.
- Check the expiration date of the glucagon kit on a regular basis. Inform parents when it is close to the expiration date and ask them to obtain a replacement kit for school prior to that date. Dispose of the expired kit appropriately.
TO PREPARE GLUCAGON FOR INJECTION

NOTE: Glucagon should not be prepared for injection until the emergency arises.

1. Glucagon is available in a kit containing the glucagon powder/pellet in a vial (bottle) and the diluant in a syringe.
2. Check the date of the glucagon kit. Discard if past the expiration date.
3. Remove the flip-off seal from the vial of glucagon. Wipe rubber stopper on vial with alcohol swab.
4. Remove the needle protector from syringe, and inject entire contents of the syringe into vial of glucagon.
5. Remove syringe from the vial. Shake vial gently until glucagon dissolves and the solution becomes clear.

GLUCAGON SHOULD NOT BE USED UNLESS THE SOLUTION IS CLEAR AND OF A WATER-LIKE CONSISTENCY.

TO ADMINISTER GLUCAGON

1. Using the same syringe that contained the glucagon diluant, draw up an appropriate dose of the solution from the vial based on the weight of the student and orders from the health care provider.
2. The glucagon syringe is marked with only 2 dosages—0.5 mg and 1.0 mg. The recommended manufacturer’s dose of glucagon to inject is:
   → 0.5 mg for a student 50 pounds or under, or
   → 1.0 mg for a student over 50 pounds.
3. Cleanse injection site on buttock, arm, or thigh with alcohol swab.
4. Insert the needle into the loose tissue under the cleansed injection site and inject the glucagon solution. Withdraw the needle and apply light pressure at the injection site.
5. Keep the student lying on his/her side in case of vomiting.
6. The blood sugar should rise at least 50-75 mg/dl within 15-20 minutes. FEED THE STUDENT AS SOON AS HE/SHE AWAKENS AND IS ABLE TO SWALLOW.

CAUTION

1. If the student does not awaken within about 15 minutes, give another dose of glucagon and CALL 911 IMMEDIATELY.
2. Low blood glucose may cause convulsions.
3. When an unconscious student awakens, he/she may vomit. To prevent the student from choking on vomit, turn the student on their side. Notify parents/guardians and school administrator of the episode as soon as possible.

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Issued April, 2002
# Suggested Hypoglycemia Treatment by Age

<table>
<thead>
<tr>
<th>Source of Sugar</th>
<th>Under 6 Years (5 - 10 grams)</th>
<th>6 - 10 Years (10 - 15 grams)</th>
<th>Over 10 Years (15 - 20 grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose tablets (large) (1 tablet = 5 grams)</td>
<td>1 - 2 tablets</td>
<td>2 - 3 tablets</td>
<td>3 - 4 tablets</td>
</tr>
<tr>
<td>Glucose tablets (small) (1 tablet = 4 grams)</td>
<td>1 - 2 tablets</td>
<td>3 - 4 tablets</td>
<td>4 - 5 tablets</td>
</tr>
<tr>
<td>Glucose gel (31 gram tube)</td>
<td>1/6 - 1/3 tube</td>
<td>1/3 - 1/2 tube</td>
<td>1/2 - 2/3 tube</td>
</tr>
<tr>
<td>Cake icing (small tube) (1 teaspoon = 4 grams)</td>
<td>2 teaspoons</td>
<td>3 teaspoons</td>
<td>4 - 5 teaspoons</td>
</tr>
<tr>
<td>Honey, maple or Karo syrup (1 teaspoon = 5 grams)</td>
<td>1 - 2 teaspoons</td>
<td>2 - 3 teaspoons</td>
<td>3 - 4 teaspoons</td>
</tr>
<tr>
<td>Orange juice (1/3 cup = 10 grams)</td>
<td>1/4 - 1/2 cup</td>
<td>1/2 - 3/4 cup</td>
<td>3/4 - 1 cup</td>
</tr>
<tr>
<td>Apple juice (1/3 cup = 10 grams)</td>
<td>1/4 - 1/2 cup</td>
<td>1/2 - 3/4 cup</td>
<td>3/4 - 1 cup</td>
</tr>
<tr>
<td>Table sugar (1 teaspoon = 4 grams)</td>
<td>2 teaspoons</td>
<td>3 teaspoons</td>
<td>4 - 5 teaspoons</td>
</tr>
<tr>
<td>Regular soda pop/soft drink (1 ounce = 3 grams)</td>
<td>2 - 3 ounces</td>
<td>4 - 5 ounces</td>
<td>5 - 6 ounces</td>
</tr>
<tr>
<td>Raisins (1 tablespoon = 7 1/2 grams)</td>
<td>1 tablespoon</td>
<td>1 1/2 - 2 tablespoons</td>
<td>2 1/2 - 3 tablespoons</td>
</tr>
<tr>
<td>Lifesavers (1 = 3 grams)</td>
<td>2 - 3</td>
<td>4 - 5</td>
<td>5 - 7</td>
</tr>
</tbody>
</table>
Hyperglycemia (high blood sugar) and monitoring for presence of ketones

Hyperglycemia—blood sugar above 240 mg/dl

**Signs and Symptoms:**
- Loss of appetite
- Increased thirst
- Frequent urination
- Tiredness, sleepiness
- Inattentiveness
- Rapid breathing
- Fruity odor to the breath
- Nausea
- Vomiting

**Possible causes:**
- Not enough insulin
- Too much food
- Illness/Infection
- Stress

If the student has warning signs of hyperglycemia, check the blood sugar. If blood sugar becomes very high, the student may begin to utilize fat for energy, and produce a harmful by-product of fat metabolism called ketones. If the blood sugar level is higher than 240 mg/dl, the student’s urine should be checked for presence of ketones as ordered by the health care provider.

**Diabetic Ketoacidosis**

Diabetic Ketoacidosis (DKA) is caused by a combination of dehydration and a lack of insulin. When there is a lack of insulin or a prolonged inadequate carbohydrate intake, the body starts breaking down fat. Ketones are by-products of this process and are normally removed by the kidneys through urine. In DKA, ketone formation happens so rapidly that kidneys cannot keep up. Ketones accumulate in the urine and blood and the blood becomes acidic. Meanwhile, blood sugar may continue to rise due to lack of insulin and the kidneys must work to get the sugar out of the body by increasing the output of urine. If the lost fluids are not replaced, the body becomes dehydrated. DKA is the result of ketones in the blood combined with dehydration.

DKA can make students confused, sick to the stomach, extremely thirsty, tired and short of breath. Students with type 2 diabetes are less likely than those with type 1 to develop DKA. Left untreated, DKA can result in coma or death. DKA is the most common cause of diabetes related hospitalizations in Illinois (929 cases in 2000 for the 0-19 year age group). The frequency of DKA increases with age.

**How to avoid DKA**

Recognizing risk factors is the first big step in avoiding DKA. The greatest risk exists when the body is stressed by illness or injury. In fact, the most common contributors to DKA are flu and stomach viruses. It is important to stick with insulin regimen and monitor blood sugar more frequently during illness. The American Diabetes Association (ADA) recommends checking ketones every four to six hours during times of illness, using a ketone testing kit.

Never withhold food or make student perform extra exercise for high blood sugar episodes!

When to get help

The ADA recommends monitoring for signs of DKA whenever blood sugars are higher than 250 mg/dl regardless of how the student feels.

If the student has any of the following signs along with high blood sugar, notify the parent/guardian right away:
- Lack of appetite,
- Pain in abdomen,
- Vomiting or sick to stomach,
- Blurred vision,
- Dry or flushed skin,
- Difficulty in breathing,
- Feelings of weakness,
- Sleepiness,
- Fruity odor of breath or urine,
- Intense thirst,
- Dry mouth,
- Frequent urination.

DKA usually develops over many hours but may develop very quickly. It is important for students to check their blood sugar as ordered by the health care provider. If blood sugar is elevated or student is ill, the urine should also be checked for ketones as ordered by the health care provider.

Treatment

If ketones are high, the health care provider may recommend extra insulin or send the student to the hospital. If the student has type 2 diabetes and does not usually take insulin, the health care provider may prescribe insulin. In the meantime, have the student drink plenty of water. If he/she cannot keep water down, call for emergency help right away.

At the hospital, insulin and IV fluids are used to treat DKA. However, if DKA has been present for a long time, recovery is more difficult. Other medical conditions which may be present (infection, high blood pressure, thyroid or heart disease) further complicate treatment and recovery. DKA is a condition which must be taken seriously. If left untreated it can cause serious consequences.

Urine Testing for Ketones

Ketones are a warning sign that the body is burning fat for fuel instead of sugar, and this could mean diabetes is out of control. The student may have an order to monitor urine ketones if the blood sugar is over 240 mg/dl or if the student is ill.

Urine testing products are read by comparing the test color to a standard color chart. Factors such as handling the color pad with your hands as well as placing test materials on a counter recently cleaned with bleach can cause inaccurate results. Be sure to read the package insert for proper handling of the product.

Be aware of expiration dates. When a bottle of strips is opened, date it. The strips are good only for a specified time, usually 3-6 months after opening. When first opening the package, check the label to determine how long the particular package will be good for. Ketone strips available in individually foil wrapped packages will last until the expiration date on the bottle. The family should be notified if replacement is needed. Ketone test strips may need to be requested from the pharmacy as a special order item if they are not routinely stocked.

Interpreting Urine Ketone Results

If Urine Ketones are:

**Negative to small:** Give lots of fluids, such as water or sugar free drinks. Recheck blood glucose and urine for ketones in several hours. Allow free access to the water fountain and rest room.

**Moderate to large:** Advise the parent or guardian immediately if the student is spilling moderate or large ketones. A serious medical condition called ketoacidosis may be developing. If the parent cannot be reached and the student is vomiting and unable to take fluids by mouth, call emergency personnel for transport to the emergency room and notify the parent/guardian and school administration per district policy.

Issued April, 2002
Insulin and Insulin Delivery Systems

Insulin
There are many different types of insulin, for different situations and life-styles.

Characteristics
The three characteristics of insulin are:

Onset - The length of time before insulin reaches the bloodstream and begins lowering blood sugar.

Peak time - The time during which insulin is at its maximum strength in terms of lowering blood sugar levels.

Duration - How long the insulin continues to lower blood sugar.

Types and Duration of Insulin Action

<table>
<thead>
<tr>
<th>Insulin Preparation</th>
<th>Typical Onset</th>
<th>Peak (hours)</th>
<th>Usual Effective Duration (hours)</th>
<th>Usual Maximum Duration (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Animal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>0.5–2 hours</td>
<td>3–4</td>
<td>4–6</td>
<td>6–8</td>
</tr>
<tr>
<td>NPH</td>
<td>4–6 hours</td>
<td>8–14</td>
<td>16–20</td>
<td>20–24</td>
</tr>
<tr>
<td>Lente</td>
<td>4–6 hours</td>
<td>8–14</td>
<td>16–20</td>
<td>20–24</td>
</tr>
<tr>
<td><strong>Human</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulin aspart</td>
<td>5–10 minutes</td>
<td>1–3</td>
<td>3–5</td>
<td>4–6</td>
</tr>
<tr>
<td>Insulin lispro</td>
<td>&lt;15 minutes</td>
<td>0.5–1.5</td>
<td>2–4</td>
<td>4–6</td>
</tr>
<tr>
<td>Regular</td>
<td>0.5–1 hour</td>
<td>2–3</td>
<td>3–6</td>
<td>6–10</td>
</tr>
<tr>
<td>NPH</td>
<td>2–4 hours</td>
<td>4–10</td>
<td>10–16</td>
<td>14–18</td>
</tr>
<tr>
<td>Lente</td>
<td>3–4 hours</td>
<td>4–12</td>
<td>12–18</td>
<td>16–20</td>
</tr>
<tr>
<td>Ultralente</td>
<td>6–10 hours</td>
<td>-----</td>
<td>18–20</td>
<td>20–24</td>
</tr>
<tr>
<td>Insulin glargine</td>
<td>1 hour</td>
<td>-----</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

Storage
Opened vials may be left at room temperature for 28–30 days after opening, or as indicated on package. Avoid exposure to extreme temperatures. Unopened vials should be stored in the refrigerator and are good until the expiration date on the package.

Expiration date
Make sure that the insulin that is supplied will be used before its expiration date.


Issued April, 2002
# Oral Medications Used in Diabetes Treatment

<table>
<thead>
<tr>
<th>Drug Type/Class</th>
<th>Mechanism of Effect</th>
<th>Trade Name</th>
<th>Generic Name</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biguanide</td>
<td>Increases glucose uptake by muscles; decreases liver glucose production</td>
<td>Glucophage</td>
<td>Metformin</td>
<td>Tablets: 500, 850, 1000 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glucophage XR</td>
<td>Metformin Extended Release</td>
<td>Tablets: 500 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glucovance</td>
<td>Glyburide/Metformin</td>
<td>Tablets: 250, 500 mg.</td>
</tr>
<tr>
<td>Alpha-Glucosidase Inhibitors</td>
<td>Delay digestion of ingested carbohydrates</td>
<td>Precose</td>
<td>Acarbose</td>
<td>Tablets: 25, 50, 100 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glyset</td>
<td>Miglitol</td>
<td>Tablets: 25, 50, 100 mg.</td>
</tr>
<tr>
<td>Nonsulfonylurea Hypoglycemics</td>
<td>Stimulate insulin release from pancreas</td>
<td>Prandin</td>
<td>Repaglinide</td>
<td>Tablets: 0.5, 1, 2 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Starlix</td>
<td>Nateglinide</td>
<td>Tablets: 120 mg.</td>
</tr>
<tr>
<td>Sulfonylureas</td>
<td>Stimulate insulin release from pancreas</td>
<td>Amaryl</td>
<td>Glimepiride</td>
<td>Tablets: 1, 2, 4 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diabeta</td>
<td>Glyburide</td>
<td>Tablets: 1.25, 2.5, 5 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dymelor</td>
<td>Acetohexamide</td>
<td>Tablets: 250, 500 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glucotrol</td>
<td>Glipizide</td>
<td>Tablets: 5, 10 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glucotrol XL</td>
<td>Glipizide, extended release</td>
<td>Tablets: 5, 10 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glynase PresTab</td>
<td>Glyburide, micronized</td>
<td>Tablets: 1.5, 3, 6 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Micronase</td>
<td>Glyburide</td>
<td>Tablets: 1.25, 2.5, 5 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diabinase</td>
<td>Chlorpropamide</td>
<td>Tablets: 100, 250 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Orinase</td>
<td>Tolbutamide</td>
<td>Tablets: 500 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tolinase</td>
<td>Tolazamide</td>
<td>Tablets: 100, 250, 500 mg.</td>
</tr>
<tr>
<td>Thiazolidinediones (TZDs)</td>
<td>Increase tissue glucose utilization</td>
<td>Actos</td>
<td>Pioglitazone</td>
<td>Tablets: 15 mg.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Avandia</td>
<td>Rosiglitazone</td>
<td>Tablets: 2, 4, 8 mg.</td>
</tr>
</tbody>
</table>

Few oral medications for hyperglycemia control are currently approved by the FDA for use in children. Physicians may determine a particular oral medication is appropriate on an individual basis.
Insulin Delivery Systems

Syringes, pumps, and pens all do the same thing-deliver insulin. These items deliver insulin into the tissue so it can be used by the body. This category also includes injection aids--products designed to make giving an injection easier.

**Syringes**

Today's syringes are smaller, have finer needles and have special coatings that work to make injecting as easy and painless as possible. When insulin injections are done properly, most people discover they are relatively painless.

**Points to Consider for Optimal Insulin Delivery by Syringe**

The syringe being used should be the right size for the insulin dose.

It should be easy to draw up and visualize the dosage (devices are available to make this task less complicated.)

Shorter, smaller needles are available which allow for ease of administration.

**Insulin Pens**

There are a wide range of insulin pen options available. Pens can make taking insulin much more convenient. Some students find the pen needles make injection more comfortable.

**Pumps**

Insulin pumps are computerized devices, about the size of a beeper or pager, which are worn on the belt or in a pocket. Pumps deliver a steady, measured dose of insulin through a cannula (a flexible plastic tube) with a small needle that is inserted through the skin into the fatty tissue. The cannula is taped in place--not the needle. Insulin pumps may be worn during most athletic activities as recommended by the health care provider. The pump may be placed on one of several sites on the body including the abdomen, buttocks, thigh or arm.

**Advantages**

- Pumps most closely mimic the body's normal release of insulin.
- Pumps deliver insulin in two ways:
  - Basal dose: small, continuous dose that is pre-programmed, and
  - Bolus dose: given to cover food or cover high blood sugar.
- Wearing a pump does not prohibit a student from participating in any school activities.

**Responsibilities of Pump Wearer**

The student must:

- be willing to test blood sugar a minimum of 4 times/day,
- learn how to make adjustments in insulin, food and exercise in response to test results,
- check to assure the pump is functioning properly if high or low blood sugar readings occur, and
- keep back up insulin, syringe or pen, and pump supplies available at school.

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Disposing of Sharps Safely

Millions of individuals with serious health conditions manage their care at home, work or school. For example, people with diabetes use syringes to inject their own insulin and lancets to test their blood sugar every day. This creates a lot of medical waste. The best way to protect trash handlers and sewage treatment workers against disease or injury, and avoid attracting drug abusers looking for syringes to reuse, is to follow the guidelines listed below for containment and disposal of sharps.

**Containment**

- A red sharps container may be purchased at local pharmacies or health supply stores.
- Use a puncture-proof plastic container with tight-fitting screw top. A laundry detergent or bleach bottle works well. Don’t use glass because it can break. Coffee cans are not recommended because the plastic lids come off too easily.
- Label the container clearly. Write “Contains Sharps” with a waterproof marker directly on the container.
- Once a syringe or lancet is used, immediately put it into a container and seal the container. Don’t clip, bend or recap the needles because of potential injury.
- Keep the container away from children!
- Store the container in a safe, secure location--out of the reach of children and safe from theft.
- When the container is full, seal it tightly and dispose properly, as follows.

**Disposal**

There are different options for disposing of the container of sharps. Some cities and towns have more options than others. Here are some good choices that promote health and safety, and protect the environment.

- Call local doctors, pharmacies, clinics, hospitals or nursing homes and ask if they accept properly contained sharps for disposal.
- Ask local diabetes educators or the local American Diabetes Association chapter about sharps disposal programs.
- Call the local public works department or solid waste manager. Some communities have special medical waste collection or drop-off days.
- Call local health department’s environmental health section for special medical waste disposal programs.
Giving Insulin

**Equipment**

**Provided by parent/guardian**
- Healthcare provider’s written order
- Parent/guardian written permission
- Insulin
- Insulin syringes
- Alcohol wipes
- Communication log

**Provided by school**
- Latex or vinyl gloves--do not have to be sterile
- Tissues or cotton balls
- Approved container for disposal of syringes
- Procedure log and pen
- Second adult

**Preparation**

1. Provide for privacy. If adult is giving injection, explain to the student what will be done.
2. Wash hands.
3. Set out supplies.
4. Check insulin bottle.
   a. Does the label on the bottle match the type listed on the medication order?
   b. Is the insulin “in date” (not expired)?
   c. How many units are to be given?
   d. Is the Insulin clear or cloudy? Regular, Humalog, Novalog, and Lantus insulins should always be clear. Lantus should not be mixed with any other insulin.
5. If this is a new bottle of insulin, remove the flat, colored cap and throw it away. Do not remove the rubber stopper or the metal band.
6. Gently mix cloudy insulin by rolling the vial between the palms of your hands. Do not shake! **Shaking the bottle can break down the insulin molecules and change the way and time in which insulin acts.**
7. Put on latex/vinyl gloves.
8. Clean the rubber stopper on the insulin bottle with an alcohol wipe.
9. Remove the cover from the insulin syringe.
10. Pull back on the plunger until the tip is at the line for the desired number of units. This will pull air into the syringe.
11. Push the insulin syringe needle through the rubber stopper and press on the plunger to push the air into the bottle of insulin.
12. Turn the bottle and syringe upside down with the needle still in the bottle. Hold the bottle with one hand and the syringe in the other. The tip of the needle should be in the insulin with the needle pointing up.
13. Slowly pull back on the plunger until the line of the plunger is at the desired number of units. This will pull insulin from the bottle to that mark.
14. Make sure there are no air bubbles in the syringe. (Air bubbles in the syringe will prevent the syringe being filled with the correct dose of insulin.) Gently tap the side of the syringe to bring the air bubbles to the top, push them out, and again fill to the appropriate number of units, still keeping the needle pointing up.
15. Pull the needle out of the rubber stopper.
Check and Verify Dose

16. With another adult, check the dose of insulin comparing the amount ordered for the student with the amount drawn into the syringe. Compare the bottle label to the name of the insulin listed on the medication order.

17. Check the order to determine where on the body the student is to receive his insulin shot. Insulin is given subcutaneously (into the fat layer under the skin but above the muscle layer). The areas used are the thighs, arms, abdomen, and buttocks.

Give the Medication

18. Select the injection site and wipe it with alcohol, if ordered by the physician. Allow area to air dry.

19. Grasp a large area of skin and push the needle into the skin at a 90° angle. Some children, or thin individuals, may need to pinch the skin and inject at a 45° angle to avoid intramuscular injection. Be sure the needle is all the way in.

20. Push in the plunger all the way. This will inject the insulin into the student’s body. Count to five before removing the needle to prevent the insulin from leaking out of the needle track.

21. Pull the needle straight out and press down firmly over the injection site with a cotton ball or tissue.

Clean Up

22. **Discard the syringe in a sharps container.** Do not put the cap back on the needle!

23. Cover the site with a band aid if needed. Reassure and praise the student.

24. Discard paper products in plastic lined container.

25. Remove gloves and discard in plastic lined container or trash can.

26. Document the insulin injection on the medication log and in the student’s communication log.

27. Return supplies to storage. Note supplies which need to be replenished and advise parent or guardian.

School Personnel are referred to the **Recommended Guidelines for Medication Administration in Schools**, a joint publication of the Illinois Department of Human Services and the Illinois State Board of Education. Copies of the guidelines may be obtained by contacting:

Illinois Department of Human Services
School Health Program
217-785-4525
Age Related Responsibilities of Students

Age alone should not be the guideline used to assume that a student is ready to accept responsibility for managing components of diabetes care. It is important to realize that children develop at different rates. There is no such thing as the “magic age” when a student can suddenly perform a certain skill or be “responsible” for his/her care. Students need to be encouraged and supported to gradually assume diabetes self care as they mature and demonstrate confidence. The adult must be sure that when the responsibility is given, the student is willing to take it. Keep in mind that a student’s ability or desire to perform certain diabetes related tasks might vary from day to day. It is normal for the student to regress and depend once again on an adult to handle the responsibility. Parents, guardians, school nurses, and school personnel must be sensitive to the student’s needs and be available to take over with no questions asked.

The charts below provide the adult with guidelines to follow when determining the average age of assuming diabetes-related skills. Keep in mind that these are general recommendations and each student must be evaluated individually. Independence takes a long time and requires a lot of help and supervision from adults. The student who feels that they have a network of adults to support and assist with diabetes management will generally be in better diabetes control.

**Responsibilities of Students at Different Ages**

Be aware of the normal stages of development in children. Recognize that responsibilities related to diabetes must depend on the age and development of the child. Accommodation may be necessary for students with special needs.

<table>
<thead>
<tr>
<th>Age</th>
<th>Non-Diabetes Related</th>
<th>Diabetes Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>3–7 years</td>
<td>Imaginative/concrete thinkers  Cannot think abstractly  Self-centered</td>
<td>Adult supervision for all tasks  Gradually learns to cooperate for blood sugar tests and insulin shots  Inconsistent with food choices  Gradually learns to recognize hypoglycemia  Not much concept of time</td>
</tr>
<tr>
<td>7–12 years</td>
<td>Concrete thinkers  More logical and understanding  More curious  More social  More responsible</td>
<td>Can learn to test blood sugars  At age 10 or 11 can draw up and give shots on occasion  Can make own food choices  Can recognize and treat hypoglycemia  By 11 or 12 years can be responsible for remembering snack, but may still need assistance of alarm watches or adult reminders</td>
</tr>
<tr>
<td>12–18 years</td>
<td>More independent  Behavior varies  Body image important  Away from home more  More responsible  Abstract thinking</td>
<td>Capable of doing the majority of shots and blood tests but still needs some parental supervision and review at times to make decisions about dosages  Knows which foods to eat  Gradually recognizes the importance of good sugar control to prevent later complications  May be more willing to inject multiple shots per day</td>
</tr>
</tbody>
</table>


Issued April, 2002
<table>
<thead>
<tr>
<th>Skill</th>
<th>Recommended by the ADA</th>
<th>*Survey of Care Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypoglycemia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognizes and reports</td>
<td>8-10</td>
<td>4-9</td>
</tr>
<tr>
<td>Able to treat</td>
<td>10-12</td>
<td>6-10</td>
</tr>
<tr>
<td>Anticipates/prevents</td>
<td>14-16</td>
<td>7-11</td>
</tr>
<tr>
<td><strong>Blood Glucose</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testing (by meter)</td>
<td>8-10</td>
<td>7-11</td>
</tr>
<tr>
<td><strong>Insulin Injection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gives to self (at least sometimes)</td>
<td>N/A</td>
<td>8-11</td>
</tr>
<tr>
<td>Draws up insulin</td>
<td>12-14</td>
<td>8-12</td>
</tr>
<tr>
<td>Able to adjust dose</td>
<td>14-16</td>
<td>12-16</td>
</tr>
<tr>
<td><strong>Diet</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifies appropriate</td>
<td>10-12</td>
<td>10-13</td>
</tr>
<tr>
<td>pre-exercise snack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>States role of diet in</td>
<td>14-16</td>
<td>9-15</td>
</tr>
<tr>
<td>care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Able to alter food in</td>
<td>14-16</td>
<td>10-15</td>
</tr>
<tr>
<td>relation to blood glucose level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Abstracted from a survey done by Srs. T. Wysocki, P. Meinhold, D.J. Cox and W.L. Clarke at Ohio State University and The University of Virginia (Diabetes Care 11:54-58, 1990). Adapted from "Understanding Insulin-dependent diabetes". University of Colorado Health Sciences Center, 1995.
Psychosocial Aspects of the Student with Diabetes

The diagnosis of diabetes in a child can have a major impact on the entire family. In many cases, diabetes is the worst thing that has ever happened to them. Each individual in the family is affected and the feelings experienced often follow a similar pattern. These feelings may linger for a long time if they are not recognized and expressed. Dealing with feelings openly can help a child and their family learn to face the daily challenges and facilitate an acceptance of having diabetes as part of their lives. Families who are experiencing difficulty should be referred to the student’s health care provider.

Denial

“This can’t really be happening.”
“I don’t need to take my insulin today.”
“It’s not that serious.”
“No one has to know I have diabetes.”

The student or family members may find it difficult to even talk about diabetes. It may be too painful to face. This can interfere with the medical team’s ability to educate and treat the student. At times, the student or other family members may try to hide their feelings in order to be “strong” or to avoid upsetting the others. This denial may make the student’s ability to adjust to the daily struggles much more difficult.

Sadness

The student or a family member may cry, feel depressed, or hopeless. Feeling sad is normal, and brief periods of sadness can occur for years after diagnosis. It is important for all family members to express feelings of sadness. They should be encouraged to seek professional help if these feelings continue for an extended period of time.

Anger

“Why me? Why my child?”
“Why do I have to do it all?”
“It isn’t fair!”

Anger may be vented toward nurses, doctors, God, spouse, friends, siblings, teachers—the list is endless. Although anger is a normal feeling, it may interfere with the student’s or family member’s ability to adjust to the daily pressures of managing diabetes. If it is having a major impact on the student or the family as a unit, individual or family counseling may be helpful.

Fear

“What will this mean for my child’s life?”
“What’s going to happen?”
“How can we ever leave our child alone?”

There are many fears expressed by the family and the student. Parents and guardians may fear the increase in responsibility and expenses, worry about the future and/or doubt their ability to manage diabetes every day. Siblings fear they may “get” diabetes too. The student fears hospitals, injections, finger sticks, low blood sugars and even death. As a result of these treatments, he/she may feel different from other students and fear not fitting in. All of these fears are certainly justified, but can be allayed if they are openly discussed and support given as needed.
Factors Causing Emotional Distress at Diagnosis of Diabetes in a Child

- Uncertainty about the outcome of the immediate situation
- Feelings of intense guilt and anger about the occurrence of diabetes
- Responsibility for management of the illness
- Loss of valued life goals and aspirations because of illness
- Anxiety about planning for an uncertain future
- Recognition of the necessity for a permanent change in living pattern due to diabetes

Guilt

“What did I do to deserve this?”
“If I just hadn’t eaten so much sugar.”
“The diabetes may have come from my side of the family.”

Acceptance

“I don’t like having diabetes but I guess I can handle it.”
“The shots aren’t so bad, I just wish I could eat whatever I want.”

Parents commonly feel that they “gave” their child diabetes. This idea occurs even when they know other factors also play a role in the onset of diabetes. The child may feel diabetes is a punishment for bad behavior. These feelings are very common at the time of diagnosis. As time goes on, the student feels guilty if he/she “sneaks” extra candy, skips doing blood tests, lies about blood sugar results or does not “follow the rules.” Parents and guardians may experience feelings of guilt whenever they have to enforce the “rules” of self-management or deny their child a “treat.” The opportunities to feel guilty are always there. All members of the family need to receive support and reassurance in order to assist their child in managing his/her diabetes.

Acceptance may take a long time to reach and some may never come to accept diabetes as part of their life. A well-adjusted family learns to cope with the endless demands and struggles diabetes can add to their life. They feel more confident and hopeful. Sadness and anger may still occur but these periods are temporary. The family needs to seek out resources in the community and within their family to ease the burden of daily management.

Dealing with all of these emotions can be a challenge for the family with a diabetic child. They must come to the understanding that diabetes should not prevent a student from living a full and active life. They are not alone...there are many resources available in the community and many other families traveling the same road.

Adapted from: “Understanding Insulin-dependent Diabetes”
University of Colorado Health Sciences Center. 1995.
There will be many people who will be responsible for the care and supervision of the student with diabetes. Each day the student will encounter teachers, coaches, bus drivers, baby-sitters, friends, relatives who will need information in order to safely supervise the student’s care.
Care Planning

Care planning in the school has four components:

1. Parent/Guardian Conference

A conference with the parents or guardians and the school health professional should be held to identify the student’s needs, discuss components of the care plan, and develop the agenda for a school wide planning meeting.

2. Planning Meeting

This meeting of key staff should be held each year before school starts, when a student is first enrolled, when a student is newly diagnosed, or when there is a change in the treatment plan.

3. Individual Care Plan

The school health professional, using information gathered at the planning meeting, should prepare the written plan. Key staff and the student’s family must agree to the plan. The plan may be incorporated into an Individualized Education Program or Section 504 plan if the student’s needs will be covered by this legislation. See “Appropriate Accommodations Under Law” (p.44) for a description of legislative rules that may apply to children with diabetes.

4. Training.

The school health professional should arrange for training for all school staff. The training should be done with the assistance of the student’s parents or guardians and/or invited members of the student’s health care team. This may involve one or more sessions depending on the roles assigned to different people.

NOTE: A list of resources that may help the school’s staff with care planning is included in the “Diabetes Resources” section in the Appendix.

Parent/Guardian Conference

This meeting is held with the parent or guardian, the principal, the school health professional and others who may be invited by these parties. The purpose is to get to know one another, share information about the student and school, prepare for the initial planning meeting, and determine who will need to attend the planning meeting.

A parent/guardian checklist might be prepared at the conference so that the necessary forms and supplies can be brought to the planning meeting. (Sample forms are included in the back of this manual.) The information needed from the parent or guardian is included on the form. This may be completed in advance of, or during, the conference.

Parent Check List

This checklist is provided to help parents identify the forms, supplies and other materials they need to bring to school. The list should be modified for individual children.

All items on the checklist should be sent to the school health professional.

- Data/Information form
- Photograph of child
- Signed release of information for physician(s)
- Monitoring supplies: lancets, meter, strips, alcohol, ketone strips, etc.
- Snack (low) packs. Number: ___
- Glucose tablets, Gel (tubes). Number: ___
- Pump supplies (if applicable)
- Record keeping sheets
- Insulin and related supplies
- Syringes, alcohol, etc.
- Prescription medication order and permission form for insulin
- Glucagon kits with pre-measured dosage. Number: ___
- Prescription medication order and permission form for glucagon

Adapted from Vermont Manual, “Recommendations for Management of Diabetes in School”. Issued April, 2002
Planning Meeting

At the beginning of the school year, and at other times during the school year for students who are newly diagnosed or have changes in treatment plan or schedule, the school health professional should organize and facilitate a planning meeting to develop an individual diabetes care plan for use in the school setting.

Meeting participants should include everyone that may have a role in the student’s diabetes care.

Participants may include:
- Family and student,
- Principal,
- School health professional,
- Current year classroom teacher(s),
- Past year classroom teacher(s),
- Food service manager,
- Physical education teacher/coach,
- Counselor or social worker,
- Bus driver,
- Other school staff with direct responsibility for student, and/or
- Members of the health care team, if invited by the parent or guardian.

Suggested agenda items:
- Overview of type 1 or type 2 diabetes and its management (as appropriate for the individual student),
- Roles and responsibilities of staff members,
- Identification of staff in the school who will serve as resources for others,
- Determination of the hierarchy of personnel expected to respond in emergency situations,
- Determination of the location of food kits, glucagon, and other supplies in the school building,
- Determination of where the plan will be kept and how individual components will be shared with appropriate staff,
- Training requirements for staff with specific responsibilities, and/or
- Identification of what a diabetic emergency is and what steps should be taken.

Additional Ideas to Improve Communication, Learning Opportunities and Diabetes Management

Home/School Communication
1. Establish procedure for ongoing communication between parents or guardians and school.
2. Schedule parent/guardian and teacher meetings at regular times, especially at the beginning of the school year and other transition times.
3. Maintain consistency in academic plans. Contact parent or guardian immediately if any academic or social concerns arise.
4. Address health concerns as the need arises.
5. Schedule transition meetings and include previous and current teaching staff, school health personnel, and parent or guardian.

Organization/Management
1. Modify the instructional day as indicated by the student’s individual care plan (long lunch, extra snack time on occasion.)

Alternative Teaching Strategies
1. Modify teaching methods as necessary.
2. Individualize classroom and homework assignments:
   - Fluctuation in blood sugar may affect the student’s level of concentration and attendance.
   - Verbal/written instructions may need to be repeated.
   - If the student has to interrupt a test to deal with an issue related to diabetes, special accommodations may need to be made to repeat instructions or to lengthen the testing time.
Accommodations

- Student may need to have a snack at times and intervals different from other students.
- Student may need to have open bathroom privileges including during standardized tests.
- Allow student to be seated so he/she can come and go from the room easily.
- Student should be allowed to keep his/her backpack with equipment and snacks easily accessible in the classroom.

Student Precautions

1. Designate individuals responsible for assisting student.
2. Develop a plan for training of personnel.
3. Allow student to carry glucose monitor and strips, lancet, lancing device and snack as ordered by the health care provider.
4. Provide for storage of extra snack in classroom and gym area.
5. Provide for storage and access to insulin, syringes, glucagon and extra supplies.
6. Inform student’s family of need to provide all equipment and supplies.

Individual Care Plan

Planning is key to the successful management of care for students with diabetes. In schools, the individual care plan is an essential tool for accomplishing successful implementation of the health care plan developed by the family and health care provider.

School health personnel, in collaboration with parents, guardians and others, develop a plan outlining specific care to be given at school based on the student’s individual needs. It should be available to all staff working with the student. The school health personnel may prepare a summary of pertinent information on the individual student for his/her use and provide it to each of the student’s teachers.

Routine daily care plan includes:

- Phone numbers of parents, guardians, care providers and emergency contacts
- Blood glucose monitoring instructions
- Blood glucose values and specific responses required
- Daily schedule of food, insulin and activity
- Location of supplies and food
- Disposal procedure for syringes and lancets
- Instructions for special events/circumstances

Developmental levels and cognitive and physical abilities of the school-aged child and adolescent should be considered in the development of the care plan for the student with diabetes.

Emergencies:

Students with diabetes can have problems despite the best efforts at control. School staff need to determine and record what constitutes an emergency situation and what to do about it. Parent/guardian and health-care teams should provide guidance for the care plan.

Adapted from Vermont Manual - Recommendations for Management of Diabetes in School
Appropriate Accommodations Under Illinois Law

Under both Section 504 of the Rehabilitation Act of 1973 and the Individuals with Disabilities Education Act (IDEA), any school receiving federal funding must provide a free appropriate public education (FAPE) for students with identified disabilities. There are differences in the definition of FAPE under Section 504 in comparison with IDEA. Under Section 504, reasonable accommodations must be provided and documented in what is commonly called a Section 504 Plan. Under IDEA, the needs of students with disabilities found eligible for special education and related services must be addressed in an Individualized Education Program (IEP).

Some of the issues that a written plan might address:

1. Eating whenever and wherever necessary.
2. Going to the bathroom or water fountain as needed.
3. Participating fully in all extracurricular activities, including sports and field trips.
4. Eating lunch at an appropriate time with enough time to finish eating.
5. Absence related to medical visits.
6. Assistance with blood glucose monitoring or insulin injections, where appropriate.
7. Opportunity to make up missed schoolwork or receive additional instruction when absent.

These are some examples of things to include in an individual plan. Consult members of your student’s health care team when determining individual recommendation.

Parent/Guardian Rights

The parent or legal guardian of a student with diabetes in the public school system has the right to:

- Request that a Section 504 Plan be developed to address the student’s needs for reasonable accommodations and participate in the meeting scheduled for this purpose.
- Request that the student be evaluated to determine eligibility for special education and related services under IDEA and, if the student is found eligible, participate in the meeting to develop the IEP.
- Bring experts to the Section 504 or IEP meeting to better explain the student’s diabetes management.
- As a member of the team, provide input in the development of the Section 504 Plan or IEP to identify the student’s needs and the accommodations and/or services to address those needs.
- Disagree with the Section 504 Plan or IEP if it does not appropriately address the student’s needs and, if necessary, invoke certain procedural safeguards in accordance with the respective laws.
- Participate and provide input in any subsequent revisions to the Section 504 Plan or IEP.
More detailed information on the rights of parents/guardians of students with disabilities is available in the document entitled “A Parents Guide: The Educational Rights of Students with Disabilities”, which may be obtained by contacting the Illinois State Board of Education at 217/782-2221 or by visiting the agency’s website at [http://www.isbe.net/spec-ed/](http://www.isbe.net/spec-ed/).

Educating school personnel about student’s individual needs is an important step in managing the student with diabetes at school. The process of developing a Section 504 plan or an IEP provides an opportunity to educate school personnel about diabetes and how it affects the student. Establishing an accommodation plan that meets the student’s needs is an ongoing process that requires good communication. The student has a right to request and receive reasonable accommodations to ensure that he/she receives a free appropriate public education.

**Further information can be obtained from the following:**

**Illinois State Board of Education**
Division of Special Education
Compliance
100 North First Street
Springfield, IL 62777-0001
217-782-5589

**U.S. Department of Education**
Office for Civil Rights
330 C. Street SW
Washington, D.C. 20020
1-800-421-3481

**For information about an Individualized Education Program or Section 504 Accommodation Plan:**

**National Information Center for Children and Youth with Disabilities**
PO Box 1492
Washington, DC 60013
1-800-695-0285

**Help Me Grow Helpline**
2501 North Dirksen Parkway
Springfield, IL 62762
1-800-323-GROW
(1-800-323-4769)

**For technical assistance and referrals for local support:**
(Sample)

504 Accommodation Plan

STUDENT ____________________________________________________________
GRADE _____________________________________________________________
PARENT/GUARDIAN NAME ____________________________________________
MEETING DATE ______________________________________________________

1. Nature of the concern for which this plan is being written:

2. Describe how the concern affects a major life activity: (caring for one’s self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.)
   a. 
   b. 
   c. 

3. List the reasonable accommodations that appear necessary:
   a. 
   b. 
   c. 
   d. 

REVIEW DATE  Example: The first week of every term.
Participants at meeting: (Name and Title)

☐ Original placed in the student’s cumulative file and copies given/sent to the following: (Name, title, and date given/sent.)

☐ Section 504 Procedural Safeguards explained and given to the parents or guardians.

_______________________    Administration Representative
Training

Goals for training:
Everyone mentioned in the plan will know his/her role in carrying out the plan, how it relates to the roles of others and when and where to seek help.

Preparation:
Contact school personnel to determine their knowledge of and comfort level with caring for the student. Modify the training session accordingly.

Time:
The initial session should take about 30 minutes. Some members of the staff may need additional individual training concerning their specific roles.

Attendance:
Include all staff mentioned in the plan plus administrative and counseling staff and any others who may interact with the student during the school session.

Suggested Components of Training:
- Introduction to the student’s individual care plan
- Type 1 or type 2 diabetes: what it is, how it is managed (if not covered at planning meeting)
- Monitoring tools: glucose monitor, written records
- Signs and symptoms of hypoglycemia and hyperglycemia
- Procedures for routine care of the individual student
- Emergency procedures
- Overview of universal health and safety guidelines according to Occupational Safety and Health Administration (OSHA) and disposal of supplies
- Monitoring techniques (for those named in the emergency plan)
- Glucagon storage and administration (for those named in the emergency plan)
- Insulin storage and administration (if in the plan)
## Staff Training Record

<table>
<thead>
<tr>
<th>Staff Member Name</th>
<th>Date Training Received</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diabetes Basics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insulin and Glucagon</td>
<td></td>
</tr>
</tbody>
</table>
Memo to School Staff

To: School Staff
From: The School Health Professional
Subject: Students with Diabetes

Diabetes is a chronic disease that results from the body's inability to use and store glucose, the body's main energy source. It is not contagious! There are two major types of diabetes (type 1 and type 2). Type 1 diabetes, the type seen most commonly in students, occurs when the pancreas stops making insulin, the hormone that helps the body use glucose. Diabetes can be controlled. Type 1 diabetes is treated with daily injections of insulin, physical activity, and an individualized meal plan. In type 2 diabetes, the body produces some insulin, but not enough to maintain blood glucose levels. It is treated with an individualized meal plan, activity, pills and/or insulin. The proper balance between insulin, food, and physical activity is essential to the successful management of diabetes.

Insulin
When the blood sugar level is too low (hypoglycemia) an insulin reaction can occur. The symptoms are:
- change in personality
- inability to think clearly, confusion
- weak, tired, sleepy
- sweating, shaking

Note: Some students may not recognize these symptoms!
Early treatment of low blood sugar can help to avoid potentially serious problems. Initial treatment consists of giving the student sugar to raise the blood sugar level. This can be given in the form of:
- 4 oz. fruit juice
- 6 oz. REGULAR (not diet) soda
- 3-4 glucose tablets
- 8 oz. sports drink

High blood sugar (hyperglycemia) develops over time. It is the result of not enough insulin and the student should consult his/her health care provider for adjustment of the insulin dosage. Students should be allowed to drink plenty of water and may need more frequent trips to the restroom when their blood sugar is high.
Checking the amount of sugar in the blood of a student with diabetes serves as an effective guide to proper diabetes control. Blood sugar checks may be performed before meals or at other times throughout the day depending on the individual’s health care plan. (Some students self-check, others have alternate arrangements.)

Nutrition
- Snacks may be necessary to help maintain balance. Please allow the student time to eat a snack when they need to do so.
- Students may need to eat prior to physical activity.
- Students usually follow a prescribed meal plan which allows them to select their foods from the school lunch menu or bring their own lunch.
- Students with diabetes need to have liberal restroom privileges and access to drinking water.

Physical Activity
Students with diabetes should not be considered different from other students. They can actively engage in all school functions and sports by following the health care plan designed by their health care provider and parent/guardian.

Teamwork can help the student with diabetes participate fully in all school activities. Please contact me with any questions regarding this information.
Handling the Student with Diabetes at School

Diabetes ID Card

Travel, Vacations, or Camp

Illness at School

Actions for:
  Principal
  Teacher
  Health Personnel
  Counselor
  Coaches and Physical Education Teachers
  Bus Drivers
  Food Service Personnel
Handling the Student with Diabetes at School

The student with diabetes needs to be treated like any other student. The only difference is that this student’s body requires insulin from an external source to function properly. Exercise helps the insulin work better. Involving the student in physical activity and sports is highly desirable. It is important that the student develop exercise habits at a young age. The other students in the classroom, especially the student’s friends, are often very eager to learn more about diabetes. Ask the student and family how this might be discussed with the class. Even very young friends can help recognize low blood sugar reactions. Things can be more comfortable for everyone when diabetes is not a secret.

Confidentiality

It is important for staff to be aware that information contained in the student medical record must not be released to unauthorized individuals. (See Illinois School Student Records Act 105 ILCS 10.) However, according to section 375.60 of the Act, “Information may be released without parental consent in connection with an emergency to appropriate persons if the knowledge of such information is necessary to protect the health or safety of the student....”

Safety

It is the responsibility of the school to provide a safe environment for all students. School staff in direct contact with any student with diabetes should receive instructions about special needs as well as emergency action procedures.

Parties

The student with diabetes can participate in parties just like all other students. Notify the parent or guardian when a party will take place and include information about what food will be served so that they can decide, with the student, what he/she may have to eat.

Extracurricular Activities

The student with diabetes should be encouraged and allowed to participate in all extracurricular activities. Notify the parent or guardian as soon as possible of the activity, and invite them to participate in the planning meeting, especially if the activity involves an overnight. The student’s diabetes kit, which includes a glucose monitor and supplies, insulin (if needed), and a snack source, should always accompany the student on any field trip. Extra snacks need to be taken along in case lunch is delayed or the student gets more exercise than usual. An overnight activity will require insulin injections, so the parent or guardian may need to make special arrangements. The parent or guardian of any young student may wish to chaperone the event. Make sure this is okay with the student.

Diabetes ID Card

A useful resource is the “Diabetes ID Card.” The card includes basic information about the care of the student with diabetes. It is suggested that this form be laminated or printed on card stock to be used as a quick reference for teachers, coaches, bus drivers, cafeteria aides, friends, field trip chaperones. This approach works quite well when you need to communicate to a large staff or groups of people. Many families have a large number of cards printed and always have their student carry cards to be distributed as needed to “educate” someone new.
Diabetes ID Card

My name is ____________________________________________
I am _______ years old and I HAVE DIABETES.

This means that my pancreas does not make insulin. Without insulin, the food I eat cannot be used for energy. To treat diabetes, I must take insulin everyday and also try to balance my activity level and the food I eat. Several times a day I must check my blood sugar level using a special meter I always have with me. It’s important that you understand some facts about diabetes while I’m in your care. Please read this and keep it nearby.

FACT 1: MEALS AND ACTIVITY
My blood sugar is affected by the food I eat, the amount of activity I get and the amount of insulin I take. Please make sure that:

✔ My meals and snacks are eaten on time.
✔ I eat my meals at _____________, ______________, ________________.
✔ I may need an extra snack before, during or after a strenuous activity. I will check my blood sugar to see if I need to eat. Please allow me to do this.

FACT 2: LOW BLOOD SUGAR REACTIONS
Occasionally, my blood sugar may be too low (insulin reaction). A reaction is most likely to occur: just before lunch, right after strenuous activity, if my meal is delayed, or if I do not eat enough food. If my blood sugar goes too low, I may have the following symptoms or signs:

1. __________________________________________________________________
2. __________________________________________________________________
3. __________________________________________________________________
4. __________________________________________________________________

If this happens I NEED SUGAR IMMEDIATELY!

You can give me ____________________________________________
You will find this __________________________________________________________________
If I am not better in 10-15 minutes, give me ________________________________
My blood sugar needs to be checked. You may need to help me with this.

If my blood sugar drops too low, I may become sleepy, unconscious, or have a seizure.

★ DO NOT TRY TO FEED ME.
★ CALL 911!
★ Give me GLUCAGON by injection, if ordered by my healthcare provider.
★ Notify my parent or guardian immediately of this incident.

EMERGENCY NUMBERS:

Mother: ____________________________________________ Phone: ____________________________
Father: ____________________________________________ Phone: ____________________________
Other: (relationship) ____________________________________________ Phone: ____________________________

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Illness at School

Students with diabetes may become ill while at school or during school-sponsored activities and the general school policy for illness should be followed. Illness may cause the blood glucose (sugar) to rise or drop. Orders from the health care provider for glucose monitoring and urine ketone testing should be followed. After beginning the same comfort measures offered to all other students, school health personnel should attempt to determine the student’s current blood sugar level.

Low Blood Sugar (70 mg/dl or symptomatic)

Without nausea or vomiting
- Offer small sips of a clear, regular soda pop as tolerated, or at 5-10 minute intervals.
- Offer treatment for low blood glucose (see page 23.)

With nausea or vomiting
- Offer small sips of regular soda pop at 5-10 minute intervals.
- Contact the parent or guardian.

High Blood Sugar (240 mg/dl)

With or without nausea or vomiting
- Offer small sips of a clear, sugar-free soda pop at 5-10 minute intervals.
- Attempt to check urine for ketones if ordered by health care provider.
- Contact the parent or guardian.

Although the family should provide regular and sugar-free soda pop, pre-packaged cheese and crackers or peanut butter and crackers for use during emergency situations, the school should have an emergency supply of these items on hand.

If a student with diabetes has deep, labored respirations, or if the breath smells fruity, the student may be developing ketones (see page 27.) Report what you see, hear and/or smell to the parent or guardian and health care provider immediately. Additional instructions may be given at that time. The student may need to be transported for emergency treatment.

Students with type 1 diabetes whose blood sugar becomes too high or too low, may become unconscious, unresponsive or uncooperative. If this occurs, or if they are severely injured, notify the appropriate emergency personnel immediately. Under these circumstances, administer the usual first aid measures, then check the blood glucose level. When emergency assistance arrives, the blood glucose level you obtained will assist the emergency personnel as they begin care.

If the student becomes unconscious, unresponsive or uncooperative, call for emergency assistance immediately! Then institute the student’s individual emergency care plan.
Travel, Vacations or Camp

A student with diabetes faces unique challenges when traveling. The family, student and school staff must work together to ensure a safe activity. The family and student should discuss the details of the trip with the diabetes management team for additional support and instructions.

If the trip involves flying, the school staff, parents and student may wish to jointly contact the airliner to discuss requirements for the safe transportation of diabetes medication and management supplies.

Some general guidelines include:

1. Passengers may board with syringes or insulin delivery systems only if they can produce a vial of insulin with a professional, pharmaceutical preprinted label which clearly identifies the medication. No exceptions will be made.

   Since the prescription label is on the outside of the box containing the vial of insulin, the FAA recommends that passengers refrain from discarding their insulin box and come prepared with their vial of insulin in its original pharmaceutically labeled box.

2. For passengers who have diabetes and must test their blood glucose levels but who do not require insulin, boarding with their lancets is acceptable as long as the lancets are capped, and as long as the lancets are brought on with the glucose meter that has the manufacturer's name embossed on the meter (i.e. One Touch meters say "One Touch," Accucheck meters say "Accucheck").

3. Glucagon is dispensed and normally kept in a preprinted labeled plastic container or box. Those individuals with diabetes who are traveling should keep their glucagon kit intact in its original preprinted pharmaceutically labeled container.

4. Although accepted in the past, prescriptions and letters of medical necessity will not be accepted because of forgery concerns.

5. FAA security measures apply to travel within the 50 United States only. Passengers should consult their individual air carrier for both domestic (US) and international travel regulations. Be advised that the FAA’s policy and the policy of each airline is subject to change.

The goal of school personnel is to offer assistance and support to ensure that the student who has diabetes feels safe and secure in school. Children with diabetes have certain rights at school as a result of Section 504 of the Rehabilitation Act of 1973 and may have additional rights under the Individuals with disabilities Education Act if determined eligible for special education and related services. These laws provide for protection against discrimination for children with disabilities, including diabetes. Therefore, while at school, each student with diabetes should be allowed to:

- Perform blood sugar monitoring
- Treat low blood sugars as needed
- Carry treatment for low blood sugar
- Give self (or receive) insulin if indicated
- Be allowed adequate time for blood sugar checks and eating all meals and snacks
- Be allowed to fully participate in all the same activities as students who do not have diabetes.

### Action Steps

- Meet with the family, teacher(s), school health personnel, playground supervisors, and food service workers.
- Discuss what the school needs to do to assure that the student with diabetes is treated the same as all other children while accommodating the requirements of the diabetes treatment plan.

The following areas may need to be addressed:

- Develop a plan to educate staff including teachers, cafeteria staff, and bus drivers about diabetes and their responsibilities.
- Identify resources available to staff, students, and family.
- Recognize the signs, symptoms, and treatment of low blood sugar.
- Recognize the signs, symptoms, and treatment of high blood sugar.
- Develop an Emergency Action Plan.
- Identify policies and procedures regarding the treatment plan.

With just a few special considerations, the student with diabetes can have a normal life-style and a positive school experience.
Actions for the Teacher

The goal of school personnel is to offer assistance and support to ensure that the student who has diabetes feels safe and secure in the classroom setting. With just a few special considerations the student with diabetes can have a normal life-style and a positive school experience.

Action Steps

✔ Meet with the family, principal, school health personnel, playground supervisors, and food service workers.
✔ Collectively develop an understanding of diabetes and the diabetes related needs of the individual student.

The following areas may need to be addressed:

- Recognize the signs and symptoms of low blood sugar (insulin reaction),
  - when it is most likely to occur,
  - how to prevent it, and
  - how to treat it.
- Develop a plan of action for emergencies.
- Recognize the signs and symptoms of high blood sugar.
- Identify food and snack requirements and routines.
- Identify blood sugar monitoring needs,
  - routine,
  - privacy,
  - school safety procedures.
- Ensure communication with the family.

For specific information regarding the recognition of high and low blood sugars and the appropriate prevention and treatment, please refer to the resource information accompanying this action plan. The information will be most beneficial to you and the student if you are familiar with the information and if it is readily accessible to you at all times.

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Actions for Health Personnel

The goal of school personnel is to offer assistance and support to ensure that the student who has diabetes feels safe and secure in the classroom setting. With just a few special considerations, the student with diabetes can have a normal life-style and a positive school experience.

Action Steps

- Coordinate through the school counselor, a meeting with the family, teachers, principal, coach, playground supervisors, office personnel, and lunchroom workers to collectively develop an understanding of diabetes and the individual student’s requirements to manage it effectively.
- Provide diabetes education materials to appropriate personnel.
- Conduct in-service trainings with the appropriate personnel on the following:
  - Signs and symptoms of low blood sugar,
  - Times low blood sugar is likely to occur,
  - Prevention,
  - Specific treatment,
  - Snack routines,
  - Blood glucose monitoring routines,
  - Communication with family,
  - Coping mechanisms of student and family, and
  - Issues of diabetes management.
- Be familiar with the signs, symptoms and treatments of high and low blood sugar.
- Assist with administration of medication and/or blood glucose monitoring in accordance with school policy and the orders of the student’s health care provider.
- Communicate with parents about acute low blood sugar episodes, high blood sugar, and the student’s general progress in coping with diabetes management at school.

For specific information regarding the recognition of high and low blood sugars, the appropriate prevention and treatment, please refer to the resource information accompanying this action plan. The information will be most beneficial to you and the student if you are familiar with it, and it is readily accessible to you at all times.

NOTE:
If there is not a nurse at your school, another staff member will need to be trained to assist the student.

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Actions for the Counselor

The goal of school personnel is to offer assistance and support to ensure that the student who has diabetes feels safe and secure in the classroom setting. With just a few special considerations the student with diabetes can have a normal life-style and a positive school experience.

Action Steps

✔ With school health personnel, coordinate a conference with the family, teacher, principal, coach, playground supervisors, lunchroom workers, and any significant other persons involved in the student’s school life, to collectively develop an understanding of diabetes and the individual student’s requirements to manage it effectively.

✔ Recognize that learning to cope with diabetes can be difficult, and attention to management routines is required 24 hours a day.

• Teachers may notice low self-esteem, withdrawal from activities with other students, and discouragement over the routines required to manage diabetes. In addition, fluctuations in blood sugar levels may produce mood swings, and sudden behavior changes may signify acute low blood sugar requiring immediate treatment.

• Understand that the student with diabetes may feel singled out and different from peers because of special routines and needs required for good diabetes management. The student may need your assistance with a variety of adjustment issues surrounding the following:
  • Special scheduling requirements, such as meals and snacks, physical education, and blood glucose monitoring,
  • Uncomfortable feelings regarding the above situations experienced by the student with diabetes or experienced by fellow classmates,
  • Family communication,
  • Coping mechanisms of student and family, and
  • Compliance with diabetes management needs.

✔ Coordinate (if appropriate) a classroom discussion about diabetes and the student’s management needs. This often works best if the student is willing to participate in the presentation.

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Issued April, 2002
**Actions for Coaches and Physical Education Teachers**

The goal of school personnel is to offer assistance and support to ensure that the student who has diabetes feels safe and secure in the physical education setting. With just a few special considerations, the student with diabetes can enjoy and actively participate in school, physical education and sports.

---

### Action Steps

- Encourage exercise and participation in sports for students with diabetes.

- Be aware that more than usual physical activity, exercise, or sports event participation (outdoor activities on a sunny day vs quiet activities on a rainy day, a physically active field trip vs quieter classroom activities, or a longer than usual period of activity) can precipitate an acute episode of low blood sugar (insulin reaction.) This can be prevented with an extra snack prior to the activity.
  
  - Encourage students with diabetes to take responsibility by trying to prevent low blood sugar reactions.
  
  - Low blood sugar prevention guidelines need to be discussed with the parents/guardians and established as part of the student’s individual diabetes management program.
  
  - Be familiar with the signs, symptoms and treatment of low blood sugar (Insulin reaction).
  
  - Develop a plan of action for managing low blood sugar and emergencies.

- Refer to the parent/guardian and school health professional if you have questions about the student’s ability to fully participate in physical education.

- For specific information regarding the recognition of high and low blood sugars, the appropriate prevention and treatment, please refer to the resource information accompanying this action plan. The information will be most beneficial to you and the student if you are familiar with it. It should be readily accessible to you at all times.
Actions for Bus Drivers

The goal of school personnel is to offer assistance and support to ensure that the student who has diabetes feels safe and secure in all school activities. The student with diabetes can enjoy and actively participate in school, physical education and sports.

Action Steps

✔ General

• Learn about diabetes.
• Promote a supportive learning environment.
• Treat the student normally and help other students do the same.
• Participate in development of the individual care plan.
• Understand one’s own role and the role of others.
• Know what to do in an emergency and the order of responsibility for emergency care.
• Know the phone numbers of the student’s parents or guardians and the health care provider.

✔ Specific

• Recognize the signs, symptoms, and treatment of low blood sugar.
• Recognize the signs, symptoms, and treatment of high blood sugar.
• Know how to respond in accordance with the emergency plan.
• Know that the end of the school day is often the time of low blood glucose episodes.
• Communicate diabetes-related needs to substitute drivers and transportation assistants.
• Allow the student to consume a snack on the bus as indicated in his/her care plan.

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Actions for Food Service Personnel,
Parents, Teachers, and Others
Providing Food

Students with diabetes may be purchasing meals from the school menu, eating their own sack lunches in the cafeteria, or participating in school events where food is involved. There are a few special considerations that can help the student make wise food choices and enjoy food at school.

The Diabetes Meal Plan

Most students with diabetes follow a meal plan. The meal plan is a healthy pattern of eating consisting of:
- ordinary foods,
- in carefully controlled amounts,
- at regularly spaced intervals of eating.

Meal plans are tailored specifically to meet the needs of each individual student. The type of meal plan utilized reflects the preference of the student’s diabetes team. Therefore, it is extremely important to discuss these issues with the student and his/her parents or guardians. The most typical meal planning systems are: Carbohydrate Counting, The Exchange System, or Calorie Points.

A meal plan for a student with diabetes will basically follow the Food Guide Pyramid with some differences. Two major differences are that cheeses are in the protein group and the bottom of the pyramid is all carbohydrates: starches, grains and starchy vegetables.

Sweets are usually considered in the same way as in the regular Food Guide Pyramid. They may be employed in small amounts by looking at the food label and fitting the particular item into the student’s meal plan (e.g., 2 Oreo cookies equal 1 carbohydrate serving.)

The School Meal Program

The student’s diabetes management team usually takes the school meal program into consideration when creating a meal plan for a school-aged child with diabetes.

While lunch menus offer a variety of foods, some replacements may be necessary:
- carbohydrates may need to be added or deleted, and
- some parents may want especially “sweet” desserts replaced with fruit of some sort.

Most students with diabetes can make their own choices from a school lunch menu. Parents should be given school lunch menus in advance so they can help their child make appropriate choices.

Snacks

Healthy snacks are important for the student with diabetes. Incorporating healthy snacks into the daily classroom routine and including all students will not only help the student with diabetes feel less different, but will help all students eat healthier.

It is critical that meals and snacks be eaten on the schedule outlined by the student’s health care provider in order to avoid a low blood sugar reaction. Flexible meal timing is acceptable if part of the student’s treatment plan.
If meal times are delayed, an extra snack needs to be eaten.

- Encourage students with diabetes to take responsibility by trying to prevent low blood sugar reactions.
- Discuss low blood sugar prevention guidelines with the parents or guardians and establish them as part of the student’s individual diabetes management program.
- Be familiar with the signs, symptoms and treatment of low blood sugar (insulin reaction).
- Develop a plan of action for managing low blood sugar and emergencies. Keep a list of appropriate snacks to use on hand should this situation arise.

**Parties And Occasions Involving Food Treats**

There are many occasions (e.g. birthdays, holidays, school functions) where treats are provided by parents or guardians, teachers, and the school food service personnel. It is important that the student with diabetes participate in all celebrations and events.

The student with diabetes can usually have the same treats as other students, provided they are figured into the student’s diabetic meal plan. The following may help make inclusion of such students easier:

- Make sure the student’s parents or guardians are aware of the party.
- Send a note to whoever is responsible for the food and ask that they provide copies of all recipes.
- Share copies of all recipes with parents or guardians of the student with diabetes.
- If purchased food is used, review the food labels for carbohydrate content to see how the treat can fit into the student’s meal plan.

**Suggestions for Classroom Snacks**

- Bread sticks
- Pretzels
- Bagels with low-fat cream cheese
- Muffins
- Crackers with peanut butter or cheese filling
- Graham or saltine crackers
- Cereal
- Milk
- Frozen yogurt
- Fruit sorbet
- Fruit
- Fruit kabobs
- Fruit with plain yogurt
- Popcorn

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Sample Letter from MD to School Personnel
Authorization for Mutual Exchange of
Medical Information
Authorization and Permission for
Administration of Medication
Medication Administration Record
Medical Statement for Students Requiring
Modifications in School Meals

Forms included in this section are designed to indicate the types of information that might be included in the treatment plan for a student with diabetes. Specific forms should be developed by the individual school district in conjunction with district legal counsel.
Letter From Doctor to School Personnel

Date: ____________________________

Re: ____________________________

The above student has □ Type 1 Diabetes or □ Type 2 Diabetes and is currently taking the following medications:

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- □ This student must check blood sugars
  - Before lunch
  - After lunch
  - Before Physical Activity
  - During Physical Activity
  - After Physical Activity
  - When symptoms of hypoglycemia or hyperglycemia are present
  - Other

- □ This student may need to take regular or short acting insulin while at school per attached prescribed algorithm.

- □ This student should have glucagon available to be administered at the time of a severe hypoglycemic reaction when she/he is unresponsive or may choke on oral treatments.

- □ This student should have food available at all times to treat hypoglycemia.
  Check those that apply
  - Fruit juice
  - Glucose tabs
  - Regular soda
  - Other

- □ This student should have unrestricted access to water fountain and restroom.

Physician’s Signature ____________________________ Phone Number ____________________________

Date ____________________________

Diabetes Educator: Name ____________________________ Phone Number ____________________________

Issued April, 2002
Authorization for the Mutual Exchange of Medical Information

I, ____________________________
(Printed Name of Parent/Guardian)

authorize the mutual exchange of medical information regarding my child:

__________________________________________________________________________________
(Print Student’s Name)

Birth date: ____/____/____

between Physician: ________________________________________________________________
(Print Name)

and/or Diabetes Educator: __________________________________________________________
(Print Name)

and school _____________________________________________________________
(Print Name)

Signed: ________________________________________________________________
(Parent/Guardian Signature)

Printed Name of Parent/Guardian _____________________________________________

Date: __________________

Witness: _________________________________________________________________

Printed Name of Witness: _________________________________________________

Date: __________________
Authorization and Permission for Administration of Medication

| / / |
|---|---|---|---|---|
| Student’s Name (Last) (First) (Middle) Birthdate School Date |

School medications and health care services are administered following these guidelines:

- Physician/Prescriber signed dated authorization to administer the medication.
- Parent signed, dated authorization to administer the medication.
- The medication is in the original labeled container as dispensed or the manufacturer’s labeled container.
- The medication label contains the student’s name, medication name, directions for use and date.
- Annual renewal of authorization and immediate notification, in writing, of changes.

Physician Authorization:

Medication/Health Care Treatment: ________________________________

Dosage _______ Time to be administered ___________________________

Intended effect of this medication _________________________________

Expected side effects, if any ________________________________

Other medications student is taking ______________________________

May student self-administer medication under supervision of Health Service personnel or designees?

(Please circle) YES / NO

Administration instructions

________________________

Discontinue/Re-Evaluate/Follow-up Date (circle one)

________________________

Prescriber’s Name (Printed) Prescribers Signature Date signed

Prescriber’s Emergency Phone# Prescriber’s Address
Parental/Guardian Authorization:

I herewith acknowledge that I am primarily responsible for administering medication to my child. However, in the event that I am unable to do so or in the event of a medical emergency, I hereby authorize (name of School District) and its employees and agents, on my behalf and stead, to administer or to attempt to administer to my child (or to allow my child to self-administer, while under the supervision of the employees and agents of the School District), lawfully prescribed medication in the manner described herein. I acknowledge that it may be necessary for the administration of medications to my child to be performed by an individual other than a school nurse, and specifically consent to such practices. I further acknowledge and agree that, when the lawfully prescribed medication is so administered or attempted to be administered, I waive any claims I might have against the School District, its employees and agents arising out of the administration of said medication. In addition I agree to hold harmless and indemnify the School District, its employees and agents, either jointly or severally, from and against any and all claims, damages, causes of action or injuries incurred or resulting from the administration or attempts at administration of said medication.

Parent/Guardian Name (Printed)  Parent/Guardian Signature  Date Signed

Parent/Guardian Address

Home Phone  Business Phone

Additional Information
Sample Daily Medication Administration Record

Student: ____________________  School Year: __________  School: ____________________
Date of Birth: ________________  Teacher: ________________  Diagnosis: ____________________
Medication: ____________________  Dose, Route, Time: ____________________
Parent/Guardian Name: ________________  Physician: ____________________
Parent/Guardian Phone: ____________________  Physician Address: ____________________
Comments: ____________________  Physician Phone: ____________________

Date Ordered: ____________________

Legend

<table>
<thead>
<tr>
<th>Time</th>
<th>Glucose Level</th>
<th>Insulin Dose</th>
<th>Initials</th>
</tr>
</thead>
</table>

Codes:
X: Weekend  A: Absent
D: Early Dismissal  F: Field Trip
W: Dose Withheld  N: Not Available
O: No Show

Insert time, blood glucose level, insulin dose and your initials in chart.

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| AUG. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| SEPT. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| OCT. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| NOV. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| DEC. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
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**Legend**

- **Time**
- **Glucose Level**
- **Insulin Dose**
- **Initials**

**Codes:**

- X: Weekend
- D: *Early Dismissal*
- F: Field Trip
- W: Dose Withheld
- A: Absent
- N: Not Available
- O: No Show

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Medical Statement for Children Requiring Modification in School Meals

Name of Student: ____________________________ Birth Date: ____________________________

Name of Parent/Guardian: ____________________________ Daytime Phone: ____________________________

Disability or Medical Condition requiring modification of school meals:

Major life activity affected by student’s disability (please check all that apply):

☐ caring for one’s self  ☐ eating  ☐ performing manual tasks  ☐ walking  ☐ seeing
☐ hearing  ☐ speaking  ☐ breathing  ☐ learning  ☐ working
☐ other ____________________________

Required Meal Modification (check all that apply):

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<tr>
<th>Restricted Nutrient</th>
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<th>Modified Texture</th>
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<tr>
<td>☐ Calorie</td>
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<td>☐ Describe required modification</td>
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<tr>
<td>☐ Controlled Carbohydrate</td>
<td>☐ Protein</td>
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<td>☐ Protein</td>
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<td>☐ Sodium</td>
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<td>☐ Fat/Cholesterol</td>
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☐ Foods to be omitted from the diet:
List all that apply:
__________________________

☐ Foods that may be substituted:
__________________________
__________________________

Special Utensils Needed:
__________________________

Tube Feeding Required:
__________________________

Other Accommodations Needed:
__________________________

For student with a disability: Signature of Physician: ____________________________ Date: ____________________________

For non-disabled student: Signature of Other Medical Authority: ____________________________ Date: ____________________________

Adapted from Vermont Manual - Recommendations for Management of Diabetes for Children in School
Definitions

Diabetes Resources

Illinois Diabetes Control Program Publications

Other Publications

Diabetes Websites

Care of Children with Diabetes In the School and Day Care Setting, 2002

Type 2 Diabetes in Children and Adolescents
Diabetes Definitions

A

Acetone - A chemical formed in the blood when the body uses fat instead of glucose (sugar) for energy. If acetone forms, it usually means that the cells do not have enough insulin, or cannot use the insulin that is in the blood, to use glucose for energy. Acetone passes through the body into the urine. Someone with a lot of acetone in the body can have breath that smells fruity and is called “acetone breath.” See also: Ketone bodies.

Adrenal Glands - Two organs that sit on top of the kidneys and make and release hormones such as adrenaline (epinephrine). This and other hormones, including insulin, control the body’s use of glucose (sugar).

Albuminuria - More than normal amounts of a protein called albumin in the urine. Albuminuria may be a sign of kidney disease, a problem that can occur in people who have had diabetes for a long time.

Antagonist - One agent that opposes or fights the action of another. For example, insulin lowers the level of glucose (sugar) in the blood, whereas glucagon raises it; therefore, insulin and glucagon are antagonists.

B

Beta Cell - A type of cell in the pancreas in areas called the islets of Langerhans. Beta cells make and release insulin, a hormone that controls the level of glucose (sugar) in the blood.

Blood Glucose - The main sugar that the body makes from the three elements of food-proteins, fats, and carbohydrates but mostly from carbohydrates. Glucose is the major source of energy for living cells and is carried to each cell through the bloodstream. The cells cannot use glucose without the help of insulin.

Blood Glucose Monitoring - A way of testing how much glucose (sugar) is in the blood. A drop of blood, usually taken from the fingertip, is placed on the end of a specially coated strip, called a testing strip. The strip has a chemical on it that makes it change color according to how much glucose is in the blood. A person can tell if the level of glucose is low, high, or normal in one of two ways. The first is by comparing the color on the end of the strip to a color chart that is printed on the side of the test strip container. The second is by inserting the strip into a small machine, called a meter, which “reads” the strip and shows the level of blood glucose in a digital window display. Blood testing is more accurate than urine testing in monitoring blood glucose levels because it shows what the current level of glucose is, rather than what the level was an hour or so previously.

C

C.D.E. (Certified Diabetes Educator) - A health care professional who is qualified by the American Association of Diabetes Educators to teach people with diabetes how to manage their condition. The health care team for diabetes should include a diabetes educator, preferably a C.D.E.

Carbohydrate - One of the three main classes of foods and a source of energy. Carbohydrates are mainly sugars and starches that the body breaks down into glucose (a simple sugar that the body can use to feed its cells). The body also uses carbohydrates to make a substance called glycogen that is stored in the liver and muscles for future use. If the body does not have enough insulin or cannot use the insulin it has, then the body will not be able to use carbohydrates for energy the way it should. This condition is called diabetes.

Carbohydrate Counting - A meal plan method which allows for the greatest flexibility and variety in the types of foods consumed. Individuals must learn how to read food labels and consistently estimate the amount of carbohydrate in prepared foods for specific
portion sizes. The dietitian works with the individual to determine the range of carbohydrate to be consumed at a meal or snack. The individual then may select amounts and type of foods within the suggested range. Staying within the suggested range provides consistent carbohydrate intake and should result in less fluctuation in blood sugar level.

**Cerebrovascular Disease** - Damage to the blood vessels in the brain, resulting in a stroke. The blood vessels become blocked because of fat deposits or they become thick and hard, blocking the flow of blood to the brain. Sometimes, the blood vessels may burst, resulting in a hemorrhagic stroke. People with diabetes are at higher risk of cerebrovascular disease.

**Complications of Diabetes** - Harmful effects that may happen when a person has diabetes. Some effects, such as hypoglycemia, can happen any time. Others develop when a person has had diabetes for a long time. These include damage to the retina of the eye (retinopathy), the blood vessels (angiopathy), the nervous system (neuropathy), and the kidneys (nephropathy). Studies show that keeping blood glucose levels as close to the normal, nondiabetic range as possible may help prevent, slow, or delay harmful effects to the eyes, kidneys, and nerves.

**Conventional Therapy** - A system of diabetes management practiced by most people with diabetes; the system consists of one or two insulin injections each day, daily self-monitoring of blood glucose, and a standard program of nutrition and exercise. The main objective in this form of treatment is to avoid very high and very low blood glucose (sugar).

**Dawn Phenomenon** - A sudden rise in blood glucose levels in the early morning hours. This condition sometimes occurs in people with insulin-dependent diabetes and (rarely) in people with non-insulin dependent diabetes. Unlike the Somogyi effect, it is not a result of an insulin reaction. People who have high levels of blood glucose in the mornings before eating may need to monitor their blood glucose during the night. If blood glucose levels are rising, adjustments in evening snacks or insulin dosages may be recommended. See also: Somogyi effect.

**Dehydration** - Great loss of body water. A very high level of glucose (sugar) in the urine causes loss of a great deal of water, and the person becomes very thirsty.

**Diabetic Ketoacidosis (DKA)** - Severe, out-of-control diabetes (high blood sugar) that needs emergency treatment. DKA happens when blood sugar levels get too high. This may happen because of illness, taking too little insulin, or getting too little exercise. The body starts using stored fat for energy and ketone bodies (acids) build up in the blood. Ketoacidosis starts slowly and builds up. The signs include nausea and vomiting, which can lead to loss of water from the body, stomach pain, and deep and rapid breathing. Other signs are a flushed face, dry skin and mouth, a fruity breath odor, a rapid and weak pulse, and low blood pressure. If the person is not given fluids and insulin right away, ketoacidosis can lead to coma and even death.

**Diabetic Retinopathy** - A disease of the small blood vessels of the retina of the eye. When retinopathy first starts, the tiny blood vessels in the retina become swollen, and they leak a little fluid into the center of the retina. The person’s sight may be blurred. This condition is called background retinopathy. About 80 percent of people with background retinopathy never have serious vision problems, and the disease never goes beyond this first stage. However, if retinopathy progresses, the harm to sight can be more serious. Many new, tiny blood vessels grow out and across the eye. This is called neovascularization. The vessels may break and bleed into the clear gel that fills the center of the eye, blocking vision. Scar tissue may also form near the retina, pulling it away from the back of the eye. This stage is called proliferative retinopathy, and it can lead to impaired vision and even blindness.

**Endocrine Glands** - Glands that release hormones into the bloodstream. They affect how the body uses food (metabolism). They also influence other body functions. One endocrine gland is the pancreas. It releases insulin so the body can use sugar for energy.
**Exchange Lists** - A grouping of foods by type to help people on special diets stay on the diet. Each group lists food in serving sizes. A person can exchange, trade, or substitute a food serving in one group for another food serving in the same group. The lists put foods in six groups: (1) starch/bread, (2) meat, (3) vegetables, (4) fruit, (5) milk, and (6) fats. Within a food group, each serving has about the same amount of carbohydrate, protein, fat, and calories.

**Fasting Blood Glucose Test (FBG) / Fasting Blood Sugar** - A method for finding out how much glucose (sugar) is in the blood. The test can show if a person has diabetes. A blood sample is taken in a lab or doctor's office. The test is usually done in the morning before the person has eaten. The normal, nondiabetic range for blood glucose is from 70 to 110 mg/dl, depending on the type of blood being tested. If the level is 126 mg/dl or greater, it means the person has diabetes (except for newborns and some pregnant women.)

**Glucagon** - A hormone that raises the level of glucose (sugar) in the blood. The alpha cells of the pancreas (in areas called the islets of Langerhans) make glucagon when the body needs to put more sugar into the blood. An injectable form of glucagon, which can be bought in a drug store, is sometimes used to treat insulin shock. The glucagon is injected and quickly raises blood glucose levels.

**Glucose Tolerance Test** - A test to see if a person has diabetes. The test is given in a lab or doctor's office in the morning before the person has eaten. A first sample of blood is taken from the person. Then the person drinks a liquid that has glucose (sugar) in it. After one hour, a second blood sample is drawn, and, after another hour, a third sample is taken. The object is to see how well the body deals with the glucose in the blood over time.

**Glycosylated Hemoglobin Test** - A blood test that measures a person's average blood glucose (sugar) level for the 2- to 3-month period before the test. See Hemoglobin A1C.

**Hemoglobin A1C (HbA1C)** - The substance of red blood cells that carries oxygen to the cells and sometimes joins with glucose (sugar). Because the glucose stays attached for the life of the cell (about 4 months), a test to measure hemoglobin A1C shows what the person's average blood glucose level was for that period of time.

**Hypoglycemia** - Too low a level of glucose (sugar) in the blood. This occurs when a person with diabetes has injected too much insulin, eaten too little food, or has exercised without extra food. A person with hypoglycemia may feel nervous, shaky, weak, or sweaty, and have a headache, blurred vision, and hunger. Taking small amounts of sugar, sweet juice, or food with sugar will usually help the person feel better within 10-15 minutes.
**Injection Site Rotation** - Changing the places on the body where a person injects insulin. Changing the injection site keeps lumps or small dents from forming in the skin. These lumps or dents are called lipodystrophies. People should try to use the same body area for injections that are given at the same time each day—for example, always using the stomach for the morning injection or an arm for the evening injection. Using the same body area for these routine injections lessens the possibility of changes in the timing and action of insulin.

**Insulin** - A hormone that helps the body use glucose (sugar) for energy. The beta cells of the pancreas (in areas called the islets of Langerhans) make the insulin. When the body cannot make enough insulin on its own, a person with diabetes must inject insulin made from other sources, i.e., beef, pork, human insulin (recombinant DNA origin), or human insulin (pork-derived, semisynthetic).

**Insulin Pump** - A device that delivers a continuous supply of insulin into the body. The insulin flows from the pump through a plastic tube that is connected to a needle inserted into the body and taped in place. Insulin is delivered at two rates: a low, steady rate (called the basal rate) for continuous day-long coverage, and extra boosts of insulin (called bolus doses) to cover meals or when extra insulin is needed. The pump runs on batteries and can be worn clipped to a belt or carried in a pocket. It is used by people with type 1 diabetes or during pregnancy.

**Insulin Resistance** - Many people with type 2 diabetes produce enough insulin, but their bodies do not respond to the action of insulin. This may happen because the person is overweight and has too many fat cells, which do not respond well to insulin. Also, as people age, their body cells lose some of the ability to respond to insulin. Insulin resistance is also linked to high blood pressure and high levels of fat in the blood. Another kind of insulin resistance may happen in some people who take insulin injections. They may have to take very high doses of insulin every day (200 units or more) to bring their blood glucose (sugar) down to the normal range. This is also called “insulin insensitivity”.

**Intensive Management** - A form of treatment for insulin-dependent diabetes in which the main objective is to keep blood glucose (sugar) levels as close to the normal range as possible. The treatment consists of three or more insulin injections a day or use of an insulin pump; four or more blood glucose tests a day; adjustment of insulin, food intake, and activity levels based on blood glucose test results; dietary counseling; and management by a diabetes team.

**Ketone Bodies** - Chemicals that the body makes when there is not enough insulin in the blood and it must break down fat for its energy. Ketone bodies can poison and even kill body cells. When the body does not have the help of insulin, the ketones build up in the blood and then “spill” over into the urine so that the body can get rid of them. The body can also rid itself of one type of ketone, called acetone, through the lungs. This gives the breath a fruity odor. Ketones that build up in the body for a long time lead to serious illness and coma. See also: Diabetic ketoacidosis.

**Ketonuria** - Having ketone bodies in the urine; a warning sign of diabetic ketoacidosis (DKA).

**Lipodystrophy** - Lumps or small dents in the skin that form when a person keeps injecting the needle in the same spot. Lipodystrophies are harmless. People who want to avoid them can do so by changing (rotating) the places where they inject their insulin. Using purified insulin may also help. See also: Injection site rotation.

**Mg/dl** - Milligrams per deciliter. Term used to describe how much glucose (sugar) is in a specific amount of blood. In self-monitoring of blood glucose, test results are given as the amount of glucose in milligrams per deciliter of blood. A fasting reading of 70 to 110 mg/dl is considered in the normal (nondiabetic) range.

**Mixed Dose** - Combining two kinds of insulin in one injection. A mixed dose commonly combines regular insulin, which is fast acting, with a longer acting insulin
such as NPH. A mixed dose insulin schedule may be prescribed to provide both short-term and long-term coverage.

**N**

**Necrobiosis Lipoidica Diabeticorum** - A skin condition usually on the lower part of the legs. The lesions can be small or extend over a large area. They are usually raised, yellow, and waxy in appearance and often have a purple border. Young women are most often affected. This condition occurs in people with diabetes, or it may be a sign of diabetes. It also occurs in people who do not have diabetes.

**Noninvasive Blood Glucose Monitoring** - A way to measure blood glucose without having to prick the finger to obtain a blood sample. Several noninvasive devices are currently being developed.

**P**

**Pancreas** - An organ behind the lower part of the stomach that is about the size of a hand. It makes insulin so that the body can use glucose (sugar) for energy. It also makes enzymes that help the body digest food. Spread all over the pancreas are areas called the islets of Langerhans. The cells in these areas each have a special purpose. The alpha cells make glucagon, which raises the level of glucose in the blood; the beta cells make insulin; the delta cells make somatostatin. There are also the PP cells and the D1 cells, about which little is known.

**Peak Action** - The time period when the effect of something is as strong as it can be such as when insulin in having the most effect on lowering the glucose (sugar) in the blood.

**Peripheral Vascular Disease (PVD)** - Disease in the large blood vessels of the arms, legs, and feet. People who have had diabetes for a long time may get this because major blood vessels in their arms, legs, and feet are blocked and these limbs do not receive enough blood. The signs of PVD are aching pains in the arms, legs, and feet (especially when walking) and foot sores that heal slowly. Although people with diabetes cannot always avoid PVD, doctors say they have a better chance of avoiding it if they take good care of their feet, do not smoke, and keep both their blood pressure and diabetes under good control.

**Point System** - A way to plan meals that uses points to rate food. The foods are placed in four classes: calories, carbohydrates, proteins, and fats. Each food is given a point value within its class. A person with a planned diet for the day can choose foods in the same class that have the same point values for meals and snacks.

**Polydipsia** - A great thirst that lasts for long periods of time; a sign of diabetes.

**Polyphagia** - Great hunger; a sign of diabetes. People with this great hunger often lose weight.

**Polyuria** - Having to urinate often; a common sign of diabetes.

**Receptors** - Areas on the outer part of a cell that allow the cell to join or bind with insulin that is in the blood.

**Sliding Scale** - Adjusting insulin on the basis of blood glucose tests, meals, and activity levels.

**Somatostatin** - A hormone made by the delta cells of the pancreas (in areas called the islets of Langerhans.) Scientists think it may control how the body secretes two other hormones--insulin and glucagon.

**Somogyi Effect** - A swing to a high level of glucose (sugar) in the blood from an extremely low level, usually occurring after an untreated insulin reaction during the night. The swing is caused by the release of stress hormones to counter low glucose levels. People who experience high levels of blood glucose in the morning may need to test their blood glucose levels in the middle of the night. If blood glucose levels are falling or low, adjustments in evening snacks or insulin doses may be recommended. This condition is named after Dr. Michael Somogyi, the
man who first wrote about it. Also called “rebound.”

**Split Dose** - Division of a prescribed daily dose of insulin into two or more injections given over the course of a day, may also be referred to as multiple injections. Many people who use insulin feel that split doses offer more consistent control over blood glucose (sugar) levels.

**Team Management** - Describes a diabetes treatment approach in which medical care is provided by a physician, diabetes nurse educator, dietitian, and behavioral scientist working together with the patient.

**Type 1 Diabetes Mellitus** - A chronic condition in which the pancreas makes little or no insulin because the beta cells have been destroyed. The body is then not able to use the glucose (blood sugar) for energy. Type 1 comes on abruptly, although the damage to the beta cells may begin much earlier. The signs of type 1 are a great thirst, hunger, a need to urinate often, and loss of weight. To treat the disease, the person must inject insulin, follow a diet plan, exercise daily, and test blood glucose several times a day. Type 1 usually occurs in children and adults who are under age 30. This type of diabetes used to be known as “juvenile diabetes,” “juvenile-onset diabetes,” and “ketosis-prone diabetes.”

**Type 2 Diabetes Mellitus** - The most common form of diabetes mellitus; about 90 to 95 percent of people who have diabetes have type 2 diabetes. Unlike the insulin-dependent type of diabetes in which the pancreas makes no insulin, people with non-insulin dependent diabetes produce some insulin, sometimes even large amounts. However, either their bodies do not produce enough insulin or their body cells are resistant to the action of insulin (see Insulin Resistance). People with type 2 diabetes can often control their condition by losing weight through diet and exercise. If not, they may need to combine insulin or a pill with diet and exercise. Generally, type 2 diabetes occurs in people who are over age 40. Most of the people who have this type of diabetes are overweight. Type 2 diabetes mellitus used to be called “adult-onset diabetes,” “maturity-onset diabetes,” “ketosis-resistant diabetes,” “stable diabetes,” and “non insulin-dependent diabetes.”

**U**

**Ulcer** - A break in the skin; a deep sore. People with diabetes may get ulcers from minor scrapes on the feet or legs, from cuts that heal slowly, or from the rubbing of shoes that do not fit well. Ulcers can become infected.

**Unit of Insulin** - The basic measure of insulin. U-100 insulin means 100 units of insulin per milliliter (ml) or cubic centimeter (cc) of solution. Most insulin made today in the United States is U-100.

**Unstable Diabetes** - A type of diabetes in which a person’s blood glucose (sugar) level often swings quickly from high to low and from low to high. Also called “brittle diabetes” or “labile diabetes.”

**Urine Testing** - Checking urine to see if it contains glucose (sugar) and ketones. Special strips of paper or tablets (called reagents) are put into a small amount of urine or urine plus water. Changes in the color of the strip show the amount of glucose or ketones in the urine. Urine testing is the only way to check for the presence of ketones, a sign of serious illness. However, urine testing is less desirable than blood testing for monitoring the level of glucose in the body. See also: Blood Glucose Monitoring.

Diabetes Resources

This directory lists government agencies, voluntary associations, and private organizations that provide diabetes information and resources. Some of these diabetes organizations offer educational materials and support to people while others primarily serve health care professionals. This list is for informational purposes only and does not imply endorsement by the Illinois Department of Human Services or the State of Illinois.

Department of Health and Human Services
National Institutes of Health (NIH)
National Institute of Diabetes and Digestive and Kidney Disorders (NIDDK)
Home page: www.niddk.gov
-Government’s lead agency for diabetes research
-Funds six Diabetes Research and Training Centers
-Has the following three information clearinghouses:

National Diabetes Information Clearinghouse (NDIC)
1 Information Way
Bethesda, MD 20892-3560
Tel: (301) 654-3327
Fax: (301) 907-8906
E-mail: ndic@info.niddk.nih.gov
Home page: www.niddk.gov

National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC)
3 Information Way
Bethesda, MD 20892-3580
Tel: (301) 654-4415
Fax: (301) 907-8906
E-mail: nkudic@info.niddk.nih.gov
Home page: www.niddk.gov

Weight-Control Information Network (WIN)
1 WIN Way
Bethesda, MD 20892-3665
Tel: (800) WIN-8098 or (301) 984-7378
Fax: (301) 984-7196
E-mail: win@info.niddk.nih.gov
Home page: www.niddk.gov

Diabetes Research and Training Centers (DRTCs)
- offer educational seminars and workshops for health care professionals
- provide referrals to people with diabetes

For more information on publications and programs contact the centers listed below:

Indiana University DRTC
David G. Marrero, Ph.D.
Indiana University School of Medicine
The National Institute for Fitness and Sport
Room 122
Indianapolis, IN 46202
Tel: (317) 278-0905
Fax: (317) 278-0911
E-mail: dmarrero@mdep.iupy.edu

University of Chicago DRTC
Wylie L. McNabb, Ed.D.
Center for Research in Medical Education and Health Care
University of Chicago Department of Medicine
5841 S. Maryland Ave., MC 6091
Chicago, IL 60637
Tel: (773) 753-1310
Fax: (773) 753-1316

University of Illinois DRTC
Department of Pediatrics
College of Medicine
Peoria, IL 61637
Tel: (309) 655-4242
Fax: (309) 655-2565
Washington University DRTC
Edwin B. Fisher, Jr., PhD (medical research only)
Washington University School of Medicine
Division of Health Behavior Research
444 Forest Park Ave., Ste 6700
St. Louis, MO 63108
Tel: (314) 286-1900
Fax: (314) 286-1919

National Eye Institute (NEI)
National Eye Health Education Program
Box 20/20
Bethesda, MD 20892
Tel: (800) 869-2020 (for health professional only)
or (301) 496-5248
Fax: (301) 402-1065
E-mail: 2020@b31.net.nih.gov
Homepage:http://www.nei.nih.gov

National Heart, Lung, and Blood Institute (NHLBI)
Information Center
PO Box 30105
Rockville, MD 2084-0105
Tel: (301) 592-8573
Fax: (301) 592-8563
E-mail: nhlbicip@dgsys.com
Homepage:http://www.nhlbi.nih.gov/health/infoctr/

Centers for Disease Control and Prevention (CDC)
Division of Diabetes Translation
National Center for Chronic Disease Prevention and
Health Promotion
Mail Stop K-10
4770 Buford Highway NE
Atlanta, GA 30341-3717
Tel: (800) CDC-DIAB
Fax: (301) 562-1050
E-mail: diabetes@cdc.gov
Homepage:http://www.cdc.gov/diabetes
Home page includes facts sheets, statistics, publications, and information about State diabetes control pro-
gram.

Office of Minority Health Resource Center
(OMH-RC)
PO Box 37337
Washington, DC 20013-7337
Tel: (800) 444-6472
Fax: (301) 589-0884

Professional and Voluntary Associations

American Association of Clinical Endocrinologists (AACE)
1000 Riverside Ave., Ste. 205
Jacksonville, FL 32204
Tel: (904) 353-7878
Fax: (904) 353-8185
Homepage:http://www.aace.com

American Association of Diabetes Educators (AADE)
100 W. Monroe, 4th Fl.
Chicago, IL 60603
Tel: (312) 424-2426
Fax: (312) 424-2427
Diabetes Educator Access Line:
(800) TEAMUP4 (800-832-6874)
Homepage:http://www.aadenet.org

American Diabetes Association (ADA)
American Diabetes Association
National Service Center
1701 N. Beauregard St.
Alexandria, VA 22311
Tel: (703) 549-1500 (National Service Center), also (800) 232-3472 or (800) 342-2382 (800 DIABETES)
Fax: (703) 549-6995
Homepage:http://www.diabetes.org

American Dietetic Association (ADA)
American Dietetic Association
216 W. Jackson Blvd., Ste. 800
Chicago, IL 60606-6995
Tel: (312) 899-0040
Fax: (800) 877-1600
Homepage:http://www.eatright.org

American Indian Health Services
838 W. Irving Park Rd.
Chicago, IL 60613
Tel: (773) 883-9100
Fax: (312) 922-8713

Diabetes Care and Education Dietetic Practice Group
(DCE)
For more information contact the American Dietetic
Association
National Center for Nutrition and Dietetics, Consumer Nutrition Hotline (part of the American Dietetic Association)
Tel: (800) 366-1655
Homepage: http://www.eatright.org

Illinois Podiatric Medical Association (IPMA)
53 W. Jackson Blvd. Suite 1103
Chicago, IL 60604
Tel: 312-427-5810
Homepage: http://www.ipma.net

Diabetes Action Research and Education Foundation
426 C St., NE
Washington, DC 20002
Tel: (202) 333-4520
Fax: (212) 785-9595
Homepage: http://www.daref.org

International Diabetes Federation (IDF)
Rue Defacqz 1
B-1000 Brussels, Belgium
Tel: 32-2/538-5511
Fax 32-2/538-5114
E-mail: idf@idf.org
Homepage: http://www.idf.org

Illinois Society for the Prevention of Blindness
407 S. Dearborn Suite 1000
Chicago, IL 60605
Tel: (312) 922-8710
Fax: (312) 922-8713
Homepage: http://www.eyehealthillinois.org

International Diabetes Athletes Association (IDAA)
1647 W. Bethany Home Rd., #B
Phoenix, AZ 85015
Tel: (800) 898-433 or (602) 433-2113
Fax: (602) 433-9331
E-mail: idaa@getnet.com
Homepage: http://www.diabetes-exercise.org

Juvenile Diabetes Foundation International (JDF)
120 Wall St.
New York, NY 10005
Tel: (800) 533-2873 or (212) 785-9500
Fax: (212) 785-9595
E-mail: info@dfcure.com
Homepage: http://www.jdf.org

National Certification Board for Diabetes Educators (NCBDE)
330 E. Algonquin Rd., Ste. #4
Arlington Heights, IL 60005
Tel: (847) 228-9795
Fax: (847) 228-8469
Homepage: http://www.ncbde.org

National Kidney Foundation, Inc. (NKF)
30 E. 33rd St.
New York, NY 10016
Tel: (800) 622-9010 or (212) 889-2210
Fax: (212) 689-9261 or (212) 779-0068
Homepage: http://www.kidney.org

Pedorthic Footwear Association (PFA)
710 Columbia Gateway Dr. Suite G
Columbia, MD 21046-1151
Tel: (410) 381-7278 or (800) 973-8447
Fax: (410) 381-1167
Homepage: http://www.pedorthics.org

Private Organizations
Joslin Diabetes Center
One Joslin Place
Boston, MA 02215
Tel: (617) 732-2400
Homepage: http://www.joslin.harvard.edu

The following diabetes education programs in your area are recognized by the American Diabetes Association. These recognized programs set the National Standards for Excellence in Diabetes Education. For current update call 800-342-2382. The facilities are listed in alphabetical order by location.

Saint Anthony’s Health Center
Diabetes Self-Management Skills Program
Saint Anthony’s Way, PO Box 340
Alton, IL 62002-0340
618-474-5012

Suburban Endocrinology and Diabetes Center
The Outpatient Diabetes Education Program at Suburban Endocrinology Center
2010 S. Arlington Heights Rd., Ste. 209
Arlington Heights, IL 60005
847-228-3200 x208
Northwest Community Healthcare
The Outpatient Diabetes Education program
800 W. Central Rd.
Arlington Heights, IL 60005
847-618-4475

Carle Clinic Association
The Diabetes Outpatient Education Program at Bloomington
1701 E. College Ave.
Bloomington, IL 61704
309-664-3130

Michael Reese Hospital
The Diabetes Center
2929 S. Ellis
Chicago, IL 60616
312-791-2205

University of Chicago Hospitals
Diabetes Health and Education Program
5758 S. Maryland Ave., CAM 5A
MC 9015
Chicago, IL 60637
773-702-1532

St. Elizabeth’s Hospital
Center for Diabetes Education Program
1431 N. Claremont Ave.
Chicago, IL 60605
312-633-5949

Sobel Medical Associates, Ltd.
Diabetes Self-Management Program
Gerald W. Sobel, MD, CDE
Robert J. Sobel, MD, CDE
30 N. Michigan Ave. Ste. 1720
Chicago, IL 60602
312-72-60005

Mount Sinai Hospital Medical Center
The Diabetes Self-Management Outpatient Education Program
15th and California Avenue
Chicago, IL 60608
773-257-5245

La Rabida Children’s Hospital and Research Center and The Univ. of Chicago
The Chicago Children’s Diabetes Center Education Program
East 65th St. at Lake Michigan
Chicago, IL 60649
800-770-2232

Swedish Covenant Hospital
The Self-Management Training Program of the Diabetes Community Center
5145 N. California Ave.
Chicago, IL 60625
773-878-8200 x 5256

Mount Sinai Hospital Medical Center
The Diabetes Self-Management Outpatient Education Program
15th and California Avenue
Chicago, IL 60608
773-257-5245

Diabetes Treatment Center of Mercy Hospital
Diabetes Education Program
2525 S. Michigan Ave.
Chicago, IL 60616
312-567-2478

St. James Center for Diabetes
St. James Outpatient Diabetes Self-Management Education Program
30 E. 15th St., Ste. 314
Chicago Heights, IL 60411
708-709-2010

Carle Clinic Association
The Diabetes Outpatient Education Program at Danville
2300 N. Vermilion St.
Danville, IL 61832
217-431-7800

Downers Grove Family Practice
Diabetes Education Program
4900 Main St.
Downers Grove, IL 60515
630-963-5440

OSF Saint Francis Medical Center
Adult Diabetes Resource Center
100 N. Main St., Ste. 203
East Peoria, IL 61611
309-624-9426

Provena Saint Joseph Hospital
The Outpatient Diabetes Education Program
77 N. Airlite St.
Elgin, IL 60123
847-695-3200 x 5742
Sherman Hospital
Sherman Diabetes Education Center Program
934 Center St.
Elgin, IL 60120
847-429-8991

Elmhurst Memorial Hospital
The Self-Management Education Program of The Learning Center for Diabetes
200 Berteau Ave.
Elmhurst, IL 60126
630-993-5108

St. Francis Hospital Harry Hay Wolf Jr. Diabetes Center
The Diabetes Education Program
355 Ridge Ave.
Evanston, IL 60602
847-316-7337

The Freeport Health Network
Diabetes Education Program
1045 W. Stephenson St.
Freeport, IL 61032
815-235-0459

Delnor-Community Hospital
Outpatient Diabetes Education Program
300 Randall Rd.
Geneva, IL 60134-4202
630-262-6077

Evanston Northwestern Healthcare-Highland Park Hospital
The Diabetes Education Program
718 Glenview Ave.
Highland Park, IL 60035-2497
847-432-8000 x5032

St. Alexius Medical Center
Diabetes Education Program
1555 N. Barrington Rd.
Hoffman Estates, IL 60194
847-490-2929

Jersey Community Hospital
JCH Diabetes Education Service
400 Maple Summit Rd.
Jerseyville, IL 62052
618-498-8465

Silver Cross Hospital
Silver Cross Diabetes Center
1200 Maple Rd.
Joliet, IL 60432
815-740-5990

Mercy Medical in Justice
Diabetes Education Program
81st St. and Kean Ave.
Justice, IL 60458
708-594-3500

Riverside HealthCare
Diabetes Outpatient Self-Management Education Program
350 N. Wall St.
Kankakee, IL 60901
815-936-6515

Anderson Hospital
Outpatient Diabetes Self-Management Education Program
6800 State Rte 162 PO Box 1000
Maryville, IL 62062
618-288-5711 x209 or 386

Sarah Bush Lincoln Health Center, Community Health Plan, Outpatient Diabetic Clinic
1000 Health Center Dr.
Mattoon, IL 61938
217-258-2130

Carle Clinic Association
The Diabetes Outpatient Education Program at Mattoon/Charleston
200 Lerna Rd. South
Mattoon, IL 61938
217-258-5900

Loyola University Medical Center - Diabetes Care Center
Living With Diabetes
Building 106, Room 0400
2160 S. First Ave.
Maywood, IL 60153
708-216-4137

Edward Hospital
The Edward Center for Diabetes Education
120 Spalding Dr., Ste. 411
Naperville, IL 60540
630-527-3213
West Suburban Hospital Medical Center  
The Diabetes Education Program  
Erie at Austin  
Oak Park, IL 60302  
708-763-2927

Oak Park Hospital  
The Diabetes Education Program at The Center for Healthy Living  
520 S. Maple Ave.  
Oak Park, IL 60304  
708-660-5900

Palos Community Hospital  
The Outpatient Diabetes Education Program  
12251 S. 8th Ave.  
Palos Heights, IL 60463  
708-923-4145

Advocate Lutheran General Hospital  
Diabetes Care Center  
1775 Dempster  
Park Ridge, IL 60068

Methodist Medical Center of Illinois  
Diabetes Care Center/Self-Management Education Program  
120 N.E. Glen Oak Ave., Ste. 306A  
Peoria, IL 61603  
309-672-5980

MacNeal Health Network  
The MacNeal Diabetes Center’s “Comprehensive Diabetes Self-Management Program”  
3722 S. Harlem Ave., Ste. 204  
Riverside, IL 60546  
708-442-0044

Iowa Health System  
Trinity Medical Center  
2701 17th St.  
Rock Island, IL 61201  
309-779-5384

Swedish American Hospital Diabetes Center  
The Outpatient Diabetes Education Program  
1400 Charles St.  
Rockford, IL 61104  
815-489-4396

OSF Saint Anthony Medical Center  
Outpatient Education and Self-Management Training  
5666 E. State St.  
Rockford, IL 61108-2472  
815-395-5159

Rockford Health System  
Diabetes Services Education Program  
2300 N. Rockton Ave.  
Rockford, IL 61103  
815-971-2555

Shelby Memorial Hospital  
Shelby Memorial Hospital Outpatient Diabetes Self-Management Program  
200 S. Cedar St.  
Shelbyville, IL 62565  
217-774-3961 x3130

Evanston Northwestern Healthcare  
Partners in Diabetes Care  
9977 Woods Dr.  
Skokie, IL 60077  
847-663-8508

Springfield Diabetes & Endocrine Center  
Diabetes Outpatient Self-Management Training Program  
2528 Farragut Dr.  
Springfield, IL 62704  
217-787-6799

Southern Illinois University School of Medicine  
The Diabetes Self-Management Program  
PO Box x 19230  
Springfield, IL 62794-1619  
217-782-0182 x2386

CGH Medical Center  
Type 2 Diabetes Outpatient Education Program  
100 E. LeFevre Rd.  
Sterling, IL 61081  
815-625-0400 x 5586

Carle Clinic Association  
The Diabetes Outpatient Education Program at Urbana  
602 W. University Ave., Dept. S2RE  
Urbana, IL 61801  
217-383-3490
<table>
<thead>
<tr>
<th>STOCK QUANTITY</th>
<th>RESOURCES FOR PROFESSIONALS</th>
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<tbody>
<tr>
<td>4328</td>
<td>A Plan To Control Diabetes In Illinois: 2000, (18 pgs) This plan is intended for local</td>
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<td>health departments, community health centers, state agencies, voluntary and community</td>
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<td>groups who are strongly committed to enhancing and supporting efforts to prevent and</td>
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<td>control diabetes.</td>
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<td>4375</td>
<td>Community Screening Guidelines for Type 2 Diabetes: 1999, (29 pgs) This document includes</td>
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<td>diabetes screening recommendations, education guidelines for diabetes screening and</td>
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<td>multiple appendices helpful in assessing and evaluating the client.</td>
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<td>4376</td>
<td>Diabetes Media Messages &amp; Strategies, (34 pgs) This guide provides information on how to</td>
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<td>work with the media and describes activities that your local health department or</td>
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<td>community health center can plan, implement and evaluate.</td>
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<td>education program, clinical practice recommendations and sample lesson plans on 15</td>
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<td></td>
<td>different topics with sample forms and handouts.</td>
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<td>4319</td>
<td>Clinical Practice Recommendations: 1999, (33 pgs) Designed to be used by health care</td>
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<td>providers to assure high quality diabetes care. Provides standardized tools that can be</td>
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<td>used to monitor and evaluate diabetes care.</td>
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<td><strong>Fact Sheets (single copy only, please duplicate as needed)</strong></td>
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<tr>
<td></td>
<td>a.) Diabetes Statistics (National)</td>
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<td>b.) Burden of Diabetes in Illinois</td>
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<td></td>
<td>c.) Diabetes in Blacks</td>
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<td>d.) Diabetes in Hispanics</td>
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<td></td>
<td>e.) Diabetic Neuropathy</td>
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<td></td>
<td>f.) Diabetes-A Serious Public Health Problem</td>
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<td></td>
<td>g.) National Diabetes Education Program</td>
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<td>h.) Diagnosis &amp; Classification of Diabetes</td>
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<td></td>
<td>i.) Diabetes Control &amp; Complication Trail</td>
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<td>j.) Kidney Disease of Diabetes</td>
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</tbody>
</table>

**RESOURCES FOR PATIENT EDUCATION**

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<tr>
<th>STOCK QUANTITY</th>
<th>RESOURCES FOR PATIENT EDUCATION</th>
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<tr>
<td>4377</td>
<td>Take Charge of your Diabetes, (book, 116 pgs) Patients learn about certain problems that</td>
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<td>sometimes occur with diabetes and how to work with health care providers as a team to</td>
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<td>prevent or treat these problems.</td>
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<tr>
<td>4377S</td>
<td>How to Treat Diabetes-Your Diabetes Care Check List, (booklet, 15 pgs) Describes many</td>
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<td>important goals of diabetes care.</td>
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<tr>
<td>4322</td>
<td>Diabetes Facts &amp; Questions-What you Need to Know, (booklet, 15 pgs) Lists the responsibilities</td>
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<td>of the person with diabetes, and questions to raise when visiting the doctor.</td>
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<tr>
<td>4322S</td>
<td>Know Your Blood Sugar Numbers: The ABC's of Testing for Blood Sugar Control, Diabetes</td>
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<td>Awareness Information-The Following topics are English on one side and Spanish on</td>
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<tr>
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<td>testing and goals.</td>
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<tr>
<td>4379</td>
<td>Care of the Foot in Diabetes, (flier) Describes foot care, shoe selection, skin, corn and</td>
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<td>callous care with pictures.</td>
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<tr>
<td>4451</td>
<td>Living Well with Diabetes-Self Care Handbook, (31 pgs) A handbook for people with diabetes</td>
</tr>
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<td>and their families.</td>
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</tbody>
</table>
Hemoglobin A1c Testing Quiz, "Check Your Hemoglobin A1c I.Q." (handout) A ten question quiz to test your knowledge of hemoglobin A1c with answers on the back.

If You Have Diabetes-Know Your Blood Sugar Numbers, (flier) Encourages consumers to ask their health care provider about the hemoglobin A1c test, and to know their blood sugar number.

If You Have Diabetes-Stick To The Basics, (flier) Encourages consumers to work closely with their health care provider, to get regular hemoglobin A1c tests, and to test their own blood sugar using a blood glucose meter.

Diabetes Awareness Information-The Following topics are English on one side and Spanish on the other, in pads of 100 only. Camera Ready (C), in single copies only.

| 4297  | Special care for cold or flu days. | 4304 | Put your best foot forward. |
| 4297C |                                  | 4304C|

| 4298  | Exercise is good for you and good for your diabetes. | 4305 | Diabetes and high blood pressure - A challenging combination. |
| 4298C |                                                  | 4305C|

| 4299  | Why Exercise? | 4306 | Ordering fast food wisely |
| 4299C |                                                  | 4306C|

| 4300  | Hemoglobin A1 - What's in a name? | 4307 | The eyes have it. |
| 4300C |                                      | 4307C|

| 4301  | Kidney disease and diabetes. | 4308 | Is your blood too fat? |
| 4301C |                                      | 4308C|

| 4302  | Don't let your life go up in smoke. | 4309 | Can I reuse my insulin syringe? |
| 4302C |                                        | 4309C|

| 4303  | Less is better. |
| 4303C |

Control Your Diabetes For Life, (4x6 Magnets) 25 only when available

| 4411  | Diabetes Management Schedule | 4446 | Diabetes Symptoms |
| 4411S |                              | 4446S|

Living Well With Diabetes (computer software), one set only. Patient education for persons with type 2 diabetes, in English & Spanish. System requirements are: windows version 3.1 or later, IBM 386 or PC compatible, SVGA (256 color) display, mouse, 14 MB free hard disk space.

Please complete and return to: Illinois Department of Human Services, Diabetes Control Program 535 W. Jefferson St., 3rd Floor, Springfield, Illinois 62702-5058

For more information call: (217) 782-2166 TTY (hearing impaired use only) (217) 557-3946

Visit us at our WEB Page: http://www.state.il.us/agency/dhs/Diabetes/dhome3.htm

Please print or type all information and fully spell organization name. Parcel services cannot deliver to P.O. Boxes.

Name:
Organization:
Street: (No P.O. Boxes)
City / State:
Zip Code:
Telephone:

Issued April, 2002
This resource provides information regarding books, videotapes, and other educational materials about diabetes. This list is for informational purposes only and does not imply endorsement by the Illinois Department of Human Services or the State of Illinois.


Meeting the Challenge: Children Living with Diabetes by Thomas Bergman. Published by Gareth Stevens, 1992. ISBN 0-8368-0738-3. Gareth Stevens, 1555 North River Center Drive, Suite 201, Milwaukee, WI 53212. 1-800-542-2595 (USA), (414) 225-0333, info@GSInc.com (email)


Teddy Ryder Rides Again by the American Diabetes Association. Softcover, 24 pages. ADA order number is #CCHTRRA. US $2.25 for nonmembers, US $1.75 for members.


Raising A Child With Diabetes by Linda Siminerio, RN, MS, CDE, and Jean Betschart, RN, MN, CDE. Published by the American Diabetes Association, 1995. ISBN 0-945448-48-1. US $14.95 (nonmember) or US $11.95 (member) plus $3.00 Shipping & Handling to US addresses when ordered from the ADA.


Teens Pumping It Up: Insulin Pump Therapy Guide for Adolescents by Elizabeth Boland, MSN, APRN, PNP, CDE. Published by MiniMed. No ISBN. US $12.95.


Games, Periodicals and Other Products

Diabetes Forecast is a one year subscription (12 issues) US $29.95. Phone 1-800-787-1414.

Diabetes Interview is a one year subscription (12 issues) US $19.95. Phone 1-800-394-8877.

Pediatric Diabetes is a quarterly journal. Editorial Assistant: Sandra K. Arjona, Dept. of Pediatrics, Children’s Hospital of Pittsburgh, 3705 Fifth Ave., Pittsburgh, PA 15213-2583, USA, Phone 412-692-7765, Fax 412-692-7813, email: arjonas@chplink.chp.edu.

Wizdom: A kit of wit and wisdom for kids with diabetes (and their parents). Free to parents of diabetic child. A project of the American Diabetes Association. To order Wizdom, call 1-800-DIABETES and select option #6 or email @www.diabetes.org/wizdom.
Diabetes Websites

Resources listed in this appendix are intended only as a guide in accessing additional information regarding diabetes. Inclusion in this list does not imply endorsement by the Illinois Department of Human Services or the State of Illinois.

American Academy of Family Physicians
www.familydoctor.org

American Diabetes Association
An organization devoted to diabetes cures & cares
www.diabetes.org/default.asp

Amputation Prevention
Diabetic foot care information
www.noah.cuny.edu/diabetes/diabetes/html

Barbara Davis Center for Childhood Diabetes
http://www.uchsc.edu/misc/diabetes/bdc.html

Center for Food Safety & Applied Nutrition
Nutritional Information
http://vm.cfsan.fda.gov/

Centers for Disease Control
Diabetes and Public Health Resource
www.cdc.gov/nccdphp/ddt/ddthome.htm

Children with Diabetes
Issues for diabetic children
www.childrenwithdiabetes.com/

Curediabetes
Diabetes endocrinological information
www.curediabetes.org

Diabetes and Periodontal Disease
Diabetes and gum disease information
www.nidr.nih.gov

Diabetes Control Center
Information on good diabetes control
www.dr-diabetes.com

Diabetes Forecast
www.diabetes.org/diabetesforecast/

Diabetes Interview Magazine
Current research in diabetes
www.diabetesinterview.com

Illinois Dept. of Human Services
Diabetes Control Program
www.state.il.us/agency/dhs/Diabetes/dhome3.htm
535 W. Jefferson St.
Springfield, IL 62702
Ph: 217-782-2166

Joslin Diabetes Center
www.joslin.org
One Joslin Place
Boston, MA 02215
Ph: 617-732-2400

Juvenile Diabetes Research Foundation
International (JDRFI)
www.jdf.org
120 Wall St.
New York, NY 10005
Ph: 800-223-1138

Lower Extremity Amputation (LEAP)
www.bphc.hrsa.dhhs.gov/leap

Medlineplus Health Information

National Center for Chronic Disease Prevention and Health Promotion
www.cdc.gov/nccdphp

Naomi-Berrie Diabetes Treatment Center
Columbia-Presbyterian Hospital
http://cpmcnet.columbia.edu/dept/diabetes

National Diabetes Education Program
www.ndep.nih.gov

National Diabetes Information Clearinghouse - Patient education, statistical data
www.niddk.nih.gov

Sugarbugs
www.sugarbugs.org
2354 Highway 41, Ste. J
Greenbrier, TN 37073
Ph: 888-699-2847

The Daily Apple Diabetes Center
www.thedailyapple.com/public/bouncedindex.html

The Healing Handbook for Persons with Diabetes
www.umassmed.edu/diabeteshandbook/toc.htm
Care of Children with Diabetes in the School and Day Care Setting

This article appears in the journal, “Diabetes Care”, Volume 25, Supplement 1, January 2002.

To view the complete article, go to: http://care.diabetesjournals.org/content/vol25/suppl_1/

Type 2 Diabetes in Children and Adolescents

This article appears in the journal, “Diabetes Care”, Volume 23, Number 3, March 2000.

To view the complete article, go to: http://care.diabetesjournals.org/content/vol23/issue3/