

**Learning and
Diabetes:
A Resource
Guide for
Connecticut
Schools and
Families**



CONNECTICUT STATE DEPARTMENT OF EDUCATION



Acknowledgments

Gratitude is extended to the following individuals for reviewing all or sections of the revised *Learning and Diabetes: A Resource Guide for Connecticut Schools and Families, 2012*:

- Stephanie Knutson, MSN, RN, project manager
- Karen Bucci, APRN, Diabetes Educator, Connecticut Children's Medical Center
- Marie Burlette, RN, BSN, School Nurse Supervisor, Connecticut Technical High School System
- Joan Cagginello, RN, MS, Nurse Administrator, Milford Health Department and Association of School Nurses of Connecticut (ASNC) Executive Board Member
- Susan Fiore, MS, RD, Nutrition Education Coordinator, Connecticut State Department of Education
- Patricia Krin, MSN, FNP-BC, NCSN, Senior Nurse Administrator, Newington Public Schools
- Donna Kosiorowski, MSN, RN, School Nurse Supervisor, West Haven Public Schools
- Cindy Kozak, RD, MPH, CDE, Diabetes Prevention and Control Program AIDS and Chronic Diseases Section, Connecticut Department of Public Health
- Suzanne Levasseur, MSN, APRN, Supervisor of School Health Services, Westport Public Schools
- Cheryl Resha, EdD, MSN, RN

This manual was originally developed in 2005 through the cooperation of key organizations and individuals committed to improving diabetes care for children in schools throughout Connecticut. Recognition is also extended to the original contributors. These individuals and organizations are listed below:

- | | |
|---------------------------------|--------------------------|
| • Eileen Clark, Parent | • Cathy Castaldi, Parent |
| • Cheryl Resha, Project Manager | • William Cross, Parent |
| • Faine Gauthier | • David Larson |
| • Wendy Harwin | • Sheila McKay |
| • Patricia Krin | • Linda Pica |
| • Pat Philipp | • Karen Bucci |
| • Patricia Vadya | • Joseph Castagnola |
| • Joanne Ahern | • Paul Rossi, Parent |
| • Phil Apruzzese | |
- Juvenile Diabetes Research Foundation
 - Yale-New Haven Hospital and Medical Center
 - Connecticut Association of Boards of Education
 - Juvenile Diabetes Research Foundation
 - Connecticut Children's Medical Center
 - National Diabetes Education Program: *Helping the Student with Diabetes Succeed: A Guide for School Personnel*
 - New York State Department of Health: *Diabetes in Children – A Resource Guide for Schools*
 - Wisconsin Department of Education: *Children with Diabetes: A Resource Guide for Wisconsin Schools and Families*

For more information on the CSDE's *Learning and Diabetes: A Resource Guide for Connecticut Schools and Families*, contact:

Stephanie G. Knutson, MSN, RN
School Health Consultant
Connecticut State Department of Education
Bureau of Health/Nutrition, Family Services and Adult Education
25 Industrial Park Road
Middletown, CT 06457
860-807-2108
stephanie.knutson@ct.gov

Introduction

Diabetes is one of the most common chronic diseases in school-aged children, affecting approximately 215,000 young people in the United States, or about 1 in every 400 to 500 young people under 20 years of age. Each year, more than 13,000 youths are diagnosed with type 1 diabetes. In addition, health care providers are finding more children and teens with type 2 diabetes, even though the disease is usually diagnosed in adults over the age of 40.

Diabetes is the seventh leading cause of death by disease in the United States. Long-term complications include heart disease, stroke, blindness, kidney disease and amputation of the foot or leg. Although there is no cure, the disease can be managed and complications delayed or prevented.

For students with type 1 diabetes, and for some with type 2 diabetes, careful monitoring of blood glucose (sugar) levels includes the administration of multiple doses of insulin therapy. As a result, the school health team, which includes the school nurse, teachers, school administrator and other qualified school employees, plays an important role in supporting students manage their diabetes.

Effective diabetes management is crucial:

- for the safety of students with diabetes;
- for long-term health of students with diabetes;
- in ensuring that students with diabetes are ready to learn and participate fully in school activities; and
- in minimizing diabetes-related emergencies.

While this manual is dedicated to children with diabetes, many of the recommendations and guidelines are relevant to children with various health conditions.

The information in this manual is general in nature and does not constitute specific medical or legal advice. Readers should consult directly with medical professionals regarding specific questions about care of children with diabetes. Readers should consult with legal counsel regarding questions pertaining to the rights and/or responsibilities under state and federal law of any individual or institution receiving or providing care for children with diabetes.

This electronic manual is available on the Connecticut State Department of Education's Health Promotion Services/School Nurse Web site at <http://www.ct.gov/sde/schoolnurse>.



Section 1: Diabetes Overview

Diabetes is a disorder of metabolism — the way in which the body converts food into energy. The body breaks food down by digestive juices into the fuel components needed to survive, including a sugar called glucose. Glucose is the body’s main source of energy. After digestion, glucose passes into the bloodstream, where it is available for cells to take in and use or store for later use (Kinder, 2012).

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

For people without diabetes, the pancreas automatically produces the right amount of insulin to enable glucose to enter cells. For people with diabetes, the body does not make or properly use insulin. 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 (which means “too much glucose in the blood”) - is the hallmark of diabetes.

When blood glucose goes above a certain level, the excess glucose flows out from the kidneys (the organs that filter wastes from the bloodstream) into the urine. The glucose takes water with it, which causes frequent urination and great thirst. These two conditions - frequent urination and unusual thirst - are usually the first noticeable signs of diabetes. Weight loss often follows, resulting from the loss of calories and water in urine.

When the body no longer make insulin is no longer made, it must be obtained from another source – insulin injections or an insulin pump. When the body does not use insulin properly, oral medications may be taken instead of, or in addition to, insulin injections. However, neither insulin nor other medications are cures for diabetes; they only help control the disease.

Diabetes management balances careful control of diet, exercise, and medication. Careful monitoring and prompt intervention are necessary to prevent life threatening hypoglycemic episodes and long-term complications such as heart disease, kidney failure, retinopathy, and serious impairment of circulation that may require amputations (Connecticut Department of Public Health, 2012)

[Back to top](#)

I. Types of Diabetes

Diabetes occurs in several different forms. This manual focuses primarily on issues related to type 1 diabetes in children.

A. 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.

IN THIS SECTION

I. Types of Diabetes

A. Type 1

B. Type 2

II. Effective Diabetes Management in Schools²

A. Effective Diabetes Management

B. Planning and Implementing Effective Diabetes Management

C. Federal and State Laws

D. School Plans

E. Elements of Effective Diabetes Management

1. Monitoring Blood Glucose Levels

2. Nutrition

3. Physical Activity

4. Planning Beyond the School Day

5. Social and Emotional Aspects of Diabetes

6. Promoting Student Independence

F. Diabetes Management Training for School Personnel

References

All children with diabetes must be allowed to participate fully in all school activities. They need

The immune system is the body's system for fighting infection. In people with type 1 diabetes, the immune system attacks the beta cells (the insulin-producing cells of the pancreas) and destroys them. Since the pancreas can no longer produce insulin, people with type 1 diabetes need to take insulin daily to live. Type 1 diabetes can occur at any age, but it occurs most often in children and young adults.

There is no single way to treat type 1 diabetes. Because each child's life events vary, experienced diabetes teams are necessary to set up individualized treatment plans. For treatment plans to be most successful, an insulin regimen will be tailored to the needs of the child, as will a meal plan and recommendations for physical activity. New information on diabetes management allows people with diabetes to be more liberal with food planning.

the cooperation and support of school staff members to help them with their treatment plan.

Type 1 Diabetes

- Most common in children
- Rapid onset
- Pancreas cannot produce insulin

Symptoms

- Increased thirst and urination
- Constant hunger
- Weight loss
- Blurred vision
- Fatigue

Blood glucose monitoring is essential to help assess how well the treatment plan is working. Most children can perform blood glucose checks by themselves but may need a private place to do so. Some children may need supervision from the school nurse to see that the procedure is done properly and results are recorded accurately. How often the child checks or whether he/she checks at school at all are decisions made by the child's parents/guardians and physician and supported by school personnel.

It is the board of education's responsibility to ensure that staff, including nursing staff, has adequate training and the updated skills necessary to best assist children with diabetes. The school nurse can then recognize when additional training is needed to perform a particular procedure and to help determine where appropriate training can be obtained.

Symptoms of Type 1 Diabetes

Symptoms usually develop over a short period of time. They include increased thirst and urination, constant hunger, weight loss and blurred vision. Affected children may also feel very tired all the time. If not diagnosed and controlled with insulin, the child with type 1 diabetes can lapse into a life-threatening condition known as diabetic ketoacidosis (DKA).

Note: Although the terms "blood glucose testing" and "blood glucose checking" are also common terms, this manual uses the term "blood glucose monitoring."

Risk Factors

Although scientists have made much progress in predicting who is at risk for

type 1 diabetes, they do not yet know what triggers the immune system's attack on beta cells. They believe that type 1 diabetes is due to a combination of genetic and environmental factors. Researchers are working to identify these factors and stop the autoimmune process that leads to type 1 diabetes.

[Back to top](#)

B. Type 2 diabetes

Type 2 diabetes is the most common form of the disease, representing 90-95 percent of people with diabetes. It was previously known as adult-onset or non-insulin dependent diabetes because it most often occurs in overweight adults ages 40 or older. Now, as more children and adolescents in the United States become overweight and inactive, type 2 diabetes occurs more often in young people. To control their diabetes, children with type 2 diabetes may need to take oral medication, insulin or both.

The first step in the development of type 2 diabetes is often a problem with the body's response to insulin, called insulin resistance. For reasons scientists do not completely understand, the body cannot use insulin very well. This means that the body needs increasing amounts of insulin to control blood glucose. The pancreas tries to make more insulin, but after several years, insulin production may drop off.

Symptoms of Type 2 Diabetes

Symptoms may develop slowly or quickly, and may be similar to those of type 1 diabetes. A child or teen may feel tired, thirsty or nauseated and urinate often. Other symptoms include rapid weight loss, blurred vision, frequent infections, yeast infections and slow healing of wounds or sores. High blood pressure may be a sign of insulin resistance. In addition, physical signs of insulin resistance include acanthosis nigricans, where skin around the neck, armpits or groin appears dark, thick and velvety. On the other hand, some children or adolescents with type 2 diabetes show no symptoms at all when they are diagnosed. For that reason, it is important for parents and caregivers to talk to their health care providers about screening children or teens at high risk for diabetes.

Risk factors

Being overweight and having a family member who has type 2 diabetes are the key risk factors. In addition, type 2 diabetes is more common in certain racial or ethnic groups, such as African Americans, Hispanic/Latino Americans, American Indians, Asian Americans and Pacific Islander Americans. For children and teens at risk, health care providers can encourage, support and educate the entire family to make lifestyle changes that may delay or prevent the onset of type 2 diabetes. Such changes include reaching and maintaining a healthy weight and engaging in regular physical activity.

Taking care of diabetes is important. If not treated, diabetes can lead to serious health problems. The disease can affect the blood vessels, eyes, kidneys, nerves, gums and teeth, and is the leading cause of adult blindness, lower limb amputations and kidney failure. People with diabetes also have a higher risk of heart disease and stroke. Some of these problems can occur in teens and

young adults who develop diabetes during childhood. However, research shows that these problems can be greatly reduced or delayed by keeping blood glucose levels near normal.

[Back to top](#)

II. Effective Diabetes Management in Schools

A. Effective Diabetes Management

The goal of effective diabetes management is to control blood glucose levels by keeping them within a target range that is determined for each child. Optimal blood glucose control helps to promote normal growth and development and allows for optimal learning. Effective diabetes management is needed to prevent the immediate dangers of blood glucose levels that are too high or too low.

The key to optimal blood glucose control is to carefully balance food, exercise and insulin or medication. As a general rule, food makes blood glucose levels go up, and exercise and insulin make blood glucose levels go down. Several other factors, such as growth and puberty, mental stress, illness or injury also can affect blood glucose levels.

Students with diabetes must monitor their blood glucose levels throughout the day by using a blood glucose meter. The meter gives a reading of the level of glucose in the blood at the time it is being checked. If blood glucose levels are too low (hypoglycemia) or too high (hyperglycemia), students can then take corrective action such as eating, modifying their activity level or administering insulin. Low blood glucose levels, which in rare cases, can be life-threatening, present the greatest immediate danger to people with diabetes (see [hypoglycemia](#)).

The key to optimal blood glucose control is to carefully balance food, exercise, and insulin or medication.

Many students can handle all or almost all of their diabetes care by themselves. Others, because of age, developmental level or inexperience, will need help from school staff. The school nurse is the most appropriate person in the school setting to provide care for a student with diabetes. However, diabetes management is needed 24 hours a day, 7 days a week and diabetes emergencies can happen at any time. More importantly, the school nurse may not always be available. Therefore, the board of education should identify appropriate school personnel to be prepared to respond to emergencies at school and at all school-sponsored activities in which a student with diabetes participates. In this case, the school nurse should ensure proper training of qualified school employees and provide professional supervision and consultation regarding routine and emergency care of the student.

[Back to top](#)

B. Planning and Implementing Effective Diabetes Management

Collaboration, cooperation and planning are key elements in developing and implementing successful diabetes management at school. **As is true for children with other chronic diseases, students with diabetes are more likely to succeed in school when students, parents, school nurses, principals, teachers, other school personnel and the student's health care providers (or personal health care team) work together to ensure effective**

diabetes management. Local school districts probably have similar plans and systems in place for children with other health considerations.

To work collaboratively, the school district should assemble a school team that includes people who are knowledgeable about diabetes, the school environment and federal and state education and nursing laws. Team members may include the student, parents/guardian, the school nurse, school food service and other health personnel, administrators, the principal, the student's teacher(s), guidance counselor and other relevant staff.

This team works together to implement the recommendations developed by the student's personal health care team and family. The team decides who needs to receive appropriate medical information about the child, and who will be trained by the nurse to assist with monitoring and performing certain tasks. In addition, the school team should be part of the group that develops and implements the student's Individual Health Care Plan, Emergency Care Plan, Section 504 Plan (if needed), Individualized Education Program (IEP) or other education plan that addresses the student's developmental and educational needs so that diabetes can be managed safely and effectively in school. The plan is based in part on the student's medical recommendations, sometimes called a Diabetic Medical Management Plan (DMMP), as well as recommendations from the team.

[Back to top](#)

C. Federal and State Laws

A number of laws address the school district's responsibilities to help students with diabetes on a case-by-case basis. Under certain federal laws, any school that receives federal funding must reasonably accommodate the special needs of children with diabetes. If found eligible for services, federal law requires an individualized assessment and reasonable accommodation within the child's usual school setting with as little disruption as possible to the school's and child's routines, in a way that allows the child to fully participate in all school activities.

Schools have a responsibility to be knowledgeable about all relevant state and federal laws, and about how they impact policies in this area. Brief descriptions of the most relevant state and federal laws follow.

CGS 10-212a Administration of Medications in Schools. This statute pertains to the administration of medications in the school setting. This statute addresses who may prescribe medications and who may administer medications in the school setting.

The Regulations of Connecticut State Agencies Section 10-212a-1 through 10-212a-10 Administration of Medications by School Personnel and Administration of Medication During Before- and After-School Programs and School Readiness Programs. These regulations provide the procedural aspects of medication administration in the school setting. The regulations include definitions within the regulations; the components of a district policy on medication administration; the training of school personnel; self-administration of medications; handling, storage and disposal of medications; supervision of medication administration; administration of medications by coaches and licensed athletic trainers during intramural and interscholastic events;

administration of medications by paraprofessionals and administration of medication in school readiness programs and before- and after-school programs.



Public Act No. 12-198 (HB 5348) An Act Concerning the Administration of Medicine to Students with Diabetes, the Duties of School Medical Advisors, the Availability of CPR and AED Training Materials for Boards of Education and Physical Exercise During the School Day. This Act allows a qualified school employee selected by the school nurse or principal to administer an emergency glucagon injection to a student with diabetes, under certain conditions and with a written authorization from the student's parents and a written order from the student's Connecticut-licensed physician. The Act also bars a school district from restricting the time or place on school grounds where a student with diabetes

may test his or her blood-glucose levels, if the student has written permission from his parents or guardian and a written order from a physician.

The Act extends required educational guidelines for school districts in how to manage students with life-threatening allergies to cover students with glycogen storage disease. It requires the State Department of Education and the Department of Public Health to issue the new guidelines by July 1, 2012, and school districts to develop individualized health care and glycogen storage disease action plans for their students with the disease by August 15, 2012. The plans must allow parents or guardians of students with the disease, or those they designate, to administer food or dietary supplements to their children with the disease on school grounds during the school day. The Act bars claims against towns, school districts, and school employees for damages resulting from these actions.

The Americans with Disabilities Act (ADA) prohibits discrimination against any individual with a disability. Section 504 of the Rehabilitation Act of 1973 further protects the rights of children with disabilities, requiring reasonable accommodations that allow for the provision of a "free and appropriate public education" (FAPE). This legislation applies to all programs and activities receiving federal financial assistance, including public schools. Children are eligible for accommodations through Section 504 if they have a physical or mental impairment that substantially limits a major life activity. Major activities may include walking, seeing, hearing, speaking, breathing, learning, working, caring for oneself, and performing manual tasks. Children with diabetes are often considered eligible because of their special metabolic and dietary requirements. It is not required that the student receive special education services to be eligible for other services.

The Individuals with Disabilities Education Act of 1976 (IDEA) provides financial assistance to state and local agencies for educating students with disabilities. Children are eligible if they fit one or more of the 13 categories of disability and if, because of the disability, they require special education and related services. The category that most often applies to children with diabetes is Other Health

Impaired (OHI). This is defined as “having a limited strength, vitality or alertness, including heightened alertness to environmental stimuli, that results in limited alertness with respect to the education environment, that 1) is due to a chronic or acute health problem; and 2) adversely affects a child’s educational performance.”

The Family Education Rights and Privacy Act of 1974 (FERPA) protects the privacy of students and their parents by restricting access to school records in which individual student information is kept. This act sets the standard for the confidentiality of student information. FERPA also sets the standards for notification of parents and eligible students of their rights with regards to access to records, and stipulates what may or may not be released outside the school without specific parental consent. Within schools, FERPA requires that information be shared among school personnel only when there is a legitimate educational interest.

Public schools in Connecticut are required to meet standards set by the Occupational Safety and Health Administration (OSHA), a regulatory agency within the United States Department of Labor. These standards include the need for procedures to address possible exposure to blood-borne pathogens. Under OSHA regulations, schools are required to maintain a clean and healthy school environment. Schools must adhere to Universal Precautions designed to reduce the risk of transmission of blood-borne pathogens, which include the use of barriers such as surgical gloves and other protective measures when dealing with blood and other body fluids or tissues.

These federal laws provide a framework for planning and implementing effective diabetes management in the school setting. School administrators and nursing personnel also should determine whether there are applicable state and local laws that should be factored into helping the student with diabetes.

[Back to top](#)

D. School Plans

The CSDE recommends that schools develop a plan for accommodating the health needs of children with diabetes. These plans should be based in part on the student’s health care provider’s medical management plan, sometimes called Diabetic Medical Management Plan (DMMP). The DMMP is completed by the student’s parents/guardians and the health care provider. It generally includes how to recognize and treat hypoglycemia and hyperglycemia as well as specific orders for blood glucose monitoring, administration of insulin and the steps to take in an emergency.

A written school plan for each student’s diabetes management helps the student, their families, school staff and the student’s health care providers know what is expected of them. These expectations should be specified in writing in the documents below as determined by the team.

- *Individual Health Care Plan (IHCP)* – The IHCP describes how the school intends to meet an individual child’s daily health and safety needs in all contexts, while under the care of the school. IHCPs are developed by the school nurse, in conjunction with parents, the student, healthcare providers, and other school personnel. IHCPs are usually developed for

Schools have a responsibility to be knowledgeable about all relevant state and federal laws and how they affect policies in this area.

students with multiple health needs or whose health needs require daily intervention. The plan includes a summary of health assessments, a nursing diagnosis, goals and plans of action covering the range of possible concerns. It is also used to document interventions and evaluate outcomes.

- *Emergency Care Plan (ECP)* – The ECP is based on the information provided by the student’s health care provider, family and school team. The ECP describes how to recognize hypoglycemia and hyperglycemia and what to do as soon as signs or symptoms of these conditions are observed. The ECP is often part of the IHCP. Emergency care plans provide specific directions about what to do in an emergency. These written plans assist the school nurse, school personnel and emergency responders react to an emergency situation in a prompt, safe and individualized manner.
- *Education plans* – These plans, such as the Section 504 Plan or Individualized Education Program (IEP), explain what accommodations, education aids and services might be necessary for each student.

This information should be reviewed, along with the student’s IHCP and/or 504 Plan and updated each school year or upon a change in the student’s prescribed regimen, level of self-management, school circumstances (e.g., a change in schedule) or at the request of the student or parents/guardian.

The Individual Health Care Plan (IHCP) and Emergency Care Plans

The following information is essential in the development of a student’s IHCP:

- Date of diagnosis
- Current health status
- Emergency contact information
- Student’s willingness and ability to perform self-management tasks at school
- List of diabetes equipment and supplies
- Specific medical orders
 - Blood glucose monitoring
 - Insulin, glucagon, and other medications to be given at school
 - Meal and snack plan
 - Exercise requirements
 - Additional monitoring
- Typical signs, symptoms, and prescribed treatment for hypoglycemia
- Typical signs, symptoms, and prescribed treatment for hyperglycemia

[Back to top](#)

E. Elements of Effective Diabetes Management

Effective diabetes management entails:

- monitoring or checking blood glucose levels throughout the day;
- following an individualized meal plan, getting regular physical activity; and
- administering insulin and/or other medications to help keep blood glucose levels in the target range and to help prevent the onset of hypoglycemia or hyperglycemia.

Additional elements of diabetes management in school include planning for events outside the usual school day, planning for appropriate disposal of materials that come in contact with blood and dealing with the emotional and social aspects of living with diabetes.

Each student with diabetes has different needs, but school plans developed for such students are likely to include the following common elements:

- where and when blood glucose monitoring and treatment will take place (per parent/guardian written authorization and physician's orders);
- identification of school personnel who are trained to assist the student on a daily basis and in the event the school nurse is absent or unavailable;
- location of the student's diabetes management supplies;
- ensuring unlimited access to the restroom and water fountain;
- discussion of nutritional needs, including provisions for meals and snacks;
- issues related to full participation in all school-sponsored activities and field trips;
- accommodations such as alternative times for academic exams if the student is experiencing hypoglycemia or hyperglycemia;
- permission for absences by the local board of education, without penalty, for doctors' appointments and diabetes-related illness; and
- maintenance of confidentiality and the student's right to privacy.

[Back to top](#)

1. Monitoring Blood Glucose Levels

Blood glucose monitoring is a necessary and useful tool in the management of diabetes. Blood glucose monitoring may be done with a small device called a blood glucose meter. Monitoring helps identify patterns in blood glucose fluctuation and detect acute problems of high or low blood sugar. Students often monitor their blood glucose every time they eat a meal to help them decide how much insulin to take at that time. There are numerous brands of monitors available, each with specific features that an individual may find useful. Since the school nurse plays an integral role in assisting children with diabetes in their tasks of daily management while at school, he or she must become familiar with the various monitors being used. To monitor glucose levels, a drop of blood is required. This can be obtained from fingers, arms and legs.

Self-monitoring

The benefits of allowing blood glucose self-monitoring are significant. Students learn better when their blood glucose levels are within the proper range. It is important for schools to address the issue of locations of self-monitoring, as Connecticut law bars a school district from restricting the time or place on school grounds where a student with diabetes may test his or her blood-glucose

Students usually check their blood glucose:

- *before eating snacks or meals;*
- *before physical activity;*
- *when they have symptoms of high or low blood glucose.*

levels, if the student has written permission from his parents or guardian and a written order from a physician. Students who self-monitor in the classroom or in other locations outside the school health office can more readily adjust their blood sugar levels. They spend less time out of class and thus lose out on fewer learning opportunities provided to children without diabetes. They also gain independence and self-confidence, and experience fewer stigmas when monitoring is treated as a regular occurrence.

The CSDE's *Guidelines for Blood Glucose Self-Monitoring in School* (see [appendix G](#)) provides valuable guidance to school districts regarding self-monitoring blood glucose and is located on the [Health Promotion Services/School Nurse Web site](#).

Appropriate Blood Sugar Levels

For a person who does not have diabetes, a normal fasting blood glucose level is 70-100 milligrams/deciliter (mg/dl). It will increase after meals, but usually not higher than 140 mg/dl. Blood sugar levels in a child with diabetes will vary depending on insulin action times, food consumed, activity level and illness. The student's diabetes health care professional will advise the child's family on an appropriate target range. The goal is for the blood sugar to fall within the target range the majority of the time. It is common for children with diabetes to experience fluctuations of their blood sugar levels outside their target range. The child's diabetes care plan should include his/her target range and outline corrective actions when the blood glucose level is outside the target range.

An important way to understand how well diabetes is being managed is by tracking the *Estimated Average Glucose* (eAG). EAG is the new way of reporting A1C test, the test that reports the average blood glucose over a period of two to three months. A1C is reported as a percentage value; whereas, eAG uses the same units (mg/dl) as glucose meters. Using eAG may help students gain a better idea of how well they are taking care of their diabetes, if they are meeting their *target range* and can help their health care provider know if changes need to be made (American Diabetic Association, 2012).

Understanding Hypoglycemia (low blood glucose)

Hypoglycemia, also called "low blood glucose" or "low blood sugar," is one of the most frequent complications of diabetes and can happen very suddenly. Hypoglycemia is a blood glucose level less than 70 mg/dl. This is the greatest immediate danger to students with diabetes; sometimes it cannot be prevented. Hypoglycemia occurs when a student's blood glucose level falls too low, usually as a result of administering too much insulin, skipping or delaying meals or snacks, not eating enough food as prescribed in the meal plan, exercising too long or too intensely or a combination of two or more of these factors. It is more likely to occur before lunch, at the end of the school day or during or after physical education classes. Hypoglycemia usually can be treated easily and effectively with food, non-diet drinks or glucose tablets. If it is not treated promptly, however, hypoglycemia can lead to unconsciousness and convulsions. Early recognition of its symptoms and prompt treatment, in accordance with the student's IHCP, are necessary for preventing severe symptoms that may place the student in danger. The information contained in the ECP, should be provided to all school personnel who have responsibility for the student with diabetes (see [appendix A](#) for sample health care plans).

Hypoglycemia is one of the most frequent complications of diabetes and can happen very suddenly.

Not all students, especially young children, will recognize the symptoms of hypoglycemia with every episode. Therefore, school personnel should be familiar with the symptoms and treatment so that an urgent problem can be handled appropriately. Hypoglycemia can impair thinking abilities and sometimes can be mistaken for misbehavior. If a student has a sudden change in behavior, becomes lethargic, combative, or unconscious or is having a seizure or convulsion, presume that the student has hypoglycemia. Treat the situation as a hypoglycemic emergency and check the student's blood glucose level immediately. If a blood glucose meter is not available in the immediate area, or if the blood glucose level is otherwise unknown, treat the student for hypoglycemia. **The student should never be left alone or sent anywhere alone when experiencing hypoglycemia.**

Students should never be left alone or sent anywhere alone (or with another child) when experiencing hypoglycemia.

Symptoms of hypoglycemia are different for each student and may vary from episode to episode. They include:

Mild/Moderate Symptoms

- shaky
- sleepy
- changed personality
- sweaty
- dizzy
- inability to concentrate
- hungry
- confused
- changed behavior
- pale
- disoriented
- weak
- headache
- uncoordinated
- lethargic
- blurry vision
- irritable or nervous
- slurred speech

Severe Symptoms

- inability to swallow
- seizures or convulsions
- loss of consciousness

What to Do for a Child who is Showing Signs and Symptoms of Mild Hypoglycemia (40-70mg/dl)

Optimally, check blood glucose before treating a child suspected of hypoglycemia. When in doubt, treat. If the child's hypoglycemia is **above 40 mg/dl**, give the child some quick-acting sugar (15 grams of carbohydrate), such as one of the following:

- ½ cup (4 fluid ounces) of juice;
- ¾ cup (6 fluid ounces) of REGULAR (not diet) soda;
- 3-4 glucose tablets;
- 4-5 small jelly beans or gum drops;
- 1 mini box of raisins; or
- 1 cup (8 fluid ounces) low fat or skim milk.

What to Do for a Child with Moderate Hypoglycemia (less than 40mg/dl) but Responsive

If the child's blood glucose levels are 40 mg/dl or less and the child is still responsive and able to swallow and follow directions, double the treatment amounts indicated above. If the child has difficulty following directions or eating, but can swallow, administer an entire tube of glucose gel in between his or her cheek and gums and gently rub to be sure the sugar is being absorbed. Follow with food.

In any of the above cases, check blood glucose 15 minutes after treatment. If the blood glucose result is still less than 70 mg/dl or if the child still has symptoms, repeat the quick sugar treatment and blood glucose testing cycle until the child is symptom free and the blood glucose result is above 70 mg/dl. This can be summarized as the "Rule of 15." Give 15 grams of carbohydrate, wait 15 minutes and then recheck. If the blood glucose is still less than 70 mg/dl, repeat the cycle giving another 15 grams of carbohydrate and rechecking in 15 minutes.

When the child feels better and blood glucose levels have risen to above 70 mg/dl, give one of the following if the child's next meal is more than one hour away and if the child will be participating in active play or sports:

- 4 graham cracker squares with peanut butter or cheese;
- 6 saltine crackers with peanut butter or cheese; OR
- an equivalent combination of carbohydrate (15 grams) and protein (1 oz.).

The child may return to class after the blood glucose is above 70 mg/dl and he or she no longer has symptoms.

What to Do for A Child who is Showing Signs and Symptoms of Severe Hypoglycemia

Be sure the child is lying down in a safe area protected from injury. Position the child on his or her side. Call 911 and the appropriate emergency contacts, as described in the student's ECP. Follow the steps outlined in the ECP, including use of glucagon or the treatment specified in the medical orders. Instaglucose may also be placed inside cheeks and rub in. Do not attempt to put anything between the teeth. As the child regains consciousness, nausea and vomiting may occur.

What is Glucagon?

Glucagon is a hormone that causes the liver to release sugar into the blood. It is used to raise the blood sugar when a child is unable to take liquids or food by mouth because of severe sleepiness, unconsciousness or seizure activity. Glucagon must be injected with a syringe into the skin like insulin. It should be administered as soon as possible. Glucagon is the medically endorsed treatment of choice for severe hypoglycemia. Other options and alternatives

"Rule of 15"

- *Give 15 grams of carbohydrate.*
- *Wait 15 minutes, and then recheck blood glucose.*
- *If still less than 70 mg/dl, repeat another 15 grams of carbohydrate.*
- *Wait 15 minutes and then recheck.*

include glucose gel or other glucose supplements. It is important to remember that **the risk of not giving Glucagon is more life-threatening than giving it under these emergency conditions.**

If Glucagon is ordered in school:

- One Glucagon Emergency Kit supplied by the family is needed. Keep Glucagon at room temperature, and inform the appropriate staff of the storage location. Check the date of Glucagon kits on a regular basis. Discard if past the expiration date. Obtain a refill immediately. When possible, practice drawing up Glucagon with a Glucagon Demonstration Practice kit or an expired kit.
- Glucagon must be mixed per the specified instructions.
- If Glucagon is part of a child's ECP then a physician's order and written parental permission is needed.
- Glucagon injections may be administered by "qualified school employees" to a student with diabetes that may require prompt treatment in order to protect the student against serious harm or death. "Qualified school employee" means a principal, teacher, licensed athletic trainer, licensed physical or occupational therapist employed by a school district, coach or school paraprofessional" (Public Act No. 12-198 *An Act Concerning the Administration of Medicine to Students with Diabetes, the Duties of School Medical Advisors, the Availability of CPR and AED Training Materials for Boards of Education and Physical Exercise During the School Day*).

If the school nurse is absence or unavailable, "qualified school employees" may administer glucagon to a student with diabetes who may require prompt treatment in order to protect against serious harm or death. No "qualified school employee" shall administer medication unless:

- such qualified school employee annually completes any training required by the school nurse and school medical advisor in the administration of medication with injectable equipment used to administer glucagon;
- the school nurse and school medical advisor have attested, in writing, that such qualified school employee has completed such training; and
- such qualified school employee voluntarily agrees to serve as a qualified school employee (Public Act No. 12-198 *An Act Concerning the Administration of Medicine to Students with Diabetes, the Duties of School Medical Advisors, the Availability of CPR and AED Training Materials for Boards of Education and Physical Exercise During the School Day*).

If glucagon is not ordered, glucose gel may be an appropriate substitute for non-nursing school staff. Glycemic effects of glucagons are short lived so once the student is able to swallow, a carbohydrate liquid (such as juice, low-fat milk) should be given according the student's IHCP or ECP.

Understanding Hyperglycemia (High Blood Glucose)

Hyperglycemia, also called "high blood glucose," or "high blood sugar," is a serious manifestation of diabetes that may be caused by too little insulin,

Symptoms of hyperglycemia:

illness, infection, injury, stress or emotional upset, ingestion of food that has not been covered by the appropriate amount of insulin or decreased exercise or activity. High blood glucose symptoms include increased thirst, frequent urination, nausea, blurry vision, and fatigue. In the short term, hyperglycemia can impair cognitive abilities and adversely affect academic performance. Over a long period of time, even moderately high blood glucose levels can lead to serious complications, such as heart disease, blindness, kidney failure and amputations.

- *Increased thirst*
- *Frequent urination*
- *Nausea*
- *Blurred vision*
- *Fatigue*

Hyperglycemia does not usually result in acute problems. If, however, the student fails to take insulin, if a pump malfunctions and fails to deliver or delivers less insulin or if either physical or emotional stress causes the insulin not to work effectively, there will be a breakdown of fat, causing ketones (organic compounds that result when body fat is broken down for energy) to form.

Ketones will initially be cleared by the kidneys into the urine, but if there are more than the kidneys can handle, they will build up in the blood and may result in diabetic ketoacidosis (DKA). This complication will cause a fruity breath odor, nausea, vomiting, stomach pain and, if untreated, deep breathing and increasing sleepiness. Students who use insulin pumps can go into DKA within hours if their pumps stop delivering insulin appropriately.

DKA can be prevented if the student's urine or blood is checked for ketones during times of illness, especially if vomiting occurs, or whenever the blood glucose level exceeds the target range provided in the IHCP. The test involves dipping a special strip into the urine and comparing the resulting color to a color chart or by blood ketone testing.

Treatment of hyperglycemia may involve drinking extra water or diet drinks or administering supplemental insulin in accordance with the student's healthcare provider's orders. Unrestricted access to liquids and the restroom must be provided, as high blood glucose levels increase urination and may lead to dehydration if the student cannot replace the fluids.

The student's blood glucose level should be monitored closely until it returns to the target range specified in the IHCP. If treatment does not lower blood glucose levels and clear the ketones, if vomiting occurs or if the student is lethargic or experiences breathing difficulties, the school nurse or qualified school employee should call the parents/guardian or call for medical assistance, as outlined in the IHCP/ECP. Treatment guidelines for ketones and when to call parents should be listed in the student's IHCP/ECP. Information about the symptoms and treatment of hyperglycemia, contained in the ECP should be provided to all school personnel who have responsibility for the student with diabetes (see [appendix A](#) for sample health care plans).

Administering Insulin

Students with type 1 diabetes and some students with type 2 diabetes require insulin to be given at regular times each day. Some students may need additional or corrective dosages of insulin to treat hyperglycemia or to cover a rise in blood glucose levels. The IHCP should specify the dosage, delivery system and schedule for insulin administration, which will differ for each student as prescribed by their health care provider, as well as specify who will administer prescribed insulin and under what circumstances.

Insulin has three characteristics:

- onset is how long insulin takes to reach the bloodstream and begin lowering blood glucose;
- peak time is when insulin is at its maximum strength in terms of lowering blood glucose; and
- duration is the number of hours insulin continues to lower blood glucose levels.

Today, new types of insulin and new delivery systems do a better job of keep blood glucose levels within target range. These options may require closer monitoring and possibly more assistance for students with diabetes. There are several types of insulin that are used in combination to treat people with diabetes. These different types of insulin have been manufactured either to have immediate (rapid-acting or short-acting insulin), intermediate or long (basal insulin) onset and duration of action in the body. A coordinated combination of insulin is used to allow for adequate treatment of diabetes at meals, snacks, during periods of physical activity and through the night (see [appendix C](#) for types and characteristics of insulin.)

Opened vials of insulin should be refrigerated or may be left at room temperature for 30 days after opening. Unopened vials should be stored in the refrigerator and are good until the expiration date (see [appendix C](#) for insulin storage and disposal.)

Insulin Administer Techniques

- **Insulin syringes** make it easy to draw up the proper dosage and shorter, smaller needles make injections easier and relatively painless.
- **An insulin pen** looks like a fountain pen. The pen holds a cartridge of insulin and a needle is screwed onto its tip just before use. Insulin pens are convenient and most appropriate when children need a single type of insulin.
- **An insulin pump** is a computerized device that looks like a pager and is usually worn on the student's waistband or belt. The pump is programmed to deliver small, steady doses in insulin throughout the day. Additional doses are given to cover food or high blood glucose levels. The pump holds a reservoir of insulin attached to a system of tubing called an infusion set. Most infusion sets are started with a guide needle, then the plastic cannula (a tiny flexible plastic tube) is left in place, taped with dressing and the needle is removed. The cannula is usually changed every two or three days or when the blood glucose levels remain above target range. More students are opting for insulin pump therapy to keep blood glucose levels in better control (see [appendix C](#) for information on insulin delivery systems).

Advantages of an Insulin Pump

- Most closely mimics the body's normal release of insulin.
- Two types of insulin delivery

Basal: small hourly dose that is preprogrammed

- Bolus: given to cover food or cover high blood sugar
- Pump therapy allows for greater flexibility in food choices and meal timing.
- Children who wear pumps can participate in all school activities.

Some students who need insulin during the school day are able to administer it on their own; others need supervision; and some need someone to administer the insulin for them. The school nurse should provide this help in accordance with the IHCP. School personnel who are responsible for the student's care should be knowledgeable about the student's insulin delivery system and how to respond to an emergency.

When a school nurse is not available to administer insulin and the student is not able to administer his/her own insulin, the school needs to develop alternative plans. In some circumstances, the parent or other immediate family member (such as the grandparent) is available to come into school during the school day to administer the child's insulin. When the school nurse or parent is not available to administer the insulin, the plan may identify a school nurse in a nearby school that would be available for both routine administration of insulin or emergencies.

For students with type 2 diabetes, treatment may commonly involve oral medication and less frequently, administration of insulin.

[Back to top](#)

2. Nutrition

Nutrition is one of the cornerstone treatments of diabetes. The goals of nutrition therapy include an adequate caloric and nutritional intake for growth and development and the balance of food with insulin and activity to achieve target blood glucose levels.

Children with diabetes have the same nutritional needs as children without diabetes. A meal plan must be developed to meet the individual needs of the child, taking into consideration food preferences, cultural influences, family eating patterns and schedules, weight, activity level and insulin action peaks. All family members can benefit from these healthy eating guidelines.

MyPlate is the United States Department of Agriculture's (USDA) food guidance system to translate the *Dietary Guidelines* for Americans into a healthy eating plan. MyPlate emphasizes consuming more fruits, vegetables, whole grains and low-fat dairy. MyPlate illustrates the five food groups that are the building blocks for a healthy diet using a familiar image—a place setting for a meal. The five food groups include:

- fruits;
- vegetables;
- grains;
- protein foods; and
- dairy (USDA, 2012).

For more information about MyPlate, visit the [USDA's Web site](#).

Dietary Guidelines

The ***Dietary Guidelines*** for Americans are jointly issued and updated every five years by the Department of Agriculture (USDA) and the Department of Health and Human Services (HHS). They provide authoritative advice for Americans ages 2 and older about consuming fewer calories, making informed food choices, and being physically active to attain and maintain a healthy weight, reduce risk of chronic disease, and promote overall health.

What is a "Healthy Diet"?

The Dietary Guidelines for Americans describe a healthy diet as one that:

- Emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products;
- Includes lean meats, poultry, fish, beans, eggs, and nuts; and
- Is low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars.

<http://www.choosemyplate.gov/dietary-guidelines.html>

The recommendations in the *Dietary Guidelines* and MyPlate are for Americans ages 2 and older. MyPlate helps individuals use the Dietary Guidelines to:

- Make smart choices from every food group.
- Find balance between food and physical activity.
- Get the most nutrition out of calories.
- Stay within daily calorie needs (USDA, 2011, ChooseMyPlate).

MyPlate is not a therapeutic diet for any specific health condition. Individuals with a chronic health condition, such as diabetes, should consult with a health care provider to determine what dietary pattern is appropriate for them.

Special Nutrition Issues

- **School Meals:** Children with diabetes may participate in the USDA school nutrition programs, e.g., National School Lunch program, School Breakfast Program and Afterschool Snack program. Parents/guardians can review school menus ahead of time and request modifications for their child as needed, based on a medical statement provided by a licensed physician. Parents/guardians are encouraged to contact the school food service director for more information on school meals.
- **After School:** Children should have a snack readily available if staying after school. Parents/guardians are responsible for providing the snack and should notify school personnel that the child may need to eat during the session. A physician's order may also be necessary.

- **School Parties:** Children with diabetes should be included in school parties; however, this may require advance planning. 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 child's meal plan. The parent/guardian should provide a list of foods for special occasions in the child's meal plan, if the parents/guardians have not supplied an alternate snack for their child.
- **Field Trips:** Whenever on a field trip, children should have a snack readily available. Bus drivers and chaperones should be notified by the school staff that the child has diabetes and may need to eat a snack during the trip. Parents are responsible for providing the snack. (For information on general guidance for field trips, see [Planning Beyond the School Day](#)).

Following an Individualized Meal Plan

The nutritional needs of students with diabetes do not differ from the needs of students without diabetes. Both should eat a variety of foods to maintain normal growth and development. The major difference is the timing, amount and content of food eaten by students with diabetes are carefully matched to the action of the insulin.

The CSDE recommends that children see a Registered Dietitian (preferably a Certified Diabetes Educator) once a year to create an individualized meal plan based on carbohydrate counting or an exchange system. The student's meal plan is designed to balance nutritional needs with the insulin regimen and physical activity level. There are usually no forbidden foods for people with diabetes. The meal plan should include three meals and two to three snacks with a specific amount of carbohydrate. The meals and snacks should be timed appropriately with the peak of the child's insulin. Each child needs a certain amount of carbohydrate based on age, size, gender and activity level.

Carbohydrate counting involves calculating the number of grams of carbohydrate or choices of carbohydrate the student eats. This information can be obtained from nutrition information on food labels and is used to determine the amount of insulin the student needs to control blood glucose for any given meal or snack.

The **exchange system** groups foods in six categories, each with a set nutritional value. A meal plan is prepared that recommends several exchanges or servings from each group for each meal and snack. The exchange system ensures that the meal plan is consistent in portion size and nutrient content while offering a wide variety of foods from each group. Students using this approach consume a prescribed number of exchanges at meal and snack times.

With some insulin regimens, it is important to maintain consistency in the timing and content of meals and snacks. The student should eat meals at the same time each day. Snacks are often necessary for a child with diabetes and must be eaten to balance the peak times of insulin action. **A missed or delayed snack could result in hypoglycemia.** The student also must have immediate access to a quick-acting form of glucose, such as juice or glucose tabs or gel.

■ *A missed or delayed snack could result in hypoglycemia.*

Accommodating Special Dietary Needs in School Nutrition Programs

Substitutes or modifications to school meals can only be made with appropriate

documentation from the child's physician. The CSDE's guide, *Accommodating Special Dietary Needs in School Nutrition Programs*, provides detailed information for the USDA's school nutrition programs on providing meals for children with special dietary needs, based on federal laws, USDA regulations and Connecticut laws. School nutrition programs include the following:

- Afterschool Snack Program
- Child and Adult Care Food Program: At-Risk Supper Program implemented in schools
- Fresh Fruit and Vegetable Program
- National School Lunch Program
- School Breakfast Program
- Special Milk Program

[Back to top](#)

3. Physical Activity

Physical activity is an important part of the overall management of diabetes. The benefits of physical activity include cardiovascular fitness, long-term weight control, social interaction and the promotion of self-esteem fostered by team play. Additionally, physical activity can help to lower blood glucose.

Physical activity is a fundamental part of a healthy lifestyle for all children including those with diabetes. Children with diabetes can participate in gym class and after-school sports. Health care providers may suggest adjustments in medication and food for appropriate blood glucose control. Physical education instructors and sports coaches must be able to recognize and assist with the treatment of hypoglycemia. Families are encouraged to include more physical activity at home.

General Physical Activity Guidelines

1. Drink lots of sugar-free fluids, especially water.
2. Have rapid acting carbohydrate sources available.
3. Test blood glucose before, during and after physical activity.
4. Wear a diabetes ID.
5. To avoid low blood glucose, eat more carbohydrate or follow your health care provider's recommendations about reducing the amount of insulin prior to physical activity.

Carbohydrate Replacement for Physical Activity

Blood glucose should be checked according to the physician's recommendations so that proper measures can be taken to keep the level in the appropriate range. The following chart illustrates the action that should be taken to maintain blood glucose safely with physical activity. It provides guidelines for students with both **Type 1 and Type 2** diabetes requiring insulin for management of their diabetes.

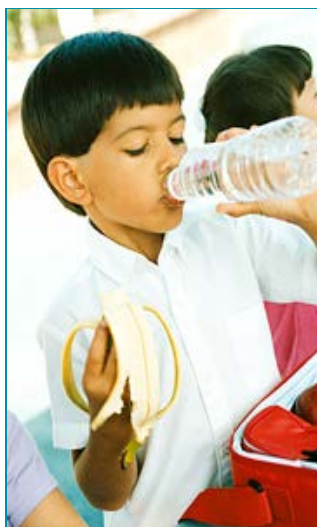
Type of Activity:	If Blood Glucose Prior to Activity is:	Then Eat the Following Carbohydrate Before Activity:
-------------------	----------------------------------------	------------------------------------------------------

Short Duration Less than 30 minutes	Less than 100	15 grams carbohydrate
	Greater than 100	No carbohydrate necessary
Moderate Duration 1 hour	Less than 100	25-50 grams carbohydrate plus protein source
	100-180	15 grams carbohydrate
	180-240	No carbohydrate necessary
Strenuous 1-2 hours	100-180	25-50 grams carbohydrate plus protein source
	180-240	15 grams carbohydrate

Note: If Blood glucose is above 240, physical activity should be restricted according to students' DMMP, IHCP or ECP.

[Back to top](#)

4. Planning Beyond the School Day



Meeting the needs of students with diabetes requires advance planning for special events such as classroom parties, field trips, and school-sponsored extracurricular activities held before- or after- school. With proper planning students with diabetes can participate fully in all school-related activities.

While there are no forbidden foods for children or teens with diabetes, school parties often include foods high in carbohydrates and fats. Providing more nutritious snacks will be healthier for all students and encourage good eating habits. Parents/guardians should decide whether students with diabetes should be given the same food as other students or food the parents provide. Parents should be given advance notice of parties to incorporate

special foods in the meal plan or to adjust the insulin regimen.

Students often view a field trip as one of the most interesting and exciting activities of the school year, and students with diabetes must be allowed to have these school-related experiences.

Students with diabetes often need support from an adult on school trips. Although it is not unusual to invite parents to chaperone field trips, parental attendance is **not** a prerequisite for participation by the student with diabetes. If parents do not accompany their child on field trips, the school nurse needs to determine the level of health care needed on this trip and whether or not it is necessary for a nurse to participate. Often a nurse is not needed on the trip; however, school personnel need to be properly trained to accompany the student with diabetes off-site and ensure that all the student's supplies are brought along with the student as specified in their IHCP or ECP. This includes snacks and supplies to treat hypoglycemia.

With proper planning students with diabetes can participate fully in all school-related activities

The plan for coverage and care during extracurricular activities should be included in the student's IHCP, 504 plan, IEP, or other education plan. As with field trips, qualified school employees must be trained to ensure student safety and trained in responding to routine and emergency care.

Transportation Issues

Similar to other school activities away from the school building, advanced planning is necessary for meeting the needs of students with diabetes while being transported to and from school. School bus drivers need to be aware that they often may have students with health care needs riding the buses and should be educated on diabetes and, in particular, the signs of hypoglycemia. School bus drivers also need to understand how to handle an emergency. The IHCP and ECP should address how emergencies will be managed on school transportation. In most situations, this plan will allow for the student to have access to food, supplies and equipment on the bus, if needed.

[Back to top](#)

5. Social and Emotional Aspects of Diabetes

The diagnosis of diabetes in a child can have a significant impact on the entire family. In many cases, the diagnosis of diabetes, like other chronic health diseases, is a major event for both the child and the family. Each individual in the family is affected and feelings experienced often follow a similar pattern although all reactions are unique and may occur at different times for different families. These feelings may linger if they are not recognized and expressed. Dealing with feelings openly can help the child and the family learn to face the daily challenges and facilitate acceptance of having diabetes. The feelings described below may be present in all families who have a child with diabetes.

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 child or family member 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 child. At times, the child or the parent/guardian may try to hide their feelings to be "strong" or not to upset the others. This denial may make the child's ability to adjust to the daily struggles much more difficult.

Sadness

The child or 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 the child or family member to express their sadness and to openly share their feelings. They should be encouraged to seek professional help if they feel depressed or hopeless for a long period of time.

Anger

"Why me? or 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 this also is a normal feeling, it may interfere with the child or the family member's ability to adjust to the daily pressures of managing diabetes. If it is having a major impact on the child or the family as a unit, individual counseling may be helpful.

Fear

"What will this mean for my child's life?"

"What's going to happen?"

"How can we ever leave him alone?"

There are so many fears that are expressed by the family and the child. Parents/guardians fear the increase in responsibility and the expenses. They worry about the future, and doubt their ability to manage diabetes every day. Siblings fear they may "get" diabetes too. The child with diabetes fears hospitals, injections, finger sticks, low blood sugars and even death. He/she may fear being different from friends. All these fears are certainly justified, but can be allayed if they are openly discussed and support is given as needed.

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."

Parents/guardians commonly feel that they "gave" their child diabetes. This idea often persists even though we know other factors also play a role in the onset of diabetes. The child may feel diabetes is a punishment for bad behavior. Such feelings are very common at the time of diagnosis. As time goes on, the child feels guilty if he/she "sneaks" extra candy, skips doing blood tests, lies about blood glucose results or does not "follow the rules." Parents/guardians feel guilty whenever they have to enforce the "rules" of self-management or deny their child a "treat". The opportunities to feel guilty are always there. Parents/guardians and children need to be supported in their efforts each day.

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."

This stage 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 diabetes. They must come to the understanding that diabetes should not prevent a child 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.

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.
- Feelings of incompetence and helplessness about the responsibility for managing 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.

[Back to top](#)

6. Promoting Student Independence

While it is very important to provide students with assistance and supervision of their diabetes care as needed, it is equally important to enable students to take on the responsibility of learning diabetes self-management and control. Age alone should not be the guideline used to assume that a child is ready to accept responsibility for managing components of diabetes care. It is important to realize that children develop at different rates.

Student ability to participate in self-care also depends upon their willingness to do so. As students are ready, they can assume more responsibility for their care. Children need to be encouraged and supported to gradually assume diabetes self care as they mature and demonstrate confidence. Adults must be sure that when the responsibility is given that children are willing to accept it. Keep in mind that children's ability or desire to perform certain diabetes related tasks may vary. It is normal for them to regress and depend on an adult to handle the responsibility of their diabetes care. Parents, school nurses, relatives and other reliable adults must be sensitive to these needs and remain supportive to children with diabetes.

Health care providers must provide written orders stating the need and the capability of students to conduct self-testing. Such an order will permit a student to self-test their blood glucose on school grounds. The school nurse and/or other school personnel should collaborate with the student and family to ensure that the student's ability to self-test will result in effective diabetes management and complies with OSHA's Universal Precautions.

Students' competence and capability for performing diabetes-related tasks are determined by the health care provider and parents/guardians and supported by the school team. Diabetes care includes and depends on self-management. Ultimately, persons with diabetes, when appropriate, become responsible for all aspects of self-care, including blood glucose monitoring and insulin administration. Regardless of their level of self-management, students with diabetes may require assistance when blood glucose levels are out of the target range.

To help determine how much responsibility students with diabetes can handle, it is helpful to understand the childhood development stages. Adults must recognize that responsibilities related to diabetes depend not just on age, but also on the development of the individual as well as the circumstances at individual schools. The charts below provide guidelines for determining the average age for assuming diabetes related skills. These are general recommendations, but children must be evaluated individually. Independence takes time and requires support and supervision from adults. Children who have a network of adults to support and assist them with diabetes management may

Adults must recognize that responsibilities related to diabetes depend not just on age, but also on the development of the individual as well as the circumstances at individual schools.

The CDSE's Guidelines for Blood Glucose Self-Monitoring in School is located on the Health Promotion/School Nurse Web site.

maintain better diabetes control.

General Guidelines: Age-Appropriate Responsibilities

Age	Developmental Characteristics	Diabetes-Related Responsibility
3-7 years	Imaginative/concrete thinkers Cannot think abstractly Self-centered	Parent supervision for all tasks Is generally cooperative for blood glucose tests and insulin shots Inconsistent with food choices Gradually learns to recognize hypoglycemia Not much concept of time
7-12 years	Concrete thinkers Capable of more logic and understanding More curious More social More responsible	Can learn to test blood glucoses 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 reminders. Alarm watches may promote independence.
12-18 years	More independent Behavior varies Body image important Away from home more More responsible Capable of abstract thinking	Capable of doing the majority of shots and blood tests but may still needs some parental supervision and review at times to make decisions about dosage Knows which food to eat Gradually recognizes the importance of good sugar control to prevent later complications May be more willing to inject multiple shots per day

[Back to top](#)

F. Diabetes Management Training for Qualified School Employees

Diabetes management training provides information on the necessary care for students with diabetes during the school day and during before- and after-school activities. The CSDE recommends training of qualified school employees when a student is diagnosed with diabetes, when a student with diabetes is enrolled in the school, or when appropriate. Training should be ongoing and include regular refresher sessions.

Suggested Components

- Introduction to the child's IHCP, ECP and DMMP.
- Type 1 and 2 diabetes: what it is, how it is managed (if not covered at planning meeting.)
- Monitoring tools: blood glucose monitor, insulin pump, written records, etc.
- Signs and symptoms of hypoglycemia and hyperglycemia.
- Procedures for routine care of the individual student.
- Emergency procedures (such as, administration of glucose tabs, gel or glucagon injection).
- Overview of universal health and safety guidelines (OSHA) and disposal of supplies.
- Monitoring techniques (for those who may do finger sticks or arm sticks.)

Following the initial training, school nurses often provide the ongoing training needs of qualified school employees and students (see [appendix A](#) for staff training record).

[Back to top](#)

References

American Nurses Association and National Council of State Boards of Nursing. [Joint Statement on Delegation](#)

American Diabetes Association. (2011). [Diabetes Statistics](#).

American Diabetes Association. (2012). [Estimated Average Glucose \(eAG\)](#).

American Diabetes Association. (2012). [Children with Diabetes: Information for School and Child Care Providers](#)

American Diabetes Association. (2012). [Living With Diabetes](#).

Connecticut Board of Examiners for Nursing. [Declaratory Ruling on Delegation by Licensed Nurses to Unlicensed Assistive Personnel](#)

Connecticut Board of Examiners for Nursing. [Declaratory Ruling on LPN Scope of Practice](#)

Connecticut Department of Public Health. (2012). [Chronic Disease: Diabetes Prevention and Control Program](#).

Connecticut Department of Labor, [Division of Occupational Safety and Health \(CONN-OSHA\)](#)

Connecticut State Department of Education. (2012). [Guidelines for Blood Glucose Self-Monitoring in School](#).

Connecticut State Department of Education. (1989). Connecticut Advisory School Health Council. Roles and qualifications of school health personnel.

Kinder, C.N. (2012). Yale-New Haven Teacher's Institute. [Biomedical Engineering and Diabetes](#).

Public Act No. 12-128 [An Act Concerning the Administration of Medicine to Students with Diabetes, the Duties of School Medical Advisors, the Availability of CPR and AED Training Materials for Boards of Education and Physical Exercise During the School Day](#).

United States Department of Agriculture. (2012). [Choose MyPlate](#)

KidsHealth from Nemours. (2012). [Type 1 Diabetes: What is it?](#)

Section 2: Frequently Asked Questions

1. What is the citation in the law that indicates who can perform nursing tasks and/or administer medications to students?
2. Can an LPN provide school health services including diabetic care as long as supervision is provided?
3. How should school districts handle the issue of medications when students go on field trips or participate in after-school activities?
4. How should school districts handle the need for nursing procedures when students go on field trips or participate in after-school activities?
5. Must all children with special health care needs have an individualized health care plan (IHCP)?
6. Are school districts authorized to employ Emergency Medical Technicians (EMTs) to provide health care to children with special health care needs in the absence of the school nurse?
7. If a non-licensed individual takes a course that certifies him/her to give medications in the home, can that person give medications in the school setting?
8. Can a non-licensed person who receives appropriate training administer medications?
9. Can the school nurse provide training to non-licensed persons to administer injectable medications in anticipation of an emergency?
10. What procedures should be followed when a nurse working in a school building is employed by another agency (i.e. private duty nurse for a child with special health care needs)?
11. Where can districts get training information and resources on school health issues?

[Back to top](#)

1. What is the citation in the law that indicates who can perform nursing tasks and/or administer medications to students?

Section 20-87a of Chapter 378 of the Connecticut general statutes (The Nurse Practice Act) states that only registered nurses may execute medical regimens. Section 20-87c indicates that licensed practical nurses may perform selected tasks and share responsibility under the direction of a registered nurse or advanced practice registered nurse.

Section 10-212a of Chapter 169 of the Connecticut general statutes allows a school nurse or any other nurse licensed pursuant to the provisions of chapter 378 to administer medications to students in schools. In addition **§ 10-212a** allows, in the absence of a school nurse, the principal, any teacher, licensed athletic trainer, licensed physical or occupational therapist employed by a school district, or coach of



intramural and interscholastic athletics of a school may administer, subject to the provisions of subdivision (2) of this subsection, medicinal preparations, including such controlled drugs as the Commissioner of Consumer Protection may, by regulation, designate, to any student at such school pursuant to the written order of a physician licensed to practice medicine, or a dentist licensed to practice dental medicine in this or another state, or an optometrist licensed to practice optometry in this state under chapter 380, or an advanced practice registered nurse licensed to prescribe in accordance with § 20-94a, or a physician assistant licensed to prescribe in accordance with § 20-12d, and the written authorization of a parent or guardian of such child. The administration of medicinal preparations by a nurse licensed pursuant to the provisions of chapter 378, a principal, teacher, licensed athletic trainer, licensed physical or occupational therapist employed by a school district, or coach shall be under the general supervision of a school nurse. § 10-212a further allows school paraprofessionals to administer medication to a specific student with a medically diagnosed allergic condition that may require prompt treatment in order to protect the student against serious harm or death.

The Regulations of Connecticut State Agencies Section 10-212a-1 through 10-212a-10 Administration of Medications by School Personnel and Administration of Medication During Before- and After-School Programs and School Readiness Programs. These regulations provide the procedural aspects of medication administration in the school setting. The regulations include definitions within the regulations; the components of a district policy on medication administration; the training of school personnel; self-administration of medications; handling, storage and disposal of medications; supervision of medication administration; administration of medications by coaches and licensed athletic trainers during intramural and interscholastic events; administration of medications by paraprofessionals and administration of medication in school readiness programs and before- and after-school programs.

Public Act No. 12-198 (HB 5348) An Act Concerning the Administration of Medicine to Students with Diabetes, the Duties of School Medical Advisors, the Availability of CPR and AED Training Materials for Boards of Education and Physical Exercise During the School Day. This Act allows a qualified school employee selected by the school nurse or principal to administer an emergency glucagon injection to a student with diabetes, under certain conditions and with a written authorization from the student's parents and a written order from the student's Connecticut-licensed physician. The Act also bars a school district from restricting the time or place on school grounds where a student with diabetes may test his or her blood-glucose levels, if the student has written permission from his parents or guardian and a written order from a physician.

The Act extends required educational guidelines for school districts in how to manage students with life-threatening allergies to cover students with glycogen storage disease. It requires the State Department of Education and the Department of Public Health to issue the new guidelines by July 1, 2012, and school districts to develop individualized

health care and glycogen storage disease action plans for their students with the disease by August 15, 2012. The plans must allow parents or guardians of students with the disease, or those they designate, to administer food or dietary supplements to their children with the disease on school grounds during the school day. The Act bars claims against towns, school districts, and school employees for damages resulting from these actions.

[Back to top](#)

2. Can an LPN provide school health services including diabetic care as long as supervision is provided?

Yes. LPNs may be hired to perform nursing tasks permitted in the LPN scope of practice under the direction of a school nurse. The tasks must be part of an individual nursing care plan that is developed, maintained and evaluated by a school nurse.

[Back to top](#)

3. How should school districts handle the issue of medications when students go on field trips or participate in after-school activities?

Connecticut state law allows a number of trained school employees to administer oral, topical and inhalant medications to students who cannot self-administer medications. Non-licensed personnel may administer injectable medication to students who have a medically diagnosed allergic condition. In addition, with the written authorization of a student's parent or guardian, and pursuant to a written order of the student's physician licensed under chapter 370, a school nurse or a school principal shall select, and a school nurse shall provide general supervision to, a qualified school employee to administer medication with injectable equipment used to administer glucagon to a student with diabetes that may require prompt treatment in order to protect the student against serious harm or death.

For other students who need other injectable medications and cannot self-administer, a number of options are available:

- the parent or guardian may attend the activity and administer the medication; or
- the student's health care provider can be consulted and may order the medication time to be adjusted or the dose eliminated; or
- the school may send a school nurse, substitute school nurse or LPN on the field trip to administer the medication.

A child may not be prevented from participating in an educational activity, such as a field trip, solely on the basis of a special health need. Even if no medication is needed during the field trip, the school must have trained personnel who can respond to an emergency.

[Back to top](#)

4. How should school districts handle the need for nursing procedures when students go on field trips or participate in after-school activities?

When a student is unable to perform a necessary health-related task independently and the task is a nursing procedure, the school nurse has

to participate or the school nurse may delegate the task to an appropriate, trained unlicensed person. To delegate this task, the nurse must decide that the specific task is appropriate to delegate:

- For a particular student; and
- to a particular staff member(s).

The identified staff member must also be willing to assume the task and the task cannot require nursing judgment.

[Back to top](#)

5. Must all children with special health care needs have an individualized health care plan (IHCP)?

An IHCP, a plan of care for a child with health needs, is not required by law, but is customarily used in nursing practice and is recommended for all students with special health care needs who require care for their health care needs. The IHCP may be a stand-alone plan developed by the nurse in consultation with a team that includes a parent or guardian, the health care provider, teachers and others responsible for the student, or it may be a part of an Individualized Education Plan or 504 Plan.

[Back to top](#)

6. Are school districts authorized to employ Emergency Medical Technicians (EMTs) to provide health care to children with special health care needs in the absence of the school nurse?

No. The definition of services that may be provided by EMTs allows these individuals to function as EMTs only when they are working as members of the emergency medical system. An EMT may not be hired to provide nursing procedures, including medication administration, to children with special health care needs. An EMT who has been hired as a health aide must work within the scope of the health aide job description and be trained as a health aide.

[Back to top](#)

7. If a non-licensed individual takes a course that certifies him/her to give medications in the home, can that person give medications in the school setting?

No. Medication administration in schools is governed by Section 10-212a of the Connecticut general statutes.

[Back to top](#)

8. Can a non-licensed person who receives appropriate training administer medications?

Yes. A full time school employee who meets the criteria of section 10-212a and has been appropriately trained by the school nurse for the specific student and medication may administer oral, topical and inhalant medications.

[Back to top](#)

9. Can the school nurse provide training to non-licensed persons to

administer injectable medications in anticipation of an emergency?

According to §10-212a-2(e) Non-licensed persons may administer injectable medications only to students who have been medically diagnosed with an allergic condition, which may require prompt treatment to protect the student against serious harm or death. In addition, Public Act No. 12-198 amends Section 10-212a of the general statutes and allows “qualified school employee” to administer medication with an injectable equipment used to administer glucagon to a student with diabetes that may require prompt treatment in order to protect the student against serious harm or death.

[Back to top](#)

10. What procedures should be followed when a nurse working in a school building is employed by another agency (i.e. private duty nurse for a child with special health care needs)?

Procedures that govern health care for students, including care provided by nurses from outside agencies, should be established by school district policy. Procedures should address situations where: 1) there is a school nurse in the building, 2) there is no school nurse in the building.

- If the nurse is hired by the school district there should be a contract with the agency in place. The agency is responsible for assuring that the nurse has a valid license and the expertise to perform the functions required.
- The school district should have all the required orders and authorizations in place.

The agency nurse and school nurse should work together to develop a plan to assure that the student’s health needs will be met (i.e., an emergency). However the school nurse should never be expected to substitute for the agency nurse in providing constant care of the student or to supervise a nurse who is not employed by the district. Agency nurses should be expected to abide by the health and administrative policies of the district (i.e., notification to the school nurse or administrator when in the building, evacuation and emergency procedures, etc.). Procedures should be established for the school nurse to follow if the school nurse determines that an agency nurse is performing a procedure in an unsafe way. Agency nurses assigned to care for a specific student should not be expected to substitute for the school nurse.

[Back to top](#)

11. Where can districts get training information and resources on school health issues?

Many hospitals in the state provide training, information and resources. Connecticut Children’s Medical Center, Hospital for Special Care, University of Connecticut John Dempsey Medical Center and Yale University and Hospital may be able to guide school districts in the right direction. The State Department of Education is an additional resource. Regional Education Service Centers (RESCs) can be helpful in providing consultation, technical support and training. Some colleges offer

continuing education related to school health.

Section 3: Suggested Roles and Responsibilities of School Personnel

The following suggested roles and responsibilities were adopted from *Helping the Student with Diabetes Succeed* from the National Diabetes Education Program. School districts may find them helpful in understanding the roles and responsibilities of the various school personnel who may be involved in creating a safe learning environment for students with diabetes. As noted in the introduction, the school health team, which includes the school personnel mentioned in the following pages, plays an important role in helping students manage their diabetes.

[Back to top](#)

Actions for the School District Administrator (Superintendent, Director, 504 Coordinator, or other administrative personnel)

- Provide leadership in developing district policy related to all aspects of diabetes management at school, including staff training, medication administration policy, and blood glucose monitoring
- Support implementation of district policy regarding diabetes management, and ensure ongoing quality improvement
- Understand and implement the federal and state laws that apply to diabetes where applicable
- Allocate sufficient resources to helping students manage diabetes
- Monitor schools attended by students with diabetes for compliance with district policy
- Respect the student's confidentiality and right to privacy
- Learn about diabetes and if necessary, attend diabetes management trainings

[Back to top](#)

Actions for the Principal, School Administrator, and/or Designee

- Participate in developing and implementing school policy on diabetes management
- Allocate sufficient resources to helping students manage diabetes
- Develop and implement a system to inform school health services of the pending enrollment of a student with diabetes
- Promote a supportive learning environment for students with diabetes
- Meet annually with the school health team, including the student, family, school nurse, teachers and others, to discuss accommodations needed
- Identify all staff members who have responsibility for the student with diabetes
- Arrange for diabetes management training for the school nurse and other staff with responsibility for students with diabetes
- Alert all school-staff members who teach or supervise a student with diabetes about accommodations and emergency procedures.
- Alert all substitute personnel and others (e.g. the bus driver) so that they are familiar with emergency procedures for the student
- Implement school policy on availability of health services
- Work with the school health team to implement the student's written plans
- Respect the student's confidentiality and right to privacy
- Help to develop and implement on-campus and off-campus emergency protocols
- Include diabetes awareness as part of health or cultural education
- Support and facilitate ongoing communication between parent/guardians of students with diabetes and school staff
- Learn about diabetes and if necessary, attend diabetes management trainings
- Be able to recognize and respond to signs and symptoms of hypoglycemia and hyperglycemia
- Understand federal and state laws where applicable

[Back to top](#)

Actions for the School Nurse

- Obtain and review the student's current diabetes medical plan from the student's physician and pertinent information from the student and family
- Facilitate the initial school health team meeting
- Conduct a nursing assessment of the student and develop a nursing care plan that incorporates

IN THIS SECTION

Actions for the School District Administrator

Actions for the Principal, School Administrator, and/or Designee

Actions for the School Nurse

Actions for the Teacher

Actions for the Coach and Physical Education (PE) Instructor

Actions for the Food Service Manager/Staff or Lunchroom Monitor

Actions for the Guidance Counselor or School Psychologist

Actions for Parents or Guardians

Actions for the Student with Diabetes

- the student's diabetes care regimen as prescribed by the student's diabetes medical management plan or healthcare provider's orders
- Conduct ongoing, periodic assessments of the students with diabetes and update the nursing care plans
 - Coordinate development of the student's Individualized Health Care Plan (IHCP) and Emergency Care Plan (ECP) and provide copies to staff members who have responsibility for the student throughout the school day (e.g. teachers, counselor, physical education (PE) instructor, and lunchroom staff)
 - Obtain materials and medical supplies necessary for diabetes care tasks from the parents/guardians and arrange a system for notifying the student or parents/guardian when supplies need to be replenished
 - Plan and implement diabetes management training for appropriate staff (including glucagon administration for identified staff)
 - Participate in diabetes management training
 - Review information about diabetes in this guide
 - Perform routine and emergency diabetes care tasks, including blood glucose monitoring, urine ketone testing, insulin administration, and glucagon administration
 - Practice universal precautions and infection control procedures during all student encounters
 - Maintain accurate documentation of contacts with students and family members
 - Collaborate with other co-workers, e.g. food service and school bus transportation services, as necessary to provide appropriate health care services
 - With parental permission, act as liaison between the school and the student's health care provider regarding the student's self-management at school.
 - Communicate to parents/guardians any concerns about the student's diabetes management or health, such as acute hypoglycemia episodes, hyperglycemia, general attitude, and emotional issues.
 - Promote and encourage independence and self-care consistent with the student's ability, skill, maturity, and developmental level
 - Respect the student's confidentiality and right to privacy
 - Act as an advocate for students to help them meet their diabetes health care needs
 - Provide education and act as a resource on managing diabetes
 - Assist the classroom teacher with developing a plan for substitute teachers
 - Assist the PE instructor with managing the student's exercise program at school
 - Be knowledgeable about federal, state, and local laws and regulations that pertain to managing diabetes at school
 - Assist student with blood glucose monitoring prior to dismissal

[Back to top](#)

Actions for the Teacher

- Participate in school health care team meetings
- Work with school health team to implement written care plans
- Recognize that a change in the student's behavior could be a symptom of blood glucose changes
- Be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia
- Provide a supportive environment for the student to manage diabetes effectively and safely at school, which includes eating snacks for routine diabetes management and to treat low blood glucose levels, having bathroom privileges and access to drinking water, monitoring blood glucose, and administering insulin and other medications (according to the student's DMMP, IHCP or ECP)
- Provide classroom accommodations for the student with diabetes
- Provide instruction to the student if it is missed because of absence for diabetes-related care
- Provide information on accommodations and policies, location of supplies, the student's emergency care plan and other aspects of diabetes management to substitute teachers
- Notify the parents/guardians in advance of changes in school schedule, such as class parties, field trips, and other special events
- Communicate with the school nurse, and parents regarding any concerns about the student
- Learn about diabetes and if necessary, attend diabetes management trainings
- Treat the student with diabetes the same as other students, except to meet medical needs
- Respect the student's confidentiality and right to privacy

[Back to top](#)

Actions for the Coach and Physical Education (PE) Instructor

- Encourage exercise and participation in physical activities and sports for students with diabetes, as well as for other students
- Treat the student with diabetes the same as other students, except to meet medical needs
- Encourage the student to have personal supplies readily accessible
- Allow the student to check blood glucose levels
- Learn about diabetes and if necessary, attend diabetes management trainings
- Understand and be aware that hypoglycemia can occur during and after physical activity
- Recognize that a change in the student's behavior could be a symptom of blood glucose changes
- Be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia
- Provide the student with immediate access to a fast-acting form of glucose to treat hypoglycemia if necessary
- Consider taping a fast-acting form of glucose (3 or 4 glucose tablets or hard candies) to a clipboard or include it in the First Aid pack (according to the student's DMMP, IHCP or ECP)
- Provide input to the student's school health team as needed
- Communicate with the school nurse regarding any observations or concerns about the student
- Provide information to substitute PE instructors
- Respect the student's confidentiality and right to privacy

[Back to top](#)

Actions for the Food Service Manager/Staff, or Lunchroom Monitor

- Obtain a copy of the student's written individualized meal plan
- Obtain a copy of the student's Emergency Care Plan and keep it in a known, yet secure, place in the lunchroom
- Provide a lunch menu and lunch schedule in advance to parents. If available, also include the nutrition content of menu selections including grams of carbohydrate and fat
- Understand and be aware that hypoglycemia can occur before lunch
- Encourage student to eat appropriate foods based on the student's individualized meal plan
- Be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia according to the student's emergency care plan
- Learn about diabetes
- Recognize that a change in the student's behavior could be a symptom of blood glucose changes
- Learn about the various kinds of diabetes meal and snack plans, and which type of meal plan the student follows
- Recognize that eating meals and snacks on time is a critical component of diabetes management, and that failure to eat lunch on time could result in low blood glucose, especially if a student has missed a morning snack or has had a physically strenuous or otherwise active morning at school
- Know where supplies to treat hypoglycemia are kept (according to the student's DMMP, IHCP or ECP)
- Treat the student with diabetes the same as other students, except to meet medical needs
- Provide input to the student's school health team when requested
- Communicate with the school nurse regarding any concerns about the student
- Respect the student's confidentiality and right to privacy

[Back to top](#)

Actions for the Guidance Counselor or School Psychologist

- Work with school staff to promote a supportive learning environment
- Ensure that the student with diabetes is treated the same as students without diabetes, except to respond to medical needs
- Be aware of and be prepared to respond to the emotional needs of the student
- Recognize that students with chronic illnesses such as diabetes may rebel by discontinuing all or part of their medical regimen
- Be aware that some students may not wish to share information about their diabetes with other students or school staff, particularly if it makes them feel different from others
- Promote and encourage independence and self-care that are consistent with the student's abilities, skill, maturity, and development
- Learn about diabetes and if necessary, attend diabetes management trainings
- Provide input to the student's school health team as appropriate
- Communicate with the school nurse regarding any concerns about the student

- Respect the student's confidentiality and right to privacy

[Back to top](#)

Actions for Parents or Guardians

Inform the school principal that your child has diabetes

- Provide accurate and emergency contact information and ensure it is always up to date
- Provide the DMMP, signed by the physician, to the school nurse
- Attend and participate in initial and annual meetings of the school health team
- Provide specific information about your child's diabetes
- Permit sharing of medical information necessary for the student's safety between the school and the student's personal health care providers
- Inform the school staff of any changes in the student's health status
- Provide all supplies, equipment, and snacks necessary for implementing your child's diabetes management
- Provide and maintain all supplies, equipment, and snacks necessary to accommodate the student's long-term needs in case of an emergency
- Inform appropriate school staff when the student plans to participate in school-sponsored activities that take place before or after school so that health care coverage can be coordinated to ensure the health and safety of the student with diabetes
- Understand federal, state, and local laws that address the school's responsibilities to students with diabetes

[Back to top](#)

Actions for the Student with Diabetes

- Participate in the school meeting regarding your diabetes management
- Always wear a medical alert ID and carry a fast-acting source of glucose
- Tell teachers and other school staff members if you feel symptoms of low or high blood glucose, especially if you need help
- Work with school staff members if you need help checking your blood glucose, getting insulin, or eating the right amount of food at the right time during the school day
- Take charge of your diabetes care at school if your written plans include:
 - checking and writing down blood glucose levels
 - figuring out the right insulin dose
 - giving yourself insulin
 - properly disposing of needles, lancets, and other supplies after use
 - eating meals and snacks as planned
 - treating low blood sugar
 - carrying diabetes equipment and supplies with you at all times

Section 4: Resources

[Agency for Healthcare Research and Quality](#)

[American Association of Diabetes Educators](#)

[American Diabetes Association](#)

[Centers for Disease Control and Prevention](#) and <http://www.cdc.gov/nchs>

[United States Food and Drug Administration](#)

[Health Resources and Services Administration](#)

[Juvenile Diabetes Research Foundation International](#)

[National Diabetes Education Program, a joint program of NIH and CDC](#)

[National Diabetes Information Clearinghouse](#)

[National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health](#)

[United States Department of Health and Human Services, Office of Minority Health](#)

[Americans with Disabilities Act \(ADA\) of 1990 and the ADA Amendments Act of 2008 \(P.L. 110-325\)](#)

[Family Educational Rights and Privacy Act \(FERPA\)](#)

[Individuals with Disabilities Education Act \(IDEA\)](#)

[Section 504 of the Rehabilitation Act of 1973](#)

[USDA Nondiscrimination Regulations 7 CFR 15b.3](#)

[A Guide to Special Food and Nutrition Needs: Fact Sheets \(NFSMI\)](#)

[Accommodating Children with Special Dietary Needs in the School Nutrition Programs: Guidance for School Food Service Staff \(USDA, Revised Fall 2001\) \[PDF\]](#)

[Accommodating Special Dietary Needs in School Nutrition Programs \(CSDE\) \[PDF\]](#)

[Allowable Milk Substitutions for Nondisabled Children \[PDF\]](#)

[Food Allergies and Intolerances Resource List for Consumers \(FNIC\) \[PDF\]](#)

[Guidelines for Feeding and Swallowing Programs in Schools \(CSDE, 2008\) \[PDF\]](#)

[Connecticut State Department of Education. *Guidelines for Managing Life-Threatening Food Allergies in Connecticut Schools* \[PDF\]](#)

[Handbook for Children with Special Food and Nutrition Needs \(NFSMI\) \[PDF\]](#)

[How to Read a Label for Food Allergens \(FAAN\) \[PDF\]](#)

[Meeting Children's Special Food and Nutrition Needs in Child Nutrition Program \(NFSMI\)](#)

[Safe at School and Ready to Learn: a Comprehensive Policy Guide for Protecting Students with Life-Threatening Food Allergies \(NSBA\)](#)

[Summary Chart: Requirements for Special Dietary Accommodations in School Nutrition Programs \[PDF\]](#)

[Action Guide for School Nutrition and Physical Activity Policies](#)

[Child Care Nutrition and Physical Activity Policies](#)

[Child Nutrition Programs](#)

[Coordinated School Health](#)

[Comprehensive School Health Education](#)

[Connecticut Nutrition Standards](#)

[Guidelines for a Coordinated Approach to School Health \[PDF\]](#)

[Healthy and Balanced Living Curriculum Framework \[PDF\]](#)

[School Foods and Beverages \(Federal and State Requirements\)](#)

[School Wellness Policies](#)

[State Board of Education Position Statement on a Coordinated Approach to School Health \[PDF\]](#)

[State Board of Education Position Statement on Nutrition and Physical Activity \[PDF\]](#)

Other resources for teachers, child care providers, parents, and health professionals who care for children with diabetes:

Barrett, Jena Clayton (2001) Teaching Teachers About School Health Emergencies. *The Journal of School Nursing*, 17(6), 316-322.

Bierschbach, Judy Laver Bierschbach, Cooper, Leslie, and Liedl, Jennifer A.(2004) Insulin Pumps: What every school nurse should know. *The Journal of School Nursing* 20(2),117-123.

Blum, Monica (2002) Are School Nurses Using the Recommendations of the Diabetes Control and Complications Trial in the Care of Students with Diabetes? *The Journal of School Nursing*, 18(3), 138-141.

Clarke W. (1999) Advocating for the child with diabetes. *Diabetes Spectrum* 12,230–236. *Complete Guide to Diabetes*, Alexandria, VA, American Diabetes Association, 1999; 1-800-232-6733. *Education Discrimination Resources List*, Alexandria VA, American Diabetes Association, 2000.* Fredrickson L, Griff M: *Pumper in the School, Insulin Pump Guide for School Nurses, School Personnel and*

Parents. MiniMed Professional Education, Your Clinical Coach. First Edition, May2000. MiniMed, Inc., 1-800-440-7867. *Information for Teachers & Child-Care Providers*, Alexandria, VA, American Diabetes Association, 1999 (brochure).

Kolar, Kathryn R., Haynie, Lisa, Wilkerson, Robin and Fisher, Wanda (2002) Type 1 Diabetes in Children and Adolescents: What's New? *The Journal of School Nursing*, 18(3), 144-149.

National Association of School Nurses (NASN) Issue Briefs: Delegation of Care in the School Setting (2004) The School Nurse Role in Accessing Health Care (2002)

NASN Position Statements: Blood Sugar Monitoring in the School Setting (2001) Case Management of Children with Special Health Care Needs (2002) Emergency Care Plans for Students with Special Health Care Needs (2004) Individualized Health Care Plans (2003) Medication Administration in the School Setting (2003) Rescue Medications in School (2004) School Nurse Role in the Care and Management of the Child with Diabetes in the School Setting (2001) The School Nurse and Specialized Health Care Services (2002)

[NASN Resolution: Access to a School Nurse](#) (2003). Barrett, Jena Clayton, Goodwin, Debra K., and Kendrick, Olivia (2002) Nursing, Food Service, and the Child with Diabetes. *The Journal of School Nursing*, 18(3), 150-156. *Pediatric Education for Diabetes in Schools National Version: A Resource Manual for School Nurses* (2003). Available through [NASN](#). Quarry-Horn, Jill L., Evans, Barbara J., and Kerrigan, James R.(2003) Type 2 Diabetes Mellitus in Youth. *The Journal of School Nursing*, 19(4),195-202. *Raising a Child with Diabetes: A Guide for Parents*, Alexandria, VA, American Diabetes Association, 2000; 1-800-232-6733.

Tappon D. Parker M, Bailey W: *Easy As ABC, What You Need to Know About Children Using Insulin Pumps in School*. Disetronic Medical Systems, Inc., 1-800-280-7801.

The Care of Children with Diabetes in Child Care and School Setting (video); available from, Managed Design, Inc., P.O. Box 3067, Lawrence, KS 66046, 785-842-9088.

Treating Diabetes Emergencies: What You Need to Know, Alexandria, VA, American Diabetes Association, 1995 (video); 1-800-232-6733.

[Wisdom: A Kit of Wit and Wisdom for Kids with Diabetes \(and their parents\)](#), Alexandria, VA, American Diabetes Association, 2000.

[Your Child Has Type 1 Diabetes: What You Should Know](#), Alexandria, VA, American Diabetes Association, 1999 (brochure).

[Your School & Your Rights: Protecting Children with Diabetes Against Discrimination in Schools and Day Care Centers](#), Alexandria, VA, American Diabetes Association, 2000 (brochure).

Section 5: Appendixes

Appendix A: Sample Health Care Plans

Sample Health Care Plans

[Back to top](#)

Appendix B: Low/High Blood Sugar Signs and Symptoms

American Academy of Pediatrics (2012). [Healthychildren.org: Causes of High Blood Glucose and Low Blood Glucose](#). Retrieved on July 24, 2012.

American Diabetes Association (2012). [Diabetes Basics: Symptoms](#). Retrieved on July 24, 2012.

Sentry Health Monitors (2011). [Symptoms of Hypoglycemia & Hyperglycemia](#). Retrieved on July 24, 2012.

TeensHealth (2012). [When Blood Sugar is Too High](#). Retrieved on July 24, 2012.

TeensHealth (2012). [When Blood Sugar is Too Low](#). Retrieved on July 24, 2012.

[Back to top](#)

Appendix C: Insulin

Insulin Therapy:

PubMed Health (2011). [Fact Sheet: Insulin Therapy](#). Retrieved on July 24, 2012.

Connecticut State Department of Education (2012). [Clinical Procedure Guidelines for Connecticut School Nurses: Diabetes](#).

Administration of Insulin:

American Diabetes Association. [Diabetes Care: Insulin Administration](#). Retrieved on July 24, 2012.

Patient & family education / NYU Medical Center. [Steps in insulin administration](#). Retrieved on July 24, 2012.

Insulin Delivery Systems:

American Diabetes Association. [Insulin Routes](#). Retrieved on July 24, 2012.

PMC. United States National Library of Medicine. National Institutes of Health. Indian Journal of Pharmaceutical Sciences. v.70 (3); May-Jun 2008. PMC2792528. [Recent Challenges in Insulin Delivery Systems: A Review](#). Retrieved on July 24, 2012.

WebMD. 2012. [Insulin Delivery Systems: An Overview](#). Retrieved on July 24, 2012.

Disposing of Sharps and Medicine:

IN THIS SECTION

[Appendix A: Sample Health Care Plans](#)

[Appendix B: Low/High Blood Sugar Signs and Symptoms](#)

[Appendix C: Insulin](#)

[Appendix D: Nutrition](#)

[Appendix E: Family Resources](#)

[Appendix F: Tips for Students with Diabetes](#)

[Appendix G: Guidelines for Blood Glucose Self-Monitoring in School](#)

American Diabetes Association. [Insulin Storage and Syringe Safety](#). Retrieved on July 24, 2012.

Connecticut Department of Energy and Environment Protection. [How to Dispose of Prescription Medicines & Over-The-Counter \(OTC\) Products](#).

Coalition for Safe Community Needle Disposal: [Connecticut](#)

[Back to top](#)

Appendix D: Nutrition

Individualizing Meals Plans for Children with Diabetes

The CSDE recommends that children see a Registered Dietitian (preferable a Certified Diabetes Educator) once a year for an individualized meal plan. The meal plan should include three meals and two to three snacks with a specific amount of carbohydrate. The meals and snacks should be timed appropriately with the peak of the child's insulin. Each child needs a certain amount of carbohydrate based on age, size, gender and activity level.

Johns Hopkins Medicine Medical Library. [Diabetic: Meal Planning](#).

KidsHealth from Nemours. [Meal Plans and Diabetes](#).

American Diabetes Association. [Diabetic Diet](#).

American Diabetes Association. [Create your Plate](#).

Food Labels

Another way of determining how a food may fit into the daily meal plan is the nutrition information found on food labels. Food labels can help determine the appropriate portion size to provide the amount of carbohydrate needed at any given meal or snack.

KidsHealth from Nemours. [Deciphering Food Labels](#).

Special Nutrition Issues

- School Parties — Sweets can be eaten on a special occasion such as a birthday or Halloween party. The carbohydrates should be included as part of the child's meal plan.
- Field Trips — Children should carry convenient snacks on the bus and field trip. Bus drivers and chaperones should be notified that the child has diabetes and may need to eat a snack on the bus or during the trip.
- After Care — Children should have a convenient snack if staying after school. Notify school personnel that the child may need to eat during the session.
- School Meals — Children with diabetes may participate in the U.S. Department of Agriculture (USDA) school nutrition programs. Families can review school menus ahead of time and modify as needed. Families may also wish to contact the school food service director if needed.

Snacks

American Diabetes Association. [Snacking Smart with Diabetes](#).

Emergency Food Supply

Good overall planning and access to carbohydrates ensures that children with diabetes have the means of obtaining appropriate emergency responses during the school day. Families should furnish emergency food supplies with preferred food choices for children to eat. The food supplies should be in several locations and travel with the child. Appropriate locations for emergency food supplies may be the health office, physical education office, classroom, school office and school bus.

A typical emergency food supply may contain easy to eat sources of pure carbohydrate such as fruit juice packs or glucose tablets. It may also contain foods to be used as a snack after the low blood sugar level has been raised, such as prepackaged cheese or peanut butter.

American Diabetes Association. [Tips for Emergency Preparedness](#).

[Back to top](#)

Appendix E: Family Resources

Travel, Vacations and Camps:

Centers for Disease Control and Prevention. [Have diabetes? Get tips for safe travels](#). Retrieved on July 24, 2012.

Juvenile Diabetes Research Foundation. [Traveling With Type 1 Diabetes](#). Retrieved on July 24, 2012.

Juvenile Diabetes Research Foundation. [Summer Camp Fun and Diabetes](#). Retrieved on July 24, 2012.

Sick Day Guidelines:

American Diabetes Association. 2012. [Sick Days](#). Retrieved on July 24, 2012.

Juvenile Diabetes Research Foundation. [Sick Day Management Tips for Parents](#). Retrieved on July 24, 2012.

WebMD. [Sick-Day Guidelines for People With Diabetes — Topic Overview](#). Retrieved on July 24, 2012.

[Back to top](#)

Appendix F: Tips for Students with Diabetes

National Diabetes Education Program. (2012). [Teens](#).

Nemours Teenshealth. (2012). [For Teens](#).

Nemours Kidshealth. (2012). [For Kids](#).

Juvenile Diabetes Research Foundation. (2012). [Life With Diabetes for Teens](#).

Includes:

[Exercise, Sports and Diabetes](#)

["Diabulimia": Skipping Insulin to Lose Weight](#)

[Managing Your Diabetes](#)

[Driving and Type 1 Diabetes](#)

[Where to Get Facts on Sensitive Subjects Like Depression](#)

[Professional Snowboarder with T1D Gives Back to Kids Who Inspired Him](#)

[Roundtable Discussion: Diabetes Bloggers Share How Blogging Has Impacted](#)

[Their Lives](#)

[Ask A Student: Going on the Pump](#)

[Ask A Peer: Getting Motivated to Care for Your Diabetes](#)

Juvenile Diabetes Research Foundation. (2012). *Kids Online*.

Includes:

[New to Diabetes?](#)

[Your Life \(with Diabetes\)](#)

[The Search for a Cure](#)

[Make a Difference](#)

[Your Stuff: Idea Zone; Kids Say; Pen Pals; Real Talk](#)

[Back to top](#)

Appendix G: Guidelines for Blood Glucose Self-Monitoring in School

The Connecticut State Department of Education's [Guidelines for Blood Glucose Self-Monitoring in Schools](#) is located on the Health Promotion Services/School Nurse Web site.

The State of Connecticut Department of Education is committed to a policy of equal opportunity/affirmative action for all qualified persons. The Department of Education does not discriminate in any employment practice, education program, or educational activity on the basis of race, color, religious creed, sex, age, national origin, ancestry, marital status, sexual orientation, gender identity or expression, disability (including, but not limited to, intellectual disability, past or present history of mental disorder, physical disability or learning disability), genetic information, or any other basis prohibited by Connecticut state and/or federal nondiscrimination laws. The Department of Education does not unlawfully discriminate in employment and licensing against qualified persons with a prior criminal conviction. Inquiries regarding the Department of Education's nondiscrimination policies should be directed to: Levy Gillespie, Equal Employment Opportunity Director/ American with Disabilities Act Coordinator, State of Connecticut Department of Education, 25 Industrial Park Road, Middletown, CT 06457, 860-807-2101, Levy.Gillespie@ct.gov.