NEW YORK STATE DEPARTMENT OF HEALTH

Children with Diabetes

A resource guide for families and schools

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Children with Diabetes

Acknowledgements

An expert workgroup significantly contributed to the research, writing and review of the updated content. The NYS Diabetes Prevention and Control Program is grateful for their continuous support and values the passion and commitment each individual dedicates to the care and education of all children and young adults in New York State.

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Foreward

Children with Diabetes

Foreword

Dear Reader:

Diabetes is one of the most common chronic diseases of childhood, affecting over 13,000 children in New York State. This disease requires a unique, complex and inseparable blend of self-care and medical care. Parents, schools, communities and the health care team must work collaboratively to provide information and training to ensure that children with diabetes can participate fully and safely in all settings, especially school.

The New York State Department of Health Diabetes Prevention and Control Program is working to provide comprehensive and up-to-date resources that help children with diabetes grow up to be healthy and productive adults. It is my hope that you will find *Children with Diabetes: A Resource Guide for Families and Schools* to be a valuable tool. In addition to the wealth of information provided in the first edition of the resource guide, this revised guide now addresses the serious emerging issues of childhood obesity/overweight and type 2 diabetes in children, and provides promising strategies to reduce risk.

I would like to thank the many committed individuals who contributed their time and expertise to this project. It is this type of successful collaboration that makes New York stand out as a leader in public health. Health care and education are critically important components of childhood development and all of New York's children deserve a bright and healthy future.

Sincerely,

Richard F. Daines, M.D., Commissioner

Acronyms

Acronyms

AADE – American Association of Diabetes Educators

ACA – American Camping Association

ADA – American Diabetes Association

ADAct – Americans with Disabilities Act

A1C – Hemoglobin A1C

CDC – Centers for Disease Control and Prevention

CDE – Certified Diabetes Educator

DKA – Diabetic Ketoacidosis

DMMP – Diabetes Medical Management Plan

DOH – Department of Health

DPCP – Diabetes Prevention and Control Program

ECP – Emergency Care Plan

EMS – Emergency Medical Services

ESAP – Expanded Syringe Access Demonstration Program

FAPE – Free and Appropriate Public Education

FERPA – Family Education Rights and Privacy Act

FMLA – Family Medical Leave Act

FPG – Fasting Plasma Glucose

HIPAA – Health Insurance Portability and Accountability Act

IDDM – Insulin Dependent Diabetes Mellitus

IDEA – Individuals with Disabilities Education Act

IEP – Individual Education Program

IHP – Individualized Healthcare Plan

NASN – National Association of School Nurses

NDEP – National Diabetes Education Program

NIDDK – National Institute for Diabetes and Digestive and Kidney Diseases

NIDDM – Noninsulin-Dependent Diabetes Mellitus

NYS – New York State

OGTT – Oral Glucose Tolerance Test

PCOS – Polycystic Ovarian Syndrome

PE – Physical Education

RD – Registered Dietitian

Introduction

- Update and Revision Process
- Goals
- Target Audience

Children with Diabetes

Introduction

Update and Revision Process

Between 2001 and 2002, the New York State (NYS) Diabetes Prevention and Control Program (DPCP) developed two publications, *"Children with Diabetes: A Resource Guide for Families of Children with Diabetes," and "Children with Diabetes: A Resource Guide for Schools."* The guides provide practical tools and important information for children, families and schools, and have been a model for resources developed by several other states and the National Diabetes Education Program.

In 2007, the NYS DPCP recognized the need for significant revisions and updates to the guides. An expert workgroup comprised of health care professionals, school personnel, clinicians, representatives from key diabetes-related organizations, and other diabetes stakeholders was convened to provide guidance and feedback on the update and revision process.

The priorities of the workgroup throughout the update and revision process were as follows:

- Identify new and/or updated resources and references.
- Recommend the most relevant and useful tools.
- Ensure accurate terminology and appropriate language.
- Guarantee a user-friendly layout and format.
- Provide input on correct, updated and essential content.

The two older publications have been combined into one comprehensive manual. This resource guide educates and informs families and schools as they work collaboratively to care for children with diabetes and those at-risk for type 2 diabetes.

New, revised, updated and/or expanded information includes:

- Diabetes-related research, resources and references
- Clinical practice recommendations and guidelines
- Medical and technological advances
- Prevention of type 2 diabetes in children
- Diabetes team roles and responsibilities
- Athletics and diabetes
- Emergency and natural disaster preparedness
- Legal issues related to diabetes care in children
- Sample tools, forms and plans

Goals

The resource guide was updated and revised to support and promote achievement of the following goals for children with diabetes in New York State:

- Provide a healthy and medically safe environment in the home, school and community setting.
- Ensure equal access to educational and recreational opportunities.
- Secure the highest quality care and management of diabetes through coordination among all individuals responsible for the protection, care, support, education and guidance of children.
- Decrease type 2 diabetes and reduce risk factors by providing promising prevention strategies and facilitating collaboration between families, schools and communities.

Target Audience

Families

- Parents/Guardians
- Caregivers
- Siblings
- Family Friends and Relatives

Schools

- School District Administrators
- Principals, School Administrators or Designees
- School Nurses
- Teachers
- Counselors
- Coaches and Physical Education Instructors
- Food Service Managers and Lunch Room Staff
- Other School Personnel

The amount of information these individuals must know is dependent upon their interaction and relationship with the child. This guide may also be used by diabetes advocates, stakeholders and decision makers interested in learning more about diabetes issues in New York State and the critical role of families and schools.

Diabetes in Children: An Overview

- SEARCH for Diabetes in Youth
- Overweight/Obesity and Diabetes in Youth
- Health Disparities and Diabetes

Children with Diabetes

Diabetes in Children: An Overview

Diabetes is one of the most common chronic diseases of childhood, and monitoring trends in diabetes diagnoses is a difficult but important challenge. Questions often asked by parents, school personnel and the health care community, who collectively care for children with diabetes, include, "How many children have diabetes?" and "How many have type 1 diabetes compared to type 2?" Unfortunately, there are no simple answers to these questions. Unlike many other childhood diseases, there is no national reporting system to track diabetes, and early studies that were conducted on youth did not represent the diverse population that exists in the U.S. today.

SEARCH for Diabetes in Youth

The good news is that a large project called "SEARCH for Diabetes in Youth" has been underway in the U.S. since the year 2000. The SEARCH study is the largest surveillance effort on diabetes in youth conducted in the U.S. to date. Through the SEARCH study, the number of cases of physician-diagnosed diabetes in six centers across the U.S. is being collected, with information about the type of diabetes, the race/ethnic group of the child, gender, and the age of diagnosis. This study, funded by the Centers for Disease Control and Prevention (CDC) and supported by the National Institute for Diabetes and Digestive and Kidney Diseases (NIDDK), is providing better information on children with diabetes than we've ever had.

SEARCH Study Goals

- Identify the number of children and youth under age 20 who have diabetes;
- study how type 1 diabetes and type 2 diabetes differ, including how they differ by age and race/ethnicity;
- learn more about the complications of diabetes in children and youth;
- investigate the different types of care and medical treatment that these children and youth receive; and
- learn more about how diabetes affects the every-day lives of children and youth who have diabetes.

In 2006, a summary report was written by the SEARCH for Diabetes in Youth study group, and published in *Pediatrics*.[1] Key findings related to prevalence, age, type of diabetes, age and race/ethnicity are summarized below.

- Type 1 diabetes was by far the most prevalent type of diabetes in youth aged 0-19, with an overall prevalence of 154 cases per 100,000 children.
- The overall prevalence of type 2 diabetes in youth aged 0-19 was 22 cases per 100,000 children.
- The overall prevalence of any type of diabetes in youth aged 0-19 was 182 cases per 100,000 children.
- There were significantly fewer cases of diabetes in the 0-9 age category (79 cases per 100,000 children) than in the 10-19 age group (280 cases per 100,000 children).
- Type 1 diabetes was more prevalent in the non-Hispanic white population than in any of the other race/ethnic groups.
- Type 2 diabetes was most prevalent in the American Indian group, followed by Black, Asian/Pacific Islanders, Hispanic and White (descending order of prevalence).
- Data gathered from the six centers have been extrapolated to estimate diabetes trends in the U.S.:
  - In 2001, there were 154,000 physician-diagnosed cases of diabetes in the 80.7 million children and adolescents in the nation.
  - This corresponds to an overall diabetes diagnosis rate of **1 out of every 523 youth.**

For more information on the SEARCH study, visit their website at: www.searchfordiabetes.org/public/patient/index.cfm.

What does the SEARCH study tell us about diabetes in New York State?

Applying the rates from the SEARCH study to NYS Census data, it is estimated that there are approximately 9,266 diagnosed cases of diabetes among youth aged 0-19 in New York State. The majority of cases are in children aged 10-19 and type 1 diabetes is more prevalent than type 2 diabetes in youth. See "Type 1 Diabetes in Children" on page 15 and "Type 2 Diabetes in Children" on page 31 for more information about diabetes in New York State.

What does the future hold for diabetes in our youth?

In 2003, the CDC released a report on diabetes trends with ominous predictions for the future. Researchers studied diabetes prevalence and incidence in a variety of population groups, and compared that information with U.S. Census Bureau data to predict the lifetime risk for developing diabetes. While the study did not make a distinction between type 1 and type 2 diabetes, the great majority (90-95 percent) of diabetes is diagnosed as type 2.

Lifetime risk of developing diabetes for children born in the U.S. in the year 2000 and later

- ❇ 1 in 3 males will develop diabetes
- ❇ 2 in 5 females will develop diabetes
- ❇ 1 in 2 Hispanic females will develop diabetes

Overweight/Obesity and Diabetes in Youth

Just as in the adult population, children are experiencing unparalleled increases in overweight and obesity. The growing epidemic of childhood obesity is one of the most serious public health concerns facing the U.S. today. Over the past 25 years, the prevalence of overweight in children and adolescents has tripled, reaching 17.1 percent in 2003-2004. This epidemic is occurring in both boys and girls, across all states and socioeconomic lines, and among all racial and ethnic groups. Hispanics, African Americans, and Native Americans are disproportionately affected.

The increased incidence of type 2 diabetes in youth is a "first consequence" of the obesity epidemic among young people- a significant and growing public health problem. Overweight children are at increased risk for developing type 2 diabetes during childhood, adolescence, and later in life.

Recently, SEARCH study researchers also observed that overweight was associated with younger age at diagnosis of type 1 diabetes.[2] While type 1 diabetes cannot be prevented, being overweight may accelerate its onset in some children.

Health Disparities and Diabetes

Research has demonstrated that type 2 diabetes is more common in certain racial and ethnic groups such as African Americans, American Indians, Hispanic/Latino Americans, and some Asian and Pacific Islander Americans; and that type 1 diabetes is more common in the non-Hispanic White population. While this information is important, it doesn't paint a full picture of the many and varied factors that can impact risk for disease and how well it will be managed once diagnosed. To more fully understand diabetes prevention (type 2) and diabetes care issues, it is important to consider the complex issues surrounding health disparities.

Health disparities refer to gaps in the quality of health and health care across racial, ethnic and socioeconomic groups.[3] The Health and Resources Services Administration defines health disparities as "population-specific differences in the presence of disease, health outcomes, or access to health care."[4] In the U.S., health disparities are well-documented in minority populations. When compared to whites, minority groups have a higher incidence of chronic diseases, higher mortality rates, and poorer health outcomes.[5]

The following is a **partial** list of challenges that often lead to disparities in health care:

- lack of insurance coverage...people are less likely to get the care they need and go without prescription medicines
- lack of a medical home...people have more difficulty obtaining care, fewer doctor visits, and difficulty getting the needed prescriptions
- lack of financial resources...barrier to health care access
- legal barriers...reduced access to medical care by low-income immigrant minorities who are legally ineligible for public insurance programs
- lack of diversity in the health care workforce and limited culturally-appropriate education...cultural differences between clinicians and their patients may negatively impact care

It is important that people who care for children with diabetes or who are at-risk for diabetes realize that these significant challenges within our society may impact type 2 diabetes prevention and management efforts.

General Diabetes Information

- Types of Diabetes
- Diagnosing and Classifying Diabetes and Pre-Diabetes
- Understanding the Importance of Diabetes Management

Children with Diabetes

General Diabetes Information

Diabetes is a disease in which blood sugar (glucose) levels are above normal.[6] Glucose, a form of sugar created from digestion of food, is used by the body for energy with the help of a hormone known as insulin. In people with diabetes, glucose cannot easily be used by the cells of the body because of a problem with insulin. This leads to high levels of glucose in the blood, sometimes referred to as high blood sugar or hyperglycemia.

Types of Diabetes

The difference between various types of diabetes is based mostly on the specific problem occurring with the hormone, insulin. Insulin is made by, and released from, the pancreas, an organ that sits behind the stomach. In some types of diabetes, the cells that make insulin are damaged which leads to an inability to produce insulin. In other types of diabetes, insulin is produced by the pancreas, but other tissues of the body do not recognize it. Both types lead to high blood glucose. There are many causes for the different types of diabetes, some of which are beyond the scope of this guide. The following table highlights the most common types of diabetes:[7]

Common Types of Diabetes [8,9]

Type	Description
Type 1 Diabetes	• Cells in the pancreas are damaged leading to a decreased release of insulin. • Cell damage usually leads to a total lack of insulin production.
Type 2 Diabetes	• Insulin is not used properly by the body, so glucose is not absorbed. • There may be a problem with insulin being secreted by the pancreas.
Gestational Diabetes	• Diabetes develops during pregnancy. • Diabetes often resolves after delivery, although these women are at increased risk for development of type 2 diabetes in the future.
Pre-diabetes	• The blood glucose level is high, but not high enough to meet the criteria for diabetes. • Pre-diabetes is a risk factor for future diabetes.

Diagnosing and Classifying Diabetes and Pre-diabetes

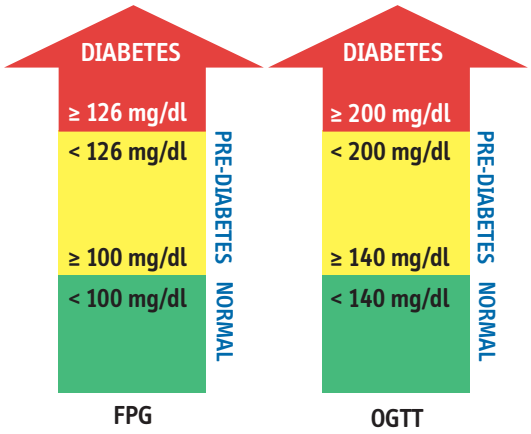
Diabetes can be diagnosed in any one of three ways.[10,11,12]

1. **Fasting plasma glucose test (FPG)** – a blood test that measures glucose after a person has not eaten for at least 8 hours.

2. **Random plasma glucose test** – a blood test that measures glucose which doesn't require a person to have not eaten.

3. **Oral glucose tolerance test (OGTT)** – a blood test that measures glucose after a person has not eaten for 8 hours and 2 hours after that person has consumed a glucose-containing drink.

Later sections of this guide will provide information on when these tests might be ordered for a child.



The results of any of the above tests can be used to determine whether diabetes or pre-diabetes is present. Positive tests should be repeated on a different day to be sure the above results are correct.[13,14,15]

Once a diagnosis of diabetes is made, the doctor will work to classify the specific type affecting a child. Determining the specific type of diabetes is based on the circumstances present at the time of diagnosis, such as symptoms and body weight, as well as blood tests if the distinction is not initially clear.[16] Knowing the type of diabetes affecting a child is important since there are differences in the treatment of type 1 and type 2 diabetes.

Understanding the Importance of Diabetes Management

The high blood glucose levels associated with diabetes can have both short- and long-term physical effects on the body. Complications may be delayed or possibly prevented through adequate management of diabetes.[17,18,19] Later sections of this guide will provide helpful information on managing diabetes in children. See Appendix #10 for more information on the standards of care from the American Diabetes Association (ADA).

Short-term complications include diabetic ketoacidosis (DKA) and hypoglycemia (low blood glucose).[20] See "Type 1 Diabetes in Children" on page 15 for more information about DKA and hypoglycemia.

The long-term physical complications of diabetes are caused by the effects that high blood glucose has on the body over time. It is helpful to know about these potential complications so they can be discussed with the child's doctor and eventually with the child. The following table provides a brief summary of the possible long-term complications of diabetes and the ways in which children with diabetes will be screened for them.

Long-Term Complications of Diabetes [21,22,23]

Long-term complication	Description	Screening
Retinopathy	• Damage to the blood vessels of the eye, specifically the retina • Can affect both eyes • Early stages of retinopathy may not cause any symptoms, but, in time changes to the vision will be noticed • Can lead to blindness	• Follow the doctor's recommendations for regular eye exams.
Hypertension	• Elevated blood pressure on at least 3 separate days • Treatment of high blood pressure can help prevent other diabetes complications	• Have blood pressure checks at every doctor's visit.
Nephropathy	• Damage to the blood vessels of the kidneys • Kidney damage results in the release of albumin, a protein, in the urine • Long-term damage can lead to kidney failure	• The doctor will order a urine test once a child with diabetes is age 10 and has had diabetes for five years.
Dyslipidemia	• An increased amount of lipids or fats in the blood • May be referred to as high cholesterol • Can lead to atherosclerosis, which is sometimes referred to as clogged arteries • Atherosclerosis can lead to heart disease and stroke	• The doctor will order blood tests based on any history of high cholesterol or heart disease in the family. • If the family history is of concern (or unknown), a fasting lipid profile* is done when the child is first diagnosed with diabetes. • If there is no concern about family history, a fasting lipid profile* is done when the child reaches puberty.
Neuropathy	• Damage to the nerves of the arms and legs (peripheral nerves) • Can lead to decreased sensation in the hands and feet • Decreased sensation can lead to injuries and infections going unnoticed	• Although neuropathy is not common in children, it is important to develop good foot care skills for the future. • Follow the doctor's recommendations for foot exams to begin at puberty.

*A fasting lipid profile is a blood test performed after at least 8 hours of no caloric intake

Type 1 Diabetes in Children

- Background and Prevalence
- Type 1 Diabetes in Children in NYS
- Symptoms of Type 1 Diabetes
- Testing for Type 1 Diabetes in Children
- Management of Type 1 Diabetes in Children
- Hypoglycemia
- Hyperglycemia
- Nutrition
- Physical Activity
- Type 1 Diabetes and Other Related Conditions

Children with Diabetes

Type 1 Diabetes in Children

Background and Prevalence

Type 1 diabetes, formerly called juvenile diabetes or insulin-dependent diabetes mellitus (IDDM), is caused by a specific problem with the body's immune system. For children without diabetes, specialized cells (beta cells) in the pancreas make insulin, a hormone in the body that allows sugar (glucose) to enter the cells and provide energy for daily life. For children with type 1 diabetes, beta cells in the pancreas are attacked and destroyed by their own immune system. The cell damage usually leads to a total lack of insulin production. When too many beta cells are damaged and insulin is no longer produced, too much glucose stays in the blood, and symptoms of type 1 diabetes begin to appear.

Type 1 diabetes accounts for 5 to 10 percent of all diagnosed cases of diabetes in the U.S., but is the leading type of diabetes in children.

Causes of type 1 diabetes are complex and still not completely understood by researchers, but it is important to understand that type 1 diabetes can not be prevented. People with type 1 diabetes are thought to have an inherited or genetic predisposition to developing the disease, but the disease process is believed to be stimulated by an environmental trigger such as a virus, toxin, drug or chemical.

In the U.S., the SEARCH for Diabetes in Youth study estimates that the overall prevalence for type 1 diabetes in youth is approximately 154 cases per 100,000 youth.[24]

- For children aged 0-9, the study estimates a prevalence of 76 cases of type 1 diabetes per 100,000 youth.
- For children aged 10-19, the study estimates a prevalence of 228 cases of type 1 diabetes per 100,000 youth.

Additional research indicates that approximately one in every 400 to 600 children and adolescents have type 1 diabetes in the U.S..[25] More than 13,000 children are diagnosed with type 1 diabetes each year,[26] and an estimated 75 percent of all newly diagnosed cases occur in individuals under 18 years of age.[27]

Type 1 Diabetes in Children in NYS

Based on figures from the SEARCH for Diabetes in Youth study, it is estimated that there are 7,842 diagnosed cases of type 1 diabetes among youth aged 0-19, which accounts for nearly 85 percent of diagnosed cases of diabetes among this age group.

Symptoms of Type 1 Diabetes

- Children with type 1 diabetes usually develop symptoms over a short period of time.
- Onset of type 1 diabetes can occur at any age, but it is most often diagnosed in children, teenagers or young adults.
- It is important for families, schools and health care professionals to communicate with each other about children and adolescents with symptoms of type 1 diabetes.

Symptoms of Type 1 Diabetes

- Increased thirst
- Increased urination
- Extreme hunger
- Unusual weight loss
- Blurred vision
- Feeling tired
- Nausea
- Dry, itchy skin
- Vaginal yeast infections
- Fruity or sweet odor on the breath
- Heavy, labored breathing

A child with type 1 diabetes who is not diagnosed and treated with insulin in a timely manner may present with signs of diabetic ketoacidosis (DKA), a serious life-threatening condition that can result in a diabetic coma. See page 24 in this section for more information about DKA.

Testing for Type 1 Diabetes in Children

In general, children and adolescents with type 1 diabetes will rapidly develop some combination of the above symptoms, and diagnostic testing should be conducted immediately by a health care professional. Many of the symptoms of type 1 diabetes are nonspecific and may be mistaken as signs of other serious or acute medical conditions (i.e. the flu). To confirm the diagnosis of diabetes, high blood glucose must be documented through the use of one of the tests described on page 13 in the "General Diabetes Information" section.

Management of Type 1 Diabetes in Children

Type 1 diabetes management is best accomplished through a combination of blood glucose monitoring, use of insulin, avoidance of low and high blood sugar (hypo- and hyperglycemia), nutrition therapy and physical activity. See Appendix #12 for more information on the care of children and adolescents with type 1 diabetes from the American Diabetes Association (ADA).

Blood Glucose Monitoring

Blood glucose monitoring tells a person with diabetes how much glucose (or sugar) is in his/her blood. The child's doctor or diabetes educator will recommend how often blood glucose should be checked throughout the day, help the family and child to understand what a "target" blood glucose level is and what steps to take if levels are out of the "target" range. The following table offers some goals for blood glucose levels based on the age of the child. It is important to understand that goals for each child will differ depending on individual needs.

It is extremely important for children to check their blood glucose levels and respond to levels that are too high or too low as quickly as possible. Advantages of checking blood glucose levels any time and any place include:[29]

- **Better blood glucose control** to prevent long-term complications of high blood glucose and acute complications of high and low blood glucose.
- **Safer for children** because less time is lost between recognizing symptoms, confirming low blood glucose and obtaining treatment with a fast-acting sugar source followed by a snack or meal.
- **Increased independence** in diabetes management when the blood glucose meter is easily accessible and checks can be conducted as needed.
- **Decreased stigma** as blood glucose monitoring loses its mystery when handled as a regular occurrence.
- **Less time out of class** or other learning environments that are important for a child's growth and development.

Blood Glucose Goals for Children with Type 1 Diabetes*[28]

Age of Child	Blood Glucose Goal Range (mg/dl)	
	Before meals	Bedtime/Overnight
Toddlers and preschoolers (6 and younger)	100-180	110-200
School age (6-12 years)	90-180	100-180
Adolescents / Young Adults (13-19 years)	90-130	90-150

*Goals should be individualized based on each child's needs. These goals also apply to children with type 2 diabetes.

General Instructions for Using Blood Glucose Monitors

- Be sure hands are clean.
- Insert the test strip in the glucose meter according to the meter's instructions.
- Prick the chosen area (usually a fingertip) with a lancet.
- Hold the finger until a small drop of blood appears.
- Place drop of blood on the test strip.
- Record the test results.

Blood Glucose Monitors

Blood glucose monitoring is most commonly done with the use of a blood glucose monitor, sometimes called a glucometer. A sharp tool, known as a lancet, is used to prick the skin in order to get a blood sample to test. There are many types of blood glucose monitors available. A diabetes educator can help a family and child to learn how to use their specific blood glucose monitor and watch them test the child's glucose to make sure they can use it correctly.

Assisting in the steps of blood glucose monitoring can help children grow to understand the importance of diabetes management. The extent of a child's involvement will depend on age and maturity. See "The Starting Line Up: Diabetes Team Roles and Responsibilities" on page 49 for more information.

Continuous Glucose Monitoring System

A continuous glucose monitoring system is a device used to record blood glucose levels and identify patterns throughout the day and night. A tiny glucose-sensing device is inserted underneath the skin and information is sent to a small monitor worn around the waist. Continuous glucose monitors deliver readings every few minutes around the clock to help children and families identify trends that might otherwise go unnoticed. Adjustments to insulin, meals and physical activity might be based on this information and the results of a blood glucose test.

Some systems are also designed to include high and low glucose alarms, as well as predictive alarms, to warn patients of significant glucose changes well before they become dangerous. Once an alarm has been activated, a child with diabetes must check his/her blood glucose with a blood glucose monitor and proactively adjust diabetes treatment through food intake or insulin.

Continuous glucose monitoring systems may be used in conjunction with an insulin delivery device known as an insulin pump (see the following section on insulin). This technology is evolving rapidly - health care clinicians can provide the latest information.

What is Hemoglobin A1C?

Another way of knowing how well blood glucose levels are being controlled over time is through the use of a blood test called Hemoglobin A1C (A1C). Doctors should order this blood test at least twice a year to help decide whether the diabetes management regimen should be changed. A1C is used in both type 1 and type 2 diabetes.

Hemoglobin A1C goals for children with diabetes[30]

Age of Child	Hemoglobin A1C goal
Younger than age 6	Between 8.5 and 7.5%
Age 6 to 12 years	Less then 8.0%
Age 13 to 19 years	Less then 8.0%

Insulin[31]

Children with type 1 diabetes do not make their own insulin, so insulin must be given as a medication to control blood glucose levels. Insulin helps glucose reach all parts of the body so it can be used for energy. The amount of insulin a child needs will depend on weight, age, diet, physical activity level and puberty status.

Some facts about insulin:

- Most people with diabetes need background (basal) and meal-time (bolus) insulin.
- The clinicians will decide the right types and amounts of insulin, and help teach families how and when to make adjustments throughout the day.
- A diabetes educator or nurse can show families and children the right way to take insulin and in which parts of the body to inject it.
- There are different types of insulin, which differ based on:
  - when they start working in the body **(Onset)**
  - when they reach their maximum ability to lower blood glucose levels **(Peak Action)**
  - how long they last in the body **(Duration)**

Storage of insulin (always check manufacturer guidelines):

- Unopened bottles of insulin should be kept in the refrigerator.
- Opened bottles should be kept at room temperature and must be discarded after 28 days.
- Do not keep insulin in very cold or very hot places, as this can change how well it works.
- Keep at least one extra bottle of insulin at home in the refrigerator.

Like any other medication, insulin has an **expiration date**. Therefore, it is important to make sure that all the insulin that will be purchased will be used before its expiration date.

Types of Insulin[32]

Type	Onset	Peak Action	Duration
Rapid-acting			
Lispro	5-15 minutes	45-90 minutes	3-4 hours
Aspart	10-20 minutes	1-3 hours	3-5 hours
Glulisine	10 minutes	40-130 minutes	6 hours
Short-acting			
Regular	30 minutes	2-5 hours	5-8 hours
Intermediate, basal			
NPH or Lente	1-3 hours	6-12 hours	16-24 hours
Long-acting, basal			
Glargine*	2-4 hours	24 hours (evenly over)	20-24 hours
Detemir*	3-8 hours	24 hours (evenly over)	6-24 hours
Pre-mixed			
NPH and Regular**	30 minutes	7-12 hours	16-24 hours

* Onset and duration may differ based on where insulin is injected.
** This is just one example of a pre-mixed insulin solution. Pre-mixed solutions are not commonly used in children.

Insulin Delivery Systems

There are different types of devices that can be used to get insulin into the body. Some devices such as insulin pumps, have advantages, but require the user to take on additional responsibilities. A doctor can help in the decision for what device is best for a child.

Children who need insulin during a school day may be able to administer it on their own, or they may need supervision or help from an adult. School personnel taking care of children needing insulin should know how to use and operate each individual child's insulin delivery device.

Disposing of Needles

- Needles and lancets should be placed in a safe container clearly labeled as a sharps container.
- Puncture-proof sharps containers can be purchased at pharmacies. Hard plastic household containers, which should be unbreakable and puncture resistant, such as laundry detergent bottles, can also be used.
- Sharp items should be placed in the sharps container immediately after use.
- Do not try to bend or recap needles with their covers as this can lead to an injury.
- Keep the container away from children.
- For information on how to dispose of a full sharps container:
  - Call local doctors, pharmacies or hospitals to see if they accept sharps containers.
  - Ask a diabetes educator about local sharps disposal programs.
  - Call local public works departments to find out about your community's medical waste collection policy.
- See the Appendix #20: Expanded Syringe Access Demonstration Program for more information on safe sharps disposal.

Devices for Getting Insulin into the Body[33]

Type of Device	How it works
Standard needle and syringe	• Insulin is injected underneath the skin using a small needle and syringe.
Injection aids	• Injections are given with needles using a spring-loaded syringe holder that works with the push of a button.
Insulin pens	• Users turn a dial to select the desired dose of insulin and then press a plunger to inject insulin just under the skin.
Insulin jet injectors	• A high-pressure air system sends a fine spray of insulin through the skin instead of using a needle.
Insulin infusers	• A small tube through which insulin is injected is placed into the skin for several days.
Insulin pumps	• A tube that ends with a small needle is inserted under the skin. • The tube attaches to a small pump that can be worn on a belt or carried. • Pumps are set to release insulin throughout the day.

Hypoglycemia or Low Blood Glucose (HypO means LOW)

Factors that affect the management of type 1 diabetes such as too much insulin, too little food and/or unplanned physical activity can sometimes cause blood glucose levels to drop too low, which can result in an emergency situation if not identified and treated quickly. Hypoglycemia is an urgent complication of diabetes, and it can happen suddenly.

It is important for families and schools to recognize and treat hypoglycemia as early as possible to avoid the variety of consequences that hypoglycemia can cause, ranging from learning difficulties to emergency situations. The following chart explains the causes and symptoms of hypoglycemia and how to identify and treat it.

Causes of Hypoglycemia

- Too much insulin
- Missed food
- Delayed food
- Unplanned strenuous physical activity

Symptoms (Onset is often sudden; symptoms may progress rapidly)

Mild

- Hunger
- Shakiness
- Weakness
- Pale skin
- Anxiety
- Irritability
- Dizziness
- Sweating
- Drowsiness
- Personality change
- Inability to concentrate

Moderate

- Headache
- Behavior change
- Poor coordination
- Blurred vision
- Combative behavior
- Weakness
- Slurred speech
- Confusion

Severe

- Loss of consciousness
- Seizure
- Inability to swallow

Actions Needed: Notify School Nurse, if available, or Diabetes-Trained School Personnel. If possible, check blood sugar, per Diabetes Medical Management Plan. When in doubt, always **TREAT FOR HYPOGLYCEMIA.**

Mild

- Student may/may not treat self.
- Provide quick-sugar source,
  3-4 glucose tablets,
  or 4 oz. juice,
  or 6 oz. regular soda,
  or 3 teaspoons glucose gel.
- Wait 10-15 minutes.
- Recheck blood glucose.
- Repeat food if symptoms persist or blood glucose is less than child's target range.
- Follow with a snack of carbohydrate and protein (e.g. cheese and crackers).

Moderate

- Student requires assistance.
- Give student quick-sugar source per guidelines for **MILD** hypoglycemia.
- Wait 10-15 minutes.
- Recheck blood glucose.
- Repeat food if symptoms persist or blood glucose is less child's target range.
- Follow with a snack of carbohydrate and protein (e.g. cheese and crackers).

Severe

- Do not give anything by mouth.
- Position on side, if possible.
- Administer glucagon, as prescribed.
- While treating, have another person follow the district policy for medical emergency care.
- Contact parents/guardians.
- Stay with the student until emergency services arrive.

A child suspected of having hypoglycemia should never be left alone. Sometimes symptoms of hypoglycemia can be mistaken for misbehavior. If a child has a sudden change in behavior, treat the situation as a hypoglycemic emergency. Check the child's blood glucose immediately, and treat it appropriately. If the blood glucose level cannot be checked, treat the child's symptoms of hypoglycemia based on the chart (previous page).

Treating Severe Hypoglycemia: What is Glucagon?

Glucagon is a naturally occurring hormone in the body that works by raising blood glucose levels. In **severe** cases of hypoglycemia, glucagon is given as an injection to get blood glucose levels back to the target range. Glucagon is a life-saving treatment for **severe hypoglycemia** and cannot harm a child.

Families, school nurses and other adults who have children with diabetes in their care should know when and how to give glucagon. If a school nurse is not always available, other school personnel should be trained to give glucagon in case of a hypoglycemic emergency.

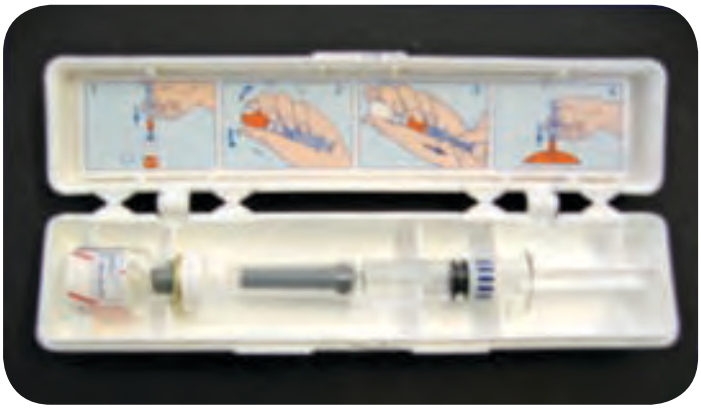
Administering Glucagon

A health care professional will review the steps involved with giving glucagon. Glucagon kits should be in a known location in close proximity to the child with diabetes, and available to all adults who are trained to treat a hypoglycemic emergency. Glucagon kits should be stored at room temperature, and the kit's expiration date should be monitored.

Training tools are available to help teach others about the use of glucagon during an emergency. More information about the NYS DPCP Glucagon Emergency Administration Training Tool can be found in Appendix #16 or on-line at: **www.nyhealth.gov.**

The following page outlines the necessary steps for the administration of glucagon.

Glucagon Kit – Lilly



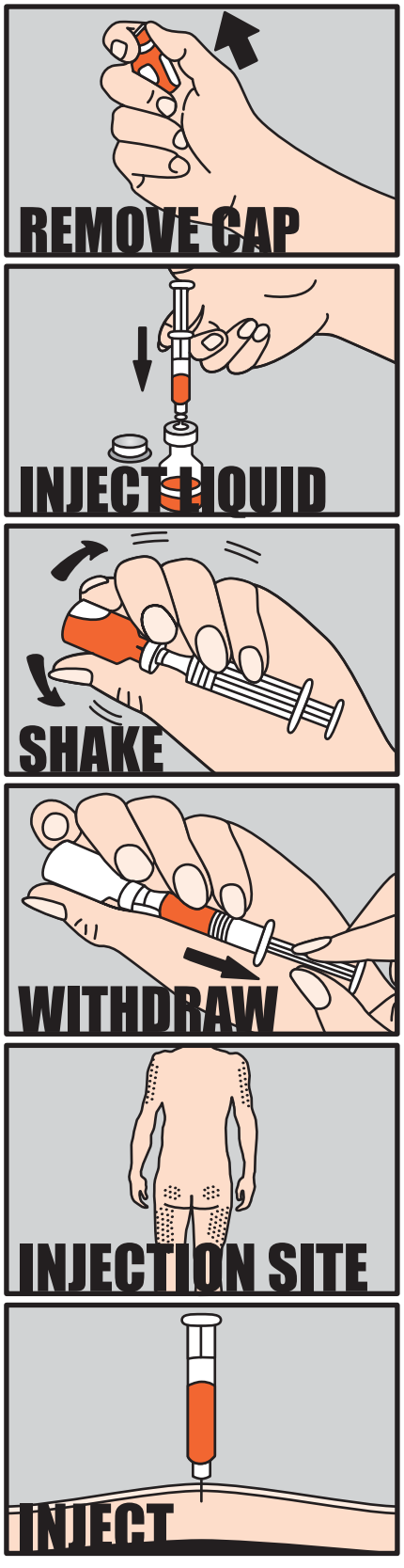
Glucagon Kit – Novo Nordisk

Glucagon Kit Contents

- 1 mg of freeze-dried glucagon (in a vial)
- 1 ml of water (in syringe) to combine with glucagon before use

Administering Glucagon

Treat, then follow district policy for emergency medical care.



1. Position the student on his or her side.
2. Remove the cap from the glass vial.
3. Pull the needle cover off the syringe.
4. Insert the needle into vial and inject the liquid.
5. Shake to dissolve.
6. Withdraw the glucagon solution back into the syringe and remove the needle from vial.
7. Check for air bubbles in the syringe. Tap any visible air to the top of the syringe and gently push on the plunger until the air is removed.
8. Insert the needle at a 90 degree angle and inject the glucagon into a large muscle (upper arm, thigh, or upper outer area of buttock).
9. Withdraw the needle and apply slight pressure to the injection site.
10. Keep the student positioned on his or her side.
11. Remain with the student until Emergency Medical Services (EMS) assumes control.

Hyperglycemia or High Blood Glucose (HYper means HIGH)

Sometimes blood glucose levels are above a child's target range. This can happen when too little insulin has been given, when food intake hasn't been covered by the needed amount of insulin, when a child gets sick and even during times of high stress, menstruation or injury. It is important to understand hyperglycemia because of its short- and long-term effects on the body. In the short-term, untreated hyperglycemia due to insulin insufficiency or deficiency can lead to diabetic ketoacidosis (DKA). However, it is important to note that hyperglycemia alone doesn't cause DKA.

See "General Diabetes Information" on page 13 for more information on the long-term effects of persistent hyperglycemia and potential complications of diabetes.

The following chart explains the causes and symptoms of hyperglycemia and the actions needed to respond.

Causes of Hyperglycemia

- Food intake not covered by insulin
- Too little insulin
- Decreased activity
- Illness/Infection
- Stress
- Injury
- Menstruation

Symptoms (Onset over several hours or days)

Mild

- Thirst
- Frequent urination
- Fatigue/ sleepiness
- Increased hunger
- Blurred vision
- Sweet, fruity breath
- Weight loss
- Stomach pains
- Flushed skin
- Lack of concentration

Moderate

- Mild symptoms, plus:
  - Dry mouth
  - Nausea
  - Stomach cramps
  - Vomiting

Severe

- Mild and moderate symptoms, plus:
  - Labored breathing
  - Weakness
  - Confusion
  - Unconsciousness

Actions Needed

- Allow free use of the bathroom.
- Encourage child to drink water or sugar-free drinks.
- Contact the School Nurse or Diabetes-Trained School Personnel to check urine or administer insulin per student's Diabetes Medical Management Plan.
- If student is nauseous, vomiting or lethargic, call the parents/guardians or emergency medical services in your area. Stay with the child until such help arrives.

Severe Hyperglycemia: Diabetic Ketoacidosis (DKA)

When insulin is not available to help the body use glucose, the body begins to look for other sources of glucose to use for energy. The body will begin to burn fat for energy resulting in the release of toxic by-products called ketones. The build up of ketones in the body can lead to diabetic ketoacidosis.

A delayed diagnosis of type 1 diabetes can lead to DKA. Once a child has been diagnosed with type 1 diabetes, however, the most common cause of DKA is not getting enough insulin. If sufficient insulin is not given to treat high blood glucose levels or there are high levels of ketones in the urine or blood (see below), DKA can occur. Insulin pump users are especially at risk for DKA if the pump is not working correctly and insulin delivery is impaired.

Signs and Symptoms of DKA

- Fruity breath odor
- Nausea
- Vomiting
- Dehydration
- Stomach pains
- If untreated: Deep breathing, increased sleepiness and loss of consciousness

Monitoring for and preventing DKA

- DKA can be prevented by checking blood glucose levels frequently and modifying diabetes treatment as necessary.
- If glucose levels are high or if a child is sick, he/she should be checked for ketones.
- Ketones appear first in the blood, then the urine. The body produces ketones for a while before they can be detected in the urine.
- Either blood or urine testing can be used to detect the presence of ketones:
  - Blood is checked for ketones using a special blood glucose meter.
  - Urine is checked for ketones using special test strips that are dipped into the urine.
- The test strip should be compared to a chart. (The doctor and diabetes educator can explain blood and urine ketone testing in more detail.)
  - **If the test strip indicates that blood ketones are between 0.6 to 1.5 mmol/l or urine ketones to be negative or small:**
    - Give the child sugar-free fluids such as water, and recheck ketones in a few hours.
  - **If the test strip indicates that blood ketones are above 1.5 mmol/l or urine ketones are moderate to large:**
    - Seek guidance from a health care clinician, and follow the child's medical management plan on how to respond to this situation.
    - Provide sugar-free fluids by mouth.
    - Monitor the child for severe symptoms such as vomiting and increased sleepiness.
  - **If vomiting occurs and the child cannot take fluids by mouth:**
    - Call 911 or local emergency services.

Treatment for DKA

When hyperglycemia progresses without treatment, DKA may result. **This is a medical emergency.** Children with DKA need to be treated in a hospital and closely monitored.

Nutrition

Children with type 1 diabetes are active, growing children who have the same nutritional needs as children who do not have diabetes. A good nutrition plan is one of the cornerstones in diabetes management. Just like all kids, children with diabetes have a strong need to "fit in" socially and don't want to miss out on any of the activities available to them such as dances, sports, field trips and school parties. Type 1 diabetes should not prevent them from engaging in any of these activities. Balancing good nutrition with medication and activity levels will enable children with diabetes to participate fully and safely in any activity.

Children with type 1 diabetes should consult with a Registered Dietitian (RD), who is preferably a Certified Diabetes Educator (CDE), at least once a year to develop an individualized meal plan, and more frequently if there are changes in glucose control, activity patterns, growth patterns or insulin regimen. The RD will take into consideration the child's nutrient, vitamin, mineral, fiber, and fluid needs as well as any other medical conditions that need to be addressed by diet. The meal plan should not exclude any foods or require the child to eat foods that are different from what the rest of the family eats.

There are multiple methods an RD can use to create an individualized meal plan. The meal plan can also be tailored to the insulin method that the child is currently using. Today more and more children are using basal/bolus insulin therapy, either through injections or insulin pumps. The following chart describes three methods of insulin dosing used by children with type 1 diabetes and the impact each has on meal planning.

The meal plan should take into account the many factors that impact a child's eating habits and their blood glucose management, including:

- food preferences
- cultural influences
- family eating patterns and schedules
- activity level
- insulin action peaks
- overall caloric needs reflecting the child's weight and growth patterns

Insulin dosing method	Meal planning considerations
Fixed doses of intermediate and rapid-acting insulin	Meals should be timed to be eaten at the time of insulin peak action. Meals should occur as close as possible to the same time every day with the same proportions of carbohydrates, fats and proteins.
Long-acting basal (Detemir, Glargine) insulin with rapid-acting insulin at meals	This allows flexibility in meal planning. The amount of rapid-acting insulin is based on the amount of carbohydrate in the meal.
Insulin pumps	Pumps allow flexibility in meal planning. Rapid-acting insulin is based on the carbohydrate content of the meal.

It is important that people who care for children with type 1 diabetes learn the impact of food on blood glucose levels. There is some evidence that total carbohydrate content of meals and snacks is the most important food component in determining what the blood glucose response will be after eating. The carbohydrate content also impacts what the pre-meal insulin dose will be.

The following list provides information on the three main food components – carbohydrate, protein and fat and the major food sources in which they are found. It also describes how each food component impacts blood glucose levels. Meals and snacks are not often composed of just one food, but rather a mixture of foods. That mixture impacts how quickly the food is digested and absorbed – which in turn impacts blood glucose levels.

Carbohydrate:

- 45-60 percent of the calories we eat should come from carbohydrate.
- **Up to 100 percent of dietary carbohydrate becomes blood sugar.**
- This is a major source of energy for the body.
- Whole grains are a better choice of carbohydrate than refined grains.

Types of carbohydrate:

- **Starches**
  Starches are found in bread, cereal, pasta, rice and starchy vegetables such as corn, peas, and potatoes.
- **Sugar**
  Sugar is found in fruits, milk, processed foods, table sugar, syrup and most desserts. Sugar-containing foods such as desserts should be eaten sparingly within the context of a healthy diet (small portions are best!).
- **Fiber**
  Fiber is found in whole grains, fruits, vegetables and nuts. Fiber provides a feeling of fullness. Soluble fiber (found in oats, barley, apples, citrus and strawberries) lowers cholesterol. Insoluble fiber (found in wheat, vegetables and many fruits) can delay emptying of the stomach and decrease the amount of carbohydrate absorbed by the body, resulting in a lower or more gradual rise in blood glucose.

Food Sources of Carbohydrate

- Bread, cereal, rice, pasta (contain primarily carbohydrate, some protein, little fat)
- Fruits – contain only carbohydrate
- Vegetables – contain mostly carbohydrate and some protein
- Milk – contains carbohydrate, protein and possibly fat
- Dessert foods (cake, candy, pie, pastries, etc.) – often contain carbohydrate and fat
- Sugar, molasses, syrup, honey, jelly – contain only carbohydrate

General Guidelines for Daily Carbohydrate Intake

The following chart provides a rough estimate of a child's daily carbohydrate needs based on age and gender for a typical meal plan that includes 3 meals and 2-3 snacks.

Age	Daily Carbohydrate Needs (grams)*	Per Meal (grams)	Per Snack (grams)
5-10	Male and Female 200-275	50-70	15-20
11-15	Males: 275-400 Females: 275-300	70-90	30-45
16-18	Males: 300-475 Females: 250-300	75-100	30-50

*For children who use a carbohydrate counting meal plan, 15 grams of carbohydrate equals one serving or one "carb."

Protein:

- 10-20 percent of the calories eaten should come from protein.
- **50 percent of dietary protein becomes blood sugar.**
- Protein builds, repairs and maintains body tissue.
- Protein is important for normal growth and development, and is the main component of hormones, enzymes and antibodies.
- Protein needs can be met with everyday food sources – supplements are not necessary, even for vigorous athletes.
- As part of a mixed meal, protein may slow the absorption of carbohydrate.

Food Sources of Protein

- Meat, poultry, fish, eggs, milk, cheese, nuts (may also contain fat)
- Beans (significant carbohydrate source)

Fat:

- Less than 30 percent of the calories eaten should come from fat.
- **10 percent of dietary fat becomes blood sugar.**
- Fat carries the flavor in foods, as well as vitamins A, D, E and K. It slows the transport of food from the stomach.
- Fat is a very concentrated source of energy.
- As part of a mixed meal, fats may slow the absorption of carbohydrate.

Types of fat:

- **Monounsaturated fat** – most heart healthy
  60-70 percent of calories should come from carbohydrate and monounsaturated fat combined.
  Olive, canola, flaxseed and peanut oils; avocado, most nuts
- **Polyunsaturated fat** – also heart healthy
  Soybean, safflower, sesame, sunflower and corn oils, soft margarines made from these oils, mayonnaise, fish and seafood
- **Saturated fat** – not heart healthy
  Butter, meat fat, lard, whole milk and whole milk products, palm and coconut oils, stick margarine, shortening
- **Trans fat** – least heart healthy
  Partially hydrogenated vegetable oils, commonly found in commercial baked goods and oils used for deep frying

Food Sources of Fat

- Butter
- Margarine
- Mayonnaise
- Salad dressing
- Oil
- Nuts
- Olives

The following chart provides information on the composition of foods and common portion sizes, which may help predict the impact on blood glucose levels.

Food Source	Carbohydrate Content	Protein Content	Fat Content
Bread, cereal, rice, pasta, starchy vegetable, etc. 1 slice or ½ cup serving	Approximately 15 grams	Approximately 2 grams	Very little naturally occurring
Fruit – 1 small piece, ½ cup	Approximately 15 grams	None	None
Vegetables ½ cup non-starchy	Approximately 5 grams	Approximately 2 grams	Very little naturally occurring
Meat, fish, poultry, cheese, eggs 1 oz. Serving	None	7 grams	Variable
Milk, yogurt 1 cup serving	Approximately 12 grams	Approximately 8 grams	0-8 grams, depending on selection
Cakes, cookies, pie, pastries, etc.	High! (variable)	Small amounts	High! (variable)
Snack foods, chips, crackers	High! (variable)	Small amounts	High! (variable)
Sugar, molasses, syrup, honey	High!	None	None
Fats	None	None	High! (variable)

Physical Activity[34]

Physical activity is a fundamental part of a healthy lifestyle for all children, including children with diabetes. Physical activity is an important component of the overall management of type 1 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 lower blood glucose.

Children with diabetes can participate in physical education class and after school sports. Health care professionals may suggest adjustments in medication and food for appropriate blood glucose control.

Physical Activity Recommendations for Type 1 Diabetes Management

- Be active for a minimum of 60 minutes daily.
- Monitor blood glucose before and after exercise.
- If blood sugar is below target range before exercise, the suggested intake is 15g of carbohydrate (may need to be less in younger children).
- For prolonged vigorous exercise, monitor blood glucose hourly during exercise and after completion of exercise to guide carbohydrate intake and insulin dose adjustment.

Physical activity has a significant impact on blood glucose. The following chart provides suggested actions to safely maintain blood glucose during physical activity.

Type of Activity	If blood sugar 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 30-60 minutes	Less than 100	25-50 grams carbohydrate plus protein source
	100-180	15 grams carbohydrate
	180-240	No carbohydrate necessary
Strenuous More than 1 hour	Less than 100	50 grams carbohydrate plus protein source
	100-180	25-50 grams carbohydrate plus protein source
	180-240	15 grams carbohydrate

If blood sugar is greater than 240 mg/dl, ketone levels should be checked. For more details on ketones, see Section "Type 1 Diabetes in Children" on page 15.

Physical activity should be avoided if fasting glucose levels are greater than 240 mg/dl and ketones are present. Use caution if glucose levels are greater than 300 mg/dl, and no ketones are present.

Type 1 Diabetes and Other Related Conditions

Celiac Disease

Celiac disease (also known as celiac sprue, non-tropical sprue or gluten-sensitive enteropathy) is a condition which is more common in children with type 1 diabetes than in children who do not have diabetes. Celiac disease causes gluten (a type of protein found in wheat and many other grains) to damage the lining of the small intestine, a part of the body that helps digest food. This occurs every time gluten is eaten and prevents nutrients from being absorbed properly.

Diagnosing celiac disease can be challenging. Symptoms of celiac disease may come and go in children or adults. Other times, there are no symptoms and people go a long time without being diagnosed. Many children with type 1 diabetes are routinely screened for the antibodies associated with celiac disease, even if they have no symptoms. Blood tests and a biopsy of the small intestine can confirm the presence of the condition.

- Research conducted in Denmark found that 12.3 percent of children with type 1 diabetes also had celiac disease.[35]
- It is estimated that approximately 1 in 20 people with type 1 diabetes has celiac disease.
- For the general population, the rate could be as high as 1 in 250 people.[36]

Children with celiac disease must follow a gluten-free diet that excludes foods that contain wheat, rye, barley, and other grains. Oats do not typically contain gluten, but may contain traces of gluten from other grains with which they are grown or processed – read manufacturers' labels to be sure of the purity of the grain. A gluten free diet requires the elimination of many common foods such as pasta, cereal and other processed foods. Gluten may also be present in soy sauce and medications. Children and families should work with the health care team, especially a dietitian, to develop a gluten-free meal plan. A dietitian can teach the child, family and school food service staff how to read ingredient lists and avoid foods that contain gluten. The gluten-free meal plan must be considered in any setting where foods are prepared and served.

Symptoms of Celiac Disease in Children

- Diarrhea or other intestinal problems
- Foul-smelling, bulky stools
- Loss of appetite and/or feeling full quickly
- Weight loss or failure to gain weight
- Failure to grow
- Vomiting
- Feeling tired
- Abdominal bloating
- Crankiness, irritability, personality changes, poor memory

Hypothyroidism

Hypothyroidism (underactive thyroid disease) is a condition in which the thyroid gland cannot produce enough thyroid hormone to keep the body running normally. When thyroid hormone levels are too low, the body's processes start slowing down, causing mental and physical sluggishness. Hypothyroidism is the most common thyroid disorder. People with diabetes, especially females, have a higher prevalence of thyroid disorders. One study found that up to 30 percent of people with type 1 diabetes, the majority of whom were female, also had hypothyroidism.[37]

Symptoms of hypothyroidism develop slowly and vary widely, depending on the severity of the hormone deficiency. Signs and symptoms become more severe if hypothyroidism is not treated. Diagnosis is based on symptoms, medical/family history, physical exam and the result of blood tests.

Symptoms of Hypothyroidism

- Increased sensitivity to cold
- Constipation
- Pale, dry skin
- Poor growth
- Delayed puberty
- Delayed development of permanent teeth
- Puffy face
- Hoarse voice
- Elevated blood cholesterol level
- Unexplained weight loss
- Muscle aches, tenderness, stiffness and/or weakness
- Pain, stiffness and swelling in joints
- Heavier than normal menstrual periods
- Depression

Type 2 Diabetes in Children

- Background and Prevalence
- Type 2 Diabetes in Children in NYS
- Symptoms of Type 2 Diabetes
- Testing for Type 2 Diabetes in Children
- Management of Type 2 Diabetes in Children

Children with Diabetes

Type 2 Diabetes in Children

Background and Prevalence

Type 2 diabetes accounts for 8% to 45% of new cases of childhood diabetes and is the most common form of diabetes in the U.S.

Type 2 diabetes, formerly called adult onset diabetes or noninsulin-dependent diabetes mellitus (NIDDM), is caused by a problem with the body's response to insulin. Specialized cells (beta cells) in the pancreas make insulin, a hormone in the body that transfers sugar (glucose), starches and other food into energy for daily life. The body does not use its insulin well (insulin resistance), and needs increasing amounts of insulin to control blood glucose levels. At first, the pancreas reacts by producing more insulin, but over time, it loses the ability to keep up with the added demand. Eventually, the pancreas can not produce enough insulin to convert sugar from food into energy.

African Americans, Latinos, Native Americans, Asian Americans and Pacific Islanders have a higher risk of developing pre-diabetes and type 2 diabetes.

Type 2 diabetes used to be diagnosed mainly in overweight adults. However, as more children in the U.S. become overweight and inactive, it has become increasingly common in the youth population. The exact cause for type 2 diabetes is still unknown, although research strongly suggests a hereditary component. Individual factors such as an inactive lifestyle or poor diet may trigger the development of type 2 diabetes in people with a genetic predisposition. See "Reducing Risk for Type 2 Diabetes in Children" on page 35 for more information.

In the U.S., the SEARCH for Diabetes in Youth study estimates that overall prevalence for type 2 diabetes in youth is approximately 22 cases per 100,000 youth.[38]

- For children aged 0-9, the study estimates 1 case of type 2 diabetes per 100,000 youth.
- For children aged 10-19, the study estimates 42 cases of type 2 diabetes per 100,000 youth.

Research indicates that the prevalence of type 2 diabetes in children has increased by 33 percent in the past 15 years, mirroring the increase in overweight and obesity.[39] Several other clinic-based studies also indicate an alarming increase in the diagnosis of new cases of type 2 diabetes from less than 5 percent in 1994 to between 30 and 50 percent in subsequent years.[40]

Type 2 Diabetes in Children in NYS

Using figures from the SEARCH for Diabetes in Youth study, estimates indicate that there are 1,117 diagnosed cases of type 2 diabetes, which account for nearly 12 percent of diagnosed cases of diabetes among youth, aged 0-19.

Symptoms of Type 2 Diabetes

- Type 2 diabetes is considered a silent disease, because it can be present for many years without causing any noticeable symptoms. This is why over 6.2 million people in the United States have type 2 diabetes and don't know it.
- Some people with type 2 diabetes have no symptoms when they are diagnosed or don't recognize mild warning signs.
- Children with type 2 diabetes usually develop symptoms slowly, although symptoms may appear quickly in some.

Symptoms of Type 2 Diabetes

- ❄ Increased thirst
- ❄ Increased urination
- ❄ Nausea
- ❄ Rapid weight loss
- ❄ Blurred vision
- ❄ Feeling tired
- ❄ Frequent infections
- ❄ Yeast infections
- ❄ Slow healing of wounds and sores

Physical signs of type 2 diabetes may also include high blood pressure and acanthosis nigricans, a condition where the skin around the neck or in the armpits or groin appears dark, thick and velvety (see image below).

Photo by Irwin Braverman MD, Dept Dermatology, Yale Medical School

Certain conditions such as polycystic ovarian syndrome (PCOS) and dyslipidemia can increase the risk for developing type 2 diabetes. PCOS, a hormonal imbalance that affects the female reproductive system, can occur in girls as young as 11 years old. More than 50 percent of women with PCOS will develop diabetes or pre-diabetes before the age of 40.[41] Girls or women with PCOS have high levels of androgens (sometimes called male hormones, although females also make them), missed or irregular periods and many small cysts (fluid-filled sacs) in their ovaries. Dyslipidemia is an imbalance of the amount of lipids in the blood, often as a result of diet and/or lifestyle choices. Long-term elevation of insulin levels can also lead to dyslipidemia. If your child has PCOS or dyslipidemia, it is important to follow-up regularly with your health care team.

Testing for Type 2 Diabetes in Children

It is important for families, schools and health care professionals to communicate about children and adolescents at-risk or with symptoms of type 2 diabetes. General population screening for adults or children with no risk or symptoms is currently not recommended. Health care professionals should use the following criteria to identify when to test high risk and symptomatic children for type 2 diabetes*:

1. The child is overweight or at-risk for overweight, defined as:
   - BMI > 85th percentile for age and sex, OR
   - Weight for height > 85th percentile, OR
   - Weight > 120 percent of ideal (50th percentile) for height

AND

2. The child has any two of the following risk factors:
   - Family history of type 2 diabetes in first- and second-degree relatives (parent, child, sibling, aunt, uncle, niece, nephew, grandparent, grandchild, half-sibling)
   - American Indian, African American, Hispanic/Latino, Asian American or Pacific Islander heritage
   - Signs of insulin resistance such as acanthosis nigricans, high blood pressure (hypertension), dyslipidemia or polycystic ovarian syndrome

For children who meet the above criteria, testing should occur every two years starting at age 10, or at the onset of puberty if it occurs at a younger age. See “General Diabetes Information” on page 13 for more information about the various tests used to diagnose diabetes.

*Health care professionals should use their clinical judgment to determine when to test other high-risk children who do not meet the criteria.

Management of Type 2 Diabetes in Children

The goal of management for type 2 diabetes is to keep blood glucose within a target range, and manage blood pressure and lipid abnormalities to decrease the risk of short- and long-term complications associated with diabetes.[42] Although not common in children with type 2 diabetes, diabetic ketoacidosis (DKA) is a short-term complication from blood glucose levels that get too high and go untreated. See "Type 1 Diabetes in Children" on page 15 for more information about DKA. See "General Diabetes Information" on page 13 for more information about the long-term complications of diabetes.

The treatment for type 2 diabetes will depend on the level of hyperglycemia (high blood glucose) that is found at the child's initial diagnosis. The child's doctor and other health experts will work with the family to develop a medical management plan. These plans can change over time depending on how blood glucose levels are controlled. Management includes blood glucose monitoring, lifestyle changes such as nutrition therapy and increased physical activity, oral medications (medicines taken by mouth) and insulin if it is needed. See Appendix #13 for more information about type 2 diabetes in children from the American Diabetes Association (ADA).

Blood Glucose Monitoring

Children with type 2 diabetes must have their blood glucose monitored and kept as close to the target range as possible without causing hypoglycemia (low blood glucose), especially during times of sickness or when they are taking medications for their diabetes. For more information about blood glucose monitoring and hypoglycemia see "Type 1 Diabetes in Children" on page 15.

Lifestyle Changes – Nutrition and Physical Activity

Being active and eating a well balanced diet are key features of any type 2 diabetes management plan. Increased physical activity and good nutrition help the child with type 2 diabetes maintain a healthy body weight, keep blood glucose levels within the target range and decrease the risk for high blood pressure and high cholesterol. More information about lifestyle change for prevention and management of type 2 diabetes through nutrition and physical activity can be found in the "Reducing Risk for Type 2 Diabetes in Children" section on page 35.

However, fewer than 10 percent of children can successfully manage type 2 diabetes with lifestyle changes alone.[43] Oral medications, and sometimes even insulin, are needed in addition to healthy eating and exercise.

Oral Medications

Even though children with type 2 diabetes initially make enough insulin, the body cannot use it correctly. Over time, the body may lose its ability to make any insulin. Medications are available that help to lower blood glucose levels when lifestyle changes alone are not enough to do so. Unlike insulin, these medications are taken by mouth. Currently only Metformin has been approved for use in children.

The Use of Insulin in the Management of Type 2 Diabetes

Insulin may also be used for the management of type 2 diabetes in the following circumstances:

- Upon the child's initial diagnosis of type 2 diabetes, if complications like severe hyperglycemia leading to diabetic ketoacidosis (DKA) are present. (The child may be taken off insulin after blood glucose levels have been controlled.)
- After the child has had type 2 diabetes for a period of time and blood glucose levels are not well controlled with the combination of lifestyle changes and an oral medication such as Metformin.

The child's doctor will decide when and if insulin needs to be added to the medical management plan. See "Type 1 Diabetes in Children" on page 15 for more information about insulin.

Reducing Risk for Type 2 Diabetes in Children

- Risk Factors for Type 2 Diabetes in Children
- Lowering Risk for Type 2 Diabetes: Nutrition and Physical Activity
- Family, School and Community Strategies to Promote Healthy Lifestyles

Children with Diabetes

Reducing Risk for Type 2 Diabetes in Children

Today, more children have type 2 diabetes than ever before, particularly minority children. See "Diabetes in Children: An Overview," on page 11 for more information. Overweight appears to be an important predictor of type 2 diabetes in children. The percentage of children and teens aged 6-19 years in the United States who are overweight nearly tripled to 16 percent between 1980 and 2002.

Risk Factors for Type 2 Diabetes in Children

- Overweight
- Lack of physical activity
- Having a parent or other close relative with type 2 diabetes
- Being African American, Hispanic or Latino American, American Indian, Asian American, or Pacific Islander

Pre-diabetes

Pre-diabetes, a condition where blood glucose levels are higher than normal, but not high enough to be diagnosed as diabetes, is a risk factor for type 2 diabetes. Approximately 54 million adults in the U.S. have pre-diabetes.[44] Other research indicates two million adolescents (1 in 6 overweight adolescents) aged 12-19 have pre-diabetes.[45]

Metabolic Syndrome

Metabolic Syndrome is a combination of health problems that together provide an indicator of risk for type 2 diabetes, heart disease and stroke in children and adults.

These health problems include:

- overweight (especially around the belly),
- high blood pressure,
- high triglycerides (fat) in the blood,
- high blood glucose, and
- low HDL ('good') cholesterol

Early identification of metabolic syndrome is crucial to type 2 diabetes prevention efforts. There is no standard guideline on the identification of metabolic syndrome in children because of the growth and developmental changes that occur during childhood and adolescence. Because many of the components are usually dependent upon sex and age, identification of cut-off points for screening and testing criteria is complex. Children with, or who are at-risk for, one of the above health problems are likely to have or be at-risk for the others. A health care clinician can provide more information about metabolic syndrome.

Lowering Risk for Type 2 Diabetes: Nutrition and Physical Activity

Nutrition

Children need guidance to eat the right amounts of healthy food to maintain a healthy weight. Some tips include:

- Drink more water
- Eat smaller servings
- Eat more fruits and vegetables
- Don't skip meals
- Choose low-fat (1%) or fat-free dairy products

"MyPyramid for Kids" – Good Nutrition for Everyone!

"MyPyramid for Kids" is a guide to healthy eating and physical activity that was developed by the United States Department of Agriculture (www.mypyramid.gov). It provides information and recommendations for a healthy, well-balanced diet tailored to the needs of kids.

The following is a more detailed explanation of the foods that are represented in each of the six food groups in the pyramid, along with guidelines for amounts recommended for the average 6-11 year old child.

The Grain Group

Any food made from wheat, rice, oats, cornmeal, barley or another cereal grain is a grain product. Bread, pasta, oatmeal, breakfast cereals, tortillas and grits are examples of grain products.

Grains

Recommended Amount	Choices equaling 1 ounce
Aim for 6 ounces/day. Choose whole grain for at least three of your six choices.	1 slice of bread (1 ounce) ½ English muffin, ½ hamburger roll or ½ small bagel 1 ounce of ready-to-eat cereal ½ cup of cooked cereal, rice or pasta

The Vegetable Group

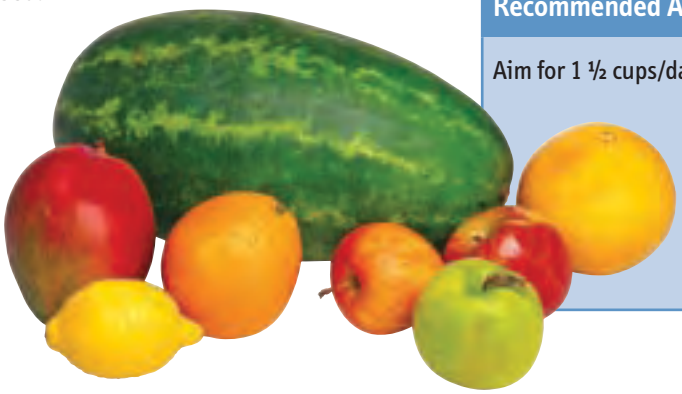
Any vegetable or 100 percent vegetable juice counts as a member of the vegetable group. Vegetables may be raw or cooked; fresh, frozen, canned; and may be whole, cut-up or mashed.

Vegetables

Recommended Amount	Choices equaling 1 cup
Aim for 2 ½ cups/day. Choose dark green and orange vegetables often.	1 cup cut-up, cooked or raw vegetables 2 cups leafy salad greens 1 cup vegetable juice

The Fruit Group

Any fruit or 100 percent fruit juice counts as part of the fruit group. Fruits may be fresh, canned, frozen or dried, and may be whole, cut-up or pureed.



Fruit

Recommended Amount	Choices equaling 1 cup
Aim for 1 ½ cups/day.	1 cup cut-up, fresh fruit 1 cup fruit juice ½ cup canned fruit (water packed)

The Oils Group

Oils are fats that are liquid at room temperature, such as vegetable oils used in cooking. Oils come from many different plants and from fish. Some common oils are: canola, corn, olive, safflower, soybean and sunflower. A number of foods are naturally high in oils such as nuts, olives, some fish and avocados. Foods that are mainly oil include mayonnaise, certain salad dressings and soft (tub or squeeze) margarine with no *trans* fats. Check the Nutrition Facts label to find margarines with 0 grams of *trans* fat.

Oils

Recommended Amount	Choices equaling one serving of heart healthy fat
The body gets most of the fat it needs from other foods. If you add fat to food, choose heart-healthy fats as often as possible.	1 teaspoon vegetable, olive or canola oil 1 teaspoon tub margarine 5 large olives or 1/8 avocado 1 tablespoon low-fat mayonnaise 2 tablespoons low-fat salad dressing

The Milk Group

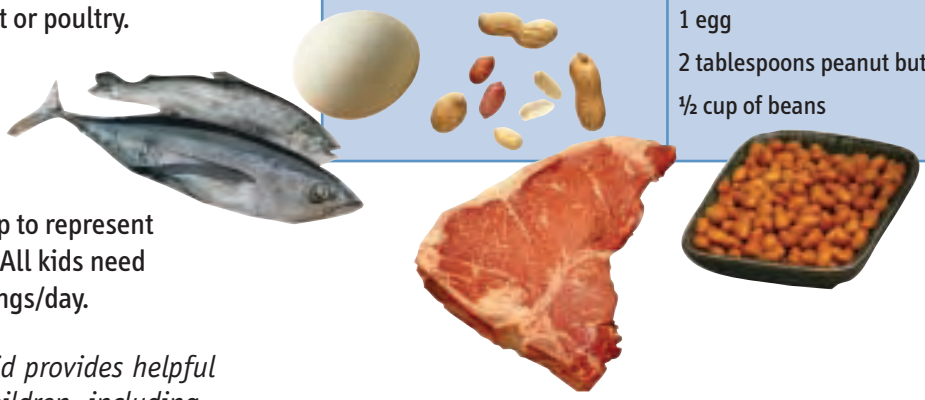
All fluid milk products and many foods made from milk are considered part of this food group. Foods made from milk that retain their calcium content are part of the group, while foods made from milk that have little to no calcium such as cream cheese, cream and butter are not. Most milk group choices should be fat-free or low-fat.

Milk

Recommended Amount	Choices equaling 1 cup
Aim for 3 cups/day.	1 cup nonfat or low-fat (1%) milk or yogurt (check for sugar content) 1 ½ ounces cheese

The Meat and Beans Group

All foods made from meat, poultry, fish, dry beans or peas, eggs, nuts and seeds are considered part of this group. Dry beans and peas are part of this group as well as the vegetable group. Most meat and poultry choices should be lean or low-fat. Fish, nuts, and seeds contain healthy oils, so choose these foods frequently instead of meat or poultry.

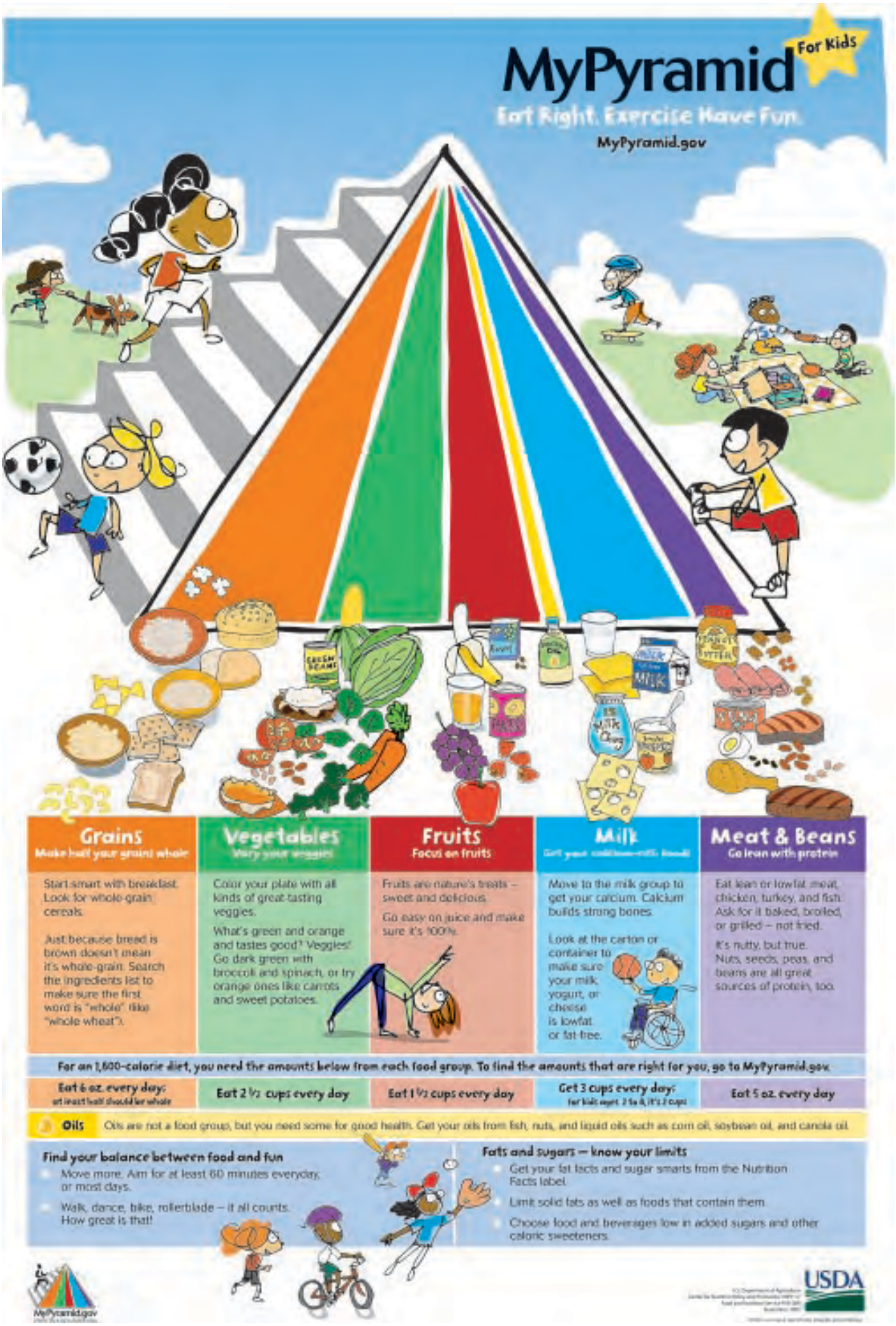


Meat and Beans

Recommended Amount	Choices equaling 1 cup
Aim for 5 ounces/day.	1 ounce meat, chicken or fish 1 egg 2 tablespoons peanut butter ½ cup of beans

Please note that there is no food group to represent our most important nutrient – **water!** All kids need plenty of water, at least 8 (8 oz.) servings/day.

The following Activity Guide Pyramid provides helpful physical activity guidance for all children, including those with diabetes.


MyPyramid
For Kids
Eat Right. Exercise. Have Fun.
MyPyramid.gov
Grains
Make half your grains whole
Start smart with breakfast. Look for whole-grain cereals.
Just because bread is brown doesn't mean it's whole-grain. Search the ingredients list to make sure the first word is "whole" (like "whole wheat").
Vegetables
Vary your veggies
Color your plate with all kinds of great-tasting veggies.
What's green and orange and tastes good? Veggies! Go dark green with broccoli and spinach, or try orange ones like carrots and sweet potatoes.
Fruits
Focus on fruits
Fruits are nature's treats – sweet and delicious.
Go easy on juice and make sure it's 100%.
Milk
Get your calcium-rich foods
Move to the milk group to get your calcium. Calcium builds strong bones.
Look at the carton or container to make sure your milk, yogurt, or cheese is lowfat or fat-free.
Meat & Beans
Go lean with protein
Eat lean or lowfat meat, chicken, turkey, and fish. Ask for it baked, broiled, or grilled – not fried.
It's nutty, but true. Nuts, seeds, peas, and beans are all great sources of protein, too.
For an 1,600-calorie diet, you need the amounts below from each food group. To find the amounts that are right for you, go to MyPyramid.gov.
Eat 6 oz. every day; at least half should be whole
Eat 2 ½ cups every day
Eat 1 ½ cups every day
Get 3 cups every day; for kids aged 2 to 8, it's 2 cups
Eat 5 oz. every day
Oils
Oils are not a food group, but you need some for good health. Get your oils from fish, nuts, and liquid oils such as corn oil, soybean oil, and canola oil.
Find your balance between food and fun
Move more. Aim for at least 60 minutes everyday, or most days.
Walk, dance, bike, rollerblade – it all counts. How great is that!
Fats and sugars – know your limits
Get your fat facts and sugar smarts from the Nutrition Facts label.
Limit solid fats as well as foods that contain them.
Choose food and beverages low in added sugars and other caloric sweeteners.
MyPyramid.gov
USDA

Activity Guide Pyramid

Eating a variety of foods and being physically active every day will help children be strong and healthy.

Get Your Child and Yourself Moving! Be Active!

- Go for at least 60 minutes of physical activity every day.
- There is a link between TV viewing and being overweight so turn off the TV, the video games, the computer and move your body.

You can be active everywhere...Inside, outside, recreational center, daycare, home, playground.

New York State Department of Health

Adapted from Children Growing Healthy, Massachusetts WIC Program, June 1998; Tickle Your Appetite, USDA, FCS-307, November 1997; and Helping Your Overweight Child, National Institutes of Health, 97-4096, January 1997.

Family, School and Community Strategies to Promote Healthy Lifestyles

Reducing children's risk for type 2 diabetes happens on many levels and takes the commitment of many people. Here are some ways that families, schools and communities can promote healthy eating and increased physical activity.

Family Strategies

- Sit down for meals together as a family whenever possible.
- Limit take-out and prepared foods as much as possible.
- Be a role model. Let your child see you eating and enjoying healthy foods.
- Have healthy snacks on hand such as fresh fruits and vegetables.
- Be physically active as a family by taking bike rides, walks or playing active games outside.
- Limit television and computer screen time to no more than 1 hour per day.

School Strategies

- Encourage the school health advisory council or other existing health-related school team to support the goals of the local wellness policy.
- Provide healthy food choices in school breakfasts and lunches.
- Provide increased opportunities for physical activity during the school day and during after-school programs.
- Encourage school-wide policy changes for birthday parties and other school celebrations to include healthy food options and active play.
- Remove soda, sugary juices and junk food from vending machines and cafeterias.
- Discourage use of foods as incentive or reward.

Additional information on school strategies to reduce risk for type 2 diabetes is included on a continuing education DVD developed by the NYS DPCP, entitled *Healthy Schools Approach: Preventing Type 2 Diabetes in Children: Making the Case for Healthy Schools*. See Appendix #17 for more information.

Community Strategies

- Encourage food stores and other local vendors to carry healthy food options that you and your family enjoy.
- Advocate for safe streets, parks and playgrounds.
- Educate decision makers including elected officials, school administrators and school board members about any issues that prevent your family from having access to healthy foods and opportunities for physical activity in your community.

Tips for Families

Eat Right

1 Make half your grains whole. Choose whole-grain foods, such as whole-wheat bread, oatmeal, brown rice, and lowfat popcorn, more often.

2 Vary your veggies. Go dark green and orange with your vegetables—eat spinach, broccoli, carrots, and sweet potatoes.

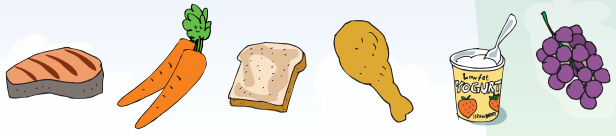
3 Focus on fruits. Eat them at meals, and at snack time, too. Choose fresh, frozen, canned, or dried, and go easy on the fruit juice.

4 Get your calcium-rich foods. To build strong bones, serve lowfat and fat-free milk and other milk products several times a day.

5 Go lean with protein. Eat lean or lowfat meat, chicken, turkey, and fish. Also, change your tune with more dry beans and peas. Add chick peas, nuts, or seeds to a salad; pinto beans to a burrito; or kidney beans to soup.

6 Change your oil. We all need oil. Get yours from fish, nuts, and liquid oils such as corn, soybean, canola, and olive oil.

7 Don't sugarcoat it. Choose foods and beverages that do not have sugar and caloric sweeteners as one of the first ingredients. Added sugars contribute calories with few, if any, nutrients.



Exercise

1 Set a good example. Be physically active and get your family to join you. Have fun together. Play with the kids or pets. Go for a walk, tumble in the leaves, or play catch.

2 Take the President's Challenge as a family. Track your individual physical activities together and earn awards for active lifestyles at *www.presidentschallenge.org*.

3 Establish a routine. Set aside time each day as activity time—walk, jog, skate, cycle, or swim. Adults need at least 30 minutes of physical activity most days of the week; children 60 minutes every day or most days.

4 Have an activity party. Make the next birthday party centered on physical activity. Try backyard Olympics or relay races. Have a bowling or skating party.

5 Set up a home gym. Use household items, such as canned foods, as weights. Stairs can substitute for stair machines.

6 Move it! Instead of sitting through TV commercials, get up and move. When you talk on the phone, lift weights or walk around. Remember to limit TV watching and computer time.

7 Give activity gifts. Give gifts that encourage physical activity—active games or sporting equipment.

HAVE FUN!

A Team Approach to Care for Children with Diabetes: Developing a Winning Strategy

- Care Planning
- Planning Meeting
- Check List of Items for School
- Obtaining and Authorizing Consent to Share Medical Information
- Training of School Personnel

Children with Diabetes

A Team Approach to Care for Children with Diabetes:
Developing a Winning Strategy

Communication and coordination are key components to successful diabetes care and management. Care for a child with diabetes requires a team approach. Teams include many people who will be responsible for the care and supervision of each child with diabetes such as school nurses, teachers, coaches, bus drivers, baby-sitters, friends, and relatives. Education and communication will help those members of the team who are asked to assist in the care of a child with diabetes.

This section addresses the benefits of using the team approach in a school setting, since children spend the majority of their time at school. However, these concepts also apply to a number of other settings including camps, community programs and recreational facilities.

The team approach to diabetes care is important for several reasons:

- Diabetes requires constant attention, 24 hours a day, 7 days a week. No one individual can be present to assist a child in carrying out diabetes management tasks for the entire day.
- Children with diabetes can experience a diabetes emergency at any time, no matter how well controlled or managed their diabetes is.
- Every child is different and requires individualized diabetes care. A team approach provides children with diabetes access to people who have a wide variety of skills and expertise to assist them in their management efforts.

Good diabetes management at school benefits everyone:

- School staff members spend less time treating low blood glucose episodes and spend more of their valuable time on their primary roles.
- The student with diabetes participates more fully and successfully in academic and extracurricular activities and is more likely to have positive school relationships and experiences.
- The student body and the community benefit from the contributions made by students with diabetes who are healthier and better learners.

Students with diabetes, like all students, lead busy lives. By the end of a typical school day, they may have interacted with several teachers and other school staff and administrators.

Each of these staff members may have an opportunity, large or small, to provide assistance to a student with diabetes. For example:

- The school nurse may coordinate care among various school personnel, including training, and provide supervision and assistance with diabetes care tasks.
- A teacher may help a young child who is doing a blood glucose check in the classroom.
- Any number of staff members may be trained to recognize the signs and symptoms of hypoglycemia and know how to help the student prevent a dangerous situation from becoming an emergency hypoglycemic episode.
- In addition to the school nurse, several key staff members may be trained to administer glucagon in an emergency situation.

Care Planning

Care for a child with diabetes is carried out by a diverse team of people who play varied roles in the school system and in the life of the child with diabetes. The school nurse, as the natural leader of this team, develops and implements a care plan based on input from parents/guardians and health care clinicians. He or she has unique skills and expertise that no one else on the team is likely to have. The school must ensure that other team members are trained, well-informed and have an understanding of their roles on the team.

The following documents are commonly used to assist the student with diabetes in establishing and maintaining a comprehensive care plan for the school setting. See Appendix #11 for additional information about diabetes management in schools from the American Diabetes Association (ADA).

Care planning documents should be...

- ❄ developed as soon as possible after diagnosis or before each new school year begins.
- ❄ updated as needed whenever the student's diabetes management needs at school change.

Diabetes Medical Management Plan

Every student with diabetes should have an individualized Diabetes Medical Management Plan (DMMP), sometimes referred to as a health care plan, diabetes care plan or physician's orders. It describes the health care services that the student is to receive at school, while allowing a child to fully participate in all school events. This plan is developed and signed by the student's health care team and parent/guardian and defines the student's prescribed school diabetes care plan. It provides the school with valuable information about how the student will manage diabetes at school on a daily basis. The DMMP is a very important document, because it provides information and serves as the foundation for several other diabetes-management related documents. A sample DMMP is included as Appendix #1.

The Diabetes Medical Management Plan inlcudes:

1. Blood glucose monitoring including the frequency and circumstances requiring blood glucose checks.
2. Insulin and/or other medication administration including dose and administration times prescribed for specific blood glucose values, carbohydrate consumption and the storage of insulin.
3. Meals and snacks including food content, amounts and timing.
4. Symptoms and treatment of hypoglycemia (low blood glucose) including the administration of glucagon.
5. Symptoms and treatment of hyperglycemia (high blood glucose) including insulin administration.
6. Checking for ketones and appropriate actions to take, if requested by the student's health care clinician.
7. Ability of student to provide self care.
8. Signature of the student's health care clinician to implement the specified orders.

Individualized Healthcare Plan (IHP)

The Individualized Healthcare Plan (IHP) is a management tool written by the school nurse to outline the nursing care plan for a student with diabetes. The school nurse develops the IHP, using information consistent with the DMMP. The IHP should take into consideration the knowledge base, developmental level and individual needs of the student as advised by the parents/guardians and health care team. The school nurse is responsible for documenting diabetes task training provided to school staff and for sharing the IHP with appropriate staff with signed parental permission. The DMMP and IHP are often included as an appendix or attachment to the 504 plan (see page 43). A sample IHP form is included as Appendix #2.

Many school nurses find it useful to keep track of diabetes management at school by using a flow sheet. A sample flow sheet is included as Appendix #6.

The Individualized Healthcare Plan (IHP) includes:

1. A thorough health assessment including the identification of health care needs of the student and all accommodations needed in school.
2. Identification of all diabetes care tasks needed at school.

Emergency Care Plans

Emergency Care Plans (ECP) for treatment of hyperglycemia and hypoglycemia are written by the school nurse based upon the DMMP. These ECPs are designed for use by both nursing staff and school personnel. They outline the care that should be given in an emergency situation and are written in lay language for any school staff member to understand and use as a guide to respond to a student who is experiencing a potentially critical situation. School personnel who regularly have contact with the student (i.e. teachers, coaches, etc.) should receive a copy of the ECP. Sample ECPs are included as Appendix #3.

504 Plans and Individualized Education Programs (IEP)

There are three federal laws that may protect the student with diabetes against discrimination. A particular student with diabetes could be covered under one or more of these laws. They include Section 504 of the Rehabilitation Act of 1973; the Americans with Disabilities Act (ADAct); and the Individuals with Disabilities Education Act (IDEA).

Under these laws, diabetes has been considered to be a disability, and it is illegal for schools and/or day care centers to discriminate against children with diabetes. In addition, any school that receives federal funding or any facility considered open to the public must reasonably accommodate the special needs of children with diabetes. Indeed, federal aw requires an individualized assessment of any child with diabetes. The required accommodations should be provided within the child's usual school setting with as little disruption to the school's and the child's routine as possible.

American Diabetes Association: Diabetes Care in the School and Day Care Setting. *Diabetes Care* 30: S66-S73, 2007.

These laws require schools to identify all students with disabilities and to provide them with a **Free and Appropriate Public Education (FAPE)** including access to buildings, programs and services and participation in non-academic and extracurricular activities. Schools must provide the appropriate services to meet the needs of students with diabetes so that they have the same access to academic and other school-sponsored activities as their peers.

Within each school district, there is a **504/IDEA coordinator** whose role is to ensure that students are evaluated properly for coverage under these federal laws. This administrator, often a special education director, school principal or guidance counselor, coordinates a team of school staff members to determine how the laws apply to individual students.

504 Plan

Section 504 of the Rehabilitation Act of 1973 is a federal civil rights law that prohibits discrimination on the basis of disability. The 504 plan should be developed for students who are eligible for services under Section 504. The 504 plan is a legal document that specifies the necessary aids and services to ensure that the student with diabetes receives the free and appropriate education that he or she is entitled to without discrimination. The parent or guardian of a child with diabetes has a right to request a 504 plan, and the request should be put in writing. The school nurse, physician or teacher may also request a 504 plan if the parent or guardian is in agreement.

Steps to Developing a 504 Plan

1. Request for a 504 eligibility determination is received by the school.
2. Eligibility is determined by a team of school professionals who are familiar with the student, are knowledgeable about Section 504 and understand diabetes.
3. Meeting is scheduled to develop the 504 plan.
4. At the meeting, a 504 plan for the student is developed with input from the teacher, parent, student, school nurse, health care clinician and school administrator:
   - It specifies how the health care needs of the student will be met, along with modifications related to academic and school sponsored activities.
   - The 504 plan often refers to and incorporates the DMMP, and sometimes the IHP. The plan identifies all diabetes care tasks needed at school, along with a schedule of who will be responsible for each task, and where, when and how the tasks will be carried out.
5. The 504 plan is reviewed by the district's designated coordinator at a later date.
6. Once signed by the student's parent(s)/guardian(s) and a school official, it is a binding legal document.

School personnel are legally responsible for implementing the aids and services set forth in the 504 plan. A sample 504 Plan is included as Appendix #4.

Individualized Education Program (IEP)

The Individualized Education Program (IEP) is a legally binding document that designs a student's educational program based on an identified disability which is developed by a school district's Committee on Special Education. *To qualify for an IEP under the Individuals with Disabilities Education Act (IDEA), a student's diabetes must impair his or her ability to learn so that the student requires special education. This may occur if the student frequently experiences hypoglycemia or hyperglycemia at school that significantly affects the student's ability to concentrate or if the student misses a great deal of instruction time because of diabetes complications. IDEA may also apply if the student has other disabilities in addition to diabetes.* [46] A sample IEP is included as Appendix #5.

Planning Meeting

Planning is key to the successful management of care for children with diabetes. The plans described above are essential tools for accomplishing successful management in schools. Before the beginning of each school year or immediately upon the child's diagnosis, the family should participate in a planning meeting with the school nurse to identify the child's needs and discuss components of diabetes care at school. This planning meeting should include other school personnel who may have a role in the child's diabetes care. Within the school setting, this group of individuals will be referred to as the school health team.

Suggested agenda items for the planning meeting include:

- Overview of diabetes and its management, including distinction between type 1 and type 2
- Roles and responsibilities of staff members (See "The Starting Line Up" on page 49 for more information)
- Logistics of training for staff
- Identification of staff who will serve as resources for others
- Hierarchy of personnel expected to respond in emergency situations
- Location of and access to all equipment, supplies, medication and food needed to manage diabetes at school
- Location of the care plan(s) and how individual components will be shared with appropriate staff
- Emergencies and responses

It is important to understand that this informal planning meeting is different than meetings held to determine 504 or IDEA eligibility or to develop a 504 plan or IEP.

Potential School Health Team Participants*

- Parents/Guardians
- Student
- School nurse
- School principal/administrator
- Current classroom teachers
- Past year classroom teachers
- Office staff
- Food service manager
- Physical education teacher
- Coaches
- Counselor or social worker
- Bus driver
- Other staff with direct responsibility for child
- Members of the health care team, if available and invited by parents/guardians

*This list can be modified to accommodate other settings outside of school.

Check List of Items for School

The checklist below can be used by parents/guardians to identify the plans, supplies, and other materials they may need to bring to the school, camp or other settings where a child spends a significant amount of time.

When using this list for the school setting, the parents/guardians should bring appropriate items on the checklist to the school nurse or another coordinator of care. The school nurse should use this list to confirm that the necessary supplies and information from the child's family have been received. If using the list for day care, camp or other settings, the parents/guardians should communicate with the individual responsible for oversight to determine the most appropriate person to coordinate the child's care.

Checklist

- ☐ Diabetes Medical Management Plan
- ☐ Emergency contact information
- ☐ Photograph of child, if not included in one of the above plans
- ☐ Signed consent to share medical information between health care team and schools
- ☐ Monitoring equipment (e.g. lancets, meter strips, alcohol, ketone strips, sensor supplies)
- ☐ Snacks
- ☐ Glucose tablets or other fast-acting form of carbohydrate to treat hypoglycemia
- ☐ Blood glucose log or record, if used
- ☐ Insulin and related supplies (e.g. insulin pump supplies or insulin syringes and/or pen)
- ☐ Ketone monitoring supplies
- ☐ Glucagon kit(s)
- ☐ Oral medications and/or other routine diabetes medications

See "Special Considerations for Children with Diabetes" on page 67 for a list of items to include in an Emergency Preparedness Kit.

Obtaining and Authorizing Consent to Share Medical Information

It is recommended that schools obtain **parental permission** to share medical records and information with other school staff. Other individuals with access to medical records and information must also recognize the need to obtain consent in order to discuss the contents. Parents/guardians and families should confirm that they have provided consent related to the release of this information. See "Diabetes in Children and the Law" on page 71 for more information as it relates to federal and New York State laws and policies.

Training of School Personnel

While in the school setting, the school nurse is the most appropriate person to provide care for a student with diabetes. However, many schools do not have a full-time school nurse or one nurse may need to travel between a large number of school buildings. The nurse may not always be immediately available during the school day or present during extracurricular activities, athletics, field trips or other school-sponsored events.

In general, all school personnel who are responsible for a child with diabetes should receive training. It is the school's legal responsibility to provide this training, although parents or guardians can assist and offer support and resources. Depending on the level of care and interaction with the child, some staff will need more comprehensive training than others. Training should be provided by a health care professional with expertise in diabetes, such as a school nurse or Certified Diabetes Educator (CDE).

When should training occur?

- When a child is diagnosed with diabetes
- Beginning of the school year
- When a child with diabetes is enrolled in a new school
- When new school personnel are hired
- To refresh or update previously trained individuals, such as mid-year
- When otherwise appropriate

There are two main levels of diabetes training* for school personnel:[47]

For Diabetes-Trained School Personnel assisting in an emergency:

- Overview of diabetes and typical health care needs of the child, including how these needs are addressed in the child's written care plans (DMMP, IHP, ECP, Section 504 and/or IEP)
- Explanation/overview of type 1 and type 2 diabetes
- The effect of balancing insulin, food and exercise upon a student's blood glucose levels
- Procedures for routine care of individual students including blood glucose monitoring, insulin administration, urine ketone testing and recording results
- Signs and symptoms of hypoglycemia and hyperglycemia and the short- and long-term risks of these conditions
- Treatment of hypoglycemia and hyperglycemia
- Glucagon administration
- Managing nutrition and exercise in the school setting
- Tools, supplies and equipment required for diabetes care and their storage
- Legal rights and responsibilities of schools and parents/guardian

*Assignment of specific diabetes care tasks must follow state laws that determine which tasks may be performed by non-medical personnel. See "Diabetes in Children and the Law" on page 71 for more information about federal and New York state laws and policies protecting children with diabetes. Information is also available through the New York Statewide School Health Services Center at www.schoolhealthservicesny.com.

For school staff with educational responsibility for students with diabetes but who do not perform diabetes care tasks (i.e. blood glucose monitoring, insulin administration, glucagon administration):

- Overview of diabetes and typical health care needs of a child with diabetes
- Signs and symptoms of hypoglycemia and hyperglycemia
- The importance of immediate student access to a fast acting carbohydrate to treat hypoglycemia
- Identity of school nurses and/or other diabetes-trained school personnel and how to contact them for help in an emergency.

Training is also important for activities outside of the school setting. Communication and coordination with a child's friends, friends' parents, extended family members, guardians, care takers and other responsible adults is key to ensuring that the child with diabetes is always in a healthy and safe environment, with equal access to all opportunities and the highest quality care and management.

See Appendix #7 for a training record to help families and schools keep track of individuals who have received training and the topics covered. The following list contains available training resources, including a short description of each tool and the target audience for use.

Training Tool	Brief Description
American Association of Diabetes Educators (AADE)	Educational programs and products including publications, conferences, live webinars and webcasts on-demand. **www.diabeteseducator.org**
American Diabetes Association (ADA) Diabetes Care Tasks Training Modules	A series of PowerPoint slide presentations developed to support diabetes care and management at the school. **www.diabetes.org/schooltraining**
Council for the Advancement of Diabetes Research and Education (CADRE)	Educational products (such as monographs, diabetes newsletters, a diabetes handbook, diabetes slides, lecture kits and journal supplements) on the risks and opportunities for people with diabetes. **www.cadre-diabetes.org/au_about_us.asp**
Helping Administer to the Needs of Students with Diabetes at School (H.A.N.D.S.℠)	A live continuing education full-day program developed by the National Association of School Nurses (NASN) to equip the school nurse with current diabetes knowledge, and provide tools and resources to facilitate effective diabetes management for students at school. **www.nasn.org/Default.aspx?tabid=411**
NYS DPCP Glucagon Emergency Administration Training Tool	A PowerPoint presentation for school nurses to use to train school personnel to administer glucagon to children with diabetes in the event of severe hypoglycemia. **www.nyhealth.gov**
NYS DPCP Partners for Success: School Nurses and the Care of Children with Diabetes in School	A DVD training for school nurses on the care of students with diabetes. (See Appendix #19 for more information.) **www.albany.edu/sph/coned/webstream.htm#chronic**
Pediatric Education for Diabetes in Schools: A Resource Manual for School Nurses (P.E.D.S®)	A manual developed by the Pediatric Adolescent Diabetes Research Education (PADRE) Foundation in collaboration with the National Association of School Nurses (NASN), to help school nurses provide successful, comprehensive diabetes management for the student with diabetes at school. **www.pedsonline.org**

The Starting Line Up: Diabetes Team Roles and Responsibilities

- Age-Related Responsibilities for a Child with Diabetes
- Parent/Guardian
- Child with Diabetes
- School Nurse
- Teachers
- School District Administrator
- Principal, School Administrator or Designee
- Food Service Manager and Lunch Room Staff
- Coaches and Physical Education Instructors
- Counselors
- Bus Drivers
- Diabetes-Trained School Personnel
- The Health Care Team

The Starting Line Up:
Diabetes Team Roles and Responsibilities

This section identifies roles and responsibilities of key individuals involved with the care of children with diabetes. The section can be copied and distributed so that each member understands his or her position on the diabetes team.

In general, the family and the health care team should work together to coordinate overall care planning and management. The school is responsible for successfully translating the child's care and management of diabetes to the school setting. The school should also ensure that there is constant and comprehensive communication with the family of a student with diabetes.

Age-related responsibilities for a child with diabetes are included to provide guidance on the topic of self-care. **The extent of a child's ability to participate in diabetes care tasks should be discussed and agreed upon by the child, family, health care team and school personnel.**

The items in this section are recommendations to support successful diabetes management and do not represent a legal checklist of what individuals must do to comply with federal, state and local laws and policies. See "Diabetes in Children and the Law" on page 71 for more information about legal responsibilities.

Age-Related Responsibilities

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. There is no magic age when a child can suddenly perform a certain skill or be responsible for his/her care. Children need to be encouraged and supported to gradually assume diabetes self-care as they mature and demonstrate confidence. The adult must be sure that when the responsibility is given, the child is willing to take it.

A child's ability or desire to perform certain diabetes-related tasks might vary from day to day. It is normal for the child to regress and depend once again on an adult to handle the responsibility. Parents/guardians, school nurses, relatives and other reliable adults must be sensitive to the child's needs and be available to take over when this occurs.

The chart below provides guidelines to follow when determining the average age for assuming diabetes-related skills. Keep in mind that these are general recommendations, and that each child must be evaluated individually. Independence takes a long time and requires a lot of help and supervision from adults. Research indicates that children and adolescents benefit from continued parent involvement in their diabetes management that is age appropriate and supportive. Children who have a network of adults to support and assist with diabetes management will generally be in better diabetes control.

Age-Related Expectations of the Child in Diabetes Care [48]

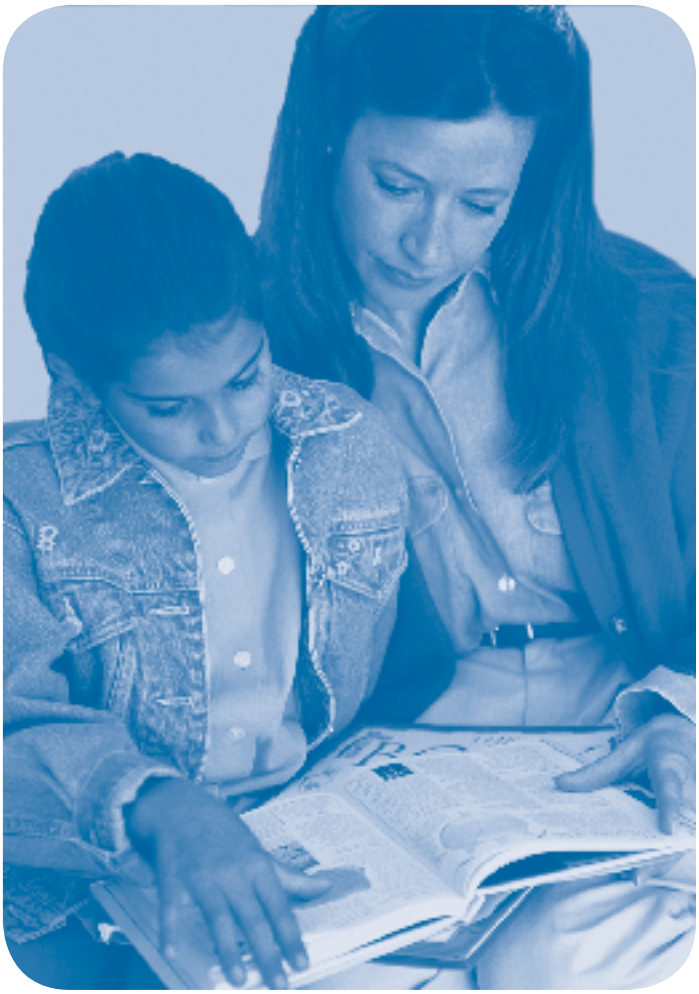
Age	Diabetes Care Responsibilities
Preschool and day care	The preschool child is usually unable to perform diabetes task independently. By 4 years of age, children may be expected to generally cooperate in diabetes tasks.
Elementary	The child should be expected to cooperate in all diabetes tasks at school. By age 8, most children are able to perform their own fingerstick blood glucose tests with supervision. By age 10, some children can administer insulin with supervision.
Middle school or junior high school	The student should be able to administer insulin with supervision and perform self-monitoring of blood glucose under usual circumstances, when not experiencing a low blood glucose level.
High school	The student should be able to perform self-monitoring of blood glucose under usual circumstances, when not experiencing low blood glucose levels. In high school, adolescents should be able to administer insulin without supervision.
At all ages, children with diabetes need assistance checking blood glucose when it is extremely high or low and during an emergency.	

Parent/Guardian

- Learn about diabetes by reviewing the materials contained in this guide and talking to your health care team.

Managing diabetes in children and adolescents is most effective when the entire family gets involved.

- Talk with your child about diabetes, and be sensitive to his or her needs.
- Support and encourage your child to gradually assume diabetes self-care as your child matures and demonstrates confidence.
- Make sure your child wears a medical identification product.
- If your child lives with two parents in two separate homes, communicate with each other about the child's diabetes management. This will help ensure that school personnel are given consistent information.
- Communicate with the health care and school health teams about your child's diabetes management needs and performance of diabetes-related tasks.
- Inform the school nurse, principal and/or administrator that your child has diabetes when he or she enrolls in school or is newly diagnosed with the disease.
- Provide the school with accurate and current emergency contact information.
- Authorize sharing and release of medical records and essential information between the school nurse, school staff and your child's health care team.
- Be a resource for the school nurse and other school personnel, and ask your school nurse how you can help. If your school does not have a nurse on staff, talk with the principal.
- Provide the signed Diabetes Medical Management Plan (DMMP) to the school nurse and/or other member of the school health team.
- Attend and participate in all planning meetings of the school health team to discuss implementing and providing approval for the student's DMMP, Individualized Health Plan (IHP), Emergency Care Plan (ECP) or other care plans.
- Consider requesting a 504 Plan and/or Individualized Education Program (IEP), based on your child's individual needs.
- Inform the school health team of any changes in your child's health status or plan.
- Provide all supplies and equipment necessary for implementing your child's care plans. See the checklist on page 45 for more details.
- Provide and maintain all supplies and equipment necessary to accommodate your child's long-term needs (72 hours), in case of an emergency.
- Inform appropriate school staff when your child plans to participate in school-sponsored activities that take place before or after school, so that health care coverage can be assured.
- Understand the federal, state, and local laws that address the school's responsibilities to students with diabetes (see "Diabetes in Children and the Law" on page 71).



Child with Diabetes

- Learn about diabetes.
- Ask parents/guardians and your health care team questions.
- Share your feelings, and don't be afraid to ask for help.
- Always wear a medical identification product.
- Carry a fast-acting source of glucose.
- Work with your parent/guardian and 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 day.
- Tell someone if you feel symptoms of low or high blood glucose, especially if you need help.
- Participate in the planning meetings to discuss your written care plan(s), as appropriate.
- Take charge of your diabetes care at school, based on the information in your written care plans. This may include:
  - checking and writing down blood glucose levels
  - determining the right insulin doses
  - giving yourself insulin
  - throwing away needles, lancets, and other supplies you have used in the right place
  - eating meals and snacks as planned
  - treating low blood sugar
  - carrying diabetes equipment and supplies with you at all times
- Be active everyday, and make healthy food choices.

Things to Know:

1. What your written care plans say to help you manage your diabetes
2. Which person at home and school will help you
3. What is expected of you
4. Who to contact and what to do when you are having a low blood sugar reaction
5. When you should check your blood glucose levels, give yourself insulin, have a snack and eat lunch
6. Where your diabetes supplies are stored, if you don't carry them, and who to contact when you need to use them

School Nurse

- Review the information about diabetes in this guide.
- Coordinate health care services for a student with diabetes at school and at school-related activities.
- Obtain and review the student's current Diabetes Medical Management Plan (DMMP).
- Conduct initial and ongoing nursing assessment of the student, and develop or update an Individualized Health Plan (IHP) based upon the DMMP.
- Plan and participate in the development and/or implementation of the student's written care plan(s). Monitor compliance with these plans, and facilitate follow-up meetings of the school health team to discuss concerns, receive updates and evaluate the need for changes to the student's plans, as appropriate.
- Provide copies of plans to staff members who have responsibility for the student throughout the school day (e.g., teachers, coach, physical education (PE) teacher, lunchroom staff, and bus driver).
- Obtain materials and medical supplies necessary for diabetes care tasks from the parents/guardians, and arrange a system for notifying the student or parents/guardians when supplies need to be replenished.
- Distribute the "General Diabetes Information" section of this guide to all school personnel who have responsibility for students with diabetes.
- Participate in diabetes management training provided by health care professionals with expertise in diabetes to attain and/or maintain knowledge about current standards of care for children with diabetes.
- Work with school principal to identify school staff who are willing to be trained.
- Coordinate, implement and keep a record of diabetes management training for school personnel and any other school staff members who have responsibility for the student with diabetes.
- Provide routine and emergency diabetes care including blood glucose monitoring, urine ketone t esting, insulin administration and glucagon administration, as needed. Practice universal precautions and infection control procedures during all student encounters.
- Maintain a log at school to record blood glucose and ketone results. Review the information with the parents/guardians as often as requested.
- 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.
- Recognize that students with chronic illnesses such as diabetes may rebel by discontinuing all or part of their medical regimen. Adolescent girls, for example, may not follow their insulin regimen, because they want to lose weight or avoid gaining weight.
- Ensure parental permission has been obtained to share medical records and information with other school staff.
- With parental permission, act as liaison between the school and the student's health care team regarding the student's self-management at school. Maintain accurate documentation of communication and contacts, including direct care given to the child (e.g., medication administration).
- Collaborate with other co-workers (e.g., food service) and agencies (e.g., outside nursing agencies, school bus transportation services) as necessary to provide health care services.
- Be a resource for the student, family and school staff, as needed.
- Assist the classroom teacher with developing a plan for substitute teachers.
- Assist the PE teacher with managing the student's physical activity at school.
- Respect the student's confidentiality and right to privacy.
- Promote and encourage independence and self-care consistent with the student's ability, skill, maturity and developmental level.
- Be an advocate for students to help them meet their diabetes health care needs.
- Be knowledgeable about federal, state, and local laws and regulations that pertain to managing diabetes at school (see "Diabetes in Children and the Law" on page 71).

For additional information about the school nurse role, please see the National Association of School Nurses Position Statement, "School Nurse Role in Care and Management of the Child with Diabetes in the School Setting," located at www.nasn.org

Teachers

- Learn about diabetes by reviewing the materials contained in this guide.
- Work with the school health team to implement written care plans. Participate in planning meetings, as necessary.
- Provide classroom accommodations that are supportive of all aspects of diabetes management at school, as indicated in the student's 504 Plan, IEP or other care plan.
- Allow the student to see the school nurse and other diabetes-trained school personnel upon request.
- Recognize that a change in the student's behavior could be a symptom of blood glucose changes.
- Review the Emergency Care Plan (ECP) regularly, and be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia
- Provide information to substitute teachers that communicates the day-to-day needs of the student and the ECP.
- Notify the parents/guardians in advance of changes in the school schedule such as class parties, field trips and other special events.
- Communicate with the school nurse, diabetes-trained school personnel or parents/guardians regarding any concerns about the student.
- If designated as diabetes-trained school personnel, attend diabetes management training.
- Treat the student with diabetes the same as other students, except when meeting his/her specific medical needs.
- Respect the student's confidentiality and right to privacy.

School District Administrator

(Superintendent, 504 coordinator, or other school administrator responsible for coordinating student services)

- Learn about diabetes by reviewing the materials contained in this guide.
- Provide leadership in developing district policy related to all aspects of diabetes management at school, including delegation of responsibilities, required staff training, policies related to medication administration and blood glucose monitoring. Obtain input from local or regional experts, and ensure consistency with the standards of care for children with diabetes.
- Support implementation of district policy related to: 1) diabetes management training for school personnel; 2) ongoing quality control and improvement of these training programs; and 3) development and implementation of a program to monitor the performance of those who receive training.
- Monitor schools attended by students with diabetes for compliance with district policies.
- Allocate sufficient resources to manage students with diabetes.
- Provide permission for the student to check his or her blood glucose level and to take appropriate action to treat hypoglycemia in or outside of the classroom in conjunction with a school activity, in accordance with written care plans.
- Ensure the school's emergency plan includes guidelines for identifying and caring for children with diabetes during an emergency, including the location of emergency supply kits supplied by the parents/guardians.
- Meet with members of the school health team, as needed, to address issues of concern about the provision of diabetes care by the school district.
- Respect the student's confidentiality and right to privacy.
- Understand and implement the federal and state laws that may apply to students with diabetes. See "Diabetes in Children and the Law" on page 71 for more information.
- Ensure school and staff compliance with laws and regulations.

See the American Diabetes Association (ADA) *Standards of Medical Care in Diabetes* and *Care of Children with Diabetes in the School and Day Care Setting* in the Appendix for more information.

Principal, School Administrator or Designee

- Review the information about diabetes in this guide.
- Participate in developing and implementing school policy related to diabetes management at school.
- Develop and implement a system to inform school health services of the pending enrollment or recent diagnosis of a student with diabetes.
- Meet annually with the school health team to implement the student's written plans, discuss medical accommodations, educational aids and related services needed by the student with diabetes.
- Provide permission for the student to check his or her blood glucose level and to take appropriate action to treat hypoglycemia in the classroom or anywhere the student is in conjunction with a school activity, in accordance with written care plans.
- Support diabetes management training for the school nurse and other staff members with responsibility for students with diabetes, as needed.
- Ensure that the school nurse or diabetes-trained school personnel are available at all times when the student with diabetes is on or off campus for school-sponsored activities and events.
- Ensure that all school-related staff members who teach or supervise a student with diabetes are familiar with the accommodations and emergency procedures contained in the student's written care plans.
- Review the student's Emergency Care Plan regularly, and be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia.
- Alert all substitute personnel about the needs and emergency procedures for students with diabetes.
- Promote a supportive learning environment for students with diabetes.
- Treat the student with diabetes the same as other students, except when meeting his/her specific medical needs.

- Respect the student's confidentiality and right to privacy.
- Support and facilitate ongoing communication between parents/guardians of students with diabetes and school staff.
- Include diabetes awareness as part of health or cultural diversity education.
- Help develop and implement on campus as well as off-campus emergency protocols.
- Ensure the school's emergency plan includes guidelines for identifying and caring for children with diabetes during an emergency, including the location of emergency supply kits supplied by the parents/guardians.
- Implement the federal and state laws that may apply to students with diabetes. See "Diabetes in Children and the Law" on page 71 for more information.

Food Service Manager and Lunch Room Staff

- Obtain a copy of the student's nutrition plan from the Diabetes Medical Management Plan.
- Work with the school nurse to obtain a medical statement for meal modification, and coordinate the modification process, if necessary.
- Learn about the various kinds of diabetes meal and snack plans. Know which type of nutrition plan the student follows.
- Provide a lunch menu and lunch schedule in advance to the parents/guardians, along with the nutrition content of menu selections, including grams of carbohydrate and fat.
- Understand that supervisory lunch personnel may need to encourage the student to eat appropriate foods.
- Ensure that the student has timely access to food and sufficient time to finish.
- Recognize that a student's behavior change could be a symptom of blood glucose changes.
- Be aware that hypoglycemia can occur before lunch.
- Obtain a copy of the student's Emergency Care Plan (ECP) and keep it in a known, yet secure and confidential place in the lunchroom.
- Review the ECP regularly, and be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia.
- Treat the student with diabetes the same as other students, except when meeting his/her specific medical needs.
- Provide input to the student's school health team when requested.
- Discuss any concerns about the student with the school nurse and/or diabetes-trained school personnel.
- Respect the student's confidentiality and right to privacy.

Coaches and Physical Education (PE) Instructors

- Learn about diabetes by reviewing materials contained in this guide.
- Encourage exercise and participation in physical activities and sports for all students, including those with diabetes.
- Treat the student with diabetes the same as other students, except when meeting his/her specific medical needs.
- Encourage the student to have personal supplies readily accessible. Make sure blood glucose monitoring equipment and snacks are available at all activity sites.
- Allow snacks before or after physical activity, if necessary.
- Allow the student to wear diabetes medical identification products during activities.
- Allow the student to check blood glucose levels as outlined in his/her written care plan(s).
- Recognize that a change in the student's behavior could be a symptom of blood glucose changes.
- Be aware that hypoglycemia can occur during and after physical activity.
- Review the student's Emergency Care Plan (ECP) regularly, and be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia.
- Consider taping a fast-acting form of glucose (e.g., 3 or 4 glucose tablets, gel or cake icing in a tube) to a clipboard, or include it in the First Aid pack that goes out to physical education activities, practices and games.
- Provide input to the student's school health team, as needed.
- Discuss any concerns about the student with the school nurse and/or diabetes-trained school personnel.
- Provide information for the substitute PE teacher that communicates the daily needs of the student and the ECP.
- Respect the student's confidentiality and right to privacy.

Counselors

(Social Worker, Guidance Counselor, Psychologist)

- Work with school staff to promote a supportive learning environment.
- Be prepared to respond to the emotional needs of the child.
- Treat the child with diabetes the same as other children, except when meeting his/her specific medical needs.
- Promote and encourage independence and self-care that are consistent with the child's ability, skill, maturity, and development.
- Review the Emergency Care Plan regularly, and be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia.
- Recognize that a change in the student's behavior could be a symptom of blood glucose changes.
- Recognize that children with chronic illnesses such as diabetes may rebel by discontinuing all or part of their medical regimen. Adolescent girls, for example, may not follow their insulin regimen, because they want to lose weight or avoid gaining weight.
- Understand that some children may not wish to share information about their diabetes with other children, adults or school staff, particularly if it makes them feel different from others.
- Provide input to the child's school health team when requested.
- Discuss any concerns with the child, family, school nurse and/or school staff.
- Respect the child's confidentiality and right to privacy.

Bus Drivers

- At the beginning of the school year, talk to the school nurse to identify any students on the bus who have diabetes.
- Obtain a copy of the student's Emergency Care Plan (ECP), and keep it on the bus in a secure and confidential place.
- Review the ECP regularly, and be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia.
- Recognize that a student's behavior change could be a symptom of blood glucose changes.
- Be aware that although hypoglycemia normally occurs at the end of the day, it may happen at the beginning of the day if the student has not eaten breakfast.
- Keep supplies to treat low blood glucose on the bus, and be aware of where the students with diabetes normally keep their supplies.
- Provide information for the substitute bus driver that communicates the needs of the student and the ECP.
- Treat the student with diabetes the same as other students, except when meeting his/her specific medical needs.
- Allow the student to eat snacks on the bus.
- Provide input to the student's school health team when requested.
- Discuss any concerns about the student with the school nurse and/or diabetes-trained school personnel.
- Respect the student's confidentiality and right to privacy.

Diabetes-Trained School Personnel

- Learn about diabetes by reviewing materials contained in this guide.
- Complete diabetes management training.
- As appropriate, attend the student's school health team meetings and other planning meetings to gain understanding of the overall goal of care.
- Work with the school health team to implement the student's written care plan(s).
- Review the Emergency Care Plan (ECP) regularly, and be prepared to recognize and respond to the signs and symptoms of hypoglycemia and hyperglycemia.
- Document care provided according to standards and requirements outlined by school policy.
- Participate in planned evaluations of care.
- Communicate directly and regularly with the school nurse or the supervising health care professional.
- Consult with appropriate members of the student's school health team when questions arise or the student's health status changes.
- Be available on campus during regular school hours and when the student participates in school-sponsored extracurricular activities held before or after school.

- Accompany the student on field trips or off-campus school-sponsored sports events and activities, as determined by the student's written care plan(s).
- Help ensure that the student has a supportive learning environment and is treated the same as students without diabetes, except regarding specific medical needs.
- Respect the student's confidentiality and right to privacy.
- Understand the federal and state laws that may apply to students with diabetes. See "Diabetes in Children and the Law" on page 71 for more information.

The Health Care Team

The foundation of successful diabetes management is the health care team working with the family. This team is a comprehensive and committed group of experts that coordinates overall medical care planning and diabetes management. The health care team may grow as need arises and is an integral player in the overall team approach. Within the school setting, the health care team will work with the school nurse to ensure successful application of the child's care and management plan. Both the child and family are active members of the health care team. Other members of the team include:

Primary Care Provider/Endocrinologist

The child's primary care provider may be a pediatrician, family practice physician, general practitioner or internist and is the doctor seen for general check-ups and illnesses. Some children also have a specialist, such as an endocrinologist, with training and certification in caring for people with conditions such as diabetes, thyroid disease and metabolic disorders.

Certified Diabetes Educator

A Certified Diabetes Educator (CDE) is a trained health professional (nurse, dietitian, pharmacist, doctor, exercise physiologist, podiatrist or social worker, among others) who specializes in providing care and education to people with diabetes. A CDE helps the patient learn about diabetes and the routine aspects of diabetes care. A CDE can work with a family to provide recommendations on coping with diabetes, making changes in health habits, using medications and insulin, checking blood glucose, recognizing high and low blood glucose, and handling illness.

Registered Dietitian

A Registered Dietitian (RD) is an expert in food and nutrition. A dietitian helps patients create and maintain a healthy eating plan based on weight, lifestyle, medication and overall health. Children with diabetes should see an RD at least once a year or whenever the diabetes treatment plan changes.

Exercise Specialist

An exercise specialist helps incorporate physical activity into diabetes care. An individual trained in the scientific basis of exercise such as an exercise physiologist, can help children with diabetes lower blood glucose, control weight, improve cholesterol, reduce stress and improve overall fitness.

Mental Health Professional

A mental health professional such as a social worker, counselor, psychologist or psychiatrist provides mental health assistance to families in dealing with the personal and emotional sides of diabetes. The mental health professional can help to suggest local resources and support groups, and monitor how diabetes is affecting the entire family. A social worker also often works with families to get necessary supplies and equipment based on individual inancial situations.

Pharmacist

A pharmacist can offer guidance in choosing diabetes supplies that are right for the child such as a glucose meter, syringes and lancets.

Ophthalmologist (Eye Doctor)

The ophthalmologist will monitor any changes in vision or eye health and discuss the risk of developing diabetic eye disease. An ophthalmologist should be visited starting three to five years after a child is initially diagnosed, and annually thereafter.

Dentist

A dentist will provide guidance on overall oral health, and discuss proper home care cleaning and dental products. Everyone should see a dentist every six months, but children with diabetes may need a more frequent appointment schedule.

Podiatrist

A podiatrist is a health professional specializing in the treatment of feet and lower leg problems. If the child develops this type of problem, the primary care provider or endocrinologist may provide a referral to a podiatrist.

The NYS Diabetes Prevention and Control Program collaborated with the New York Diabetes Coalition to develop a comprehensive Diabetes Prevention and Management Toolkit for health care clinicians. New tools reflecting updated diabetes guidelines have been reproduced on CD-ROM, along with materials on preventing diabetes in adults and children. For more information about the toolkit, see Appendix #18.

Diabetes on the Go!

- Medical Identification Products
- School Trips/Field Trips
- Extracurricular Activities and Other Special Events
- Athletics
- Nutrition Away from Home
- Travel and Vacation
- Camp

Children with Diabetes

Diabetes on the Go!

A child with diabetes can participate in trips, camps and all activities just like their peers who do not have diabetes. With proper planning and training of adults, children with diabetes can participate fully in all activities.

Medical Identification Products

Medical identification products can save time in an emergency and may save the life of a child with diabetes.

All children with diabetes should wear some form of medical identification. Medical alert identification products help health care professionals and other individuals caring for children with diabetes obtain information and provide needed medical assistance. These products become critically important in an emergency situation during times of injury or serious illness. Without this identification, a health care professional or other caretaker may not know the child has diabetes, resulting in less than optimal and potentially harmful treatment and care.

When determining the appropriate identification for a child, key factors include age, form of identification, cost and the information provided on the product.

Age: Everyone with diabetes should wear a medical identification product, especially those who take insulin. There are a variety of different products appropriate for various age-groups.

Form of ID: Medical identification products come in all shapes and sizes. Examples include bracelets, anklets, necklace pendants, chains with dog tags, watch charms, watch bands, shoe tags, iron-on tags, wallet cards, silicone or nylon wristbands and car decals. An infinite selection of colors, metals and styles are available for all ages. Parents of toddlers have found that ankle bracelets work well, and inexpensive tags and charms are ideal for all children, since they may lose them more easily than an adult. Children who are old enough to participate in the selection of medical identification products should be involved as much as possible to ensure they will like and wear them all of the time.

Emergency personnel look for necklaces, neck chains with pendants and wrist bracelets first, followed by watch charms and shoe tags. Many experts encourage people with a medical condition to wear at least one form of identification and carry a medical identification wallet card. Wallet cards should not be used as the only medical identification product since an individual might be separated from personal belongings in an emergency. Parents/guardians can carry a wallet card for the child.

Cost: Medical identification products vary widely in cost, but can be as inexpensive as $5. Cost depends upon the form of ID.

Information Provided: When deciding on a particular style, consideration should be given to the amount of information needed on the product. At least three key pieces of information should be displayed: child's name, medical condition and emergency phone number. If a child shares his/her time between divorced or separated parents, it is important to consider including two emergency phone numbers on the identification.

Adapted from Diabetes Forecast, "Medical Identification Products," January 2004 RG74-RG77.

School Trips/Field Trips

Children with diabetes must have the opportunity to attend school field trips. Parental attendance cannot be a condition of the child's participation. The school is responsible for ensuring that diabetes-trained school personnel accompany the student with diabetes to meet the student's individual needs and to ensure that all needed supplies are brought along on the trip such as blood glucose monitor, insulin, quick-acting source of glucose and glucagon. With proper planning, field trips can be safe and worry-free experiences for students, staff and parents/guardians.

Extracurricular Activities and other Special Events

Children with diabetes must be able to participate in extracurricular activities. Diabetes management during extracurricular activities that are sponsored by the school should be part of the student's written diabetes care plan(s). Diabetes-trained school personnel must be available at these activities to meet the individual needs of students with diabetes.

Athletics

The student with diabetes can fully participate in the athletic opportunities available in schools. Since physical activity is an important part of good management of the student's blood glucose level, it should be encouraged on a consistent basis. Children with diabetes need to wear medical identification when participating in athletics.

Team sports should be encouraged if the child expresses an interest. Diabetes can never be a reason to discourage or exclude a child from trying out and participating in school sports. The school is responsible for ensuring that the student's diabetes-related needs are met in accordance with the student's care plans.

It is important for school athletics staff to understand how physical activity may affect diabetes management. Some students may need to eat an additional snack before exercising. Most children old enough to participate in school sports are able to monitor their own blood glucose and adjust their snacks accordingly. In addition, diabetes-trained school personnel such as the school nurse, coach, teacher, or other staff member should be present to administer glucagon, as ordered for emergency hypoglycemic situations.

Nutrition Away from Home

Planning for meals, snacks, special events and emergency situations for a child with diabetes is an integral part of managing diabetes.

School Meals: The child with diabetes may need modifications to the school meal. Federal regulations require that schools participating in the "National School Meals Program" must modify meals for children whose disabilities restrict their diets. The child's parents/guardians should work with the child's physician to complete the appropriate forms to make meal modifications. The food service director should participate on the school health team and guide the necessary adaptations to the regular menu items. See Appendix #8 for a Medical Statement for Children Requiring Modifications in School Meals.

Snacks: It is sometimes necessary for a child with diabetes to have a snack between breakfast and lunch, or in the mid-afternoon, depending on his/her insulin regimen and activity level. This child should be able to eat a snack at school depending on his/her individual needs. The DMMP should define the timing of snacks and alternatives in case of unforeseen circumstances.

School Parties: Providing nutritious alternatives to high-sugar and high-fat food at school parties is healthier for all children. Serving more nutritious foods also gives the message that healthy foods are fun and taste good. Advanced notice should be sent to the parent/guardian of the child with diabetes regarding parties or special events where food will be served, so that the carbohydrates may be incorporated into the child's daily meal plan. With appropriate planning, children with diabetes can enjoy all foods. It is important to remember there are no forbidden foods for most children with diabetes.

Adapted from Recommendations for Management of Children with Diabetes in School by the Nevada Diabetes Association for Children and Adults.

Travel and Vacations

Before the trip:

- Talk to the child's health care team about upcoming travel plans and whether medications such as insulin, will require adjustment.
- If the planned trip is long, ask the doctor for a written prescription for each of the child's medications.
- Carry the child's doctor's contact information with you.
- Get a referral for the name of a doctor in your vacation area, in case you need to contact them while away.

Check List of Items for Vacations & Travel

- ❇ Medications
- ❇ Syringes or other supplies needed for the child's insulin delivery device
- ❇ Alcohol swabs
- ❇ Blood glucose monitor
- ❇ Blood glucose test strips
- ❇ Glucagon kit
- ❇ Glucose tabs or other form of quick-acting carbohydrate
- ❇ Snacks
- ❇ Medical identification product
- ❇ Name and phone number of child's doctor
- ❇ Name and phone number of parents/guardians when child is traveling without them
- ❇ Insulated cool pack

Packing for the trip:

- Bring along extra snacks in case meals are not on time.
- Pack three times the amount of insulin and supplies that the child will need while you are away.
- Take a special insulated bag to carry insulin, glucagon and blood glucose test strips to keep them from freezing or getting too hot.
- If traveling by plane, pack diabetes medications, blood glucose monitoring supplies, and snacks in carry on bags – not checked luggage.
- For more information on air travel and diabetes, visit **www.tsa.gov/travelers/airtravel/specialneeds**
- Use the check list here as a guide for what to pack for the child.

While traveling:

- Check the child's blood glucose regularly while traveling.
- If glucose levels start to get low, have the child eat a snack.
- Be sure the child wears medical identification at all times.
- While away, watch the child's food intake, activity level and medications.
- Keep the child's meal plan as normal as possible.
- Always carry a snack for the child in case a meal is delayed.
- If traveling to a different time zone, check with your child's health care team for appropriate adjustments to your child's insulin regime.

Camp

Planning for your child to go to camp:

- Many camps are required to provide services to meet the needs of a child with diabetes under the Americans with Disabilities Act.
- Camps should be prepared and have trained staff to accommodate the child's needs.
- Contact the camp's administrative office and ask about the camp's experience and training in managing children's type 1 and type 2 diabetes.
- Before the child attends the camp, schedule a meeting with the camp's director and medical staff to talk about the child's needs and how they will be met. See "A Team Approach to Care for Children with Diabetes: Developing a Winning Strategy" on page 41 for more information and suggested topics to cover at a planning meeting.
- The checklist of items you provide to camp staff will be similar to those you supply to the school; however, camp procedures may be very different than school guidelines. Use the checklist on page 45 as a guide.
- In some areas, camp programs are available exclusively for children with diabetes. These camps can provide the child with a chance to meet other children with diabetes and to receive diabetes management education. Camps on these sites are accredited by the American Camping Association (ACA) or have met basic safety standards.

To be prepared for illness and injury, all camps should have written medical plans as well as medical staff available to children during all camp operating hours.

For a listing of camps for children with diabetes, visit: **www.diabetes.org/communityprograms-and-localevents/diabetescamps.jsp**

Special Considerations for Children with Diabetes

- Dealing with Emotional and Social Issues
- Helping the Child's Friends and Classmates Understand Diabetes
- Sick Day Guidelines
- Emergency and Natural Disaster Preparedness

Children with Diabetes

Special Considerations for Children with Diabetes

Dealing with Emotional and Social Issues

The diagnosis of diabetes can be difficult to deal with at any age, but it can be particularly hard for children and adolescents. In addition, parents/guardians may experience difficult emotions such as guilt, anger, fear, frustration and depression. Siblings often initially feel frightened; this can sometimes be followed by jealousy of the attention that the child with diabetes receives. A diagnosis of diabetes can be unsettling for the entire family.

Children are still developing emotionally and often think of themselves in relation to their peers. Diabetes can make a child feel different. It may help some children to explain to classmates and friends what diabetes is and show them how their supplies work. No two children with diabetes are alike, and it is important to remember that these children may/may not experience a wide range of emotions.

The teen years bring rapid physical growth and development. Teenagers have more control over their treatment, which can be both a positive and negative experience. This additional independence shifts some of the responsibility to the teen, but might cause anxiety in parents/guardians as well. Most teens can be rebellious at times and will occasionally make mistakes. This is an opportunity to help teens learn from their experiences.

There is help available for children and families who struggle with emotional and/or social issues. Children can talk with their school counselors or social workers. If the school does not have one, they can be referred for counseling by their physicians or other members of the care team.

Helping Friends and Classmates Understand Diabetes

Not all children decide to immediately tell their friends and classmates about their diabetes diagnosis. As parents/guardians, it is important to be respectful of this decision and not encourage this communication until the child is ready. See Appendix #14 for a sample of books and other resources that are available to assist children and families teach others about diabetes. When a child expresses a desire to share their diabetes diagnosis with classmates, parents/guardians should work with the child in planning how best to do this. Teachers may be willing to have the student do a “show and tell”, or perhaps have a parent come in and address the class. Children usually confide in peers and friends when they are ready and often on their own.

Sick Day Guidelines

When a child with diabetes is sick, the management goals include the prevention and early detection of hypoglycemia, hyperglycemia and diabetic ketoacidosis. See "Type 1 Diabetes in Children" on page 15 for more information.

The Effect of an Illness on Diabetes Control

- Illness can place extra stress on a child with diabetes and can affect blood glucose levels.
- If the child's illness affects the gastrointestinal system and reduces appetite and food intake, this can lead to hypoglycemia.
- Vomiting can cause dehydration and can be a sign of a serious complication called DKA. If ketones are present and/or the child is vomiting, the child's health care clinician should be contacted.
- The illness may create stress, which may cause the liver to produce more glucose, leading to hyperglycemia.
- Dehydration is a concern as well, since the child may not have much interest in drinking fluids. This can lead to diabetic ketoacidosis.

The Sick Day Pantry

- **Urine or blood ketone strips**
- **Glucagon kit**
- **Thermometer**
- **Aspirin-free products in case of a fever**
- **Non-perishable cans of soup or broth**
- **Cans of regular soda or Gatorade**
- **Cans of concentrated juice (ones that don't need refrigeration)**
- **Gelatin with sugar**
- **Pedialyte or other rehydration product**

What to Do When the Child is Ill

- Contact the child's health care team for guidance.
- Monitor the blood glucose frequently:
  - Check the child's blood glucose at least every 2-4 hours.
  - If the child takes insulin, make necessary adjustments to the insulin dose based on how the child is eating and their blood glucose levels.
- Monitor the child's food and fluid intake:
  - Children who are sick may not be interested in eating or drinking fluids.
  - Fluids should be encouraged to avoid the child getting dehydrated. Remember – dehydration can lead to diabetic ketoacidosis.
  - If the child can't eat his/her usual food, try giving juice, crackers, popsicles or soup.
  - If the child can't eat at all, encourage him/her to drink clear liquids such as ginger ale.
  - Contact the child's health care team for guidance.
- Provide adult supervision:
  - Diabetes management on a sick day should never be left up to the child or teenager alone.
  - If a child with diabetes gets sick at school, the school nurse or other responsible staff person should monitor the child for signs of hypoglycemia or hyperglycemia, and contact the child's parent/guardian.
  - The child's health care team should be contacted if the child's condition gets worse, or if hypoglycemia, or hyperglycemia cannot be adequately treated.

Emergency and Natural Disaster Preparedness

Being Prepared at Home

All families are encouraged to have a plan in case of a natural disaster or other emergency. For families of a child with diabetes, this is especially important. When developing an emergency plan for your home, include the following items for a child with diabetes:

- Three-days worth of diabetes management supplies should be stored in a waterproof and insulated container. Supplies include:
  - Blood glucose meter, testing strips, lancets and batteries
  - Urine ketone strips
  - Insulin, syringes and other supplies
  - Insulin pump and supplies
  - Other medications, if needed
  - Antiseptic wipes
  - Fast acting source of glucose
  - Carbohydrate-containing snacks
  - Water and other sugar free liquids
  - Glucagon emergency kit
- Contact information for the child's health care team.
- Child's medication prescription numbers (chain pharmacies may be able to refill the child's medications based on the number written on the prescription).

At least twice a year, replace items in the emergency kit that have expired. For more information about emergency preparedness and response, go to the New York State Department of Health's website at **www.nyhealth.gov/environmental/emergency**

Being Prepared at School

To be prepared for an emergency that requires students to stay longer at school, parents/guardians should provide the school with an emergency supply kit, in addition to the check list of items above.

In addition, schools should check that their emergency plans include provisions for identifying and caring for children with diabetes during an emergency and that written care plans are followed.

Diabetes in Children and the Law

- Federal Laws Protecting Children with Diabetes
- NYS Policy and Laws Protecting Children with Diabetes
- How to Address Discrimination Issues

Children with Diabetes

Diabetes in Children and the Law

Federal Laws Protecting Children with Diabetes

There are three federal laws that provide protection to students with diabetes at school, ensuring that they have an equal opportunity to participate and succeed: Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act and the Individuals with Disabilities Education Act (IDEA).

Section 504 of Rehabilitation Act of 1973

- A civil rights law that prohibits recipients of federal funds from discriminating against students on the basis of disability. In order for a student to be protected by Section 504, he or she must have a disability defined as a physical or mental impairment that substantially limits one or more major life activities.
- Prohibits retaliation for asserting the right to be free from discrimination.
- Applies to all public and private schools that receive federal funding.
- Outlines a process for schools to use in determining what services a student with a disability needs. This evaluation process must be tailored individually, since each student's needs will vary.

See "A Team Approach to Care for Children with Diabetes: Developing a Winning Strategy" on page 41 for more information on the process of developing a 504 plan.

Americans with Disabilities Act (ADAct)

- A civil rights law that prohibits discrimination on the basis of disability by public entities, regardless of whether the public entity receives federal funds. Students with diabetes who attend private schools are covered under this law.
- Law not applicable to schools run by religious institutions and that do not receive federal funding.
- Protects parents/guardians of children with diabetes from being fired because of their child's diabetes.

For students with disabilities, including diabetes, the standards of coverage are the same under Section 504 and the ADAct. Under these laws, it is illegal for schools to discriminate against students with disabilities. Historically, students with diabetes have been protected by both laws, neither of which requires a demonstration of academic difficulties. Additionally, schools must provide needed educational aids and services to meet the needs of students with diabetes so that they may attend school in a medically safe environment and participate in the same activities as their peers. These laws require schools to provide individuals with disabilities such as diabetes, a Free and Appropriate Public Education (FAPE) including access to buildings, programs and services, participation in academic, nonacademic and extracurricular activities and the provision of the appropriate level of assistance for students with diabetes at school, on field trips and during extracurricular activities such as after-school clubs and travel sports teams.

Individuals with Disabilities Education Act (IDEA) of 1991

IDEA is the federal law that funds special education services for children with disabilities.

- To qualify under IDEA, a student's diabetes must adversely affect educational performance to the point that the student requires special education and related services, as defined by state law. It must be shown that diabetes makes it more difficult for the child to learn. This may occur if the student frequently experiences hypoglycemia or hyperglycemia at school that significantly affects the student's ability to concentrate, or if the student misses a great deal of instruction time because of diabetes complications or care requirements.
- IDEA may also apply if the student has disabilities, in addition to diabetes.
- Children who are protected under the IDEA are entitled to special education and related services at no cost to their parents/guardians.
- IDEA requires schools to find and identify children with disabilities and to provide them with a Free and Appropriate Public Education (FAPE).Under IDEA, this means providing special education and related services that meet state standards and are provided in conformity to an individualized education program (IEP).

- The IDEA regulations specify how school personnel and parents/guardians, working together, develop and implement an IEP. An IEP designs a student's educational program based on an identified disability and sets out what the school is going to do to meet the child's individual needs. See "A Team Approach to Care for Children with Diabetes: Developing a Winning Strategy" on page 41 for more information on IEPs. See Appendix #5 for a sample IEP.

Family Education Rights and Privacy Act (FERPA) and Health Insurance Portability and Accountability Act (HIPAA)

Other federal laws, including the Family Education Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act (HIPAA), govern privacy issues for children with diabetes. Generally speaking, school health records are considered to be educational records, which are governed by FERPA, but they are held to a higher standard than general educational records. Medical information maintained by a student's private health care clinician is governed by HIPAA. Both laws apply in regard to the exchange of information that commonly occurs between health care clinicians, school nurses and school personnel who jointly provide care for a student with diabetes.

FERPA

- The law generally prohibits schools from disclosing personally identifiable information in a student's education record, unless the school obtains the consent of the student's parent or the eligible student (a student who is 18 years old or older or who attends an institution of postsecondary education).
- FERPA allows schools to disclose this information without obtaining consent to school officials, including teachers, who have legitimate educational interests in the information, which may impact the child.
- Schools that disclose information must include in their annual notification to parents/guardians and eligible students the criteria for determining who is a school official and what constitutes a legitimate educational interest.
- Schools may not prevent the parents/guardians of students, or eligible students themselves, from inspecting and reviewing the student's educational records.

Family Education Rights and Privacy Act (FERPA)

FERPA protects students' privacy in a number of areas. While it is important for schools to recognize and abide by the protections offered by this law, basic information about a student's diabetes must often be shared with a variety of school personnel in order for a student with diabetes to be safe. This is especially true in the case of younger children or anytime there is a diabetes emergency. Parents/guardians and school personnel should talk about privacy concerns in the course of developing the IHP, 504 plan and/or IEP.

HIPAA

- This law specifies how the privacy and security of oral, paper and electronic personally identifiable health information is to be safeguarded by policy, accountability and physical and electronic protections.
- Schools should anticipate health care clinicians' requirements and concerns about the handling of sensitive information.

Family Medical Leave Act of 1993

The Family Medical Leave Act of 1993 (FMLA) may provide protection to parents/guardians who need time off from work to care for a child with diabetes. Under FMLA, a covered employer must grant an eligible employee up to 12 work weeks of unpaid leave during any 12-month period to care for an immediate family member (spouse, child or parent) with a serious health condition. More about FMLA and how it applies to care for a child with diabetes is available through the US Department of Labor at 1-866-4-USA-DOL or online at: **www.dol.gov/esa/regs/compliance/whd/whdfs28.htm**

NYS Policy and Laws Protecting Children with Diabetes

Children with diabetes are protected under various NYS laws and policies. The following documents provide important information about these laws and policies for families and schools.

NYS State Education Department School Executive's Bulletin – January 2001

New York State Education Department's Office of Elementary, Middle, Secondary and Continuing Education

Blood Glucose Monitoring

Children with diabetes have the right to monitor their blood glucose at any time and in any location in the school, and to receive assistance, if needed.

Children with diabetes have the right to care for their diabetes at school. This right is based on federal laws (Individuals With Disabilities Education Act [IDEA] and Section 504 of the Rehabilitation Act of 1973), which provide protection against discrimination for children with disabilities, including diabetes. **Accordingly, while at school, each child with diabetes must be allowed to do blood glucose monitoring at any time within any place in the school.** Blood glucose monitoring is the testing of one's blood glucose with a small portable machine, called a blood glucose meter. At times, a child may need assistance with the blood glucose monitoring procedure. In a March 1995 memorandum to schools, blood glucose monitoring was considered a nursing function that could not be delegated to unlicensed persons. **It has been determined that blood glucose monitoring may now be performed by anyone in the school setting.** Each child with diabetes must be allowed to do blood glucose monitoring and receive assistance, if necessary, with this procedure. For questions on children with diabetes, please call the Comprehensive Health and Pupil Services Team at (518) 486-6090.

NYS Good Samaritan Statute

Anyone who voluntarily provides emergency medical care or assistance to an unconscious, ill or injured person will not be held liable for his/her actions, or failure to act during the course of the care or assistance, except in the event of gross negligence.

According to New York State Public Health Law §3000-a, except as provided in specified sections of the Education Law, "**...any person who voluntarily** and without expectation of monetary compensation **renders first aid or emergency treatment at the scene of an accident or other emergency** outside a hospital, doctor's office or any other place having proper and necessary medical equipment, **to a person who is unconscious, ill, or injured, shall not be liable** for damages for injuries alleged to have been sustained by such person or for damages for the death of such person alleged to have occurred by reason of an act or omission in the rendering of such emergency treatment **unless it is established that such injuries were or such death was caused by gross negligence** on the part of such person."

Section 901 of Education Law, School Nurses as Trainers

School nurses can instruct other school personnel to respond to situations such as accidents or illnesses. See the memo from the State Education Department for further details on page 74.

School health services for the purposes of this article shall mean the several procedures including, but not limited to, medical examinations, dental inspection and/or screening, scoliosis screening, vision screening and audiometer tests, designed to determine the health status of the child; to inform parents or other persons in parental relation to the child, pupils and teachers of the individual child's health condition subject to federal and state confidentiality laws; to guide parents, children and teachers in procedures for preventing and correcting defects and diseases; **to instruct the school personnel in procedures to take in case of accident or illness;** to survey and make necessary recommendations concerning the health and safety aspects of the school facilities and the provision of health information.

State Education Department Memo:
Training of Unlicensed Individuals in the Injection of Glucagon in Emergency Situations (March 2004)

THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY NY 12234

March 2004

TO: District Superintendents
Superintendents of Public Schools
Superintendents of State-Operated and State-Supported Schools
Non-public School Administrators and Educators
New York City Board of Education
Principals of Public and Non-public Schools
Directors of Pupil Personnel Services
School Physicians
New York State Nurses Association
Nurse Practitioners/School Nurse-Teachers/School Nurses

FROM: James A. Kadamus
Deputy Commissioner,
Office of Elementary, Middle,
Secondary and Continuing Education

Johanna Duncan-Poitier
Deputy Commissioner
Office of the Professions and
Office of Higher Education

SUBJECT: Training of Unlicensed Individuals in the Injection of Glucagon in Emergency Situations

We are pleased to provide you with important clarifying information concerning the ability of registered professional nurses (RNs) to train unlicensed individuals to inject glucagon in emergency circumstances, specifically in school settings with students diagnosed with diabetes. We have received questions from the field as to whether this practice might subject the licensee to potential professional misconduct charges. The following is to provide some clarity and guidance.

Training unlicensed individuals to administer glucagon, prescribed by a licensed prescriber, in **emergency situations** where an appropriately licensed person is not available, will not be considered by the Department to constitute professional misconduct on the part of the licensed registered nurse.

Two State Education Department memoranda speak generally to this issue. A memorandum issued in 1998, in a Question and Answer format, explains that a registered nurse can train unlicensed individuals to administer injectable glucagon as a treatment for hypoglycemia. A June

2002 field memo clarifies that school nurses may lawfully train unlicensed individuals to administer epi-pen injections and generally confirms the practice of training unlicensed individuals to administer medications in **certain emergency circumstances**. Recognizing the public protection benefits of having persons trained to administer glucagon in settings where students with diabetic conditions are at risk, the conditions listed in the 2002 memorandum related to epi-pen administration, apply equally to glucagon administration as follows:

1. Unlicensed individuals trained to administer glucagon may only do so in emergency situations,
2. The person providing the training must be licensed as a registered professional nurse who is competent to provide the training, and
3. The training must be provided in a manner that is neither negligent nor grossly negligent, as defined in the Education Law and Rules of the Board of Regents.

In response to requests from educators and licensed professionals seeking clarification on whether training unlicensed individuals to administer glucagon in an emergency would be considered professional misconduct, a licensee would not be subject to misconduct for providing this training if it is performed in a competent manner. The potential violation of aiding and abetting an unlicensed person in the practice of nursing would not apply based on an exemption in section 6908(1)(a)(iv) of the nurse practice act which permits unlicensed persons to provide nursing assistance in case of an emergency. The unlawful delegation violation would similarly not apply because the nurse would be providing general training rather than delegating a task that requires licensure.

This legal determination is drawn from the State Education Department's 110-year history of regulating the licensed professions. In addition, the Department's opinion on this issue was informed by technical information provided at a workgroup made up of Education Department staff, Department of Health personnel and experts in the field. The team provided technical information including statistical analyses that showed no cases of mortality in the use of glucagon injections. The multi-agency group recognized use of the glucagon injection kit identified in American Diabetes Association literature as being a best practice standard.

We hope this information is helpful. If you have any questions or need additional information, please visit the Office of Professions Web site at www.op.nysed.gov or contact the New York State Board for Nursing by phone at 518-474-3817 ext. 120 or e-mail nursebd@mail.nysed.gov. Additional information is also available through the New York Statewide School Health Services Center at www2.monroe2boces.org/sshsc or by phone at 585-349-7630.

NYS State Education Department, Guidelines for Administration of Medication in the Schools

This document provides guidance for the safe administration of medication to students in the school setting. Topics include a legislative background, glossary of terms, procedures for the administration of medication and responsibilities of school nursing personnel. The guidelines are not mandatory, but based on existing State law and the Regulations of the Commissioner of Education. The guidelines should be reviewed with school staff, and district policies should be updated to reflect current law. Visit **www.schoolhealthservicesny.com/uploads/AdminMed.pdf** for more information and to view the full-text document.

How to Address Discrimination Issues

The laws and policies described previously protect children with diabetes from discrimination. However, sometimes children with diabetes encounter difficulty in obtaining fair treatment in schools, day cares and other settings. Discrimination can appear in various forms, including an opinion, view, action or treatment that ignores or disregards a child's legal rights. The American Diabetes Association recommends the following 4-step process to address discrimination and ensure every child with diabetes receives fair treatment.

- EDUCATE school personnel about diabetes and how it affects the child. This may be achieved through the Section 504 or IEP process and training staff on certain topics in order to accommodate the student's needs.
- NEGOTIATE with school officials during the development process of the child's care plan(s). A plan does not have to be signed if a parent/guardian does not agree with it. Try to understand concerns and work toward a mutually agreeable solution for all interested parties.
- LITIGATE if the child's needs are not being met or the child is not being treated fairly. The procedure to follow depends on whether the claim is filed under IDEA, Section 504 or the Americans with Disabilities Act. An administrative complaint or lawsuit in court should be filed only after all other options are exhausted.
- LEGISLATE at the local, statewide or national level if the current laws and policies do not provide needed protection to children with diabetes.

To speak with a legal advocate about a specific concern, or to request more information, contact the American Diabetes Association at 1-800 DIABETES (342-2383).

Adapted from the American Diabetes Association (ADA), *Your School and Your Rights: Protecting Children with Diabetes Against Discrimination in Schools and Day Cares,* June 2005.

There is discrimination if a child is...

- **prohibited from going on a school-sponsored field trip because of diabetes**
- **prohibited from participating in school-sponsored athletics and/or extracurricular activities because of diabetes**
- **required to have a parent/guardian/sibling accompany him/her at school-sponsored events to provide medical supervision**
- **prohibited from performing diabetes care tasks anywhere in the school setting**

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Appendix

- Sample Tools, Forms and Plans
- Clinical References
- Other Resources

Children with Diabetes

Appendix

Sample Tools, Forms and Plans

1. Diabetes Medical Management Plan (DMMP)
2. Individualized Healthcare Plan (IHP)
3. Quick Reference Emergency Care Plan (ECP)
4. 504 Plan
5. Individual Education Program (IEP)
6. Flow Sheet for Diabetes Management at School
7. Training Record for Personnel in School
8. Medical Statement for Children Requiring Modifications in School Meals

Clinical References

9. Diagnosis and Classification of Diabetes Mellitus
10. Standards of Medical Care in Diabetes – 2007
11. Care of Children with Diabetes in the School and Day Care Settings
12. Care of Children and Adolescents with Type 1 Diabetes
13. Type 2 Diabetes in Children and Adolescents

Other Resources

14. Books for Children At-Risk or with Diabetes
15. NYS Diabetes Prevention and Control Program Publications
16. NYS DPCP Glucagon Emergency Administration Training Tool
17. Healthy Schools Approach – Preventing Type 2 Diabetes in Children: Making the Case for Healthy Schools
18. NYS DPCP Diabetes Prevention and Management Toolkit
19. Partners for Success: School Nurses and the Care of Children with Diabetes at School
20. Expanded Syringe Access Demonstration Program
21. Internet Resources

APPENDIX #1: SAMPLE Diabetes Medical Management Plan (DMMP)

Date of Plan: _____

Diabetes Medical Management Plan

This plan should be completed by the student's personal health care team and parents/guardian. It should be reviewed with relevant school staff, and copies should be kept in a place that is easily accessed by the school nurse, trained diabetes personnel and other authorized personnel.

Effective Date: _____

Student's Name: _____

Date of Birth: _____ Date of Diabetes Diagnosis: _____

Grade: _____ Homeroom Teacher: _____

Physical Condition: ☐ Diabetes type 1 ☐ Diabetes type 2

Contact Information

Mother/Guardian: _____

Address: _____

_____

Telephone: Home _____ Work _____ Cell _____

Father/Guardian: _____

Address: _____

_____

Telephone: Home _____ Work _____ Cell _____

Student's Doctor/Health Care Provider:

Name: _____

Address: _____

Telephone: _____ Emergency Number: _____

Other Emergency Contact:

Name: _____

Relationship: _____

Telephone: Home _____ Work _____ Cell _____

Notify parents/guardian or emergency contact in the following situations: _____

_____

_____

Blood Glucose Monitoring

Target range for blood glucose is ☐ 70-150 ☐ 70-180 ☐ Other _____

Usual times to check blood glucose _____

Times to do extra blood glucose checks *(check all that apply):*

- ☐ before exercise
- ☐ after exercise
- ☐ when student exhibits symptoms of hyperglycemia
- ☐ when student exhibits symptoms of hypoglycemia
- ☐ other (explain): _____

Can student perform own blood glucose checks? ☐ Yes ☐ No

Exceptions: _____

_____

Type of blood glucose meter student uses: _____

_____

Insulin

Usual Lunchtime Dose

Base dose of Humalog/Novolog/Regular insulin at lunch (circle type of rapid-/short-acting insulin used) is _____ units or does flexible dosing using _____ units/ _____ grams carbohydrate.

Use of other insulin at lunch (circle type of insulin used):
intermediate/NPH/lente _____ units
or basal/Lantus/Ultralente _____ units.

Insulin Correction Doses

Parental authorization should be obtained before administering a correction dose for high blood glucose levels.

☐ Yes ☐ No

Correction Dose (sliding scale method)

_____ units if blood glucose is _____ to _____ mg/dl

_____ units if blood glucose is _____ to _____ mg/dl

_____ units if blood glucose is _____ to _____ mg/dl

_____ units if blood glucose is _____ to _____ mg/dl

_____ units if blood glucose is _____ to _____ mg/dl

Correction Dose (correction factor method)

Correct blood glucose greater than_____ mg/dl Correction factor_____

Target blood sugar for correction _____

Can student give own injections? ☐ Yes ☐ No

Can student determine correct amount of insulin? ☐ Yes ☐ No

Can student draw correct dose of insulin? ☐ Yes ☐ No

Parents are authorized to adjust the insulin dosage under the following circumstances: _____

_____

For Students with Insulin Pumps

Type of pump: _____ Basal rates: _____ 12 am to _____

_____ _____ to _____

_____ _____ to _____

Type of insulin in pump: _____

Type of infusion set: _____

Insulin/carbohydrate ratio: _____ Correction factor: _____

Student Pump Abilities/Skills:	***Needs Assistance***	
Count carbohydrates	☐ Yes	☐ No
Bolus correct amount for carbohydrates consumed	☐ Yes	☐ No
Calculate and administer corrective bolus	☐ Yes	☐ No
Calculate and set basal profiles	☐ Yes	☐ No
Calculate and set temporary basal rate	☐ Yes	☐ No
Disconnect pump	☐ Yes	☐ No
Reconnect pump at infusion set	☐ Yes	☐ No
Prepare reservoir and tubing	☐ Yes	☐ No
Insert infusion set	☐ Yes	☐ No
Troubleshoot alarms and malfunctions	☐ Yes	☐ No

For Students Taking Oral Diabetes Medications

Type of medication: _____ Timing: _____

Other medications: _____ Timing: _____

Meals and Snacks Eaten at School

Is student independent in carbohydrate calculations and management? ☐ Yes ☐ No

Meal/Snack	*Time*	*Food content/amount*
Breakfast	_____	_____
Mid-morning snack	_____	_____
Lunch	_____	_____

Mid-afternoon snack _____ _____

Dinner _____ _____

Snack before exercise? ☐ Yes ☐ No

Snack after exercise? ☐ Yes ☐ No

Other times to give snacks and content/amount: _____

Preferred snack foods: _____

Foods to avoid, if any: _____

Instructions for when food is provided to the class (e.g., as part of a class party or food sampling event):

_____

_____

Exercise and Sports

A fast-acting carbohydrate such as _____ should be available at the site of exercise or sports.

Restrictions on activity, if any: _____.

Student should not exercise if blood glucose level is below _____ mg/dl or above _____ mg/dl or if moderate to large urine ketones are present.

Hypoglycemia (Low Blood Sugar)

Usual symptoms of hypoglycemia: _____

_____

Treatment of hypoglycemia:_____

_____

Glucagon should be given if the student is unconscious, having a seizure (convulsion), or unable to swallow.

Route _____, Dosage _____, site for glucagon injection: _____arm, _____thigh, _____other.

If glucagon is required, administer it promptly. Then, follow district policy for medical care.

Hyperglycemia (High Blood Sugar)

Usual symptoms of hyperglycemia: _____

_____

Treatment of hyperglycemia: _____

_____

Urine should be checked for ketones when blood glucose levels are above _____ mg/dl.

Treatment for ketones: _____

_____

Supplies to be Kept at School

_____ Blood glucose meter, blood glucose test strips, batteries for meter

_____ Lancet device, lancets, gloves, etc.

_____ Urine ketone strips

_____ Insulin pump and supplies

_____ Insulin pen, pen needles, insulin cartridges

_____ Fast-acting source of glucose

_____ Carbohydrate containing snack

_____ Glucagon emergency kit

Signatures

This Diabetes Medical Management Plan has been approved by:

_____ _____

Student's Physician/Health Care Provider Date

I give permission to the school nurse, trained diabetes personnel, and other designated staff members of _____ school to perform and carry out the diabetes care tasks as outlined by _____'s Diabetes Medical Management Plan. I also consent to the release of the information contained in this Diabetes Medical Management Plan to all staff members and other adults who have custodial care of my child and who may need to know this information to maintain my child's health and safety.

Acknowledged and received by:

_____ _____

Student's Parent/Guardian Date

_____ _____

Student's Parent/Guardian Date

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American Diabetes Association.

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APPENDIX #2: SAMPLE Individualized Healthcare Plan (IHP)

Assessment Data	Nursing Diagnosis	Goals	Nursing Interventions	Expected Outcomes
New diagnosis of diabetes Diabetes management needs daily at school Student at risk for hypoglycemic or hyperglycemic episodes Mother reports student feeling overwhelmed with diabetes self-management care Student concerned about feeling different than peers	Ineffective therapeutic regimen related to new diagnosis Ineffective coping related to normal adolescent development issues and change in diabetes management regimen Risk for injury related to development of acute complications of hypoglycemia or hyperglycemia	Student will be able to learn and practice self-management skills. Student will demonstrate competence with blood glucose testing. Student will have an ECP and IHP in place to include student, staff and parental roles in preventing and managing diabetic care needs. Student will be able to correctly demonstrate technique with new diabetes management regimen (medications, blood glucose monitoring, carbohydrate counting). Student will be able to verbalize feelings regarding having a chronic illness and how this affects peer relationships. Student will identify motivators and barriers to self care.	Reinforce education regarding appropriate technique with blood glucose monitoring. Observe technique; assist with skill and problem solving. Assist with interpretation of blood glucose results and appropriate action to take. Educate student regarding purpose and mechanism of action of insulin. Educate school staff on the early signs of hypoglycemia or hyperglycemia and the appropriate steps to take for treatment. Reinforce correct technique with blood glucose monitoring. Provide positive reinforcement regarding follow-through on diabetes management regimen. Reinforce education promoting diabetes self-management. Provide opportunities for student to verbalize feelings regarding diabetes. Provide student and family with support groups for children with diabetes or other chronic illnesses. Keep accurate records of diabetes management at school. Discuss with student symptoms he/she should report to appropriate adult for further evaluation/ intervention. Assist student to identify motivators and barriers to self-care. Assist student to develop appropriate decision-making skills.	Student will demonstrate correct technique with use of blood glucose monitor. Student will demonstrate accurate documentation and follow action plan for blood glucose results. Student will verbalize and demonstrate appropriate response to blood glucose results. School staff is informed of potential for hypoglycemia or hyperglycemia and signs, and symptoms and action steps to take. Student will be independent in diabetes blood glucose monitoring. Student will verbalize confidence in self-management of diabetes. Student will be able to verbalize feelings about new diabetes diagnosis. Student will be able to identify community and school resources that will be a support. Student will inform teacher or adult when having symptoms of high or low blood glucose. Student will participate in regular classroom activities, with modifications made, as necessary. Student will list motivators and barriers to compliance with prescribed medications, blood glucose monitoring and interventions.

Revised from Diabetes Individualized Health Care Plans, developed by Tara S. Kaup and Jayne Chatterton for "Individualized Health Care Plans for the School Nurse." SunRise Press, 2005. Edited by Silkworth, Arnold, Harrigan and Zaiger.

APPENDIX #3: SAMPLE Emergency Hypoglycemia and Hyperglcemia Care Plans

Emergency Hypoglycemia (Low Blood Glucose) Care Plan For a Student with Diabetes

Attach photo here

Student's Name _____ **Grade** _____

Teacher _____ **Date of Plan** _____

Emergency Contact Information:

Mother/Guardian _____

Home Phone _____ Work Phone _____ Cell Phone _____

Father/Guardian _____

Home Phone _____ Work Phone _____ Cell Phone _____

School Nurse _____ Telephone _____

Diabetes-Trained School Personnel

Name _____ Telephone _____

Name _____ Telephone _____

Name _____ Telephone _____

Name _____ Telephone _____

Never leave a child with suspected low blood sugar alone.

Causes of Hypoglycemia
- Too much insulin
- Missed food
- Delayed food
- Too much or too intense exercise
- Unplanned strenuous physical activity

Symptoms (onset is often sudden; symptoms may progress rapidly)

Mild
- Hunger
- Shakiness
- Weakness
- Pale skin
- Anxiety
- Irritability
- Dizziness
- Sweating
- Drowsiness
- Personality change
- Inability to concentrate
- Other: _____

Circle child's usual symptoms

Moderate
- Headache
- Behavior change
- Poor coordination
- Blurred vision
- Weakness
- Combative behavior
- Slurred speech
- Confusion
- Other: _____ _____

Circle child's usual symptoms

Severe
- Loss of consciousness
- Seizure
- Inability to swallow

Actions Needed: Notify School Nurse if available, or Diabetes-Trained School Personnel. If possible, check blood sugar, per Diabetes Medical Management Plan. When in doubt, always TREAT FOR HYPOGLYCEMIA.

Mild
- Student may/may not treat self.
- Provide quick-sugar source:
  - 3-4 glucose tablets or
  - 4 oz. juice or
  - 6 oz. regular soda or
  - 3 teaspoons glucose gel.
- Wait 10-15 minutes.
- Recheck blood glucose.
- Repeat food if symptoms persist or blood glucose is less than _____.
- Follow with a snack of carbohydrate and protein (e.g. cheese and crackers).

Moderate
- Student requires assistance.
- Give student quick-sugar source per guidelines for mild hypoglycemia.
- Wait 10-15 minutes.
- Recheck blood glucose.
- Repeat food if symptoms persist or blood glucose is less than _____.
- Follow with a snack of carbohydrate and protein (e.g. cheese and crackers).

Severe
- Don't attempt to give the child anything by mouth.
- Position on side, if possible.
- Administer glucagon, as prescribed. Dose: _____.
- While treating, have another person follow the district policy for medical emergency care.
- Contact parents/guardian.
- Stay with the student until emergency services arrive.

Emergency Hyperglycemia (High Blood Glucose) Care Plan For a Student with Diabetes

Attach photo here

Student's Name _____ **Grade** _____

Teacher _____ **Date of Plan** _____

Emergency Contact Information:

Mother/Guardian _____

Home Phone _____ Work Phone _____ Cell Phone _____

Father/Guardian _____

Home Phone _____ Work Phone _____ Cell Phone _____

School Nurse _____ Telephone _____

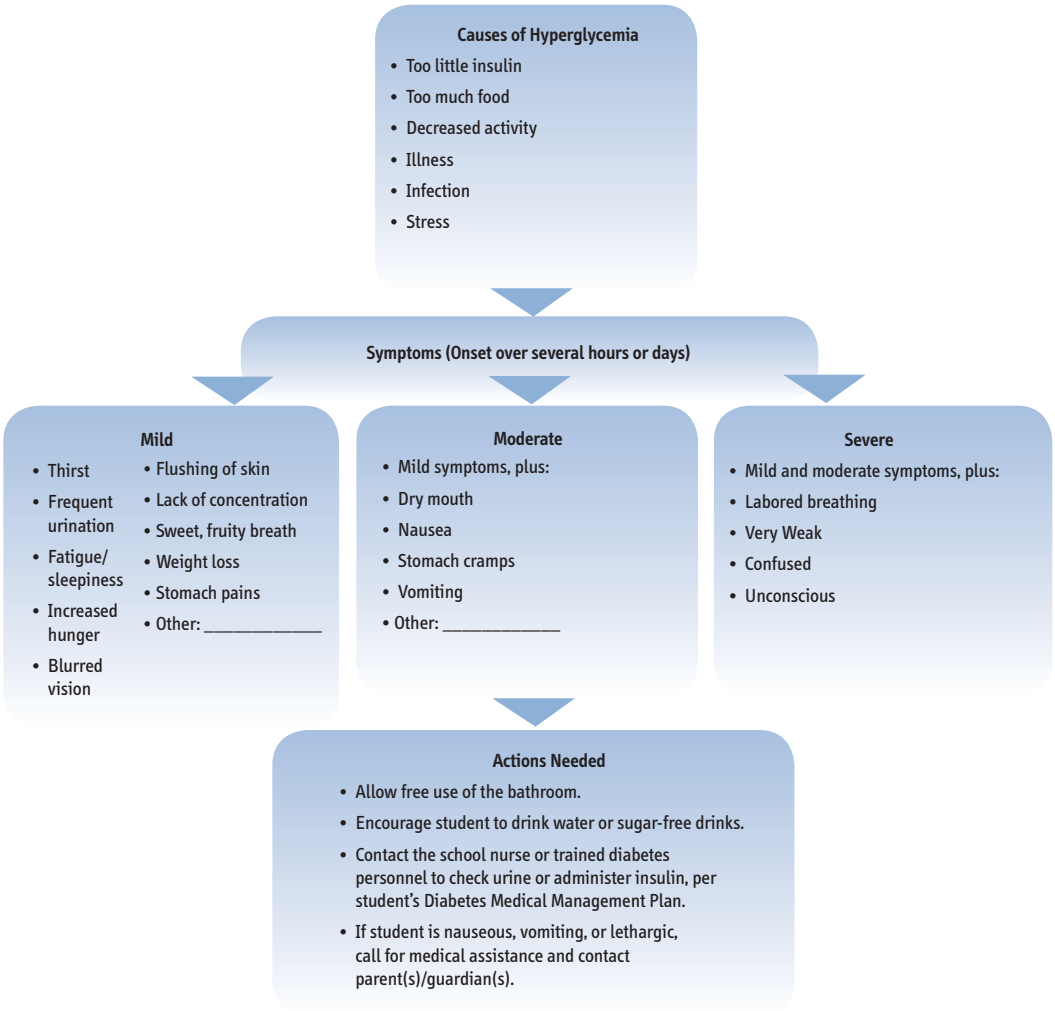
Diabetes-Trained School Personnel

Name _____ Telephone _____

Name _____ Telephone _____

Name _____ Telephone _____

Name _____ Telephone _____



APPENDIX #4: SAMPLE 504 Plan

[NOTE: This model 504 Plan lists a broad range of services and accommodations that may be needed by a child with diabetes in school. The plan should be individualized to meet the needs, abilities, and medical condition of each student and should include only those items in the model that are relevant to that student. Some students will need additional services and accommodations that have not been included in this model plan.]

Section 504 Plan

School: _____

School Year: _____

Disability:

☐ Type 1 Diabetes

☐ Type 2 Diabetes

☐ Other: _____

Student's Name: _____ Birth Date: _____ Grade: _____

Homeroom Teacher: _____ Bus Number: _____

OBJECTIVES/GOALS OF THIS PLAN

Diabetes can cause blood glucose (sugar) levels to be too high or too low, both of which affect the student's ability to learn, as well as seriously endangering the student's health both immediately and in the long-term. The goal of this plan is to provide the special education and/or related aids and services needed to maintain blood glucose within this student's target range, and to respond appropriately to levels outside of this range in accordance with the instructions provided by the student's personal health care team.

REFERENCES

School accommodations, diabetes care and other services set out by this plan will be consistent with the information and protocols contained in the National Diabetes Education Program, *Helping the Student with Diabetes Succeed: A Guide for School Personnel,* June 2003.

DEFINITIONS USED IN THIS PLAN

1. ***Diabetes Medical Management Plan (DMMP):*** A plan that describes the diabetes care regimen and identifies the health care needs of a student with diabetes. This plan is developed and approved by the student's personal health care team and family. Schools must contact the parents and child's health care provider if a DMMP is not submitted by the family. [Note: school districts may have other names for the plan. If so, substitute the appropriate terminology throughout.]

2. ***Quick Reference Emergency Plan:*** A plan that provides school personnel with essential information on how to recognize and treat hypoglycemia and hyperglycemia.

3. ***Trained Diabetes Personnel (TDP):*** Non-medical school personnel who have been identified by the school nurse, school administrator and parent who are willing to be trained in basic diabetes knowledge and have received training coordinated by the school nurse in diabetes care. This includes the performance of blood glucose monitoring, insulin and glucagon administration, recognition and treatment of hypoglycemia and hyperglycemia, and performance of ketone checks. Trained Diabetes Personnel may perform these diabetes care tasks in the absence of a school nurse.

1. PROVISION OF DIABETES CARE

1.1 At least _____ staff members will receive training to be Trained Diabetes Personnel (TDP), and a school nurse or TDP will be available at the site where the student is at all times during school hours, during extracurricular activities and on school sponsored field trips to provide diabetes care in accordance with this plan and as directed in the DMMP. Tasks include performing or overseeing administration of insulin or other diabetes medications (which, for pump users includes programming and troubleshooting the student's insulin pump), blood glucose monitoring, ketone checks and responding to hyperglycemia and hypoglycemia (includes administering glucagon).

1.2 Any staff member who is not a TDP and who has primary care for the student at any time during school hours, extracurricular activities or during field trips shall receive training. This includes a general overview of diabetes and typical health care needs of a student with diabetes, recognition of high and low blood glucose levels, and how and when to immediately contact either a school nurse or a TDP.

1.3 Any bus driver who transports the student must be informed of symptoms of high or low blood glucose levels. They must be provided with a copy of the student's Quick Reference Emergency Plan, and be prepared to act in accordance with that plan.

2. TRAINED DIABETES PERSONNEL

The following school staff members will be trained to become TDPs by _____(date):

_____

_____

3. STUDENT'S LEVEL OF SELF-CARE AND LOCATION OF SUPPLIES AND EQUIPMENT

3.1 As stated in the attached DMMP:

(a) The student is able to perform the following diabetes care tasks without help or supervision:

_____

_____

and the student will be permitted to provide this self-care at any time and in any location at the school, on field trips, at extracurricular activity sites, and on school buses.

(b) The student needs assistance or supervision with the following diabetes health care tasks:

_____

_____

(c) The student needs a school nurse or TDP to perform the following diabetes care tasks:

_____

_____

3.2 The student will be permitted to carry the following diabetes supplies and equipment at all times and in all locations:

_____

_____

3.3 Diabetes supplies and equipment that are not carried by the student and any additional supplies will be kept at:

_____

_____

3.4 Parent is responsible for providing diabetes supplies and food to meet the needs of the student as prescribed in the DMMP.

4. SNACKS AND MEALS

4.1 The school nurse or TDP, if school nurse is not available, will work with the student and his/her parents/guardians to coordinate a meal and snack schedule in accordance with the attached DMMP that will coincide with the schedule of classmates to the closest extent possible. The student shall eat lunch at the same time each day, or earlier, if experiencing hypoglycemia. The student shall have enough time to finish lunch. A snack and quick-acting source of glucose must always be immediately available to the student.

4.2 The attached DMMP sets the regular time(s) for snacks, what constitutes a snack and when the student should have additional snacks. The student will be permitted to eat a snack no matter where the student is.

4.3 The parent/guardian will supply snacks needed in addition to or instead of any snacks supplied to all students.

4.4 The parent/guardian will provide carbohydrate content information for snacks and meals brought from home.

4.5 The school nurse or TDP will ensure that the student eats snacks and meals at the specified time(s) each day.

4.6 Adjustments to snack and meal times will be permitted in response to changes in schedule, upon request of the parents/guardians.

5. EXERCISE AND PHYSICAL ACTIVITY

5.1 The student shall be permitted to participate fully in physical education classes and team sports with exceptions as written in the student's DMMP.

5.2 Physical education instructors and sports coaches must have copy of the hypoglycemia care plan, and be able to recognize and assist with the treatment of low blood glucose levels.

5.3 Responsible school staff members will make sure that the student's blood glucose meter, a quick-acting source of glucose, and water is always available at the site of physical education class and team sports practices and games.

6. WATER AND BATHROOM ACCESS

6.1 The student shall be permitted to keep a water bottle at all times and to use the drinking fountain without restriction.

6.2 The student shall be permitted to use the bathroom without restriction.

7. CHECKING BLOOD GLUCOSE LEVELS, INSULIN AND MEDICATION ADMININSTRATION AND TREATING HIGH OR LOW BLOOD GLUCOSE LEVELS

7.1 The student's level of self care is covered in section 3 above including which tasks the student can do alone and which must be done with the assistance of a school nurse or a TDP.

7.2 Blood glucose monitoring will be done at the times designated in the student's DMMP, whenever the student feels the blood glucose level may be high or low or when symptoms of high or low blood glucose levels are observed.

7.3 Insulin and/or other diabetes medications will be administered at the times and through the means (e.g., syringe, pen or pump) designated in the student's DMMP for both scheduled doses and doses needed to correct for high blood glucose levels.

7.4 The student shall be provided with privacy for blood glucose monitoring and insulin administration, if desired.

7.5 The student's usual symptoms of high and low blood glucose levels and how to respond to these levels are covered in the attached DMMP.

7.6 When the student asks for assistance or any staff member believes the student is showing signs of high or low blood glucose levels, the staff member will immediately seek assistance from the school nurse or TDP while making sure **an adult stays with the student at all times.**

7.7 Any staff member who finds the student unconscious will immediately contact the school office. The office will immediately do the following in order:

1. Contact the school nurse or a TDP (if the school nurse is not on site and immediately available) who will confirm the blood glucose level with a monitor and immediately administer glucagon. Glucagon should be administered if no monitor is available.

2. Call 911. Office staff will do this without waiting for the school nurse or TDP to administer glucagon.

3. Contact the student's parents/guardians and physician at the emergency numbers provided below.

7.8 School staff including physical education instructors and coaches will provide a safe location for the storage of the student's insulin pump if the student chooses not to wear it during physical activity or any other activity.

8. FIELD TRIPS AND EXTRACURRICULAR ACTIVITIES

8.1 The student will be permitted to participate in all school-sponsored field trips and extracurricular activities such as sports, clubs, and enrichment programs without restriction and with all of the accommodations and modifications, including necessary supervision by identified school personnel, covered in this plan. The student's parent/guardian will not be required to accompany the student on field trips or any other school activity.

8.2 The school nurse or TDP will be available on site at all school-sponsored field trips and extracurricular activities, will provide all usual aspects of diabetes care. This includes, but is not limited to, blood glucose monitoring, responding to hyperglycemia and hypoglycemia, providing snacks and access to water and the bathroom, and administering insulin and glucagon. The school nurse or TDP will make sure that diabetes supplies travel with the student.

9. TESTS AND CLASSROOM WORK

9.1 If the student is affected by high or low blood glucose levels at the time of regular testing, the student will be permitted to take the test at another time without penalty.

9.2 If the student needs to take breaks to use the water fountain or bathroom, check blood glucose or to treat hypoglycemia or hyperglycemia during a test or other activity, the student will be given extra time to finish the test or other activity without penalty.

9.3 The student shall be given instruction to help make up any classroom instruction missed due to diabetes care without penalty.

9.4 The student shall not be penalized for absences required for medical appointments and/or illness. The parents/guardians will provide documentation from the treating health care professional if otherwise required by school policy.

10. COMMUNICATION

10.1 The school nurse, TDP, and other staff will keep the student's diabetes confidential, except to the extent that the student decides to openly communicate about it with others.

10.2 Encouragement is essential. The student must be treated in a way that encourages the student to eat snacks on time, and to progress toward self-care with diabetes management skills.

10.3 The teacher, school nurse or TDP will provide reasonable notice to parents/guardians when there will be a change in planned activities such as exercise, playground time, field trips, parties or lunch schedule, so that the lunch, snack plan and insulin dosage can be adjusted accordingly.

10.4 Each substitute teacher and substitute school nurse will be provided with written instructions regarding the student's diabetes care and a list of all nurses and TDP at the school.

11. EMERGENCY EVACUATION AND SHELTER-IN-PLACE

11.1 In the event of emergency evacuation or shelter-in-place situation, the student's 504 Plan and DMMP will remain in effect.

11.2 The school nurse or TDP will provide diabetes care to the student as outlined by this plan and the student's DMMP, will be responsible for transporting the student's diabetes supplies and equipment, will attempt to establish contact with the student's parents/guardians and provide updates, and will receive information from parents/guardians regarding the student's diabetes care.

12. PARENTAL NOTIFICATION

12.1 ***NOTIFY PARENTS/GUARDIANS IMMEDIATELY IN THE FOLLOWING SITUATIONS:***

- Symptoms of severe low blood sugar such as continuous crying, extreme fatigue, seizure or loss of consciousness
- The student's blood glucose test results below _____ or below _____15 minutes after consuming juice or glucose tablets
- Symptoms of severe high blood sugar such as frequent urination, presence of ketones, vomiting or blood glucose level above _____
- Refusal to eat or take insulin injection or bolus
- Any injury
- Insulin pump malfunctions that cannot be remedied
- Other: _____

12.2 **EMERGENCY CONTACT INSTRUCTIONS**

Call parents/guardians at numbers listed below. If unable to reach parents/guardians, call the other emergency contacts or student's health care providers listed below.

EMERGENCY CONTACTS:

_____	_____	_____	_____
Parent's/Guardian's Name	Home Phone Number	Work Phone Number	Cell Phone Number
_____	_____	_____	_____
Parent's/Guardian's Name	Home Phone Number	Work Phone Number	Cell Phone Number

Other emergency contacts:

_____	_____	_____	_____
Name	Home Phone Number	Work Phone Number	Cell Phone Number
_____	_____	_____	_____
Name	Home Phone Number	Work Phone Number	Cell Phone Number

Student's Health Care Provider(s):

_____ _____
Name Phone Number

_____ _____
Name Phone Number

This Plan shall be reviewed and amended at the beginning of each school year or more often, if necessary.

Approved and received:

_____ _____
Parent/Guardian Date

Approved and received:

_____ _____
School Administrator and Title Date

_____ _____
School Nurse Date

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APPENDIX #5: SAMPLE Individual Education Program (IEP)

SCHOOL NAME
ADDRESS
CITY, STATE

Individualized Education Program

Date of CSE/CPSE Meeting: **Type of Meeting:**

Student Name:		**D.O.B.:**	**Age:**
Address:		**Telephone:**	
		County of Residence:	
Student ID:	**Gender:**	**Current Grade:**	
Dominant Language of Child:		**Interpreter Needed:**	
Date IEP to be implemented:			
Projected Date of Review:			
Initial Date of Eligibility:			
Date for Reevaluation:			
Alerts:			

Summary of Selected Recommendations

Classification of the Disability:

Recommended Placement September – June:

Extended School Year (ESY) Services:

Recommended Placement July and August:

Special Transportation Needs:

Present Levels of Performance and Individual Needs

Academic/Educational Achievement and Learning Characteristics:
Current levels of knowledge and development in subject and skill areas including activities of daily living, level of intellectual functioning, adaptive behavior, expected rate of progress in acquiring skills and information and learning style.

COMMENTS

Social Development:
The degree and quality of the student's relationship with peers and adults, feelings about self and social adjustment to school and community environments.

COMMENTS

Physical Development:
The degree or quality of the student's motor and sensory development, health, vitality and physical skills or limitations that pertain to the learning process.

COMMENTS

Management Needs:
The nature of and degree to which environmental modifications and human or material resources are required to enable the student to benefit from instruction. Management needs are determined in accordance with the factors identified in the areas of academic/educational achievement and learning characteristics, social development and physical development.

COMMENTS

Recommended Special Education Programs and Services

A. Special Education Programs

Service/Provider	G/I	Frq	Min	Location	Start/End Dates

B. Related Services

Service/Provider	G/I	Frq	Min	Location	Start/End Dates

C. Program Modifications/Accommodations/Supplementary Aids and Services

Service	Frequency	Duration	Location	Start/End Dates

D. Assistive Technology Devices/Services

Device/Service	Comments

E. Supports for School Personnel on Behalf of Student

Service	Frequency	Duration	Location	Start/End Dates

F. Testing Modifications

All modifications will take place in the general education classroom unless specified otherwise.

Testing Accommodation	Conditions	Specifications

PARTICIPATION IN ASSESSMENTS:

State Assessment	Alternative Assessment	Comment/Reason

TESTING AND EVALUATION INFORMATION:

Test	Subtest	Score	Score Type	Date

Removal from the general educational environment occurs only when the nature or severity of the disability is such that, even with the use of supplementary aids and services, education cannot be satisfactorily achieved.

Explanation of the extent, if any, to which the student will not participate in general education programs, including extra curricular and other nonacademic activities.

☐ The student will not participate in the general education physical education program, but will participate in specially designed or adapted physical education.

Language other than English exemption

☐ **No**

☐ **Yes** the student's disability adversely affects the ability to learn a language, and the student is excused from the language other than English requirement.

Transcript Information - Secondary Students Only

Credential/Diploma Sought:
Expected Date of High School Completion:
Credits Earned to Date:
State Tests:

Goal Setting:

Measurable Annual Goals and Short-Term:

Instructional Objectives/Benchmarks:

Measurable Post-Secondary Goals:

Coordinated Set of Transition Activities (School to Post School)

- **For students aged 14 and older, courses of study (i.e., instructional activities and educational experiences) to meet transition needs:**
- **For students beginning at age 15 (and younger, if deemed appropriate) transition services/activities needed in each area:**

Coordinated Set of Activities Leading to Long-Term Outcomes				
Area	**Activity**	**Person Responsible**	**Initiation Date**	**End Date**

Placement Recommendations

10 Month Placement:
Extended School Year if Eligible:

Service/Provider	G/I	Frq	Min	Location	Start/End Dates

Reporting Progress to Parents

The student's progress toward the annual goals and the extent to which the progress is sufficient to enable the student to achieve the goals will be reported to parents as follows:

Progress reports, quarterly report cards, conferences, telephone calls and notes as needed.

Parent Information

Student's Name:

Student Information

For data collection purposes only:
Race/Ethnicity:

APPENDIX #6: Flow Sheet for Diabetes Management at School

Student's Name : _____ Grade: _____

School: _____ Date Sheet Started: _____

Medication and Dosage	Frequency and Time

Prescriber's Name: _____

Prescriber's Contact Information: _____

Parent/Guardian Name and Contact Information: _____

DATE/TIME	BLOOD GLUCOSE	INSULIN COVERAGE	COMMENTS	Initial

APPENDIX #7: Training Record for Personnel in School

Name of trainee: _____

School: _____

This document identifies you as a school employee who has volunteered to provide emergency medical assistance to students with diabetes. This training record provides documentation that you have received the training listed below by your school's nurse.

KNOWLEDGE & SKILLS*	Date Competency Demonstrated	Date Subsequent Competency Demonstrated	N/A
Understands the basics about diabetes			
Understands the health care needs of a child with diabetes			
Understands the importance of blood glucose control			
Understands the impact of insulin, nutrition and physical activity on blood glucose levels			
Understands routine care tasks (blood glucose monitoring, insulin administration, etc.)			
Describes symptoms of hypoglycemia (mild, moderate, severe)			
Describes symptoms of hyperglycemia (mild, moderate, severe)			
Identifies treatment needs based on symptoms (mild, moderate, severe) of hypoglycemia			
Identifies treatment needs based on symptoms (mild, moderate, severe) of hyperglycemia			
Understands who to contact during an emergency			
Identifies treatment supplies (fast-acting glucose, carbohydrate/protein appropriate snacks, glucagon kit)			
Knows where treatment supplies are stored			
States purpose of glucagon and when it should be used			
Describes how to administer glucagon			
Understands side effects of glucagon			
States legal rights and responsibilities of students, school personnel and parents/guardians			

* Topics already listed in table are not all inclusive. Not all topics will be pertinent to all staff. The school nurse can alter this training record to meet their needs.

_____ _____

School Nurse Signature School Nurse Printed Name

_____ _____

Trained Staff Member Signature Trained Staff Member Printed Name

APPENDIX #8: Medical Statement for Children Requiring Modification of School Meals

Name of Student:	Student's Birth Date:
Parent/Guardian Name:	Student's Grade:
Parent/Guardian Phone:	School District and School:

For Physician's Use

- Identify the medical condition requiring the student to have a special diet: _____
- Describe the major life activities affected by the student's medical condition:

_____

Diet Prescription:

☐ Student may select their meals from regular foods provided at school

☐ Parent may review menu in advance to select the child's meals from foods provided at school

☐ Other (describe): _____

_____

_____

Food(s) Omitted and Substitutions (if applicable):

Food(s) to be Omitted	Substitutions	Required?	
_____	_____	☐ **Yes**	☐ **No**
_____	_____	☐ **Yes**	☐ **No**
_____	_____	☐ **Yes**	☐ **No**

Additional Comments:

_____

_____

_____

I certify that the above named student needs special school meals as described above.

_____ _____ _____

Physician's Signature **Telephone Number** **Date**

I hereby give my permission for the school staff to follow the nutrition plan stated above.

_____ _____

Parent/Guardian **Date**

APPENDIX #9: Diagnosis and Classification of Diabetes Mellitus

This American Diabetes Association position statement (from 2007) provides a detailed description of diabetes, both type 1 and 2, including descriptions of the known causes of diabetes. The criteria used to classify the different types of diabetes are also provided. Visit **care.diabetesjournals.org/cgi/reprint/30/suppl_1/S42** to view full-text of the article, or see American Diabetes Association. Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care*. 2007;30(1):S42-S47.

APPENDIX # 10: Standards of Medical Care in Diabetes – 2007

This American Diabetes Association position statement discusses the most up to date guidelines related to diabetes care. This document provides an overview for type 1 and 2 diabetes in both children and adults. It is also a resource for the complications of diabetes and the recommendations for addressing such complications. Visit **care.diabetesjournals.org/cgi/reprint/30/suppl_1/S4** to view full-text of the article, or see American Diabetes Association. Standards of Medical Care in Diabetes – 2007.*Diabetes Care*. 2007;30(1):S4-S40. A Summary of Revisions for the 2007 Clinical Practice Recommendations is available at **care.diabetesjournals.org/cgi/reprint/30/suppl_1/S3** or on page S3 of this Volume.

APPENDIX #11: Care of Children with Diabetes in the School and Day Care Setting

This American Diabetes Association position statement discusses the important link between parents and the school in addressing diabetes in children. The document reviews pertinent federal laws and general guidelines for caring for children with diabetes in the school and day care setting. Visit **care.diabetesjournals.org/cgi/reprint/26/suppl_1/s131** to view full-text of the article, or see American Diabetes Association. Care of Children with Diabetes in the School and Day Care Setting. *Diabetes Care*. 2003;26(1):S131-135.

APPENDIX #12: Care of Children and Adolescents with Type 1 Diabetes

This American Diabetes Association statement provides a closer look at type 1 diabetes in children. The stages of diabetes care are discussed starting from when a child is first diagnosed through dealing with both short, and long-term effects of diabetes. Topics such as nutrition, exercise and psychosocial issues are presented. Visit **care.diabetesjournals.org/cgi/reprint/28/1/186** to view full-text of the article, or see American Diabetes Association. Care of Children and Adolescents with Type 1 Diabetes. *Diabetes Care*. 2005;28(1):186-212.

APPENDIX #13: Type 2 Diabetes in Children and Adolescents

This American Diabetes Association consensus statement addresses the growing number of children diagnosed with type 2 diabetes. The statement answers a number of questions related to this topic including which children should be tested for type 2 diabetes and how to care for a child with the diagnosis. Visit **care.diabetesjournals.org/cgi/reprint/23/3/381.pdf** to view full-text of the article, or see American Diabetes Association. Type 2 Diabetes in Children and Adolescents. *Diabetes Care*. March 2000; 23(3):381-389.

APPENDIX #14: Books for Children At-Risk or with Diabetes

Below is a sample of books to help children understand diabetes. For additional titles, go to your public library or visit the World Wide Web.

Taking Diabetes to School by Kim Gosselin

This color-illustrated book for elementary age children contains an instructive story of a grade-schooler with diabetes who tells his classmates about the disease and how he manages it. The story offers sensitive insight into the day-to-day school life of a child with a chronic illness. Includes “Ten Tips for Teachers” and “Kids Quiz”.

The Dinosaur Tamer: And Other Stories for Children with Diabetes by Marcia Levine Mazur, Peter Banks and Andrew Keegan

Twenty-five fictional stories that will entertain, enlighten and ease a child’s frustration about having diabetes.

How I Feel: A Book about Diabetes by Michael Olson

The author describes his younger brother's experiences finding out that he had diabetes and learning to live with it.

Trick or Treat for Diabetes: A Halloween Story for Kids Living with Diabetes by Kim Gosselin

Fictional story that creatively gives the reader different ideas on how Halloween can be enjoyed. This book addresses the difficult questions (and gives solutions!) regarding school parties and trick-or-treating. A terrific tool for parents, teachers, physicians, school nurses, caregivers, etc.

Rufus Comes Home by Kim Gosselin

After being sent to the hospital, Brian finds out he has diabetes. Brian's mother decides to get a stuffed bear for Brian. She sews special patches on the same areas where Brian gets his insulin shots and puts hearts on the paws where Brian gets his fingers pricked for glucose testing. Brian now has his own "diabetic" bear with which to share his fears and experiences.

The Eagle Books: Stories about Growing Strong and Preventing Diabetes by Georgia Perez

The Eagle Books are a series of four books that are brought to life by wise animal characters, Mr. Eagle and Miss Rabbit and a clever trickster, Coyote, who engage Rain That Dances and his young friends in the joy of physical activity, eating healthy foods and learning from their elders about health and diabetes prevention. To order a teacher's guide, download free coloring books, or to find out how to order the Eagle Books, visit **cdc.gov/diabetes/pubs/eagle.htm**

APPENDIX #15: New York State (NYS) Diabetes Prevention and Control Program (DPCP) Publications

The NYS DPCP maintains a collection of publications about diabetes prevention and control, available to New York State residents free of charge. To obtain an order form, call (518) 474-1222 or visit: **nyhealth.gov/diseases/conditions/diabetes**

APPENDIX #16: NYS DPCP Glucagon Emergency Administration Training Tool

The NYS DPCP has developed a training tool for school nurses to use in teaching non-licensed school personnel how to administer glucagon to children with type 1 diabetes in the event of a low blood glucose emergency. It is available on the NYSDOH website at: **nyhealth.gov/diseases/conditions/diabetes**

APPENDIX #17: Healthy Schools Approach – Preventing Type 2 Diabetes in Children: Making the Case for Healthy Schools

The NYS DPCP and Steps to a HealthierNY developed a 70-minute training DVD for schools to reduce risk factors for type 2 diabetes in schools, improve the health of students, and make them better learners. Visit: **albany.edu/sph/coned/webstream.htm#chronic** to view the DVD.

APPENDIX #18: NYS DPCP Diabetes Prevention and Management Toolkit

The NYS DCPCP collaborated with the New York Diabetes Coalition to develop a comprehensive Diabetes Prevention and Management Toolkit for health care clinicians. New tools reflecting updated diabetes guidelines have been reproduced on CD-ROM, along with materials on preventing diabetes in adults and children. The toolkit includes, but is not limited to:

- American Academy of Pediatrics Recommendations for Prevention of Pediatric Overweight and Obesity
- BMI Charts for Boys and Girls
- Pediatric and Adolescent BMI Calculator Wheels
- Helping your Overweight Child
- Lower Your Risk for Type 2 Diabetes – Tips for Kids

Toolkit resources can be ordered and downloaded on the NYSDOH website at: **nyhealth.gov/diseases/conditions/diabetes**

APPENDIX #19: Partners for Success: School Nurses and the Care of Children with Diabetes at School

The NYS DCP developed a 60-minute training DVD for school nurses regarding care for the student with diabetes. Topics include a basic diabetes overview, aspects of the team approach to care, principles of nutrition, medical technology, blood sugar management, treatment of diabetes emergencies, planning and development of care plans for school, training school personnel and legal issues. Visit: **albany.edu/sph/coned/webstream.htm#chronic** to view the DVD.

APPENDIX #20: Expanded Syringe Access Demonstration Program

The Expanded Syringe Access Demonstration Program (ESAP) expands access to sterile hypodermic needles and syringes. Persons aged 18 years and older can legally possess hypodermic needles and syringes obtained through ESAP. These syringes and needles may be purchased or obtained without prescription from participating licensed pharmacies, hospitals, nursing homes, community health centers, doctors, nurse practitioners and physician assistants. For more information about ESAP, visit: **nyhealth.gov/diseases/aids/harm_reduction/needles_syringes/esap/overview.htm**

APPENDIX # 21: Internet Resources

About Diabetes
Basic diabetes care information
www.diabetes.com

American Association of Diabetes Educators (AADE)
Professional association promoting expertise of diabetes educators
www.diabeteseducator.org

American Diabetes Association (ADA)
An organization devoted to diabetes cures & cares
www.diabetes.org

- **Diabetes Care Tasks at School**
  www.diabetes.org/schooltraining
- **Information for Kids, Parents & Schools**
  www.diabetes.org/for-parents-and-kids.jsp
- **Information for School and Child Care Providers**
  www.diabetes.org/uedocuments/c-ren-wdiabetes-brochure-caregivers.pdf
- ***Youth Zone**
  www.diabetes.org/youthzone/youth-zone.jsp

American Dietetic Association
Diabetes care and education
www.dce.org

American Heart Association
The Heart of Diabetes program information
www.americanheart.org/presenterjhtml?identifier=3044745

Centers for Disease Control and Prevention, Diabetes Public Health Resource
Diabetes and Public Health Resource
www.cdc.gov/diabetes

Center for Food Safety and Applied Nutrition
Nutritional Information
vm.cfsan.fda.gov

Children with Diabetes
Issues for children with diabetes
www.childrenwithdiabetes.com

Curediabetes
Diabetes endocrinological information
www.curediabetes.org

Diabetes and Oral Health
Diabetes and oral health information
www.nidcr.nih.gov/HealthInformation/DiseasesAndConditions/DiabetesAndOralHealth/default.htm

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

Diabetes Health Magazine
Current research in diabetes
www.diabeteshealth.com

Joslin Diabetes Center
An organization devoted to diabetes cures & cares
www.joslin.org

Juvenile Diabetes Research Foundation
An organization devoted to diabetes cures & cares
www.jdrf.org

- ***JDRF Just for Kids**
  kids.jdrf.org

Mt. Sinai Hospital Diabetes Program
The Mount Sinai Medical Center
www.mountsinai.org/msh/msh_diabetes.jsp

***MyPyramid Plan**
Learn what and how much to eat
www.mypyramid.gov

Naomi-Berrie Diabetes Center
Columbia-Presbyterian Hospital
cpmcnet.columbia.edu/dept/nbdiabetes

National Association for Health and Fitness
Promotes physical fitness, sports and healthy lifestyles
www.physicalfitness.org

National Association of School Nurses
Educating, advocating and conducting research on behalf of school nurses
www.nasn.org

National Diabetes Education Program
Diabetes education materials and publications
www.ndep.nih.gov

National Diabetes Information Clearinghouse
Patient education & statistical data
www.niddk.nih.gov/health/diabetes/ndic.htm

- **Diabetes Dictionary**
  Diabetes terminology
  www.niddk.nih.gov/health/diabetes/pubs/dmdict/dmdict.htm

National Institute of Diabetes and Digestive and Kidney Diseases
Basic and clinical research
www2.niddk.nih.gov

New York State Department of Health – Diabetes Information
Overview of statewide data and diabetes programs
www.health.state.ny.us/diseases/conditions/diabetes/index.htm

New York Statewide School Health Services Center
Statewide technical support center
www.schoolhealthservicesny.com

President's Council on Physical Fitness and Sports
Health, physical activity and sports information
www.fitness.gov

SEARCH for Diabetes in Youth
Multi-center study funded by the CDC
www.searchfordiabetes.org

SUNY Upstate Medical Center Diabetes Program
A Joslin Diabetes Center Affiliate in Syracuse, NY
www.upstate.edu/uh/joslin

USDA Team Nutrition
Supports Child Nutrition Programs through training and technical assistance
www.fns.usda.gov/tn

***VERB**
For young people to be active every day
www.verbnow.com

***Wizdom Kit for Kids with Diabetes**
The Kit of Wit and Wizdom for Kids and Parents
www.diabetes.org/wizdom

*Interactive website for children and teens

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