XIV. DIABETES CARE IN THE SCHOOL SETTING

About one in every 400-600 children and adolescents have type 1 diabetes. The majority of these young people attend school and need knowledgeable school staff to provide a safe learning environment. Under federal laws protecting people with disabilities, students with diabetes cannot be discriminated against and schools must make reasonable accommodations to meet the special needs of students with diabetes.

A brief summary of diabetes (for school personnel reading this section)

Insulin is a hormone produced by the pancreas that helps the body convert food into energy called glucose. In people with diabetes, either the pancreas does not make insulin or the body cannot use the insulin properly. When the body lacks insulin or cannot use it properly, glucose (the body's main energy source) builds up in the body instead of being used for energy. High blood glucose levels over time cause damage to the eyes, kidneys, nerves, heart, and blood vessels. People with type 1 diabetes do not produce insulin and must receive insulin through injections or insulin pumps. Type 2 diabetes is more common in adults, although it is now being diagnosed in school-aged children. Type 2 diabetes occurs when the body becomes insulin resistant and cannot properly use the insulin produced by the pancreas. Over time, the body loses its ability to produce sufficient amounts of insulin. Some people with type 2 diabetes can control their disease with diet and exercise alone, while others also need medications and insulin. All people with diabetes need to balance their food, medications, and physical activity levels to keep blood glucose levels as close to normal as possible.

Hypoglycemia (low blood glucose) is the most common immediate health problem for students with diabetes. It occurs when the body gets too much insulin, too little food, a delayed meal, or more than the usual amount of exercise. Symptoms include sweating, light-headedness, confusion, drowsiness, irritability, and tremors. Students suffering from hypoglycemia need to ingest carbohydrates promptly. If a student suffering from hypoglycemia is not able to eat a source of carbohydrates, glucagon must be administered. A student suffering from a hypoglycemic episode should not be left unsupervised until blood glucose values return to the normal range.

Hyperglycemia (high blood glucose) occurs when the body gets too little insulin, too much food or too little exercise. It can also be caused by stress or an illness such as a cold. Common symptoms are thirst, frequent urination, and blurry vision. If untreated, ketones can build up in the body and cause nausea and vomiting. High levels of ketones in the blood or urine require immediate medical attention. Students on insulin pumps may be at a higher risk for developing ketones.

Diabetes Management Plan

Several studies have linked blood glucose control with decreasing the impact of diabetes complications. To reach the goal of controlled blood glucose, parents, health care providers, and school personnel should work together to develop an individualized plan for each student with diabetes, such as the 504 plan. The American Diabetes Association (ADA) offers a sample diabetes management plan for use in a school or day care setting. The individualized plan should be updated with any change in regimen treatment and should be reviewed at least once a year.

The diabetes management plan must be individualized for each student. Potential topics for the plan include the following:

- Frequency of blood glucose monitoring
- Insulin administration or pump management
- Content, amount, and timing of meals and snacks
- Plan for treating hypoglycemia (including the administration of glucagon)
- Plan for treating hyperglycemia
- Plan for checking for ketones and responding to results
- Plan for meeting the student's psycho-social needs (i.e., support groups).

Studies have shown the majority of school personnel have inadequate training for understanding diabetes. School training plans should be implemented and include school administrators, coaches, nurses, teachers, bus drivers, secretaries and other adults with direct links to students. Care of students with diabetes should extend to all school-sponsored events including transportation on the school bus, field trips, and extracurricular activities.

Division of responsibilities

Students

Self-care tasks must be individualized and based on the child's unique developmental time frame. By age 8, most children are able to perform their own fingersticks. By high school, most students can administer insulin without supervision (although many students master this skill much earlier).

Parents

Parents should supply, maintain, and provide for safe disposal of all supplies and equipment for blood glucose monitoring, insulin administration, and ketone testing. In addition, parents should supply emergency telephone numbers, a schedule for meals and snacks, an emergency glucagon kit, a source of glucose, and a plan for contacting health care providers.

School

To meet the needs of students with diabetes, school officials should do the following:

- Train school personnel on diabetes and diabetes care so that an adult and a trained back-up adult can perform fingersticks for blood glucose monitoring and know how to treat readings out of range, administer insulin, test for ketones and respond to results.
- Provide a private location (if requested) for blood glucose monitoring and insulin administration, along with a storage area for diabetes supplies.
- Provide immediate accessibility for the treatment of hypoglycemia by a trained adult, including when necessary, the administration of glucagon.
- Grant students permission to eat a snack anywhere to control blood glucose levels.
- Know the student's schedule for meals and snacks and provide nutrition information on meals served at school.
- Develop an individualized health care plan for each student (such as a 504 plan).

Resources

Several excellent resources are available to help schools provide the needed care for their students with diabetes. The following resources are available from the ADA:

- Diabetes Care Tasks at School: What Key Personnel Need to Know (training modules in a Power Point slide format, free download from the ADA website).
- Children with Diabetes: Information for School and Child Care Providers (brochure).

The National Diabetes Education Program (NDEP) is a partnership of the National Institutes of Health, the Centers for Disease Control and Prevention, and more than 200 public and private organizations. NDEP offers the following resource for schools:

■ A comprehensive guide designed to empower school personnel, parents, and students to create a safe learning environment and equal access to educational opportunities for all children with diabetes: http://ndep.nih.gov/diabetes/pubs/Youth_NDEPSchoolGuide.pdf .

The National Association of School Nurses offers a program on diabetes for school nurses. The program is called H.A.N.D.S. To learn more the program, visit their website at www.nasn.org.

REFERENCE SECTION XIV

American Diabetes Association. Clinical Practice Recommendations. *Diabetes Care*. 30(Suppl 1):S31, S66-S73. 2007

NDEP Website. http://ndep.nih.gov. Web pages on resources for school personnel. 2007