

## SUPPLEMENTARY DATA

### **Background information on diabetes for school staff**

Diabetes is a serious, chronic disease that impairs the body's ability to use food. Insulin, a hormone produced by the pancreas, helps the body convert food into energy. In people with diabetes, either the pancreas does not make insulin or the body cannot use insulin properly. Without insulin, the body's main energy source—glucose—cannot be used as fuel. Rather, glucose builds up in the blood. Over many years, high blood glucose levels can cause damage to the eyes, kidneys, nerves, heart, and blood vessels.

The majority of school-aged youth with diabetes have type 1 diabetes. People with type 1 diabetes do not produce insulin and must receive insulin through either injections or an insulin pump. Insulin taken in this manner does not cure diabetes and too much insulin may cause the student's blood glucose level to become dangerously low. Type 2 diabetes, the most common form of the disease, typically afflicts adults, but has been increasing in youth. This may be due to the increase in obesity and decrease in physical activity in young people. Students with type 2 diabetes may be able to control their disease through diet and exercise alone or may require oral medications and/or insulin injections. All people with type 1 and type 2 diabetes must carefully balance food, medications, and activity level to keep blood glucose levels as close to normal as possible.

Low blood glucose (hypoglycemia) is the most common immediate health problem for students with diabetes. It occurs when the body has too much insulin or too little food. It may also occur if a meal is delayed or an individual gets more than the usual amount of exercise. Symptoms of mild to moderate hypoglycemia include tremors, sweating, light-headedness, irritability, confusion, and drowsiness. In younger children, symptoms may also include inattention, falling asleep at inappropriate times, unexplained behavior, and temper tantrums. A student with this degree of hypoglycemia will need to ingest carbohydrates promptly and may require assistance. Severe hypoglycemia, which is rare, is a medical emergency. It may lead to unconsciousness and convulsions and can be life-threatening if not treated promptly with glucagon as per the student's DMMP (4–6,32,36–39).

High blood glucose (hyperglycemia) occurs when the body gets too little insulin, too much food, or too little exercise. It may also be caused by stress or an illness such as a virus or infection. The most common symptoms of hyperglycemia are thirst, frequent urination, and blurry vision. If untreated over a period of days, hyperglycemia can lead to a serious condition called diabetic ketoacidosis (DKA), which is characterized by loss of appetite, nausea, vomiting, and labored breathing. It is important not to confuse ketoacidosis for food poisoning or "the stomach flu." DKA may be distinguished by high glucose levels and ketones in the blood and urine. For students using insulin infusion pumps, lack of insulin supply may lead to DKA more rapidly. DKA can be life-threatening and thus requires immediate medical attention (6).