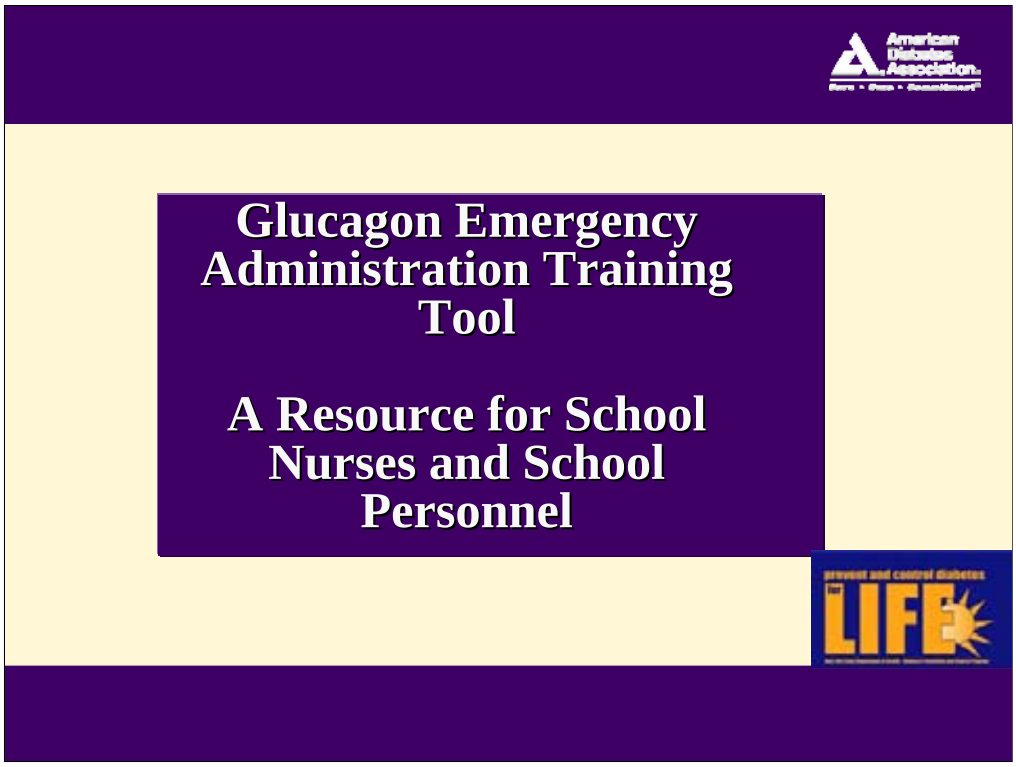


Please note: Speakers notes are intended to be read by the school nurse to the volunteers in training.

Welcome and thank you for volunteering to attend today's training on the emergency administration of glucagon.

Glucagon is an injectable medication that is used to treat people with diabetes who are experiencing a severe low blood glucose (hypoglycemia/low blood sugar). It is only used when someone with diabetes has lost consciousness, or has lost the ability to swallow and are in need of outside intervention by someone who has been trained to administer the medication.

By being trained to know how to handle this type of emergency situation, you are helping to ensure that students with diabetes can fully and safely participate in school and school-related activities.

This training has been developed by the NYS Department of Health in collaboration with the New York State Board of Nursing and the New York Statewide School Health Services Center.

The NYS Education Department notes that districts should obtain Board of Education approval prior to use of this Glucagon Emergency Training Tool.

Safety and Reassurance

- My daughter felt a little low at tennis practice and checked her blood sugar. It was dangerously low. She was able to treat herself with glucose tablets, but what if she had waited to check herself? Luckily, she had glucagon in her gym bag, and her coach knew how to give it to her. It is reassuring to know there is a trained volunteer on hand so that she can safely participate in a sport she loves.

This slide describes a scenario in which a student could have needed help from a trained volunteer – if she hadn't been able to help herself by treating her low blood glucose with glucose tablets.

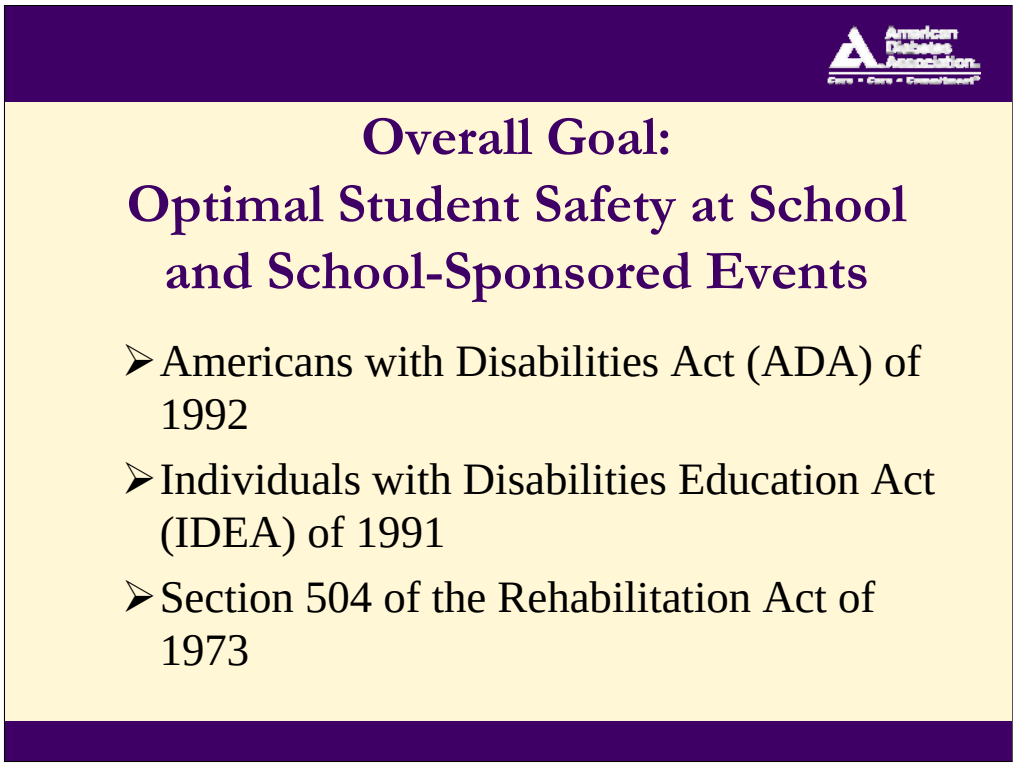
A student with diabetes cannot take a break from diabetes when boarding the school bus in the morning. All students with diabetes need access to help and support in case of a diabetes emergency.

After this training, you will have the opportunity to provide that help in the event that I am not available. In doing so, you are helping to ensure the safety of students with diabetes and provide reassurance to their parents.

Full Participation

- My daughter wants to attend a field trip to Washington, D.C. It was suggested that I go on the trip to ensure my daughter's safety. I am a single mother and have another child to care for. Thankfully, a teacher who will be going along volunteered to be trained to inject glucagon in anticipation of an emergency. My daughter can now enjoy the much anticipated trip.

Here is another example of how a trained volunteer can help students to fully participate in school-related activities.



There are several federal laws that serve to protect the rights of students with disabilities to the same educational opportunities available to students without disabilities:

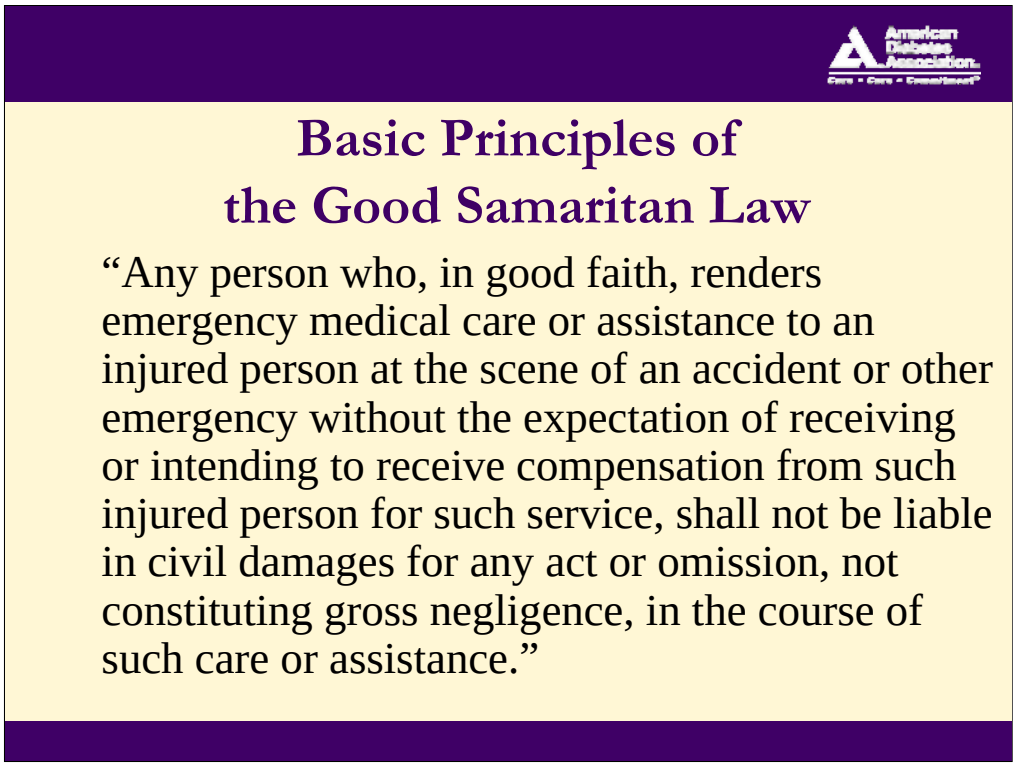
The Americans with Disabilities Act of 1992

The Individuals with Disabilities Education Act (IDEA) of 1991

Section 504 of the Rehabilitation Act of 1973

Students with diabetes are covered by Section 504 and the ADA and may also be covered by IDEA depending on services required.

Under these laws, diabetes has been considered to be a disability, and it is illegal for schools to discriminate against children with disabilities. Any school that receives federal funding or any facility considered open to the public must reasonably accommodate the special needs of children with diabetes. These federal laws serve to ensure optimal student safety during school and at school sponsored events.



As volunteers who are assisting in a medical emergency, you are protected by the Good Samaritan Law. Although the statutes vary from state to state, the basic principles are the same; that is, anyone who voluntarily gives emergency medical care or assistance to an injured person without expecting to be compensated will be protected from being sued.

Here are specific citations of NYS laws that protect Good Samaritans:

N.Y. Pub. Health Law §3000-a(McKinney 2000)(AED User Immunity)
N.Y. Pub. Health Law §3000-b(McKinney 2000)(AED Def.)
N.Y. Pub. Health Law §3013 (McKinney 2000)(Gen. Stat.)

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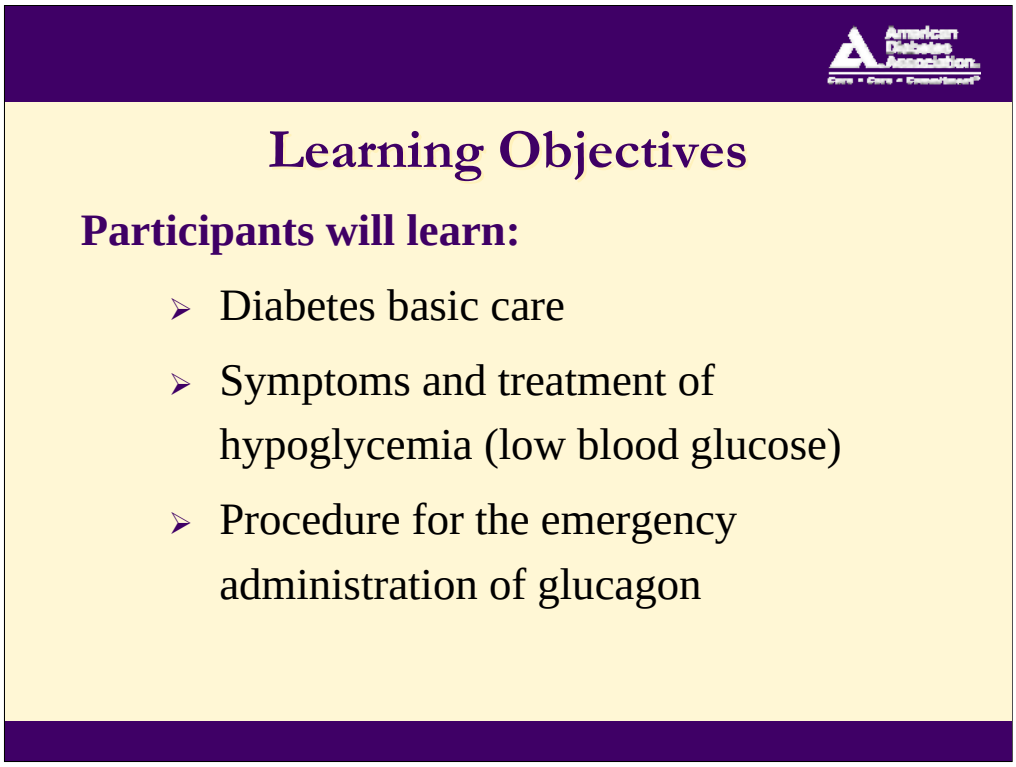
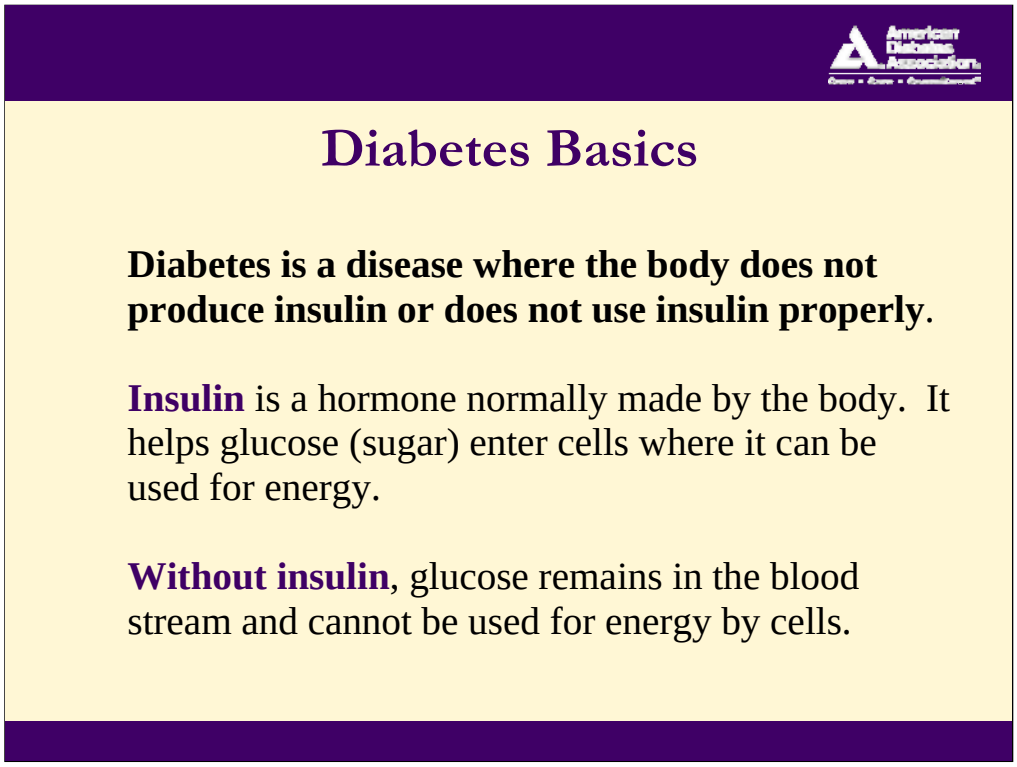


This training will provide you with:

• an overview of diabetes and basic diabetes care;

•detailed information on the symptoms and treatment of one of the most frequent short-term complications of diabetes, **hypo**glycemia (low blood glucose); and

• information on the skills and knowledge needed to administer glucagon, a life-saving treatment for severe **hypo**glycemia (low blood glucose).

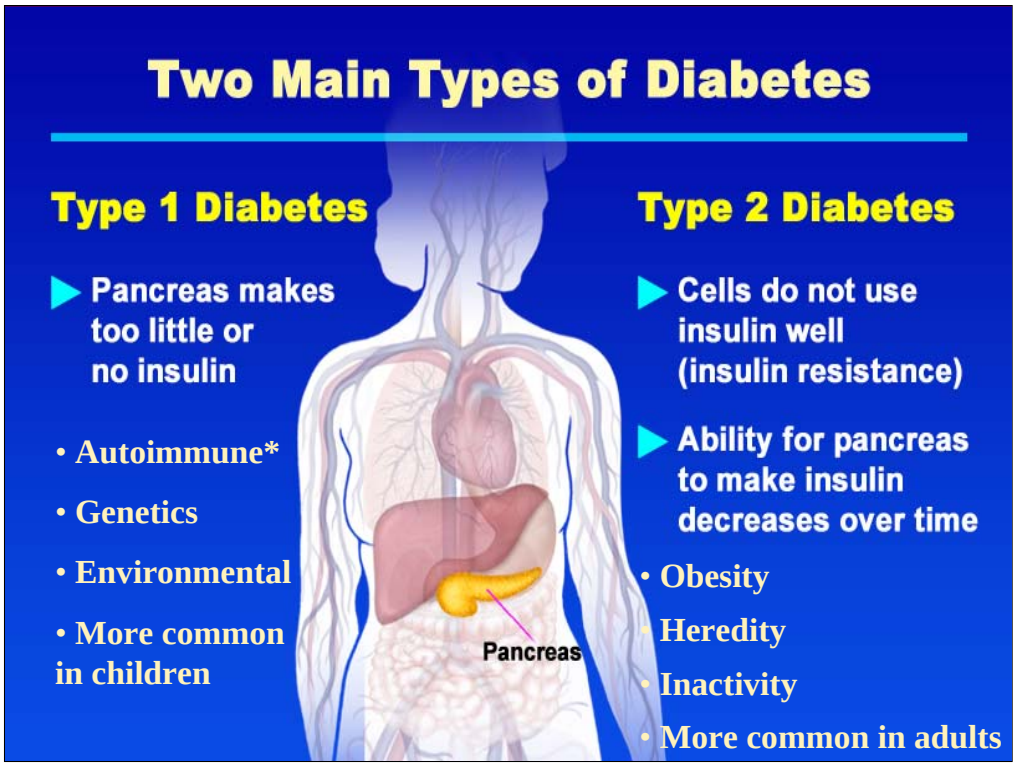


Insulin is a hormone that is produced by the pancreas and released into the blood stream after eating.

Its role is to allow glucose (energy from food) to enter the cells of the body so that the cells can have the energy they need.

Without insulin, glucose builds up in the blood stream, unable to reach the cells. The cells become starved for energy.

Excess glucose in the blood causes many problems for the person with diabetes.



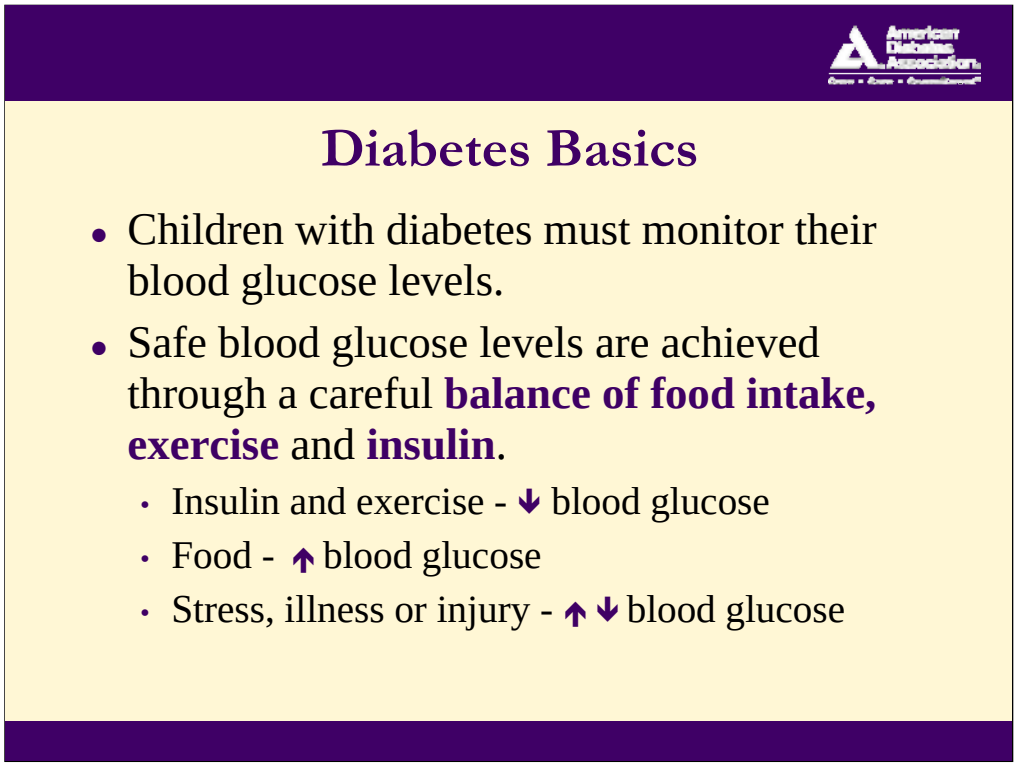
The two most common types of diabetes are type 1 and type 2.

We will primarily be discussing type 1 diabetes, which is the most common form of diabetes in children (type 2 is the most common form in adults, and is growing more common in older children and adolescents).

In type 1 diabetes, the pancreas stops producing insulin or produces so little insulin that a child must take insulin every day for survival.

In type 2 diabetes, the body does not make enough insulin or cannot properly use the insulin it does make.

*Autoimmune process – an immune response in which the body attacks its own tissues, cells or cell components. In type 1 diabetes, there is an autoimmune destruction of the beta cells of the pancreas, which causes the body to produce very little or no insulin.



The key to optimal diabetes control is a careful balance of food, exercise, and insulin and/or oral medication (oral medication is for type 2 diabetes only).

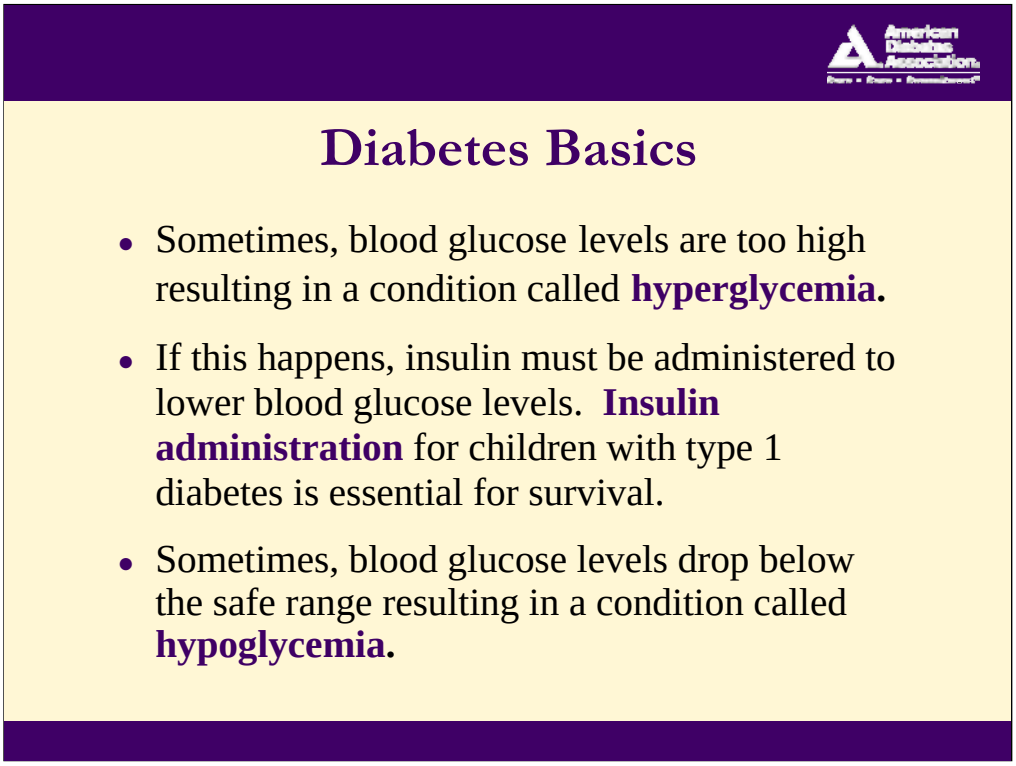
•As a general rule, insulin/oral medication and exercise/activity makes blood glucose levels go down.

•Food makes blood glucose levels go up.

•Several other factors, such as stress, illness or injury, also can affect blood glucose levels.

Good blood glucose control helps promote a child's normal growth and development and allows for optimal learning. It is also needed to prevent the immediate dangers of blood glucose levels that are either too high or too low.

Research has shown that maintaining optimal blood glucose levels can prevent or delay the long-term complications of diabetes (heart attack, stroke, blindness, kidney failure, nerve disease, and amputations of the foot or leg).



The most common short-term complications for students with diabetes are **hyper**glycemia (high blood glucose), and **hypo**glycemia (low blood glucose). Both can usually be managed with a well thought-out Diabetes Medical Management Plan developed by the student's personal health care team (primary care provider and parent) and parents/guardians, tailored to the individual student.

Hyperglycemia occurs anytime the blood glucose is above the target range (individualized in the student's Diabetes Medical Management Plan). It is caused by having too much glucose and/or not enough insulin in the body. The two main reasons for having **hyper**glycemia are poor blood glucose control and getting sick. When a student gets sick, blood glucose levels may become unpredictable. In many cases, blood glucose levels increase.

Symptoms of **hyper**glycemia include:

Loss of appetite	Increased thirst	Increased urination
Tiredness/sleepiness	Inattentiveness	Rapid breathing
Fruity odor to the breath	Nausea	Vomiting

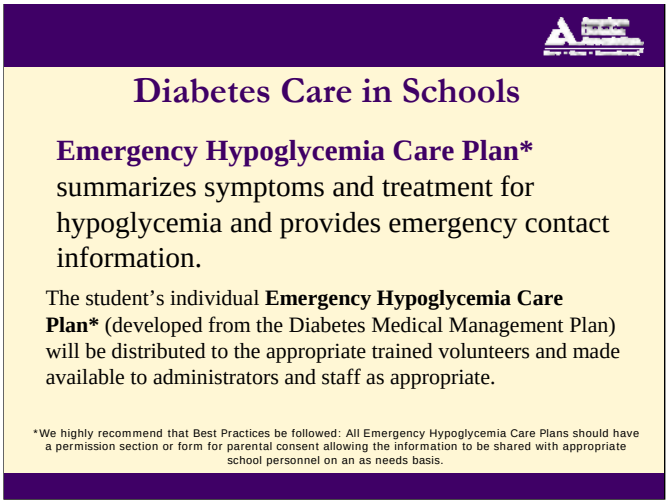
Hyperglycemia can be caused by:

Not enough insulin	Too much food	Illness/Infection	Stress

For children with type 1 diabetes**, hyper**glycemia is corrected by taking insulin as directed by the student's Diabetes Medical Management Plan. Students with type 2 diabetes will also manage **hyper**glycemia as directed by their health Diabetes Medical Management Plan, which may include adjustments in insulin or oral medication dosages. Students experiencing **hyper**glycemia also need access to plenty of water or other sugar-free beverage.

Hypoglycemia will be covered extensively in the following slides.

Note to school nurse: A sample Diabetes Medical Management Plan is included on the CD-Rom that you received.



All children with diabetes should have a Diabetes Medical Management Plan that is completed by the student's personal health care team and parents/guardian. This plan should outline the child's diabetes treatment -- his target blood glucose range, insulin schedule, eating plan, and usual blood glucose testing times. It should also include instructions on what to do in various situations (treatment for hypoglycemia, for example).

The Diabetes Medical Management Plan should be reviewed with relevant school staff and copies should be kept in a place that is easily accessed by the school nurse and other authorized personnel. Information on how often the child's blood glucose should be checked during the school day should be included in the plan.

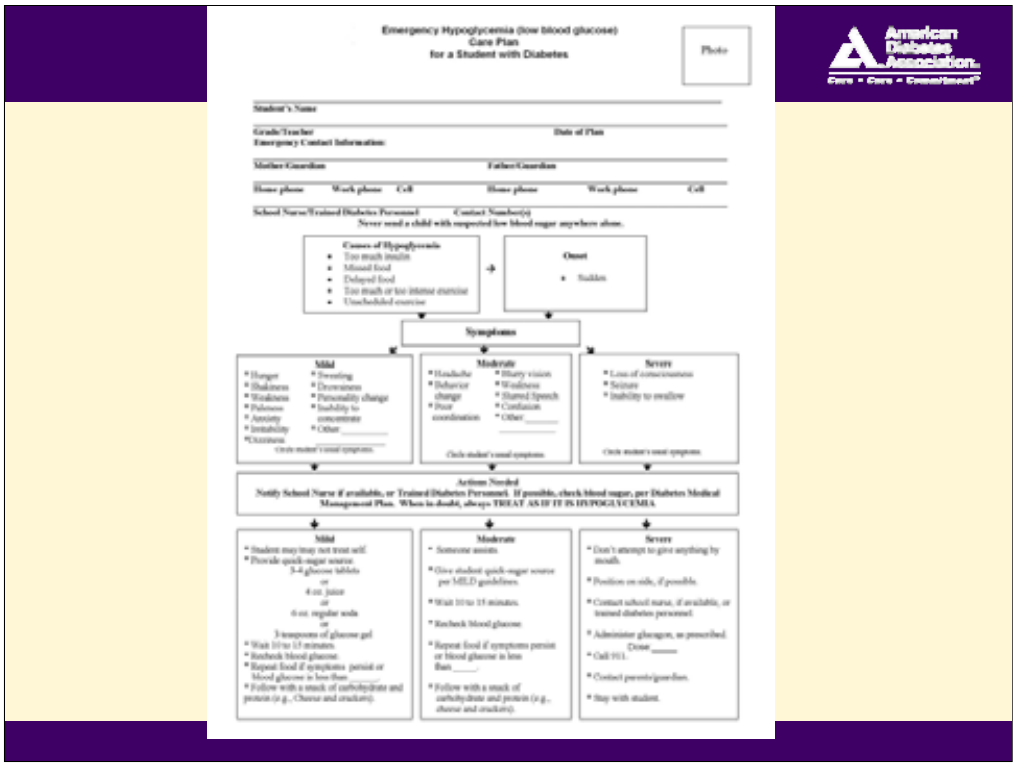
An Emergency **Hypo**glycemia Care Plan* is developed by the school nurse from the student's Diabetes Medical Management Plan and should be distributed by the school nurse and reviewed in detail with all trained volunteers. The school nurse should also provide all trained volunteers with a comprehensive list of personnel who have successfully completed the training throughout the school. A sample Emergency **Hypo**glycemia Care Plan is included on this CD-ROM.

Each school district may have a slightly different Emergency **Hypo**glycemia Care Plan form, but it should provide information on how to recognize and treat hypoglycemia as well as emergency contact information.

The January 2001 NYS School Executive's Bulletin states that children with diabetes must be allowed to check their blood glucose at any time and within any place at school, and to receive assistance, if needed, with this procedure.

Note to School Nurse: A sample Emergency Hypoglycemia Care Plan form is included on the CD-Rom that you received.

*We highly recommend that Best Practices be followed: All Emergency Hypoglycemia Care Plans should have a permission section or form for parental consent allowing the information to be shared with appropriate school personnel on an as needs basis.

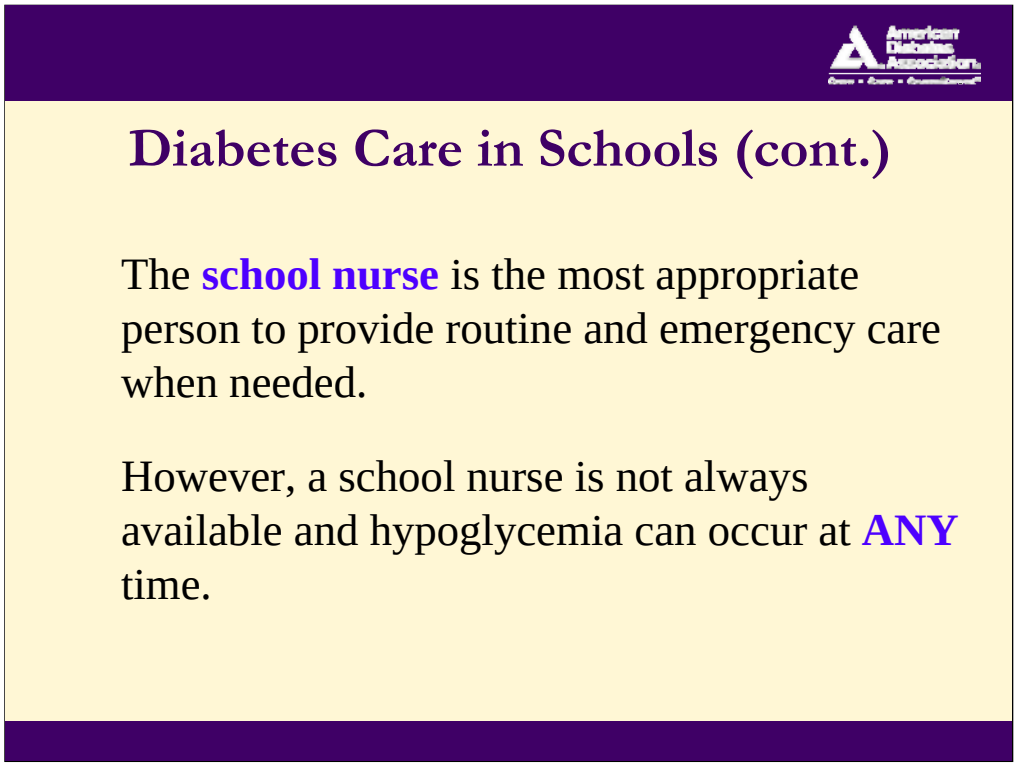


This is a sample of an Emergency Hypoglycemia Care Plan, which provides a flow chart for the recognition and treatment of hypoglycemia.

Our school district uses _____ (name of form) which is in your packets. Please pull it out at this time while I review its format.

Trainer should review with trainees the specific Emergency Care Plan format used by the school district with parental permission.

Again, a student's Emergency Hypoglycemia Care Plan will be distributed to all personnel who have responsibility for a student with diabetes and will provide a resource in case of emergency.

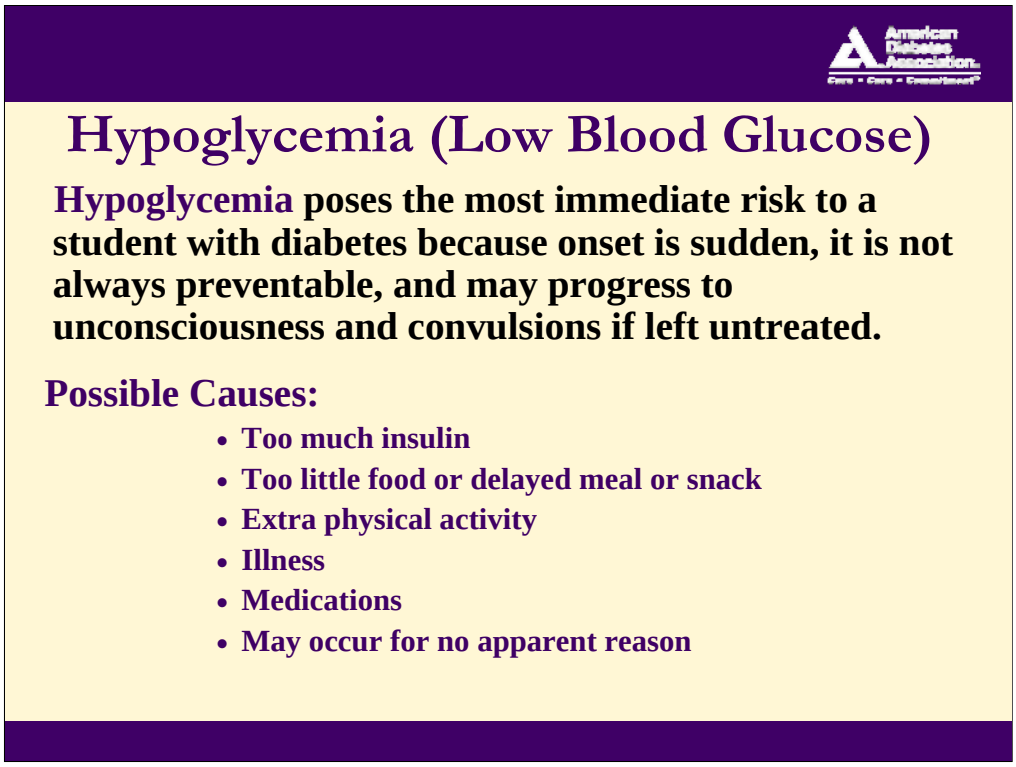


It is important to note that as the school nurse, I am the most appropriate person in the school setting to provide care for a student with diabetes.

Many schools, however, do not have a full-time nurse and sometimes a single nurse must cover a large number of schools. Even when a nurse is assigned to a school full time, he or she will not always be available during the school day, during extracurricular activities, or on field trips.

Diabetes emergencies, including hypoglycemia, can happen at any time -- a student will always need someone who is trained to help them in an emergency situation during school and school-related activities.

Note to school nurse: You may want to discuss your specific nursing coverage situation.



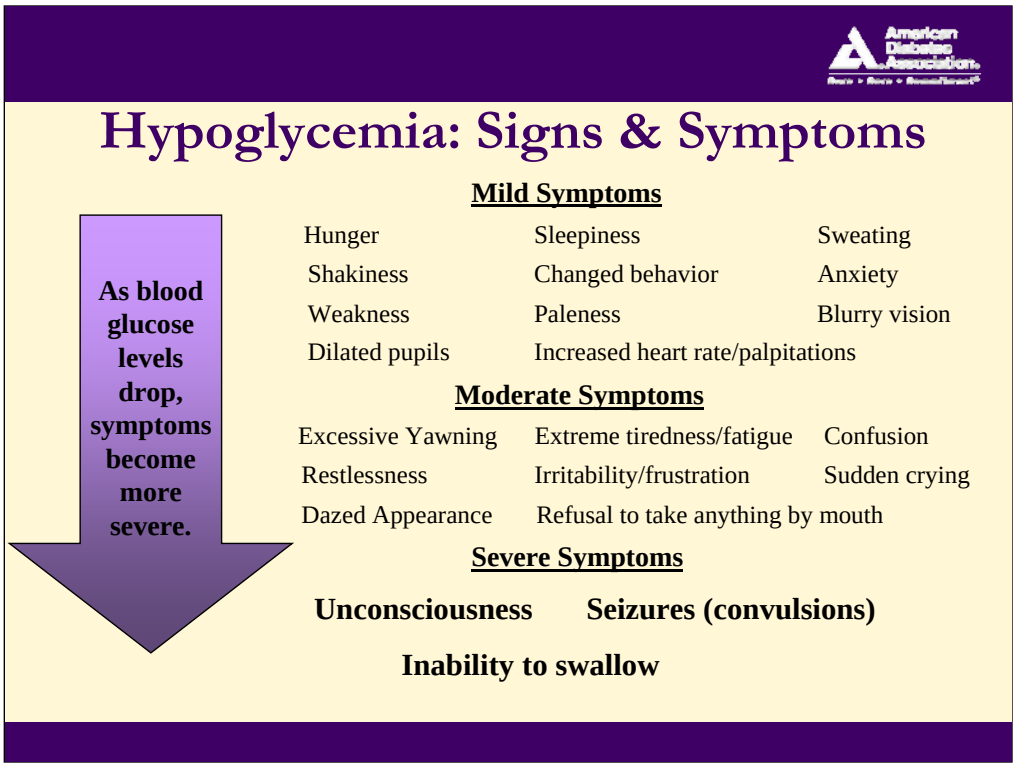
Hypoglycemia means that the level of glucose in the blood has dropped below target range (see the student's Diabetes Medical Management Plan for information on individualized target range). **Hypo**glycemia or "lows" occur whenever there is too much insulin in the body for the amount of glucose.

Even a student who knows s/he needs to eat might not be able to problem-solve how to get the food, or may not have the fine motor skills to screw off a juice lid or open a cracker package. Some students may become combative and **hypo**glycemia may be mistaken for misbehavior.

However, while any **hypo**glycemia episode calls for urgent action, it can often be prevented from becoming an emergency. Most **hypo**glycemic episodes are quite mild and symptoms resolve within 10-15 minutes of consuming a quick acting carbohydrate such as fruit juice or non-diet soda. Recognizing early symptoms and always having access to appropriate foods are the surest way to prevent an emergency.

There are no restrictions on physical activity for students with diabetes. However, when students are more active than usual at insulin peak times, they may experience low blood sugar.

Sometimes there is no explanation for why hypoglycemia occurs.



The symptoms of **hypo**glycemia vary from one individual to another. Also, they may vary for one individual, from one episode to another.

The symptoms of mild **hypo**glycemia are the first alert that the body is in a state of low glucose. Mild **hypo**glycemia can usually be treated easily and effectively. However, if not treated promptly a mild **hypo**glycemic reaction can quickly progress to a severe state or condition.

Each student will have his/her own set of symptoms that characterize **hypo**glycemia (These should be listed in the student's Diabetes Medical Management Plan).

The important thing to remember is that early recognition and intervention is the best strategy to prevent progression to more severe symptoms.

Among students with type 2 diabetes, mild **hypo**glycemia is common, but severe episodes are rare, even among those who are taking insulin. Still, all patients who are intensively controlling glucose levels should be aware of warning symptoms for **hypo**glycemia.

Mild and Moderate Hypoglycemia

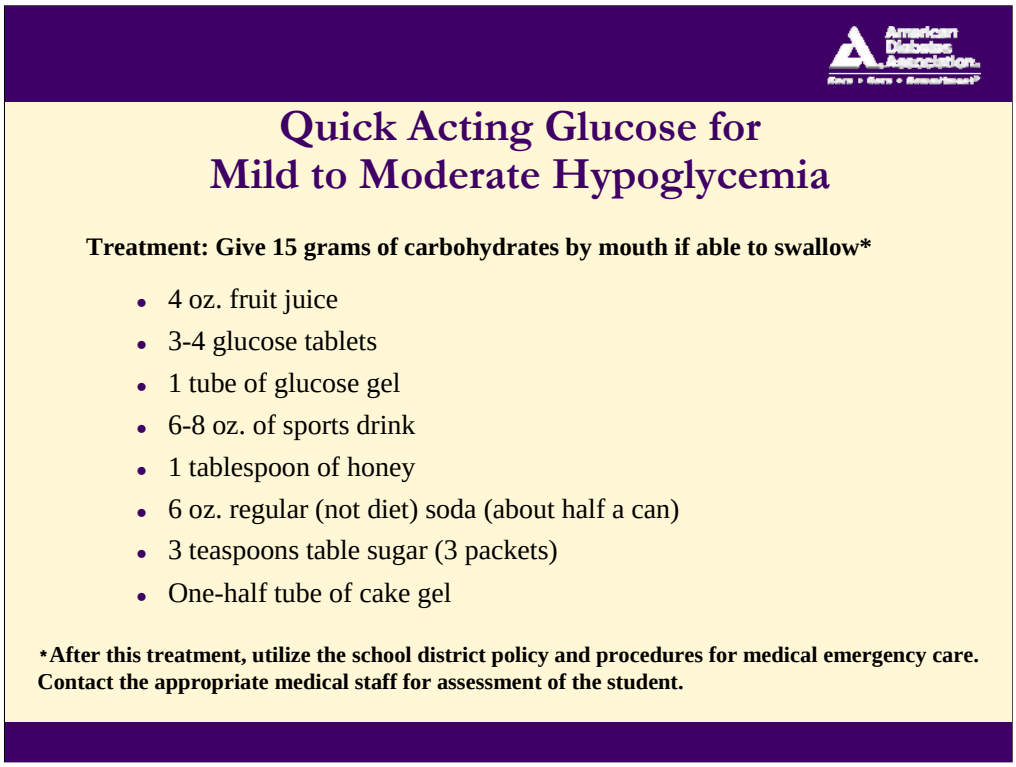
When mild or moderate symptoms occur, **immediate treatment** is required to prevent progression to severe hypoglycemia:

- **Treat at onset of symptoms by having student eat or drink fast acting carbohydrates (if able to swallow).**
- **NEVER leave the student unattended.**

When a student exhibits signs of mild or moderate **hypo**glycemia, it is important to treat it promptly to prevent its progression to an emergency. Never leave the student unattended.

If the student is unable or unwilling to swallow, or the student becomes unconscious, follow instructions for treating severe **hypo**glycemia (administration of glucagon).

WHEN IN DOUBT, ALWAYS TREAT FOR LOW BLOOD GLUCOSE as per the Emergency **Hypo**glycemia Care Plan.

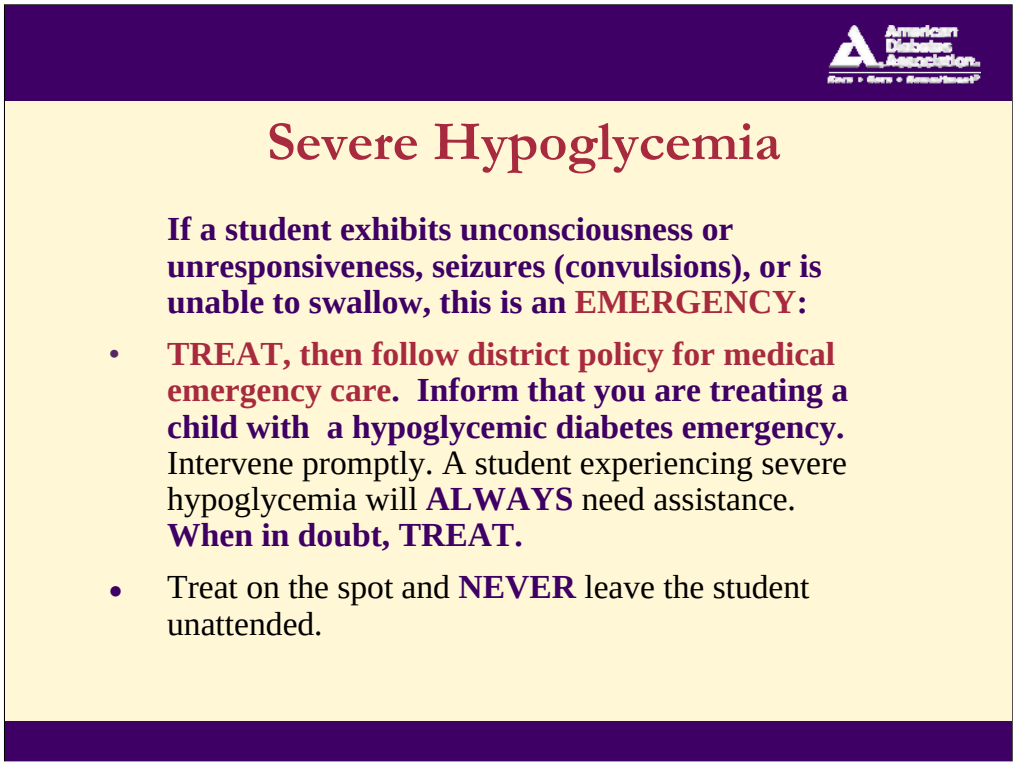


It is the responsibility of the student's parents/guardians to provide the school with supplies to treat **hypo**glycemia. These should be in close proximity to the student at all times. The student should always carry a quick acting source of carbohydrate.

For mild to moderate **hypo**glycemia, when the student is still able to take food and/or drink by mouth, 15 grams of carbohydrate should be given as a treatment.

If the student's symptoms have not resolved in 10-15 minutes, repeat 15 grams of carbohydrate treatment if student is still able to swallow. **After this treatment, utilize the school district policy and procedures for medical emergency care. Contact the appropriate medical staff for assessment of the student.**

Note to school nurse: It may be helpful to have on hand props for this discussion, e.g. 4 oz. box of juice, tube of cake gel, etc.



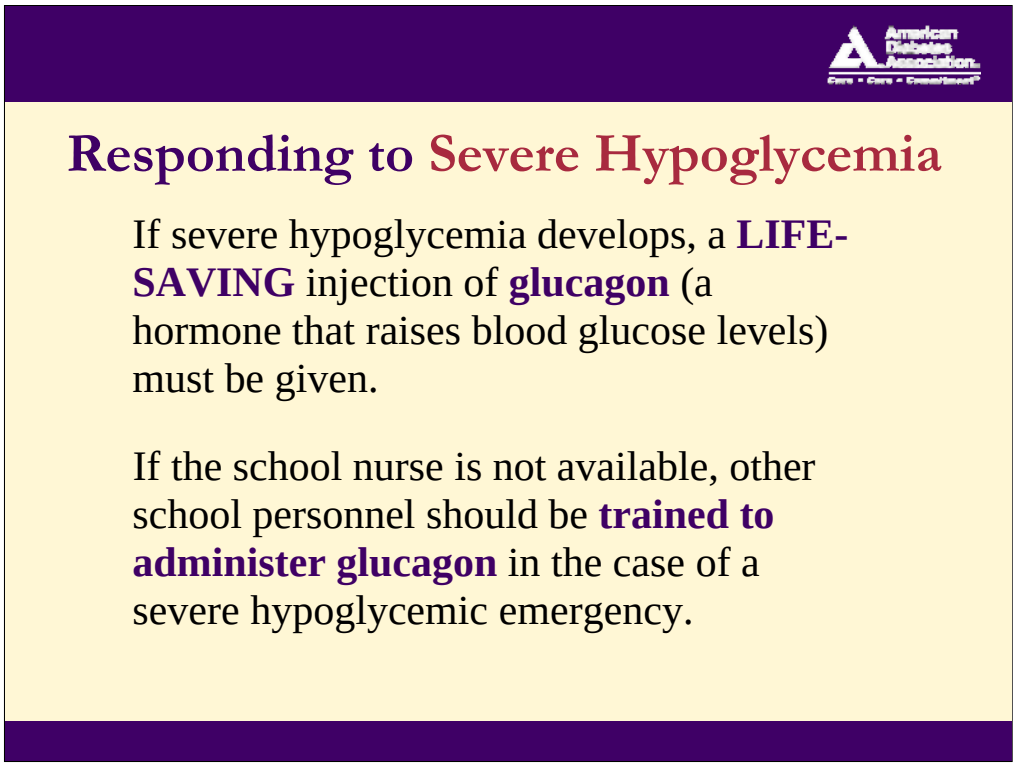
It is virtually impossible to overdose on glucagon and therefore, always safer to treat in order to avoid the serious dangers of not treating.

Treat on the spot and NEVER leave the student unattended.

Have someone else follow the district policy for medical emergency care while you are treating with glucagon.

If you are alone, TREAT, then follow the district policy for medical emergency care immediately.

It is important to inform the emergency responders that you are treating a child with diabetes, so that an appropriate emergency response team will respond to the call.



Glucagon is a hormone made in the pancreas. It acts in the liver to release stored glucose.

Glucagon is available to be given as an injection in an emergency kit, which can only be obtained by prescription by the child's parent/guardian. It is the responsibility of the parent/guardian to provide the school with a glucagon emergency kit(s).

Glucagon Kit Storage

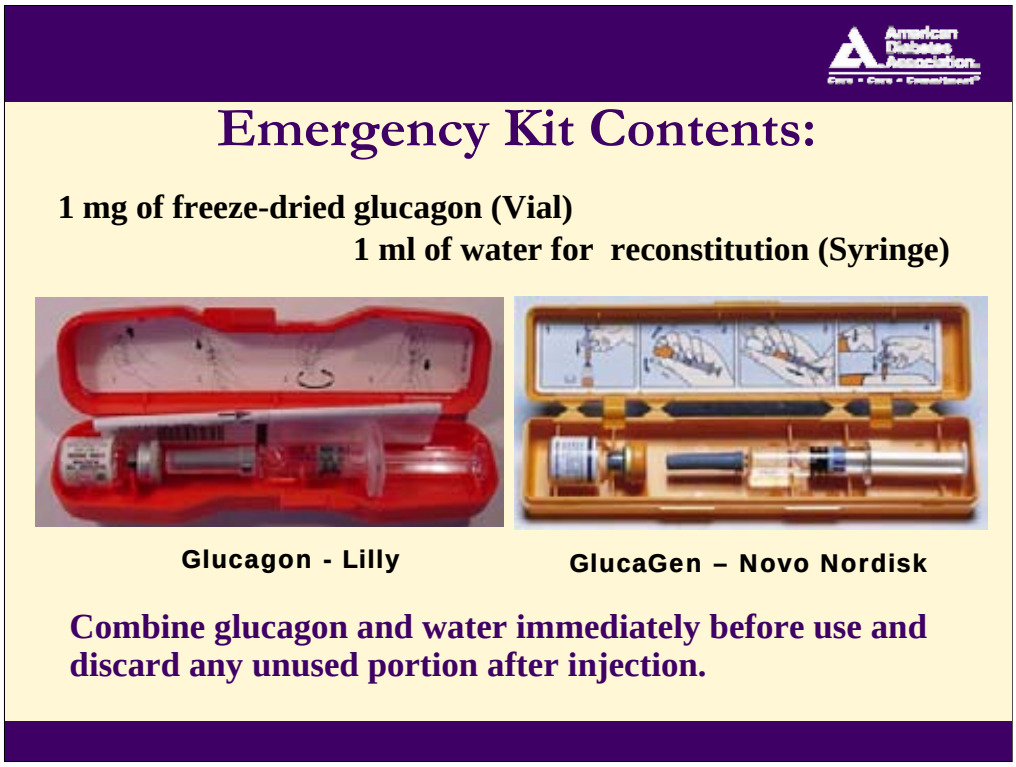
As designated in the student's Diabetes Medical Management Plan, the kit should be:

- **accessible to trained volunteer school personnel**
- **stored at room temperature**
- **monitored for expiration date**

I will work with the students to ensure that the glucagon emergency kit is in close proximity to the student with diabetes at all times. Consideration of transportation activities such as field trips or off-site school functions will be taken into account when planning for hypoglycemic emergencies.

The glucagon kit's expiration date should be checked. Do not administer if expired, discolored, or does not dissolve well.

Expired glucagon emergency kits can be used for future training sessions.



This photo shows the inside of the two brands of glucagon emergency kits currently available. The red one is produced by Lilly and is known as Glucagon, and the orange one is produced by Novo Nordisk and is sold under the brand name GlucaGen. Be aware that either of these kits may be used in a hypoglycemic emergency. One of these two kits will be prescribed for each student with diabetes, along with information on the appropriate dose for that student.

Within the glucagon kit are:

•Instructions for that particular kit,

•a syringe pre-filled with a saline solution, and

•a vial of powdered glucagon.

Glucagon must be injected. Combine the glucagon for injection **immediately before** use by following the instructions that are included with the glucagon kit and dispose of any unused portions after injection.

Administering Glucagon:

First Steps

- Position student safely on side for comfort and protection from injury.
- NEVER attempt to place ANYTHING into the student's mouth.
- Notify the designated volunteer personnel trained to give glucagon.
- While treating, have another person follow the district policy for medical emergency care and contact parents/guardian per Emergency Hypoglycemia Care Plan.

If you are alone, TREAT the student first, then follow the district policy for medical emergency care**.**

Administering Glucagon:

Preparation

- Flip cap off vial (glass bottle) of glucagon dry powder.
- Remove hard plastic cap and grey rubber cap from syringe.

Before administering glucagon, remember to check the expiration date and check to be sure that you do in fact have the right medication. Inside the emergency kits, you will find easy to follow, illustrated instructions.

Administering Glucagon:

Mixing Solution

- Insert needle through rubber stopper on vial of glucagon and inject entire contents of syringe into vial of powder.

- Without removing the syringe, hold syringe and vial in one hand and gently shake until all powder is dissolved and solution is clear.

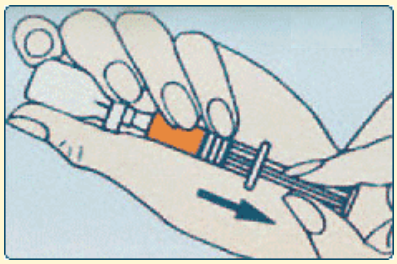
The powder should not be mixed with the solution until just before it is injected during a **hypo**glycemic emergency.

Bubbles or foam may be visible as a result of shaking.

Administering Glucagon:

Withdrawing Solution

- Inspect. Solution must be clear and colorless.
- Slowly withdraw the amount of solution from the vial into the syringe as specified in the student's Emergency Hypoglycemia Care Plan.

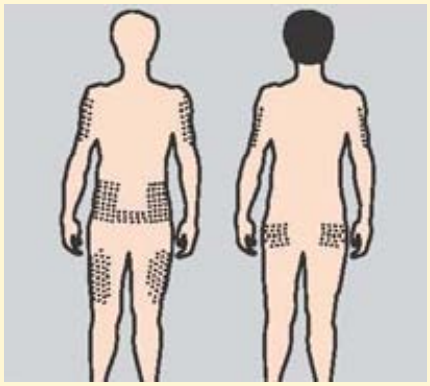


Withdraw the prescribed amount of glucagon back into syringe. Amount prescribed is noted on the Emergency **Hypo**glycemia Care Plan.

Administering Glucagon:

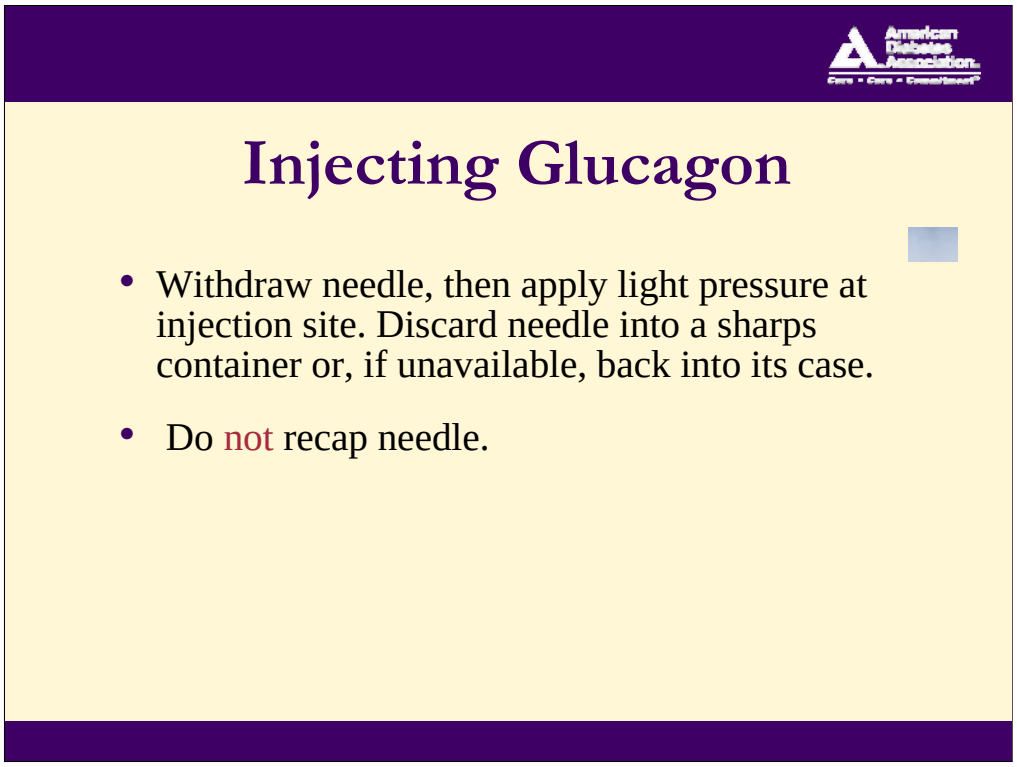
Injecting Glucagon

- Clean injection site on buttock, upper arm, or thigh with alcohol swab, if available.
- Pinch the skin at the site of injection, hold syringe like a pen and quickly insert needle at a 90° into cleansed area; inject glucagon solution.



If it is not possible to remove clothing in a timely manner, glucagon may be injected through clothing if necessary.

Note to school nurse: review injection sites with trainees.



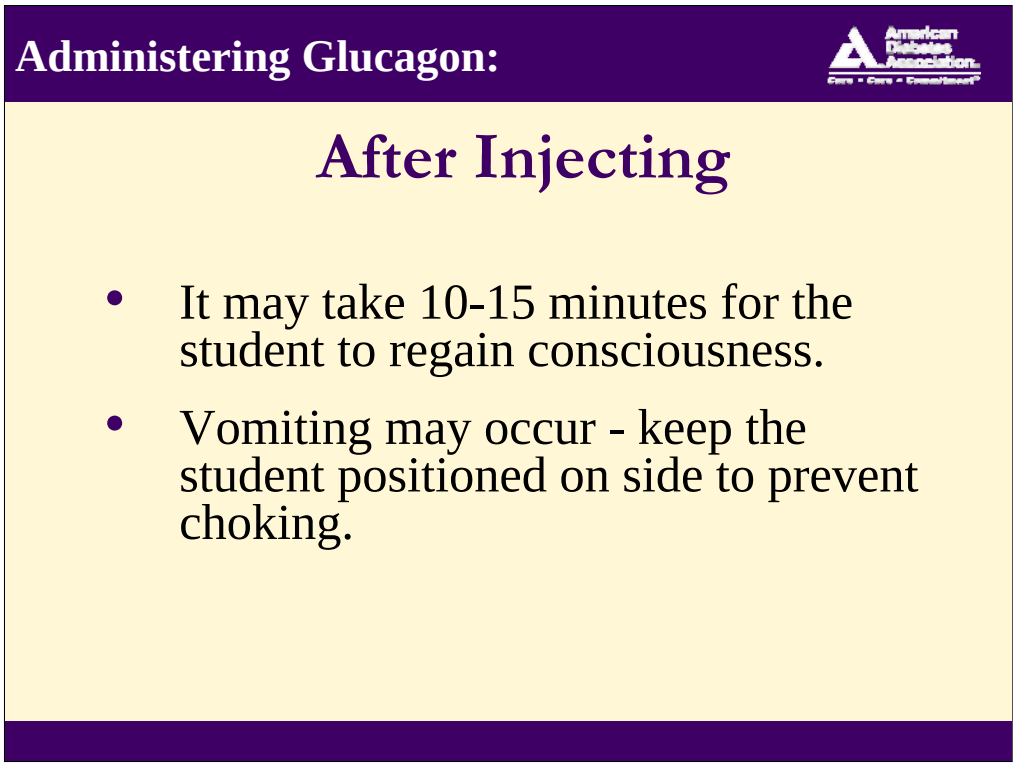
Do not try to recap the needle.

Note to School Nurse: Review Universal Standards for giving an injection and proper disposal techniques for used syringes. This should include information on location and availability of sharps containers.

We will now watch a video that illustrates how to administer glucagon. *** Please disregard the guidance on glucagon dose in this video. The glucagon dose prescribed by the student's doctor or health care provider will be specified in the student's Emergency Hypoglycemia Care Plan.**

Note to school nurse: This video will only function when this presentation is in slide show mode. Double click the movie projector icon to start the video. At conclusion of video – close Real Player and resume PowerPoint presentation.

A one page poster describing the step-by-step process of administering glucagon is available on this CD-ROM. Laminated copies of the poster may be obtained by filling out the publication order form, also contained on this CD-ROM.



Glucagon will increase glucose concentration in the blood in about 10-15 minutes.

Be sure to keep the student positioned on his/her side since vomiting can occur.

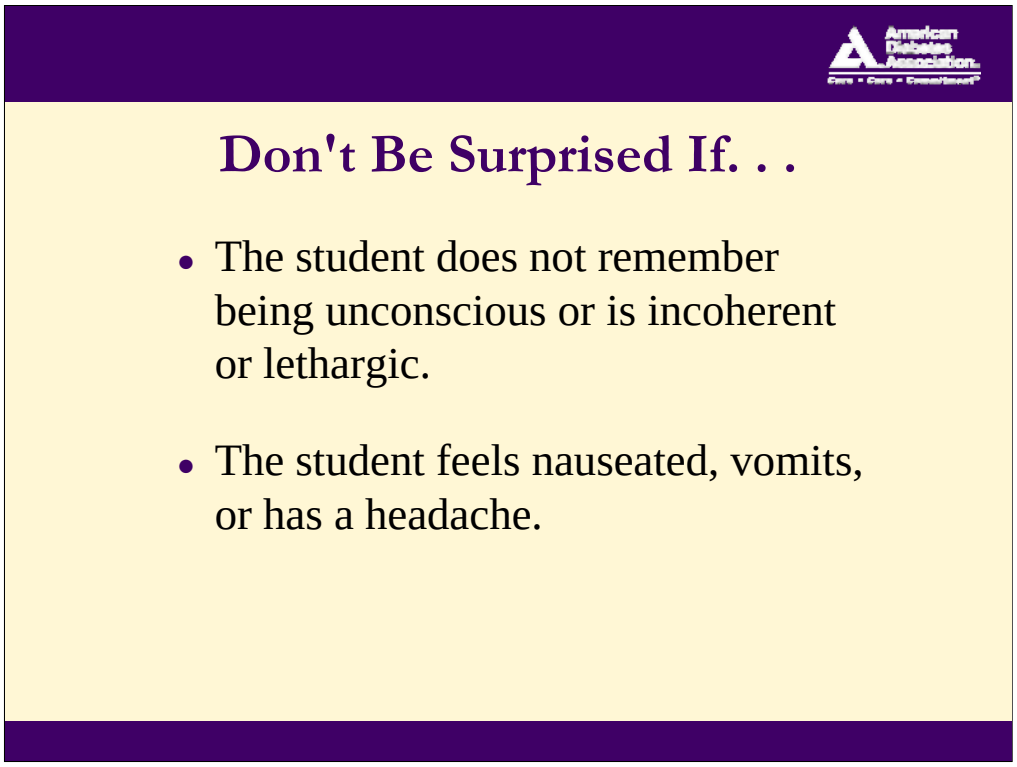
Administering Glucagon:

Next Steps

- Once the student is awake and able to drink, give sips of fruit juice or regular soda and advance diet as tolerated.
- Remain with the student until emergency medical services assumes control. The student should not resume normal activities.
- Notify appropriate parties of incident details and attend debriefing meeting with school nurse. School nurse will document incident in appropriate health records.

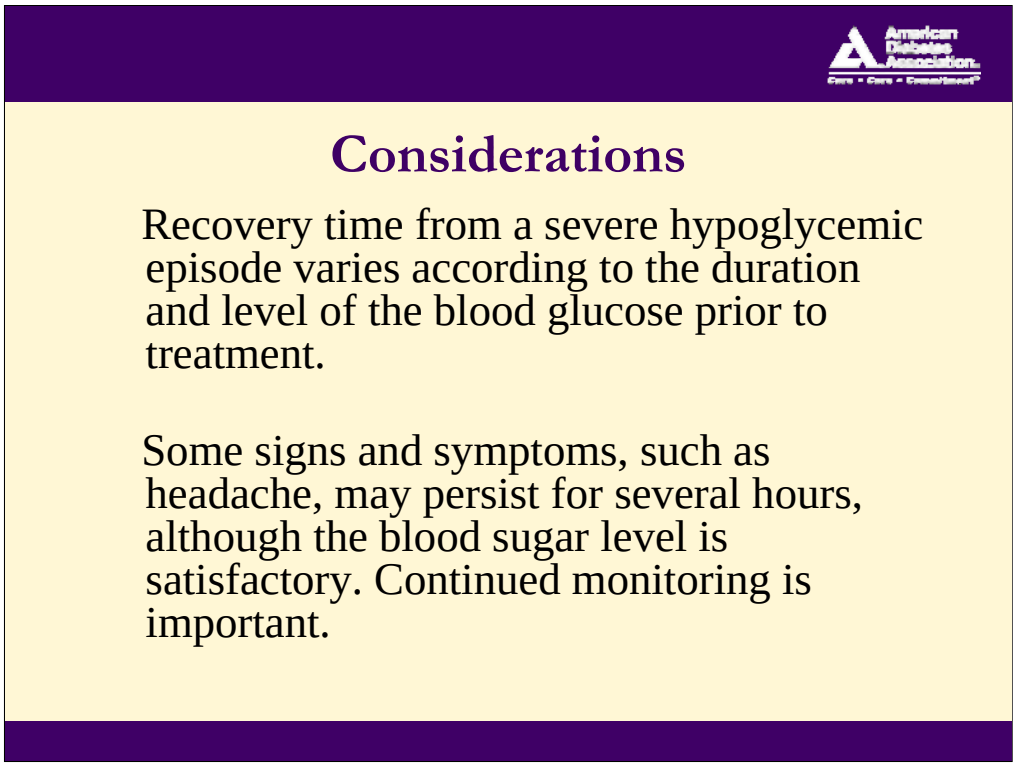
After the student regains consciousness, and if the student is not nauseated or vomiting, follow treatment with a snack containing protein and carbohydrate such as a peanut butter sandwich or cheese and crackers to keep blood sugar levels elevated to normal levels and to prevent recurrence (glucagon remains active for 1-2 hours).

The student should not resume normal activity immediately following an emergency hypoglycemic incident.



It is important to remain with the student until Emergency Medical Services (EMS) arrives. EMS will be able to monitor the student's blood glucose and provide additional treatment if needed.

Once the student regains consciousness, ask how he/she feels (ask if he/she has a headache or is nauseated) and reassure the student that help is on the way.



Notes to school nurse:

At this point, please demonstrate administration of glucagon (if practice kits or expired kits are available) and allow participants to review the process aloud and practice the glucagon administration procedure**.**

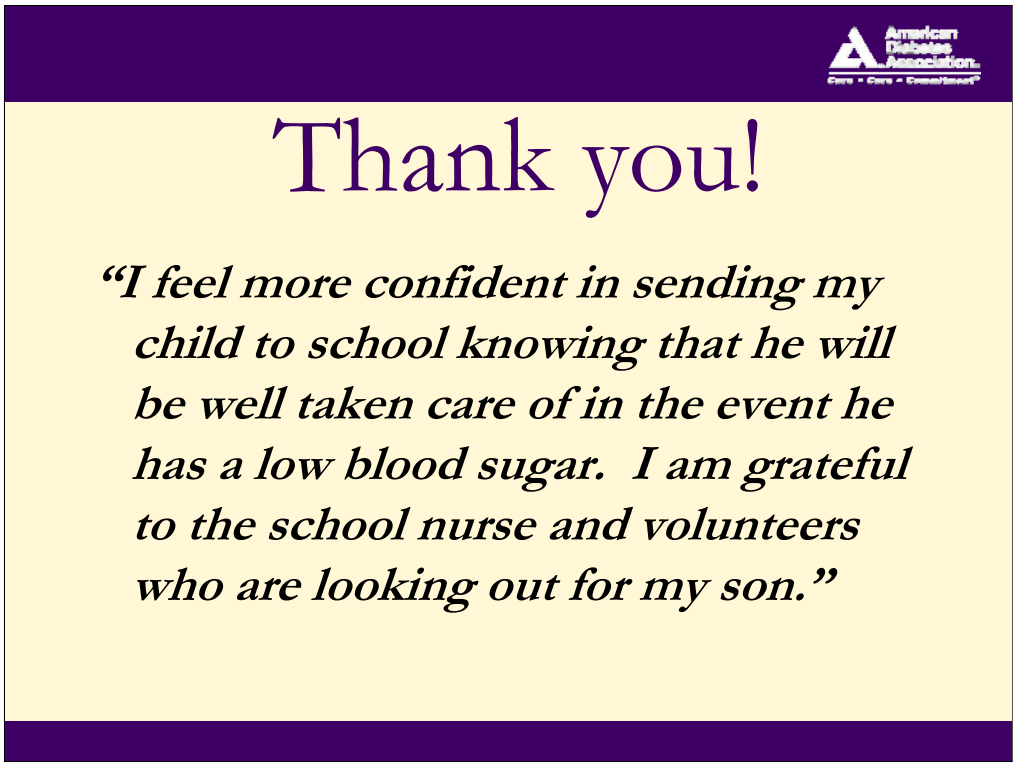
This CD-ROM includes a document entitled " **Certification of Training in Glucagon Administration for Volunteer Personnel in Schools**," intended to help you assess the knowledge and skills of the volunteers you are training.

Quick Review

- Mild to moderate hypoglycemia can be treated with a quick acting source of carbohydrate (15 grams).
- Signs of severe hypoglycemia include:
  - Unconsciousness
  - Seizures
  - Inability to swallow

Quick Review, continued

- Severe hypoglycemia is a medical emergency requiring immediate administration of glucagon.
- Treat, then follow the district policy for medical emergency care.



Thank you for volunteering.

By being trained to recognize and treat hypoglycemia, you are helping to ensure that students with diabetes are in a medically safe school environment that allows them to fully participate in school and school-related activities.

In the words of one parent of a child with diabetes:

"I feel more confident in sending my child to school knowing that he will be well taken care of in the event he has a low blood sugar. I am grateful to the school nurse and volunteers who are looking out for my son."