



GLUCAGON ADMINISTRATION

STUDENTS WITH TYPE 1 DIABETES

DECEMBER 6 2013

PURPOSE

- To train designated school staff how to recognize low blood sugar and administer glucagon for treatment of severe low blood sugar.



LEARNING OBJECTIVES

- Will be able to state the causes of low blood sugar.
- Will recognize the symptoms of low blood sugar.
- Will know how to respond to low blood sugar in a student with diabetes.
- Will be able to administer glucagon by injection.





CAUSES AND SYMPTOMS OF LOW BLOOD SUGAR

LOW BLOOD SUGAR

- Low blood sugar occurs when the sugar (glucose) level in the blood drops below what the body needs to function normally.
- Low blood sugar is usually the result of:
 - Too much insulin.
 - Not eating enough food, missing or delaying meals or snacks.
 - Extra physical activity, especially intense or prolonged activity.
 - Illness involving vomiting or diarrhea.



SYMPTOMS OF LOW BLOOD SUGAR

Mild - Moderate

- Sweaty
- Shaky
- Hungry
- Pale
- Dizzy
- Mood changes
- Irritable
- Tired/sleepy
- Blurry /double vision
- Difficulty concentrating
- Confused
- Poor coordination
- Difficulty speaking
- Headache

Severe

- Seizures
- Unconscious



RESPONDING TO A LOW BLOOD SUGAR

TREATING LOW BLOOD SUGAR IN A CONSCIOUS STUDENT ABLE TO SWALLOW

- Provide fast-acting glucose (if able to swallow). Give one of the following:
 - 15 grams of glucose in the form of glucose tablets
 - 15 mL (1 tablespoon) or 3 packets of table sugar dissolved in water
 - 175 mL (3/4 cup) of juice or regular soft drink (not diet)
 - 15 mL (1 tablespoon) of honey
- Recheck blood sugar levels in 10-15 minutes.
 - If no response or inadequate response, retreat with fast acting glucose.
- Contact a parent/guardian.



TREATING SEVERE LOW BLOOD SUGAR IN A STUDENT WHO IS UNCONSCIOUS OR UNABLE TO SWALLOW

- Identify someone to call 911 immediately.
- Identify a responsible adult to call the student's parent/guardian.
- Turn the student on his/her side.
- Administer glucagon by injection.

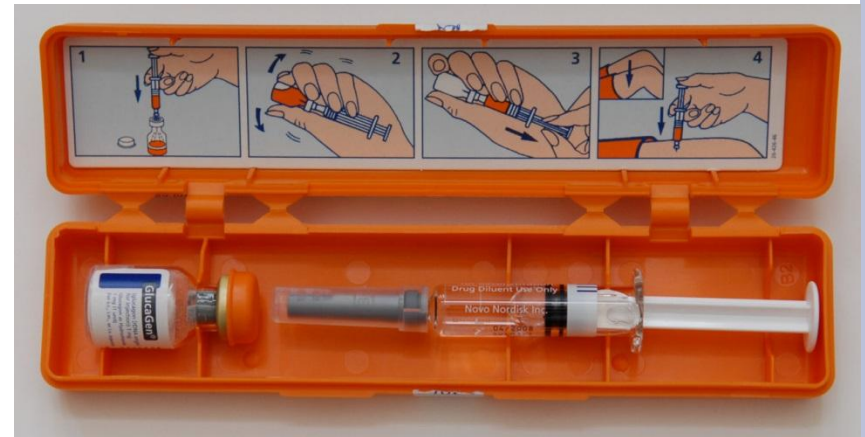
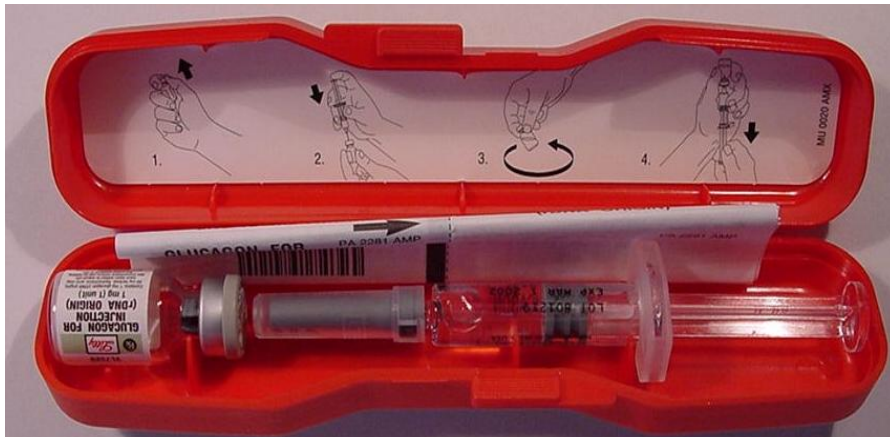




ADMINISTERING GLUCAGON

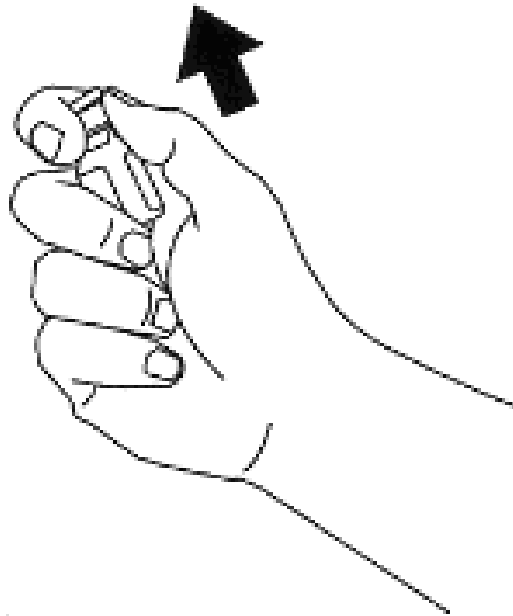
WHAT IS GLUCAGON?

- A medication (hormone) given by injection that is used to treat severe low blood sugar
- Glucagon comes in a kit. The kit includes:
 - A small bottle (vial) that contains glucagon. The glucagon is a dry powder.
 - A syringe that contains 1 cc of sterile liquid.



ADMINISTRATION OF GLUCAGON

Step 1: Remove the cap from the bottle.

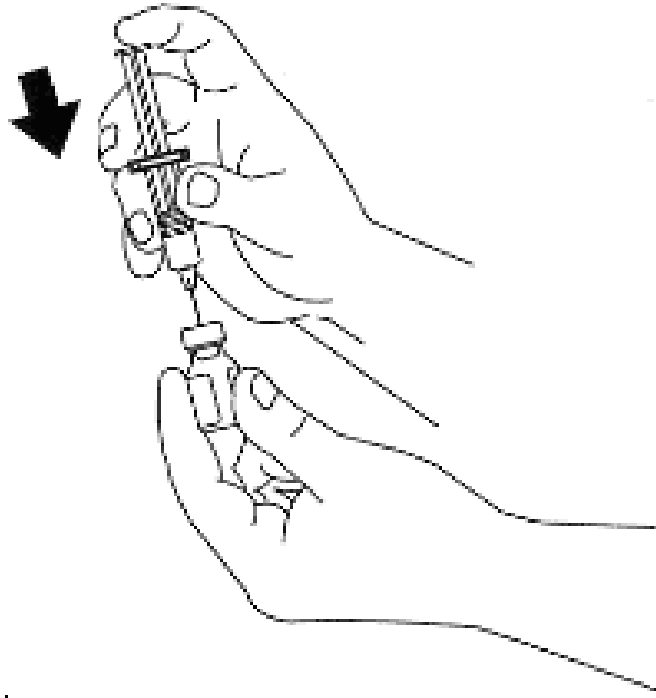


Source: [Lilly](#) (2013)



ADMINISTRATION OF GLUCAGON

Step 2: Inject the liquid from the syringe into the dry powder bottle.



Source: [Lilly](#) (2013)



ADMINISTRATION OF GLUCAGON

Step 3: Gently shake the bottle to dissolve the powder. Do not vigorously shake the bottle.

Step 4: Draw the fluid back into the syringe



Source: [Lilly](#) (2013)



HOW MUCH GLUCAGON SHOULD I GIVE?

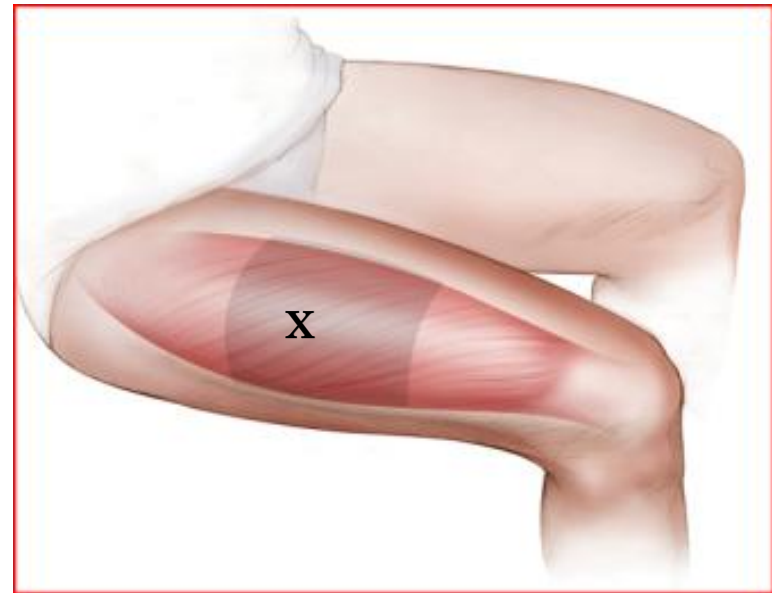
If the student is:	Give this much glucagon:
Five years old or less	0.5 mg
6 years or older	Full bottle (1 mg)



ADMINISTRATION OF GLUCAGON

Step 5: Turn the student on his/her side. Insert the needle straight (90 degree angle) into the middle outer thigh area.

- Inject the medication.
- Withdraw the needle, apply light pressure at the injection site.
- Do not recap the needle. Discard safely into a sharps container or back into the kit.



VIDEO

- Eli Lilly has an online tutorial showing how to mix up and give Lilly Glucagon™:

www.humalog.com/Pages/glucagon-severe-low-blood-sugar.aspx

- Novo Nordisk has a video showing how to mix up and give GlucaGen®:

www.novonordisk.com/images/diabetes/glucagon/demo/hypokit-demo.wmv





AFTER ADMINISTERING GLUCAGON

AFTER ADMINISTRATION OF GLUCAGON

- Always remain with the student until the Emergency Medical Services (EMS) arrive. Be prepared to inform EMS of the situation when they arrive.
- The student should remain on their side.
- It may take 10 to 20 minutes for the student to fully respond.
- Once the student is alert and able to swallow, give juice or other fast acting sugar.
- After the fast acting sugar, give longer acting carbohydrate such as cheese and crackers.



AFTER ADMINISTERING GLUCAGON

- Ask parents to replace the glucagon kit.
- Complete required documentation.



TIME TO PRACTICE!!



RESOURCES

Lilly: www.humalog.com/Pages/glucagon-severe-low-blood-sugar.aspx

Novo Nordisk:

www.novonordisk.com/images/diabetes/glucagon/demo/hypokit-demo.wmv

- Canadian Diabetes Association www.diabetes.ca/
- BC Children's Hospital Endocrinology & Diabetes Unit <http://endodiab.bcchildrens.ca>
- Child Health BC <http://www.childhealthbc.ca/>



SELF ASSESSMENT

EMERGENCY PROCEDURES & MANAGEMENT

Hypoglycemia (Low Blood Sugar) Knowledge & Skills

General Information	General understanding of low blood sugar: <ul style="list-style-type: none">• Defines hypoglycemia.• Understands the causes and symptoms of low blood sugar.• Knows how to treat low blood sugar.
Treatment	Recognizes and understands the importance of prompt treatment of low blood sugar: <ul style="list-style-type: none">• Recognizes low blood sugar and be able to administer glucose.• Describes appropriate treatment including accessing emergency services and glucagon administration.• Knows where treatment for low blood sugar is stored.
Glucagon Administration	Recognizes a severe low blood sugar: Understands: <ul style="list-style-type: none">• The purpose of glucagon.• How it should be stored.• When it is used. <ul style="list-style-type: none">• Knows where to inject glucagon.• Demonstrates preparation steps for administering glucagon.• Demonstrates how to administer glucagon.• Discusses further care for the student and next steps.

