Glucagon Administration

Emergency Procedures for Students with Type 1 Diabetes

Healthy Schools

2026

Land Acknowledgement

Interior Health would like to recognize and acknowledge the traditional, ancestral, and unceded territories of the Dãkelh Dené, Ktunaxa, Nlaka’pamux, Secwépemc, St’át’imc, Syilx, and Tŝilhqot’in Nations where we live, learn, collaborate and work together.

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 nasal spray and or 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 (<4.0 mmol).
- 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.

Source: BC Childrens Hospital Diabetes Clinic 2020

SYMPTOMS OF LOW BLOOD SUGAR

Mild - Moderate

- Sweaty
- Shaky
- Hungry
- Pale
- Dizzy
- Mood Changes
- Irritable
- Tired/Sleepy
- Difficulty Concentrating
- Confused
- Poor Coordination
- Difficulty Speaking
- Headache

Severe

- Seizure
- Unconsciousness

Source: BC Children's Hospital Diabetes Clinic 2020

RESPONDING TO LOW BLOOD SUGAR IF YOUR STUDENT IS ABLE TO SWALLOW

If the Student is Conscious and Able to Swallow:

- Provide fast-acting glucose
- Recheck blood sugar levels in 10-15 minutes

  -If blood sugar is still below 4.0mmol, re-treat with fast- acting glucose

- Contact Parent or Guardian

Source: BC Children's Hospital Diabetes Clinic 2020

Examples of Fast-Acting Glucose:

- 10-15 grams of glucose in the form of glucose tablets
- 10-15 mL (2 tsp. - 1 tablespoon) or 2-3 packets of table sugar dissolved in water
- 125 -175 mL (1/2 - 3/4 cup) of juice or regular soft drink (not diet)
- 10-15 mL (2 tsp. - 1 tablespoon) of honey

Examples of carbohydrates for treatment of mild-to-moderate hypoglycemia

Patient age	<5 yrs	5 to 10 yrs	>10 yrs
Amount of carbohydrate	5 g	10 g	15 g
Carbohydrate Source			
Glucose tablet (4 g)	1	2 or 3	4
Dextrose tablet (3 g)	2	3	5
Apple or orange juice; regular soft drink; sweet beverage (cocktails)	40 mL	85 mL	125 mL

Chart from Diabetes Canada 2018 Clinical Practice guidelines

Source: BC Children's Hospital Diabetes Clinic 2020

RESPONDING TO LOW BLOOD SUGAR IF YOUR STUDENT IS NOT ABLE TO SWALLOW

Unconscious student or unable to swallow:

- Administer glucagon by intra-nasal spray or injection.
- Identify someone to call 911 immediately (have them state there is an unconscious student with diabetes with severe low blood sugar).
- Identify someone to call the student's parent/guardian.
- Turn the student on his/her side.

WHAT IS GLUCAGON?

Glucagon

- Is a medication (hormone) that is used to treat severe low blood sugar

- Now comes in two forms:
  -Intranasal spray
  -Intramuscular injection

Photo credit: Lilly and McKesson Amphastar

BAQSIMI™ : NASAL GLUCAGON POWDER

- For intra-nasal use only.
- Not for use for children under 4 years old.
- Can be used even if the student has nasal congestion.
- Each single device contains one dose of nasal glucagon powder.

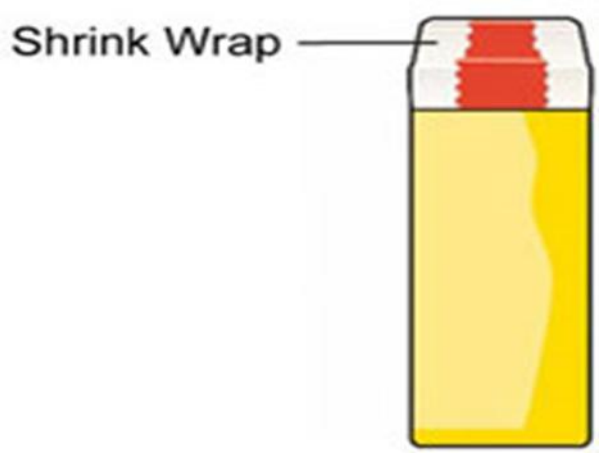
Source: Lilly (2019)

ADMINISTRATION OF NASAL GLUCAGON

STEP 1

Remove the shrink wrap by pulling on the red stripe.

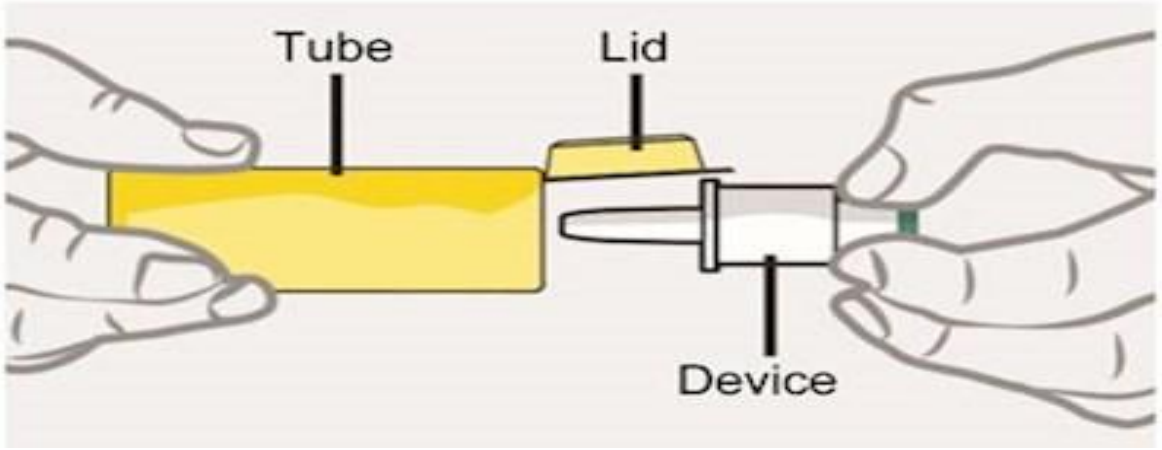
1



STEP 2

Open the lid and remove the device.

2

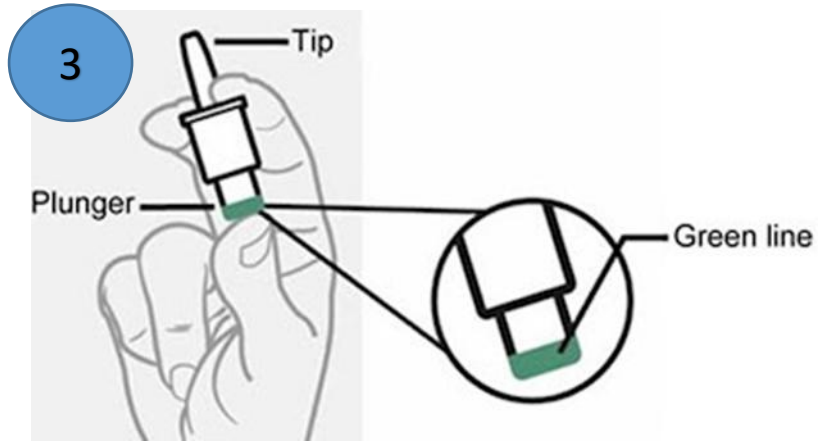


Source: Lilly (2019)

Administration of Nasal Glucagon

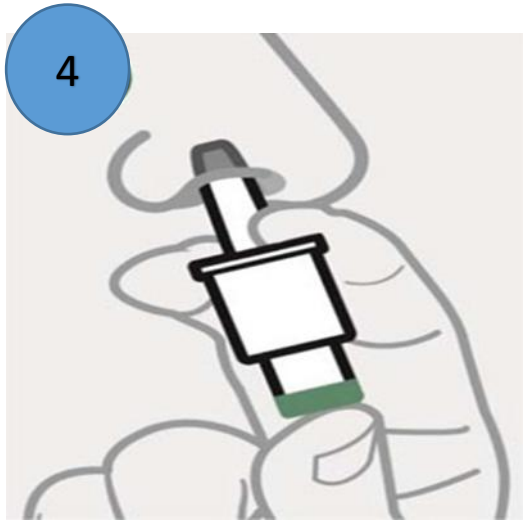
STEP 3

Hold the device between your fingers and thumb, with the thumb on the green plunger.



STEP 4

Gently insert into the nostril until the fingers touch the outside of the nose.



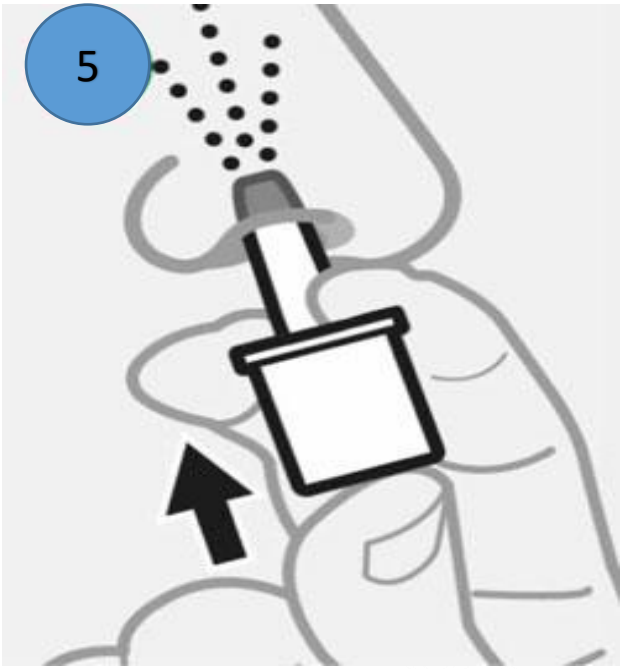
Source: Lilly (2019)

Source: Lilly (2019)

Administration of Nasal Glucagon

STEP 5

Press the plunger all the way until the green line is no longer visible.



Source: Lilly (2019)

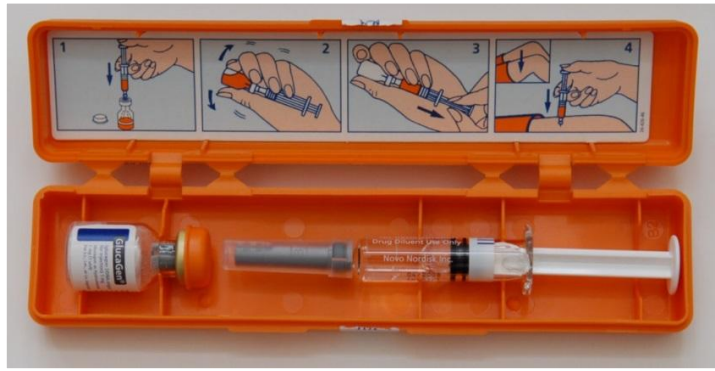
Demonstration video:
How to use Baqsimi

ADMINISTRATION OF INECTABLE GLUCAGON

- Injectable intramuscular glucagon comes in a kit, similar to these photos.
- Kits include:

-A small bottle (vial) that contains glucagon. The glucagon is a dry powder.

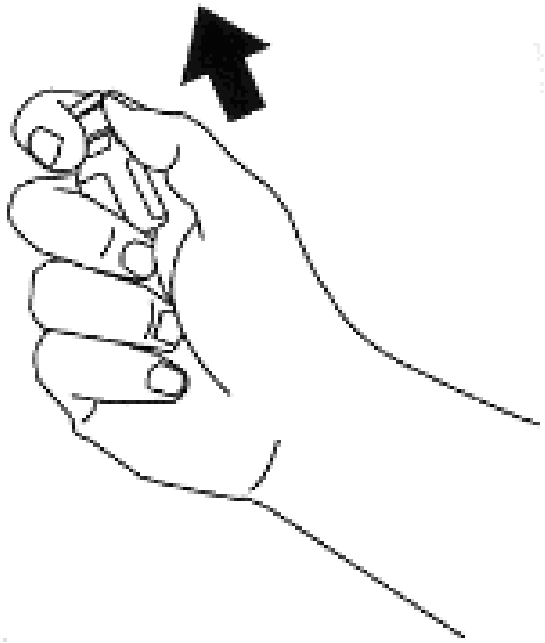
-A syringe that contains 1 cc of sterile liquid.

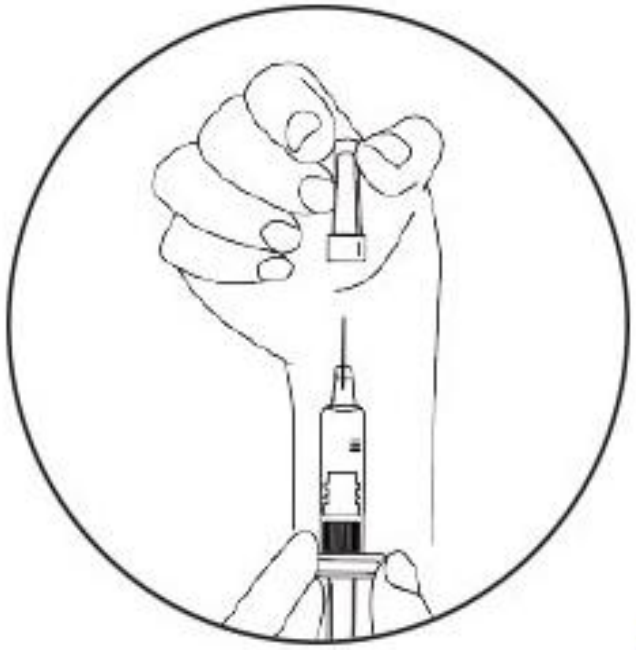


Source: Lilly (2019), NovoNordisk, and McKesson Amphastar

ADMINISTRATION OF INJECTABLE GLUCAGON

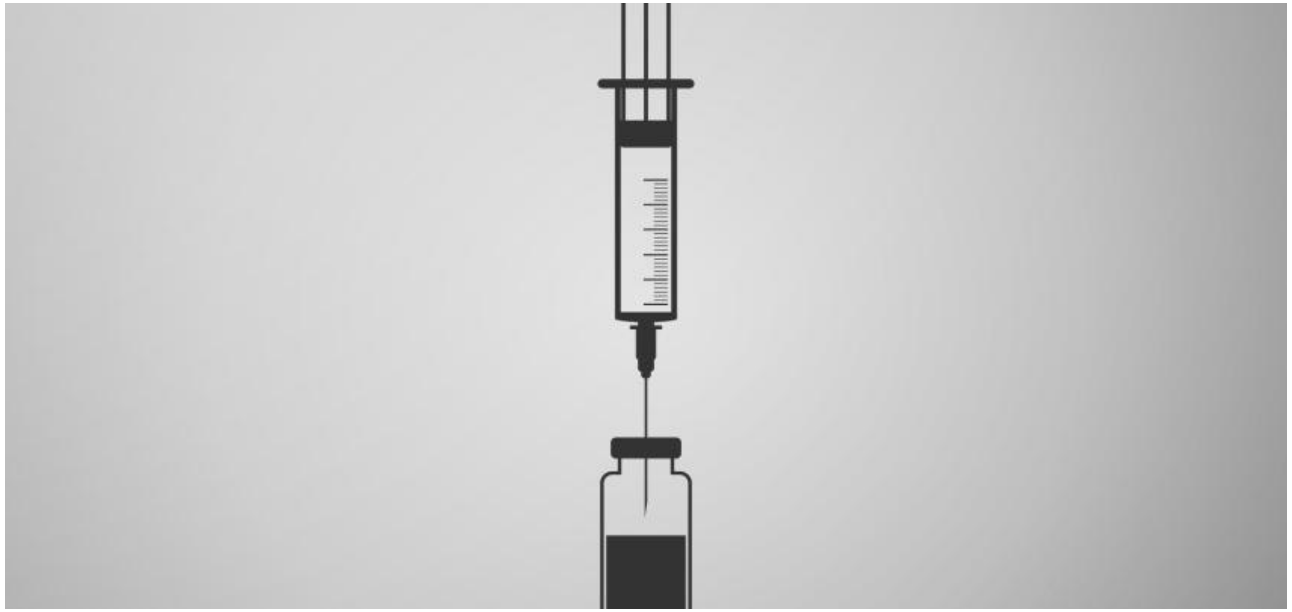
Step 1: Remove the cap from the bottle of powder, place bottle on flat surface. Remove needle cover from syringe





ADMINISTRATION OF GLUCAGON

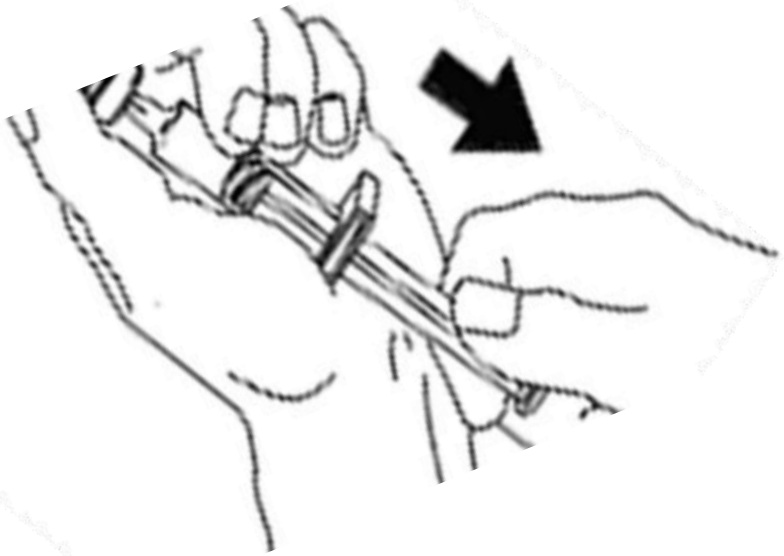
Step 2: Inject the liquid from the syringe into the dry powder bottle.



ADMINISTRATION OF GLUCAGON

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

Step 4: Draw the fluid back into the syringe



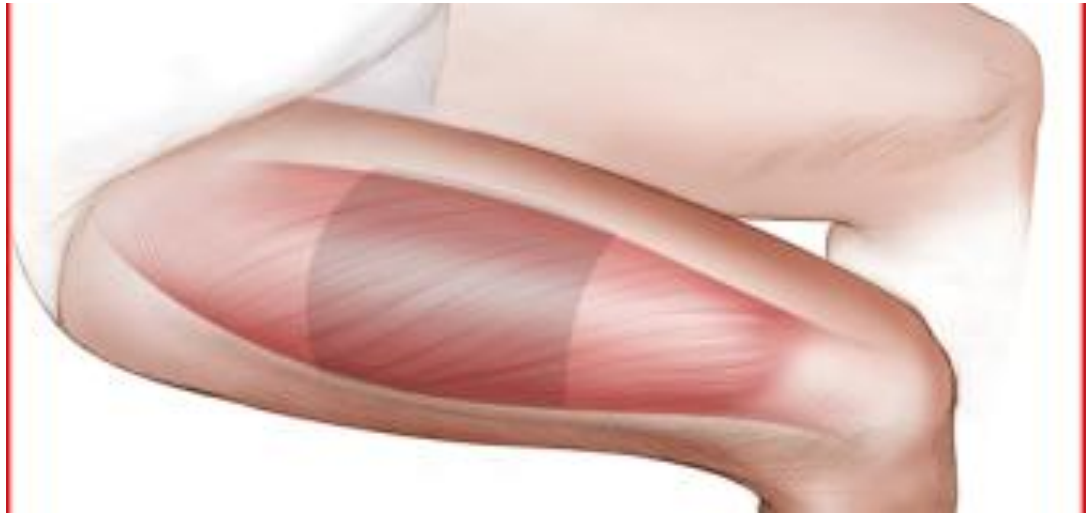
How Much Glucagon Should I Give?

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.



RECOVERY POSITION

AFTER ADMINISTERING GLUCAGON

AFTER ADMINISTRATION OF GLUCAGON

- Remain with the student until the Emergency Medical Services (EMS) arrive.
- The student should remain positioned 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 ADMINISTRATION OF GLUCAGON

- Ask parents to replace the glucagon kit.
- Complete required documentation.
- Debrief: what went well, what could have been done differently?

PRACTICE

RESOURCES

RESOURCES for GLUCAGON

BC Childrens Hospital Glucagon Info-sheet:
http://www.bcchildrens.ca/endocrinology-diabetes-site/documents/glucagon.pdf

Novo Nordisk GlucaGen monograph:
https://www.glucagenhypokit.com/instructions.html

Eli Lilly Baqsimi Nasal Glucagon support materials:
https://www.baqsimi.com/how-to-use-baqsimi/

Amphastar Glucagon Product Monograph:
https://amphastar.com/assets/glucagon-10-19.pdf

RESOURCES FOR DIABETES

BC Government Diabetes in School Pages:
https://www2.gov.bc.ca/gov/content/education-training/k-12/administration/program-management/safe-caring-and-orderly-schools/diabetes

Canadian Diabetes Association:
www.diabetes.ca/

BC Childrens Hospital Endocrinology & Diabetes Unit:
http://endodiab.bcchildrens.ca

Child Health BC:
https://www.childhealthbc.ca

Self Assessment

EMERGENCY PROCEDURES & MANAGEMENT Hypoglycemia (Low Blood Sugar) Knowledge & Skills		
	General Information	**General understanding of low blood sugar:** • 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:** • Recognizes low blood sugar and be able to administer glucagon. • Describes appropriate treatment including accessing emergency services and glucagon administration. • Knows where treatment Rx for low blood sugar is stored.

	Glucagon Administration	**Recognizes a severe low blood sugar:**
		Understands:
		  • The purpose of glucagon.
		  • How it should be stored.
		  • When it is used.
		• Knows how to give glucagon.
		• Demonstrates preparation steps for administering glucagon.
		• Demonstrates how to administer glucagon.
		• Discusses further care for the student and next steps.