

## MINI-DOSE GLUCAGON FOR PREVENTING SERIOUS HYPOGLYCEMIA IN ENDOCRINE PATIENTS

When a child or youth with hyperinsulinism has a stomach illness and is unable to keep any food or fluids down, blood glucose levels can drop very quickly. When these levels continue to drop and the child is unable to take anything by mouth, parents often resort to taking their child to the Emergency Room for intravenous glucose. This can be very traumatic for the child, as well as for the parents.

Mini-dose glucagon is a creative and beneficial way to help parents treat hypoglycemia during these times of stomach illness that might prevent a visit to the Emergency Room. The idea is to use very small (mini-) doses of glucagon, given with a regular insulin syringe, rather than the much larger dose normally given to treat serious hypoglycemia.

The results are generally excellent. Mini-doses of glucagon raise the blood glucose levels approximately 3-5 mmol/L within the first 30 minutes, and the effect lasts approximately one hour. Glucagon used in these smaller doses does not increase the nausea or vomiting that is commonly associated with the larger dose, and the number of visits to the Emergency Room can be greatly reduced.

It is important to note that while this option works well during stomach illnesses, it is NOT effective for a severe low, which requires the full dose of glucagon.

See also our handout [Glucagon for Severe Low Blood Sugar \(Hypoglycemia\) in Endocrine Patients](#).

### YOU WILL NEED:

- glucagon for injection (Lilly Glucagon™ or GlucaGen® HypoKit)
- a regular 30-, 50- or 100-unit insulin syringe
- blood glucose meter and strips

**HOW IT WORKS:**

1. You can get glucagon from your pharmacy. Glucagon is manufactured by Eli Lilly (Lilly Glucagon™) and by Novo Nordisk (GlucaGen® HypoKit).
2. Reconstitute the glucagon as per directions (inject 1 cc of diluent into the vial containing the glucagon powder).
3. Draw up the recommended dose into an insulin syringe. Each "unit" on the syringe will equal 10 µg (micrograms).

<b>Usual Dose:</b>	2 years and under: give 2 "units" (= 20 µg) 3-15 years: give 1 "unit" per year of age over 15 years: give 15 "units" (=150 µg)
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4. Inject the mini-dose glucagon subcutaneously.
5. Check the blood glucose every 30 minutes.
6. If after 30 minutes the blood glucose levels haven't improved (that is, they remain under 4.5 mmol/L), then repeat the glucagon using double the dose.

<b>Double Dose:</b>	2 years and under: give 4 "units" (= 40 µg) 3-15 years: give 2 "units" per year of age over 15 years: give 30 "units" (= 300 µg)
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7. The effective dose may be repeated every 30-60 minutes as needed to keep blood glucose levels above 4.5 mmol/L.
8. Give the standard full dose of glucagon if your child has any of the following:
  - seizure
  - loss of consciousness
9. Page the endocrinologist doctor on call if you are unable to maintain the blood glucose above 4.0 mmol/L with food and liquids or with the mini-dose glucagon.
10. Reconstituted glucagon should be kept in the fridge between doses, and then discarded after 24 hours.
11. Remember to replenish the glucagon as soon as possible! Many pharmacies do not keep glucagon in stock. It may take up to a week to order, so let your pharmacist know when your supply is out.