

# Glucagon for children

## Statewide Diabetes Clinical Network



## Guidelines for use of glucagon in an emergency

### Indications

1. Blood glucose is below 4.0mmol/L
2. Child is unconscious or having convulsion/seizure
3. Child's conscious state is significantly impaired (e.g. very difficult for child to cooperate sufficiently to take/swallow oral hypo treatment) – *this is an emergency*
4. There is any doubt about child's ability to safely swallow oral treatment – *this is an emergency*

### Emergency steps

1. Ensure child is in the safe recovery position
2. Phone ambulance and state 'diabetes emergency'
3. Prepare glucagon

### Instructions for the preparation of glucagon in an emergency

- Inject the 1mL of water into the vial of 1mg glucagon
- Use the *glucagon syringe*
- Inject into the outer muscle of the thigh only (inject in the same way as you would an insulin injection)
- Remove glucagon solution

### Dosage guide

Age (yrs)	Dose of glucagon	Mark on syringe
Less than 1	0.25mg	1/4mL – no exact mark on syringe
1–5	0.5mg	½ mL mark
More than 5	1.0mg – that is the full amount	1mL mark

As an emergency dose of glucagon can cause nausea and vomiting, your child is best taken to hospital so an intravenous drip can be commenced and glucose fluids given until your child feels much better and can eat normally.

### Safety alert

Following a moderate to severe hypo it is essential that your diabetes team is advised as there is an increased risk of further severe hypos within a short period of time. Due to this increased risk, it is essential that the insulin dose must be reduced for approximately one week.

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# Guidelines for use of mini-dose glucagon

Glucagon can be used by parents to raise blood glucose while a child is unwell (vomiting or not eating or drinking) and blood glucose level (BGL) is less than 4.0mmol/L. The mini dose of glucagon is able to maintain the BGL between 4mmol/L and 8mmol/L, preventing development of severe hypo, allowing sips of sugar containing fluid to be tolerated and hopefully preventing a hospital admission.

## Indications

Child/young person hypoglycaemic (less than 4.0mmol/L) and not well (flu, vomiting, diarrhoea) or difficult behaviour (refusing or unable to take foods or fluids).

## Instructions for the preparation of mini dose glucagon

- Inject the 1mL of water into the vial of 1mg glucagon
- DO NOT use glucagon syringe after mixing glucagon
- Remove glucagon solution from vial with *insulin syringe* (either 30 unit or 50 unit syringe)
- Inject subcutaneously – as you would insulin injection

## Dosage guide

Age (yrs)	Dose of glucagon	Mark on syringe
Less than 1	20mcg (0.02mg)	2 unit mark
2–15	10mcg per year of age (0.01mg per year of age)	1 unit mark per year of age
More than 15	150mcg (0.15mg)	15 unit mark

- Recheck BGL every 30 minutes over the next hour
- If after 30 minutes the glucose level has not risen (that is over 5.0mmol), give another injection of glucagon but at *double the previous dose*
- Continue to offer child small amounts of fluid and food
- After glucagon has been mixed, keep in refrigerator for 24 hours, then discard (replace supply immediately with script from a GP)

## Safety alert

Contact your diabetes team for ongoing advice if:

- you have used mini dose glucagon
- your child is persistently unwell/vomiting
- your child is not drinking/passing urine, even if BGL responds to glucagon
- you have any other concerns.

Reference: Haymond, M & Schreiner, B (2001) "Mini-dose" Glucagon Rescue for Hypoglycemia in Children with Type 1 Diabetes, *Diabetes Care*, April