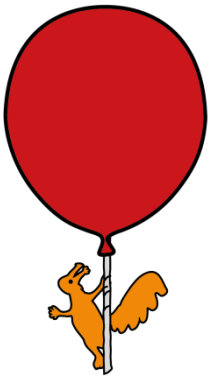


Alder Hey Children's NHS Foundation Trust

Children and Young People's Diabetes Service

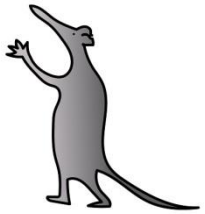
Multiple Daily Injections (MDI / Insulin pens)
High blood glucose levels without ketones

Information for patients, parents and carers

Why should you treat high blood glucose levels?

Correcting high blood glucose levels is needed to help achieve good diabetes control. Left untreated the blood glucose level may be high for hours, this can make you feel unwell and if high blood glucose levels happen often will cause a high HbA1c. A correction dose is an extra dose of fast acting insulin given to lower the blood glucose level back to target.

What should your blood glucose levels be?



It is recommended that your blood glucose levels should be

- 4-6mmol/L on waking
- 4-7mmol/l before meals
- Below 9mmol/L 2 hours after meals
- Below 7 mmol/L before bed

If your blood glucose level is above target you should take some extra fast acting insulin (Novorapid, Humalog or Apidra) as **a correction dose.**

If the blood glucose level is above 14mmol/L you need to check for blood ketones. If ketones are greater than 0.6mmol/L follow your sick day rules.

If you notice a pattern of high blood glucose levels you should think about what may be causing the high blood glucose levels and make changes to your diabetes management. You can contact the diabetes team for help adjusting your insulin doses if needed.

How to work out a correction dose?

Calculating your insulin sensitivity factor

You need to calculate your insulin sensitivity factor to work out your correction doses. To do this you need to know how much insulin you usually take a day.

1. Calculate your average Total Daily Dose (TDD) of insulin over about 4 days, adding ALL your insulin together – see table.
2. Divide 100 by your TDD
3. This is the amount 1 unit of insulin will lower your blood glucose level. This is your insulin sensitivity factor (ISF).

You will need to check your insulin sensitivity factor (ISF) whenever the amount of insulin you take changes, for example

- If your long acting insulin dose changes
- If your insulin to carbohydrate ratio changes

Use this chart to help you calculate your total daily dose

Insulin given	Day 1	Day 2	Day 3	Day 4		
Long acting insulin dose					Keep a record in your blood glucose diary of the amount of insulin taken at different times of the day	
Breakfast						
Lunch						
Tea						
Snacks						
Total					Add the totals together	
					Divide by 4 to find your average TDD	

To calculate your insulin sensitivity factor

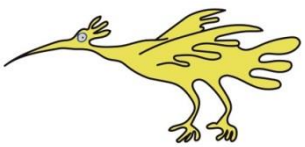
What is your total daily dose? →

Divide 100 by your total daily dose →

This is how much 1 unit of insulin will lower your blood glucose level

The amount of insulin you need to 'correct' your blood glucose level to the target range will depend on how sensitive you are to the insulin. Different things will affect your insulin sensitivity. These include;

- How well you are
- Whether you have ketones
- How stressed you are feeling
- How active you have been
- How much active insulin is in your body



What is active insulin?

This is insulin that is still working from a previous injection. It may also be called insulin on board. If you use a smart blood glucose meter this will take active insulin into account each time it calculates a correction dose.

If you do not use a smart meter with a bolus advisor you should not give a correction dose within **2 hours** of a previous injection of fast acting insulin.

Calculate your correction dose by

A	set your target blood glucose level
B	Work out how much you need to drop your blood glucose by; current BG level minus your target
C	Divide the amount you want your BG to drop by your sensitivity factor

Example if your target blood glucose level is 6mmol/L and your blood glucose is 16mmol/L and your insulin sensitivity is 1 unit will lower your blood glucose by 2mmol/L

A	= **6**
B	= 16 minus 6 = **10mmol**
C	= 10 divided by 2 = **5 units**

Your correction dose would be 5 units of fast acting insulin.

When to give a correction dose:

You can give a correction dose whenever you find a blood glucose level above target before a meal and above 9mmol/L 2hours after a meal.

Always check your blood glucose level 2hours after taking a correction dose. If after 2 hours the blood glucose remains above target you can repeat the correction dose.

- If a correction dose is required at mealtimes and the usual insulin is mixed insulin e.g. Novomix 30, Mixtard 30, Humalog Mix 25, Humalog Mix 50 give an extra injection of Novorapid/ Humalog / Apidra.
- Sometimes you may choose to give a reduced correction dose, for example before bed or after strenuous exercise or if you have over treated a low blood glucose level (hypo).

Who to contact for further help or advice

If you need urgent advice about diabetes management Monday – Friday 8am – 6pm, call 0151 252 5766.

For out of hours advice call the hospital switchboard on 0151 228 4811 and ask for ‘Diabetes on call’.

For non-urgent advice contact your diabetes nurse on the usual numbers or email diabetes@alderhey.nhs.uk

Follow us on Twitter: @AlderHeyDiab
Meet the team, useful guidelines, research and publications, helpful advice and video guides. Website: https://alderhey.nhs.uk/parents-and-patients/services/diabetes

Download the Digibete app, the video platform to share videos and educational resources about Type 1 Diabetes. The content is to support children, young people and their families to self manage their own diabtetes by extending the reach of their clinical teams online using the clinic code **- AEBDR**

Apple	Google Play

This leaflet only gives general information. You must always discuss the individual treatment of your child with the appropriate member of staff. Do not rely on this leaflet alone for information about your child's treatment.

This information can be made available in other languages and formats if requested.

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 Review Date: May 2024 **PIAG: 109**