

How to Use Fast Acting Insulin

Fast acting insulins, such as NovoRapid and Humalog, can be given in addition to your child's normal insulin injections when the blood glucose level is high, especially when ketones are present. The following guide will help you decide how much extra fast acting insulin can be given. Please remember that when you have to give extra fast acting insulin it is always given as well as, not instead of, the normal insulin dose.

Fast acting insulin can be given at breakfast time, lunchtime and before the evening meal. It is best not to give fast acting insulin to your child before they go to bed at night in order to reduce the possibility of hypoglycaemia (low blood glucose levels).

The amount of fast acting insulin to give is based on your child's normal total insulin dose for the day, including all rapid acting, long acting and mixed insulin.

- If the blood glucose level is between 15-20 mmol/L, but there are no ketones present, give a dose of fast acting insulin that is 5% of the total daily dose
- If the blood glucose level is between 15-20 mmol/L and there are ++ or +++ ketones present (i.e. moderate to large amounts) or blood ketones greater than 1.0mmol/l, give a dose of fast acting insulin that is 10% of the total daily dose.
- If the blood glucose level is over 20 mmol/L, but there are no ketones present or blood ketones less than 1 mmol/L give a dose of fast acting insulin that is 10% of the total daily dose.
- If the blood glucose level is over 20 mmol/L and there are ++ or +++ ketones present (i.e. moderate to large amounts) or blood ketones greater than 1.0 mmol/L, give a dose of fast acting insulin that is 15% of the total daily dose.

Comparison of Blood Beta Ketone and Urine Ketone Readings

The blood and urine ketone values do not always agree as the urine may have been in the bladder for several hours. The blood levels tell what the ketones are at the moment the check is done. The table below gives an approximate comparison between blood and urine ketone measurements.

Blood (mmol/L)	Urine
Less than 0.6	Negative to trace
0.6 to 1.5	Small to moderate
1.6 to 3.0	Usually large
Greater than 3.0	Very large

When to Contact the Hospital

You can phone for advice at any time you are concerned about your child's diabetes but we would like you to contact us if:

- Your child has ketones in their blood or urine in 2 or more tests in a day.
- Your child has high blood glucose levels and ketones in their blood or urine, feels sick, vomits or becomes drowsy.
- Your child's blood glucose level is low or normal and they are vomiting when they are given sugary drinks.
- Your child's blood glucose levels are high for 2 days or more

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References:

- Consensus Guidelines 2009, International Society for Paediatric and Adolescent Diabetes. Paediatric Diabetes 2009: 10 146-153
- Global IDF/ISPAD Guideline for Diabetes in Childhood and Adolescence, 2011, Sick Day Management
- Corrective doses for hyperglycaemia, A Alston
- Hanas R (2007) Type 1 Diabetes in Children, Adolescents and Young Adults. Class Publishing

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