

Children and Young People's Diabetes Service

Insulin Pump Therapy Information **High blood glucose levels with ketones**

Information for patients, parents and carers

Introduction

High blood glucose levels with ketones need to be managed quickly to prevent Diabetic Ketoacidosis (DKA).

High blood glucose levels with ketones may occur for a number of reasons; these include being unwell and low insulin levels due to missing insulin (e.g. a blocked cannula). When the blood glucose level is 14mmol/L or more, blood ketones must be checked.

Ketones are produced when there is not enough insulin in the body or due to lack of food. A high blood glucose level with ketones is a warning sign that there is not enough insulin in the body.

If blood ketones are greater than 0.6mmol/L extra insulin must be given by a pen.

Blood Ketone Guide		
Less than 0.6mmol/L	0.6 -1.5mmol/L	More than 1.5mmol/L
Give a normal correction dose	Give extra insulin with a pen	Give extra insulin with a pen and contact the diabetes team

Note: A single ketone correction dose should not normally be greater than 20% of your total daily dose of insulin (Up to a maximum of 20 units). For example: if total daily dose is 50 units, each ketone correction should not normally be more than 10 units. If unsure please discuss with a member of the diabetes team.

If the child/young person has high blood glucose levels with ketones and is vomiting you must contact the diabetes team immediately.

Always give insulin with a pen device when the blood glucose level is 14mmol/L or more and the blood ketones are greater than 0.6mmol/L. Change the pump reservoir/infusion set/pod and cannula. Check for blockages. Recheck the blood glucose level and the blood ketone levels every 1-2hours until back to normal.

If the high blood glucose and ketones are caused by illness/sickness follow the 'rules' below:

- 1. Never stop the normal insulin**, even if you are eating less than normal. When you are ill the body needs insulin to use glucose and to get rid of ketones.
- 2. Drink lots of water, sugar free/no added sugar drinks or diet fluids** to wash the ketones away.
- 3. Keep eating carbohydrate foods.**
 - When you are unwell you still need food for energy. It is important you get enough carbohydrate for the body to use for energy, to prevent starvation ketones. If you are unable to manage your usual meals and snacks you should replace these with sugar containing food and drink which is easy to consume. You should only have the sugar containing drinks

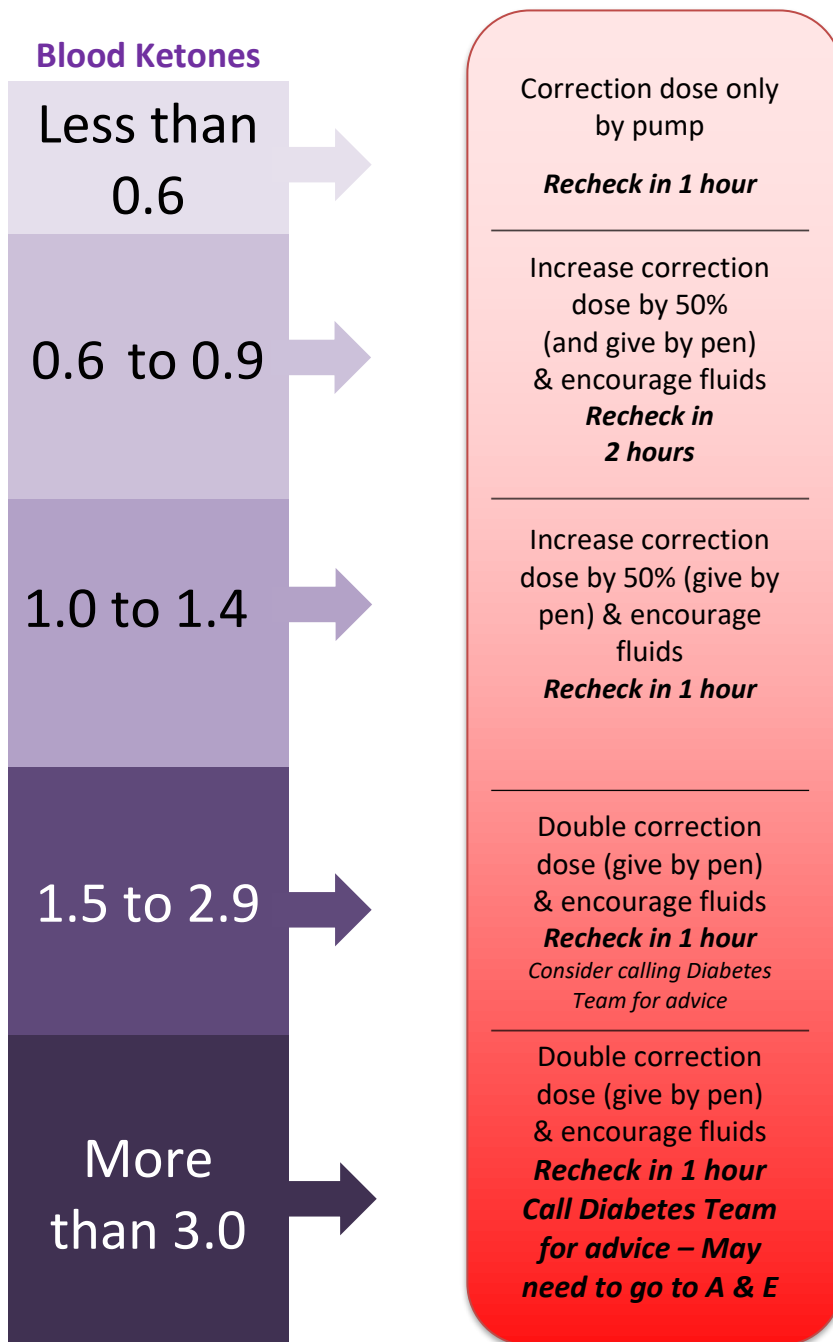
to replace carbohydrate foods. At other times you need to have water or sugar free drinks or rehydration fluids e.g. dioralyte.

b. Examples of carbohydrate food and drinks to have when you are unwell are; flat Lucozade or other sparkling glucose drinks, ordinary cola or lemonade, sugar containing drinks e.g. Ribena, Sports Drinks, ordinary squash, soups, toast, ordinary jelly and ice cream.

4. **Give extra fast acting insulin** to get rid of the ketones by pen follow the attached dosage guide.
5. **You can give over the counter or prescribed medications as directed** for example Paracetamol and antibiotics

Managing high blood glucose with ketones (Pump)

Blood Ketones

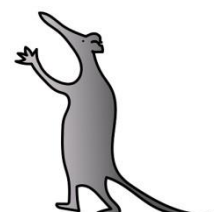


Remember

*If Ketones are more than 0.6 additional insulin **MUST** be given by a pen device – not your pump.*

*Start a 30%- 50% basal increase **AFTER** changing the insulin, cannula + infusion set.*

If not tolerating drinks/fluids – go to A&E



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

Website: <https://alderhey.nhs.uk/parents-and-patients/services/diabetes>

Meet the team, useful guidelines, research and publications, helpful advice and video guides.

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 diabetes by extending the reach of their clinical teams online using the clinic code - **AEBDR**



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: 113

