

Paediatric Diabetes

Paediatric diabetes - Illness management on insulin pump therapy

Any illness can upset your diabetes control. Your blood glucose levels may rise without there being any change in the carbohydrates you eat, or the usual amount of insulin that you take.

In some children, illness may initially cause blood glucose levels to drop, especially if vomiting happens.

When you are ill:

- **Rest** as much as possible.
- **Treat a high temperature** with Paracetamol.
- **Never stop taking your insulin**, even when you are unwell.
- **Test your blood glucose** more regularly.
- **Test for Ketones** (refer to the Ketone Testing information leaflet).
- **Drink plenty of fluids.**
- **Contact your Diabetes Team early** for advice and support.

Insulin

Do not stop taking your insulin. The cells in your body still need insulin to work properly, even if you cannot eat your normal food or you are being sick.

- Test your blood glucose more often, every one to two hours. Try and work out if the illness is the cause of hyperglycaemia (**high** blood glucose level). Could there be a problem with the cannula, the pump, air bubbles in the tubing or a problem with the cannula site.
- Extra insulin may be needed to control high blood glucose levels. Start by increasing with a Temporary Basal Rate of 120% (**+20% on**



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Omnipod).

- Less insulin may be needed to control low blood glucose levels. Start by decreasing with a Temporary Basal Rate of 80% **(-20% on Omnipod)**. This may be further reduced to 50-75% **(-25% to -50% on Omnipod)** if diarrhoea and vomiting persists
- Contact the diabetes team for advice.

Ketones

Always check your blood for ketones, as they can make you sick. Ketones are released when body fat is broken down to produce energy. There are 2 different ways in which ketones are produced:

1. When there is not enough food, this is referred to as **starvation** ketones
2. When there is not enough insulin, leading to **diabetes** ketones.

When diabetes ketones are present there may be a smell on the breath similar to pear drops or nail varnish remover. If ketones build up, your body will be unable to work properly. This will lead to deep rapid breathing and possibly unconsciousness. This condition is known as Diabetic Ketoacidosis (DKA), which is life threatening and requires **urgent** medical attention. **Please read the Ketone Testing information leaflet.**

With starvation ketones, the body uses fat reserves for energy due to insufficient carbohydrates. Starvation ketones are produced when the blood glucose level is low or within target range. Treatment involves consuming carbohydrates through food or drink.

- If blood glucose is more than 14mmol/l, test for blood ketones.
- If blood ketones are less than 0.6mmol/l, correct hyperglycaemia (**high** blood glucose level) via the pump and re-test blood glucose in 1 to 2 hours.
- If ketones are present and/or 1st correction via pump did not work, **correct via an insulin pen injection.**
- Change the cannula, infusion set and insulin immediately.
- Keep checking blood glucose and blood ketones every 1 to 2 hours.

Managing Starvation Ketones

- If possible, try to eat your normal amount of food (carbohydrates) and administer a bolus of insulin for this.
- If you cannot eat your normal meals, you need to prevent your blood glucose from dropping too low. Replace starchy carbohydrate food with some easy to eat food like soup or plain biscuits or sugary drinks like cola or lemonade. Speak to the diabetes team for further advice.
- You may need less insulin if your blood glucose levels decrease.
- If you cannot eat or if you are vomiting, replace your meals and snacks with hourly sugary drinks (containing approximately 20g CHO), which should be sipped slowly to help prevent starvation ketones.
- You will also need to drink plenty of sugar-free drinks in addition to fluid meal replacements to prevent you from becoming dehydrated, especially if you have diarrhoea.

Our tips

- **Do not** stop taking insulin during an illness.
- Test for blood ketones.
- You will need to drink extra sugar free fluids throughout the day to prevent dehydration.
- Avoid sugary lozenges and syrup/sugar type medicines (ask the pharmacist for sugar free alternatives).
- **If you are vomiting repeatedly or are unable to keep any food or drink down, attend CED or contact your diabetes team immediately for advice.**
- **Please refer to the following tables for how to manage your insulin pump during an illness.**
- **Make early contact with the diabetes team for advice or attend CED for assessment**

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BG = Blood Glucose	CED = Children's Emergency Department
BK = Blood Ketones	TBR = Temporary Basal Rate
< = Less Than	TDD = Total Daily Dose

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> = More Than	Target Range
CHO = Carbohydrates	Blood Glucose = 4-7mmol/l
g = Grams	Blood Ketones = Less Than 0.6mmol/l
DKA = Diabetic Ketoacidosis (Serious and life threatening if not treated promptly)	

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BG up to 13.9mmol/l	BK <0.6mmol/l	BK 0.6mmol/l – 1.5mmol/l	BK >1.5mmol/l
<p>Action</p>	<ul style="list-style-type: none"> • If hypo, treat as usual • If experiencing recurrent hypos, set TBR for 2 hours at 80% (-20% on Omnipod) and closely monitor. Contact the diabetes team or CED for advice • Re-test BG and BK in 2 hours 	<ul style="list-style-type: none"> • If hypo, treat as usual – ketones are present due to starvation ketones. Try and eat/drink 20g CHO • If experiencing recurrent hypos, set TBR at 80% (-20% on Omnipod) for 2 hours. Contact the diabetes team or CED for advice • If BG above target and pump suggests a correction bolus, administer bolus via pump. • Re-test BG and BK in 2 hours • If BG is still above target and BK 0.6 – 1.5mmol/l, Contact the diabetes team/CED for advice and give correction bolus via pen injection — use the bolus advice on your handset to calculate the dose. • Drink sugar free fluids. • Change the cannula, infusion 	<ul style="list-style-type: none"> • If hypo, treat as usual – ketones are present due to starvation ketones. Try and eat/drink 20g CHO • If BG above target and pump suggests a correction bolus, administer the bolus via pump • Re-test BG and BK after 1 hour • If BG is still above target and BK >1.5mmol/l, Contact the diabetes team/CED for advice and give correction bolus via pen injection – use the bolus advice on your handset to calculate the dose. • Drink sugar free fluids • Change the cannula,

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		<p>set and insulin.</p> <ul style="list-style-type: none"> • Set a TBR for 2 hours at 120% (+20% on Omnipod) • Re-test BG and BK after 2 hours. • If BG still above target and BK >0.6mmol/l after 2 hours, attend CED for assessment 	<p>infusion set and insulin.</p> <ul style="list-style-type: none"> • Set a TBR for 2 hours at 120% (+20% on Omnipod) and closely monitor • Re-test BG and BK after 2 hours. • If BG and BK remain unchanged after 2 hours, attend CED for assessment
BG >14mmol/l	BK <0.6mmol/l	BK 0.6mmol/l – 1.4mmol/l	BK >1.5mmol/l
Action	<ul style="list-style-type: none"> • Check the pump and cannula site for any issues • Give a correction bolus as suggested by the pump • Set a TBR 120% for 2 hours (+20% on Omnipod) • If eating, administer a bolus for all carbohydrates via the pump • Re-test BG and BK 	<ul style="list-style-type: none"> • If BG is HI, the handset will not recognise this as a high BG. Please use the following guide: • Give a correction bolus via pen injection. Calculate the dose by working out 10% of the Total Daily Dose (TDD). For example, if TDD is 50 units, 10% = 5 units • If eating, administer the bolus suggested by the pump via pen injection • Change the cannula, infusion 	<ul style="list-style-type: none"> • If BG is HI, the handset will not recognise this as a high BG. Please use the following guide: • Give a correction bolus via pen injection. Calculate the dose by working out 20% of the Total Daily Dose (TDD). For example, if TDD is 50 units, 20% = 10 units • If eating, administer the bolus suggested by the pump via pen injection

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	<p>after 2 hours. It's a good sign if BG is falling, but closely monitor throughout the day.</p> <ul style="list-style-type: none"> • If BG has not improved, give a correction dose via pen injection - use the bolus advice on your handset to calculate the dose. • Change the cannula, infusion set and insulin. • Re-test BG and BK after 2 hours. • If BG and BK remain unchanged, contact the diabetes team for advice or attend CED for assessment 	<p>set and insulin.</p> <ul style="list-style-type: none"> • Set a TBR of 120% for 2 hours (+20% on Omnipod) • Contact the diabetes team for advice • Drink sugar free fluids. • Re-test BG and BK after 2 hours. If there is no improvement, give a correction dose via the pump • If eating, administer a bolus for all carbohydrates eaten via pump • Continue to check BG and BK every 2 hours, even through the night • Attend CED for assessment if there is no improvement after the second correction or if are concerned 	<ul style="list-style-type: none"> • Change the cannula, infusion set and insulin. • Set a TBR of 120% for 2 hours (+20% on Omnipod) • Contact the diabetes team for advice • Drink sugar free fluids. • Re-test BG and BK after 2 hours. • If BK remains >1.5mmol/l, give another 20% TDD via pen injection as a correction dose • Administer the food bolus via pen injection • If there is no improvement after the second correction injection, attend CED as there is a high risk of DKA • If vomiting starts at any time, attend CED. Consider calling 999 for assistance
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Patient Information

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