

## Paediatric

# Paediatric Diabetes - Illness Management on Insulin Pump Therapy

Any illness can upset the control of your diabetes.

Your blood glucose level may rise without there being any change in the carbohydrate food that you eat, or in the amount of the usual insulin that you take.

However, in some children illness may cause the blood glucose to go down initially (just before the illness or if vomiting)

- If you are ill, you need to rest
- A high temperature may be treated with Paracetamol
- It is very important when you are ill to **never stop taking your insulin**
- Test your blood glucose more regularly
- Test for Ketones (see Ketone Testing information leaflet)
- Drink plenty of fluids
- **Make early contact with your Diabetes Team**

## 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, one to two hourly – try and work out if illness is the cause of hyperglycaemia (**high** blood glucose level). Could it be the cannula, the pump, air bubbles or 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 Omnipod**)
- Less insulin may be needed to control low blood glucose levels – start with a decrease with a Temporary Basal Rate of 80% (**-20% on**

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**Omnipod)** This may be further reduced to 50-75% (**-25%- -50% on Omnipod**) if diarrhoea and vomiting persists

- You should contact the diabetes team, who will give you advice

## Ketones

**Always** check your blood for ketones (they can make you sick). Ketones are released when body fat is broken down to produce energy. There are two different ways in which ketones are produced - when there is not enough food, and this is referred to as **starvation** ketones **or** when there is not enough insulin and this is **diabetes** ketones.

In diabetes ketones, there may be a smell of ketones on the breath (similar to the smell of 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 is known as Diabetic Ketoacidosis or DKA (This is life threatening and requires **urgent** medical attention). **Please read the Ketone Testing information leaflet.**

With starvation ketones, the body is using the fat reserves for energy because of insufficient carbohydrates. Starvation ketones are produced when the blood glucose level is low or within target range. Treatment is to consume carbohydrates via 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 one to two hours
- If ketones are present and/or 1<sup>st</sup> correction via pump did not work – **correct via insulin pen injection**
- Change the cannula, infusion set and insulin immediately
- Keep checking blood glucose and blood ketones every 1-2 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

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- 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

- During an illness **do not** stop taking insulin
- 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 you 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**

### KEY

|   |                                       |
|---|---------------------------------------|
| BG = Blood Glucose  | CED = Children's Emergency Department |
| BK = Blood Ketones  | TBR = Temporary Basal Rate            |
| < = Less Than   | TDD = Total Daily Dose                |
| > = More Than   | <u>TARGET RANGE</u>                   |
| CHO = Carbohydrates   | Blood Glucose = 4-7mmol/l             |
| g = Grams   | Blood Ketones = Less Than 0.6mmol/l   |
| DKA = Diabetic Ketoacidosis<br>(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><b>ACTION</b></p> | <ul style="list-style-type: none"> <li>• If hypo, treat as usual</li> <li>• If experiencing recurrent hypos set TBR for 2 hours at 80% (-20% on <b>Omnipod</b>) and closely monitor - <b>Contact the diabetes team or CED for advice</b></li> <li>• Re-test BG and BK in 2 hours</li> </ul> | <ul style="list-style-type: none"> <li>• If hypo, treat as usual – ketones are present due to starvation ketones. Try and eat/drink 20g CHO</li> <li>• If experiencing recurrent hypos, set TBR at 80% (-20% on <b>Omnipod</b>) for 2 hours – <b>Contact the diabetes team or CED for advice</b></li> <li>• If BG above target and pump suggests a correction bolus administer bolus via pump.</li> <li>• Re-test BG and BK in 2 hours</li> <li>• If BG is still above target and BK 0.6 – 1.5mmol/l, <b>Contact the diabetes team/CED for advice</b> and give correction bolus via pen injection — use the bolus advice on your handset to calculate the dose.</li> <li>• Drink sugar free fluids.</li> </ul> | <ul style="list-style-type: none"> <li>• If hypo, treat as usual – ketones are present due to starvation ketones. Try and eat/drink 20g CHO</li> <li>• If BG above target and pump suggests a correction bolus administer bolus via pump.</li> <li>• Re-test BG and BK after 1 hour</li> <li>• If BG is still above target and BK &gt;1.5mmol/l, <b>Contact the diabetes team/CED for advice</b> and give correction bolus via pen injection – use the bolus advice on your handset to calculate the dose.</li> <li>• Drink sugar free fluids</li> <li>• Change the cannula,</li> </ul> |

## Patient Information

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

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

The Trust has access to interpreting and translation services. If you need this information in another language or format please ask and we will do our best to meet your needs.

The Trust operates a smoke free policy.

To give feedback on this leaflet please email [feedback@uhcw.nhs.uk](mailto:feedback@uhcw.nhs.uk)

### **Document History**

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