Paediatric Diabetes Sick Day Management/ Hyperglycaemia and Ketosis in the Community

(including advice for missed insulin doses and converting from pumps/closed loops to injections)

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Key Amendments

Date	Amendment	Approved by
March 2019	New document	Paediatric QI Meeting
19th Nov 2020	Document extended for 1year	Dr J West/Paediatric QIM
26th March 2021	Document reviewed and approved for 3 years	Paediatric Guideline Review meeting
15th May 2024	Section on hybrid closed loop systems added	Paediatric Guideline Review meeting

Contents

Introduction

This guideline is aimed at giving consistent advice to families of children and young people with Diabetes. It is used by the Paediatric Diabetes Specialist Nurses (PSDN's) in the community and other members of the diabetes team. It is also for use by the medical staff on Riverbank Ward at Worcestershire Royal Hospital for out-of-hours advice when the diabetes team members are unavailable and may also be used by Orchard Service if the individual has the appropriate skills.

The Paediatric Diabetes Specialist Nurses in Worcester, Kidderminster and Redditch work Monday to Friday and are covered by nursing colleagues in periods of absence for telephone support only. Support from Orchard service on discharge may be required, mainly for newly diagnosed patients.

When out of hours advice is given, please email the diabetes team to ensure prompt follow-up occurs on the next working day.

Home management of illness, hyperglycaemia and ketosis involves parents in the care of a potentially serious condition; the Paediatric Diabetes Team must have a good understanding of the family's ability to manage this at home. Treatment of any underlying illness should be the same as for a child without diabetes.

It is essential that the family can obtain help and support when needed and that the Team can maintain regular contact through the day if necessary.

Parents will have written information on how to manage illness episodes and are advised ***never to omit insulin***. They are encouraged to make early contact with the Team for advice and also advised to increase blood glucose monitoring, to test blood for ketones, rest if ketones are present and to drink plenty of fluids.

Competencies Required

Paediatric Diabetes Specialist Nurse / Orchard Service Nurse with appropriate qualification or experience in diabetes.
Ward nursing staff with appropriate experience in diabetes.
Evidence of attendance at diabetes update days.
Paediatric Medical staff.

Patients Covered

Children and young people with diabetes across Worcestershire County.

Open access and referral to Riverbank Ward

Parents are always advised to contact the Paediatric Diabetes Specialist Nurse or, out-of-hours, the ward when their child becomes ill to seek early advice on insulin adjustment. However, they are encouraged to do so **IMMEDIATELY** when their child complains of:

- Polyuria and/or thirst.
- Abdominal pain, nausea and vomiting.
- Blood glucose is 14mmol/l or over, blood ketones are above 0.6 mmol/l and they are unsure what to do.

Hospital referral should be made if:

- Fluids are not tolerated or there is regular vomiting/hypoglycaemia.
- Blood ketones above 1.5 mmol/l or large urine ketones are not improving after 4-6 hours of home advice.
- Blood glucose continues to rise despite giving extra insulin.
- Parents or the Paediatric Diabetes Specialist Nurse are not happy to continue home management.
- The child is getting dehydrated (vomiting, not drinking, not passing urine, dry lips, and sunken eyes).
- There is any change in the child's response/conscious level or respirations.
- On admission to hospital, the oncall consultant paediatrician should be contacted if the Paediatric Registrar is unable to advise.

Insulin Requirements

In illness, a high blood glucose level, with or without ketones, is an indication of a need for more insulin due to a stress hormone response and increased insulin resistance, which can be given as Actrapid, Humalin S, Humalog, Apidra or NovoRapid. Careful monitoring to reduce blood glucose levels and ketones are required to prevent ketoacidosis and hospital admission.

Patients have the facility to monitor blood ketone levels. Blood ketone testing is preferable as it can provide a more accurate picture of ketosis to base treatment decisions on and will normalise much more quickly after appropriate treatment. Testing ketone levels can therefore potentially prevent hospital admissions and late hypoglycaemia due to over treatment.

- Extra insulin required can be worked out by giving 0.1 units/kg or identifying the child's total daily dose (TDD) of insulin which should be documented on their last clinic letter on CLIP. To calculate the TDD, add up **all** the doses of insulin over the day but **do not** include any extra given to treat hyperglycaemia. An extra percentage of the total daily dose can then be given dependant on ketone and blood glucose levels as **shown in the summary table on page 7 of this document.**

- A blood glucose level of 14 mmol/l or above with or without ketones can indicate a lack of insulin. A normal or low blood glucose level with ketones (usually below 3 mmol/l) indicates starvation ketones.

- Ketone levels may increase slightly (10-20%) within the first hour after giving extra insulin but after this period they should decrease.

- If the child is not eating or vomiting and blood glucose is below 14 mmol/l then glucose drinks will be required as discussed below.

- When a child is in the "**Honeymoon or Remission Phase**" and unwell there may be a need to increase insulin doses from 0.5 u/kg per day to 1 unit/kg per day very quickly.

- For those **children with low dosage requirements or adolescents with insulin resistance** calculate extra insulin requirements using the total daily dose and percentage method.

Dietary Management

Dehydration can be caused by hyperglycaemia, fever, excessive glycosuria and ketosis. During illness, dietary requirements remain unchanged but, owing to nausea or loss of appetite may need to be given in liquid or light diet form and spread out through the day. If not eating, starvation ketones can be produced when there is a low to normal blood glucose level so it will be important to replace the carbohydrate.

- Examples of alternatives are jelly (not sugar free), fruit juice or fruit smoothies made with yogurt or ice-cream.

- As a guide, approximately 10g of sugary carbohydrate should be given as 100ml Cola/Ribena, 60ml of Lucozade Energy, 2 teaspoons of sugar in a drink, 3 Dextrosol tablets or the equivalent every 45 minutes until more starchy alternatives are tolerated. Parents soon learn what suits their child in this situation.

Extra fluids are also required and should be given as water or no added sugar squash on top of replacement carbohydrate. Dioralyte or an equivalent electrolyte solution should be considered if at risk of dehydration. As soon as fluids are well tolerated a light diet should be introduced. If not tolerating diet by the evening, parents need to monitor blood glucose levels 1-2 hourly through the night.

Diarrhoea and Vomiting

Vomiting can be caused by the illness itself e.g. gastroenteritis, hypoglycaemia or from ketosis.

Malabsorption during episodes of sickness and diarrhoea may lead to a fall in blood glucose levels and there is often difficulty in maintaining adequate carbohydrate intake and hydration. These problems may lead to the need for reduction in the insulin dosage.

- The amount of insulin reduction will depend on the degree of hypoglycaemia, vomiting and/or diarrhoea. Two to four hourly blood glucose monitoring is essential to assess control so that the insulin dosage can be returned to normal as soon as the blood glucose levels begin to rise.

- Insulin doses can be reduced by 20% - 50%, depending on the overall picture, in many cases. Most children with gastroenteritis need to have their insulin dosage reduced by 25%. Some need a bigger reduction and only a few need less.

- Check ketone levels regularly to ensure the child is taking sufficient carbohydrate to prevent starvation ketones if the blood glucose level is low to normal.

- If hypoglycaemia occurs due to diarrhoea and vomiting, sugary carbohydrate should be given as 60ml Lucozade Energy, 100ml Cola/Ribena, 2 teaspoons of sugar in a drink, 3 Dextrosol tablets or the equivalent every 45 minutes until more starchy alternatives are tolerated. Parents soon learn what suits their child in this situation.

- Any extra fluids should be given as water or no added sugar squash on top of replacement carbohydrate. Dioralyte or an equivalent electrolyte solution should be

considered if at risk of dehydration. As soon as fluids are well tolerated a light diet should be introduced. If not tolerating diet by the evening, parents need to monitor blood glucose 1-2 hourly through the night.

- The child should be admitted to the ward if at risk of dehydration, or parents are unable to manage hypoglycaemia safely at home.

- Children can sometimes remain hypersensitive to insulin for a while after the illness has subsided, so it is not unusual to require reduced doses for some time after the event.

Forgotten / Missed Insulin Doses

Basal Bolus

NovoRapid/Humalog/Apidra should be given as soon as possible when the missed dose is realised. Insulin should be given for the carbohydrate eaten only i.e. not a correction dose as well. If the next meal is imminent, an injection can be given including a correction dose for any hyperglycaemia and carbohydrate intake to be consumed at the next meal (should be given more than 15 minutes before food intake).

Lantus/Levemir can be given as soon the missed dose is realised. It may be necessary to adjust the timing of the next day injection if a delay of more than 2 hours has occurred (to prevent hypoglycaemia caused by the 2 doses overlapping). If usually given in an evening and injection has been missed overnight, give 2/3 of normal dose that morning. Hyperglycaemia can be corrected using fast acting insulin at each mealtime throughout the day. Normal insulin doses can then be resumed that evening.

Tresiba can be given as soon the missed dose is realised. If usually given in the evening and injection has been missed overnight, give the full dose the following morning. Hyperglycaemia can be corrected using fast acting insulin at each mealtime throughout the day. As long as it has been at least 8 hours since the morning dose of Tresiba, normal insulin doses can then be resumed that same evening.

Follow-up Routine

Parents must be aware that they may bring their child to the ward at any time after discussion with the medical staff if they are struggling to cope or if they are unhappy about their child's condition.

1. The PDSN or Medical staff out-of-hours must maintain frequent contact with the family to ensure the episode is resolving safely.

2. Parents must monitor blood glucose and test for ketones frequently.

3. Parents must be given clear guidelines about when emergency contact may be necessary.

4. During the night extra blood glucose tests may be necessary.

5. Support and frequent contacts should continue until the blood glucose levels are more settled.

6. The PDSN/medical staff must assess the cause of hyperglycaemia/ketones to aid further treatment and education needs:

- Illness - need to contact GP
- Omitted or incorrect dose of insulin
- Rebound hyperglycaemia from a hypoglycaemic episode
- Recent poor control/poor injection sites
- Incorrect dietary management
- Incorrectly stored/out of date insulin

Illness Hyperglycaemia and Ketone Management on Basal Bolus Insulin Regimen

Extra insulin required can be worked out by giving 0.1 units/kg or identifying the child's total daily dose (TDD) of insulin which should be documented on their last clinic letter on CLIP. To calculate the TDD, add up all the doses of insulin over the day but do not include any extra given to treat hyperglycaemia. An extra percentage of the total daily dose can then be given dependant on ketone and blood glucose levels as shown in the summary table on page 7 of this document. Most parents with a child on a multiple injection regimen will be used to correcting high blood glucose levels by using their child's insulin sensitivity factor as a matter of course, however they may need support in increasing this amount during illness.

Paediatric Diabetes		**Table 1: Sick day advice summary and how to calculate extra insulin required**				
Ketones		**Blood Glucose (BG)**				
Blood Ketones mmol/l	Urine Ketones	<5.5 mmol/l	5.6 – 9.9mmol/l	10 – 14.9mmol/l	15 – 22.9mmol/l	> 23mmol/l
<0.6	Negative/ Trace	Do not give extra insulin. May need 25% less insulin	No action	Increase next dose of insulin if BG is still elevated by 5% of TDD or 0.05U/kg	Give extra 5% of TDD or 0.05 U/kg. Repeat 4 hourly if needed Check BG & ketones 2 hourly	Give extra 10% of TDD or 0.1U/kg Repeat dose 4 hourly if needed Check BG & ketones 2 hourly
0.7 – 0.9	Trace/Small	Starvation ketones Extra Carbohydrates & fluids needed	Starvation ketones Extra carbohydrates and fluids needed	Give extra 5% of TDD or 0.05 U/kg. Repeat 4 hourly if needed Check BG & ketones 2 hourly	Give extra 5-10% of TDD or 0.05 - 0.1U/kg. Repeat 4 hourly if needed Check BG & ketones 2 hourly	Give extra 10% of TDD or 0.1U/kg Repeat dose 4 hourly if needed Check BG & ketones 2 hourly
1.0 – 1.4	Small/ Moderate	Starvation Ketones Extra carbohydrates & fluids needed	Starvation ketones Extra carbohydrates and fluids needed Give usual next dose of insulin.	Extra carbohydrates & fluids needed Give extra 5-10% of TDD or0.05 - 0.1U/kg 4 hourly if needed Check BG & ketones 2 hourly	Give extra 10% of TDD or 0.1U/kg Repeat 4 hourly if needed Check BG & ketones 2 hourly	Give extra 10% of TDD or 0.1U/kg Repeat dose 4 hourly if needed Check BG & ketones 2 hourly Advise family to re contact if no improvement
1.5 – 2.9	Moderate/ Large	High levels of starvation ketones Extra carbohydrates & fluids needed Recheck BG & ketones 2 hourly	High levels of starvation ketones Extra carbohydrates & fluids needed. Give 5% of TDD or 0.05 U/kg. Recheck BG & ketones 2 hourly	Extra carbohydrates & fluids needed Give extra 10% of TDD or 0.1U/kg 4 hourly if needed Check BG & ketones 2 hourly	Give extra 10% - 20% of TDD or 0.1U/kg - 0.2U/kg Check BG & ketones 2 hourly Repeat dose after 2 hours if ketones do not decrease	Give extra 10% - 20% of TDD or 0.1 U/kg - 0.2U/kg Check BG & ketones 2 hourly If no improvement & ketones have not decreased at 2 hourly review , consider inpatient treatment for DKA
> 3.0	Large	Very high levels of starvation ketones. Recheck BG & ketones 2 hourly Extra carbohydrates & fluids needed	Very high levels of starvation ketones Extra carbohydrates & fluids needed. Give 5% of TDD or 0.05 U/kg. Recheck BG & ketones 2hourly	Extra carbohydrates & fluids needed Give extra 10% of TDD or 0.1U/kg 4 hourly if needed Check BG & ketones hourly	Give extra 10% -20% of TDD or 0.1U/kg - 0.2U/kg Check BG & ketones 1 hourly. If ketones do not decrease consider inpatient treatment for DKA	Give extra 10% - 20% of TDD or 0.1U/kg - 0.2U/kg Check BG & ketones hourly. If no improvement & ketones have not decreased at hourly review, consider inpatient treatment for DKA.
		There is an immediate risk of ketoacidosis if the blood ketone level is >3.0mmol/l. Insulin treatment needed urgently. **If persistent symptoms after 4-6 hours of advice patient should be reviewed on the ward.** **May need intravenous fluids if child cannot eat or drink.**				

1. TDD = Total daily dose. To calculate add up all insulin doses given on a usual day – do not include extra boluses given for hyperglycaemia
2. High BG & elevated ketones indicate a lack of insulin. Starvation blood ketones are usually below 3.0mmol/l
3. Extra insulin is preferably given as rapid acting insulin analogue or short acting.
4. If child vomiting/not eating and BG is below 10-14.9 mmol/l, they must drink glucose containing fluids every 45 min (see main policy) in between extra sugar free fluids for hydration
5. Ketone level may increase slightly (10-20%) within the first hour after giving extra insulin but after this period they should decrease

Illness Hyperglycaemia and Ketone Management on an Insulin Pump

An insulin pump uses rapid acting analogue insulin and will be set to deliver a basal rate over 24 hours to suit the individual. At times of carbohydrate consumption, the child will give a bolus using their insulin to carbohydrate ratio to work out how much is needed, for example many will start on 1 unit of insulin for 10g carbohydrate.

The key points for management are the same for pump users as for those on injections. However, because there is no depot of long-acting insulin there is an increased risk of diabetic ketoacidosis if hyperglycaemia and/or ketones are not dealt with promptly.

If the blood glucose level is above 14 mmol/l for any reason, then pump users and medical staff should **use the table on page 9 for advice on doses.** To aid and simplify self-management skills in managing hyperglycaemia, the table of advice uses the young person's normal corrections set into the pump, but then considers also increasing the basal rate temporarily. All families will be able to set up a temporary basal rate.

Blood Glucose	Less than 0.6mmol/l ketones	0.6 – 1.4mmol/l ketones	1.5mmol/l ketones & above
4-5.5mmol/l ***Top tip**: Starvation ketones can occur with a normal blood glucose if not eating enough*	Encourage normal food or carbohydrate alternative with insulin bolus **BY PUMP** as per normal ratios. Encourage sugar free fluids hourly. If experiencing recurrent hypos, set a decreased temporary basal rate for 4-6 hours (20-50% less than usual) and review further if necessary. Seek advice if any vomiting persists or there is difficulty maintaining blood glucose above 4mmol/l.	Encourage normal food or carbohydrate alternative with insulin bolus **BY PUMP** as per normal ratios using bolus calculator on the pump. Encourage sugar free fluids hourly. Re-check glucose & ketones after 2 hours. Repeat steps above if unchanged. If remains unchanged after 4 hours, seek advice.	Encourage normal food or carbohydrate alternative as mentioned with insulin bolus **BY PUMP** as per normal ratios using bolus calculator on the pump. Encourage sugar free fluids hourly. Re-check glucose & ketones after 2 hours. If remains unchanged after 4 hours, seek advice.
5.5-10mmol/l ***Top tip**: Starvation ketones can occur with a normal blood glucose if not eating enough*	Encourage normal food or carbohydrate alternative with insulin bolus **BY PUMP** as per normal ratios. Encourage sugar free fluids hourly. Re-check glucose & ketones after 2 hours. Repeat steps above, if unchanged. If still remains unchanged after 4 hours seek advice.	Normal food or carbohydrate alternative as mentioned with insulin bolus **BY PUMP** as per normal ratios & correction. Encourage sugar free fluids hourly. Re-check glucose & ketones 2 hours. Repeat steps above again. If no improvement after 4 hours seek advice.	Normal food or carbohydrate alternative with insulin bolus **BY PUMP** as per normal ratios & correction. Encourage sugar free fluids hourly. Re-check glucose & ketones after 2 hours. If no improvement – consider changing the cannula. Seek advice.
10-14mmol/l ***Top tip:** If ketones present make sure you rest until they have gone.*	Normal food or carbohydrate alternative with insulin bolus **BY PUMP** as per normal ratios & sensitivity using bolus calculator on the pump. Encourage sugar free fluids hourly. Re check blood glucose and ketones after 2 hours. Repeat steps above if unchanged. If remains unchanged after 4 hours seek advice.	Normal food or carbohydrate alternative with insulin bolus **BY PUMP** as per normal ratios & correction. Encourage sugar free fluids hourly. Re-check glucose & ketones in 2 hours. If no improvement, take a correction dose of insulin as per normal ratio & sensitivity **BY INJECTION** immediately. Change infusion set. Put an increased temporary basal rate in place for 2 hours at 150% if on Medtronic, +50% if on Omnipod (switch to manual mode). Re check blood glucose and ketones after 2 hours. If no improvement – seek advice.	Take a correction dose of insulin as per normal ratio & sensitivity **BY INJECTION** immediately. Change infusion set. Put on an increased temporary basal rate for 4 hours at 200% if on Medtronic, +95% if on Omnipod (switch to manual mode). Encourage sugar free fluids hourly. Re check blood glucose and ketones after 2 hours. **If no improvement seek urgent medical advice**.
Above 14mmol/l **Top tip:** *Never ignore any pump alarms, always check them out and deal with them immediately*	Trouble shoot and resolve any problem with the reservoir, infusion set, site, pump and insulin. Insulin bolus as per normal ratios & sensitivity **BY PUMP** using bolus calculator on the pump. Encourage sugar free fluids hourly. Re check blood glucose and ketones after 2 hours. If no improvement in glucose/ ketones after 2 hours consider changing infusion set, seek advice.	Take a correction dose of insulin as per normal ratio & sensitivity **BY INJECTION** immediately. Change infusion set. Put an increased temporary basal rate on for 2 hours at 200% if on Medtronic, +95% if on Omnipod (switch to manual mode). Encourage sugar free fluids hourly. Re-check blood glucose and ketones after 2 hours. **If no improvement seek urgent medical advice.**	Take a correction dose of insulin as per normal ratio & sensitivity **BY INJECTION** immediately. Change infusion set. Put on an increased temporary basal rate for 4 hours at 200% if on Medtronic, +95% if on Omnipod (switch to manual mode).. Encourage sugar free fluids hourly. Re check blood glucose and ketones after 2 hours. **If no improvement seek urgent medical advice.** If ketones have improved but still present, repeat correction dose as **INJECTION** and recheck after a further 2 hours

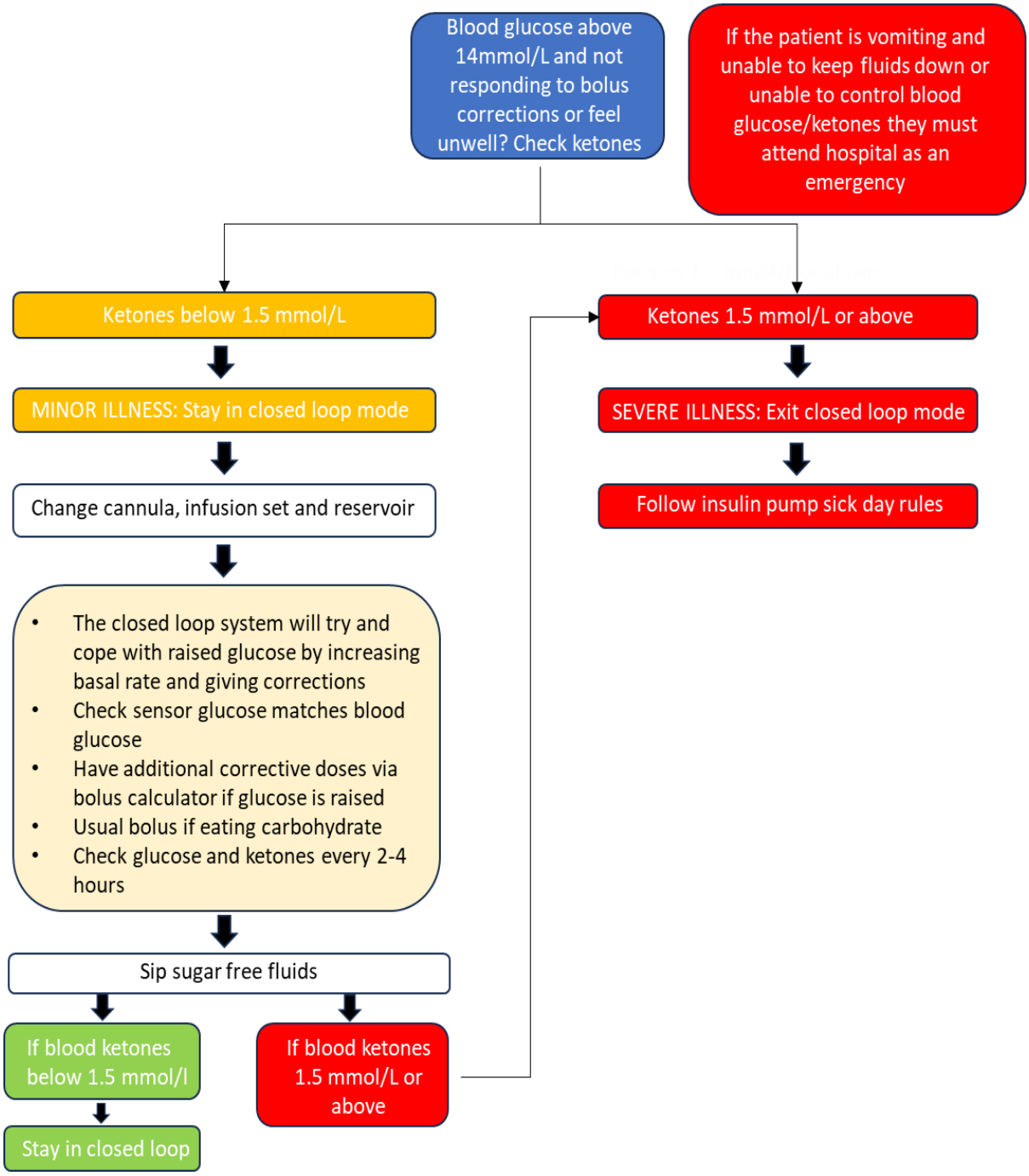
Illness Hyperglycaemia and Ketone Management on a Hybrid Closed Loop System

An insulin pump, as part of a hybrid closed loop system (in automode), automatically adjusts the basal insulin rate and gives correction doses based on the information on glucose level and trends sent from the continuous glucose monitor. At times of carbohydrate consumption, the child will give an insulin bolus using their insulin to carbohydrate ratio to work out how much is needed.

As per patients using an insulin pump, those using a closed loop system are also at an increased risk of developing diabetic ketoacidosis if hyperglycaemia and/or ketones are not dealt with promptly due to the lack of long-acting insulin.

If glucose levels are too high and the closed loop system is not able to bring them down whilst in automode, the pump will revert to manual mode where the pump will run based on programmed basal rates and the user needs to give insulin boluses for carbohydrates consumed and correction doses. Patients' manual basal rates will be regularly reviewed in clinic to ensure they are up to date. If the glucose levels are high and the ketone levels are increasing, then patients will need to exit automode (the closed loop system) into manual mode and follow insulin pump sick day rules guidance. **Please see the flow chart on page 11 and sick day rules for insulin pump users on page 10.**

Flow chart for patients on a Hybrid Closed Loop System



Re-enter closed loop when:

- Blood glucose/sensor glucose levels are stable
- Ketone levels are in the normal range
- Temporary basal rate no longer required
- It has been more than 4 hours since the last correction dose via a pen

Patients with hypoglycaemia during illness using a closed loop system

If a patient is having episodes of hypoglycaemia, such as during diarrhoea and vomiting, whilst on a closed loop system, they can put their pump on exercise/activity mode. This means the pump will aim for a higher target glucose level.

If glucose level <5.6 mmol/l, use exercise mode:

- **Omnipod 5:** target glucose level 8.3 mmol/l
- **Medtronic 780G:** temp target 8.3 mmol/l
- **T:slim:** target level 6.1mmol/l but reduces basal insulin at levels below 6.7 mmol/l and suspends basal insulin at 4.4 mmol/l

Converting back to multiple daily injections (MDI) from insulin pump therapy

Patients may need to convert back to MDI if the pump fails, is lost or they have no infusion sets.

To convert back safely follow these steps:

1. Work out total **daily basal** insulin by adding up the last 7 days basal insulin doses, then divide by 7.

2. To find the daily basal insulin:

   MEDTRONIC PUMP: Menu- History- Summary- 7 days – press back button to find basal amount for last 7 days as above.

   TANDEM T:SLIM: Options – History – Pump History – Total Daily Dose

   OMNIPOD: Menu – History - Insulin & BG History - read basal amount for day, scroll back to find previous days.

3. Now multiply the average basal insulin dose by 1.25. This will be the long-acting insulin (Tresiba, Levemir or Lantus) dose whilst on injections

All rapid/food/meal insulin should be calculated using the same insulin:carbohydrate ratios and correction doses that were set up on the pump.

Converting back to an insulin pump from injections

Starting back on to the pump after using MDI requires planning, taking into account the background insulin and the possible need for a temporary basal rate.

ALWAYS START BACK ON THE PUMP IN THE MORNING

If the patient needs to troubleshoot or test more often, they will be able to do this without difficulty during the day.

If they usually inject their Tresiba/Lantus/Levemir once per day in the morning:

- miss out/do not give the morning background insulin.
- have the usual rapid acting insulin for carbohydrates consumption and any corrections needed.
- NO temporary basal rate is required.

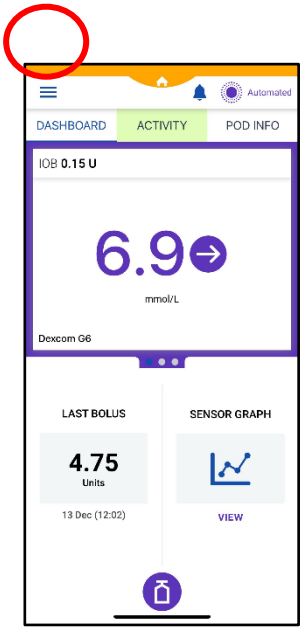
If they usually inject their Tresiba/Lantus/Levemir once per day at night:

- reduce the total dose of long-acting injected insulin by **50%** the night before.
- have the usual rapid acting insulin for carbohydrates consumption and any corrections needed.
- put a temporary basal rate on for the first 8 hours of 50%.

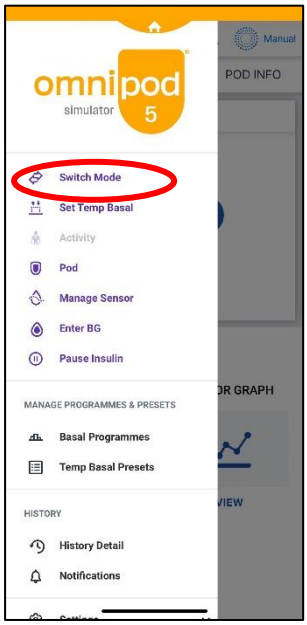
How to Exit Closed-Loop on Insulin Pump Therapy systems

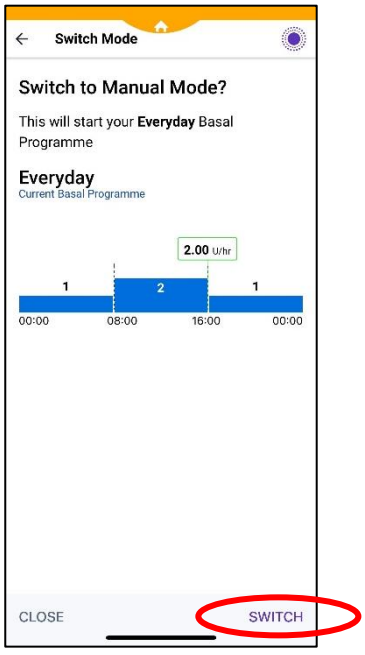
Omnipod 5

Open up PDM and once on the home screen, click the three lines in the top left-hand corner.

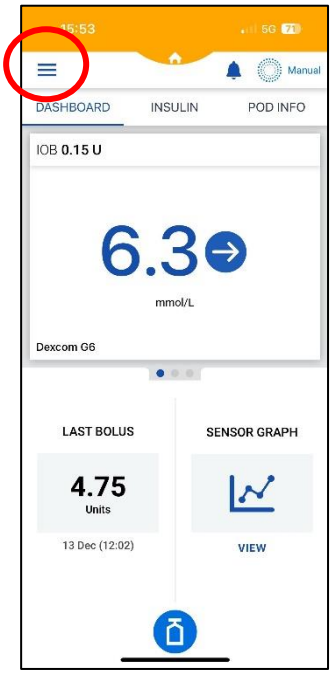


Click “switch mode” and confirm you want to switch into manual mode by clicking “switch”. This will put the pump into manual mode.

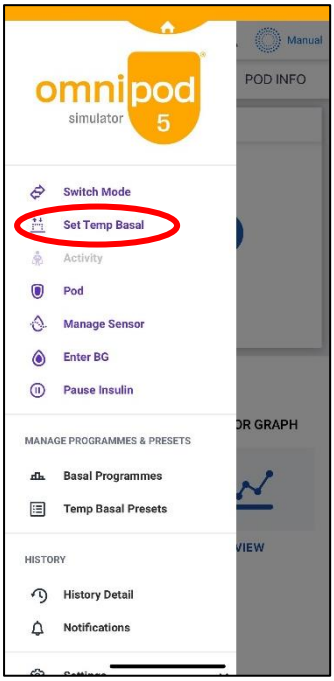


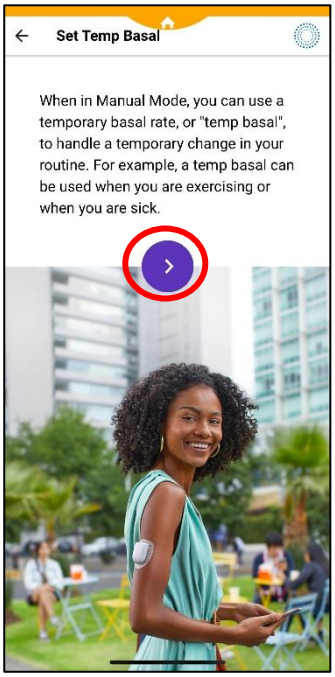


Once in Manual mode, go back into the three lines in the top left-hand corner to open the drop down bar.

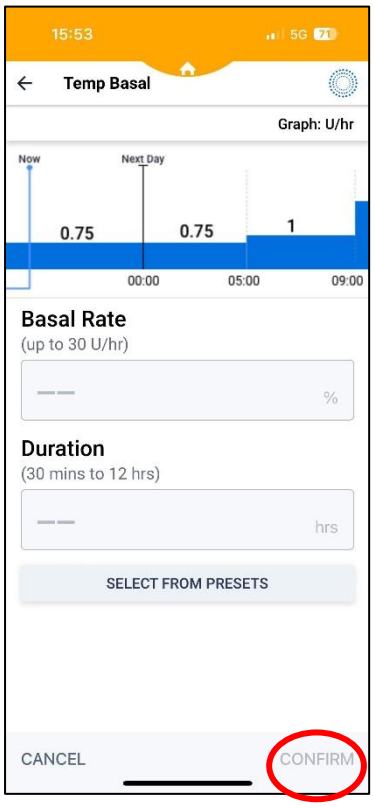


Click “Set Temp Basal” and click the next arrow.



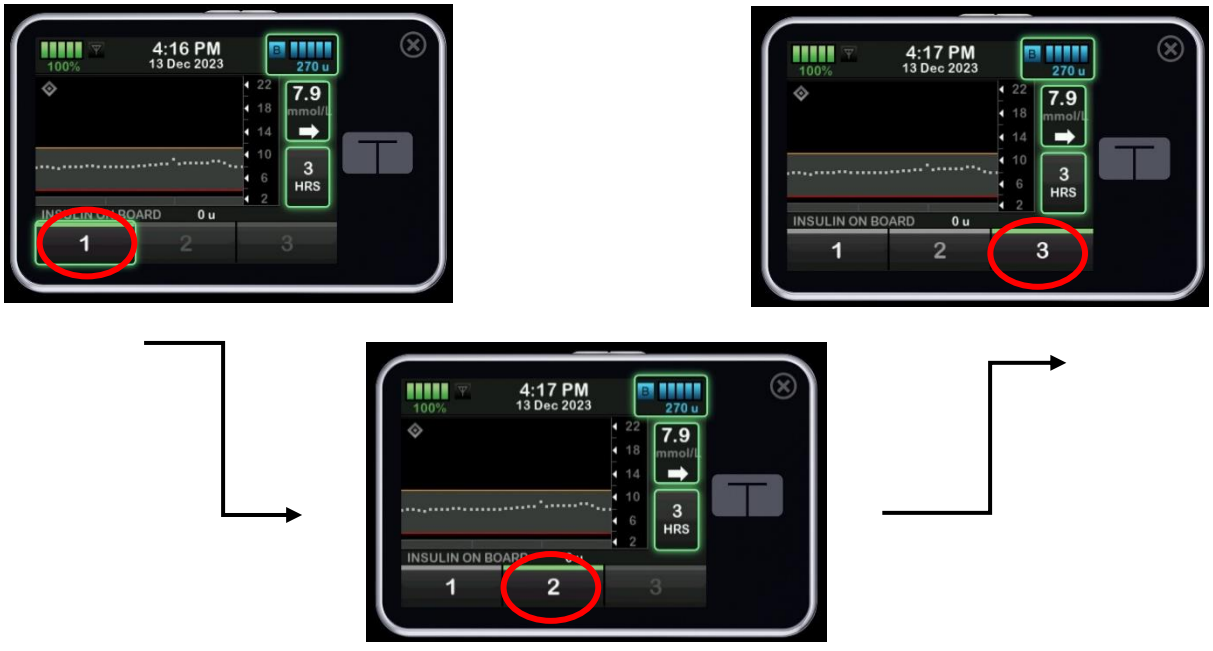


Set Basal rate and duration based on 'Sick day rules' guidelines and click "Confirm".



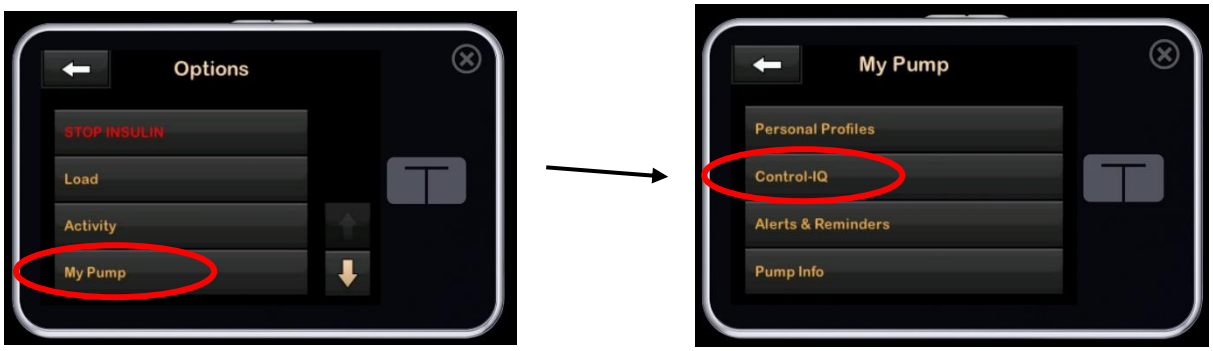
Tandem T:Slim

Open up the pump using the 1-2-3 step sequence.

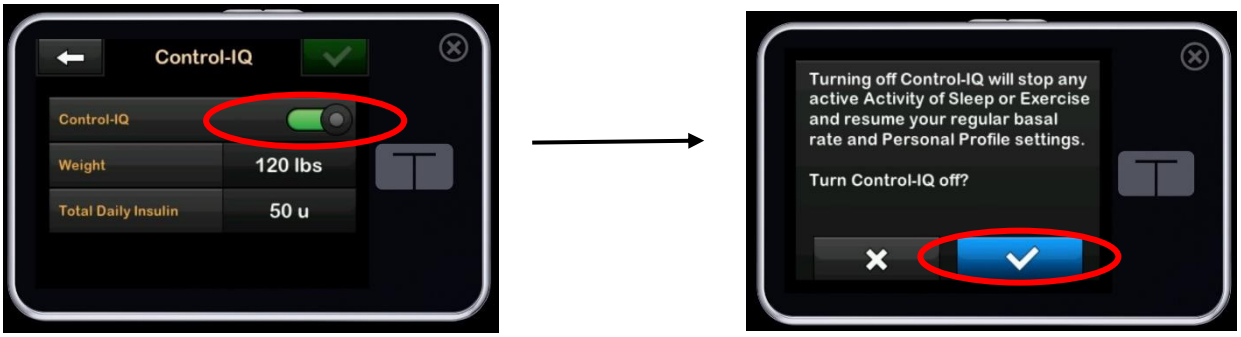


This will open up the home screen. From here click on the Options tab.

From here, Click onto “My Pump” and then “Control IQ”.



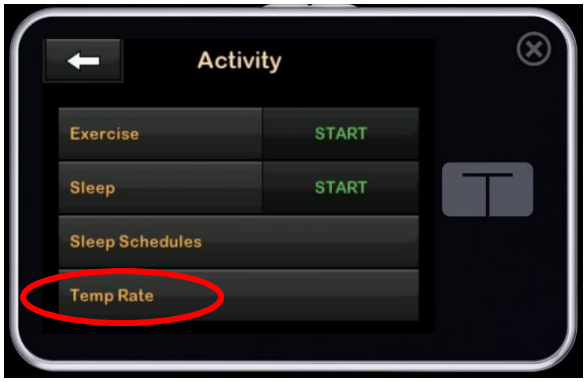
Then, click the green toggle off and a confirmation screen will appear, click the blue tick.



The green toggle will then go grey/dark to indicate it is off.

Then go back onto the first options bar and click Activity:

Then Click “Temp Rate” and input temp basal rate and the duration based on ‘Sick day rules’ guidelines. Then click the Blue Tick to confirm changes.



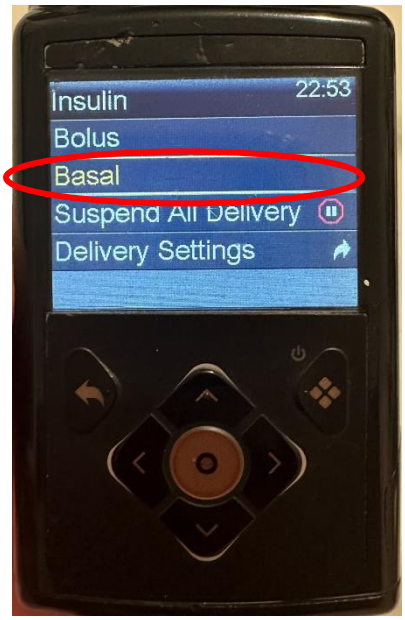
Medtronic 780G

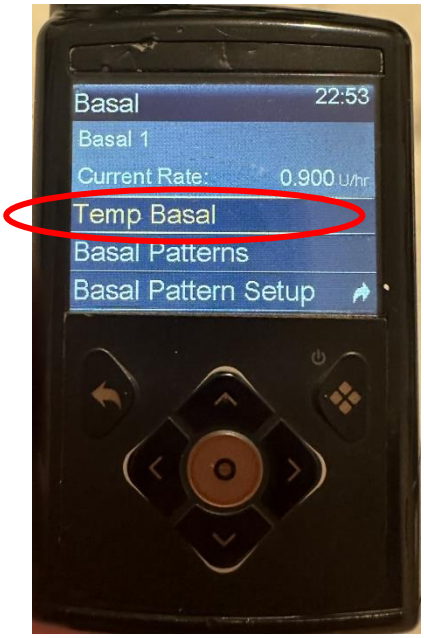
Open up the pump and click the middle circular button to bring up the home screen. Following this, click on the “Smart guard Icon” and Turn OFF Smart guard; This exits closed loop.

Confirm that you want to turn Smart Guard off by clicking “Yes” and you will see that Smart guard has been turned off as it has turned from green to black.

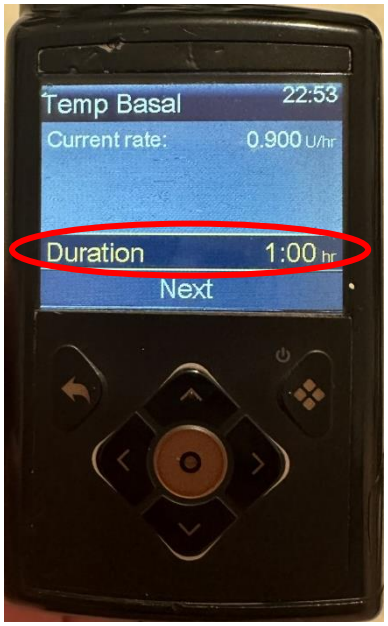
Once Smart guard has been turned off, go back onto the main menu by clicking the back arrow key. Once on the main menu, go into the “insulin” tab.

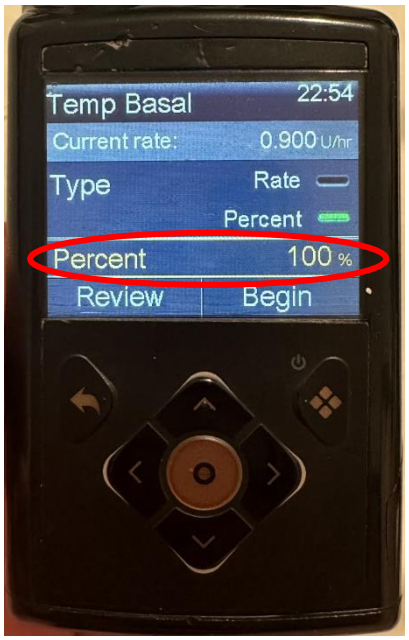
Once in the Insulin tab, go into “Basal” and click “Temp Basal”.

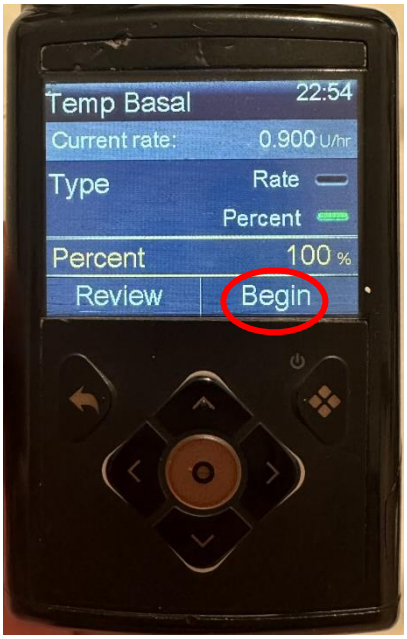




Once in the “Temp Basal” tab, change the percentage of increased basal based on ‘Sick day rules’ guidelines, and the duration. Then click “Begin”.







Monitoring and Compliance

This section should identify how the Trusts plan to monitor compliance with and the effectiveness of this Treatment pathway. It should include auditable standards and/or key performance indicators (KPIs) and details on the methods for monitoring compliance.

WHAT?	HOW?	WHO?	WHERE?	WHEN?
These are the 'key' parts of the process that we are relying on to manage risk.	*What are we going to do to make sure the key parts of the process we have identified are being followed?*	*Who is responsible for the check?*	*Who will receive the monitoring results?*	*Set achievable frequencies.*
The management of type 1 diabetes in children and young people	Submit data to the National Paediatric Diabetes Audit	Dr James West	The paediatric multidisciplinary diabetes team and the paediatric department. The CCG's.	Annually
The management of diabetic ketoacidosis in children and young people	Submit data to the West Midlands Paediatric Diabetes Network DKA audit when requested. If not regularly requested a local audit will be performed.	Dr James West and Dr Naeem Ahmad	The paediatric multidisciplinary diabetes team and the paediatric department.	Annually
Paediatric & adolescent diabetes transitional care	Submit data to the West Midlands Paediatric Diabetes Network transition audit when requested. If not regularly requested a local audit will be performed.	Dr James West	The paediatric multidisciplinary diabetes team and the paediatric department.	Every 2 years