

## Sick day rules for patients on an insulin pump: how to manage type 1 diabetes if you become unwell with coronavirus

If you become unwell with coronavirus and require advice specifically for coronavirus, please refer to the following websites:

- Diabetes UK [https://www.diabetes.org.uk/about\\_us/news/coronavirus](https://www.diabetes.org.uk/about_us/news/coronavirus)
- JDRF <https://www.jdrf.org/coronavirus/>
- NHS <https://www.nhs.uk/conditions/coronavirus-covid-19/>

**If you are unable to follow sick day rules or need further help, please telephone your local diabetes team.**

Please note: to follow this advice, it is important you know your most recent weight in kilograms or your total daily dose of insulin so that you can give the correct insulin dose to correct ketones. It would be useful to do know the 10% and 20% of the TDD beforehand so that you know what to do if you become unwell.

**Supplies you need access to at all times (as part of your kit box if you have one):**

Please ensure you have access to following at all times, not just when you are unwell.

- 1-month supply of all insulin cartridges
- Ensure you have access to alternative means of insulin delivery – pens or syringes. You should have access to long acting and quick acting insulin to use in case of pump failure
- Blood glucose meter with 1-month supply of test sticks/strips and lancets – check the sticks/strips/lancets have not expired
- If you use continuous or flash glucose monitoring systems (Dexcom/Freestyle Libre) ensure you have access to back up blood glucose meter and test strips
- Ketone test kits – either urine or blood – check the ketone test strips have not expired

## 1. If you become unwell

- **If you develop Coronavirus symptoms or any other illness it is likely to affect your blood sugars**
- **While you are unwell it is VERY likely you will need to take more insulin**
- **Even if you are vomiting you must NEVER stop taking your insulin**
- Monitor your urine or blood for ketones every 2 hours
- Monitor blood sugar levels every 2 hours
- Drink at least ½ cup (100mls) of water every hour, but you can also drink any other sugar free drinks
- Please do not fast. Try to eat some food which contains carbohydrates e.g. yoghurt, toast, ice cream and cereal
- If you are worried about other symptoms not related to your diabetes, please seek medical advice from NHS 111 in the first instance
- **You will need face to face medical attention if you are continuously vomiting for more than 4-6hrs or if your ketone levels in blood or urine are not reducing despite following sick day rules**

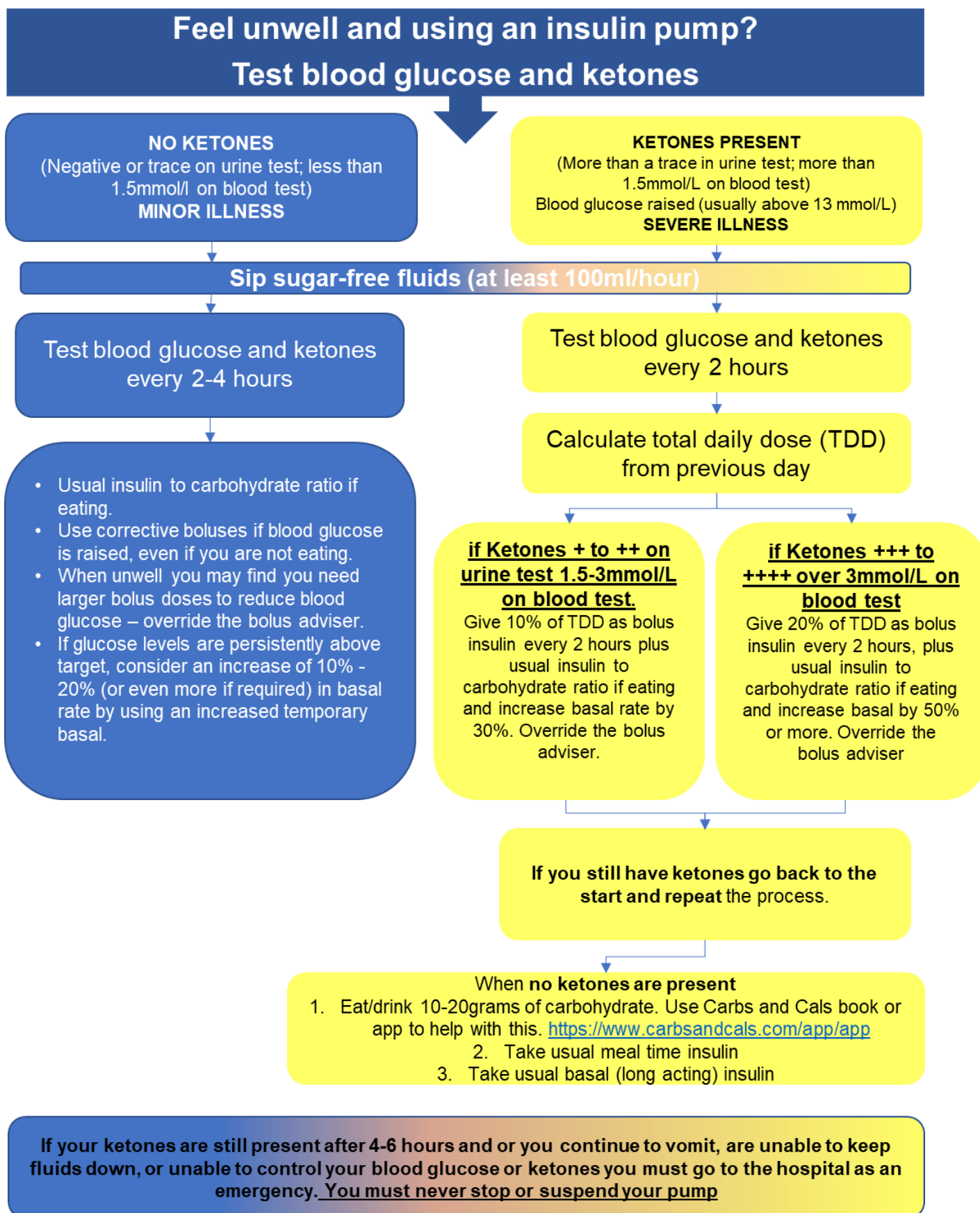
## 2. Management of unexplained hyperglycaemia

- Check blood glucose in two hours – if no change or glucose is higher, take correction dose of rapid acting insulin with a pen and check for ketones
- Change infusion set and reservoir (start new pod if using Omnipod® pump)
- Check glucose and ketones in two hours and take a correction bolus via pump if required, check for ketones if glucose still over 13mmol/L
- Follow sick day rules if ketones are present
- **Do not go to sleep:**
  - **with unexplained hyperglycaemia which has not resolved**
  - **or, within two hours of a new set change**

## 3. In the event of insulin pump failure

- The emergency basal insulin dose via pens / syringes would be the same as your total daily basal insulin on the pump (e.g. total basal insulin 20 units on pump – if using Levemir start injections 10 units in the morning & 10 units in the evening, if using Lantus, start 20 units once a day injections)
- Your insulin carbohydrate ratio (for meals) and insulin sensitivity factor (for corrections) would be the same as on the pump
- In the event of pump failure and not being able to access long acting insulin you should check your glucose levels and give an injection of quick acting insulin every 3 hour
- **If you suspect the pump is not administering insulin (pump failure), you should revert back to insulin injections with pens / syringe**

## 4. Insulin pump sick day rules



## 5. Calculating your total daily dose (TDD)

- If you need to calculate how much total daily dose of insulin you need to follow the sick day rules, see EXAMPLE calculations below. Each individual's total daily dose of insulin and calculations will be different, the example is a guide only.

### **Example 1 - if you do know your daily dose**

Total of all quick acting (mealtime) insulin = 26 units  
 Total of all background (long acting) insulin = 24 units  
 Total daily dose = 26+24 = 50 units  
 10% of total daily dose =  $50 \div 10 = 5$  units  
 20% of total daily dose =  $50 \div 5 = 10$  units

### **Example 2 If you cannot calculate your daily dose please use the following chart based on your weight in kilograms**

Body Weight	Ketone level (mmol/L)	
	10% of total daily dose Blood ketone 1-2.9 Urine ketone + to ++	20% of total daily dose Blood ketone 3.0 + Urine ketone +++ to ++++
40(Kg)	4 units	8 units
50(Kg)	5 units	10 units
60(Kg)	6 units	12 units
70(Kg)	7 units	14 units
80(Kg)	8 units	16 units
90(Kg)	9 units	18 units
100+(Kg)	10 units	20 units

**AND IF blood glucose below 5.5 mmol/L - sip sugary drink/glucose regularly**

## 6. Medications

**If you are on any of the following medication you need to stop them when you are sick.** Restart when you are well (normally after 24 to 48 hours of eating and drinking normally). When you restart your medicine, just take them as normal

**ACE inhibitors** – these medicines are used for heart conditions, high blood pressure and for kidney protection. If you are dehydrated, these medicines can stop your kidneys working properly.

- **Examples:** names ending in '*pril*' such as ramipril, lisinopril, perindopril

**ARBs** - these medicines are used for heart conditions, high blood pressure and for kidney protection. If you are dehydrated, these medicines can stop your kidneys working properly.

- **Examples:** names ending in '*sartan*' such as candesartan, irbesartan, losartan, valsartan

**Diuretics** – these medicines are used for excess fluid and high blood pressure and are sometimes called 'water pills'. These medicines can make dehydration more likely.

- **Examples** include bendroflumethiazide, furosemide, indapamide, bumetanide.
- If you are taking more than two tablets a day of either bumetanide or furosemide, please seek medical advice before stopping

**Metformin** – this is a medicine for diabetes. Dehydration can make it more likely that you will develop a serious side effect called lactic acidosis

**GLP-1 analogues** – these are medicines for diabetes. Dehydration can make it more likely that you will develop a serious side effect.

- **Examples** are exenatide, dulaglutide, liraglutide, lixisenatide and semaglutide

**NSAIDs** – these are anti-inflammatory pain killers. If you are dehydrated, these medicines can stop your kidneys working properly.

- **Examples** include ibuprofen, naproxen

**SGLT2 inhibitors** – these are medicines for diabetes. Dehydration can make it more likely that you will develop a serious side effect called ketoacidosis.

- **Examples:** names ending with '*flozin*' such as canagliflozin, dapagliflozin, empagliflozin and ertugliflozin

