

Sick day rules: insulin pen therapy



What happens when you are unwell?

During illness the body releases hormones which cause glucose to be released into the blood stream and increases the blood glucose level. These hormones also make the insulin less effective (insulin resistance).

This high blood glucose level, in combination with the illness, can lead to dehydration. If the body does not receive enough insulin and fluid it will start producing an alternative energy source known as ketones. This can then lead to diabetic ketoacidosis (DKA).

RULE NUMBER 1:

Never stop taking your insulin, even if you are not eating (you may need to adjust the amount of insulin).



RULE NUMBER 2:

Keep checking your blood glucose and ketone levels every 2 hours.



RULE NUMBER 3:

Consider giving additional correction in response to blood glucose and ketones **every 2 hours** if blood glucose is above normal range. See ketone response chart below.



RULE NUMBER 4:

Drink lots of sugar free drinks to keep well-hydrated.



RULE NUMBER 5:

If you cannot eat, replace meals and snacks with quick acting carbohydrate (sugary drinks or usual hypo remedy). It is recommended to give at least 10g of carbohydrate hourly.



RULE NUMBER 6:

Contact the diabetes team for advice if blood glucose is greater than 14 mmol/l and ketones 1.5 mmol/l or higher, or if blood glucose and ketones are not falling.



KETONES GREATER THAN 3MMOL/L SHOULD NOT BE MANAGED AT HOME. SEEK URGENT MEDICAL ADVICE IF YOUR CHILD IS VOMITING.

Ketone response chart

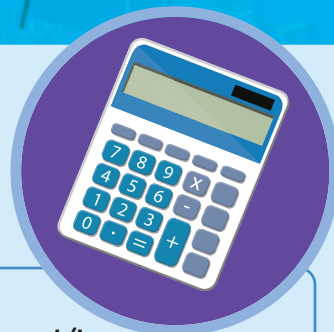
Normal ketones (below 0.6mmol/l)	Moderate ketones (0.6-1.4mmol/l)	High ketones (1.5mmol/l or above)
Give normal correction	Give normal correction plus an extra 10%	Give correction dose plus an extra 20%

When giving a correction dose aim to correct blood glucose to 5mmol/l and keep ketones below 0.6mmol/l

TOP TIPS

- ▶ If ketones are present when blood glucose is low or within normal range, these are called 'starvation ketones' and respond to eating or drinking some carbohydrate
- ▶ Always recheck blood glucose and blood ketones after an insulin correction. Further corrections may be needed
- ▶ CGM and flash monitoring can be useful for looking at trends but during sick day management, finger prick blood glucose should be used

Calculating extra insulin



Below are some examples of how to calculate extra insulin as per the ketone management chart.

Harri's blood glucose is **17 mmol/l** and ketones are **0.5 mmol/l**
His usual correction ratio is **1:3** He corrects his blood glucose to **5mmol/l**

Ketone range: Normal (**below 0.6mmol/l**)
Action required: Normal correction

Total insulin needed: **4 units**

Amira's blood glucose is **25 mmol/l** and ketones are **1.1 mmol/l**
Her usual correction ratio is **1:2** She corrects her blood glucose to **5 mmol/l**

Ketone range: Moderate (**0.6 - 1.4 mmol/l**)
Action required: Normal correction + 10%
Total insulin needed 10 units + additional 10%
10% of 10 = 1

Total dose required **11 units**

Ffion's blood glucose is **HI*** and ketones are **2.0 mmol/l**
Her usual correction ratio is **1:5**. She corrects her blood glucose to **5mmol/l**

Ketone range: High (**1.5 mmols or above**)
Action required: Normal correction + 20%
Total insulin needed 5 units + additional 20%
20% of 5 = 1

Total dose required **6 units**

Practise calculating the extra insulin using your correction ratio

Blood glucose HI and ketones **2.5 mmol/l**

Usual correction ratio **1 unit:** mmol/l

Ketone range Normal/moderate/high

Action required Normal correction/correction + 10%/correction + 20%

Total insulin needed units + additional %

% of =

Total dose required units

TOP TIPS

► *If your meter reads HI, this usually means your blood glucose is greater than 30mmol/l

► When calculating the extra insulin you should round up to the nearest half unit

