

Managing High Blood Glucose Levels when using an Insulin Pump

High blood glucose levels are managed differently with an insulin pump. With injections or pumps there are several reasons why your blood glucose levels can rise such as illness, missed insulin, stress or anxiety. Other things to consider when you are using a pump are: -

- Have you eaten carbohydrate foods and have forgotten a bolus?
- Are your basal rates correct?
- Has your infusion set been in place for longer than 2-3 days?
- Is the cannula site sore or red?
- Is there any air in the tubing?
- Is the reservoir empty?

If your blood glucose levels are 14 mmols/L or above you should do the following: -

- Check your cannula site to ensure that it ok
- Check for ketones in your blood

Blood ketone result	Action	Then
0-0.6mmols	Usual correction by pump. Check pump is still attached and functioning	Re-check blood glucose in 1 hour
More than 0.6	Usual correction by PEN. Check pump is still attached and functioning	Re-check blood glucose in 2 hours
More than 1.5mmols	Correct by pen- use DOUBLE your usual correction. Troubleshoot pump and CHANGE infusion set /POD and site Consider using temporary basal and increase to 130% Ensure you are drinking at least 100mls water/sugar free juice/hour Replace meals with lighter snacks Treat underlying illness If vomiting/abdominal pain seek urgent hep	Re-check blood glucose in 2 hours and if ketones remain above 1.5mmols then continue with correction and increase basal to 160%

Specific Pump Management for Hyperglycaemia (high blood glucose levels)

- **Aggressively manage elevated blood glucose levels during times of illness.** If raised blood glucose levels are allowed to continue diabetic ketoacidosis can develop.
- Correct high blood glucose levels (above 14 m.mols/L) using your usual correction ratio providing you are ketone free.
- If your blood glucose levels are particularly high (even if ketones are not present) you may find that your usual correction ratio will not reduce blood glucose levels as efficiently as it would under normal circumstances.
- Double a calculated correction dose if you have blood ketones of 1.5 m.mols/l or more.
- Using the temporary basal rate increase your basal rate up to 130% and recheck your blood glucose level in 2 hours time. (1 hour if ketones are present in order to ensure blood glucose levels are dropping).
- If there has been no significant improvement in your blood glucose result give the next calculated bolus dose using a pen or syringe and increase the temporary basal rate up to 160%. You are also advised to check pump function and ensure that there is no problem with the infusion set. Change your cannula into a different site.
- Continue to correct high blood glucose levels and further increase the basal rate in 30% increments on a 2 hourly basis until blood glucose targets are achieved.
- Once your illness starts to resolve blood glucose levels will begin to drop. When blood glucose trends are generally 4-5 m.mol/L reduce the basal rate by 30% providing that the result was not preceded by the administration of a correction dose within the last 2 hours. Continue to do this in 30% increments in response to blood glucose trends until you have returned back to your usual basal rate.
- Keep well hydrated. Try to identify cause of high blood glucose level and seek treatment if necessary.
- Contact diabetes team if high glucose and ketones levels persist.
- Contact GP/Accident and Emergency Dept/NHS 24 if you are vomiting as dehydration may occur.