Guidelines for Treatment of Hyperglycaemia (High Blood Glucose Level)

Causes, Prevention and Treatment of Hyperglycaemia

High blood glucose levels and ketones occur when there is very little or no insulin in the body. This can lead to diabetic ketoacidosis (DKA), a serious medical problem that requires hospital treatment. The lack of insulin in the body can occur when an insulin dose is missed, you have a growth spurt, when you are ill or have an infection that usually require more insulin. Insulin helps glucose leave the blood stream and enter the cells for energy. A lack of insulin means glucose remains in the blood stream because glucose cannot enter the cells. The body responds by producing more glucose and eventually breaking down body fat, which after a complex process results in the production of ketones. Ketones are an unhealthy way of providing energy to the cells, because they are very acid. High blood glucose levels and dehydration caused by excessive urination and possibly vomiting is a serious medical problem that could lead to death.

Insulin pump therapy uses fast acting insulin with a short action and duration; unlike longer acting insulin that stay in the body for up to twenty-four hours. Therefore if there is a problem with the delivery of insulin the blood glucose level will rise very rapidly; hence the importance of blood glucose monitoring a minimum of four to six times during the day/night. Frequent testing will allow early detection of significant changes in the blood glucose control and a quick response. For example is the cause related to food, illness, a problem with the infusion set of insulin pump?

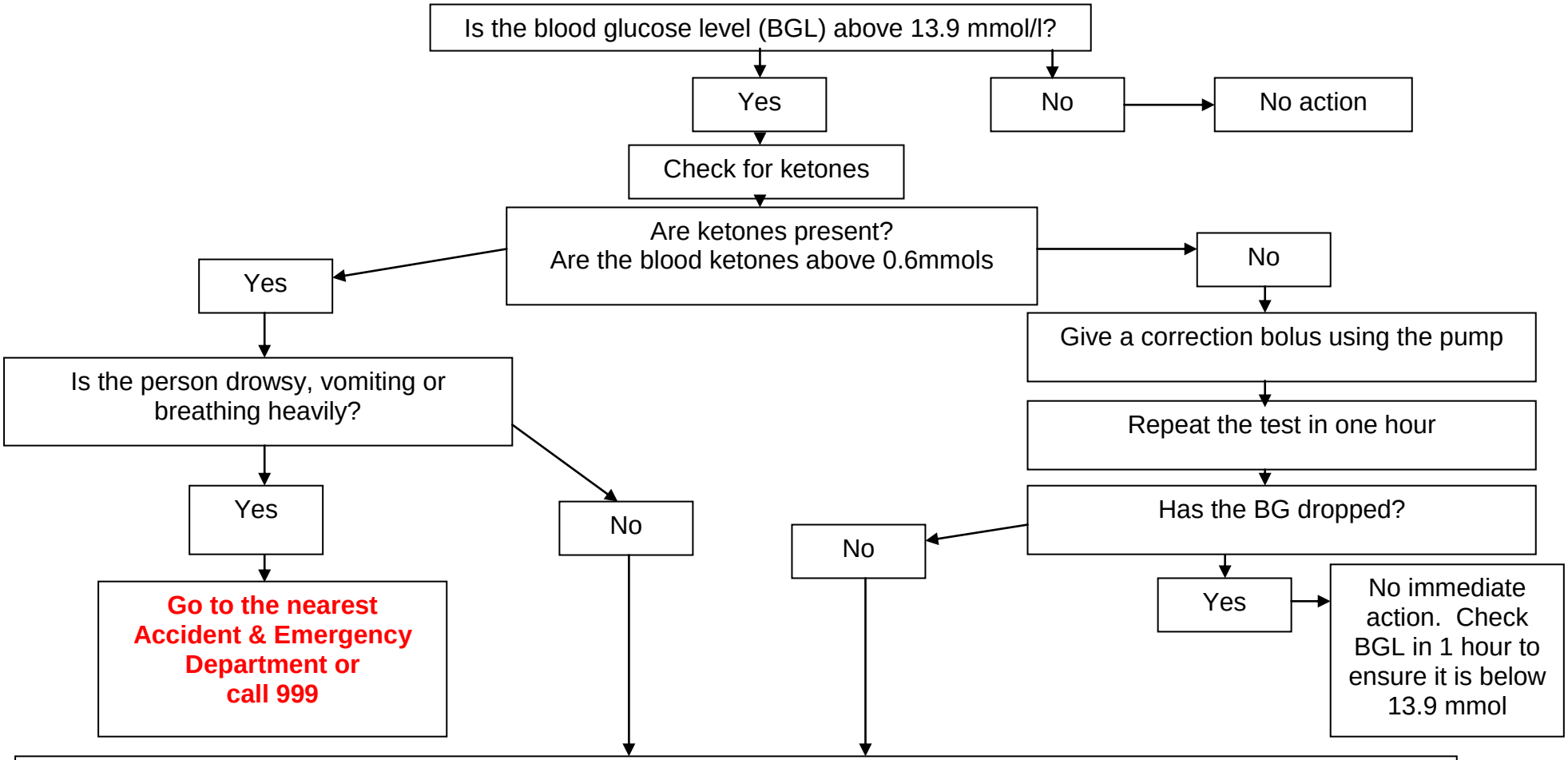
It is advised that you check:

- The correct basal rate has been set.
- The correct bolus dose has been administered.
- The pump's alarm history to see if an error has been identified.
- The infusion set (also known as the catheter) is compatible with the reservoir.
- There is no leakage from the infusion set or reservoir.
- The infusion set has been primed.
- There are no large bubbles in the infusion set.
- The reservoir has not run empty.
- There is no blood in the infusion set.
- The cannula has not become dislodged.
- The cannula and infusion set has not been in for over 72 hours.
- The infusion set has not kinked.
- The site for signs of irritation, discomfort, scarring or infection.
- The battery has not run down.
- The pump is functioning properly by carrying out a "self test".
- The insulin pump has not expired, been in use for over one month, near the end of the vial, crystallised, cloudy or exposed to extreme temperatures.

If your blood glucose level is over 13.9mmol/l please take the following action:

1. Check the result is correct by repeating the test.
2. Check for ketones if there are none present.
3. Correct the high BG using the insulin pump.
4. Wait an hour, if the blood glucose is coming down then wait an hour.
5. Recheck the blood glucose level. If the level is still 13.9mmol/l or above, immediately take a correction bolus of fast acting insulin using an insulin syringe or pen (not the pump).
6. Check for ketones. If they are 0.6 or higher contact your diabetes team. It is usual to need extra insulin when ketones or infection are present.
7. Change the infusion set and reservoir.
8. Recheck your blood glucose level in one hour. If still not falling let your diabetes team know.
9. Drink plenty of liquids that contain no calories, for example a glass of water every 30 minutes to correct dehydration. Dehydration can occur from excessive urination and vomiting.
10. If ketones are present, you feel sick or are vomiting contact the diabetes team or go to the nearest Accident and Emergency Department. If you are drowsy and breathing heavily ring 999 for the emergency services.

Guidelines for Treatment of Hyperglycaemia (High Blood Glucose Level)



- Give a correction bolus using an insulin pen or syringe, not the insulin pump
- When ketones or an infection are present extra insulin is usually required, discuss this with your health care team
- Change the infusion set and reservoir (syringe)
- Drink plenty of liquids that contain no calories, for example a glass of water every 30 minutes
- Try to identify the cause of the high reading
- Repeat the flow chart until the blood glucose level is under 13.9 mmol/l