

Ketone Guideline

This guideline covers the management of:

- Euglycaemic diabetic ketoacidosis (EuDKA) (elevated ketones, with a normal glucose, resulting in acidosis)**
 - EuDKA** is a potential complication of critical illness in diabetic patients. Particularly those taking SGLT2 inhibitors such as Empagliflozin.
- Starvation ketosis**
- Alcoholic ketosis**

This guideline **does not cover the management of standard DKA** (raised blood glucose, ketosis and acidosis) please refer to the NHS Lothian DKA pathway in these patients.

The diagnosis of EuDKA or starvation ketosis/alcoholic ketosis is often delayed. For this reason, check a blood ketone result on admission to critical care in **ALL PATIENTS**, and then every 24 hours, in patients who:

- Have a diagnosis of either Type 1 or Type 2 Diabetes
- Are receiving IV or SC insulin
- Have an unexplained acidosis

Ketone meters are available at each base of critical care next to the blood glucose monitors. Please record the result on the 24-hour chart next to the blood glucose result.

Action in Response to Ketone Result

Ketone Result (mmol/l)	Degree of ketosis	Management
≤0.6	Normal	Continue current management
≥0.6 - <1.5	Mild Ketosis	Recheck in 24 hours + see below
≥1.5 - <3.0	Moderate Ketosis	Recheck in 24 hours + see below
≥3.0	Severe Ketosis	See below + if patient diabetic, contact on-call diabetes registrar for advice re management of likely EuDKA

For any patient with mild, moderate or severe ketosis, please action the following points:

1. Inform ICU medical staff of raised ketone result.
2. Carbohydrate source - ensure patient has an adequate carbohydrate source through an appropriate route i.e. IV dextrose, enteral nutrition (which is being absorbed) or TPN.
3. Medication - if the patient is taking SGLT2 inhibitors (e.g. Empagliflozin) then ensure these are withheld. Discuss with diabetes about timing of restarting this medication following resolution of acute illness.
4. In suspected alcoholic or starvation ketosis ensure pabrinex prescribed
5. DKA - if DKA is suspected, either as the cause of presentation to critical care, or as a consequence of acute illness, then management of insulin and fluids should be as per NHS Lothian DKA pathway.

Management of IV Insulin Infusions

IV insulin infusions should be managed as per the standard ICU protocol with the rate of infusion determined by the blood glucose result.

If ketosis is detected, only deviate from the standard insulin protocol if advised by the diabetes team.

**Critical Care Guidelines
FOR CRITICAL CARE USE ONLY**

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