



CLINICAL GUIDELINE

Diabetic Ketoacidosis: Criteria for HDU Referral, Good Practice Points and Link to Care Pathway

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Important Note:

The Intranet version of this document is the only version that is maintained. Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

DIABETIC KETOACIDOSIS: CRITERIA FOR HDU REFERRAL, GOOD PRACTICE POINTS AND LINK TO CARE PATHWAY

Below is a standard regime outlining the management of diabetic ketoacidosis in adults. Specific guidelines exist for the management of DKA in children.

MANAGEMENT OF DIABETIC KETOACIDOSIS (DKA)

Diagnosis – severe uncontrolled diabetes with:

1. Hyperglycaemia (blood glucose > 14mmol/l, usually but not exclusively);
2. Metabolic Acidosis (H^+ >50mEq/L or HCO_3^- <18 mmol/L or pH <7.3 on venous gases);
3. Ketonaemia (>3.0 mmol/l) /ketonuria (>++)).

SEVERITY CRITERIA

One or more of the following may indicate severe DKA and should be considered for level 2 care (MHDU if available). It may also be necessary to consider a surgical cause for the deterioration.

1. Blood ketones over 6mmol/L
2. Bicarbonate level below 5mmol/L
3. Venous/arterial pH below 7.1
4. Hypokalaemia on admission (under 3.5mmol/L)
5. GCS less than 12 or abnormal AVPU scale
6. Oxygen saturation below 92% on air (assuming normal baseline respiratory function)
7. Systolic BP below 90mmHg, Pulse over 100 or below 60bpm
8. Anion gap above 16 [Anion Gap = $(Na^+ + K^+) - (Cl^- + HCO_3^-)$]

CARE PATHWAYS

The protocol for the emergency management of DKA should be used for all eligible patients (for paediatric DKA management guidance go to https://www.nhsggc.org.uk/media/260549/dkap1_revised4-sl2.pdf). With the protocol the care pathways for 0 – 4 hours and 4 hours – discharge should be completed for each DKA episode. These provide instruction on fluid balance, insulin and potassium replacement. Please note there are DKA order sets on trakcare (DKA baseline and DKA continuing care).

The care pathways are available within relevant departments or online at:

[Care pathway 0 – 4 hours](#) and [4hrs to discharge](#)

In patients aged 13-16 years presenting with DKA, the management of DKA should be discussed with relevant paediatric staff.

OTHER POINTS TO CONSIDER

1. In patients with kidney failure or heart failure, as well as the elderly and adolescents, the rate and volume of fluid replacement may need to be modified.
 - a. For patients with kidney disease please discuss fluid replacement regimen with renal on call.
2. Sensitivity to insulin can vary markedly with time and between patients.
3. Higher doses of insulin are needed in adolescents, patients taking >1 unit/kg in the basal state and patients on steroid therapy, with sepsis, obesity or liver disease.
4. Consider the precipitant: 1st presentation type 1 diabetes mellitus, sepsis, compliance with insulin therapy or other causes.
5. If blood glucose levels are not falling always check pump devices, IV lines and IV cannulae to ensure patients are getting prescribed insulin dose. Consider other causes that could be contributing: sepsis, steroid therapy, obesity or liver disease.
6. Continue background subcutaneous insulin (glargine, levemir, degludec, isophane insulin) while on fixed rate intravenous insulin. Stop CSII infusion pump in DKA. Do not re-start CSII without specialist diabetic input.

EDUCATION AND SUPPORT

When the clinical condition has stabilised, consider the educational and emotional needs of the patient and carers. All patients with DKA should be referred to the diabetes team. Known diabetes patients must be discussed with a member of the diabetes team at the earliest opportunity.