

Paediatric Diabetic Ketoacidosis

PATIENT NAME

DATE

British Society for Paediatric Endocrinology and Diabetes

Diagnosis of DKA = blood glucose >11mmol/L and pH<7.3 bicarb <15 mEq/L, capillary blood ketone > 3 mmol/L. Use guideline if >5% dehydrated, or vomiting, drowsy or clinically acidotic

Degree of dehydration determined by pH; ≥7.1 or above is MILD or MODERATE DKA = 5% <7.1 is SEVERE DKA = 10% dehydration

MAJOR RISK = CEREBRAL OEDEMA
Aim for slow metabolic correction over 48 hrs

Emergency Management

- 1) Airway: insert airway if coma. NGT if coma or vomiting
- 2) Breathing: give 100% oxygen by face mask
- 3) Circulation: Insert IV cannula, take blood samples
- 4) If shocked, 10ml/kg 0.9% saline bolus. Discuss with Paeds Consultant if further fluid boluses required
- 5) Confirm diagnosis of DKA
- 6) Investigations: blood glucose, plasma Na, Cl, Ur, Cr venous/capillary blood gases (pH, pCO₂)

MONITORING:

- 1) Strict fluid balance (input / output)
- 2) Hourly BP and vital signs
- 3) Hourly blood glucose
- 4) Blood ketones (1-2 hrly if available)
- 5) Acid base, plasma Na, K, Cl (4 hrly)
- 6) 12 hrly weight
- 7) HDU /PICU if coma, pH<7.1, <1 yr

FLUID THERAPY

Weight	Fluid Maintenance
0 - 9 kg	2 ml/kg/hrs
10 - 39 kg	1 ml/kg/hrs
>40 kg	40 ml/hr (NOT per/kg)

* neonates may require 3ml/kg/hr

Enter patient weight (kg)*

Dehydration (%)

Total resus volume (ml)

Use 0.9% saline for 1st 24 hrs (0.45% saline = risk cerebral oedema)

*BSPED Position Statement 2017 on weight limits and the DKA Calculator - Disclaimer:

The DKA Calculator 2015 does not yet have official approval by the MHRA as a medical device. Pending formal MHRA approval, clinicians need to be aware that they use this calculator at their own risk and that they are aware that DKA calculator does not have a weight limit. Adjustment to 50th centile weight for age or inserting a weight limit of 70 kg should be considered in obese type 1 children presenting with DKA

INSULIN (Only start infusion after 1st hr of starting fluid)

Use 0.05 to 0.1 units/kg/hour
DO NOT REDUCE insulin rate until ketoacidosis improves
If glucose falls (<14 mmol/L) add Glucose to IVI fluids

Add **50 units** insulin to **50ml** solution of 0.9% saline (concentration 1 unit/ml, 0.1u/kg/hr = 0.1ml/kg/hr)

Required insulin infusion rate (units/kg/hr)

Corrected Na (failure to increase = risk cerebral oedema)

	Sample1	Sample2
Glucose (mmol/L)	<input type="text"/>	<input type="text"/>
Plasma Na (mmol/L)	<input type="text"/>	<input type="text"/>
Corrected Na	<input type="text"/>	

Corrected Na should rise with therapy (0.5-1mmol/hr)

If associated with falling GCS: consider osmotherapy

- 1) 5ml/kg of 2.7% saline or
- 2) 0.5-1 gram/kg mannitol
- 3) Consider CT head
- 4) 2.7% saline can be repeated (even if Na is high)

See www.strs.nhs.uk for information

Simplified Corrected Na formula =
plasma Na 0.3x (Glu - 5.5)

GLUCOSE CALCULATOR

Size Infusion bag(ml) % Glucose at Start % Glucose needed

Revised August 2015

<http://www.bsped.uk>

