### Diabetic ketoacidosis care pathway 1

**Time of Arrival:** ____________________  **NAME:** Affix label  
**Location:** ____________________  
**Date:** ____________________

#### 0-4 hours Emergency Management

Ideally patients with DKA should be managed in a MHDU setting.

**Aim:** To improve the acute management of diabetic ketoacidosis in adults aged 16 years and over within the first 4 hours of presentation (for paediatric management go to [www.bsped.org.uk](http://www.bsped.org.uk))

**Definition:** Severe uncontrolled diabetes with: a) ketonaemia/ketonuria b) metabolic acidosis c) usually with hyperglycaemia

**Severe DKA = pH <7.1 or HCO3 <5mmol/L or H+ > 80mEq/L**

**Consultant/Senior physician should be called immediately if:**
- Cerebral Oedema
- Hypokalaemia on admission
- Severe DKA
- Reduced conscious level

### 1. Immediate actions

- Confirm diagnosis H+ > 45 or HCO3 < 18 or pH < 7.3 on **venous gases**
- Check U&Es and laboratory Blood Glucose
- Check urine or blood ketones
- Confirm patient ≥ 16 years
- Record time of arrival

### 2. Management 0-60 mins

- Commence iv 1L Sodium Chloride 0.9% over 1 hour within 30 mins of admission
- Time and sign fluid commencement (on reverse)
- Commence soluble insulin IV 6 units/hour within 30 mins of admission
- Time and sign start of insulin (on reverse)
- Record SEWS/MEWS/SIRS score
- Other interventions to be considered (tick box if performed)
  - Review ECG or cardiac monitor
  - Blood cultures
  - Record GCS score
  - Central line
  - Insert catheter if oliguric
  - Chest Xray
  - MSSU
  - DVT prophylaxis
  - If protracted vomiting insert NG tube
  - If deteriorating, consultant or senior physician called

### 3. Ongoing Management 1-4 hours

- Record: SEWS/MEWS/SIRS  ECG  GCS
- Time and sign ongoing Sodium Chloride 0.9% replacement (on reverse)
- 1L Sodium Chloride 0.9% hour 2 + KCL
- 500mls/hour for hours 3-4 + KCL
- Review K⁺ result – admission or most recent result
- Prescribe KCl in 500 ml Sodium Chloride 0.9% bag as:
  - None if anuric or K⁺ > 5 mmol/L
  - 10 mmol if level 3.5-5 mmol/L
  - 20 mmol if level <3.5 mmol/L
  - (tick box if measured)
- Check finger prick Blood Glucose hourly 1hr  2hrs  3hrs  4hrs
- Lab Glucose, U&Es and HC03 at:  2hrs  4hrs

**If Blood Glucose falls to ≤ 14 mol/L in first 4 hours**

- Commence Glucose 10% 500mls with 20 mmol KCl at 100ml/hour
- Continue Sodium Chloride 0.9% at 400mls/hour + KCL (as per K⁺ table above) until end of hour 4
- Reduce insulin to 3 units/hour
- Maintain Blood Glucose >9 mmol/L and ≤14 mmol/L adjusting insulin rate as necessary
- If Blood Glucose <9mmol/L adjust insulin to maintain level >9mmol/L and <14mmol/L
- If Blood Glucose >14mmol/L see supplementary note
- Progress on to second DKA Care Bundle “4 hours to discharge”
### Fluid (potassium) prescription sheet

<table>
<thead>
<tr>
<th>DATE</th>
<th>FLUID</th>
<th>Vol (ml)</th>
<th>Duration</th>
<th>Signature</th>
<th>Serial No</th>
<th>Batch No</th>
<th>Time begun</th>
<th>Given by</th>
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<td>POTASSIUM</td>
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**Once Blood Glucose <14mmol start Glucose 10% in addition to Sodium Chloride 0.9%**

<table>
<thead>
<tr>
<th>DATE</th>
<th>INSULIN RATE (units/hr)</th>
<th>TYPE OF INSULIN</th>
<th>SIGNATURE</th>
<th>GIVEN BY</th>
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<tbody>
<tr>
<td>A</td>
<td>6 units/hour when Blood Glucose &gt;14 mmol/L</td>
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<td>B</td>
<td>3 units/hour when Blood Glucose ≤14 mmol/L</td>
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### Intravenous Insulin Prescription

<table>
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<tr>
<th>DATE TIME</th>
<th>INSULIN RATE (units/hr)</th>
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**Supplementary notes**

1. **Guidance on bicarbonate**
   - Do not use bicarbonate.

2. **Potassium Replacement**
   - KCL should not normally be administered at a rate of greater than 20mmol/hour.

3. **WBC Count**
   - The WBC count is often raised in DKA and antibiotics should only be administered if there is clear evidence of infection.

4. **Blood Glucose >14 mmol/L**
   - If Blood Glucose rises >14mmol/L, do not stop glucose, adjust insulin to maintain level between 9 and 14 mmol/L.

5. **Signs of Cerebral Oedema**
   - Children and adolescents are at the highest risk of cerebral oedema. Consider if:
     - Headaches
     - Reduced conscious level.
     - Monitoring for signs of cerebral oedema should start from the time of admission and should continue until up to at least 12 hours after admission.
   - Administer IV mannitol (100mls of 20% over 20 minutes) or dexamethasone 8mg (discuss with Consultant).
   - Undertake CT scan to confirm findings.
   - Consider ITU (check arterial blood gases).
   - If there is a suspicion of cerebral oedema or the patient is not improving as expected / within 4 hours of admission, call Consultant.

6. **Laboratory Blood Glucose Testing**
   - It is reasonable to use a point-of-care blood glucose meter to monitor blood glucose level if the previous laboratory blood glucose value is less than 20 mmol/L.

7. **Insulin Management**
   - Insulin should be prescribed, beginning at 6 units/hour. Rate will generally be reduced with time depending on clinical circumstances, presence of long acting insulin and to avoid a fall of >5mmol/L per hour as rapid falls in Blood Glucose may be associated with cerebral oedema.
   - Do not stop glucose once started.

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Supplementary notes:
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- Potassium Replacement: KCL should not normally be administered at a rate of greater than 20mmol/hour.
- WBC Count: The WBC count is often raised in DKA and antibiotics should only be administered if there is clear evidence of infection.
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- Signs of Cerebral Oedema: Children and adolescents are at the highest risk of cerebral oedema. Consider if:
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  - Reduced conscious level.
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- Laboratory Blood Glucose Testing: It is reasonable to use a point-of-care blood glucose meter to monitor blood glucose level if the previous laboratory blood glucose value is less than 20 mmol/L.
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- Do not stop glucose once started.