

**Inclusion Criteria:** patient of any age presenting with potential Diabetic Ketoacidosis (DKA)  
 [Consider if history of: weight loss, vomiting, abdominal pain, polyuria, polydipsia, nocturia;  
 Consider if exam findings of: tiredness, Kussmaul respirations, dehydration, mental status changes, abdominal pain  
 (can be severe and present as acute abdomen)]  
**Exclusion Criteria:** well- appearing, HCO<sub>3</sub> >18 mmol/L

**INITIAL MANAGEMENT**

Establish DKA diagnosis (defined by pH <7.3, HCO<sub>3</sub> <15 mmol/L, blood sugar >200, ketones – blood or urine)  
 \*Note: Hyperglycemic Hyperosmolar Syndrome (HHS) is a spectrum with DKA, and may not have acidosis and ketones, but will have severe hyperglycemia and dehydration.  
 Discuss care with PICU/Endocrine.

<p><b>LABS:</b></p> <ul style="list-style-type: none"> <li>Chem 10, Blood gas, CBC w diff, HbA1C, STAT B-hydroxybutyrate, UA</li> <li><b>Repeat Chem 7/VBG after initial NS bolus</b></li> </ul> <p><i>If newly diagnosed diabetes, add:</i></p> <ul style="list-style-type: none"> <li>Free T4, TSH, islet cell antibody, insulin antibody, glutamic acid decarboxylase antibody</li> <li>Consider C-peptide if BMI &gt;95<sup>th</sup> percentile</li> </ul>	<p><b>FEN:</b></p> <ul style="list-style-type: none"> <li>Make NPO</li> <li>Give 0.9% NS bolus 10-20 mL/kg over 30-60 min                             <ul style="list-style-type: none"> <li>Additional fluid bolus <i>only</i> if signs of worsening dehydration or shock (hypotension, tachycardia, delayed cap refill, oliguria)</li> <li>Caution needed when using depressed mental status as marker of shock, as it may represent DKA associated brain injury</li> <li>Large volume fluid resuscitation may be associated with increased risk of cerebral edema</li> </ul> </li> <li>Post bolus: start NS at minimum of 1.5x maintenance until appropriate fluids (per PICU/Med Surg care) become available</li> </ul>	<p><b>NURSING CARE:</b></p> <ul style="list-style-type: none"> <li>Establish PIV x2</li> <li>If oliguria present, insert foley catheter</li> <li>Strict I&amp;O</li> <li>Bed Rest</li> </ul>
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**Reassessment – Any of the Following Present?**

- Persistent, severe metabolic acidosis with serum HCO<sub>3</sub> <12 mmol/L after initial NS bolus
- Persistent hypokalemia or hyperkalemia with serum K<sup>+</sup> <3 mmol/L or >6 mmol/L
  - Altered mental status after initial therapy
- Persistent signs of poor cardiac output, unresponsive to initial rehydration

<p style="text-align: center;">Yes</p> <ul style="list-style-type: none"> <li>Arrange for Admit to PICU</li> <li>Order Regular insulin 1 unit/mL</li> <li>Infusion rate: 0.1 unit/kg/hour</li> <li><b>DO NOT GIVE BOLUS INSULIN</b></li> <li>Continue NS IV infusion (minimum 1.5x maintenance) until DKA specific IVFs arrive</li> <li>Order DKA specific IVFs in preparation for PICU admission</li> </ul> <p style="text-align: center;">Proceed to PICU Management</p>	<p style="text-align: center;">No</p> <p style="text-align: center;">Proceed to Med/Surg Management</p>
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**Always monitor for DKA Associated Brain Injury and notify the PICU attending if s/s present!**

**Signs/Symptoms:**

- HA, change in neuro status (restlessness, irritability, drowsiness), inappropriate slowing of HR or rise of BP

**Treatment:** Therapy should always precede imaging!

- (1) **Hypertonic Saline (3%)** 1.25 – 2.5 mEq/kg (2.5 – 5 mL/kg) IV (over 5 min for acute herniation; over 10 min for increased intracranial pressure) **OR** **Mannitol** 0.25 g/kg over 30 minutes (can be repeated every 6-8 hours)
- (2) Ensure pt on 0.9% NS fluids
- (3) If GCS <11 after therapy, consider ET intubation
- (4) Consider head CT

**\* Do not give sedating meds outside the setting of intubation (may lead to rise of PCO<sub>2</sub> and herniation)**

**If no improvement in mental status, repeat:**

- Hypertonic Saline (3%)** 1.25-2.5 mEq/kg (2.5-5 mL/kg) IV (over 5 min for acute herniation; over 10 min for increased intracranial pressure) **OR** **Mannitol** 0.25 g/kg over 30 minutes