

PICU DKA To diagnose DKA you must have:

D – high glucose

K – ketones in the BLOOD

A – acidosis

1. Perform brief history and physical to assess for shock and degree of volume depletion. **Frequently physicians overestimate degree of depletion.** The best data should be the patient's actual weight loss (Use outpatient records).

| Parameter | Mild | Moderate | Severe |
|-----------------------|---------|----------|---------|
| Volume deficit (%) | 3-5 | 6-10 | 10-15 |
| Clinical signs | | | |
| Perfusion | NI | NI or ↓ | ↓ |
| Heart rate | NI | ↑ | ↑ |
| Blood pressure | NI | NI or ↓ | NI or ↓ |
| Labs | | | |
| HCO ₃ | NI | 10-20 | <10 |
| pH | NI | >7.20 | <7.20 |
| Glucose | 300-400 | 400-600 | >600 |
| BUN | <20 | <30 | >25 |
| | | | |

2. Obtain labs: Chem 10, ABG or VBG, serum ketones, UA, C peptide and consider looking for infectious trigger with CBC with diff, urine culture etc.
3. Obtain IV access and begin correcting deficit in a **gingerly** fashion unless in shock. Give NS 10-20ml/kg over 1 hour. **The rest of the deficit should be replaced over 48 hours** to avoid dropping serum osmoles to quickly and precipitating cerebral edema. If you place 2 large IV's you can treat through one and sample through the other.
4. Begin insulin therapy (100 units in 100ml NS) with Regular insulin drip 0.05-0.1 units/kg/hr. **Don't bolus with insulin it can be dangerous.** The goal of therapy should be a **drop in serum glucose of 50-100 mg/dl per hour.** (I usually start on the low end of the range and increase over time). Remember plastic tubing binds insulin, so run some through before using. Accuchecks should be done every hour.
5. Fluid choice is ½ NS with K⁺ and lots of it. Even though they are hyperkalemic, the total body K⁺ is low. Use KCL and Kphos to give 40meq/L. **Add Glucose when sugars drop into the 250-300 mg/dl range.** Always **anticipate the next bag** you'll need and order it ahead of time from the pharmacy (i.e. D5>D10> D12.5).
6. **Cerebral edema is a major concern so do Neuro checks q1°.** While your at it consider a Head CT and mannitol for progressive neurologic deterioration or focal exam.
7. Follow Glucose q1°, VBG's or ABG's, and Chem 10's q4°, and UA's q void. All can be done more frequently when necessary.
8. Major thrust of therapy is to **give enough glucose to allow you to give enough insulin to correct the acidosis.** Don't back off prematurely on insulin if glucose is falling, give more glucose.
9. **Transition time off insulin drip is when patient is begging for a meal, the acidosis is mostly gone, and the meal is in the room.** Then turn off the drip give the SQ insulin wait 30 minutes and feed them. Usually you will need to continue to rehydrate them without glucose once they are eating.