

**DKA and HHS REFERENCE TEXT**

**Goals of Therapy:**

**Labs**

Replace volume deficits	Monitor Chem 8 every 6 hours x 24 hours
Replace electrolyte deficits	Monitor Magnesium level daily x 3 days
Correct Ketoacidosis (anion gap<12)	Call MD if K>5.5 mEq/L or <3.5 meq/L
Correct hyperglycemia & prevent hypoglycemia	

**INSULIN:** Notify MD before starting Insulin Drip if serum potassium is less than 3.3

- Bolus: **Human Regular Insulin 0.1 units/kg IV x1 dose** (if not given in ED and not started on Insulin IV Drip)
- Standard Insulin IV Drip 100 units **Human Regular Insulin** in 100 ml NS (1 unit = 1 ml.)
- **Check Blood Glucose every 1 hour and adjust insulin as follows:**

<b>BLOOD GLUCOSE mg/dl</b>	<b>½ Standard (LOW) (units/hour)</b>	<b>Algorithm 1 Standard (units/hour)</b>	<b>Algorithm 2 Stress (units/hour)</b>
100-140	0.5	1	2
141-180	0.7	1.5	3
181-220	1	2	4
221-260	1.2	2.5	5
261-300	1.5	3	6
301-340	2	4	8
Over 340	2.5	5	10

- Start on Standard scale
- For blood glucose less than 140 mg/dl x2, go to half standard infusion or move 1 column to the left
- If blood glucose greater than 340 mg/dl x2, go to stress infusion rate or move 1 column to the right
- If patient is on ½ standard and blood glucose less than 140 mg/dl x2, then contact physician to consider transition or adjustment to customized lower scale.

**DIAGNOSTIC CRITERIA**

Serum HCO <sub>3</sub>	DKA	HHS
pH	Low (< less than 7.35) < less than 7.3	Normal or slightly low Greater than 7.3
BG	800 mg/dl or can be normal	Often > greater than 800 mg/dl
Serum BHBA	Greater than 5 mmol/l	Less than 5 mmol/l
Urine Ketones	Large	Small

- Na correction:  $2.4 \times (\text{plasma glucose} - 100) / 100$  (AM. J. Med. 1999; 106:399)
- Anion Gap:  $\text{Na}_{\text{MEASURED}} - \text{Cl} - \text{CO}_2$  (normal 8-20)
- Calculated Osmolality:  $2(\text{Na} + \text{K}) + \text{glucose}/20 + \text{BUN}/2.8$  (coma: calculated osmolality exceeds ~230)

**FLUID MANAGEMENT:**

- Assume about 10% dehydration (100 ml/kg). Give 1 liter/hour for 4 hours and then 250-500 ml/hour for the next 2 to 4 hours; then 100-250 ml/hour.
- Correct fluid deficit over 36 to 48 hours. (Give NS initially; give ½ NS if corrected Na is > greater than 150 mEq/liter.
- Change to D5NS or D51/2NS when BG< less than 200mg/dL.