

# Pediatric Diabetic Ketoacidosis (DKA) Treatment Guide

Condition	Not DKA	Mild DKA	Moderate DKA	Severe DKA
HCO <sub>3</sub> mEq/L	15 to 33	less than 15	less than 10	less than 5
Venous pH	7.3 or more	less than 7.3	less than 7.2	less than 7.1

## 1. Initial management: No bolus of insulin or bicarbonate in first hour

What	How much
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- Use isotonic fluid (LR or NS) → Isotonic fluid: 20 ml/kg bolus
- Nothing by mouth
- Draw venous pH, glucose, Na, K, Cl, HCO<sub>3</sub>, BUN, and creatinine.
- Check urine ketones
- Give total over first hour of treatment
- Bolus may be repeated if child is in shock

### Fluid and insulin guide by weight

Weight in kg (1 kg = 2.2 lb)	10	12	15	16	20	25	32	40	50
1st hour bolus (ml) using LR or NS	200	240	300	320	400	500	640	800	1000
IV rate (ml/hour) (1.5x maintenance)	60	66	75	78	90	98	108	120	135
Insulin rate (units/hour)	0.1 units/kg/hr								

After initial management, if patient is not in DKA, has no changes in mental status, and is tolerating fluids, call Physician Referral Call Center.

## 2. Following isotonic fluid bolus (approximately 1 hour)

What	How much
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- Use 0.45 NS with 40 mEq/L K+ (K+ = ½ as K phosphate, ½ as K acetate) → 1.5x maintenance rate (up to maximum of 250 ml/hr)
- Continue nothing by mouth
- Regular insulin infusion 0.1 units/kg/hr
- Maintenance rate = 4 ml/kg x first 10 kg  
+ 2 ml/kg x next 10 kg  
+ 1 ml/kg x every 1 kg over 20 kg

### Checkpoints

✓ Blood tests	✓ Urine tests
• Electrolytes: Hourly until HCO <sub>3</sub> above 17	• Strict input and output.
• Blood glucose hourly.	✓ Assessments
	• Neuro checks hourly while HCO <sub>3</sub> is less than 15; then every 4 hours.

If:	You should:
• Blood glucose is: less than 300 mg/dl	• Infuse Dextrose 5% in 0.45 NaCl with electrolytes.
less than 150 mg/dl	• Infuse Dextrose 10% in 0.45 NaCl with electrolytes.
less than 100 mg/dl	• Decrease insulin infusion to 0.05 units/kg/hr; use Dextrose 10% fluids.
• Cerebral edema (mental status changes in DKA)	• Give mannitol 1 gm/kg by IV push. Repeat, if needed. <b>OR</b> • Give 3% sodium chloride 5 ml/kg over 20 minutes. Repeat, if needed.
• K+ is less than 3	• Give 1 mEq/kg KCl by mouth <b>OR</b> increase IV K to 60 mEq/L. • Use cardiac monitor for serious or critical DKA. Observe for long QRS complex or low T-wave.

### Discharge parameters

Normal electrolytes: HCO<sub>3</sub> greater than or equal to 17 | No vomiting; able to tolerate oral fluids; well hydrated  
Normal neurological exam; normal fundoscopic exam | Appropriate follow-up scheduled

### Phone contacts

Children's Hospital of Wisconsin Transport Team  
AND Physician Referral Call Center  
**(800) 266-0366 OR**  
**(414) 266-2460**