

Pediatric DKA Pathway - ED

Includes: Patients up to 18 yo with presumed diagnosis of diabetic ketoacidosis (DKA)
Excludes: Patients with alternate diagnoses such as non acidotic states, e.g. hyperosmolar hyperglycemia, or other causes of elevated anion gap metabolic acidosis (eg poisoning)

Focused assessment including neurologic and hydration status, measure weight, obtain bloodwork, place 2 large bore PIV's, place on cardiorespiratory monitors

INTRAVENOUS FLUIDS

- Start with 0.9% NS bolus 10ml/kg over 30 min-1 hr
- May start with 20mL/kg if severely dehydrated/shock, or run second 10mL/kg over 1 hr
- After NS bolus(es) are completed, run 1.5x maintenance NS containing fluids, with potassium for hypo/normokalemia

LABORATORY TESTING

- Basic metabolic panel, blood glucose (+/- bedside glucose)
- Venous blood gas
- Complete blood count
- Magnesium, phosphorus
- Hemoglobin A1C
- Urinalysis

DO NOT:

- Administer insulin bolus, subQ or IV
- Administer sodium bicarbonate bolus
- Administer more than 30mL/kg 0.9% NS bolus total as fluid deficit should be corrected over 24-48 hours

Assess neurologic status

SYMPTOMS

- Severe/progressive headache, irritability, confusion, decreased consciousness
- Decreased HR, rising BP
- Localizing neurological signs

MANAGEMENT

- Support airway, breathing, circulation
- Consider 3% hypertonic saline IV or mannitol IV
- **Immediate transfer to PICU**

RE-EVALUATE at 1 hour:

- Bedside glucose
- Complete vital signs
- Neurologic status
- ECG and repeat electrolytes if abnormal T waves, otherwise electrolytes to be repeated after 2 h
- Ins/Outs
- Disposition for hospitalization: PICU/ICU if confirmed DKA
- Initiation of **insulin infusion** (usually 0.025 Units/kg/hr if <5 yo, 0.05 Units/kg/hr if > 5 yo and pre pubertal, 0.1 Units/kg/hr if post pubertal or obese; must have dextrose available – **see reverse**)
- Remove home insulin pump if confirmed DKA and starting IV insulin infusion

DKA SEVERITY	MILD	MODERATE	SEVERE
Venous pH	<7.3	<7.2	<7.1
Serum bicarbonate	<15	<10	<5

Pediatric DKA Fluid Calculations

FLUID TITRATION INSTRUCTIONS

- Once starting insulin infusion, hang 2 fluid bags, one containing D10 NS+K and one containing NS+K (see box for K dosing)
- Calculate total fluid rate below
- Fill out worksheet and RN to titrate fluid rates as below after each Q1 hour bedside glucose check

Initial K+

Use NS IVF with:

<4.0	30 mEq/L K acetate AND 20 mmol/L K Phos
4.0-5.5	20 mEq/L K acetate AND 15 mmol/L K Phos
>5.5	No K

IVF Rate Calculation:

Deficit (for 10% dehydration) = weight ____ kg x 100 mL/kg = ____ mL

Subtract fluid boluses already given minus = ____ mL

Replacement Rate = ____ mL ÷ 48 hours = ____ mL/hr

Maintenance Rate (4:2:1 rule for pediatric fluids) plus = ____ mL/hr

TOTAL IVF RATE (should equal approximately 1.5-2 x maintenance) ____ mL/hr

**If initial
glucose >
800mg/dL:**

Blood glucose	Bag #1 (non dextrose: NS+K)	Bag #2 (D10 NS + K)
>501	100% total IVF = ____ mL/hr	zero
401-500	75% total IVF = ____ mL/hr	25% total IVF = ____ mL/hr
301-400	50% total IVF = ____ mL/hr	50% total IVF = ____ mL/hr
201-300	25% total IVF = ____ mL/hr	75% total IVF = ____ mL/hr
60-200	zero	100% total IVF = ____ mL/hr
<60	zero	125% total IVF = ____ mL/hr

**If initial
glucose <
800mg/dL:**

Blood glucose	Bag #1 (non dextrose: NS+K)	Bag #2 (D10 NS + K)
>351	100% total IVF = ____ mL/hr	zero
301-350	75% total IVF = ____ mL/hr	25% total IVF = ____ mL/hr
251-300	50% total IVF = ____ mL/hr	50% total IVF = ____ mL/hr
201-250	25% total IVF = ____ mL/hr	75% total IVF = ____ mL/hr
60-200	zero	100% total IVF = ____ mL/hr
<60	zero	125% total IVF = ____ mL/hr