

(place patient label here)

Patient Name: \_\_\_\_\_



PROVIDER ORDERS

Order Set Directions:

- > (✓) - Check orders to activate: Orders with pre-checked box  will be followed unless lined out.
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Diagnosis: \_\_\_\_\_ Allergies: \_\_\_\_\_

Pediatrics ICU DKA

Version 4 3/6/15

General

- This pediatric order set is intended for use in patients greater than 12 month through 17 years of age and less than 50 kilograms with Severe DKA (HCO3 less than 10; dehydration greater than 10%)
- Admit patients at risk for cerebral edema or with severe DKA to the ICU
  - Patient Weight: \_\_\_\_\_

Nursing Orders

- Assess neurologic status including Glasgow Coma Scale: every hour
- Glucose, blood, point-of-care measurement: Following fluid bolus and every hour while on insulin drip
- IF admitted with an insulin infusion pump physically remove the pump, tubing and subcutaneous catheter at start of insulin infusion

Notify provider

- IF corrected sodium is greater than 140 mEq/L so that Phase 2 fluids may be ordered
- IF capillary blood glucose decreases more than 100 mg/dL per hour
  - Step 1) Start Dextrose infusion (BAG 2) at 250-299 blood glucose rate if not already started.
  - \*\*If glucose continues to decrease more than 100mg/dL per hour;
  - Step 2) Decrease insulin infusion rate to 0.05 unit/kilogram per hour.
  - \*\*If capillary blood glucose continues to decrease more than 100 mg/dL
  - Step 3) Notify Provider
- IF capillary blood glucose less than 125 mg/dL AND D10 is infusing at total fluid rate
  - Decrease insulin infusion rate to 0.05 unit/kilogram per hour
  - AND Notify Provider

Notify provider

- IF corrected sodium level of less than 140 meq/L (Corrected Sodium = Measured Na + [(Serum glucose as mg/dL - 100)/100] X 1.6)
- IF deterioration in mental status
- IF develops headache
- IF Glasgow Coma Scale less than or equal to 13 or asymmetrical neurological exam

Diet

- NPO (diet)
- NPO Modifications: [ ] Except Meds [ ] Strict [ ] With Ice Chips [ ] With Sips

IV/ Line Placement

- Peripheral IV insert/maintain  Saline Lock PEDS place second IV (select if patient in SHOCK)

IV Fluids - Bolus (Phase 0) IF not already done in ER

Select for patient NOT in shock

Sodium Chloride 0.9% IV

- 10 milliliter/kilogram intravenously BOLUS Now, infuse over 60 minutes

Select for patient in SHOCK

Sodium Chloride 0.9% IV

- 10 milliliter/kilogram intravenously BOLUS Now, infuse over 20 minutes; Notify provider if shock persists after bolus infused

Initials \_\_\_\_\_

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### Bicarbonate Therapy

For patients with DKA and pH less than 6.9 SELECT:

sodium bicarbonate

- 1 milliequivalent/kilogram in final concentration of 1 mEq/5 mL 0.45% NS intravenously once Infuse over 2 hours; Recheck blood gas and BMP post infusion and notify provider of results.

### Insulins: Continuous Infusions

- Insulin infusion begins following PHASE 0 fluid resuscitation and continues until resolution of DKA

For patients 5 years of age and older SELECT:

insulin regular 250 units in 0.9% Saline 250 milliliter (1 unit/milliliter)

- 0.1 unit/kilogram per hour - Begin after Phase 0

For patients less than 5 years of age or insulin sensitive SELECT:

insulin regular 250 units in 0.9% Saline 250 milliliter (1 unit/milliliter)

- 0.05 unit/kilogram per hour - Begin after Phase 0

### IV Fluids RATE (Phase 1-2)

- Calculate based on assumed 7% dehydration subtracting initial fluid bolus given (exclude insulin drip rate) Maintain this rate for 48 hours- See provider orders -> pediatric critical care folder on the intranet for Pediatric DKA Total Fluid Rate Calculator
- PED DKA 2 bag Total IV Fluid Rate: \_\_\_\_\_ milliliter/hour

### PHASE 1 -Select one 2 bag combination

- Phase 1 begins after completion of Phase 0 and continues for at least 6 hours. Do not use 0.45% sodium chloride during phase 1.
- IF Corrected Sodium is greater than or equal to 140 mEq/L skip Phase 1 fluids and begin with Phase 2 fluids below
- Corrected Sodium = Measured Na + [(Serum glucose as mg/dL - 100)/100] X 1.6. For Corrected Sodium Calculator- See provider orders -> pediatric critical care folder on the intranet

HIGH risk for Cerebral Edema or Hyponatremic

For corrected sodium less than 140 mEq/L and potassium less than or equal to 5.5 mEq/L-Select both

- Sodium Chloride 0.9% with 10 mEq of K acetate + 6.8 mmol KPhos per 500 mL PHASE 1 BAG 1 \_\_\_\_\_ mL/hr continuous IV infusion.  
Begin following bolus (Phase 0) Titrate per two-bag system calculator; (Discontinue at start of infuse Phase 2 fluids if ordered); Coincide with insulin infusion
- Dextrose 10% and 0.9% Sodium Chloride IV with 10 mEq of K acetate + 6.8 mmol KPhos per 500 mL PHASE 1 BAG 2 \_\_\_\_\_ mL/hr continuous IV infusion.  
Titrate per two-bag system calculator; (Discontinue at start of infuse Phase 2 fluids if ordered); Coincide with insulin infusion

For corrected sodium less than 140 mEq/L and potassium greater than 5.5 mEq/L on 2 consecutive non-hemolyzed samples- Select both

- Sodium Chloride 0.9% PHASE 1 BAG 1 \_\_\_\_\_ mL/hr continuous IV infusion.  
Begin following bolus (Phase 0) Titrate per two-bag system calculator; (Discontinue at start of infuse Phase 2 fluids if ordered); Coincide with insulin infusion
- Dextrose 10% and 0.9% Sodium Chloride IV PHASE 1 BAG 2 \_\_\_\_\_ mL/hr continuous IV infusion.  
Titrate per two-bag system calculator; (Discontinue at start of infuse Phase 2 fluids if ordered); Coincide with insulin infusion (Discontinue at start of infuse Phase 2 fluids if ordered); Coincide with insulin infusion

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BENEFIS HEALTH SYSTEM  
**Benefis**  
HOSPITALS



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## PHASE 2 -Select one 2 bag combination

- Phase 2 begins 6 hours after the start of Phase 1 or when corrected sodium is greater than or equal to 140 mEq/L until resolution of DKA
- Corrected Sodium = Measured Na + [(Serum glucose as mg/dL - 100)/100] X 1.6. For Corrected Sodium Calculator- See provider orders -> pediatric critical care folder on the intranet

### Low risk for Cerebral Edema

For corrected sodium greater than or equal to 140 mEq/L and potassium less than or equal to 5.5 mEq/L- Select both

- Sodium Chloride 0.45% IV with 10 mEq of K acetate + 6.8 mmol KPhos per 500 mL; PHASE 2, BAG 1. \_\_\_\_\_ mL/hr continuous IV infusion.  
Titrate per two-bag system calculator; Coincide with insulin infusion
- Dextrose 10% and 0.45% Sodium Chloride IV with 10 mEq of K acetate + 6.8 mmol KPhos per 500 mL; PHASE 2, BAG 2. \_\_\_\_\_ mL/hr continuous IV infusion.  
Titrate per two-bag system calculator; Coincide with insulin infusion

For corrected sodium greater than or equal to 140 mEq/L and potassium greater than 5.5 mEq/L on 2 consecutive non-hemolyzed samples- Select Both

- Sodium Chloride 0.45% IV ; PHASE 2, BAG 1 \_\_\_\_\_ mL/hr continuous IV infusion.  
Titrate per two-bag system calculator; Coincide with insulin infusion
- Dextrose 10% and 0.45% Sodium Chloride IV ; PHASE 2, BAG 2 \_\_\_\_\_ mL/hr continuous IV infusion.  
Titrate per two-bag system calculator; Coincide with insulin infusion

## Transition to subcutaneous insulin

- When patient is ready to transition to subcutaneous insulin SELECT Pediatric Diabetes Management order set

## Laboratory

- For pediatric patients with suspected DKA or HHS, consider obtaining serum electrolytes, glucose, calcium, magnesium, phosphorus, and blood gases at least every 2 to 4 hours in more severe cases. Monitor BUN, creatinine, and hematocrit every 6 to 8 hours until normal.

Admission labs or labs to be obtained now: (IF not already done in ER)

- COMPREHENSIVE METABOLIC PANEL
- MAGNESIUM LEVEL, PLASMA
- PHOSPHORUS LEVEL, PLASMA
- BETA-HYDROXYBUTYRATE, BLOOD
- GLYC-HEMOGLOBIN (HGB A1C)

Blood gas study

- Arterial
- Capillary

Timed Labs:

BETA-HYDROXYBUTYRATE, BLOOD

- every 2 hours from first test, while on insulin drip

BASIC METABOLIC PANEL

- at 2, 4 and 8 hours following CMP

Blood gas study every four hours from the first blood gas

- Arterial
- Capillary

## Consults

- Consult to diabetes educator

Provider Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_