(place patient label here)

Patient Name:_____

BENEFIS HEALTH SYSTEM
Benefis
HOSPITALS

PROVIDER ORDERS

Order Set Directions:
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Diagnosis: _____

Allergies with reaction ype:_____

ICU DKA/HHS

Version 2 4/16/15

- Recommended for patient Age > 18 years old

Nursing Orders

- ☑ DKA goal glucose level 150-200 mg/dL UNTIL acidosis is resolved
- ☑ HHS goal glucose level 200-300 mg/dL UNTIL patient is mentally alert
- ☑ Point of Care Capillary Blood Glucose: Following fluid bolus and every hour while on insulin drip
- ☑ Assess neurologic status: every hour
- ☑ IF patient is admitted with an insulin infusion pump, physically remove the pump, tubing and subcutaneous catheter at start of insulin infusion
- ☑ 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 urinary output less than 30 mL/hr Notify Provider
- ☑ Notify provider when basic metabolic panel results obtained 4 hours after first complete metabolic panel
- ☑ When capillary blood glucose < 200 mg/dL Notify provider for total fluid rate adjustments
- ☑ IF capillary blood glucose is less than 125 mg/dL AND Beta-Hydroxybutyrate > 1 and/or anion gap remains abnormal: Initiate DKA/HHS Hypoglycemia Protocol and Notify Provider
- ☑ When Beta-Hydroxybutyrate is less than 1 AND anion gap has normalized Notify Provider so transition to subcutaneous insulin can be made.

Nursing Communication

- ☑ Water for Oral Intake: DKA Protocol

Diet

- ☐ NPO
- ☐ NPO except ice chips
- ☐ Clear Liquid Diet: Sugar free or diet liquids only

IV/ Line Insert and/or Maintain

- ☑ Peripheral IV insert/maintain
- ☑ Saline lock with saline flush every BID; Place 2nd IV if patient is in SHOCK OR if second IV is needed for any other infusions.
- ☐ Arterial Line insert/maintain

Initial Treatment

IV Fluids - Bolus (If not already done in ED) For patients with severe hypovolemia, without cardiac compromise

- If cardiogenic shock present consider hemodynamic monitoring and pressors

Sodium Chloride 0.9% IV
- ☐ 20 milliliter/kilogram intravenously BOLUS Now- Infuse as fast as possible
- ☐ 15 milliliter/kilogram intravenously BOLUS Now- Infuse as fast as possible

Bicarbonate Therapy

- Consider IV bicarbonate therapy for pH less than or equal to 7.0

sodium bicarbonate
- ☐ 100 milliequivalent intravenous push once; Recheck blood gas and BMP post infusion and notify provider of results.

Initials_____

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Electrolyte Replacement

- If serum potassium is 3.4-5.1 mEq/L potassium will be added to maintenance fluids.

For serum potassium less than or equal to 3.3 mEq/L SELECT:

potassium chloride

- ☐ 30 milliequivalent in 300 milliliter of NS intravenously infuse over 1.5 hour FOR PERIPHERAL IV; PATIENT MUST BE MONITORED
- ☐ 30 milliequivalent in 100 milliliter of NS intravenously infuse over 1 hour FOR CENTRAL LINE IV ONLY; PATIENT MUST BE MONITORED

Insulins

- Insulin infusion begins following initial fluid resuscitation and continues until Beta-hydroxybutyrate is less than 1
- Select Insulin bolus only if not already given in ED

insulin regular

- ☐ 0.1 unit/kilogram intravenous push once

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

- ☑ 0.1 unit/kilogram per hour - Begin after fluid bolus (if ordered)

IV Fluids RATE

- Recommended 2 Bag Total Fluid rate following initial fluid bolus: 250-500 mL/hr until glucose is less than 250 mg/dL followed by 150-250 mL/hr. May be adjusted for patient hydration status *exclude insulin rate from total fluid rate*

- ☑ 2 Bag Total IV Fluid Rate: 250 milliliter/hour
- ☐ 2 Bag Total IV Fluid Rate: _____ milliliter/hour

2 bag Fluids -Select one 2 bag combination

- Corrected Sodium = Measured Na + [(Serum glucose as mg/dL - 100)/100] X 1.6

For corrected sodium greater than or equal to 135 mEq/L and potassium less than or equal to 5.1 mEq/L Select both

Sodium Chloride 0.45% IV with 20 mEq/L KCl; BAG 1

- ☐ _____ milliliter/hour continuous intravenous infusion Begin following initial fluid bolus Titrate per two-bag system calculator; Coincide with insulin infusion

Dextrose 10% and 0.45% Sodium Chloride IV with 20 mEq/L KCl; BAG 2

- ☐ _____ milliliter/hour continuous intravenous infusion Begin when Blood Glucose is less than 300 mg/dL and titrate per two-bag system calculator; Coincide with insulin infusion

For corrected sodium greater than or equal to 135 mEq/L and potassium greater than 5.1 mEq/L Select both

Sodium Chloride 0.45% IV BAG 1

- ☐ _____ milliliter/hour continuous intravenous infusion Begin following initial fluid bolus Titrate per two-bag system calculator; Coincide with insulin infusion

Dextrose 10% and 0.45% Sodium Chloride IV BAG 2

- ☐ _____ milliliter/hour continuous intravenous infusion Begin when Blood Glucose is less than 300 mg/dL and titrate per two-bag system calculator; Coincide with insulin infusion

For corrected sodium less than 135 mEq/L and potassium less than or equal to 5.1 mEq/L Select both

Sodium Chloride 0.9% with 20 mEq/L of KCl BAG 1

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Dextrose 10% and 0.9% Sodium Chloride IV with 20 mEg/L KCl BAG 2

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Dextrose 10% and 0.9% Sodium Chloride IV BAG 2

☐ _____ milliliter/hour continuous intravenous infusion Begin when Blood Glucose is less than 300 mg/dL and titrate per two-bag system calculator; Coincide with insulin infusion

Transition to subcutaneous insulin- Begins after resolution of DKA or HHS

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

Laboratory

- For 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)

☐ CBC/AUTO DIFF
☐ COMPREHENSIVE METABOLIC PANEL
☐ MAGNESIUM LEVEL, PLASMA
☐ PHOSPHORUS LEVEL, PLASMA
☐ BETA-HYDROXYBUTYRATE, BLOOD
☐ GLYC-HEMOGLOBIN (HGB A1C)
☐ Blood gas study, arterial
☐ TROPONIN I
☐ BLOOD CULTURE, from two different sites five minutes apart
☐ UA W/MICROSCOPY, CULT IF INDIC
☐ OSMOLALITY, SERUM

Timed Labs:

- Adjust start times as needed based on ED or admission lab times

BETA-HYDROXYBUTYRATE, BLOOD
☑ every 2 hours from first test, while on insulin drip

BASIC METABOLIC PANEL
☑ every 4 hours x 24 hours

MAGNESIUM LEVEL, PLASMA
☑ every 4 hours x 24 hours

PHOSPHORUS LEVEL, PLASMA
☑ every 4 hours x 24 hours

OSMOLALITY, SERUM
☐ every 4 hours x 24 hours

Blood gas study, arterial
☐ every 4 hours

Consults

☐ Consult to diabetes educator

Provider Signature:_____Date:_____Time:_____