MANUAL

Insulin Drip Orders

1. Initiate Blood Glucose Flowsheet Q 1-2 h

2. Start IV: ( ) NS at 10cc/hr
   ( ) D5W with 20 mEq KCL at 100cc/hr
   ( ) Other: _____

3. Mix drip with 125 units Regular Insulin into 250cc NS to equal a concentration of 0.5 units of Insulin per cc .

4. Piggy back Insulin Drip into IVF using IMED (DO NOT FILTER INSULIN)

5. Starting drip rate: use formula (BG - 60) x 0.03 = # units of Insulin/hr
   Formula description: BG is current blood glucose,
   0.03 is the multiplier

6. Target range for BG: Low target *(circle one)* 80 - 100 or _____ High target *(circle one)* 100 - 120 - 140 - or _____

7. a. Check BG every hour per hospital BG meter
   b. Adjust current multiplier in drip formula in #5 above according to the following directions:
      1) whenever BG greater than HIGH target - increase multiplier by 0.01
      2) whenever BG less than LOW target - decrease multiplier by 0.01
      3) whenever BG within target range - do not change multiplier and adjust drip rate according to formula

8. Treat for hypoglycemia if BG less than 80 or _____
   a. Give D50 using formula:(100 - BG) x 0.3 = # cc of D50 to be given IV Push, and
   b. Decrease the Insulin Drip multiplier by 0.01 and continue Insulin Drip, and
   c. Resume BG monitoring and Insulin Drip formula protocol in order #7 above

9. Call MD if BG less than 60 or greater than 200 or for episode of hypoglycemia X2, or If BG > 200 X 4 in a row and/or BGs are increasing rather than decreasing.

10. Obtain Lab value of Blood Glucose if BG < 40mg/dl or > 450 mg/dl.
11. Other Orders:

_____

_____

_____

Time: _____ Date: _____ MD Signature_____(Rev:01/01)

PIEDMONT HOSPITAL
ATLANTA, GEORGIA

IV INSULIN/GLUCOMMANDER FLOWSHEET

BG Target____-____ Max Minutes_____ Insulin Concentration _____

Date/Time	Blood Glucose	Multiplier	Units/Hour	cc's/hr	RN Signature	Other

Piedmont Hospital IV Insulin Drip per Glucommander Standing Orders

1.Obtain initial Blood Glucose **and each** time the Glucommander beeps and enter the value into the Glucommander. (This is necessary so the multiplier will be adjusted.)

2. IV Fluids (Place all on IV controller):

NS + _____mEq/L KCL at _____cc/hr.

When Blood Glucose is < 250mg/dL or _____Switch IV fluids to:

D5 ½ NS + _____mEq/L KCL at_____cc/hr.

3. Diet: _____Clear Noncaloric Liquids_____ _____NPO

4. DO NOT FEED PT FOODS CONTAINING CALORIES UNLESS ADDITIONAL MEALTIME INSULIN IS ORDERED.

5. IV Insulin Drip: Normal Saline 250ml with 125 Units Regular Insulin (.5 Units/ml)
Place IV Insulin Drip on controller. DO NOT use IV filter on line.

6. Low Target Blood Glucose: 100 mg/dL (or _____)

7.High Target Blood Glucose: 140 mg/dL (or _____)

8.Multiplier: 0.02 (or _____)

9.**Max Minutes between Blood Glucose Readings: 120 minutes** (or _____)
Note: Glucommander will beep for new blood glucose more frequently until glucose is stabilized. Obtain and enter BG value EVEN if the insulin drip is at 0 Units/Hr. The drip may need to be restarted if the BG has increased.

10.Hypoglycemia Treatment:
IF BG < 80mg/dL administer D50 according to the formula:
(100-BG) x 0.3 = _____cc D50 IV Push

ER Diabetic Patient Pathway Orders

(non-DKA)

Allergies: _____

1. BG per hospital BG meter

2. Notify attending MD

3. For BG <60:
   a. IV access: D5W _____cc/hr
   b. Give D50 IV per formula (100-BG) x 0.3 = #cc of D50 to give IV push
   c. Monitor BG q 30 min
      1) If BG <60, repeat D50 IV bolus using formula above and continue to monitor BG Q 30 min
      2) If BG <60 after second dose of D50, notify ER physician
      3) If BG >60, recheck BG in 30 min
         a) If BG >60 X 2, monitor BG Q 1 hr

4. For BG >60 & <200: *** Target BG: >60 and <200 ***
   a. Monitor BG Q 1 hr
      *If BG <60, **refer to Order #3 above**
      *If BG >60 and <200, continue to monitor Q 1 hr
      *If BG >200 **refer to Order #5 below**

5. For BG >200 Order Labs: CBC w/diff CMP Urine (for ketones)
   a. CO2 >18
      1) give Humalog Insulin per formula (BG-100) / 30 = ___ # units Humalog SQ
      2) monitor BG Q 2 hr
         * If BG < 60, **refer to Order #3 b and c above**
         * If BG > 60 and < 200, continue to monitor BG Q 2 hr
         * If BG > 200, give 2nd dose of Humalog Insulin SQ according to formula: (BG - 100) /30 =_____units Humalog and monitor BG Q 2 hr
         * If BG remains > 200 after second dose of Humalog,(begin Insulin Drip or Glucommander order)
   b. CO2 <18 & urine ketones <4+
      1) give Humalog Insulin per formula (BG-100) / 30 = # units SQ
      2) monitor BG Q 2 hr
         * If BG < 60, **refer to Order #3 b and c above**
         * If BG > 60 and < 200, continue to monitor BG Q 2 hr
         * If BG > 200, give 2nd dose of Humalog Insulin SQ according to formula: (BG - 100) /30 =_____units Humalog and monitor BG Q 2 hr
         * If BG remains > 200 after second dose of Humalog, (begin Insulin Drip or Glucommander orders)
   c. CO2 <18 & urine ketones 4+ : **Go to DKA Pathway Orders**

6. Other orders: _____

Time: _____ Date: _____ MD Signature: _____

Rev:01/01

DKA Clinical Pathway Orders: Emergency Room

ALLERGIES: _____

1) **IV:** 2 Sites:
   IV Site #1: 1000cc NS @ KVO or @ ____ cc/hr
   IV Site #2: 1000cc NS with 20 meq KCL @ ____ cc/hr
2) **LABS:** CBC w/diff CMP ABG Serum Acetone U/A
3) **Optional Labs:** ____ Magnesium ____ Amylase
   ____ Urine C & S ____ Blood C & S
   ____ CK Isoenzymes ____ PT/PTT
4) **Other Tests:** ____CXR ____ EKG ____ KUB (optional)
5) **Regular Insulin bolus**: use formula (BG-100)/ 30= ____ units Regular Insulin IV now
6) BG per fingerstick q 1 hr

Insulin delivery procedure: select one of the following

7) ( ) **Insulin Drip:** Mix drip with 125 units Regular Insulin into 250cc NS to equal a concentration of 0.5 units of Insulin per cc; piggy back Insulin Drip into IVF using IMED (DO NOT FILTER INSULIN)
   a. Starting drip rate: use formula (BG - 60) x 0.03 = # units of Insulin/hr
      Formula description: BG is current blood glucose,
      0.03 is the multiplier

   b. Target range for BG: Low target _____ High target _____

   c. At the end of the first hour of Insulin Drip:
      1) Check BG every hour per hospital BG meter
      2) Adjust above drip formula according to the following directions:
         a) whenever BG greater than HIGH target - increase multiplier by 0.01
         b) whenever BG less than LOW target - decrease multiplier by 0.01
         c) whenever BG within target range - do not change multiplier and adjust drip rate according to formula

( ) **Glucommander**

8) Treat for hypoglycemia if BG less than 80:
   a. Give D50 using following formula:(100 - BG) x 0.3 = # cc of D50 to be given IV Push
   b. Lower the Insulin Drip multiplier by 0.01 and continue Insulin Drip
   c. Resume BG monitoring and Insulin Drip formula protocol in order #7 above
9) For pH < 6.9 give 2 amps NaHCO3 IVP *
   * repeat BMP and venous ph in 1 hr, and reassess
10) I & O
11) Foley catheter prn
12) Vital signs q 1 hr
13) Oxygen @ ___ L/min
14) Old chart to ER
15) Admit to: ____ICU ____ Intermediate Care Unit ____ 2 North ____ RTU
16) Keep pt. NPO

Time: _____ Date: _____ MD Signature: _____

Rev: 01/01

NPO Diabetic Patient
Clinical Pathway Orders

1. Place patient on Clinical Pathway - NPO Diabetic Patient
2. Place INT (if no other IV access is available)
3. NPO _____ NPO after midnight_____
4. BG on arrival to unit or at point of entry and then **refer to Order #5 - #7 according to BG value**
    a. Inpatients: Monitor BG @ HS, 0300, and 0600 and Q 2 hr after 0600
    b. Outpatients and AM Admits: Monitor BG Q 2 hr.

5. For BG <60:
    a. Give D50 IV according to formula: (100-BG) x 0.3 = _____ cc D50 IV Push
    b. Monitor BG Q 30 min:
        *If BG remains <60 - repeat D50 IV according to formula above and continue to monitor BG Q 30 min
        *If BG remains <60 after second dose of D50, call MD
        *If BG >60 - then monitor BG Q 30 min. If BG > 60 x 2, monitor Q 1 hr x 2, then Q 2 hr.

6. If BG >60 and <200:
    a. Monitor BG Q 2 hr
        *If BG <60, **refer to Order #5 above**
        *If BG >60 and <200, continue to monitor Q 2 hr
        *If BG >200 **refer to Order #7 below**

7. If BG >200
    a. STAT BMP
        *If CO2 > 18,
            1. Give Humalog Insulin SQ per formula: (BG-100) / 30 = _____ units Humalog SQ
            2. Monitor BG Q 2 hr
                *If BG <60, **refer to Order #5 above**
                *If BG >60 and <200, continue to monitor BG Q 2 hr
                *If BG is >200, give 2nd dose of Humalog Insulin SQ according to formula: (BG-100) / 30 = _____ units Humalog and monitor BG Q 2 hrs
                *If BG remains >200 after second dose of Humalog, call MD for Insulin Drip or Glucommander orders
        *If CO2 < 18 : **Go to DKA Pathway Orders**
8. Other Orders: _____

_____

Time:_____Date:_____MD Signature_____

Rev:01/01

Diabetic Ketoacidosis (DKA) Clinical Pathway:
Admission Orders (Page 1 of 2)

ALLERGIES: _____

1) Admit to: _____ICU _____ Intermediate Care Unit ____ 2 North _____RTU

2) Place patient on DKA Pathway

3) Activity: _____

4) Diet: NPO except Noncaloric clear liquids; begin _____ cal ADA diet when DKA resolved and SQ Insulin has been resumed.

5) Labs: BMP & venous pH q 6 hr until DKA resolved* then q day
*DKA resolved when ph >7.35 and CO2 > 18 and/or anion gap <14

Obtain Phosphorus with second BMP
Blood cultures x 2 for temp > 101
Other _____

6) **IV:** For BG > 250 begin 1/2 NS at _____ cc/hr or _____
When BG < 250 then convert to D51/2 NS at _____ cc/hr

7) For pH<6.9 add 2 amps NaHCO3 to D5W or 1/4NS
* do not add NaHCO3 to Insulin containing fluids*

8) Adjust K orders below based on q 6 hr serum K result (report in BMP results)
For K < 4.5 add 40 meq KCL per liter IVF or _____
For K 4.6-5.5 add 20 meq KCL per liter IVF or _____
For K >5.6 hold KCL and check serum K q 2hr

9) BG per fingerstick on arrival to unit and q 1h x 6hr then q 2h

10) Insulin delivery procedure (select only 1 of the following):
_____ **IV Insulin drip** per hospital protocol
OR
_____ **Glucommander**

11) To begin SQ Insulin, call MD when DKA is resolved*(see order #4)
Begin _____ Insulin before breakfast
_____ Insulin before lunch
_____ Insulin before supper
_____ Insulin before bed
Sliding scale is (BG - ___)/___= # units supplemental Regular or Humalog (circle)
Discontinue Insulin drip 1 hr after SQ Insulin initiated.

12) Diabetes Resource Center consult for diabetes self management education.

13) Hospital Dietitian consult

14) Tylenol 650 mg po q 4-6hr prn or _____-

15) LOC PRN

16) Reglan 10 mg IV q 6hr prn nausea or _____

17) Restoril 15 mg po hs prn sleep or _____

18) Other Medications: _____
_____
_____
_____
_____
_____
_____

19) I & O

20) Foley catheter prn

21) Vital signs q 1 hr, until DKA resolved*, then q 4hr
* DKA resolved when ph> 7.35 and CO2> 18 and/or anion gap <14.

22) Oxygen @ ___ L/min

23) Old chart to floor

24) Other Orders:

_____

_____

_____

Time:_____ Date: _____ MD Signature_____

Rev:01/01

PIEDMONT HOSPITAL
NURSING PROCEDURE

HYPOGLYCEMIA TREATMENT

I. OBJECTIVE/PURPOSE:

To promptly reverse hypoglycemia in a consistent therapeutically appropriate manner.

A. Definition:

1. Hypoglycemia is a blood glucose (BG) that is less than 60 mg/dl even in the absence of obvious signs and symptoms.

2. Signs and Symptoms of Hypoglycemia:

   a.) Shaky
   b.) Sweaty
   c.) Altered state of consciousness/personality change.
   d.) Patient reports feeling hypoglycemic.

B. Always report to the attending physician/endocrinologist any hypoglycemic episodes.

C. Do not arbitrarily withhold the next dose of insulin.

II. PROCEDURE FOR BLOOD GLUCOSE (BG) LESS THAN 60 MG/DL

- Do not withhold treatment for hypoglycemia while waiting for laboratory values or while awaiting a response from the physician.
- If the blood glucose results is less than 40 mg/dl, obtain a stat blood glucose from the laboratory, but do not delay treatment pending results.
- All patients experiencing hypoglycemia should be closely monitored for the next 24 hours with blood glucose (BG) checks ordered by the physician.

A. Conscious hypoglycemic patient without IV access:

1. Treat with 15 gm of simple carbohydrate.

   a.) Three to four Glucose tablets (first choice).
   b.) 1/2 cup (4 oz) of fruit juice (no sugar added).
   c.) 1/2 cup (4 oz) non-diet carbonated beverage (Coca-Cola).
   d.) 1 cup of skim milk.

2. Repeat the blood glucose in 20 minutes and document. Notify attending physician/endocrinologist.

3. If the glucose is less than 60 mg/dl after treatment.

   a.) Repeat 15 gm of simple carbohydrate.
   b.) Continue to perform blood glucose every 20 minutes and document results.
   c.) Continue to administer 15 gm of simple carbohydrates every 20 minutes until the blood glucose is greater than 60 or until directed to provide a different treatment as ordered by the physician.

B. For all patients with IV access whether eating or NPO:

1. Treat with D50; To determine the dose use this formula (100-BG) x 0.3=the number of ml's of D50 to administer IV push. Notify physician of the results.

2. Repeat the blood glucose 20 minutes after the treatment is provided and document results.

3. If the blood glucose is less than 60 mg/dl, repeat the D50 using the same dosing formula.

C. Unconscious Patients without IV access:

1. Treat with 1 mg of Glucagon (adult dosage) IM or SQ: Notify the physician. *Please note that patients receiving Glucagon may experience nausea and vomiting post treatment. It is imperative to turn the patient on their side during treatment to avoid aspiration.

2. Establish IV access (INT) and await further orders from physician.

3. Repeat the blood glucose 20 minutes after the dose of Glucagon is given to measure the drug's peak effectiveness and patient's response to the medication given.

III. DOCUMENTATION:

A. Document the administration of glucose tablets, Glucagon, and D50 on the Insulin Administration Record.

B. Record in the nursing notes the signs and symptoms displayed, treatment administered, initial and subsequent blood glucose reading and notifications to the attending physician.

IV. REFERENCES:

American Diabetes Association Standards of Care

Revised 9/00
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