

**GUAM MEMORIAL HOSPITAL AUTHORITY
INTENSIVE CARE UNIT HYPERGLYCEMIA PROTOCOL**

For use on Adult Patients:

- Blood Glucose (BG) Monitoring: **Target BG in ICU 140 – 180 mg/dL**
- Monitor BG: Before meals and at bedtime (ACHS) Every _____ hours
- Time to administer and dose according to the following subcutaneous dosing regimen:

		BREAKFAST	LUNCH	DINNER	BEDTIME
<input type="checkbox"/>	Insulin NPH	_____ units	_____ units	_____ units	_____ units
<input type="checkbox"/>	Insulin Regular Give 30min prior to meals	_____ units	_____ units	_____ units	_____ units
<input type="checkbox"/>	Use patient's home basal insulin <input type="checkbox"/> Lantus 100units/mL <input type="checkbox"/> Levemir 100units/mL <input type="checkbox"/> Tujeo 300units/mL	_____ units	_____ units	_____ units	_____ units
<input type="checkbox"/>	Other:	_____ units	_____ units	_____ units	_____ units

- If BG is greater than 180, give "correction dose" of Regular Insulin according to the following sliding scale regimen for hyperglycemia. (Select desired algorithm). Administer "correction dose" 0 to 15 minutes before meal with no change to scheduled insulin regimen.

ABLE TO EAT (AC ACCUCHECKS)	
<input type="checkbox"/>	LOW Dose Regimen
TID (before every meal)	Additional Insulin
201 – 250	2 units
251 – 300	4 units
301 – 350	6 units
351 – 400	8 units
<input type="checkbox"/>	MODERATE Dose Regimen
TID (before every meal)	Additional Insulin
151 – 180	2 units
181 – 210	4 units
211 – 240	6 units
241 – 270	8 units
271 – 300	10 units
301 – 330	12 units
331 – 350	14 units
<input type="checkbox"/>	HIGH Dose Regimen
TID (before every meal)	Additional Insulin
151 – 200	4 units
201 – 250	8 units
251 – 300	12 units
301 – 350	16 units
351 – 400	20 units

N P O or Tube Feeds (Q6H ACCUCHECKS)	
<input type="checkbox"/>	LOW Dose Regimen
Q6H Accuchecks	Additional Insulin
201 – 250	1 units
251 – 300	2 units
301 – 350	3 units
351 – 400	4 units
<input type="checkbox"/>	MODERATE Dose Regimen
Q6H Accuchecks	Additional Insulin
151 – 200	3 units
201 – 250	5 units
251 – 300	7 units
301 – 350	9 units
<input type="checkbox"/>	HIGH Dose Regimen
Q6H Accuchecks	Additional Insulin
151 – 200	3 units
201 – 250	6 units
251 – 300	9 units
301 – 350	12 units
351 – 400	15 units

Physician initial: _____

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PATIENT ID _____

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Revised: 8/30/16 Approved SCC: 11/4/16 MEC: 2/22/17

P&T: 2/1/17 Medicine: 1/19/17 HIMC: _____

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5. Patients on tube feeds

- Insulin NPH _____ units SQ Q12H **OR** every _____ hours
- Home basal insulin _____ (name) _____ units SQ every _____ hours
- Insulin Regular _____ units SQ every 6 hours (**HOLD IF TUBE FEEDS ARE HELD**)
- Sliding Scale Insulin Low Dose Regimen Medium Dose Regimen High dose Regimen

6. Initiate insulin infusion if capillary blood glucose remains > 180 x 2 accuchecks.

- Insulin infusions should be discontinued when the patient is eating and 1 hr after receiving 1st dose of maintenance SQ insulin

Intravenous Fluids:

- Start MIVF containing dextrose once capillary BG is less than 250mg/dL – **check one box**
 - D5-NS with _____ mEq KCl per liter to run at _____ mL/hr Other: _____
 - D5-1/2NS with _____ mEq KCl per liter to run at _____ mL/hr

Initiating Insulin Infusion:

- **TARGET BLOOD GLUCOSE 140-180mg/dL**
- Check blood glucose at one hour intervals.
- Start insulin infusion of Regular insulin 100units/NS 100mL (1unit/mL)
 - Bolus=0.1unit/kg IV x _____ kg = _____ units (**PHYSICIAN MUST COMPLETE**)
 - Infusion=0.1unit/kg/hr IV x _____ kg = _____ units/hr (**PHYSICIAN MUST COMPLETE**)
 - Hold insulin if K \leq 3.3mmol/L

INSULIN DRIP RATE ADJUSTMENT PROTOCOL

BLOOD GLUCOSE RANGE	INSULIN DRIP RATE ADJUSTMENT
BG < 70mg/dL	Hold insulin drip Implement GMH Hypoglycemia Protocol
BG 70-100mg/dL	Hold insulin drip and repeat BG level every 30min until BG>180mg/dL and then restart insulin drip at 50% of the previous rate
BG 100-140mg/dL	decrease drip rate by 25%
BG 140-180mg/dL (TARGET RANGE)	KEEP CURRENT RATE

If BG>180mg/dL Adjust the insulin drip based on the rate of change from prior BG level	Insulin Drip Rate Adjustment
Δ BG < 25mg/dL	increase drip rate by 50%
Δ BG 25-50mg/dL	increase drip rate by 25%
Δ BG 50-75mg/dL	KEEP CURRENT RATE
Δ BG 75-100mg/dL	decrease drip rate by 25%
Δ BG > 100mg/dL	decrease drip rate by 50%

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ADJUSTING THE INFUSION

- **If patient remains in goal range, do not adjust the rate until the BG falls out of goal range.**
 - **If BG remains >180mg/dL and is elevated from previous accucheck, increase insulin drip rate by 50% and recheck in one hour per protocol.**
 - If nutritional therapy (eg. TPN or tube feeds) is discontinued or slightly reduced, decrease insulin infusion rate by 50% and reinstate hourly blood glucose checks.
7. Hypoglycemia (capillary BG < 70mg/dL) – **hold insulin drip.**
- Implement hypoglycemia protocol.
 - Once BG>200mg/dL, resume infusion at 50% of previous infusion rate.
8. Notify the physician
- Blood glucose remains over 350mg/dL.
 - Patient becomes hypoglycemic (BG<70mg/dL).
9. Transition from IV to SQ Insulin
- Evaluate the patient’s nutritional intake to calculate the Total Daily Dose (TDD) of insulin.
 - Step 1: Average the rate of insulin infusion when BG has stabilized.
 - Step 2: Multiply by 24 hours. Multiply the 24 hour insulin requirement by 75% = TDD.
 - Step 3: Divide the TDD into the appropriate insulin regimen. **(See sample calculations below)**
 - 50% basal insulin + 50% prandial insulin
 - Prandial insulin dose divided TID if tolerating meals or Q6H if on continuous tube feeds.

Example: Average rate of insulin infusion is 2units/hr.
TDD = 2units/hr x 24hrs = 48units x 75% = 36units TDD
50% TDD = 18units given as basal insulin (NPH, Lantus, Levemir, Tujeo)
50% TDD = 18units divided TID as prandial insulin = 6units TID

Physician: _____

Date: _____ Time: _____