❒ **STAT** "PLACE **X** IN BOX IF STAT"

"Authorization is hereby given to dispense the Generic equivalent or Medical Staff approved therapeutic equivalent unless otherwise indicated by the words – **DO NOT SUBSTITUTE – MEDICAL NECESSITY"**

ALLERGIES: ❒ NKA ❒ YES
DRUG: _____
OTHER: _____
WT: _____kg. HT: _____cm.

PHYSICIAN'S ORDERS

ICU INSULIN INFUSION FOR CRITICALLY ILL PATIENTS
(For NPO patients with hemodynamic instability or mechanical ventilation)
****NOT FOR PATIENTS WITH DIABETIC KETOACIDOSIS OR HYPERGLYCEMIC HYPEROSMOLAR STATE****

❒ **PHARMACY ORDERS:**
- **DISCONTINUE** ALL PREVIOUS INSULIN ORDERS and ORAL HYPOGLYCEMIC AGENTS
- Insulin, regular (Novolin R, Humulin R) 100 units in 100 ml NS . Start insulin drip per ICU protocol.
- D50W IV push per ICU INSULIN protocol for BG less than 80 mg/dL

PHYSICIAN TO SELECT TARGET RANGE FOR FASTING BLOOD GLUCOSE (FBG)

❒ **CVICU & CCU Patients: LOW** Target=80 mg/dL AND **HIGH** Target=110 mg/dL
❒ **Other ICU Patients: LOW** Target = _____ mg/dL AND **HIGH** Target = _____ mg/dL (Suggested range 90 to 150 mg/dL)

❒ Upon arrival to ICU, check Blood Glucose every 1 hour x 4 hours. **If first 4 consecutive FBG all within target range,** do **NOT** start insulin infusion and continue to check BG every 4 hours for 24 hours or per unit monitoring procedures. (Do **NOT** check FBG from lines or extremities through which dextrose solutions are infusing).

❒ If **ANY BG GREATER THAN HIGH target,** repeat BG to verify, and initiate IV insulin drip

1. **Insulin Infusion Instructions:**
   a. **BEFORE** starting IV insulin, ensure serum Potassium is over 3.3 mEq/L; Replace Potassium if necessary until Potassium is at least 3.4 mEq/L. Check Potassium every 8 hours for 48 hours. Do NOT start insulin drip unless Potassium is more than 3.3 mEq/L
   b. MIX 100 units of insulin, regular (Novolin R, Humulin R) in 100 mL 0.9% NS (Final concentration = 1 unit/ml)
   c. Flush with NS approximately 15 mL through IV tubing line prior to administration
   d. **Initial Insulin drip rate (units/hr) = (Blood Glucose - 60) X 0.03 "multiplier"**
      i. Check BG every 1 hour
      ii. If hourly BG is greater than **HIGH** target, increase the "multiplier" by 0.01 (Do **NOT** increase if treated for hypoglycemia within the last 4 hours)
      iii. If hourly BG is less than **LOW** target, decrease the "multiplier" by 0.01
      iv. If hourly BG is **WITHIN** target range, do **NOT** change the "multiplier"
      v. **If tube feedings or TPN are interrupted, turn OFF drip AND contact physician AND recheck BG in 1 hour AND Restart insulin infusion only if needed.**
      vi. Contact primary physician / critical care team /clinical pharmacist if unable to decide rate
   e. Blood glucose monitoring
      i. Check BG every 1 hour
      ii. For patients **INITIATED OR DISCONTINUED ON NOREPINEPHRINE, EPINEPHRINE, OR ISOPROTERENOL** check BG every 30 minutes for 2 hours
      iii. After hourly BG remain in target range for 4 consecutive hours, check BG every 2 hours or per unit monitoring procedures.
      iv. If multiplier is changed, resume checking BG every 1 hour.
      v. Send **STAT** serum glucose to laboratory for verification of all BG under 40 mg/dL or over 400 mg/dL

_____	_____	_____	_____	_____
Signature	Last Name (Printed)	Pager #	MSID #	Date/Time

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Insulin Infusion Orders for ICU

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ALLERGIES: ❒ NKA ❒ YES
DRUG: _____
OTHER: _____
WT: _____kg. HT: _____cm.

PHYSICIAN'S ORDERS

f. Treatment for hypoglycemia **(BG less than 60 mg/dL)**
   i. Give D50W by IV Push: Dose D50W (ml)= (100 - Blood Glucose) x 0.3, AND
   ii. Turn **OFF** insulin drip, AND
   iii. Recheck Blood Glucose every 15 minutes until BG is within range, AND
   iv. Resume Blood Glucose monitoring every hour and resume insulin drip when BG is greater than **HIGH** target as specified above in 1d and decrease the multiplier of previous rate by 0.01

g. Treatment for hypoglycemia **(BG is 60 to 80 mg/dL)**
   i. Give D50W by IV Push: Dose D50W (ml)= (100 - Blood Glucose) x 0.3, AND
   ii. Decrease insulin drip multiplier by 0.01 and continue insulin drip, AND
   iii. Recheck Blood Glucose every 15 minutes until BG is within range, AND
   iv. Resume Blood Glucose monitoring. Do **NOT** increase multiplier after treating for hypoglycemia until BG is greater than **HIGH** target.

2. Document all BG, insulin, and dextrose administration on IV insulin flowsheet (Use form # 68183)

3. **NOTIFY Critical care Team STAT** if:
   - BG is less than 60 mg/dL
   - After coming down, BG reverts back to levels greater than 200 mg/dL for 2 consecutive measurements
   - Insulin infusion rate exceeding 24 units/hour does not result in a lower BG level
   - **Patient is to leave the unit for any reason to reassess continuation of drip**
   - **TPN or tube feedings are held (Discontinue drip 1st and notify team for further instructions)**

_____	_____	_____	_____	_____
Signature	Last Name (Printed)	Pager #	MSID #	Date/Time

Attributions: This algorithm was adapted for use within the Memorial Hermann Hospital System and is derived from the works of Bruce Bode, MD of Atlanta, GA, Reddy Biggs, MD of Amarillo, TX, Victor Lavis, MD and Philip Orlander, MD of Houston, TX for use in Adult Patients.

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Insulin Infusion Orders for ICU