

UNIT NUMBER

PT. NAME

BIRTHDATE

INSULIN INFUSION ORDER FORM FOR ADULT CRITICAL CARE ONLY

For Hyperglycemic Patients

Page 1 of 2

LOCATION

DATE

- Discontinue all previous orders for: Insulin Oral or other parenteral antidiabetic medications
- Maintenance **IV FLUIDS**: IV dextrose infusion (minimum rate of 10 mL/hr) or Tube feeding or TPN must be maintained while the patient is on an insulin infusion
 - D5 NS at _____ mL/hr
 - D5½ NS at _____ mL/hr
 - D10 W at _____ mL/hr (for patients with fluid restrictions or renal failure)
 - D10 NS at _____ mL/hr (eg. fluid restricted with Na wasting. Neurosurgery or Neurology patients)
 - Other _____ at _____ mL/hr
 - Add KCl _____ mEq/L (generally 20 mEq/L)
- If the TPN or tube feeds are interrupted for longer than 30 minutes, start
 - D₁₀W IV OR D₁₀NS IV at 50mL/hr. Notify MD.
- Insulin **Infusion Bags** ICU Concentration 1 unit = 1 mL*
**Use 100 units of REGULAR human insulin in a 100 mL NS bag. Before connecting to the patient – Flush and discard the first 20 mL through tubing or whenever tubing is changed.*
- Initial Insulin Infusion Rate.** Blood glucose (BG) level must be ≥ 120 mg/dL before starting. Choose starting dose from either option A or B, but do not check both.
 - Option A: Standard Doses**
 - If current glucose 120-150 mg/dL 0.5 units/hr
 - If current glucose 151-200 mg/dL 1 units/hr
 - If current glucose 201-300 mg/dL 1.5 units/hr
 - If current glucose >300 mg/dL 2.5 units/hr
 - Other _____ units/hr
 - Option B: For postoperative cardiovascular surgery patients or patients on glucocorticoids**
 - If current glucose 120-150 mg/dL 2 units/hr
 - If current glucose 151-200 mg/dL 3 units/hr
 - If current glucose >200 mg/dL 4 units/hr
 - Other (Note IV insulin rate during surgery. If patient on IV insulin at end of case, consider using 50% of this rate as starting rate) _____ units/hr
- Blood Glucose Goal: 100-160 mg/dL** (Follow monitoring parameters & dose adjustments on page 2)

If patient is receiving Extraneal, Gamimune N, Octagam, D-xylose, WinrhoD SDF, Hepagam B, Orencia, or Adept adhesion reduction solution, do not use glucose meter for BG checks. All BGs must be sent to the laboratory.

Signature _____ Provider No. _____ Date _____ Time _____ Pager _____

ORDERS MUST INCLUDE LEGIBLE PROVIDER NUMBER, DATE, AND TIME

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<input checked="" type="checkbox"/> A. If current BG is < 60 then		
<ul style="list-style-type: none"> • STOP insulin infusion • Give 50 mL D50 IV push • Notify MD • Check BG every 15 min. and repeat treatment until BG > 100 mg/dL; then, check BG every 30 min. until BG is \geq 120 mg/dL. • When BG \geq 120 mg/dL, restart drip at 30% of previous rate (0.3 x previous rate). Round up to the nearest tenth of a unit. 		
If current BG is 60-80 then		
<ul style="list-style-type: none"> • STOP insulin infusion • Give 25 mL D50 IV push • Notify MD • Check BG every 30 minutes and repeat treatment until BG > 100 mg/dL; then, check BG every 30 min. until BG is \geq 120 mg/dL. • When BG \geq 120 mg/dL, restart drip at 40% of previous rate (0.4 x previous rate). Round up to the nearest tenth of a unit. 		
<input checked="" type="checkbox"/> B. If current BG is 81 to 120 and previous BG was:	Action Step 1	Action Step 2: Check BG in
81-100	↓ rate by 0.5 unit	1 hr
101-120	↓ rate by 0.3 unit	1 hr
121-160	↓ rate by 1 unit	1 hr
161-200	↓ rate by 1.5 unit	1 hr
201-250	↓ rate by 2 unit	1 hr
251-400	↓ rate by 2.5 unit	1 hr
> 400	↓ rate by 3.5 unit	1 hr
<input checked="" type="checkbox"/> C. If current BG is 121 to 160 and previous BG was:	Action Step 1	Action Step 2: Check BG in
\leq 120	↑ rate by 0.1 unit	1 hr
121-160	no change	1-2 hr
161-200	↓ rate by 0.3 unit	1 hr
201-250	↓ rate by 0.5 unit	1 hr
251-400	↓ rate by 1 unit	1 hr
> 400	↓ rate by 2 unit	1 hr
<input checked="" type="checkbox"/> D. If current BG is 161 - 200 and compared to previous BG it has	Action Step 1	Action Step 2: Check BG in
Remained the same or increased	↑ rate by 0.5 unit	1 hr
Decreased by \geq 1 but < 10 then	↑ rate by 0.4 unit	1 hr
Decreased by \geq 10 but < 50 then	no change	1 hr
Decreased by \geq 50 but < 100 then	↓ rate by 0.5 unit	1 hr
Decreased by \geq 100	↓ rate by 1.5 unit	30 mins
<input checked="" type="checkbox"/> E. If current BG is > 200 and compared to previous BG it has	Action Step 1	Action Step 2: Check BG in
Remained the same or increased	↑ rate by 1.2 unit	1 hr
Decreased by \geq 1 but < 30 then	↑ rate by 1 unit	1 hr
Decreased by \geq 30 but < 100 then	no change	1 hr
Decreased by \geq 100	↓ rate by 1 unit	30 mins
NOT decreased below 200 after 3 adjustments in infusion rate	Call MD	1 hr

Individualize algorithm for very insulin resistant subjects (insulin infusion > 20 units/hr or BG > 300 mg/dL for more than 4 hrs). Endocrine service is available for advice.

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INDICATIONS AND GUIDELINES FOR INSULIN INFUSION

RATIONALE

The predictable delivery and short biological effect (about 40 minutes) of intravenous insulin allows for rapid dose titration based on individual patient requirements and more stable glucose levels. The insulin infusion is designed to:

1. Keep glucose in a target range, minimizing the risk of hypoglycemia and avoiding the undesirable effects of hyperglycemia.
2. Improve and maintain glycemic control, even when an operative procedure is delayed.

INDICATIONS

1. Patients with diabetes *and* hyperglycemic patients who are NPO (e.g., perioperative management, prolonged nausea and vomiting)
2. For patients who are starting TPN or tube feeding, an insulin infusion may be used to establish insulin requirements; care must be taken to adjust insulin infusion when changes in rates of TPN or tube feedings are made.
3. Glycemic goal is 100 to 160 mg/dL in the ICU setting.

IMPORTANT POINTS

1. Patients with renal failure or fluid restrictions should be given glucose as a D10 infusion at a slower rate.
2. Insulin requirements are predictably increased in certain clinical conditions: severe infections, steroid therapy (doubles insulin needs), morbid obesity, and hepatic disease.
3. If patient has continued hyperglycemia, make sure patient is hydrated and correct hypokalemia and hypomagnesemia if indicated.
4. Because insulin has a very short biological effect, it usually should be administered by infusion and not by IV push.
5. Patients in an ICU setting may have impaired peripheral perfusion or peripheral edema. Therefore, they are less likely to consistently and predictably absorb subcutaneous insulin; hence, an insulin infusion should be utilized.