PHYSICIAN ORDER SET

AUTHORIZATION IS GIVEN TO THE PHARMACY TO DISPENSE AND TO THE NURSE TO ADMINISTER THE GENERIC OR CHEMICAL EQUIVALENT WHEN THE DRUG IS FILLED BY THE PHARMACY OF UPMC - UNLESS THE PRODUCT NAME IS CIRCLED.

IMPRINT PATIENT IDENTIFICATION HERE

REGULAR INSULIN IV INFUSION PROTOCOL: GOAL BLOOD GLUCOSE 140-180 mg/dL

This protocol is NOT for use in patients with Diabetic Ketoacidosis (DKA)/Hyperosmolar hyperglycemia

INSULIN:

☒ Start IV Insulin infusion (1 unit/mL). Waste 15 mL of infusion through new tubing and every time tubing is changed.

Initial BG (mg/dL):		
	181 - 200	Start IV insulin infusion at 1 units/hour
	201 - 250	Start IV insulin infusion at 2 units/hour
	251 - 300	Give 2 units insulin IV push and start IV insulin infusion at 2 units/hour
	>300	Give 4 units insulin IV push and start IV insulin infusion at 4 units/hour

☒ Hold all previous insulin orders and oral hypoglycemic medication orders

☒ Follow insulin adjustment protocol. **Notify MD if BG not at goal by 6 hours or if the rate exceeds 10 units/hour.**

☒ If vasopressors (epinephrine, norepinephrine, vasopressin, phenylephrine, dopamine), corticosteroids, or CVVHD are discontinued, decrease infusion to 1/2 previous rate and recheck BG in 1 hour

FOR PATIENTS ON NUTRITIONAL SUPPORT (TUBE FEEDING OR TPN):

☒ If the rate of dextrose, tube feeding, or TPN is decreased (or TPN is being transitioned to tube feeds), decrease insulin infusion by 50%

☒ If nutritional support (tube feeding or TPN) is interrupted (held for any reason including "off-unit" trips), initiate D5 ½ NS, D5NS or D10 (as ordered below), decrease insulin infusion rate by 50%, resume q 1 hour BG checks, and notify MD.

If patient is on meds (such as phenytoin or levothyroxine) which require tube feeds to be held, consider switching them to the IV formulation

IF PATIENT NOT ON TUBE FEEDS OR TPN, SELECT ONE:

☐ When BG is < 200 mg/dl, initiate Dextrose 5 ½ NS IV at 85 ml/hr (Fluid of choice in MICU)

☐ When BG is < 200 mg/dl, initiate Dextrose 10% Water IV at 40 ml/hr (Fluid of choice in CCU)

☐ When BG is < 200 mg/dl, initiate Dextrose 5% NS at 85 ml/hr (Fluid of choice in Trauma ICU and TICU)

If Patient is eating meals, consider Humalog SQ prior to each meal.

CORTICOSTEROID THERAPY: *(Consider dividing the total daily dose of hydrocortisone when treating ARDS, adrenal insufficiency, etc. by 24 hours and give as a continuous infusion. Note to RN: hydrocortisone is compatible with regular insulin at the Y-site.)*

☐ Discontinue current order for hydrocortisone and give hydrocortisone IV continuous infusion at ____________ mg/hour.

MONITORING:

☒ Check blood glucose (BG) 1 hour after each rate change (or q1h) until stable (at least 2 values between 140-180). BG checks can then be reduced to q2h. Once BGs are within desired range for 12 hours, reduce BG checks to q4h.

☒ Restart q1h checking if any change in insulin infusion rate occurs **OR** if there is significant change in clinical condition, vasopressor therapy, CVVHD, nutritional support, or glucocorticoid therapy.

☒ The site for BG checks should remain consistent. It is preferred to use either an arterial line or "VAMP" on a central line.

☒ Confirm BG via lab STAT if BG>500, HCT <25 or if clinical judgement indicates.

☒ Confirm BG with meter if BG<60 or if BG changes more than 100 mg/dL on a stable IV infusion.

(BLOCK Print Name) ____________ **(Signature)** ____________

Pager # ____________ ☐ **Order Set Faxed to Pharmacy by: (name / time)** ____________ **Unit:** ____________

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UPMC
University of Pittsburgh Medical Center

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REGULAR INSULIN IV INFUSION PROTOCOL: GOAL BLOOD GLUCOSE 140-180 mg/dL

SUBSEQUENT INSULIN ADJUSTMENT:

BG (mg/dL)	Current rate 0.1-3.9 units/hour	Current rate 4-6.9 units/hour	Current rate 7-10 units/hour	Current rate >10 units/hour*
<70	**(1) D/C insulin. Give 50mL (1 amp) D50 IV. Recheck BG in 15 min.** Repeat as necessary. (Do not restart insulin until at least 1 hr after D50.) Notify MD. If no continuous glucose, start IV fluid as per page 1. Restart insulin at 50% (half) previous rate when BG >140 AND it is at least 1 hr after D50. Recheck BG in 1 hr.			
70-99	**(2) D/C insulin.** Recheck BG in 1 hr and then hourly. When BG >140, restart insulin but decrease rate by 50% (half) and recheck BG in 1 hr.			
100-139	**(3.1)** If BG drop >25 mg/dl from last check, **D/C insulin.** Recheck BG in 1 hr and then hourly. When BG >140, restart insulin but decrease rate by 50% (half) and recheck BG in 1 hr. **(3.2)** Otherwise, **decrease** by 0.5 units/hr (if current rate <0.5 units/hr, then D/C) and recheck BG in 1 hr.	**(4.1)** If BG drop >25 mg/dl from last check, **D/C insulin**. Recheck BG in 1 hr and then hourly. When BG >140, restart insulin but decrease rate by 2 units/hr and recheck BG in 1 hr. **(4.2)** Otherwise, **decrease** rate by 1 unit and recheck BG in 1 hr.	**(5.1)** If BG drop >25 mg/dl from last check, **D/C insulin**. Recheck BG in 1 hr and then hourly. When BG >140, restart insulin but decrease rate by 3 units/hr and recheck BG in 1 hr. **(5.2)** Otherwise, **decrease** rate by 1.5 units and recheck BG in 1 hr.	**(6.1)** If BG drop >25 mg/dl from last check, **D/C insulin**. Recheck BG in 1 hr and then hourly. When BG >140, restart insulin but decrease rate by 4 units/hr and recheck BG in 1 hr. **(6.2)** Otherwise, **decrease** rate by 2 units and recheck BG in 1 hr.
140-180	**(7.1)** If BG drop >50 mg/dl from last check, **D/C insulin.** Recheck BG in 1 hr and then hourly. Restart insulin (as long as BG>140), but decrease rate by 50% (half) and recheck BG in 1 hr. **(7.2)** If BG drop 25-50 mg/dl from last check, **decrease** rate by 50% (half) and recheck BG in 1 hr. **(7.3)** Otherwise, **make no changes**. If BGs 140-180 for 2 consecutive hours, recheck q2h.	**(8.1)** If BG drop >50 mg/dl from last check, **D/C insulin.** Recheck BG in 1 hr and then hourly. Restart insulin (as long as BG>140), but decrease rate by 2 units/hr and recheck BG in 1 hr. **(8.2)** If BG drop 25-50 mg/dl from last check, **decrease** by 2 units/hr and recheck BG in 1 hr **(8.3)** Otherwise, **make no changes**. If BGs 140-180 for 2 consecutive hours, recheck q2h.	**(9.1)** If BG drop >50 mg/dl from last check, **D/C insulin**. Recheck BG in 1 hr and then hourly. Restart insulin (as long as BG>140), but decrease rate by 3 units/hr and recheck BG in 1 hr. **(9.2)** If BG drop 25-50 mg/dl from last check, **decrease** by 3 units/hr and recheck BG in 1 hr **(9.3)** Otherwise, **make no changes**. If BGs 140-180 for 2 consecutive hours, recheck q2h.	**(10.1)** If BG drop >50 mg/dl from last check, **D/C insulin**. Recheck BG in 1 hr and then hourly. Restart insulin (as long as BG>140), but decrease rate by 4 units/hr and recheck BG in 1 hr. **(10.2)** If BG drop 25-50 mg/dl from last check, **decrease** by 4 units/hr and recheck BG in 1 hr **(10.3)** Otherwise, **make no changes**. If BGs 140-180 for 2 consecutive hours, recheck q2h.
181-250	**(11.1)** If BG drop >50 mg/dl, **decrease** rate by 50% (half) and recheck BG in 1 hr. **(11.2)** If BG drop 25-50 mg/dl from last check, make **no change** and recheck BG in 1 hr **(11.3)** Otherwise, **increase** rate by 1 unit/hr and recheck BG in 1 hr.	**(12.1)** If BG drop >50 mg/dl, **decrease** rate by 2 units/hr and recheck BG in 1 hr **(12.2)** If BG drop 25-50 mg/dl from last check, make **no change** and recheck BG in 1 hr **(12.3)** Otherwise, **increase** rate by 1.5 units/hr and recheck BG in 1 hr.	**(13.1)** If BG drop >50 mg/dl, **decrease** rate by 3 units/hr and recheck BG in 1 hr **(13.2)** If BG drop 25-50 mg/dl from last check, make **no change** and recheck BG in 1 hr **(13.3)** Otherwise, **increase** rate by 2 units/hr and recheck BG in 1 hr.	**(14.1)** If BG drop >50 mg/dl, **decrease** rate by 4 units/hr and recheck BG in 1 hr **(14.2)** If BG drop 25-50 mg/dl from last check, make **no change** and recheck BG in 1 hr **(14.3)** Otherwise, **increase** rate by 3 units/hr and recheck BG in 1 hr.
>250	**(15.1)** If BG drop ≥25 mg/dl from last check, make **no change** and recheck BG in 1 hr **(15.2)** Otherwise**, give** 2 units insulin IV push AND **increase** rate by 1 unit/hr. Recheck BG in 1 hr.*	**(16.1)** If BG drop ≥25 mg/dl from last check, make **no change** and recheck BG in 1 hr **(16.2)** Otherwise, **give** 2 units insulin IV push AND **increase** rate by 1.5 units/hr. Recheck BG in 1 hr.*	**(17.1)** If BG drop ≥25 mg/dl from last check, make **no change** and recheck BG in 1 hr **(17.2)** Otherwise, **give** 2 units insulin IV push AND **increase** rate by 2 units/hr. Recheck BG in 1 hr.*	**(18.1)** If BG drop ≥25 mg/dl from last check, make **no change** and recheck BG in 1 hr **(18.2)** Otherwise, **give** 2 units insulin IV push AND **increase** rate by 3 units/hr. Recheck BG in 1 hr.*

*Notify MD when insulin infusion rate exceeds 10 units/hr or if 4 consecutive BGs are >250 mg/dL.

(BLOCK Print Name) ____________________ **(Signature)** ____________________

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