

**REMINDER: ALL MEDICATION ORDERS REQUIRE DOSE, ROUTE, FREQUENCY AND INDICATION
DO NOT USE ABBREVIATIONS**

DOCTORS ORDERS				CHECK OFF/ INITIALS
INSULIN INFUSION PROTOCOL - ICU				
<u>Initiating an Insulin Infusion:</u>				
1. INSULIN INFUSION: Mix 1 Unit Regular Human Insulin (Humulin-R®) per 1 mL 0.9% Sodium Chloride , administer via infusion pump (in increments of 0.5 Units/Hour)				
2. PRIMING: flush Intravenous tubing before infusion begins				
3. TARGET BLOOD GLUCOSE LEVELS: 100-139mg /dL				
4. BOLUS AND INITIAL INSULIN INFUSION RATE: Divide initial Blood Glucose level by 100, then round to the nearest 0.5 Units for bolus AND initial infusion rate.				
<u>Blood Glucose Monitoring:</u>				
1. If the Blood Glucose is greater than 500mg/dL, notify ordering physician for specific orders.				
2. Check Blood Glucose hourly until stable (3 consecutive values within target range)				
3. Then check BLOOD GLUCOSE every 2 hours. Once stable x 24 hours, BLOOD GLUCOSE checks can then be spaced to every 4 hours IF:				
a.) no significant change in clinical condition AND b.) no significant change in nutritional intake				
4. If any of the following occur, resume hourly BLOOD GLUCOSE monitoring until BLOOD GLUCOSE is again stable (3 consecutive BLOOD GLUCOSE values within target range):				
a.) any change in Insulin infusion rate (i.e. BLOOD GLUCOSE out of target range).				
b.) Significant changes in clinical condition				
c.) Initiation or cessation of pressor or steroid therapy.				
d.) Initiation or cessation of renal replacement therapy (hemodialysis, CRRT, etc).				
e.) Initiation, cessation, or rate change of nutritional support (TPN, PPN, tube feedings, etc.)				
<u>Changing the Insulin Infusion Rate:</u>				
1. IF BLOOD GLUCOSE LESS THAN 50mg/dL: DISCONTINUE INSULIN INFUSION. Give one syringe (25 grams) Dextrose 50% in Water Intravenous, recheck BLOOD GLUCOSE every 30 minutes. When BLOOD GLUCOSE greater than or equal to 100mg/dL, wait one hour, then restart infusion at 50% of most recent rate.				
2. IF BLOOD GLUCOSE 50-74mg/dL: DISCONTINUE INSULIN INFUSION.				
a.) If <u>symptomatic</u> (or unable to assess), give one syringe (25 grams) of Dextrose 50% in water Intravenous, and recheck BLOOD GLUCOSE every 30 minutes				
b.) if <u>asymptomatic</u> give ½ syringe (12.5 grams) Dextrose 50% in Water Intravenous or 8 ounces of juice; recheck BLOOD GLUCOSE every 30 minutes.				
When BLOOD GLUCOSE greater than or equal to 100 mg/dL, wait one hour, then restart infusion at 75 % of most recent rate.				
3. IF BLOOD GLUCOSE GREATER THAN OR EQUAL TO 75mg/dL:				
STEP 1: Determine the <u>CURRENT BLOOD GLUCOSE LEVEL</u> – Identifies a <u>COLUMN</u> in Table 1:				
BLOOD GLUCOSE 75-99 mg/dL	BLOOD GLUCOSE 100-139mg/dL	BLOOD GLUCOSE 140-199mg/dL	BLOOD GLUCOSE ≥ 200mg/dL	

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<p>STEP 2: Determine the <u>RATE OF CHANGE</u> from the prior BLOOD GLUCOSE level – identifies a <u>CELL</u> in Table 1 – Then move right for INSTRUCTIONS. [Note: If the last BLOOD GLUCOSE was measured 2-4 hours before the current BLOOD GLUCOSE, calculate the <u>hourly</u> rate of change. EXAMPLE: If the BLOOD GLUCOSE at 2PM was 150mg/dL and the BLOOD GLUCOSE at 4PM is now 120mg/dL, the total change over 2 hours is 30mg/dL; however, the hourly change is 30mg/dL ÷ 2 hours = 15mg/dL/hour]</p>	

TABLE 1

BLOOD GLUCOSE 75-99 mg/dL	BLOOD GLUCOSE 100-139 mg/dL	BLOOD GLUCOSE 140-199 mg/dL	BLOOD GLUCOSE ≥200 mg/dL	INSTRUCTIONS See table 2
		BLOOD GLUCOSE ↑ by > 50 mg/dL/hour	BLOOD GLUCOSE ↑	↑ INFUSION by “2Δ” See Note*
	BLOOD GLUCOSE ↑ by > 25 mg/dL/hour	BLOOD GLUCOSE ↑ by 1-50mg/dL/hour OR BLOOD GLUCOSE UNCHANGED	BLOOD GLUCOSE UNCHANGED OR BLOOD GLUCOSE ↓ by 1-25 mg/dL/hour	↑ INFUSION BY “Δ” See Note*
BLOOD GLUCOSE ↑	BLOOD GLUCOSE ↑ by 1-25 mg/dL/hour, BLOOD GLUCOSE UNCHANGED, OR BLOOD GLUCOSE ↓ by 1-25 mg/dL/hour	BLOOD GLUCOSE ↓ by 1-50 mg/dL/hour	BLOOD GLUCOSE ↓ by 26-75 mg/dL/hour	NO INFUSION CHANGE
BLOOD GLUCOSE UNCHANGED OR BLOOD GLUCOSE ↓ by 1-25 mg/dL/hour	BLOOD GLUCOSE ↓ by 26-50 mg/dL/hour	BLOOD GLUCOSE ↓ by 51-75 mg/dL/hour	BLOOD GLUCOSE ↓ by 76-100 mg/dL/hour	↓ INFUSION BY “Δ”
Blood Glucose ↓ BY > 25 mg/dL/hour See note**	BLOOD GLUCOSE ↓ by >50 mg/dL/hour	BLOOD GLUCOSE ↓ by > 75 mg/dL/hour	BLOOD GLUCOSE ↓ by > 100 mg/dL/hour	HOLD x 30 min, Then ↓ INFUSION by “2Δ”

* NOTE: Do NOT rebolus unless directed to do so by MD

** NOTE: Discontinue INSULIN INFUSION, check BLOOD GLUCOSE every 30 min. When BLOOD GLUCOSE greater than or equal to 100 mg/dL, restart infusion at 75% of most recent rate.

*CHANGES IN INFUSION RATE (“Δ”) is determined by the current rate:

TABLE 2

Current Rate (Units/hour)	Δ = Rate Change (Units/hour)	2Δ = Rate Change (Units/hour)
< 3	0.5	1
3-6	1	2
6.5-9.5	1.5	3
10-14.5	2	4
15-19.5	3	6
20-24.5	4	8
≥ 25	5	10 (consult MD)

Notify MD if the response to the insulin infusion is unusual or unexpected, or if any situation arises that is not adequately addressed by this protocol

Physician/Date/Time:	Nurse/Date/Time:	Secretary/Date/Time:
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Full page of orders requires only one physician, one nurse and one clerical signature



Original to Patient’s Chart

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Fax to Pharmacy
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