

# SAMPLE INSULIN INFUSION CLINICAL ORDER SET

## Critical Care Adult

Addressograph

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### PATIENT POPULATION

- Appropriate for use in patients with pre-existing diabetes
- Appropriate for use in patients without pre-existing diabetes who have stress hyperglycemia (blood glucose greater than 10 mmol/L)
- Do not use in patients with diabetic ketoacidosis (DKA) or hyperglycemic hyperosmolar non-ketotic state

### INITIAL INSULIN INFUSION RATE

- Discontinue all previous insulin orders and anti-hyperglycemic medication orders
- Mix 100 units Regular (Human) insulin in 100 mL 0.9% sodium chloride (0.9% NaCl)
- Prime the IV line with insulin solution and let it stand for 15 minutes (if time permits). Then flush 20 mL of solution through the line prior to connecting to the patient
- Check capillary blood glucose (CBG) and initiate IV insulin infusion **NOW** using table below

Blood glucose (mmol/L)	Regular Insulin Infusion Rate (units/h)
Less than 5	Hold, start infusion when CBG is 5 mmol/L or more
5.1 to 8	0.5
8.1 to 10	1
10.1 to 13	2
13.1 to 16	3
16.1 to 20	4
Greater than 20	5

### IV MAINTENANCE LINE

If **NOT** receiving PO intake or parenteral or enteral nutrition, piggyback insulin infusion into (choose one):

- Dextrose 5% and 0.9% sodium chloride (0.9% NaCl) IV at 100 mL/h
- Dextrose 5% and 0.45% sodium chloride (0.45% NaCl) IV at 100 mL/h
- D5W at 100 mL/h
- D10W at 50 mL/h
- Other: \_\_\_\_\_

### CAPILLARY BLOOD GLUCOSE MONITORING

#### Initial Capillary Blood Glucose Monitoring

- Capillary blood glucose (CBG) measurements less than 2.5 mmol/L or greater than 25 mmol/L should be verified with an arterial or venous or whole blood sample STAT
- Check CBG q 30 minutes for 1 hour upon initiation of insulin infusion

## Ongoing Capillary Blood Glucose Monitoring

Blood Glucose (mmol/L)	Monitoring frequency
Less than 4	q 15 minutes
4.1 to 5	q 30 minutes
5.1 to 10	q 60 minutes, THEN reduce to q 2 hours if no infusion rate change for 3 consecutive q 60 minute checks,
10.1 to 14	THEN reduce to q 4 hours if no infusion rate change for 3 consecutive q 2 hour checks
Greater than 14.1	q 60 minutes q 30 minutes

- If tube feeds or parenteral nutrition are stopped or decreased, change frequency of CBG monitoring to q 30 minutes for 3 hours and notify physician to consider initiating a dextrose containing intravenous solution

## INSULIN INFUSION RATE ADJUSTMENT

- Target blood glucose: 8 to 10 mmol/L
- Adjust rate of insulin infusion according to the chart below:

Current blood glucose (mmol/L)	Change in blood glucose since the prior reading					
	DECREASED BY			INCREASED BY		
	More than 1.5 mmol/L	0.6 to 1.5 mmol/L	0 to 0.5 mmol/L	0 to 0.5 mmol/L	0.6 to 1.5 mmol/L	More than 1.5 mmol/L
Less than 5	<b>HOLD INSULIN INFUSION</b> , implement hypoglycemia order set if blood glucose less than 4 mmol/L. Resume IV insulin infusion at X 0.25 of the previous rate when blood glucose is greater than or equal to 5 mmol/L.					
5.1 to 6	X 0.25	X 0.5	X 0.75	X 0.75	No change	X 1.25
6.1 to 8	X 0.5	X 0.75	No change	No change	No change	X 1.25
8.1 to 10	X 0.75	No change	No change	No change	X 1.25	X 1.5
10.1 to 12	No change	No change	X 1.25	X 1.25	X 1.5	X 2
12.1 to 20	No change	X 1.25	X 1.5	X 1.5	X 2	X 2
Greater than 20	<b>NOTIFY PHYSICIAN</b>					

Signature, Designation:	College License#:	Date:	Time:
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