

Sunnyside Medical Center Insulin Infusion Protocol (target 90-140)

Page 1 of 2

1. Insulin Infusion

- a. Standard insulin infusion concentration is 1 unit/mL.
- b. Flush approximately 30 mL through line prior to administration.
- c. Do not use filter or filtered set with insulin infusion.
- d. Label insulin drip tubing with 3 insulin labels.
- e. Ensure maintenance tubing has backflow valve and that insulin line is connected below valve.
- f. Infuse insulin using 'guardian' feature on the infusion pump.
- g. Insulin infusion is a High Alert Medication and requires an independent double check at the bedside by two RNs. Documentation is required in the medical record at initiation of the infusion, at bag change, rate change/verification, and at patient transfers.

2. Initiate Insulin Infusion Flowsheet

Start in column 2 unless otherwise ordered.

3. Blood glucose testing

- a. Test blood glucose using capillary, arterial or venous blood sample.
- b. Check blood glucose using hospital certified blood glucose meter.
- c. After hourly blood glucose measurements remain within the target zone and in the same column for 4 consecutive hours, change blood glucose testing to every 2 hours. If blood glucose is no longer in the same column within the target zone, resume blood glucose testing every hour.

4. Determination of Insulin Infusion rate

- a. Initiate insulin infusion using the rate in units/hour shown in column 2 for the current blood glucose RANGE. (See Figure No 1 on Insulin Infusion Chart.)
- b. For each blood glucose measurement, compare the current blood glucose RANGE with the previous blood glucose RANGE.

When in the **Elevated Blood Glucose ZONE**, if the current blood glucose range has:

- **Increased**, move 2 columns to the right.
- **Not changed**, move 1 column to the right.
- **Decreased 1 RANGE**, stay in the same column.
- **Decreased 2 RANGES or more**, move 1 column to the left.

When in the **Target Blood Glucose ZONE**, if the current blood glucose range has:

- **Increased**, stay in the same column.
- **Not changed**, stay in the same column.
- **Decreased 1 RANGE**, stay in the same column.
- **Decreased 2 RANGES or more**, move 1 column to the left.

When in the **Low Blood Glucose ZONE**:

- Move 2 columns to the left AND see Figure 2 "Low Blood Glucose."

5. Treatment for blood glucose less than 90 mg/dL

- a. Follow instruction in Figure No. 2.
- b. Recheck blood glucose in 15 minutes.
- c. If blood glucose is still less than 90 mg/dL, continue to treat and recheck every 15 minutes.
- d. Once blood glucose is equal to or greater than 90 mg/dL, resume blood glucose testing every 60 minutes.

6. Alert - Notify Physician if:

- a. Blood glucose is less than 70 mg/dL for 2 consecutive blood glucose measurements.
- b. Continuous enteral feedings, parenteral feedings or IV insulin infusion is stopped or interrupted.
- c. There are no further columns to the left. Use column 1 while awaiting call back.
- d. There are no further columns to the right. Use column 9 while awaiting call back.

Sunnyside Medical Center Insulin Infusion Protocol (target 90-140)

Page 2 of 2

START

Start in Column 2

Figure 1 START insulin infusion using the rate in units/hour shown in Column 2 based on the current Blood Glucose (BG) RANGE To determine the new rate, compare the latest BG RANGE with the previous BG RANGE.	Blood Glucose RANGE (mg/dL)	Column 1 Rate in units/hr	Column 2 Rate in units/hr	Column 3 Rate in units/hr	Column 4 Rate in units/hr	Column 5 Rate in units/hr	Column 6 Rate in units/hr	Column 7 Rate in units/hr	Column 8 Rate in units/hr	Column 9 Rate in units/hr
Elevated Blood Glucose ZONE: (> 140) BG every 60 min. If the latest BG RANGE has: • Increased: Move 2 columns to the right • Not changed: Move 1 column to the right • Decreased by 1 RANGE: Stay in the same column • Decreased by 2 RANGES or more: Move 1 column to the left	>350	3	6	10.5	16.5	24	30	39	48	57
	301-350	2.5	5	9	14	20	25	32	40	50
	251-300	2	4	8	12	18	22	28	36	42
	211-250	1.6	3.5	7	10	14	18	23	30	35
	181-210	1.4	2.8	6	9	11.5	15	19	24	29
	161-180	1.2	2.4	4.5	7	9	12	15.5	19	23
141-160	1	2	3.5	5.5	7	9.5	12.5	15	18	
Target Blood Glucose ZONE: (90-140) If the latest BG RANGE has: • Increased: Stay in the same column • Not changed: Stay in the same column • Decreased by 1 RANGE: Stay in the same column • Decreased by 2 RANGES or more: Move 1 column to the left After hourly BG remains in the same column within target ZONE for 4 consecutive hours, change BG testing to every 2 hours. If BG is no longer in the same column within target ZONE, resume BG testing every hour.	131-140	0.8	1.6	2.8	4.4	6	8	10.4	12.8	15.2
	121-130	0.7	1.4	2.4	3.8	5.4	7	9.1	11.6	13.3
	111-120	0.6	1.2	2.1	3.3	4.5	6	7.8	9.6	11.4
	101-110	0.4	0.9	1.6	2.6	3.6	4.8	5.9	7.5	9
	90-100	0.3	0.7	1.3	2	2.8	3.8	4.8	6	7.1
Low Blood Glucose ZONE: (< 90) BG every 15 min. To determine the new rate, compare the latest BG RANGE with the previous BG RANGE. Move 2 columns to the left and treat for low BG as shown in FIGURE No.2 below	80-89	0	0.4	0.6	1	1.4	1.8	2.4	3	3.6
	70-79	0	0.2	0.3	0.5	0.7	0.9	1.2	1.5	1.8
	<70	0	0	0	0	0	0	0	0	0

Figure 2 Low Blood Glucose		
Action	BG in mg/dL	D50W
Move 2 columns to the left.	80-89	Do not give D50W
Give D50W per table.	70-79	10 mL IV push
Recheck BG in 15 minutes.	60-69	15 mL IV push
Repeat as necessary.	50-59	20 mL IV push
Contact Physician if BG < 70 for 2 consecutive BG measurements.	40-49	25 mL IV push
	<40	30 mL IV push

Alert - Notify Physician If:

- BG is less <70 mg/dL for 2 consecutive BG measurements.
- Continuous enteral feedings, parenteral feedings or insulin infusion is stopped or interrupted.
- There are no further columns to the left. Use column 1 while awaiting call back.
- There are no further columns to the right. Use column 9 while awaiting call back.