NON-DKA ALGORITHM

Insulin Titration Decision Table and Algorithm Instructions Revised 5/9/2013

Below Goal Range:
Less than 120 mg/dL

Less than 70 mg/dL
Turn off infusion
Follow Hypoglycemia Tx orders.
Recheck BG and re-treat every 15 min.
Then proceed according to the appropriate column of this table for next measured BG

70-99 mg/dL
Turn off infusion
Recheck BG in 15 min
Then proceed according to the appropriate column of this table for next measured BG.

100-119 mg/dL

- **BG decreased more than 30 or previous BG 100-119 mg/dL**: Move **left** one algorithm and match rate per column. If already at Algorithm 1 move to Low Dose algorithm and adjust rate per current BG.
- Previous **BG less than 100 mg/dL**: Recheck BG q 30 min until BG is 120 or greater. Then move **left** one algorithm and re-start at indicated rate.
- **BG decreased 30 mg/dL or less** and/or previous BG was in goal range: Adjust rate in current algorithm column.

Within Goal Range:
120-160 mg/dL

BG decreased more than 30mg/dL or previous BG less than 100 mg/dL:
Move **left** one algorithm and adjust rate to match. If already at Algorithm 1 move to Low Dose Algorithm and adjust rate per current BG.

Previous BG at least 100 mg/dL and BG not decreased by 30 mg/dL or less:
Adjust the rate in the current algorithm column.

Above Goal Range:
Over 160 mg/dL

BG decreased more than 75 mg/dL: Move **left** one column and adjust rate. If already at Algorithm 1 move to Low Dose Algorithm and adjust rate per current BG.
Recheck in 15 minutes if decrease was over 100.

BG decreased by 50-75 mg/dL:
Adjust rate in current algorithm column.

BG **remains the same, increased by any amount** or **decreased less than 50 mg/dL:**
Move **right** one algorithm and adjust rate per current BG.

- See **Insulin Regular IV Bolus x 1** order in the **PRN** section of the MAR. Follow dosing instructions.
- **For most patients start at Algorithm 1.**
- Start at Algorithm 2 for patients S/P cardiac surgery, receiving glucocorticoids, or receiving more than 80 units/day as an outpatient.

Algorithm 1		Algorithm 2		Algorithm 3		Algorithm 4	
BG	*Units/hr*	BG	Units/hr	BG	Units/hr	BG	Units/hr
100-120	*0.3*	100-120	0.5	100-120	0.8	100-120	1.0
121-140	*0.8*	121-140	1.5	121-140	2.5	121-140	3.5
141-160	*1.2*	141-160	2	141-160	3	141-160	4.5
161-180	*1.5*	161-180	2.5	161-180	4	161-180	6
181-210	*2*	181-210	3	181-210	5	181-210	7.5
211-240	*2.5*	211-240	4	211-240	6.5	211-240	9.5
241-270	*3*	241-270	5	241-270	8	241-270	11
271-300	*3.5*	271-300	6	271-300	9	271-300	13
301-330	*4*	301-330	6.5	301-330	10.5	301-330	15
331-360	*4.5*	331-360	7.5	331-360	12	331-360	17
>360	*5*	>360	8.5	>360	14	>360	19

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High Dose Insulin Infusion
Goal Blood Glucose Range 120-160mg/dL

Algorithm 5		Algorithm 6		Algorithm 7	
BG	Units/hr	BG	Units/hr	BG	Units/hr
100-120	2	100-120	3	100-120	4
121-140	5	121-140	7	121-140	8
141-160	7	141-160	9	141-160	12
161-180	9	161-180	12	161-180	15
181-210	12	181-210	15	181-210	18
211-240	15	211-240	18	211-240	22
241-270	18	241-270	22	241-270	26
271-300	22	271-300	26	271-300	30
301-330	26	301-330	30	301-330	34
331-360	30	331-360	34	331-360	38
>360	34	>360	38	>360	43

Low Dose Insulin Infusion
Goal Blood Glucose Range 120-160mg/dL

Low Dose Algorithm	
BG	Units/hr
<70 = Hypoglycemia (See page 1 for treatment)	
70-99: Turn off infusion for 30 min & recheck BG, call MD to inquire about discontinuing insulin infusion	
If previous BG < 100 and current glucose is now 100-120, call MD to inquire about discontinuing insulin infusion	
100-120	0.2
121-140	0.4
141-160	0.6
161-180	0.8
181-210	1
211-240	1.3
241-270	1.5
271-300	1.8
301-330	2
331-360	2.3
>360	2.5

- If patient is on low dose algorithm for several hours and remains in goal range, consider obtaining an order to discontinue insulin infusion. Use **Insulin IV to Subcutaneous Transition** Powerplan.

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Additional Instructions:

- Once within goal range X 4 hours, check BG every 2 hours. Resume every one hour checks if BG exits goal range or if algorithm is changed.
- For patients with Type 1 Diabetes, do not stop insulin infusion for more than 30 min. Contact MD if stopped for 30 min.
- If TPN/Enteral feeding stopped or rate reduced by 50% or more decrease insulin infusion rate by 50% for 1 hour. Use protocol to determine subsequent rate changes. Check BG every hour until in range X 4 hours.
- **Do Not Exceed 18 units per hour without MD order**
- Consider initiating *Insulin IV to Subcutaneous Transition* Powerplan when insulin infusion rate is at 5units/hour or less, if BG are in goal range for at least 4 hours and when receiving nutrition (eating, tube feeding or TPN)
- Type 1 diabetics must be placed on SQ basal insulin prior to discontinuing insulin infusion.

Additional Advice to Providers (and RNs):

• Carbohydrate requirements for patients with DM are approximately 960 calories per day, which can be administered by giving D10W with 20 mEq KCl per liter at 100 mL/hour, TPN or continuous tube feedings.

• Patients on continuous tube feeds may be covered with subcutaneous lispro/aspart every 4 or 6 hours.

• Patients on bolus tube feeds may be given subcutaneous lispro/aspart to cover feeds. Patients with type 1 diabetes will also need basal coverage.

• For patients on an insulin infusion who are eating, continue the continuous infusion of regular insulin to cover basal insulin needs, and consider adding subcutaneous lispro/aspart for meals.

• For patients on high dose steroids with severe insulin resistance in patients who are eating consider IV insulin, adjusted for changes in insulin resistance encountered due to the steroids, coupled with subcutaneous lispro/aspart for meals. (The IV insulin counters basal insulin resistance and the subcutaneous insulin covers carbohydrate ingested at meals, adjusted for pre-meal blood glucose and insulin resistance.)

• Do not use oral antihyperglcyemic agents on inpatients.

Revised May 9, 2013