HIGH DOSE Insulin Infusion Algorithms (Adult)

Must have "High Dose Insulin Infusion" Orders initiated prior to use

- For patients NOT achieving glycemic control with Standard Dose Insulin Infusion Orders
- Must fail Algorithm 4 x 3 or more consecutive hours prior to use
- High Dose orders are an add-on continuation of Standard Dose Insulin Infusion orders. Continue to follow guidelines on the Standard Dose Insulin Infusion Algorithm Decision Tree when utilizing high dose algorithms.
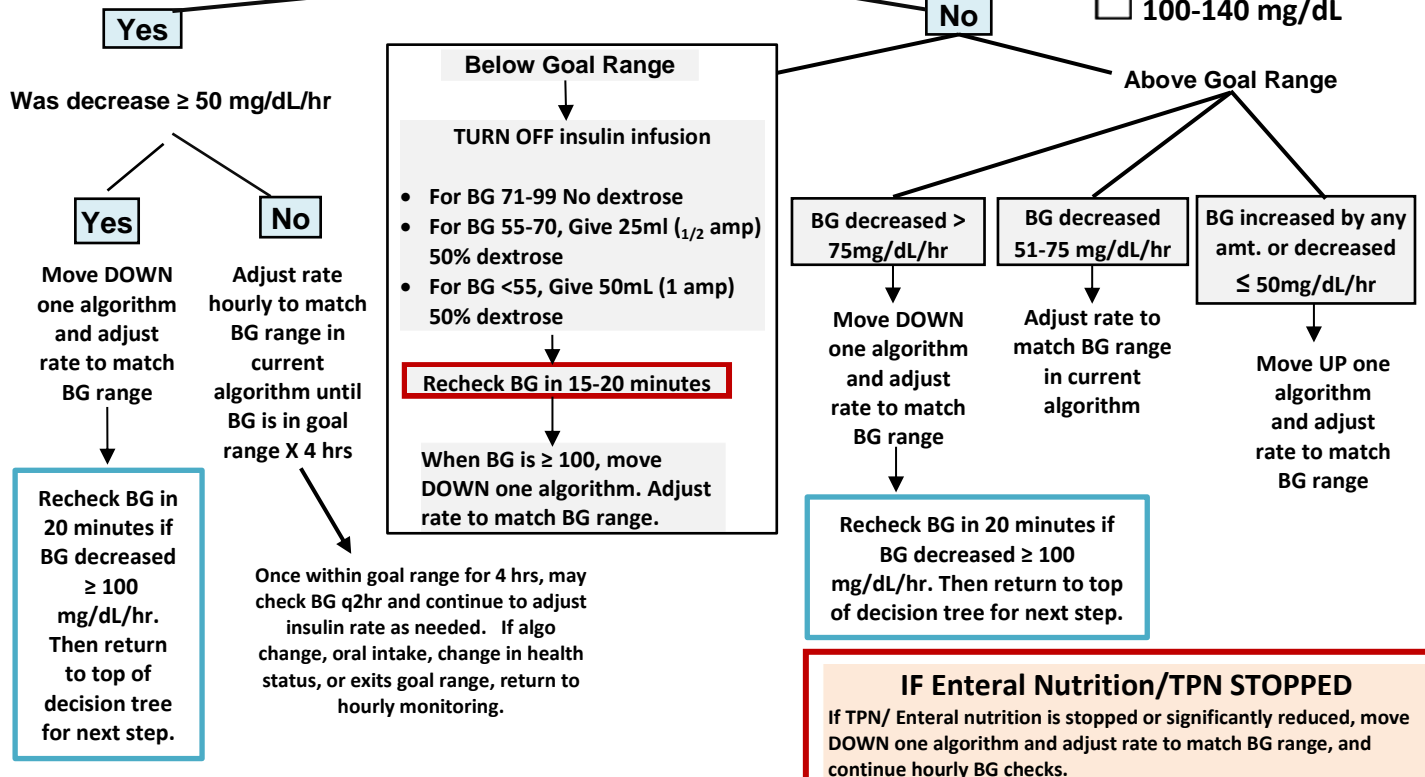
	Algorithm 5		Algorithm 6		Algorithm 7		Algorithm 8	
	BG	Units/hr	BG	Units/hr	BG	Units/hr	BG	Units/hr
	≤ 70 = Hypoglycemia (See Hypoglycemia Protocol)							
	71-99: Turn off insulin infusion & recheck BG in 15-20 minutes. **Important: Restart Insulin drip in one lower algorithm when BG ≥ 100 mg/dL**							
	100-110: Consider moving DOWN one Algorithm if BG trending down. Recheck BG in 15-20 min.							
Algorithm 4 — See Standard Insulin Infusion	100-120	3	100-120	4	100-120	5	100-120	6
	121-140	5	121-140	6.5	121-140	8.5	121-140	10
	141-160	7	141-160	9	141-160	12	141-160	14
	161-185	9	161-185	12	161-185	15	161-185	18
	186-210	11	186-210	15	186-210	19	186-210	23
	211-240	14	211-240	19	211-240	23	211-240	28
	241-270	17	241-270	23	241-270	28	241-270	34
	271-300	20	271-300	26	271-300	33	271-300	40
	301-330	23	301-330	30	301-330	38	301-330	46
	331-360	26	331-360	34	331-360	42	331-360	52
	>360	29	>360	38	>360	47	>360	57

Blood Glucose in Goal Range? (see orders)

Goal BG:
☐ **100-180 mg/dL**
☐ **100-140 mg/dL**

Yes

Was decrease ≥ 50 mg/dL/hr

Yes
Move DOWN one algorithm and adjust rate to match BG range

Recheck BG in 20 minutes if BG decreased ≥ 100 mg/dL/hr. Then return to top of decision tree for next step.

No
Adjust rate hourly to match BG range in current algorithm until BG is in goal range X 4 hrs

Once within goal range for 4 hrs, may check BG q2hr and continue to adjust insulin rate as needed. If algo change, oral intake, change in health status, or exits goal range, return to hourly monitoring.

Below Goal Range

TURN OFF insulin infusion

- For BG 71-99 No dextrose
- For BG 55-70, Give 25ml (1/2 amp) 50% dextrose
- For BG <55, Give 50mL (1 amp) 50% dextrose

Recheck BG in 15-20 minutes

When BG is ≥ 100, move DOWN one algorithm. Adjust rate to match BG range.

No

Above Goal Range

BG decreased > 75mg/dL/hr
Move DOWN one algorithm and adjust rate to match BG range

Recheck BG in 20 minutes if BG decreased ≥ 100 mg/dL/hr. Then return to top of decision tree for next step.

BG decreased 51-75 mg/dL/hr
Adjust rate to match BG range in current algorithm

BG increased by any amt. or decreased ≤ 50mg/dL/hr
Move UP one algorithm and adjust rate to match BG range

IF Enteral Nutrition/TPN STOPPED
If TPN/ Enteral nutrition is stopped or significantly reduced, move DOWN one algorithm and adjust rate to match BG range, and continue hourly BG checks.

Standard Dose Insulin Infusion Algorithm Decision Tree (Adult)
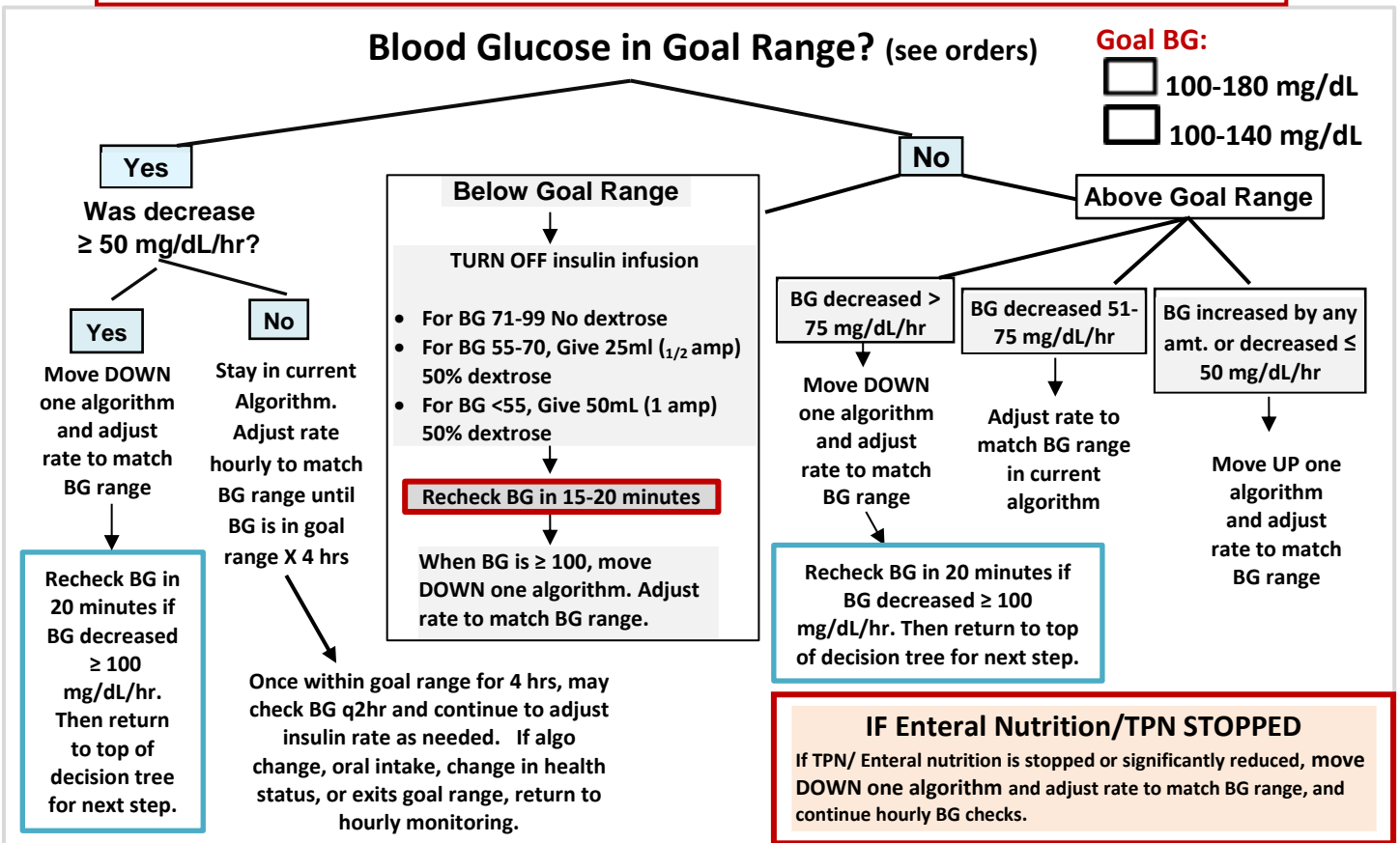
Most patients start in Algorithm 1. See order to confirm starting algorithm.

Patient must have a consistent source of carbohydrate calories from IV dextrose, TF, TPN or PO intake when BG ≤ 250mg/dL

Always return to the top of decision tree and work downward with each BG check

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Hourly BG monitoring is required when:
- BG is above goal range
- Oral carbohydrate intake
- Changing algorithms
- Utilizing off-protocol rate

Blood Glucose in Goal Range? (see orders)

Goal BG:
- ☐ 100-180 mg/dL
- ☐ 100-140 mg/dL

Yes

Was decrease ≥ 50 mg/dL/hr?

Yes → Move DOWN one algorithm and adjust rate to match BG range

→ Recheck BG in 20 minutes if BG decreased ≥ 100 mg/dL/hr. Then return to top of decision tree for next step.

No → Stay in current Algorithm. Adjust rate hourly to match BG range until BG is in goal range X 4 hrs

→ Once within goal range for 4 hrs, may check BG q2hr and continue to adjust insulin rate as needed. If algo change, oral intake, change in health status, or exits goal range, return to hourly monitoring.

Below Goal Range

TURN OFF insulin infusion
- For BG 71-99 No dextrose
- For BG 55-70, Give 25ml (1/2 amp) 50% dextrose
- For BG <55, Give 50mL (1 amp) 50% dextrose

Recheck BG in 15-20 minutes

When BG is ≥ 100, move DOWN one algorithm. Adjust rate to match BG range.

No

Above Goal Range

BG decreased > 75 mg/dL/hr → Move DOWN one algorithm and adjust rate to match BG range

→ Recheck BG in 20 minutes if BG decreased ≥ 100 mg/dL/hr. Then return to top of decision tree for next step.

BG decreased 51-75 mg/dL/hr → Adjust rate to match BG range in current algorithm

BG increased by any amt. or decreased ≤ 50 mg/dL/hr → Move UP one algorithm and adjust rate to match BG range

IF Enteral Nutrition/TPN STOPPED

If TPN/ Enteral nutrition is stopped or significantly reduced, **move DOWN one algorithm** and adjust rate to match BG range, and continue hourly BG checks.

Algorithm 0.5		Algorithm 1 Most patients start here		Algorithm 2 Very insulin resistant patients start here		Algorithm 3		Algorithm 4 Failure X3 – Consider High Dose		
BG	Units/hr	BG	Units/hr	BG	Units/hr	BG	Units/hr	BG	Units/hr	If NOT achieving glycemic control in Algorithm 4 for 3 consecutive hours, order HIGH DOSE Infusion
≤ 70: Follow HYPOglycemia Orders. Important: Restart insulin infusion in one lower algorithm when BG ≥ 100 mg/dL										
71-99: Turn off insulin infusion & recheck BG in 15-20 minutes. Important: Restart insulin infusion in one lower algorithm when BG ≥ 100 mg/dL										
100-120	0.3	100-120	0.5	100-120	1	100-120	1.5	100-120	2	
121-140	0.5	121-140	0.8	121-140	1.5	121-140	2.5	121-140	3.5	
141-160	0.7	141-160	1.2	141-160	2	141-160	3	141-160	4.5	
161-185	0.9	161-185	1.5	161-185	2.5	161-185	4	161-185	6	
186-210	1.1	186-210	2	186-210	3	186-210	5	186-210	7.5	
211-240	1.4	211-240	2.5	211-240	4	211-240	6.5	211-240	9.5	
241-270	1.7	241-270	3	241-270	5	241-270	8	241-270	11	
271-300	2	271-300	3.5	271-300	6	271-300	9	271-300	13	
301-330	2.3	301-330	4	301-330	6.5	301-330	10.5	301-330	15	
331-360	2.6	331-360	4.5	331-360	7.5	331-360	12	331-360	17	
> 360	3	> 360	5	> 360	8.5	> 360	14	> 360	19	

- **On very rare occasions,** rate changes other than those indicated by this protocol may be needed. Refer to *"Insulin Infusion Non-Protocol Approved Rate Adjustment Rationales Reference Text"* for allowable approved rationales. Notify the provider by text page per policy. Document the approved rationale and **recheck BG in 1 hour**. <u>Never change more than one algorithm at a time.</u> **Return to the protocol as soon as possible.**

  To transition off insulin drip, administer 1st dose of subcutaneous basal insulin, continue titrating for two hours, and discontinue drip after 2 hours. Check BG prior to discontinuation to ensure BG is in a safe range. Document "0 units/hr" in the insulin infusion rate row anytime drip is off or discontinued.