

**Adult Peri-Operative Glucose Management: Day of Surgery
For Non-Cardiac Patients with Diabetes Mellitus (Insulin or Oral Agents) and
Patients with hyperglycemic Stress Response to Surgery or Trauma and BG
assessment:**

Approach and Management Recommendations
Goal: Keep blood glucose <170 mg/dl (See Education page)

Authors: Jeff Gonzales M.D., Pierre Moine M.D., Julie Negin CRNA May 2016

INITIAL TREATMENT APPROACH*:
See Infusion titration guidelines on next page.

Blood Glucose Value (mg/dl)	Insulin Infusion Rate 1U/ml REGULAR INSULIN	Supplemental Insulin Bolus* regular insulin	Blood Glucose Check Frequency
81-169	no intervention	no intervention	depends on pt/case
170-199	1-2 units/hr	0 units	q 30-60 min
200-259	2-3 units/hr	1-2 units regular insulin	q30-60 min
260-360	3-4 units/hr	2-3 units regular insulin; call attending anesthesiologist	q 30 min
≥360	4-5 units/hr	4-6 units regular insulin; call attending anesthesiologist	q 30 min

- * Range is inclusive of Insulin Sensitive (ex. DM Type 1, Stress Hyperglycemia) & Insulin Resistant (ex. DM Type II, Steroids, Obesity) patients.
- * For BG ≤ 80 mg/dl see "Hypoglycemia" at end of Recs

Insulin Choice:

Rapid-acting insulin: (Humalog) or regular insulin

Peri-operative blood glucose monitoring as needed:

- Test blood glucose level by finger stick method or with VBG/ABG every 30-60 min
- Every 30 minutes when titrating vasopressors
- Every 30 minutes in critically ill patients
- In other patients, check every 30 minutes until stable (stable = blood glucose in the range 140 to 170 mg/dL) without frequent changes in infusion rate and blood glucose not rapidly changing; then check every 1 hour. **See Below for more details.**

Insulin IV TITRATION guidelines according to blood glucose (BG):

When Blood glucose (mg/dL) is.....	Action
< 80	Stop insulin; give 25 mL of 50% dextrose injection and recheck BG in 30 min; Repeat 25 mL of 50% dextrose injection until BG is greater than 100 mg/dL. When BG is > 150 mg/dL, restart rate with 50% of previous rate
80 – 150	Stop insulin; recheck BG in 30 min, when BG is > 150 mg/dL, restart rate with 50% of previous rate
150 – 180	If BG decreased or increased 20 mg/dL from the last test, no change in rate
	If BG decreased > 20 mg/dL from the last test, decrease rate by 0.1 to 0.5 Units/hr
181 – 220	If BG decreased by 10- 20 mg/dL from the last test, no change in rate
	If BG decreased > 20 mg/dL from the last test, decrease rate by 0.5 Units/hr
	If BG decreased < 10 mg/dL from the last test, increase rate by 0.5 Units/hr
	If BG increased from last test, increase rate by 0.5 Units/hr
> 220	If BG decreased 30 - 40 mg/dL from the last test, no change in rate
	If BG decreased > 40 mg/dL from the last test, decrease rate by 0.5 Units/hr
	If BG decreased < 30 from the last test, increase rate by 0.5 Units/hr
	If BG increased from last test, increase rate by 0.5 Units/hr

Hypoglycemia – Blood glucose <60 mg/dL or symptomatic at levels of 60-80 mg/dl:

- In the symptomatic awake patient, the preferred method for treatment of hypoglycemia is consumption of 10 to 25 g of glucose.
- Repeated until blood glucose increases and symptoms resolve.

Q.R

- a. An initial glucose dose of 20 to 50 mL (10 to 25 gm) dextrose 50% may be given

PACU/POST-OP:

- a. Clear liquids suitable for treating hypoglycemia include sugary drinks, sodas, electrolyte solutions, and fruit juices (e.g., 4 oz. apple juice) if tolerable.
- b. If IV access is established, an initial glucose dose of 20 to 50 mL (10 to 25 gm) dextrose 50% may be given. Recheck blood glucose level in 30 minutes