

Target inpatient
blood glucose levels:
100-180¹

INPATIENT SUBCUTANEOUS INSULIN MANAGEMENT OF THE NON-PREGNANT ADULT

Consider a diabetes/
endocrine or
medicine consult.

Step 1: Discontinue non-insulin antihyperglycemic agents²

Step 2: Calculate the estimated total daily dose (TDD) of insulin patient may require; consider adjusting this up or down based on pt's home regimen and their A1C:

- Standard (pt w/ normal body habitus): 0.4 units/kg/day
- If pt very lean, on hemodialysis or very sensitive to insulin (hypoglycemia risk factors): 0.3 units/kg/day
- If pt overweight: 0.5 units/kg/day
- If pt obese, on steroids, or known to be insulin-resistant: 0.6 units/kg/day (or more)
- If transitioning off of an iv insulin infusion⁶, call pharmacist for assistance and take the average hourly rate over the last 6 hours and multiply by 20:
 - if pt was receiving nutrition (tube feeds, TPN, D5 > 50 mL/hr or eating), this is the estimated TDD
 - if insignificant nutrition during the last 6 hours, double the number to determine estimated TDD

Step 3: Determine the distribution of the TDD calculated above based on nutrition regimen.

If pt eating or receiving bolus tube feeds³:

Check blood glucose qac and qhs

Basal insulin: glargine (Lantus) – 0.5 x TDD,

Given once daily

Nutritional insulin: lispro (Humalog) – 0.16 x TDD,

Give with each meal

Correction insulin, in addition to nutritional insulin:
use CPOE default values (adjust if necessary)

**If pt receiving continuous infusions of
tube feeds or parenteral nutrition⁴:**

Check blood glucose q6h

Basal insulin: glargine (Lantus) – 0.4 x TDD,
dosed once a day

Nutritional insulin: regular insulin – 0.15 x TDD,
given q6h

Correction insulin, in addition to nutritional insulin:
use CPOE default values (adjust if necessary)

**If pt NPO (or nearly NPO, taking
Zero Carb clear liquids only)⁵:**

Check blood glucose q6h

Basal insulin: glargine (Lantus) – 0.5 x TDD,
dosed once a day

Nutritional insulin: none (discontinue previous)

Correction insulin: recommend regular insulin scale
q6 hours if pt NPO > 24hrs, otherwise lispro is
OK Consider starting low-dose dextrose infusion
(D5 1/2 NS at 75 mL/hr)

Step 4: Re-evaluate & adjust the TDD daily based on the glycemic control of the previous 24h:

- If any glucose > 180, and no threat of hypoglycemia, increase TDD by 10-20%
- If glucose consistently > 180-200, increase TDD by 30%
- If any episodes hypoglycemia (FS < 70), assess cause, if no obvious cause (e.g. insulin to carbohydrate mismatch), decrease TDD by 20% and consider starting D51/2NS at 75cc/hr

See reverse for
special situations⁶ &
more information about
footnoted items

UC San Diego Health

Insulin Terminology:

Basal insulin: long-acting insulin required at all times in patients with Type 1 diabetes (and in most patients with Type 2 diabetes) to maintain euglycemia, even when NPO (*hepatic gluconeogenesis can serve as a continuous source of blood glucose*).

Nutritional insulin: scheduled short-acting insulin given with a meal, to prevent the glycemic spike that occurs due to carbohydrate ingestion (*given even when the pre-meal blood sugar is in the normal range*). Also refers to scheduled insulin given to cover the carbohydrate load from tube feeds or parenteral nutrition.

Correction insulin: short-acting insulin meant to lower high blood sugars given in addition to scheduled nutritional insulin, also given to treat hyperglycemia in NPO patients. If correction insulin dose is consistently required, consider increasing TDD insulin.

1. Target blood glucose range

For patients on insulin, pre-meal blood glucose target is 100-140 mg/dL with a random blood glucose target of less than 180 mg/dL. Less stringent targets may be appropriate in patients with severe comorbidities (i.e., endstage disease or in whom hypoglycemia is a significant concern.)

2. Stopping oral medications

Oral anti-hyperglycemic agents and injectable non-insulin therapies are not indicated for the management of inpatient hyperglycemia. Adjustments in these oral medications take too long to be effective in the hospital and most oral medications have significant side effects or contraindications in the hospital setting.

3. For patients eating meals or receiving bolus tube feeds

Glargine insulin is the most physiologic basal insulin and is recommended in these patients. Lispro insulin is more appropriate than regular insulin for nutritional doses due to its shorter, more predictable half-life and correspondence with meal times. Using the subcutaneous insulin orderset will allow for adjusted doses based on percent nutritional intake.

4. For patients receiving continuous enteral or parenteral nutrition

- A. Consider using an insulin infusion for optimal control in this setting. Keep insulin separate from TPN until a stable dose is reached.
- B. Glargine insulin is the most physiologic basal insulin and is recommended in these patients. Regular insulin is recommended as the nutritional insulin. Because of its longer half-life, it is better suited to continuous nutritional sources and can be dosed q6h Instead of q4h.
- C. If the tube feeds or parenteral nutrition are held or interrupted, the nutritional regular insulin doses should also be held.
See: ["Nutrition on Hold Unexpectedly Guideline."](#)

5. For the NPO patient

Glargine insulin is the most physiologic basal insulin and is recommended in these patients. Nutritional or scheduled short-acting insulin should not be given to patients without a nutritional source. Correction insulin should be used to correct hyperglycemia when a patient is NPO. If NPO greater than 24 hours, regular insulin is recommended.

6. Special Situations

- A. If patient is receiving nocturnal tube feeds, utilize the Nocturnal Tube Feeding orderset with scheduled regular insulin coverage.
- B. If transitioning off of IV insulin infusion, see Step 2 of chart, call pharmacist for assistance, utilize the insulin infusion computer calculator, and/or reference ["Transition from IV to SQ Insulin Protocol."](#)

7. Discharge Planning

- A. Consider Endocrine/Diabetes consult for diabetes management and education.
- B. Reference ["Transition Guide: Inpatient to Outpatient Regimen"](#) when determining discharge medications/home regimen.