

# INSULIN SUBCUTANEOUS ORDERS

## ADULT – NPO /

### Continuous Enteral Feeds

Weight (kg)

Bulleted orders are initiated by default, unless crossed out and initialed by the physician/prescriber. Boxed orders () require physician/prescriber check mark () to be initiated.

**NOTE: COMPLETE A NEW PPO FOR ANY SINGLE CHANGE TO THE PREPRINTED ORDER.**

**DO NOT USE FOR PATIENTS ON AN INSULIN PUMP (PPO #826387) OR FOR INTRAPARTUM CARE (PPO #829384 or #829385)**

- ALLERGIES:** See #826234 – Allergy and Adverse Reaction Record
- BLOOD GLUCOSE MONITORING** (see back of page for guide)
  - Check blood glucose Q4H (for rapid acting insulins – routine 0200 checks are essential to detect nocturnal hypoglycemia)<sup>1</sup>
  - Follow Acute Care Adult Hypoglycemia Protocol (#829518) if blood glucose is less than 4 mmol/L
  - Notify physician of poor glucose control, including hypoglycemia or hyperglycemia (see back of page)
- CALCULATION OF TOTAL DAILY DOSE [TDD]**
  - Patient's TDD = sum of all insulins in a 24-hour period = \_\_\_\_\_ **units** (see back of page for calculation if not known)
- INSULIN – SCHEDULED BASAL** – Usual BASAL dose calculated at ½ TDD
  - Discontinue all previous insulin orders** (see back of page for therapeutic interchange and Formulary equivalent conversion)
  - TYPE 1: no reduction, or estimate up to 10% reduction of usual basal insulin dose
  - TYPE 2 (on insulin): estimate 30% to 50% reduction of usual basal insulin dose (see back of page for calculation)

BASAL [check one]	Morning	Mid Day	Evening	Bedtime 2200 H	
<input type="checkbox"/> <b>glargine</b>	<b>units</b>	<b>units</b>	<b>units</b>	<b>units</b>	Usually given at 2200H <b>**OR**</b> split dose 50% morning and 50% evening or 2200H
<input type="checkbox"/> <b>NPH</b>	<b>units</b>	<b>units</b>	<b>units</b>	<b>units</b>	
<b>Non Formulary: Use Patient's Own Concentration Alert</b>					
<input type="checkbox"/> <b>degludec 100 unit / mL (Tresiba®)</b>					
<input type="checkbox"/> <b>degludec 200 unit / mL (Tresiba®)</b>					
<input type="checkbox"/> <b>glargine 300 unit / mL (Toujeo®)</b>	<b>units</b>	<b>units</b>	<b>units</b>	<b>units</b>	

### 5. INSULIN – CORRECTION

**aspart SUBCUT Q4H** (dose from table below)

<input type="checkbox"/> <b>ISF: 4</b> If TDD 30 units or less		<input type="checkbox"/> <b>ISF: 3</b> If TDD 31 to 50 units		<input type="checkbox"/> <b>ISF: 2</b> If TDD 51 to 80 units		<input type="checkbox"/> <b>ISF: 1</b> If TDD 81 units or more		<input type="checkbox"/> <b>CUSTOM</b>	
Blood glucose	Insulin	Blood glucose	Insulin	Blood glucose	Insulin	Blood glucose	Insulin	Blood glucose	Insulin
				4.1 – 8	0 units	4.1 – 8	0 units		units
				8.1 – 10	1 unit	8.1 – 10	2 units		units
		4.1 – 8	0 units	10.1 – 12	2 units	10.1 – 12	4 units		units
4.1 – 9	0 units	8.1 – 11	1 unit	12.1 – 14	3 units	12.1 – 14	6 units		units
9.1 – 12	1 unit	11.1 – 14	2 units	14.1 – 16	4 units	14.1 – 16	8 units		units
12.1 – 16	2 units	14.1 – 17	3 units	16.1 – 18	5 units	16.1 – 18	10 units		units
16.1 – 20	3 units	17.1 – 20	4 units	18.1 – 20	6 units	18.1 – 20	12 units		units
<b>20 or greater</b>	<input type="checkbox"/> Call MD <input type="checkbox"/> See CUSTOM	<b>20 or greater</b>	<input type="checkbox"/> Call MD <input type="checkbox"/> See CUSTOM	<b>20 or greater</b>	<input type="checkbox"/> Call MD <input type="checkbox"/> See CUSTOM	<b>20 or greater</b>	<input type="checkbox"/> Call MD <input type="checkbox"/> See CUSTOM		Call MD

ISF = Insulin Sensitivity Factor (see back of page for calculation)

### 6. INSULIN – PERI-PROCEDURAL BASAL

BASAL [check one]	Morning	Mid Day	Evening	Bedtime 2200 H	
<input type="checkbox"/> <b>glargine</b>	<b>units</b>	<b>units</b>	<b>units</b>	<b>units</b>	Usually given at 2200H <b>**OR**</b> split dose 50% morning and 50% evening or 2200H
<input type="checkbox"/> <b>NPH</b>	<b>units</b>	<b>units</b>	<b>units</b>	<b>units</b>	
<b>Non Formulary: Use Patient's Own Concentration Alert</b>					
<input type="checkbox"/> <b>degludec 100 unit / mL (Tresiba®)</b>					
<input type="checkbox"/> <b>degludec 200 unit / mL (Tresiba®)</b>					
<input type="checkbox"/> <b>glargine 300 unit / mL (Toujeo®)</b>	<b>units</b>	<b>units</b>	<b>units</b>	<b>units</b>	

### 7. INSULIN – AFTER PATIENT IS EATING – Write new orders using the Insulin Subcutaneous Eating PPO (#829523)

<sup>1</sup> Institute for Clinical Systems Improvement. Subcutaneous Insulin Management 5th ed. July 2010

Date (dd/mm/yyyy)	Time	Prescriber's Signature	Printed Name or College ID#
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## Therapeutic Interchange Protocol and Formulary Equivalent Conversion Table

Pre-hospital (at home insulin)	Dose conversion	Insulin supplied
<b>BASAL</b>		
detemir (Levemir®)	reduce by 20%	glargine (Basaglar®)*
glargine (Basaglar® or Lantus®)	unit-per-unit	glargine (Basaglar®)
NPH (NovoLIN®ge NPH)	unit-per-unit	NPH (HumuLIN® N)
degludec 100 unit/mL <b>**OR**</b> 200 unit/mL (Tresiba®)	no substitution – use Patient's Own Med	
glargine 300 unit/mL (Toujeo®)	no substitution – use Patient's Own Med	
<b>BOLUS</b>		
aspart (Fiasp®), glulisine (Apidra®), lispro (HumaLOG®), regular (NovoLIN®ge Toronto, HumuLIN® R)	unit-per-unit	aspart (Trurapi®)
<b>PREMIXED</b>		
HumuLIN® 30/70, NovoLIN®ge 30/70, NovoMix® 30	unit-per-unit	HumaLOG® MIX 25

\* Note: administer glargine (Basaglar®) twice daily if patient was on detemir (Levemir®) twice daily

### Guidelines for Completion of the Insulin Subcutaneous Orders - Adult (NPO / Continuous Enteral Feeds)

- The NPO PPO should be used for adults on **continuous** enteral feeding and, at the discretion of the physician, for patients receiving clear fluids. Use the EATING PPO for adults on **intermittent** (bolus) enteral feeding.
- All adult insulin orders (except stat orders) must be on an appropriate Preprinted Order (PPO).
- Schedule surgery or any procedure as early in the day as possible for patients receiving insulin.

**PHYSICIAN NOTIFICATION** – required to assess and to change insulin orders:

- Immediately** (or at least before next insulin dose) for severe hypoglycemia (hypoglycemia requiring assistance).
- Within 24 hours** (e.g. during the next day's visit to the patient care unit) for:
  - Consistently low blood glucose (where 50% or more of the glucose values are between 4.0 and 5.0 mmol/L)
  - Mild hypoglycemia – requiring oral treatment
  - Hyperglycemia (where 50% or more of the glucose values are greater than 11 mmol/L).

### INSULIN DOSING - ONCE TOTAL DAILY DOSE (TDD) IS KNOWN

*Note: Certain people will require basal insulin even if not eating. These include: Type 1, Type 2 on insulin for more than 5 years or on higher doses (e.g. greater than 50 units per day), patients with a history of DKA and patients with pancreatectomy. Lack of basal insulin will cause large fluctuations in blood sugars, poor control and increased risk of DKA.*

**TDD depends largely on weight. To calculate TDD if not known:**

- Type 1 or slim Type 2 (BMI less than or equal to 25): TDD = weight × 0.3 to 0.6 units/kg = \_\_\_\_\_ units / 24 H
- Type 2 obese (BMI greater than 25): TDD = weight × 0.3 (if insulin naïve) to 1 unit/kg = \_\_\_\_\_ units / 24 H

**Basal Dosing Calculation – Two Options:**

Basal is typically ½ of the Total Daily Dose [TDD] = sum of all insulins in a 24-hour period divided by 2.

- While NPO, the basal dose may have no reduction or reduced up to 10% (if Type 1) or by 30% to 50% (if Type 2)
  - Give either as an HS dose **\*\*OR\*\*** split: ½ at 0800H and ½ at HS

If patient is already on basal with split dosing (AM and HS) pre-NPO:

- Reduce the AM basal dose by 50% (if intended to cover lunch) and reduce the HS basal dose by 10% to 30%.
  - While NPO, no regular dose of aspart insulin is given at lunch.

### INSULIN CORRECTION DOSE – CALCULATION OF ISF (Insulin Sensitivity Factor)

- For the NPO patient with elevated blood sugars, a correction dose may be necessary for the patient not requiring basal insulin and for those (see above) who do continue to require basal insulin.
- ISF calculation** = 100 divided by TDD. If TDD is 50, the ISF = 2 (100/50). 1 unit of insulin will drop blood glucose by 2 mmol/L.
  - The greater the pre-admission insulin dose, the less sensitive the patient is to insulin.
  - Select one column on the correction scale based on the calculated ISF.
  - For the sick NPO patient, often see ISF ~ 2 (more resistance), so higher insulin doses are needed.

### PATIENT GOING TO SURGERY OR FOR A PROCEDURE

NPO patient **previously on insulin** – need a correction scale dose **and** some (see above) will require a basal dose:

- If basal dose known: calculate NPO dose as outlined above **\*\*OR\*\***
- If basal dose unknown: give 0.2 units/kg Q24H as split dose: 0.1 units/kg at 0800 and 2200. Adjust dose PRN.

NPO patient **NOT previously on insulin** and who will **not** require a basal insulin dose:

- Follow correction scale insulin orders if required.
- The evening before surgery or procedure: give regular ORAL diabetes medications.
- The day of surgery or procedure: **HOLD ORAL** diabetes medications; avoid use of dextrose in IV fluids (e.g. D5W, D5NS).