

# INSULIN SUBCUTANEOUS ORDERS

## ADULT – Eating / Bolus Enteral Feeds

Weight (kg)

Bulleted orders are initiated by default, unless crossed out and initiated 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)**

1. **ALLERGIES:** See Allergy / ADR record

2. **BLOOD GLUCOSE MONITORING** (see back of page for guide)

All times listed on this line **\*\*OR\*\***  Breakfast  Lunch  Supper  2200 H

0200 H (**no insulin** to be administered at this time)

• 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)

3. **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)

4. **INSULIN – SCHEDULED BASAL / BOLUS** – BASAL dose calculated at ½ TDD; BOLUS dose calculated at ½ TDD

• **Discontinue all previous insulin orders** (see back of page for therapeutic interchange and Formulary equivalent conversion)

BASAL [check one]	Before Breakfast	Before Lunch	Before Supper	Bedtime 2200 H	
<input type="checkbox"/> glargine	units	units	units	units	Usually given at 2200H <b>**OR**</b> split dose with 50% AC breakfast and 50% at 2200H
<input type="checkbox"/> NPH	units	units	units	units	
<b>Non Formulary: Use Patient's Own Concentration Alert</b>					
<input type="checkbox"/> degludec 100 unit / mL (Tresiba®)					
<input type="checkbox"/> degludec 200 unit / mL (Tresiba®)					
<input type="checkbox"/> glargine 300 unit / mL (Toujeo®)	units	units	units	units	
BOLUS	Before Breakfast	Before Lunch	Before Supper	Bedtime 2200 H	Give within 15 min before meals
<input type="checkbox"/> aspart				Not recommended	*Prescriber to write dose range, patient to choose, nurse to document administered dose
<input type="checkbox"/> Patient may self-adjust*	units	units	units		

5. **INSULIN – CORRECTION – MUST select ONE box for mealtimes and ONE box for bedtime correction**

**Mealtimes:**  No insulin correction **\*\*OR\*\***

add **SUBCUT aspart** (dose from table below) to each mealtime **BOLUS** insulin dose

**Bedtime:**  No insulin correction **\*\*OR\*\***

give **SUBCUT aspart** at one-half (½) of the correction dose (from table below) at 2200 H

<input type="checkbox"/> ISF: 4 If TDD 30 units or less		<input type="checkbox"/> ISF: 3 If TDD 31 to 50 units		<input type="checkbox"/> ISF: 2 If TDD 51 to 80 units		<input type="checkbox"/> ISF: 1 If TDD 81 units or more		<input type="checkbox"/> CUSTOM	
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
20 or greater	<input type="checkbox"/> Call MD <input type="checkbox"/> See CUSTOM	20 or greater	<input type="checkbox"/> Call MD <input type="checkbox"/> See CUSTOM	20 or greater	<input type="checkbox"/> Call MD <input type="checkbox"/> See CUSTOM	20 or greater	<input type="checkbox"/> Call MD <input type="checkbox"/> See CUSTOM		Call MD

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

6. **INSULIN – SCHEDULED PREMIXED** – Do not order with other Basal or Bolus insulin. ISF not recommended.

• **Discontinue all previous insulin orders** (see back of page for therapeutic interchange and Formulary equivalent conversion)

PREMIXED	Before Breakfast	Before Lunch	Before Supper	Bedtime 2200 H	Give within 15 min before meals
<b>Sound-A-Like Drug Alert</b>				Not recommended	TDD usually split – breakfast and supper
<input type="checkbox"/> HumaLOG® MIX 25 (lispro 25% + lispro protamine 75%)	units	units	units		

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 (Lantus®)*
glargine (Basaglar® or Lantus®)	unit-per-unit	glargine (Lantus®)
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 (NovoRapid®)
<b>PREMIXED</b>		
HumuLIN® 30/70, NovoLIN®ge 30/70, NovoMix® 30	unit-per-unit	HumaLOG® MIX 25

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

### Guidelines for Completion of the Insulin Subcutaneous Orders – Adult (Eating)

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

### BLOOD GLUCOSE MONITORING

- Meal time blood glucose testing is to be done within 30 minutes **before** each meal.
- Note:** The 0200 H blood glucose is to assess the 2200 H basal dose – **no correction insulin is to be given.**

**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 blood glucose values are greater than 11 mmol/L).

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

*Note: A decrease in insulin may be required in patients with Type 2 diabetes who have liver failure, decreased eGFR (less than 30 mL/min) or those who are not eating well. Increased insulin doses (usually at breakfast and lunch) may be needed if patient is on corticosteroids or if an infection is diagnosed.*

**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 insulin is required to cover rise in blood glucose between meals and overnight.**
  - Use the pre-admission basal insulin dose **\*\*OR\*\***
  - Calculate based on weight with dose estimated at ½ of TDD.
- BOLUS insulin is required to cover rise in blood glucose due to meals.**
  - Use the pre-admission meal (bolus) dose **\*\*OR\*\***
  - Calculate dose (½ of TDD) divided equally amongst the three meals **\*\*OR\*\***
  - Some patients, especially Type 1 diabetics, may achieve better control if allowed to determine their meal time dose to match food intake. Physicians should select a reasonable dose range after consultation with these patients. Nurse to document on appropriate Insulin Administration–Blood Glucose record.
- PREMIX insulin used only in Type 2 diabetes. Breakfast dose can vary from 50% to 70% of the TDD dose given.

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

- Additional insulin **added** to the **meal** (bolus) dose to correct elevated blood sugars, based on how sensitive the patient is to insulin.
- Not recommended for patient's on premixed insulin.
- Insulin Sensitivity Factor (ISF)** = the blood glucose drop in mmol/L per unit of insulin given.
  - 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.
  - Note:** Physicians may select correction for a blood glucose greater than 20 mmol/L. This is not encouraged and should be the exception. They should include a blood glucose limit for when to call a physician.
- HS correction** – doses = 50% of ISF correction dose. Round down odd numbered doses (e.g. ½ of 5 = 2 units)
- If correction doses have been necessary, add the correction amount to the TDD. Follow blood glucose and reassess. Adjust basal and bolus doses until correction dose is no longer required.**