

SUBCUTANEOUS INSULIN ORDERS

 Name _____
 MR# _____
 DOB _____

Source _____ Date _____

Patient Identification _____

PHYSICIAN: Use ball point pen. Check (✓) appropriate orders where given choice. Use the metric system when filling in blanks or writing additional orders. To add additional orders after signing and dating this set, use blank Physician's Orders.

NURSE: Remove Nursing and Pharmacy copies. Retain Nursing copy. Check drugs needed, then forward Pharmacy copy, whether or not medications are ordered or appear on that page.

A. Monitoring (Check all that apply)

- Fingertick before every meal and at bedtime Fingertick every 6 hours (if patient is NPO or is receiving enteral feeds or parenteral nutrition)
 Fingertick 2 hours after meals Other: _____

B. Insulin orders. Discontinue all previous insulin orders.
1. Scheduled intermediate/long-acting (basal) insulin

- NO scheduled basal insulin
Note: Type 1 diabetics require at least some scheduled insulin at ALL times to prevent ketosis, even if NPO. Sliding scale insulin as the sole form of insulin coverage for >24-48 hours is strongly discouraged!
 Basal scheduled insulin in units as below:

Intermediate/Long Acting Basal Insulin	Breakfast	Lunch	Dinner	Bedtime
Glargine (Lantus)	units			units
Ultralente	units		units	units
NPH	units		units	units
Mixed Insulin	Breakfast	Lunch	Dinner	Bedtime
70/30	units		units	

2. Short acting pre-meal insulin.

- Give NO scheduled short acting pre-meal insulin **OR**
 Give scheduled short acting pre-meal insulin as ordered below

Short-acting scheduled Insulin	Breakfast	Lunch	Dinner	Bedtime
Regular	units	units	units	units
Lispro (Humalog)	units	units	units	units

If patient is eating: Give regular insulin 15-20 minutes before meals (trays should be on the ward). Give lispro insulin with the first bite of the meal (tray should be at bedside)

Supplemental adjustment or correction dose insulin: To be administered only when given as an adjustment to scheduled short-acting pre-meal insulin as ordered directly above: this is NOT sliding scale insulin. Traditional sliding scale insulin orders are on the opposite page.

- Give NO "adjustment" insulin **OR** Regular insulin subcutaneous adjustment insulin
 Lispro insulin subcutaneous adjustment insulin

Glucose range	Before meals	Bedtime
<80 mg/dL	Call physician for adjustment of scheduled regular or lispro insulin and refer to hypoglycemia protocol	
80-100 mg/dL	1 unit less of scheduled regular or lispro insulin	0 units
101-150 mg/dL	No adjustment: just give scheduled insulin	0 units
151-200 mg/dL	+ 1 unit OR _____ units	0 units
200-250 mg/dL	+ 2 unit OR _____ units	0 units
251-300 mg/dL	+ 3 unit OR _____ units	+ 1 unit OR _____ units
301-350 mg/dL	+ 4 unit OR _____ units	+ 2 unit OR _____ units
> 350 mg/dL	+ 5 unit OR _____ units	+ 3 unit OR _____ units

UCSD Medical Center Subcutaneous Insulin Orders (cont)

3. Sliding Scale Insulin Note: Prolonged use of sliding scale insulin regimens as the sole form of insulin coverage is strongly discouraged! Rapid transition to a regimen that includes basal insulin is usually appropriate. Do not use this scale to supplement scheduled short-acting pre-meal insulin.

- Give NO sliding scale insulin *OR* Regular insulin subcutaneous (15-20 minutes before meals).
 Lispro insulin subcutaneous (with first bite of meal)

Glucose range	If patient eating	
	Before meals	Bedtime
<80 mg/dL	0 units	0 units
80-100 mg/dL	1 unit or _____ units	0 units
101-150 mg/dL	2 units or _____ units	0 units
151-200 mg/dL	4 units or _____ units	0 units
201-250 mg/dL	6 units or _____ units	0 units
251-300 mg/dL	8 units or _____ units	3 units or _____ units
301-350 mg/dL	10 units or _____ units	4 units or _____ units
>350 mg/dL	12 units or _____ units	5 units or _____ units

If not eating	
Every 6 hours	
0 units	
1 unit or _____ units	
2 units or _____ units	
4 units or _____ units	
6 units or _____ units	
8 units or _____ units	
10 units or _____ units	
12 units or _____ units	

- C. Notify physician for:
1. Glucose < 60 mg/dL or < 80 mg/dL accompanied by symptoms, and implement hypoglycemia decision tree protocol.
 2. Glucose > 400 mg/dL.
 3. Adjustment if half or more of glucose levels in a 48-hour period are >200 mg/dL.

D. Hypoglycemia Decision Tree Protocol

I. Assessment

- Symptoms of hypoglycemia are reported or observed; If on insulin drip, turn off insulin drip.
- Blood glucose test performed. Results reported to RN.

II. Intervention

A. Blood glucose <40 mg/dL with or without symptoms

- Unconscious without IV –
Give 1 mg glucagon subcutaneously once and start IV of normal saline with saline lock. If no response in 10 minutes, give 25 mL D50W slow IV push once. Note: glucagon is located in PYXIS.
- Unconscious or NPO with IV –
Give 25 mL D50W slow IV push once. Check blood glucose in 15 minutes. Follow protocol based on blood glucose reading.
- Conscious –
Repeat blood glucose test. Give 6 glucose tabs or 8 ounces of juice.

B. Blood glucose 40-60 mg/dL with or without symptoms

Give 3 glucose tablets or 4 ounces of juice. Check blood glucose in 15 minutes.
If blood glucose < 60 mg/dL or symptomatic, follow decision tree for unconscious patient.
If blood glucose < 60 mg/dL and no symptoms, follow with snack

C. Blood glucose >60 mg/dL without symptoms

DO NOT TREAT. There is no hypoglycemia.

D. Blood glucose 61-80 mg/dL with symptoms

Initial treatment: Give 3 glucose tablets or 4 ounces of juice. Check blood glucose in 15 minutes.
If blood glucose < 60 mg/dL or symptomatic, follow decision tree for unconscious patient.
If blood glucose < 60 mg/dL and no symptoms, follow with snack of peanut butter or give next meal tray.
Recheck glucose 1 hour after snack.

III. Following episode

Assess for cause of hypoglycemia (e.g., missed or delayed meal, extra insulin).
Document episode and instruct patient/family re: avoiding hypoglycemia.
Notify physician. Complete adverse drug reaction form, if applicable.

UCSD Medical Center Subcutaneous Insulin Orders (cont)

Guidelines for Insulin Use and Care of the Hospitalized Patient with Hyperglycemia

Frequency Of Glucose Testing And Glycemic Targets

1. Target blood glucose is 100-150 mg/dL. Poor glycemic control = poor outcomes.
2. Point of care tests at least before each meal and at bedtime unless NPO/tube feeds, then q6h.

General Insulin Dosing Recommendations

1. Type 1 DM - insulin is necessary at all times (even when NPO).
 - Must continue basal/scheduled insulin and add mealtime insulin for caloric needs.
2. Individualize Insulin Dose
 - Use outpatient dose for baseline and increase (infection, steroids) or decrease (fewer calories ingested than when at home) as needed.
 - Resume outpatient regimen if blood glucose is well controlled unless patient is NPO.
3. Never previously on insulin - estimate dose based on patient's body weight.
 - Type 1 DM - 0.6 units/kg dose to start; ½ dose as basal insulin and ½ dose as mealtime insulin. Adjust to maintain glucose between 100-150 mg/dL.

For example, a 70 kg man eating the average hospital meal will require approximately 42 (0.6 units/kg x 70 kg) units of insulin per day. One half or 21 units as a basal insulin (e.g. Glargine 21 units qhs or Ultralente 10 units bid), and the other half as mealtime insulin (Lispro 7 units with each meal). This should be adjusted accordingly, to maintain glucose levels between 100-150 mg/dL.

- Type 2 DM - usually require higher doses - more than 1 unit/kg per day.
4. Important!! Evaluate insulin dose daily. Adjust if needed to prevent hyper or hypoglycemia.
 5. Type 2 DM - some oral agents may need to change.
 - Sulfonylureas; risk for hypoglycemia if NPO; Metformin; lactic acidosis risk with renal insufficiency. Glitazones; risk for fluid overload and exacerbation of CHF.

Supplemental adjustment or correction dose insulin

1. This is not the traditional sliding scale insulin. It is an adjustment dose used to supplement *scheduled* regular or lispro insulin.
2. You can not order sliding scale insulin on top of scheduled regular or lispro insulin, as it would likely lead to hypoglycemia. Use supplemental adjustment dose insulin for this to fine tune control.

Sliding Scale Insulin

1. Do not use as sole diabetic treatment unless NPO or problem predicting basal amount.
2. Adjust sliding scales and basal insulin dosing every 1–2 days.
3. Transition to using scheduled long acting (basal) insulin and scheduled pre-meal insulin ASAP.

Peri-Operative and Peri-Procedure Orders

1. Do not use sliding scale as sole diabetic treatment (generally).
2. Type 2 diabetics well controlled on oral agents: simply keep NPO.
3. Day of procedure: Hold sulfonylureas, metformin and alpha-glucosidase inhibitors, resume when patient eats. Thiazolidinediones can be continued if fluid retention is not a concern.
4. IV fluids to contain dextrose, test glucose q 1-2 hr during case.
5. IV insulin infusions are ideal in patients who are NPO for more than 10-12 hours.
6. See *Insulin Infusion Order set* for details /instructions on transitioning from IV to subcutaneous insulin.
7. For subcutaneous regimens:
 1. AM of procedure: Give ½ of long/intermediate-acting insulin (such as NPH or Lantus) or (½ to 2/3 of the usual dose in Type 1 patients).
 2. Do not give rapid/short-acting insulin unless the glucose is >200 mg/dL, and then give small doses (1-4 units to a glucose of around 150 mg/dL).

Call Tammy Finger (diabetic educator) and Joe Yu MD or Internal Medicine hospitalist for consultation if you have questions or difficulty achieving good control without hypoglycemia.