**PHYSICIAN’S ORDERS**

**Standard Subcutaneous Insulin Orders for Non-pregnant Patients**

**DATE:** YYYYY / MM / DD  **TIME (h):** __________  **PATIENT IDENTIFICATION**

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**SIGNATURE OF NURSE**

**Doctor Must Check Off Appropriate Orders**

A new insulin order form should be completed for subsequent changes to type of insulin and/or frequency of administration

1. Check ☑ times for point of care meter blood glucose testing.
   - ☐ Pre-Breakfast ☐ Post-Breakfast ☐ Pre-Lunch ☐ Post-Lunch ☐ Pre-Dinner
   - ☐ Post-Dinner ☐ Bedtime ☐ 0300hrs ☐ All ☐ Other (specify): ______________

2. **Insulin Regimen:** Select type of insulin and indicate dose (See reverse for guidelines)

<table>
<thead>
<tr>
<th>Insulin Type</th>
<th>Basal Insulin</th>
<th>Mealtime Insulin</th>
<th>Premixed Insulin (Mealtime+Basal)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breakfast</td>
<td>Lunch (not recommended)</td>
<td>Dinner</td>
</tr>
<tr>
<td>Lantus® (glargine)</td>
<td>_____ units</td>
<td>_____ units</td>
<td>_____ units</td>
</tr>
<tr>
<td>Levemir® (detemir)</td>
<td>_____ units</td>
<td>_____ units</td>
<td>_____ units</td>
</tr>
<tr>
<td>Humulin N® (NPH)</td>
<td>_____ units</td>
<td>_____ units</td>
<td>_____ units</td>
</tr>
<tr>
<td>Novolin ge NPH®</td>
<td>_____ units</td>
<td>_____ units</td>
<td>_____ units</td>
</tr>
</tbody>
</table>

|              | Breakfast     | Lunch | Dinner | Bedtime (not recommended) |
| Humalog® (lispro) | _____ units | _____ units | _____ units | _____ units |
| NovoRapid® (aspart) | _____ units | _____ units | _____ units | _____ units |
| Apidra® (glulisine) | _____ units | _____ units | _____ units | _____ units |
| Humulin R® (regular) | _____ units | _____ units | _____ units | _____ units |
| Novolin ge Toronto® (regular) | _____ units | _____ units | _____ units | _____ units |

|              | Breakfast     | Lunch (not recommended) | Dinner | Bedtime (not recommended) |
| Humalog Mix 25® (lispro mix) | _____ units | _____ units | _____ units | _____ units |
| NovoMix 30® (aspart mix) | _____ units | _____ units | _____ units | _____ units |
| Humulin 30/70® (regular/NPH) | _____ units | _____ units | _____ units | _____ units |
| Novolin ge 30/70® (regular/NPH) | _____ units | _____ units | _____ units | _____ units |

**Doctor’s Signature:** ______________  **PRINT NAME:** ______________  **Pager:** ______________

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(PR 15010)

(2010/08/26)
Physician to select
Determine if patient requires an Endocrinology consult. The Endocrinology Division welcomes all consults for patients with

1. **Basal Insulin:** Insulin required to cover a rise in blood glucose between meals and overnight.
   - **Type 1 Diabetes:** Start at 0.25 units/kg/day (Lantus or Leveirm once daily) (NPH twice daily)
   - **Type 2 Diabetes in patients on oral antidiabetic agents:** Start at 0.15 units/kg/day at bedtime (any basal insulin)
   - Adjust dose to reach target blood glucose based primarily on fasting blood glucose results (pre-breakfast)

2. **Mealtime Insulin:** Insulin required to cover a rise in blood glucose due to meals.
   - To estimate the initial empiric dose, start at 0.1 units/kg tid (for Type 1 or 2 Diabetes).
   - Adjust dose to reach target blood glucose according to post-meal blood glucose results.

3. **Bedtime administration of short acting insulin is not recommended.**
   - For continuous enteral feeds or TPN, mealtime insulin may not be necessary; however correction dose insulin (as per algorithm) may be used to control blood glucose.

4. **Premixed Insulin (Mealtime + Basal):** Used in patients with type 2 diabetes not requiring intensive therapy or patients on enteral feeds/TPN.
   - May be administered either once or twice daily pre-breakfast, or pre-dinner, or at both times, as follows:
     - **Once daily regimen:** Start with an initial empiric dose of 0.15 units/kg at dinner or at breakfast.
     - **Twice daily regimen:** Start with an initial empiric dose of 0.1 units/kg at breakfast and 0.1 units/kg at dinner.
   - Adjust dose to reach target blood glucose according to fasting (pre-breakfast) and/or pre-dinner blood glucose results.
   - **Administration is not recommended at lunch or bedtime.**

5. **Mealtime Correction Dose Algorithm**
   - **Used to determine if any extra rapid or short-acting insulin is to be given in addition to the scheduled dose in order to treat (“correct for”) hyperglycemia (blood glucose 8.0 mmol/L or greater).**
   - **Administration:**
     1. Before meals (or qid if on enteral feeds or TPN) test blood glucose by point of care meter and determine the correction dose using the Mealtime Correction Dose Algorithm selected by physician.
     2. Add the correction dose to any existing routine mealtime dose.

   **DO NOT DRAW CORRECTION DOSE INTO SAME SYRINGE AS PREMIXED INSULIN.**

6. **Hypoglycemia Treatment Orders for Non-pregnant patients**
   - **Monitor for hypoglycemia:**
     1. Test blood glucose by point of care meter; and (2) observe for/inquire about symptoms (see below).
     2. Trembling, Hunger, Anxiety, Weakness, Difficulty speaking, Palpitations, Nausea, Difficulty concentrating, Drowsiness, Headache, Sweating, Tingling, Confusion, Vision changes, Dizziness

   - **Determine treatment route for patient and follow treatment orders.**

7. **DIABETES MELLITUS**
   - **Especially the following:**
     1. Admission for Diabetic ketoacidosis (DKA) or Hyperosmolar Hyperglycemcic State
     2. Patient with Type 1 Diabetes or genetic cause of diabetes
     3. Using insulin pump
     4. Pregnant or planning pregnancy
     5. Hemoglobin A1C greater than 8%
     6. On 3 or more oral anti-hyperglycemia agents
     7. 2 or more episodes of hypoglycemia in hospital
     8. Glucose greater than 14 mmol/L on 3 or more occasions in hospital
     9. Perioperative patients with difficult to control diabetes
     10. Consider if patient has diabetes and is on corticosteroids or enteral feeds
     11. Consider if patient does not have endocrinologist and is on insulin

**The Sunnybrook Diabetes Education (SUNDEC) program, offers group sessions and individual appointments with a Dietitian and a Nurse Educator. Referrals are available on the intranet. Fax referrals to 416-480-5774 or call 416-480-4805.**
**Standard Subcutaneous Insulin Orders for Non-pregnant Patients**

**Extra Mealtime Insulin if needed as per blood glucose Algorithm (Correction Dose Insulin)**

3. Check ☑ times and insulin to be given.
   a. ☑ ac meals ☑ qid – for enteral feeds or TPN only
   b. ☑ Humalog® (lispro) ☑ NovoRapid® (aspart) ☑ Apidra® (glulisine)
      ☑ Humulin R® (regular) ☑ Novolin ge Toronto® (regular)

4. Check ☑ and initial one algorithm to be followed. Test blood glucose to decide on dose.

<table>
<thead>
<tr>
<th>Measured Premeal blood glucose (mmol/L)</th>
<th>Low-Dose Algorithm</th>
<th>Medium-Dose Algorithm</th>
<th>High-Dose Algorithm</th>
<th>Individualized Algorithm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Dose Algorithm</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3.9 or less</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4.0 to 7.9</td>
<td>+ 0 units</td>
<td>+ 0 units</td>
<td>+ 0 units</td>
<td>+ 0 units</td>
</tr>
<tr>
<td>8.0 to 10.9</td>
<td>+ 1 units</td>
<td>+ 1 units</td>
<td>+ 2 units</td>
<td>+ ______ units</td>
</tr>
<tr>
<td>11.0 to 13.9</td>
<td>+ 2 units</td>
<td>+ 3 units</td>
<td>+ 4 units</td>
<td>+ ______ units</td>
</tr>
<tr>
<td>14.0 to 16.9</td>
<td>+ 3 units</td>
<td>+ 5 units</td>
<td>+ 7 units</td>
<td>+ ______ units</td>
</tr>
<tr>
<td>17.0 to 19.9</td>
<td>+ 4 units</td>
<td>+ 7 units</td>
<td>+ 10 units</td>
<td>+ ______ units</td>
</tr>
<tr>
<td>20 or greater</td>
<td>+ 5 units and call physician</td>
<td>+ 8 units and call physician</td>
<td>+ 12 units and call physician</td>
<td>+ ______ units and call physician</td>
</tr>
</tbody>
</table>

Follow Hypoglycemia Treatment Orders on page 3 and contact physician to reassess insulin dosing.

**Doctor's Signature:**

**PRINT NAME:**

**Pager:**

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Hypoglycemia Treatment Orders for Non-pregnant Patients

5. a. For patients with oral or enteral access:
   Test blood glucose by point of care meter.
   If blood glucose is 3.9 mmol/L or less, or if patient is symptomatic (see reverse for details), follow table below according to patient needs.

<table>
<thead>
<tr>
<th>Patient Attribute</th>
<th>Treatment for Hypoglycemia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can chew tablets</td>
<td>• glucose (dextrose) tablets – 4 g each</td>
</tr>
<tr>
<td></td>
<td>• Patient to chew 4 tablets, then swallow with water (available in Hypoglycemia Kit)</td>
</tr>
<tr>
<td>Cannot chew tablets Can swallow liquids</td>
<td>• Fruit juice – apple preferred; orange acceptable</td>
</tr>
<tr>
<td>Dysphagic (requires thickened liquids)</td>
<td>• glucose gel (Insta-Glucose®) Contents of 1 tube (24 g glucose) squeezed into mouth and swallowed (available in Hypoglycemia Kit)</td>
</tr>
<tr>
<td>Enteral Feeding Tube</td>
<td>• Fruit juice – apple preferred; orange acceptable</td>
</tr>
<tr>
<td></td>
<td>• 2 mini-cartons or 2 Dixie Cups (approximately 200 mL)</td>
</tr>
<tr>
<td></td>
<td>• Flush tube before and after juice with 30 mL of water to reduce risk of clogging due to interaction of juice with feeds</td>
</tr>
</tbody>
</table>

b. For patients who are **NPO without enteral access**:
   Test blood glucose by point of care meter.
   If blood glucose is 3.4 mmol/L or less on two consecutive tests (over 10 minutes), follow table below according to patient needs.

<table>
<thead>
<tr>
<th>Patient Attribute</th>
<th>Treatment for Hypoglycemia</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPO No Enteral Feeding Tube No IV Access</td>
<td>• glucagon injection 1 mg (1 unit) subcutaneously (available in Hypoglycemia Kit)</td>
</tr>
<tr>
<td>NPO No Enteral Feeding Tube IV Access</td>
<td>IV dextrose 12.5 g given by either of these methods:</td>
</tr>
<tr>
<td></td>
<td>• Hang a bag of D10W (dextrose 10%) and infuse 125 mL as fast as possible (over 5-10 min). <strong>OR</strong></td>
</tr>
<tr>
<td></td>
<td>• Using a pre-filled syringe of dextrose 50%, add 25 mL to 100 mL minibag of D5W and infuse over 5 min.</td>
</tr>
</tbody>
</table>

6. Re-test blood glucose by point of care meter 15 min after treatment.
7. If blood glucose is 4.0 mmol/L or greater, do not re-test. If available, offer a snack if meal not due within 1 hr.
8. If blood glucose is 3.9 mmol/L or less after **oral or enteral glucose/juice or IV dextrose**, repeat treatment and re-test in 15 min. If blood glucose remains 3.9 mmol/L or less, notify physician.
9. If blood glucose remains 3.9 mmol/L or less after **sc glucagon treatment**, notify physician.
11. Indicate whether patient requires Endocrinology consult. See reverse for criteria. ☐ Yes ☐ No
12. Refer to Diabetes Education Centre upon discharge: ☐ Sunnybrook Diabetes Education (SUNDEC) ☐ Other: __________________________

Doctor’s Signature: __________________________
PRINT NAME: __________________________
Pager: __________________________

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Guidelines for Use of the Standard Subcutaneous Insulin Orders
For Non-pregnant Patients

“SLIDING SCALE INSULIN” refers to a treatment regimen that provides NO basal insulin and provides ONLY short acting insulin if needed according to blood glucose test results. This is a reactive way of managing hyperglycemia and should NOT be used as the sole means of controlling blood glucose unless absolutely necessary.

How to use this form:
A new insulin order form should be completed for major changes to insulin orders (e.g. type of insulin and/or frequency of administration). Exceptions include:
(a) ONE-time insulin orders (e.g., give 5 units immediately) can be ordered on blank doctor’s orders sheet
(b) To discontinue insulin or make minor dose adjustments to a single insulin, use blank doctor’s orders sheet

1. Tick the boxes to indicate times blood glucose is to be tested.
(Note: correction doses should not be given at 0300hrs. This test is only to assess night time basal doses).
Target values are 5.0 mmol/L – 11.0 mmol/L. Notify MD if blood glucose is below 4.0 mmol/L or above 20.0 mmol/L.

2. Basal Insulin: Insulin required to cover a rise in blood glucose between meals and overnight.
To estimate the initial empiric dose to be administered at breakfast, dinner, or bedtime (lunchtime not recommended):
(a) Type 1 Diabetes - start at 0.25 units/kg/day (Lantus or Levernir once daily) (NPH twice daily)
(b) Type 2 Diabetes in patients on oral antidiabetic agents – start at 0.15 units/kg/day at bedtime (any basal insulin)
Adjust dose to reach target blood glucose based primarily on fasting blood glucose results (pre-breakfast)

Mealtime Insulin: Insulin required to cover a rise in blood glucose due to meals.
To estimate the initial empiric dose, start at 0.1 units/kg tid (for Type 1 or 2 Diabetes).
Adjust dose to reach target blood glucose according to post-meal blood glucose results.

Bedtime administration of short acting insulin is not recommended.
For continuous enteral feeds or TPN, mealtime insulin may not be necessary; however correction dose insulin (as per algorithm) may be used to control blood glucose.

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(a) Once daily regimen: Start with an initial empiric dose of 0.15 units/kg at dinner or at breakfast
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Adjust dose to reach target blood glucose according to fasting (pre-breakfast) and/or pre-dinner blood glucose results.
Administration is not recommended at lunch or bedtime.

Mealtime Correction Dose Algorithm
Used to determine if any extra rapid or short-acting insulin is to be given in addition to the scheduled dose in order to treat (“correct for”) hyperglycemia (blood glucose 8.0 mmol/L or greater).

3. Physician to select times for correction doses and type of insulin to be given.

4. Physician to select one algorithm: low-dose, medium-dose, high-dose, or individualized (indicate doses).

Administration:
1. Before meals (or qid if on enteral feeds or TPN) test blood glucose by point of care meter and determine the correction dose using the Mealtime Correction Dose Algorithm selected by physician.
2. Add the correction dose to any existing routine mealtime dose.

DO NOT DRAW CORRECTION DOSE INTO SAME SYRINGE AS PREMIXED INSULIN.

5. (a) Monitor for hypoglycemia: (1) test blood glucose by point of care meter; and (2) observe/inquire about symptoms (see below).
   - Trembling
   - Hunger
   - Anxiety
   - Weakness
   - Difficulty speaking
   - Palpitations
   - Nausea
   - Difficulty concentrating
   - Drowsiness
   - Headache
   - Sweating
   - Tingling
   - Confusion
   - Vision changes
   - Dizziness

   (b) Determine treatment route for patient and follow treatment orders.

6. Determine if patient requires an Endocrinology consult. The Endocrinology Division welcomes all consults for patients with DIABETES MELLITUS, especially the following:
   1. Admission for Diabetic ketoacidosis (DKA) or Hyperosmolar Hyperglycemic State
   2. Patient with Type 1 Diabetes or genetic cause of diabetes
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   7. 2 or more episodes of hypoglycemia in hospital
   8. Glucose greater than 14 mmol/L on 3 or more occasions in hospital
   9. Perioperative patients with difficult to control diabetes
   10. Consider if patient has diabetes and is on corticosteroids or enteral feeds
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