Transitioning from BBIT and Discharge Planning

Discharge planning for diabetes management should begin as early as possible during the hospital admission.

A patient with diabetes may require BBIT only transiently in hospital. Please see Appendix 1: Transition algorithm for steps to consider in the transition process of moving from “BBIT in-hospital” to the diabetes regimen on which that the patient will be discharged.

In deciding which diabetes regimen is most appropriate for discharge, consider the following:

1. Patient’s pre-admission glycemic control, as indicated by the A1C within the preceding 3 months
2. Patient’s discharge destination:
   a. Home
   b. Continuing Care (Home Care, Supportive Living vs. Long-term Care)
      i. professional staff available may vary in each setting
3. Patient’s ability to self-manage
4. Resources available for the patient in the discharge setting
   a. Diabetes Care Team
   b. Chronic Disease Management
   c. Home Care – appropriate staff availability and frequency of visits?
   d. Family Support
5. Patient’s unique needs/wants/therapeutic goals
   a. The goal is appropriate medical therapy for achieving safe blood glucose values after discharge

If discharge on insulin is anticipated:

1. Plan insulin injection teaching early, encouraging patient to self-inject and participate in diabetic management as early as possible prior to discharge.
2. Consider the possibility of basal insulin alone or in combination with oral agents, as this is the most simple insulin regimen for patients.
3. If BBIT is required (i.e. T1 DM, T2 DM with inadequate prandial control with basal insulin alone), attempt to simplify doses prior to discharge.
   a) Discontinue correction scale in most cases
      ▪ For patients with a good understanding of their diabetes management, sometimes the use of a correction scale at home is appropriate.
      ▪ However, the goal should be to titrate insulin doses to the point where the correction insulin is rarely needed, such that the correction doses can be discontinued prior to discharge.
4. Ensure family physician is notified if antihyperglycemic medications have been changed, and encourage patient to see family physician in next 1-2 weeks for ongoing diabetes care.
5. If a patient has a diabetes specialist or outpatient diabetes educator, ensure they are notified if antihyperglycemic medications are changed upon discharge.
6. Refer patient to outpatient diabetes education, especially if patient is new to insulin or newly diagnosed with diabetes.
Ensure patient is aware of the discharge plan, specifically which diabetes medications are to be resumed, any changes in doses and/or new medications added.

**PEARLS** for patients moving to **Continuing Care** when insulin therapy is the best option at the time of discharge (including Home Care, Supportive Living and Long-term Care):

1. If patient discharged to Long-term Care, ensure that diabetes medications are on formulary
2. Consider moving once daily basal insulin to a *morning* administration
3. Consider switching twice daily basal insulin to once daily basal *morning* insulin administration
4. Consider switching to a pre-mix insulin dosed at breakfast and supper
   a. Premix insulins may be useful in those patients that have difficulty with adherence, those who are only able to tolerate two injections per day or as outpatients rely on caregivers/home care to administer insulin
5. A higher glycemic target (blood glucose values of 5.0 – 12.0 mmol/L and A1C of 8.0 – 8.5%) is acceptable for the frail elderly (older adults assessed as physically and/or cognitively frail at risk for confusion, agitation or falls), those with multiple comorbidities, patients with limited life expectancy and patients at risk for severe or recurrent hypoglycemia (e.g. hypoglycemia unawareness)

The **Basal Bolus Insulin Therapy (BBIT) Adult Inpatient Order Set** (AHS form 19855 or Covenant Health form CV-0701) is for acute care use only.
- A separate prescription is required for a patient's transition between facilities outside of the acute care site.
- **Do not** send AHS/Covenant Health order set with patient as a prescription
Appendix 1 – Transition Algorithm

A GUIDE TO TRANSITIONING PATIENTS FROM BBIT IN HOSPITAL TO HOME: DIABETES MEDICATIONS

Currently On BBIT in Hospital

New diagnosis of diabetes?

no

Type 1 DM OR
Type 2 DM with metabolic decompensation pre-admission (e.g. hyperglycemia, weight loss)

Continue basal bolus insulin regimen and re-evaluate therapy as an outpatient with support and ongoing education in the community

Type 2 DM metably stable pre-admission

• Consider switching from BBIT to an oral/non-insulin injectable agent(s) as per Diabetes Canada CPG* • Education for lifestyle management and ongoing follow up in the community

Has anything changed for the patient while in hospital?

• Renal dysfunction • Cardiac issues • Liver dysfunction • Medication changes (e.g. addition of corticosteroids) • Diabetic Ketoacidosis • Patient factors (cognitive, socioeconomic, preference)

yes

• For medication adjustment/contraindication, see How to BBIT- Appendix 2 and/or Diabetes Canada CPG* • If medications now contraindicated, consider continuing a basal bolus regimen until patient can be reassessed in the community

no

Discuss with patient:

• Return to home regimen to meet individualized targets • Follow-up with community diabetes care provider

Was the patient reasonably well-controlled pre-admission? (A1c below 8.5%)

If patient meeting in-hospital targets or individualized targets, recommend current insulin doses at discharge and follow-up with community diabetes care provider

Consider restarting pre-admission regimen lifestyle therapy alone OR oral/non-insulin injectable anti-hyperglycemic medications ± insulin

Consider starting or adding in other anti-hyperglycemic medications. For more information see How to BBIT- Appendix 2 and/or Diabetes Canada CPG*

OR

Consider continuing basal bolus insulin regimen at discharge until patient can be reassessed in the community

Type 2 DM On lifestyle therapy alone OR oral/non-insulin injectable anti-hyperglycemic medication alone or in combination with insulin pre-admission

Was the patient reasonably well-controlled pre-admission (A1c below 8.5%)?

yes

no

Type 1 DM or Insulin Deficient Type 2 DM (on insulin alone) pre-admission

## Appendix 2 – Oral and non-insulin injectable Medications for Use in Type 2 Diabetes

<table>
<thead>
<tr>
<th>Medication Class</th>
<th>Medications Included</th>
<th>AHS Formulary?</th>
<th>Reduce Dose</th>
<th>Discontinue Medication</th>
<th>Use with BBIT in Hospital?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biguanides</strong></td>
<td>Metformin</td>
<td>Yes</td>
<td>GI side effects GFR 30-60 mL/min</td>
<td>GFR less than 30 mL/min Severe hepatic dysfunction, dehydration</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Meglitinides</strong></td>
<td>Repaglinide</td>
<td>Yes</td>
<td>Hypoglycemia</td>
<td>If clopidogrel and/or gemfibrozil required</td>
<td>Basal insulin ONLY</td>
</tr>
<tr>
<td><strong>Sulfonylureas</strong></td>
<td>Glyburide</td>
<td>Yes</td>
<td>GFR less than 50 mL/min Hypoglycemia</td>
<td>GFR less than 30 mL/min Severe hepatic dysfunction</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Gliclazide</td>
<td>Yes</td>
<td>GFR less than 30 mL/min Hypoglycemia</td>
<td>GFR less than 15 mL/min</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Glimepiride</td>
<td>No</td>
<td>GFR less than 30 mL/min Hypoglycemia</td>
<td>GFR less than15 mL/min</td>
<td>No</td>
</tr>
<tr>
<td><strong>GLP-1 Agonists</strong></td>
<td>Exenatide</td>
<td>No</td>
<td>GFR less than 50 mL/min</td>
<td>GFR less then 30mL/min; history of MEN2 or thyroid cancer, pancreatitis</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Liraglutide</td>
<td>No</td>
<td>GFR less than 50 mL/min</td>
<td>GFR less than 50 mL/min; history of MEN2 or thyroid cancer, pancreatitis</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Dulaglutide</td>
<td>No</td>
<td>History of MEN2 or thyroid cancer; Use with caution with GFR less than 30 mL/min, pancreatitis</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lixisenatide</td>
<td>No</td>
<td>GFR less than 15 mL/min; History of MEN2 or thyroid cancer; pancreatitis</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td><strong>DPP-4 Inhibitors</strong></td>
<td>Sitagliptin</td>
<td>Yes (restricted)</td>
<td>GFR less than 50 mL/min</td>
<td>pancreatitis</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Saxagliptin</td>
<td>Yes (restricted)</td>
<td>GFR less than 50 mL/min</td>
<td>GFR less than 15 mL/min</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Linagliptin</td>
<td>Yes (restricted)</td>
<td>GFR less than 15 mL/min</td>
<td>pancreatitis</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Alogliptin</td>
<td>No</td>
<td>GFR less than 50 mL/min</td>
<td>pancreatitis</td>
<td>No</td>
</tr>
<tr>
<td><strong>SGLT-2 Inhibitors</strong></td>
<td>Canagliflozin</td>
<td>No</td>
<td>GFR less than 60 mL/min</td>
<td>GFR less than 45 mL/min; Signs of DKA (nausea, vomiting, confusion), foot issues (amputation risk)</td>
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<tr>
<td></td>
<td>Dapagliflozin</td>
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<td>GFR less than 60 mL/min</td>
<td>GFR less than 60 mL/min; Signs of DKA (nausea, vomiting, confusion)</td>
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<tr>
<td></td>
<td>Empagliflozin</td>
<td>No</td>
<td>GFR less than 60 mL/min</td>
<td>GFR less than 45 mL/min; Signs of DKA (nausea, vomiting, confusion)</td>
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<tr>
<td><strong>Thiazolidinediones</strong></td>
<td>Pioglitazone</td>
<td>Yes (restricted)</td>
<td>GFR less than 30 mL/min</td>
<td>Congestive heart failure, severe liver dysfunction, bladder cancer (pioglitazone)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Rosiglitazone</td>
<td>Yes (restricted)</td>
<td>GFR less than 30 mL/min</td>
<td>Congestive heart failure, severe liver dysfunction, bladder cancer (pioglitazone)</td>
<td>No</td>
</tr>
<tr>
<td><strong>Alpha-glucosidase inhibitors</strong></td>
<td>Acarbose</td>
<td>Yes</td>
<td>Hypoglycemia</td>
<td>GFR less than 25 mL/min Chronic intestinal disease</td>
<td>No</td>
</tr>
</tbody>
</table>

References:
Appendix 3 – Adult Inpatient BBIT Order Set

Basal Bolus Insulin Therapy (BBIT)
Adult Inpatient Subcutaneous Insulin Order Set

1. Discontinue all previous insulin and blood glucose monitoring orders.
2. All adult subcutaneous BBIT insulin orders (except STAT orders) must be documented using this order set. Any change in insulin orders requires completion of a new BBIT order set. (Stroke out entire page and initial, when starting new order set).
3. Orders marked with ☑ are active by default, unless crossed out and initialed by prescriber. Boxed orders (☐) require prescriber check mark (☑) to be initiated.

Blood Glucose (BG) Monitoring
- ☑ 4 times per day (15 - 30 minutes before scheduled meals and at bedtime), as well as PRN for suspected hypoglycemia
- ☑ 0200h x [ ] days
- ☑ 2 hours after meal time
- ☑ Other (Specify)
- ☑ If BG < 4.0 mmol/L initiate Hypoglycemia Procedure. Do Not Hold Insulin without prescriber order
- ☑ If BG > 18.0 mmol/L initiate Hypoglycemia Procedure and call prescriber

Total Daily Dose (TDD) See calculation instructions on reverse for Prescriber Guidance only
Calculated TDD for this order (Physician to use as guide for Basal, Bolus & Correction Calculations)

Basal Insulin
Home dose or ½ TDD (given initially as equal, twice daily doses at breakfast and bedtime; glargine may be given once daily)

Choose One Basal Insulin
☐ glargine (Lantus®)
☐ detemir (Levemir®)
☐ Humulin® N

Units [ ]
☐ At Bedtime
☐ Time [h:mm]

Bolus and Correction Insulin Use the same insulin (rapid or short acting) for bolus and correction.

Choose One Bolus/Correction Insulin
☐ lispro (Humalog®) sc with meal
☐ aspart (NovoRapid®) sc with meal
☐ Humulin® R sc 30 min before meal

Bolus Insulin: Home dose (consider reduction of 25-50% for hospital diet) or ½ TDD divided initially into 3 equal doses

Hold if no caloric intake, NPO or bolus feeds stopped. Continue basal and correction insulin.

Patient may determine and administer own dose and report dose to nurse (Order insulin type and acceptable dose range)

Correction for hyperglycemia: Choose one based on current Total Daily Dose (TDD)

Correction dose to be determined and administered with/without meal feed or at scheduled mealtime if NPO. Bedtime dose not routinely recommended. Correction and bolus doses can be combined and administered as a single subcutaneous injection.

BG Units BG Units BG Units BG Units
4.1-10.0 +0 4.1-9.0 +0 4.1-10.0 +0 4.1-8.0 +0
10.1-14.0 +1 10.1-12.0 +1 10.1-12.0 +2 9.1-11.0 +2
18.1-22.0 +3 14.1-16.0 +4 13.1-15.0 +6
22.1-26.0 +4 16.1-18.0 +5 15.1-17.0 +8
26.1-30.0 +5 17.1-18.0 +10

Prescriber Name [print] Signature Date [yyyy-Mon-dd] Time [h:mm]

18685 (Rev2017-05) White - Chart Canary - Pharmacy
## Basal Bolus Insulin Therapy (BBIT)

### Adult Inpatient Subcutaneous Insulin Order Set

1. **Allergies:** Check Allergy Record before ordering
2. **Ordered by:** Indicate mandatory orders
3. **Open box left blank will not be processed
4. **Orders may be divided by a single stroke through the order and initiating the division.

### Date: Time: Weight (kg):

- Discontinue ALL previous insulin and bedside blood glucose monitoring orders
- IF previous BBIT order set filled out: Stroke out entire page and Initial, before starting new BBIT order set

#### Blood Glucose (BG) Monitoring:

- **4 times per day** (15 – 30 minutes before scheduled mealtimes or time of feed and at bedtime)
- **AND at 0200 hours X days, 2 hours after meals, or Other:**

#### ALERT

- IF BG less than 4.0 mmol/L, initiate Hypoglycemia Procedure
- DO NOT HOLD INSULIN WITHOUT PRESCRIBER ORDER
- IF BG greater than 13.0 mmol/L, initiate Hypoglycemia Procedure, AND Call Prescriber

### Total Daily Dose (TDD) of Insulin: An ESTIMATION for Basal, Bolus & Correction Calculations, see reverse for instructions

Calculating Total Daily Dose (TDD) for this order

### Basal Insulin: Do NOT hold Basal Insulin if skipping a meal, or for hypoglycemia WITHOUT PRESCRIBER ORDER (Home dose or in TDD)

#### Choose ONE Basal Insulin:

- **insulin glargine (Lantus®)**
- **insulin detemir (Levemir®)**
- **insulin NPH (human) (Humulin® N)**

#### Units subcutaneous

- **With Breakfast
- OR at**

#### Units subcutaneous

- **At Bedtime
- OR at**

### Bolus and Correction Insulin:

#### Choose ONE Insulin for BOTH Bolus and Correction Insulin:

- **Insulin Isophan (Humalog®) subcutaneous with meal
- Insulin aspart (NovoRapid®) subcutaneous with meal
- Insulin regular (human) (Humulin® R) subcutaneous 30 minutes before meal

#### Bolus Insulin: Home dose (consider reduction of 25-50% for hospital diet) or ½ TDD divided initially into 3 equal doses

- IF no caloric intake, or nothing by mouth (NPO), or feeds stopped, HOLD Bolus Insulin dose
- AND Continue Basal Insulin, AND Correction Insulin (if required)

#### Units

- **With Breakfast
- OR feed at**

#### Units

- **With Lunch
- OR feed at**

#### Units

- **With Dinner
- OR feed at**

#### Units

- **With Other
- OR feed at**

### Correction Dosing for Hyperglycemia: Choose ONE Correction Regimen based on calculated TDD

#### BG Units

<table>
<thead>
<tr>
<th>BG</th>
<th>Units</th>
<th>BG</th>
<th>Units</th>
<th>BG</th>
<th>Units</th>
<th>BG</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 – 10.0</td>
<td>+0</td>
<td>4.1 – 10.0</td>
<td>+0</td>
<td>4.1 – 10.0</td>
<td>+0</td>
<td>4.1 – 9.0</td>
<td>+0</td>
</tr>
<tr>
<td>10.1 – 14.0</td>
<td>+1</td>
<td>9.1 – 12.0</td>
<td>+1</td>
<td>10.1 – 12.0</td>
<td>+2</td>
<td>9.1 – 11.0</td>
<td>+2</td>
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<tr>
<td>14.1 – 16.0</td>
<td>+2</td>
<td>12.1 – 15.0</td>
<td>+2</td>
<td>12.1 – 14.0</td>
<td>+3</td>
<td>11.1 – 13.0</td>
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<td>+5</td>
<td>12.1 – 14.0</td>
<td>+6</td>
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<tr>
<td>16.1 – 18.0</td>
<td>+5</td>
<td>15.1 – 17.0</td>
<td>+8</td>
<td>14.1 – 16.0</td>
<td>+10</td>
<td>13.1 – 15.0</td>
<td>+10</td>
</tr>
</tbody>
</table>

- **Combine the Correction dose (if required) AND Bolus dose
- and Administer as ONE single subcutaneous injection with/before mealtime OR time of feed.

**Bedtime Correction Dose is not routinely recommended.**

- IF NPO, Hold Bolus Insulin dose
- AND Continue Basal Insulin, AND Correction Insulin (if required) with/before mealtime OR time of feed.

### Prescriber’s Information

- **Printed Name:**
- **Signature:**

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**CV-0701 (06/2017) v. 1**

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