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.

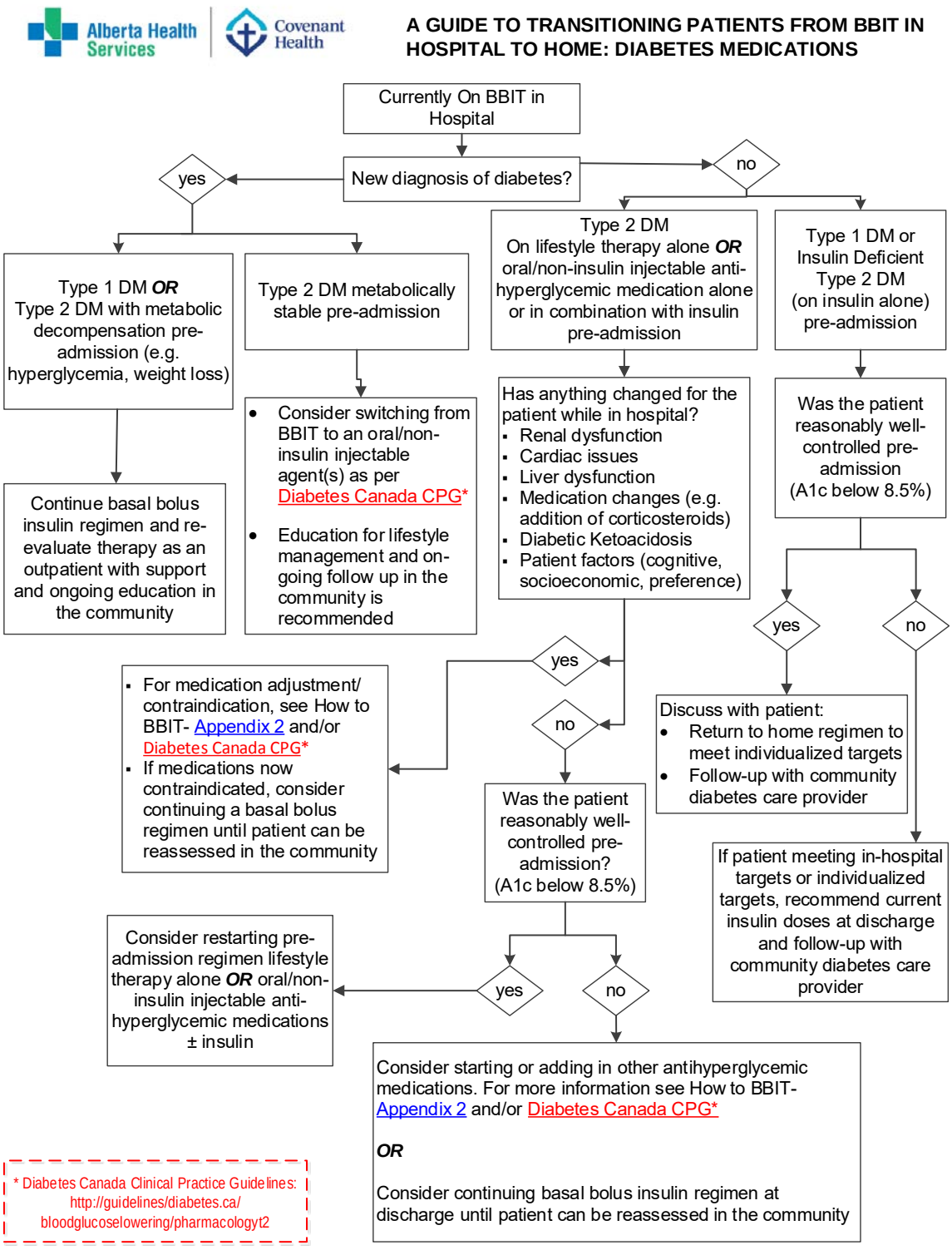
PEARLS for patients moving to **Continuing Care** when insulin therapy is the best option at the time of discharge (including Home Care, Supportive Living and Long-term Care):

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



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

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

References:
Harper W et al. Policies, Guidelines and Consensus Statements: Pharmacologic management of type 2 diabetes – 2015 update. Can J Diabetes 2015; 39:250-252
Product Monographs. Health Canada Drug Product Database. www.hc-sc.gc.ca Accessed February 16, 2017

Appendix 3 – Adult Inpatient BBIT Order Set

Alberta Health Services

Affix patient label within this box

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
and: ☐ 0200h x _____ days ☐ 2 hours after meal time ☐ Other *(specify)* _____
☑ **If** BG less than 4.0 mmol/L initiate **Hypo**glycemia Procedure. **Do Not Hold Insulin without prescriber order**
☑ **If** BG greater than 18.0 mmol/L initiate **Hyper**glycemia 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 _____	Units _____
☐ With Breakfast or	☐ At Bedtime or
☐ Time *(hh:mm)* _____	☐ Time *(hh: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)*

Units _____	Units _____	Units _____	Units _____
☐ With Breakfast or feed at time *(hh:mm)* _____	☐ With Lunch or feed at time *(hh:mm)* _____	☐ With Dinner or feed at time *(hh:mm)* _____	☐ With Other _____ at time *(hh:mm)* _____

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

☑ Correction dose to be determined and administered with/before 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.

☐ TDD 15-30 units		☐ TDD 31-50 units		☐ TDD 51-80 units		☐ TDD 81 units or more		☐ Custom	
BG	Units	BG	Units	BG	Units	BG	Units	BG	Units
4.1-10.0	+0	4.1-9.0	+0	4.1-10.0	+0	4.1-9.0	+0		
10.1-14.0	+1	9.1-12.0	+1	10.1-12.0	+2	9.1-11.0	+2		
14.1-18.0	+2	12.1-15.0	+2	12.1-14.0	+3	11.1-13.0	+4		
		15.1-18.0	+3	14.1-16.0	+4	13.1-15.0	+6		
				16.1-18.0	+5	15.1-17.0	+8		
						17.1-18.0	+10		

Prescriber Name *(print)*	Signature	Date *(yyyy-Mon-dd)*	Time *(hh:mm)*

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Covenant Health
Compassionate care led by Catholic values

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

1. **Allergies**: Check Caution Record before ordering.
2. Shaded box ■ indicates mandatory orders.
3. Open boxes left blank ☐ will not be processed.
4. Orders may be deleted by a single stroke through the order and initialing the deletion.

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 as needed for suspected **hypoglycemia**
AND ☐ at 0200 hours X _____ days ☐ 2 hours after meals ☐ Other: _____

ALERT
■ **IF** BG less than 4.0 mmol/L, initiate **Hypo**glycemia Procedure
DO NOT HOLD INSULIN WITHOUT PRESCRIBER ORDER
■ **IF** BG greater than 18.0 mmol/L, initiate **Hyper**glycemia Procedure, **AND** Call Prescriber

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

Calculated Total Daily Dose (TDD) for this order → _____ units

Basal Insulin: *Do NOT hold Basal Insulin if skipping a meal, or for hypoglycemia* WITHOUT PRESCRIBER ORDER
(Home dose or ½ TDD)

Choose **ONE** Basal Insulin:	_____ Units subcutaneous	_____ Units subcutaneous
☐ insulin glargine (Lantus®)	☐ With Breakfast	☐ At Bedtime
☐ insulin detemir (Levemir®)	OR ☐ at _____ hours	OR ☐ at _____ hours
☐ insulin NPH (human) (HumuLIN® N)		

Bolus and Correction Insulin:

Choose **ONE** insulin for **BOTH** Bolus **and** Correction Insulin:
☐ insulin lispro (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	_____ Units	_____ Units	_____ Units
☐ With Breakfast	☐ With Lunch	☐ With Dinner	☐ With Other _____
OR ☐ feed at _____ hours	OR ☐ feed at _____ hours	OR ☐ feed at _____ hours	at _____ hours

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

☐ TDD **15 – 30 units**		☐ TDD **31 – 50 units**		☐ TDD **51 – 80 units**		☐ TDD **81 units or more**		☐ Custom	
BG	Units	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 – 9.0	+ 0		
10.1 – 14.0	+ 1	9.1 – 12.0	+ 1	10.1 – 12.0	+ 2	9.1 – 11.0	+ 2		
14.1 – 18.0	+ 2	12.1 – 15.0	+ 2	12.1 – 14.0	+ 3	11.1 – 13.0	+ 4		
		15.1 – 18.0	+ 3	14.1 – 16.0	+ 4	13.1 – 15.0	+ 6		
				16.1 – 18.0	+ 5	15.1 – 17.0	+ 8		
						17.1 – 18.0	+ 10		

■ **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 Printed Name: _____ Prescriber's Signature: _____

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