

3 Goals

1 Improve the patient experience

Adopting best practice for in-hospital diabetes management and engaging patients in their care on admission through discharge, supports a smooth transition in and out of hospital. This best practice is consistent with how patients are taught to manage their diabetes in the community.

2 Implement Best Practice

The use of Basal Bolus Insulin Therapy (BBIT) is a proactive approach which allows clinicians to customize subcutaneous insulin use based on the unique needs of each patient. The safe target range for the majority of inpatients is: **5-10 mmol/L** as recommended by Diabetes Canada.

3 Improve Outcomes

Internationally, the use of BBIT has been shown to decrease the amount of times a patient experiences high blood glucose in the hospital, without increasing episodes of severely low blood glucose. Fewer complications and shorter hospital stays improve patient care and save health care dollars.

Basal Insulin

- Long or intermediate acting insulin administered to address glucose produced by the liver between meals and overnight; usually administered once or twice daily
- **DO NOT HOLD** if a patient is NPO or has a hypoglycemic episode

Intermediate-acting insulins Onset 1-3 hours	Long-acting basal insulin Onset 90 mins to 6 hours
Insulin NPH (HumuLIN®-N)	Insulin detemir (Levemir®) Insulin glargine (Lantus®) Insulin glargine (Basalgar®)

Bolus Insulin

- Short or Rapid acting or *meal insulin used to cover glucose from meals*
- **HOLD** if a patient is NPO
- **DO NOT HOLD** if a patient is hypoglycemic just prior to a meal – follow the hypoglycemia protocol and once the patient’s blood glucose is corrected, administer bolus insulin with meal.

Rapid- Acting Insulins Onset 10-15 mins	Short- Acting Insulin Onset 30 mins
Insulin aspart (NovoRapid®) Insulin lispro (HumaLOG®)	Insulin Regular (HumuLIN®-R)

Correction Insulin

- Used to correct blood glucose levels that are above target range
- Use the same insulin brand as bolus (meal) insulin
- Given at the same time as the meal insulin
- **DO NOT HOLD** if patient is skipping a meal for a procedure
- Ensure proper documentation on the diabetic record

IN HOSPITAL DIABETES MANAGEMENT

Basal Bolus Insulin Therapy and Improved Glycemic Management



Improve the Patient Experience

Approximately 1 in 5 adult patients in Alberta hospitals has diabetes. It is common for blood glucose to fall outside of the target range of 5-10 mmol/L. Studies have shown that blood glucose outside of this range is associated with longer hospital stays and an increase in complications.



Patients with diabetes admitted to hospital express dissatisfaction with their care. Some ways to improve this are:

- **Respect** – Ask and listen to what your patient's concerns are with their diabetes care
- **Shared decision making** – Involve your patients in the insulin prescribing process and listen to their suggestions. Basal Bolus Insulin therapy allows clinicians to customize insulin regimens based on the unique needs of each patient. Individualizing BBIT better enables providers to keep the hospitalized patient's blood sugars within the target range of 5-10 mmol/L
- **Coordinated transitions** – Ensure any changes that occurred in hospital to their home insulin regimen or diabetes management is clearly explained and communicated to the patient and their community care team (physicians, nurses, homecare, pharmacists etc).

Implement Best Practice

1. Blood Glucose (BG) Monitoring – Should be done no more than 15-30 minutes before meals and anytime that hypoglycemia is suspected.
2. Target Blood Glucose: 5-10 mmol/L (for most patients)



3. Adopting Basal Bolus Insulin Therapy (BBIT) is best practice for prescribing insulin-
 - Sliding scale order sets will be replaced with evidence based Basal Bolus Insulin Therapy order sets
 - The Total Daily Dose of insulin (TDD) will be calculated in one of 3 ways:
 1. Home insulin doses
 2. Based on weight
 3. Based on in-hospital blood glucose and insulin administration records
 - Once the TDD is decided, this amount is divided into basal and bolus doses; a correction scale that matches the TDD is chosen.
 - Orders should be reviewed and titrated often – every 1-3 days
4. Nursing Documentation – Bolus (meal) and correction insulin need to be correctly noted on the diabetic record. This may mean adopting a new standard charting approach.

Improve Outcomes

In hospital hyperglycemia is prevalent. Over 1/3 of blood glucose tests done in Alberta hospitals are greater than 10mmol/L. Literature suggests that 18% of those admitted to hospital and found to have hyperglycemia have previously undiagnosed diabetes. By improving practice we can improve health outcomes.

OUTCOMES



Reducing in-hospital hyperglycemia has been shown to:

- Reduce infection rates
- Reduce medical complications
- and may Reduce in-hospital length of stay

Why is glycemic management a problem in hospital?

Diabetes is rarely the primary reason for admission and consequently is rarely the focus

- Knowledge and experience **gaps**
 - Lack of awareness of recommended blood glucose targets
 - Hesitation in choosing and adjusting insulin doses
 - Inappropriate holding of insulin doses due to the fear of causing hypoglycemia
 - Overtreatment of hypoglycemia
- Practice issues related to in hospital management exist. Examples include:
 - Target glucose of 5-10 mmol/L is not clearly stated
 - Exclusion of the patient in their diabetes management
 - Uncoordinated timing of food, blood glucose testing and insulin administration
 - Inconsistent documentation
 - An inconsistent education and transition process between the hospital and community diabetes care providers for patients and their families on discharges

