Dose *Adjustment* Retrospective CGMS Guidelines for Patients on Pump Therapy

You have been given this set of insulin, dosage adjustment guidelines because you use insulin pump therapy. Pump therapy consists of two components: "basal" insulin and "bolus" insulin. The basal insulin is supposed to cover your body's needs in between meals and overnight, and the bolus insulin is supposed to cover your meals; it is also used to correct for high blood sugars.

To use these dose adjustment guidelines, you will need to check your blood sugar levels in the morning, before each meal, and before bedtime.
Your target glucose values are:
Pre-meal: 3.9-7.2mmol/L
Peak post-meal: <9.9mmol/L
Bedtime/overnight: 5.5-8.3mmol/L

For the meal bolus you will use your current insulin-to-carbohydrate ratio (ICR).
For the correction dose you will correct to these target blood glucose levels:
Day: mmol/L (1 unit per _____over _____mmol/L)
Night: mmol/L (1 unit per _____over _____mmol/L)

Use your ICR ratio for every meal and a correction factor to "correct" for the high and bring it down into range.

If you don't use ICR or correction factors, then you will need to instead increase or decrease the bolus (short-acting) insulin doses by small steps (1-2 units). Example:

Your ICR = 1 unit for 10 g of carbohydrate
Your target blood glucose = 5.5mmol/L
Your high glucose correction is 1 unit per 2.7mmol/L over your target.
Your current blood glucose is 11.0mmol/L, and you are about to eat 60g of carbohydrate.
Calculate: 6 units of insulin (for the 60 g of carbohydrate) + 2 units (to lower blood glucose by 100) = 8 units.

You can also use a correction for high blood sugar at other times besides meals if your blood sugar is high *(In* the example above, take 2 units of short-acting insulin for the high blood sugar). However, you should be careful that you wait at least 2-3 h before taking more insulin.

Using the logs to adjust your doses: for subjects on pump therapy
If you have access to a home computer, the study staff can give you software to download your home glucose meter and look at the data on your computer. You can use this to make adjustments to your insulin:

- Download your meter.
- In your software program, examine the report that shows the blood sugar information grouped according to meal or time of day (before breakfast, after breakfast, before lunch, after lunch, before dinner, after dinner, before

bed, and overnight).

- Look for patterns that occur 2 out of 3 days. If there are no patterns, don't make any changes.

If you don't have a computer to download your meter, you can still use your blood sugar logs to make changes. Collect at least 3 days worth of blood sugar records from your log:

- Draw a CIRCLE around all the glucose levels OVER your target.
- Draw a BOX around all the glucose levels UNDER your target.
- Look down the columns (corresponding to meals or times of the day) and look for consistent patterns over 2-3 days.
- If there are no patterns, don't make any changes.

SUGGESTED INSULIN DOSE ADJUSTMENT

Glucose pattern (2-3 days)	*Suggested changes*
Blood glucose in morning **High**	Look at your bedtime blood glucose, and if that is out of range work on correcting that before trying to change the overnight insulin. Increase the basal insulin rate by 0.05-0.1 units/h starting 3 h before your morning sugar check. Check blood glucose at 3:00 am. If high at that time, increase the basal rate by 0.05-0.1 units/h from midnight to 2 a.m. Consider eating fewer carbs in your bedtime snack or increase ICR (example: if 1:15, change to 1:10)
Blood glucose in morning **Low**	Look at your bedtime blood glucose, and if that is out of range work on correcting that before trying to change the overnight insulin. Decrease basal insulin rate by 0.05-0.1 units/h starting 3 h before your morning sugar check. Check blood glucose at 3:00 a.m. If low at that time, decrease the basal rate by 0.05-0.1 units/h from midnight to 2 a.m. Consider eating more carbs in your bedtime snack or decrease ICR (example: if 1:15, change to 1:20). Consider adding protein or fat to your bedtime snack.

SUGGESTED INSULIN DOSE ADJUSTMENT

Glucose pattern (2-3 days)	*Suggested changes*
Blood glucose pre-lunch	
High	Breakfast ICR: increase ratio by 5g (example: if 1:15, change to 1:12 or 1:10). Cut out or decrease mid-morning snack. Increase basal rate by 0.05-0.1 units/h from 8 to 10 a.m.
Low	Breakfast ICR decrease ratio by 5g (example: if 1:15, change to 1:20). Consider adding or increasing a morning snack. Decrease basal rate by 0.0-5-0.1 units/h from 8 to 10 a.m.
Blood glucose pre-dinner	
High	Lunch ICR: increase ratio by 5g (example: if 1:15, change to 1:10). Consider cutting down or reducing the afternoon snack. Increase the basal rate by 0.05-0.1 units/h between lunch and 3 p.m.
Blood glucose pre-dinner	
Low	Lunch ICR: decrease ratio by 5g (example: if 1:15, change to 1:20). Consider adding or increasing the afternoon snack. Decrease the basal rate by 0.05-0.1 units/h between lunch and 3 p.m

SUGGESTED INSULIN DOSE ADJUSTMENT

Glucose pattern (2-3 days)	*Suggested changes*
Bedtime **High**	Dinner ICR: increase ratio by 5g (example: if 1:15, change to 1:10). Increase the basal rate by 0.05-0.1 units/h between dinner and 8 p.m.
Bedtime **Low**	Dinner ICR: decrease ratio by 5g (example: if 1:15, change to 1:20). Decrease the basal rate by 0.05-0.1 units/h between dinner and 8 pm.