Appendix 3
Examples of Insulin Initiation and Titration Regimens in People with Type 2 Diabetes

All people starting insulin should be counseled about the recognition, prevention and treatment of hypoglycemia. Consider a change in type or timing of insulin administration if glycemic targets are not being reached.

Example A: Basal insulin (Humulin®-N, Lantus®, Levemir®, Novolin®ge NPH) added to oral antihyperglycemic agents
- Insulin should be titrated to achieve target fasting BG levels of 4.0 to 7.0 mmol/L.
- Individuals can be taught self-titration, or titration may be done in conjunction with a healthcare provider.
- Suggested starting dose is 10 units once daily at bedtime.
- Suggested titration is 1 unit per day until target is reached.
- A lower starting dose, slower titration and higher targets may be considered for elderly or normal weight subjects.
- In order to safely titrate insulin, patients must perform SMBG at least once a day fasting.
- Insulin dose should not be increased if the individual experiences 2 episodes of hypoglycemia (BG <4.0 mmol/L) in 1 week or any episode of nocturnal hypoglycemia.
- For fasting BG levels consistently <5.5 mmol/L, a reduction of 1 to 2 units of insulin may be considered to avoid nocturnal hypoglycemia.
- Oral antihyperglycemic agents (especially secretagogues) may need to be reduced if daytime hypoglycemia occurs.

Example B: Basal Plus Strategy - Adding bolus (prandial) insulin (Apidra®, Humalog®, NovoRapid®) once daily to optimized basal insulin therapy
- When intensification of insulin therapy is necessary, start one injection of meal time insulin to either main meal or breakfast.
- Starting dose is 2 to 4 units and patient can be taught self titration or dose increase can be done by HCP.
- To safely increase dose, glucose levels should be measured at least prior to insulin dose then titrated by 1 unit daily to either of the following targets.
  - 2 hour post meal glucose of 10.0 mmol/L (or ≤ 8.0 mmol/L in certain cases)
  - pre-meal glucose of the next meal of 4.0 to 7.0 mmol/L.
- Important to keep carbohydrate intake constant. Oral antihyperglycemic agents (especially secretagogues) may need to be reduced or stopped particularly if daytime hypoglycemia occurs.

Example C: Basal-Bolus Insulin - Intensive insulin therapy
- Calculate total daily dose of 0.3 to 0.5 units/kg then distribute as follows:
  a. 40% of total insulin dose as basal insulin (Humulin®-N, Lantus®, Levemir®, Novolin®ge NPH).
  b. 20% of total insulin as bolus (prandial) insulin 3 times per day using either rapid-acting insulin analogue (Apidra®, Humalog®, NovoRapid®) or short-acting insulin (Humulin®, Novolin®ge Toronto).

Example D: Premixed insulin (Humulin® 30/70, Novolin® 30/70, Humalog® Mix 25 or Humalog® Mix 50, NovoMix® 30,) added to oral antihyperglycemic agents
- Suggested starting dose is 5 to 10 units once or twice daily (prebreakfast and/or presupper).
- Suggested titration is 1 to 2 units added to prebreakfast dose and/or presupper dose daily until target BG values are reached based on prebreakfast and presupper BG readings.
- Prebreakfast premixed insulin achieves presupper target BG value (4.0 to 7.0 mmol/L).
- Presupper premixed insulin achieves target fasting BG value (4.0 to 7.0 mmol/L).
- 30/70 premixed insulin should be given 30 to 45 minutes before meals.
- Humalog® Mix 25 or NovoMix® 30 premixed insulin should be given immediately before eating.
- Stop increasing insulin when both target BG levels are reached.
- If both BG targets are not reached, continue to increase the relevant dose until both targets achieved.
- The individual needs to self-monitor BG at least twice daily to safely titrate insulin.
- Insulin dose should not be increased if the individual experiences 2 or more episodes of hypoglycemia (BG <4.0 mmol/L) in 1 week or any episode of nocturnal hypoglycemia.
- Oral antihyperglycemic agents (especially secretagogues) may need to be reduced or stopped at the start of this regimen or when daytime hypoglycemia occurs.
Sample Instructions for Patients With Type 2 Diabetes Who Are Starting and Adjusting Basal Insulin

You will be taking insulin __________________________ at __________________________.
It is important that you continue to take your other diabetes medications as prescribed unless you have been told to change the dose or stop them.

How to adjust your insulin dose

• Your target fasting blood glucose level is ______________ mmol/L.
• You will inject ______________ units of ______________ at ______________.
• You will continue to increase your insulin dose by ______________ unit(s) every ______________ day(s) until your fasting blood glucose level is __________ mmol/L.
• Do not increase your insulin when your fasting blood glucose is __________ mmol/L.
• You should call for further instructions when your blood glucose reaches __________ mmol/L for 3 or more days:
  phone number ______________.
• A side effect of insulin is low blood glucose (hypoglycemia); low blood glucose can occur with too much insulin, increased activity or not enough food.

Monitoring your blood glucose

• It is important to test your blood glucose while your insulin treatment is being modified.
• You should test your blood glucose and record the value every day before breakfast and ______________.
• Test before each meal, unless you are instructed differently.
• It is important to record your blood glucose values and any changes in activity or food in your diary and bring this to your next appointment; this information helps us to understand your diabetes control.
• Unless otherwise instructed, you are trying to reach a target blood glucose of 4.0 to 7.0 mmol/L before meals, and 5.0 to 10.0 mmol/L after meals.
• If you think your blood glucose is low, check it and record that information in your diary.

Instructions for taking your diabetes medications

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