

# INSULIN PRESCRIPTION

Adapted from the Ontario College of Family Physicians Insulin Prescription Tool

NAME \_\_\_\_\_

DATE OF BIRTH \_\_\_\_\_

**Choose insulin(s) from one column only to simplify pen device selection**

	Sanofi Aventis	Novo Nordisk	Eli Lilly	DOSING AND TITRATION
<b>BASAL</b> <input type="checkbox"/> <b>Long-acting analogues</b> (Clear)  <input type="checkbox"/> <b>Intermediate-acting</b> (Cloudy)	Lantus® (lasts 24 hrs)	Levemir® (lasts 16-24 hrs)		<b>Starting dose:</b> _____ units at bedtime Increase dose by _____ units every night until fasting blood glucose reaches the target of _____ mmol/L, divide in 2 doses when over 60 units
		Novolin® ge NPH	Humulin® N	
<b>PRANDIAL (BOLUS)</b> <input type="checkbox"/> <b>Rapid-acting analogues</b> (Clear) Give 5 to 20 min before meal  <input type="checkbox"/> <b>Short-acting</b> (clear) Give 30 minutes before meal	Apidra™	NovoRapid®	Humalog®	<b>Starting dose:</b> _____ units ac breakfast _____ units ac lunch _____ units ac supper
		Novolin® ge Toronto (lasts 6 hrs)	Humulin® R (lasts 6 hrs)	
<b>PREMIXED</b> <input type="checkbox"/> <b>Premixed analogues</b> Gives 5 to 20 min before meal  <input type="checkbox"/> <b>Premixed regular</b> Gives 30 min before meal		NovoMix® 30	Humalog® Mix25  Humalog® Mix50	<b>Starting dose:</b> _____ units ac breakfast _____ units ac supper <b>Increase</b> breakfast dose by _____ unit(s) every day until presupper blood glucose has reached the target of _____ mmol/L <b>Increase</b> presupper dose by _____ unit(s) every day until fasting blood glucose has reached the target of _____ mmol/L <b>Beware</b> of nocturnal hypoglycemia. Decrease dose if this occurs.
		Novolin® ge 30/70	Humulin® 30/70	
Pen device: pharmacist and patient will determine				
<b>OTHER SUPPLIES</b>	Pen needles		Lancets	Repeat X _____
<b>QUANTITY + REPEATS</b>	INSULIN		Repeats X _____	Glucose test strips (number _____/month)  Repeats X _____

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_ License: \_\_\_\_\_

# INSULIN INITIATION AND TITRATION SUGGESTIONS

## (for type 2 diabetes)

Adapted from the Ontario College of Family Physicians Insulin Prescription Tool

People starting insulin should be counselled about the prevention, recognition and treatment of hypoglycemia.

The following are suggestions for insulin initiation and titration. **In the frail elderly or those with limited life expectancy, potential benefits of treatment must be balanced against the potential risks of harm (eg hypoglycemia, hypotension, falls) and the target A1c must be adjusted.**

### Basal Insulin added to Oral Antihyperglycemic Agents

- Continue the oral antihyperglycemic agents. (if on triple oral agents consider tapering to two)
- Target fasting blood glucose (BG) of 4-7mmol
- Most obese, typically insulin resistant patients will need 40-50 units at bedtime to achieve target but there is no maximum dose
- Generally less efficacious to use > 0.5 units/kg basal insulin without adding one or more prandial doses
- Lean, or frail patients are often insulin sensitive. **Start at a low dose of 10 units at bedtime (may start at lower dose (0.1-0.2 units/kg) for lean patients**
- Patient should gently self-titrate by increasing the dose by one unit every night until fasting BG target is achieved
- If fasting hypoglycemia occurs, the dose of bedtime basal should be reduced
- If daytime hypoglycemia occurs, reduce the oral antihyperglycemic agents (especially secretagogues)
- Lantus® or Levemir® can be given either at bedtime or in the morning

### Basal and Prandial (Bolus) Insulin's

- When basal insulin added to oral agents is not enough to achieve glycemic control, prandial (bolus) insulin should be added before meal. The regimens below incorporate prandial insulin. (Typically, secretagogues are stopped and only metformin is continued when prandial insulin is added)
- **For current basal insulin users, maintain the basal dose, unless very high and add prandial (bolus) insulin with each meal at a dose equivalent to 10% of the basal dose. For example, if the patient is on 50 units of basal insulin, add five units of prandial (bolus) insulin with each meal**
- For new insulin users starting a full Basal + Bolus regiment, calculate total daily insulin dose (TDI) as 0.3 to 0.5 units/kg, then distribute as follows:
  - 40% of TDI dose as basal insulin at bedtime
  - 20% of TDI dose as prandial (bolus) insulin prior to each meal
  - Adjust the dose of the basal insulin to achieve the target fasting BG level (usually 4-7 mmol/L)
  - Adjust the dose of the prandial insulin to achieve postprandial BG levels (usually 5-10 mmol/L)

### Premixed Insulin before breakfast and before dinner

- **May be considered for patients where less aggressive A1c targets may be appropriate (frail elderly) but regular meals are necessary. Ac/pc blood sugar targets must be individualized. Blood sugar over 12 mmol will have symptoms!**
- Start at a low dose of 5 to 10 units twice daily (before breakfast and before supper)
- Patient can self-titrate by increasing the breakfast dose by 1 unit every day until the presupper BG is at target
- Patient can self-titrate by increasing the supper dose by 1 unit every day until the fasting pre breakfast BG target is at target
- Beware of hypoglycemia. Stop increasing dose and consider dose reduction
- Obese patients are commonly insulin resistant and may need large doses to achieve target. There is no maximum dose
- Typically if still on oral antihyperglycemic agents, the secretagogue is stopped and only metformin is continued.

### BASAL INSULIN DOSING AND TITRATION

Starting dose 10 units at bedtime  
Increase dose by 1 unit every night until fasting blood glucose has reached the target of 4-7 mmol/L

### BASAL AND BOLUS INSULIN DOSING EXAMPLE (100kg person)

**Total daily insulin** = 0.5 units/kg  
0.5 x 100kg (TDI)  
TDI = 50 units

**Basal Insulin** = 40% of TDI:  
40% x 50 units  
Basal bedtime = 20 units

**Prandial insulin** = 60% of TDI:  
60% x 50 units  
Prandial = 30 units  
= 10 units with each meal  
(morning, noon, supper)

### PREMIXED INSULIN DOSING AND TITRATION

**Divide so that 2/3 of the dose is taken with the main meal of the day, although sometimes it may be divide equally between the breakfast and supper meal**  
**66% x 50 units = 33 units ac breakfast**  
**34% x 50 units = 17 units ac supper**  
Increase breakfast dose by 1 units every day until presupper blood glucose has reached the established target. Increase supper dose by 1 units every day until fasting morning blood glucose has reached the target.