

# 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"/> Long-acting analogues (Clear) <input type="checkbox"/> Intermediate-acting (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"/> Rapid-acting analogues (Clear) Give 5 to 20 min before meal <input type="checkbox"/> Short-acting (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"/> Premixed analogues Gives 5 to 20 min before meal <input type="checkbox"/> Premixed regular 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. Clinical judgment should always be used as the suggestions may not apply to every patient.

### Basal Insulin (Lantus®, Levemir®, Humulin® N, Novolin®ge NPH) added to Oral Antihyperglycemic Agents

- Target fasting blood glucose (BG) of 4-7 mmol/L
- Most patients will need 40-50 units at bedtime to achieve target but there is no maximum dose
- **Start at a low dose of 10 units at bedtime (may start at lower dose (0.1-0.2 units/kg) for lean patients (<50 kg))**
- Patient should gently self-titrate by increasing the dose by 1 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 + Bolus Insulin's - Preferred route to optimal control

- When basal insulin added to oral agents is not enough to achieve glycemic control, prandial insulin should be added. The regimens below incorporate prandial insulin. Typically, insulin secretagogues are stopped and only metformin is continued when prandial insulin is added
- **For current basal insulin users, maintain the basal dose and add 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 5 units of 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 (Lantus®, Levemir®, Humulin® N, Novolin®gel NPH) at bedtime
  - 20% of TDI dose as prandial (bolus) insulin prior to each meal
- Rapid-acting insulin analogues (Apidra™, Humalog®, NovoRapid®) should be given 5 to 20 minutes before eating
- Short-acting insulin (Humulin® R, Novolin®ge Toronto) should be given 30 minutes before eating
- 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 Basal + Bolus Insulin before breakfast and before dinner (Humalog® Mix25®, Humalog Mix50®, NovoMix® 30, Humulin® 30/70, Novolin® ge 30/70)

- May be considered for patients where less aggressive targets may be appropriate (eg frail elderly)
- Most patients with type 2 diabetes will need 40-50 units twice a day to achieve target but there is no maximum dose
- Start at a low dose of 5 to 10 units twice daily (before breakfast and before supper)
- Patient can gently self-titrate by increasing the breakfast dose by 1 unit every day until the presupper BG is at target
- Patient can gently self-titrate by increasing the supper dose by 1 unit every day until the fasting BG target is at target
- Beware of hypoglycemia post-breakfast or post-supper. Stop increasing dose if this occurs
- Premixed analogue insulins (Humalog® Mix 25, ®Humalog Mix 50® NovoMix® 30) should be given 5 to 20 minutes before eating
- Premixed regular insulins (Humulin® 30/70, Novolin®ge 30-70) should be given 30 minutes before eating
- Continue Metformin and consider stopping secretagogue

Check <http://www.gnb.ca/0053/phc/diabetes-e.asp> for updates or copies

### BASAL INSULIN DOSING AND TITRATION

Starting dose 10 units at bedtime

Increase dose by 1 unit every 1 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

### PREMIXED INSULIN DOSING AND TITRATION

**10 units ac breakfast**  
**10 units ac supper**

Increase breakfast dose by 1 units every 1 day until presupper blood glucose has reached the target of 4-7 mmol/L. Increase supper dose by 1 units every 1 day until fasting blood glucose has reached the target of 4-7 mmol/L