

TYPE 2 DIABETES & INSULIN

When do we consider initiating insulin...?

1. Oral agents alone are not enough to achieve glycemic control

Before meal	4 to 7 mmol/L
2 hours after meal	5 to 10mmol/L
A1C	<7% (less stringent for some individuals) Eg. Age, prognosis, duration of diabetes, risk for hypo etc)

2. Presence of symptomatic hyperglycemia with metabolic decompensation**
3. A1C at diagnosis is >9%
4. Timely adjustments to and/or additions of antihyperglycemic agents should be made to attain A1c targets within 6-12 months

**Hyperglycemia Hyperosmolar syndrome

There are two steps to the process of insulin therapy:

1. Select initial regimen and starting dose
2. Make adjustments

TABLE 1: SELECT INITIAL REGIME

Three Primary Insulin Regimens:	Consider as Initial Regimen if Patient:
BASAL insulin* (added to oral agents) <u>Key Message:</u> <i>Lantus or Levemir as 1st line</i>	<ul style="list-style-type: none"> • Is feeling overwhelmed; is fearful of injections • Has mostly elevated fasting BG
PREMIXED insulin*	<ul style="list-style-type: none"> • Is opposed to more than 2 injections a day; has consistent mealtimes and food intake • Has elevated fasting and/or post-meal BG
BASAL AND BOLUS insulin*	<ul style="list-style-type: none"> • Desires tight control and a flexible schedule • Has elevated fasting and/or post-meal

*You must discontinue Actos (Pioglitazone) or Avandia (Rosiglitazone). You can maintain or consider adding metformin. If hypo develops then you must consider reducing or discontinuing secretagogue (SU)

TABLE 2: SELECT A STARTING DOSE

Type of Regimen	Dosing	Examples
<p>BASAL insulin* (added to oral agents)</p> <p>Start with one dose at bedtime</p>	<p>Starting dose: 5 to 10 units (0.1 to 0.2 units/kg/daily)</p>	<p>Starting dose 10 units at bedtime ↑ dose by 1 unit every 1 night until FBG = 4 to 7 mmol/L⁶</p>
<p>PREMIXED insulin*</p> <ul style="list-style-type: none"> Start with 2 doses: <p>before breakfast and before supper</p>	<p>Starting dose: 5 to 10 units twice daily (0.1 to 0.2 units/kg twice daily)⁶</p>	<p>10 units ac breakfast 10 units ac supper ↑ breakfast dose by 1 unit every 1 day until pre-supper BG = 4 to 7 mmol/L ↑ supper dose by 1 unit every 1 day until FBG = 4 to 7 mmol/L⁶</p>
<p>BASAL AND BOLUS insulin*</p> <ul style="list-style-type: none"> Calculate basal and mealtime doses Initially, mealtime insulin dose is divided evenly between meals 	<p>Calculate TDI dose as 0.3 to 0.5 units/kg, then distribute as follows:</p> <ul style="list-style-type: none"> 40% TDI as basal insulin at bedtime 20% TDI as bolus insulin prior to each meal 	<p>For an 80-kg person: TDI = 0.5 units/kg = 0.5 x 80 TDI = 40 units Basal insulin = 40% of TDI = 40% x 40 units Basal insulin = 16 units Bolus insulin = 60% of TDI = 60% x 40 units Bolus = 24 units = 8 units with each meal</p>

**IF STARTING BOLUS ON TOP OF BASAL IT IS A GOOD IDEA TO START WITH A RAPID ACTING AT A STARTING DOSE OF 2 to 4 UNITS @ MAIN MEAL OR BREAKFAST

--- then can measure blood glucose 2 hr post meal or pre-meal glucose (fasting bg) and increase or decrease as needed

INSULIN	TYPE	COST	COMPANY	LU CODE
BASAL (long acting)	LEVEMIR Cartridge Flextouch (prefilled pen)	\$120 \$120	NOVO NORDISK	
	LANTUS Cartridge Vial Solostar (prefilled pen)	\$100 \$70 \$105	SANOFI	
BASAL (intermediate acting)	HUMULIN N Cartridge Vial Kwikpen	\$55 \$30	LILY	
	NOVOLIN NPH Cartridge Vial	\$50 \$30	NOVO NORDISK	
BOLUS (Rapid Acting) Give 0-10 mins before meal	HUMALOG Cartridge Vial Kwikpen	\$65 \$35 \$65	LILY	
	NOVORAPID Cartridge Vial Flextouch	\$70 \$40 \$80	NOVO NORDISK	388 – Type 1 389 – Type 2 intensive regime 390- Type 2 w/ recurrent hypo or unable to achieve A1C on less intensive regime
	APIDRA Cartridge Vial SOLOSTAR	\$60 \$30 \$65	SANOFI	
BOLUS	HUMULIN R			

(Short Acting) Give 30 mins before meal	Cartridge	\$55	LILY	
	Vial	\$30		
	NOVOLIN TORONTO			
	Cartridge	\$50	NOVO NORDISK	
	Vial	\$30		
PREMIXED ANALOGUES Give 0-10 mins before meal	HUMALOG mix25			
	Cartridge	\$70	LILY	
	Kwikpen	\$70		
	HUMALOG mix 50			
	Cartridge	\$70	LILY	
	Kwikpen	\$70		
	NOVOMIX 30		NOVO NORDISK	
	Cartridge	\$65		
PREMIXED REGULAR Give 30 mins before meal	HUMULIN 30/70			
	Cartridge	\$55	LILY	
	Vial	\$30		
	NOVOLIN 30/70			
	Cartridge	\$50	NOVO NORDISK	
	Vial	\$25		
	NOVOLIN 40/60			
	Cartridge	\$50	NOVO NORDISK	
NOVOLIN 50/50				
Cartridge	\$50	NOVO NORDISK		

** All of the above are covered under ODSP, OW and ODB. They also cover glucometer, test strips and lancets**

Cartridge = 3mL x 5 cartridges = 15mL = 1500 units

Vial = 10mL = 1000 units

Prefilled pen = 3mL x 5 refills = 15mL = 1500 units