

# Basal Bolus Insulin Therapy Worksheet (for prescribers; to support ordering and titration of insulin)

Patient Name: \_\_\_\_\_ Patient Weight: \_\_\_\_\_ A1C: \_\_\_\_\_

## Calculating Total Daily Dose (TDD) Options:

### 1. Home Insulin Dose:

*Total Basal:* [N (Humulin®N), NPH (Novolin NPH®), glargine (Lantus®) or detemir (Levemir®)]

$$\boxed{\text{Breakfast (units)}} + \boxed{\text{Bedtime (units)}} = \boxed{\text{Total Basal (units)}}$$

*Total Bolus:* [glulisine (Apidra®), lispro (Humalog®), aspart (Novorapid®), R(Humulin®R), or Toronto(Novolin Toronto®)]

$$\text{Breakfast } \boxed{\text{meal + correction (units)}} + \text{Lunch } \boxed{\text{meal + correction (units)}} + \text{Supper } \boxed{\text{meal + correction (units)}} = \boxed{\text{Total Bolus (units)}}$$

$$\text{Total Basal} + \text{Total Bolus per day} = \text{Total Daily Dose of Insulin at Home} \boxed{\phantom{0000}}$$

### 2. New Start in Hospital:

#### a. Type 1 OR slim Type 2 OR over age 70 OR renal dysfunction

$$\text{Total Daily Dose (TDD)} = \text{weight (kg)} \boxed{\phantom{000}} \times 0.3-0.5 \text{ units/kg/day} = \boxed{\phantom{0000}} \text{ units per day}$$

#### b. Insulin resistance or steroid treatment or overweight Type 2

$$\text{Total Daily Dose (TDD)} = \text{weight (kg)} \boxed{\phantom{000}} \times 0.5-1.0 \text{ units/kg/day} = \boxed{\phantom{0000}} \text{ units per day}$$

## How to Divide Total Daily Dose (TDD) into Scheduled Basal, Bolus and Correction Insulin Orders:

### 1. Determining Basal Insulin:

[N (Humulin®N), NPH (Novolin NPH®), glargine (Lantus®) or detemir (Levemir®)]:

If Well Controlled, use Home Dose:  $\boxed{\phantom{0000}} \text{ units once daily}$  **OR**  $\boxed{\phantom{0000}} \text{ units at breakfast}$  **AND**  $\boxed{\phantom{0000}} \text{ units at bedtime}$

Otherwise, estimate Basal Insulin as follows:

Glargine (Lantus®):  $\text{TDD} \times 0.5 = \boxed{\phantom{0000}} \text{ units}$  **Once Daily** **OR**

N (Humulin®N),NPH (Novolin NPH®), glargine (Lantus®) or detemir (Levemir®):  $\text{TDD} \times 0.5/2 = \boxed{\phantom{0000}} \text{ units}$  **Breakfast and bedtime**

## 2. Determining Bolus Insulin

[glulisine (Apidra®), lispro (Humalog®), aspart (Novorapid®), R(Humulin®R), or Toronto (NovolinToronto®)]:

- If NPO: **NO** bolus
- If Reliable Diet, Well Controlled: Continue Home Dose:

Breakfast (units)	Lunch (units)	Supper (units)

- If unreliable diet, Well Controlled: Reduce Home Dose by 25-50%:

Breakfast (units)	Lunch (units)	Supper (units)

- If Poor Control, New Start, or Unknown Home Dose estimate Bolus Insulin:

Total bolus = TDD x 0.5/3 =

Breakfast (units)	Lunch (units)	Supper (units)

## 3. Determine Insulin Correction (use same insulin as bolus insulin)

Choose one based on current total daily dose.

Correction dose (if required) and Bolus dose to be combined and administered as a single sc injection at mealtime or with feed ONLY. Bedtime Correction dose is not routinely recommended.

If NPO: Use glulisine (Apidra®), lispro (Humalog®), aspart (Novorapid®), R(Humulin®R) or Toronto(NovolinToronto®) as correction dose TID at mealtime or q6h

<input type="checkbox"/> TDD 15-30 units		<input type="checkbox"/> TDD 31-50 units		<input type="checkbox"/> TDD 51-80 units		<input type="checkbox"/> TDD 81 units or more		<input type="checkbox"/> Custom	
BG	Units	BG	Units	BG	Units	BG	Units	BG	Units
4.1-10	+0	4.1-9	+0	4.1-10	+0	4.1-9	+0		
10.1-14	+1	9.1-12	+1	10.1-12	+2	9.1-11	+2		
14.1-18	+2	12.1-15	+2	12.1-14	+3	11.1-13	+4		
		15.1-18	+3	14.1-16	+4	13.1-15	+6		
				16.1-18	+5	15.1-17	+8		
						17.1-18	+10		

## Titration of Insulin Dose Table

-the above doses are conservative starting doses; and insulin doses will need titration every 24-72 hours.

If Breakfast BG is:		If Lunch BG is:		If Supper BG is:		If Bedtime BG is:		If Overnight BG is:
LOW (<5mmol/L)	HIGH (>10mmol/L)	LOW (<5mmol/L)	HIGH (>10mmol/L)	LOW (<5mmol/L)	HIGH (>10mmol/L)	LOW (<5mmol/L)	HIGH (>10mmol/L)	LOW (<5mmol/L)
Decrease	Increase	Decrease	Increase	Decrease	Increase	Decrease	Increase	Decrease
<b>Bedtime BASAL</b>		<b>Breakfast BOLUS</b>		<b>Lunch BOLUS or Breakfast BASAL</b>		<b>Supper BOLUS</b>		<b>Bedtime BASAL</b>

**If ALL BG are HIGH (>10mmol/L), Calculate TDD from last 24 hours, Increase TDD by 10-20% and Recalculate all Basal, Bolus and Correction Doses**

## Patient EATING: Type 1 / Insulin Treated Type 2 / New Sustained Hyperglycemia

Date	Breakfast				Lunch			Supper			Bedtime	
	BG	Basal	Bolus	Corr.	BG	Bolus	Corr.	BG	Bolus	Corr.	BG	Basal
<b><u>Titrate!!</u></b>												
<p><b>Basal:</b> If fasting BG &lt;5 mmol/L, <b>decrease bedtime</b> Basal Dose by 10-20%. If fasting BG &gt; 10mmol/L, <b>increase bedtime</b> Basal Dose by 10-20% <b>Bolus:</b> If recurrent Insulin Correction required, <b>increase preceding</b> meal Bolus Dose by average Correction Dose</p>												
<b><u>Titrate!!</u></b>												
<p><b>Basal:</b> If fasting BG &lt;5 mmol/L, <b>decrease bedtime</b> Basal Dose by 10-20%. If fasting BG &gt; 10mmol/L, <b>increase bedtime</b> Basal Dose by 10-20% <b>Bolus:</b> If recurrent Insulin Correction required, <b>increase preceding</b> meal Bolus Dose by average Correction Dose</p>												
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**Patient NPO: Type 1 / Insulin Treated Type 2 / New Sustained Hyperglycemia**

Date	Breakfast			Lunch		Supper		Bedtime		
	BG	Basal	Corr.	BG	Corr.	BG	Corr.	BG	Basal	Corr.
<b><u>Titrate!!</u></b> Basal: If fasting BG <5mmol/L, <b>decrease bedtime</b> Basal Dose by 10-20%. If fasting BG > 10 mmol/L, <b>increase bedtime</b> Basal Dose by 10-20%										
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