

# INSULIN PUMP INITIATION PLAN

(HEALTH CARE PROVIDER FORM)

START DATE: \_\_\_\_\_

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## 1-2 DAYS BEFORE STARTING THE PUMP

### Contact the individual to:

- Arrange for A1C testing, if not completed within the last 3 months.
  - For early morning pump starts, instruct re: need for fasting (nothing to eat or drink for 8 hours) on the day of the pump start.
  - Provide insulin instructions for the day/evening prior to the pump start appointment (note here):
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- Review “what to bring” to the appointment (pump, batteries, operating manual, supplies, rapid-acting insulin [vial or cartridge depending on chosen pump], syringe, calculator, and BG meter).
  - Depending on the time of the pump start, remind the individual/family that insulin **may or may not** be taken at home on the pump start day and will be given once the pump is started.
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## ON THE DAY OF THE PUMP START

- A1C ordered, if not completed within the last 3 months.
  - If necessary, verify that the individual has arrived fasting.
  - If necessary, verify that **no insulin** has been given or adjustment of insulin is reviewed.
  - Ensure all supplies and materials needed arrive with the individual.
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## PUMP START DAY PLAN

- Set up initial basal rate based on calculations determined by the diabetes team (see back of this form).
- Have the individual check blood glucose before starting the insulin pump.
- Supervise the individual inserting the insulin pump.
- Determine insulin dose based on breakfast carbohydrate and required blood glucose correction. Depending on the individual’s anxiety, it may be necessary to give half correction the morning of the pump start.
- Have the individual give the appropriate amount of insulin.
- Have the individual test blood glucose every 2 hours throughout the pump start day. Basal/Bolus corrections may need to be made based on these readings.
  - Monitor ketones if the blood glucose is >15 mmol/L. If no ketones, correction through the pump may be done once. If ketones are present, the individual must give insulin by syringe or insulin pen and do a site change until ketones resolved.
- For early morning pump starts, have individual determine insulin dose for lunch based on blood glucose and carbohydrate amount.
- Remind individual that blood glucose testing will be required before all meals, 2 hours after meals, and overnight at 11:00 p.m. and 3:00 a.m. for a period-of-time. Blood glucose corrections will need to be re-assessed with blood glucose testing 2 hours after the insulin is given until blood glucose is within normal range.

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- Set up “insulin on board,” and personalize the “insulin on board” duration. Refer to the pump’s User Guide for further instruction.
- Provide the individual with written guidelines (use the Pump Start Guidelines) before leaving the Diabetes Centre along with contact numbers for overnight assistance.
- Provide the individual with the Insulin Pump Worksheet and have them fax/e-mail to the Diabetes Centre within 5 days.

## DETERMINE THE DAILY INSULIN REQUIREMENTS

### STEP 1: CALCULATE THE PRE-PUMP TOTAL DAILY DOSE (TDD)

- Add **all** the insulin that is taken daily: Pre-pump TDD = \_\_\_\_\_ units.  
*It will be helpful to have reviewed Insulin-to-Carbohydrate (CHO) Worksheet prior to the pump start date to determine TDD.*
- Calculate the **pump TDD** and reduce TDD by 25% (absorption at pump infusion site allows for increased efficiency of insulin).

$$\text{TDD} = \text{_____ units} \times 0.75 = \text{_____ units as pump TDD}$$

### STEP 2: DETERMINE BASAL/BOLUS AMOUNTS

**Allocate 50% of the pump TDD dose for basal and 50% for meal boluses over 24 hours.**

- **Initial basal rate** (use 50% pump TDD as basal insulin)

$$\text{Pump TDD} \text{ _____} \div 2 = \text{_____ units/day as Basal insulin}$$

$$\text{_____ units/day as basal} \div 24 \text{ hours} = \text{_____ units/hour}$$

- **Starting Bolus:**

Insulin-to-CHO Ratio (1 unit of insulin: \_\_\_\_\_ grams of CHO)

Using the “500 rule”:

$$500 \div \text{_____ pump TDD} = \text{_____ CHO ratio}$$

**Overnight basal rates and insulin to CHO ratios may be revised by the blood glucose readings throughout the day.**

## INSULIN SENSITIVITY FACTOR (ISF)

**Calculate the insulin sensitivity factor (the number of mmol/L that 1 unit of insulin will lower blood glucose).**

$$100 \div \text{_____ pump TDD} = \text{_____ mmol/L}$$

**Compare to previously used correction plan and Insulin-to-Carbohydrate Worksheet, and consider adjusting if difference is significant.**

**THE ABOVE CALCULATIONS TO BE DETERMINED WITH YOUR DIABETES HEALTHCARE TEAM PHYSICIAN.**

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## EXAMPLES OF INSULIN-TO-CHO RATIO AND INSULIN SENSITIVITY FACTOR CALCULATIONS

The following examples could be reviewed with individual starting on the pump:

### Example 1: Insulin-to-CHO Ratio

#### Using an Insulin-to-CHO ratio of 1:25:

- If blood glucose was **low** 2 hours after eating, try increasing ratio to give less insulin (1:30).
- If blood glucose was **high** 2 hours after eating, try lowering ratio to give more insulin (1:20). You want a ratio that allows blood glucose to increase by 3 mmol/L from pre-meal blood glucose level (2 hours later). Try a ratio 2 to 3 times before deciding it is a good ratio.

### Example 2: Insulin Sensitivity Factor

#### Using a TDD of 21:

- $100/21$  (new total daily dose) = 4.8 (5). Correction factor would be 1: drops 5 mmol/L.
- If blood glucose was 19 and looking for a target blood glucose of 7:  
 $19-7=12/5 = 2.4$  (bolus 2.4 units to correct for blood glucose).
- If correction worked, blood glucose for adults should be between 5-10 mmol/L 2 hours after eating/correction.

**NOTE:** Formula of 100 is helpful but Insulin-to-Carbohydrate Worksheet will more closely determine true insulin sensitivity pre-pump.

The 100 formula can be used as a “double check” based on new pump TDD (total daily dose).