# INSULIN PUMP FAILURE OR TEMPORARY INTERRUPTION

**If your insulin pump fails or you choose to switch to injections for a day or more, it is important to have a plan in place to manage your diabetes injections.**

Pump failure or loss of the pump can happen at any time and having a plan in place will prevent interruption in your diabetes management. Your plan for pump interruption or failure is as follows:

1. If the pump fails, you must **call the 1–800 number on the back of your insulin pump to arrange a replacement pump**. All insulin pump suppliers have a 24-hour help line to assist you in getting a replacement insulin pump. Be sure to ask when they expect to have the new pump delivered to you.
2. **You must have your current basal rates, insulin-to-carbohydrate (carb) ratios, correction factor (ISF), and target blood glucose recorded in a safe place**. You may not be able to retrieve this information from the pump if it fails or is lost. This information is necessary to determine your insulin doses off the pump and to reprogram a replacement pump.
3. Remember to **check for ketones if your blood glucose (BG) is 14.0 mmol/L or higher.**
4. **Determine your insulin doses off the pump using the guidelines in this handout**. The guidelines you follow will depend on:
   a) If your new pump will be delivered the **same day** (see below)

   **OR**

   b) If it will take **longer than 1 day** for your new pump to arrive or you plan to stop the pump for 24 hours or longer (see page 2).

## PUMP RESTART THE SAME DAY

**To replace basal insulin**:

- Use rapid-acting insulin (Humalog®, NovoRapid®, or Apidra®) by syringe or insulin pen to replace the **basal insulin** every 3 hrs.

  **Example**: Basal rate is 0.6 u/hour from 8 a.m. to 11 a.m. = 0.6 u/hour x 3 hours = 1.8 u (round to 2 units)

**To replace the meal insulin**:

- Replace the **meal insulin** using your insulin-to-Carb ratio as you would have used for each meal by insulin pump.

  **Example**: 1 u of insulin for each 30 g of carb (1:30). If eating 90 g of carb, 90 ÷ 30 = 3 u of rapid-acting insulin.

**To correct high blood glucose (BG)**:

- To correct a high BG, give the same amount of correction you would have given by the insulin pump.

  **Example**: BG target is 7 mmol/L and correction factor (ISF) is 4. BG is 20 mmol/L, so the correction would be (20 – 7) ÷ 4 = 3.25 u (round down to 3 units) of rapid-acting insulin.

**From the examples above, you would give:**

2 u for basal replacement
3 u for meal insulin
\+ 3 u to correct high BG
**= 8 u of insulin in total for 8 a.m. injection**

**Additional Guidelines:**

- If in 3 hours there is no meal, then replace the basal for the next 3 hours; and correct for high BG if needed. Continue every 3 hours until the pump is restarted.
- Wait 3 hours after the last injection before starting your pumps basal rates (may use temporary basal of 0%).

(see other side)

## PUMP DELIVERY OR PLAN TO STOP THE PUMP FOR LONGER THAN ONE DAY

**To replace the meal insulin**:

- Follow guideline to replace meal insulin for "Pump Restart the Same Day" on previous page.

**To correct high blood glucose (BG)**:

- Follow guideline to correct a high BG for "Pump Restart the Same Day" on previous page.

**To replace basal insulin using Humulin® N, Novolin® NPH, or Levemir®** (see box at bottom of page for information re: Lantus®):

### OVERNIGHT BASAL

- You can replace the **nighttime basal** using Humulin® N, Novolin® NPH, or Levemir®.
- **If using this method you do not need to replace overnight basal with rapid-acting insulin** (Humalog®, NovoRapid®, or Apidra®).
- Calculate the overnight basal rates from **10 p.m. to 8 a.m.**

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| **Example**: | 10 p.m. to 3 a.m. is 0.4 u/hour | = | 0.4 u/hour x 5 hours | = 2.0 u |
| | 3 a.m. to 7 a.m. is 0.5 u/hour | = | 0.5 u/hour x 4 hours | = 2.0 u |
| | 7 a.m. to 8 a.m. is 0.6 u/hour | = | 0.6 u/hour x 1 hour | = 0.6 u |
| | **Total units for overnight** | | | **= 4.6 u** |

**Using this example, the replacement would be 5 u of Humulin® N OR Novolin® NPH OR Levemir®**

### DAYTIME AND EVENING BASAL

- You will still need to replace the daytime and evening basal with rapid-acting insulin (Humalog®, NovoRapid®, or Apidra®) every 3 hours.
- Calculate the missed basal for the next 3 hours and replace that amount. Repeat every 3 hours during the day and evening (**8 a.m. to 10 p.m.**).
- If you will be off your pump for more than 2 or 3 days, contact the Diabetes Centre for advice about using daytime Humulin® N, Novolin® NPH, or Levemir®.

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| **Example**: | Starting at 8 a.m., calculate the missed basal for 3 hours. | | | |
| | **8 a.m. to 11 a.m.** | **=** | **0.7 u/hour x 3 hours** | **= 2.1 u** |

**Using this example, give 2 u of Humalog®, NovoRapid®, or Apidra® at 8 a.m. and recalculate the next missed basal at 11 a.m. for the next 3 hours.**

- You can restart your new pump during the day 3 hours after the last rapid-acting injection was given.
- Frequent blood glucose monitoring is essential to be safe and to guide you.

**To replace the basal insulin using Lantus®**:

- Calculate the basal rates for 24 hours. Give this dose as Lantus® at time of pump failure and repeat every 24 hours.
- You will need to use rapid-acting insulin for meal insulin and BG corrections.
- **If using long-acting insulin (Lantus®), you must wait 24 hours from when it was given before starting your pump's basal rates.**

**If you have any questions, please call the Diabetes Centre at:** _____