# Contents

Section Diabète
CHU Sainte-Justine
Le centre hospitalier universitaire mère-enfant
Université de Montréal

# INSULIN PUMP PROGRAM: FOR USERS

You have decided to use and insulin pump to treat your diabetes.

Our Diabetes Clinic has prepared this pump manual to help you use the pump. The manual includes a full set of resources for managing diabetes.

The manual is divided into five sections:

## ADMINISTRATION

This section provides information and registration/renewal forms for the provincial insulin pump program and the training plan.

## CARE AND FOLLOW-UP

This section includes helpful tips for solving issues that may arise.

## SETTINGS

This section explains how to adjust the pump's basic settings. Such information is essential in maintaining proper control over your blood-sugar level.

## TECHNICAL GUIDES

This section provides the technical specifications for each insulin pump, along with a comparison of their features.

## APPENDICES

This section contains forms, letters and other reference materials.

# Procedures and Forms

# PROCEDURE AND FORMS: INTRODUCTION



This section contains registration and renewal forms for the provincial insulin pump program and the training plan. It also gives instructions for the first two weeks of using your pump.

## What is Subcutaneous Insulin Infusion?

The insulin pump was introduced over 20 years ago. This programmable unit delivers a constant supply of insulin through a small tube (subcutaneous catheter) placed under the skin. The pumps keep your blood sugar level as close to normal as possible, however it does not test blood sugar. The child or a parent must check blood sugar and ketone levels, or use a constant glucose monitoring system. The insulin pump covers 3 essential insulin needs:

- Basal insulin when not eating.
- Meal bolus during meals.
- Correction bolus for high blood sugar.

## Why an Insulin Pump?

Studies clearly show that keeping your blood sugar as close to normal will significantly lower the risk of diabetic complications. The pump contributes to this effort by administering insulin more accurately than injections.

## Is the Insulin Pump for Me?

The insulin pump is for all diabetics who are **determined** to increase their control of their diabetes. Patients must be trained in using a pump, which is more complicated than simple injections. ***To be truly effective, the insulin pump requires the daily, active involvement of young diabetics and their families.***

## What are the Advantages of an Insulin Pump?

- It provides a better balance between your lifestyle and insulin requirements.
- It gives you greater flexibility in your schedule and meals.
- It improves your quality of life.
- It gives you excellent control *if you make the necessary effort.*

## What's the Downside?

- Since the pump only delivers short-acting insulin, there's a greater chance of high acid levels in your blood (ketoacidosis).
- Care and attention is essential to proper functioning.
- The user must program the insulin pump.
- Since the catheter remains in a particular site for 2 or 3 days, infections and abscesses may occasionally occur.

# Insulin Pump Program: Training Schedule



| TIME | P | Team Responsibilities | Patient Responsibilities |
|---|---|---|---|
| | | ***Regular follow-up with doctor*** | Speak with your doctor first to see if an insulin pump is for you. |
| Wednesday evening | **P0** | ***General information session*** | Mandatory.<br>Ask questions of pump manufacturer reps. |
| | **P00** | ***Doctor's final approval*** | Select and order pump.<br>Official registration and letter of commitment.<br>Letter of permission for school. |
| Thursday<br>**8:15 a.m.:** Diet.<br>10:00 a.m.: Nurse | **P1** | ***Introduction to counting carbs***<br>*Patient keeps food journal with blood sugar readings*<br>***Set up software*** | Fax your food journal 1 week after the session.<br>Do your homework,<br>Notify home insurer and buy equipment. |
| Thursday<br><br>8:15 a.m.: MD<br>10:00 a.m.: Diet.<br>10:30 a.m.: Nurse | **P2** | ***Basic Insulin Pump Settings***<br>Rate, meal bolus, correction bolus, insulin sensitivity, active insulin | Read the manufacturer's safety tips (DVD, Web or user manual).<br>Bring record of sugar level readings and insulin doses. |
| | | ***Carb counting review***<br>Key principles and practical exercises | Bring your meal plan |
| | | ***Safety principles***<br>Dealing with high/low blood sugar + resources | Prepare first-aid kit before the next class. |
| Thursday<br><br>**8:15 a.m.:** Nurse | **P3** | ***Technical aspects—basic features***<br>Pump settings<br>Saline pump start<br>Temporary rate | Bring the insulin pump and material (catheter, alcohol, etc.).<br>Bring the child.<br>Bring Emla cream (if needed). |
| Friday<br><br>**8:00 a.m.:** Nurse | **P4** | ***Installing pump and getting started***<br>Start-up tips<br><br>*Children must not eat beforehand* | Bring your insulin, pump and materials<br>Begin start-up plan: glucose at night, no intensive activity, fixed meal plan.<br>Bring your first-aid kit.<br>Fax your blood sugar readings the following Monday. |
| Thursday<br><br>**8:15 a.m.: MD**<br>10:30 a.m.**:** Nurse | **P5** | ***Daily pump management***<br>Check your settings (rate and bolus)<br>Replacement diagram<br>Temporary rates, sick days<br>Procedure (Part 1)<br>***Advanced settings***<br>Assistant, correction and unused bolus, insulin sensitivity, uploads | Bring your child.<br>Activate the Web account to upload your data.<br>Upload pump data 1 week after meeting. |
| To be determined<br>**8:15 a.m.:**<br>Diabetes and simulation units | **PSIM** | ***Knowledge check***<br>Exercises on information covered<br>Checking pump settings | Upload pump data before class.<br>Simulation of common situations arising with an insulin pump.<br>Bring your child. |
| **Follow-up visits, as required** | | ***Advanced Pump Features***<br>Procedure (Part 2)<br>Personal diagrams<br>Square wave and extended bolus, travelling | Analysis of your data. |
| Clinic appointment and glycated haemoglobin sample<br>1 month after PSIM at the diabetes clinic (MD & DIETICIAN) | | | ***Upload pump data at home, the evening before each meeting** |
| Satisfaction Survey<br>After 6 months | | | Skills Questionnaire<br>Every 6 months |

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# INSULIN PUMP PROGRAM:
## PROVINCIAL ACCESS PROGRAM



**DESCRIPTION**

- Provincial government program that has been reimbursing the cost of insulin pumps since April 16, 2011.
- The program has been under review since April 1, 2015.

**PURPOSE**

- Control unstable diabetes.
- Lower blood sugar.
- Reduce frequency of insulin injections.
- Make meal schedules more flexible and permit planning of daily activities.

**PATIENTS**

- Must be diagnosed with type 1 diabetes.
- Must be less than18 years when signing up for program.
- Must meet program eligibility criteria EACH YEAR.

**PROGRAM CRITERIA**

- Check blood sugar before meals and bedtime (4x/day).
- Regularly record capillary blood sugar readings.
- Understand and apply advanced carbohydrate counting.
- Participate in an accredited insulin pump training program.
- Attend at least 3 annual follow-ups with a multidisciplinary team (2 times/year for adults).
- Stay up-to-date on your knowledge of diabetes.
- Provide child with the support, supervision and parental guidance needed to ensure safe and appropriate pump use.

**REIMBURSEMENT OF COSTS**

- Insurance companies are the first payers.
- $6,300 maximum reimbursement (over 4 years).
- Maximum $4,000/year reimbursement for supplies.
- Those over 18 remain eligible for reimbursement if they still meet government criteria.

**CERTIFICATE OF ELIGIBILITY**

- You must fill out the insurance section (name of company, policyholder name, policy/agreement number) even if your do not have insulin pump coverage.
- These forms must be completed EACH YEAR and the doctor must sign them.

## FORMS

- **At the CHU Sainte-Justine clinic**
- Link for form:
  - msss.gouv.qc.ca
  - In the Documentation menu, click Formulaires and select AH-711.
- Tel.: (418) 525.4444 ext. 86197.
- The clinic will mail the form.

## REMOVING PUMP

- A patient who has left the program is allowed **ONE READMISSION.**
- The patient has up to 5 years to be readmitted.
- These are the most common reasons at CHU Sainte-Justine for removing an insulin pump:
  a. HBA1C ≥ 9.5% twice in a row.
  b. Failure to attend meetings.
  c. Failure to check blood sugar.
  d. Unsafe use of pump.

## TRANSFER TO ADULT DIVISION

- This program also covers all young adults who signed up for it before the age of 18.
- Program members must meet with the multidisciplinary team at least twice each year.
- One renewal form per adult must be completed each year and signed by an endocrinologist.
- The form can be downloaded from:
  - msss.gouv.qc.ca.
  - Go to the Documentation menu, click Formulaires and select AH-710.
- The child or parents must send in the form.

## REFERENCE

- Government reimbursement program (Appendix A

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# INSULIN PUMP PROGRAM:
## REGISTRATION AND RENEWAL



You must complete your child's eligibility form before registering your child for the government insulin pump reimbursement program and do so again **EACH YEAR** before renewing your child's registration.

## Instructions

1. **Only** fill in sections **1 and 4** of the renewal form (Appendix A).

2. Part 4 must be completed and **signed** in the Policy holder's signature section by everyone with private insurance (even if none of your policies covers insulin pumps). If you do not have private insurance, write "No" and **sign.**

3. Send the form to the clinic by:

   Mail:
   CHU Sainte-Justine
   Clinique du diabète, local 2102
   3175 Côte Sainte-Catherine
   Montréal, QC, H3T 1C5

   Email: diabete.hsj@ssss.gouv.qc.ca

   Or

   Fax: (514) 345-4604

4. Keep a copy of the form for your records if you wish.

5. The diabetes clinic will forward your form to the government.

The doctor is likely to consider removing the insulin pump if the patient or family do not use it properly.

## Typical Reasons for Leaving

1. Repeatedly missing meetings.
2. Insufficient blood sugar readings (at least 4 per day).
3. Glycated hemoglobin over 9.5% twice in a row, due to improper pump use.
4. Unsafe pump use.
5. Child or family decides to stop using pump.

A patient may be readmitted to the program within 5 years.
A patient who has left the program twice, however, cannot return.

For **1 to 2 weeks** following pump installation:

**Meal plan** → Use the established 3-meal plan with only no-carb snacks.

**Blood sugar** → Check blood sugar
- Before & 2 hours after mealtimes
- Bedtime
- Midnight
- 3:00-4:00 a.m.

**Physical activity** → Avoid moderate/intense activity.

**Insulin adjustment** → Send clinic blood sugar readings, as instructed:

Fax: 514-345-4604
Or
Email: diabete.hsj@ssss.gouv.qc.ca.

**Correction bolus** → Only take correction bolus **if blood sugar is > 15**:
- Meals
- Midnight
- 3:00-4:00 a.m.

**Contact the on-call staff if** →

When to contact the diabetes on-call staff:

Tel: (514) 345-4788 (to alert on-call staff)

- Blood sugar remains very high (>20 mmol/L) for more than 6 hours and doesn't go down after using the correction bolus.
- Hypoglycaemia (3 mmol/L or under).
- The patient vomits.
- ≥ 1.5 mmol/L ketones without going down for more than 6 hours.
- High blood sugar **&** ketones ≥ 3.0 mmol/L.
- Call 911 if necessary.

# Care and Follow-Up

# CARE AND FOLLOW-UP: INTRODUCTION



This section gives tips on dealing with common situations, like high or low blood sugar. It also includes information on preparing and changing your IV site and dealing with related issues. Finally, it provides useful information on managing day-to-day physical activities, plus special advice for when you are sick or travelling.

TREATMENT

# Hypoglycemia (pump user)

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## Blood glucose lower than 4 mmol/l

| Between 2.5-3.9 | Lower than 2.5 | Hypoglycemia **with severe symptoms** |
|---|---|---|
| Give carbohydrates **Treatment A** | Double carbohydrates **Treatment B** | **Severe symptoms :** Cannot swallow — Confusion — Drowsiness — Loss of conciousness — Seizure |

Check blood glucose in 15 minutes

| 4.0 and above | Lower than 4.0 | **Treatment C** |
|---|---|---|
| **Back to normal activities** | **Treatment A or B,** according to blood glucose level | Give Glucagon and suspend pump for 1 hour |

**REMEMBER :**

- Give rapid acting carbohydrates
- Attention: do not overtreat : give the recommended amount of carbohydrates.
- Always wait 15 minutes before treating again
- Treatment A or B : if more than 3 treatments are necessary : contact diabetes team on call
- Treatment C : Glucagon: to be given only once.

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TREATMENT

# Hypoglycemia (pump user)

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## Treatment A : HYPOGLYCEMIA 3.9 – 2.5

Give rapid acting carbohydrates,
*according to weight or age* :

| Choices of rapid acting carbohydrates | **Less than15 kg** (less than 30 lbs) | **15 - 30 kg** (30 - 60 lbs) | **30 - 60 kg** (65 - 130 lbs) | **More than 60 kg** (more than 130 lbs) |
|---|---|---|---|---|
| | **If weight unknown, use age :** | | | |
| | **Less 4 years old** | **4 - 10 years old** | **10 - 14 years old** | **Over 14 years old** |
| **Amount of** carbohydrates | **5 g** | **10 g** | **15 g** | **20 g** |
| **Tablet (4 g)** (ie : **Dex-4**) | 1 tablet | 2-3 tablets | 4 tablets | 5 tablets |
| **Liquid Dex-4** (15 g/bottle) | 20 ml | 40 ml | 60 ml (entire bottle) | 80 ml |
| **Gel Dex-4** (15 g/tube) | 1/3 tube | 2/3 tube | 1 tube | 1 1/3 tube |
| **Tablet** (3 g (ie : **Dextrosol**) | 2 tablets | 3 tablets | 5 tablets | 6-7 tablets |
| **Sugar, honey, jam, syrup** | 5 ml | 10 ml | 15 ml | 20 ml |
| **Fruit juice, regular soft drink** | 40 ml | 80 ml | 125 ml | 160 ml |

TREATEMENT

# Hypoglycemia

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## Treatment B : HYPOGLYCEMIA LESS THAN 2.5

Give more carbohydrates,
*according to weight or age* :

| Choices of rapid acting carbohydrates | **Less than15 kg** (less than 30 lbs) | **15 - 30 kg** (30 - 60 lbs) | **30 - 60 kg** (65 - 130 lbs) | **More than 60 kg** (more than 130 lbs) |
|---|---|---|---|---|
| | **If weight unknown, use age :** | | | |
| | **Less than 4 years old** | **4 - 10 years old** | **10 - 14 years old** | **Over 14 years old** |
| **Amount of carbohydrates** | 10 g | 20 g | 30 g | 40 g |
| **Tablet (4 g)** (ie : **Dex-4**) | 2 tablets | 5 tablets | 8 tablets | 10 tablets |
| **Liquide Dex-4** (15 g/bouteille) | 40 ml | 80 ml | 120 ml (two bottles) | 160 ml |
| **Gel Dex-4** (15 g/tube) | $^2/_3$ tube | 1 $^1/_3$ tube | 2 tubes | 2 $^2/_3$ tubes |
| **Tablet** (3 g (ie : **Dextrosol**) | 4 tablets | 6 tablets | 10 tablets | 13 tablets |
| **Sugar, honey, jam, syrup** | 10 ml | 20 ml | 30 ml | 40 ml |

TREATMENT

# Hypoglycemia

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## Treatment C : HYPOGLYCEMIA WITH SEVERE SYMPTOMS

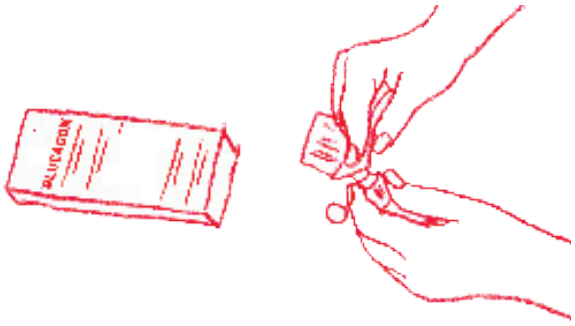
Give **Glucagon** (or Glucagen)

Glucagon increases blood sugar by releasing glucose from the liver. There is no danger to give it. However, it may cause nausea and vomiting.

### HOW TO PREPARE GLUCAGON

Glucagon comes as a powder that has to be diluted. Follow the instructions.
Here are the instructions:

1. Remove the flip-off seal from the bottle of Glucagon.




2. Remove the needle protector from the syringe. Remove the needle cap and inject the entire contents of the syringe into the bottle of Glucagon.


3. Swirl bottle gently until GLUCAGON dissolves completely and the solution becomes clear

TREATMENT

# Hypoglycemia

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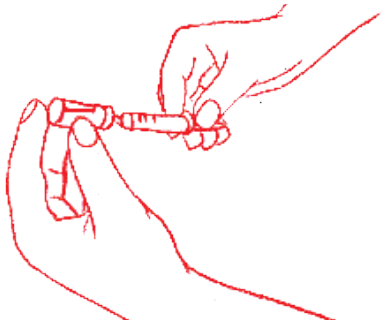
## Treatment C : HYPOGLYCEMIA WITH SEVERE SYMPTOMS

Give **Glucagon** (or Glucagen) *(continued)*

4. Using the same syringe, hold bottle upside down and withdraw all of the solution .

   **All of the solution** for children weighing more than **20 kg** (or 5 years old and above if you don't know the weight)

   **Give 1/2 the solution for children weighing less than 20 kg** (or less than 5 years old if you dont know the



### GLUCAGON INJECTION

Give Glucagon as you would do with insulin (same way, same site).

1. Pinch the skin between index finger and thumb to raise the injection site. Hold the syringe like a pencil and insert the needle at a right angle (90°).
2. Inject the recommended dose.
3. Release skin.
4. Withdraw the needle.

### AFTER INJECTION

Check blood glucose every 5 minutes.

The child will regain conciousness 5 to 20 minutes after the injection. **If the patient does not awaken within 20 minutes, go to the emergency room or call 911.**

When the child regains conciousness, you should give him a small quanty of carbohydates at a time because he may be nauseous

The child may also complain of a headache: this is usually due to hypoglycemia. he can be given Acetaminophen (Tylenol, or other).

Attempt to identify the cause of severe hypoglycemia and make the necessary adjustments. Communicate with the diabetes team if necessary.

TREATMENT

# Hyperglycemia
## Pump user

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## Blood glucose above15 mmol/l

1. Test ketones
2. Find the cause (see table A) and solve problem
3. Correction bolus according to ketones level see next page

## Table A : Possible causes

Check if clinical factor :

- Illness - infection
- Bolus omitted
- Nutrition
- Less exercice
- Stress

Make the following verifications :

**PUMP :**
- Alarm (technical problem) ?
- Pump suspended and not restarded
- Basal rate too low (Correct settings?)
- Daytime and nightime inversed?)
- Pump suspended too long

**CARTRIDGE :**
- Empty cartridge?
- Leak at the connection?

**INFUSION SET/CANULLA:**
- Canula not filled
- Leak at the connection?
- Canulla not under the skin anymore
- Air in the infusion set
- Blood in the infusion set
- Kinked or blocked canula
- Canula inserted more than 3 days
- Canula inserted in scar tissue
- Pod expired (if Omnipod)

**SITE :**
- Redness, irritation, leaking, warm skin (infection)
- Insertion site near the belt.

**INSULIN :**
- Cloudy appearance
- Room temperature for more than one month
- Exposure to heat or sun
- Expiry date has passed

# INSULIN PUMP PROGRAM:
## INFUSION SITE TIPS



### SITE SELECTION AND ROTATION

- Select a site with healthy skin.
- The stomach, top of the buttocks and upper thighs are usually ideal.
- Make sure new site is at least 2 cm from old one.
- Don't use a site that could be squeezed (by a belt, for example).

### PREPARATION

- Wash with soap and water.
- Swab with alcohol.
- Don't touch the tip of the cannula or reservoir.

### HOW OFTEN SHOULD I CHANGE SITES?

Every 48 to 72 hours.

## Inserting Cannula

### Choose the right time

- Before a meal.
- Don't change site just before bedtime.

### Insulin


- Make sure insulin is at room temperature to keep bubbles from forming.

### Check blood sugar

- 1 to 2 hours after establishing a new site.

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### Insertion Device

- <u>As needed</u>: To facilitate installation.

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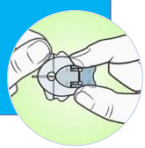
### Primer



- Prime with "X" units after removing needle.

0.0. 0.3, 0.5 or 0.7 units, depending on kind of cannula used.

For Medtronic™

### Tubing

- Secure tubing near insertion site, by looping tubing and securing it to skin with medical tape.

| Issue | Type of Product | Suggested Products | Use |
|---|---|---|---|
| Catheter not properly secured (comes loose too soon) | Medical tape | 1. Cavilon™ (spray) (DIN:55617133)<br>2. Skin Prep™ (DIN:55689256)<br>3. Skin Tac™ (DIN:55001236) | 1. Swab with alcohol to disinfect healthy skin.<br>2. Apply product (spray or swab).<br>3. Let product act for a few moments.<br>4. Install catheter when skin becomes sticky. |
| Catheter difficult to remove | Solvent | 1. Baby oil gel<br>2. Remove™ (DIN: 55689250) | 1. Apply product to the adhesive to be removed.<br>2. Gently remove catheter, applying more gel or Remove, as required.<br>3. Wash skin thoroughly to eliminate gel or Remove. |
| Skin irritation or redness | Skin protectant | 1. Cavilon™ (spray) (DIN:55617133)<br>2. Skin Prep™ (DIN:55689256) | 1. Disinfect healthy skin with an alcohol swab.<br>2. Apply product (spray or swab).<br>3. Let product act for a few moments.<br>4. Install catheter when skin is sticky. |
| Blemishes from irritation appear after catheter is removed | Skin cleaner and corticosteroid | 1. Cetaphil™<br>2. Hydrocortisone 0.5% | 1. Clean skin with CetaphilTM and observe.<br>2. If blemishes persist, start hydrocortisone by applying it to irritated area.<br>3. Advise clinic if no improvement or signs of infection (redness, heat, pus, etc.). |
| Protective dressing | Adhesive dressing | IV 3000™ (6x7) (DIN:55007558)<br>Hypafix™ | 1. Attach sticker to an appropriate location. |

**Note: Make sure to select a site with healthy skin (no redness, blemishes, rash, irritation etc.)**

Insulin requirements tend to decline during periods of physical activity that are more intense than usual. Changing the insulin dose depends on several factors—the time of day when the exercise occurs, as well as the type of exercise, its intensity and its duration. Dosages must be customized for each patient. For some individuals, blood sugar levels may tend to rise during exertion.

Insulin flow should generally be reduced during exercise—and sometimes before and after, as well. To lessen the risk of hypoglycaemia, the meal bolus should also be diminished—particularly if the activity takes place within two hours of its administration.

## General Precautions

- **BLOOD SUGAR**
  - If hyperglycaemia ≥ 15 mmol/L and if acetone is present → Avoid exercise, which could cause a serious imbalance
  - If hypoglycaemia → Correct before starting exercise
- **CARBOHYDRATE SUPPLEMENTS**
  - 15 to 30 gr if activity is of short duration and low intensity
  - 15 to 60 gr for extended activity of high intensity

*See chart on table on the left

- **INSULIN**
  - Adjust your basal flow before embarking on an exercise program
  - Make sure to reduce your meal insulin if taken 2 hours before physical activity
- **PUMP**
  - → Do not expose pump to extreme temperatures or shocks.

You can choose to wear—or not wear—the pump during certain physical activities (swimming, at the beach, contact sports), for a variety of reasons.

Here are some tips to follow, depending on whether the pump will be connected or not.

## Adjusting Basal Flow

1. Reduce basal flow using the Temporary Flow setting, that lets you adjust the existing insulin dose by 10% increments:
    a. Basal flow should remain the same or be cut 10 to 30%, based on prior experience, for light to moderate exercise.
    b. Basal flow can be cut 50 and even 75% for more intense exercise.
2. Some people experience an extended effect of exercise. Consider prior experience and plan to reduce basal flow for 2 to 4 hours following such exercise. Some patients will have to maintain this reduction for up to 12 hours.
3. Check blood sugar following exercise to help you make these adjustments.

## For Activities When You Don't Wear the Pump

1. You can stop the pump for 60 minutes prior to an activity—or as much as 120 minutes for some people, particularly during intense exercise. Check blood sugar 60 minutes after stopping the pump.
2. If the pump must be stopped for a longer period, administer an insulin bolus equal to between one quarter and one half the prior four hours' flow before the exercise.
3. Add up to 15 gr of carbohydrates every 45 to 60 minutes and an equivalent of 15 gr in starch-based food after the exercise.

## Special Considerations

1. Some types of activities (weightlifting, sprint racing) can **increase** blood sugar because of strong stimulation by certain hormones. You should consider increasing the insulin dose under such circumstances to prevent hyperglycaemia.
2. If you exercise soon after eating, you should use an extended, rather than standard, bolus to prevent hypoglycaemia.
3. Heavy sweating could cause the catheter to come loose. Use secure adhesive tape to keep the catheter in place.
4. Sustained and regular workouts could change your basal insulin needs, resulting in smaller changes in dosage during exercise.

| Activity | 20 kg (44 lb) | | 40 kg (88 lb) | | 60 kg (132 lb) | |
|---|---|---|---|---|---|---|
| **Blood Sugar** | **4-8** | **8-15** | **4-8** | **8-15** | **4-8** | **8-15** |
| Intensity 1<br>• Cycling (10 km/hr)<br>• Walking (4-7 km/hr)<br>• Baseball | 7 | 4-5 | 10 | 5 | 15 | 7 |
| Intensity 2<br>• Cross-country skiing<br>• Soccer<br>• Tennis<br>• Cycling (15 km/hr)<br>• Aerobics<br>• Basketball (moderate)<br>• Swimming (breaststroke)<br>• Dancing | 10 | 5 | 20 | 10 | 30 | 15 |
| Intensity 3<br>• Basketball (vigorous)<br>• Mountain hiking<br>• Figure skating | 15 | 7 | 30 | 15 | 45 | 20 |
| Intensity 4<br>• Running (8-12 km/hr)<br>• Hockey (time on ice)<br>• Day of cycling | 20 | 10 | 45 | 20 | 60 | 30 |

| FOODS | | | | |
|---|---|---|---|---|
| **Food** | **7 gr** | **10 gr** | **15 gr** | **20 gr** |
| Regular Gatorade 32 gr/500ml | 125 ml | 175 ml | 250 ml | 325 ml |
| G2 Gatorade 10g/500ml | | | | |
| Powerade | 160 ml | 200 ml | 325 ml | 425 ml |
| Fruit juice | 60 ml | 85 ml | 125 ml | 185 ml |
| Popsicle stick from real fruit juice | ½ popsicle | 1 popsicle | 1 ½ popsicle | 2 popsicles |
| Fruit-to-go | ½ bar | ¾ bar | 1 ¼ bar | 1 ½ bar |
| Yogurt tube | | 1 tube | 2 tubes | 3 tubes |
| Liquid yogurt YOP® | ¼ container | 1/3 container | ½ container | ¾ container |
| Liquid yogurt Danino/Danactive® | ½ container | 2/3 container | 1 container | 1 1/3 container |
| Raisins | 15 ml | 20 ml (1 mini box) | 30 ml (1 ½ mini-box) | 40 ml (2 mini boxes) |
| Dried cranberries | 20 ml | 30 ml | 45 ml | 60 ml |
| Medjool dates | ½ dates | ¾ dates | 1 date | 1 ½ dates |
| Small dates | 1 ½ dates | 2 dates | 3 dates | 4 dates |

# INSULIN PUMP PROGRAM: WHAT TO DO IF YOU ARE SICK



You must be careful to prevent blood sugar swings when you are sick (flu, gastroenteritis, sore throat, etc.).

Illness usually places additional stress on the body, resulting in higher blood sugar. Here are some ways of handling this.

## INSULIN

- **Basal rate**
  - Maintain basal rate, even if you can't eat.
  - Boost basal rate by 10 to 50% if you are sick for **more than 2 days**.
- **Correction bolus**
  - Correct high blood sugar every 4 hours in the case of a brief illness.
  - Increase bolus as needed if you are sick more than 2 days, as recommended by your doctor.

## BLOOD SUGAR

- Check blood sugar frequently (up to every 2 hours).
- Check ketone level if blood sugar is higher than 15 mmol/L.

## CARBS

**CARBS**

- Drink enough fluids to make up for frequent urination due to high blood sugar.
- Offer child Gatorade (rather than juice, if possible) in small sips, and do so frequently if the child has been vomiting.

**Contact the Diabetes Team's On-Call Staff if:**

- Ketones > 1.5 with blood sugar over 15 mmol/L
  Or ketonaemia for more than 4 hours.
- Vomiting frequent or persisting for more than 4-6 hours.
- Blood sugar > 15 mmol/L for over 24 hours.

Here are a few basic travel tips that will nip any problems in the bud.
See your doctor with your travel dates before leaving to get a letter to facilitate the pump's passage through customs, as well as a general information pamphlet.

## Preparing the Equipment

Make a list of all pump equipment (including the spare parts kit).
Take two of everything you need, including a second pump.
Follow instructions for passing through security areas.

## Setting Insulin Doses for Your New Time Zone

Less than 3 hours difference → Your change in activities does not require any change in pump settings.

3 or more hours →

| Direction of Travel | Effect on Day | Set Pump Time |
|---|---|---|
| **East** | First day shorter | Move forward |
| **West** | First day longer | Move back |

★ If your basal flow does not change significantly over 24 hours, simply set the time of your pump to your local time when you arrive or within the next few days.

★ If your basal rate swings a lot, it would be best to change the time by 1 or 2 hours each day. The bigger the time change, the more days it will take before you can set the pump to local time.

## Monitoring Blood Sugar

★ Make sure to check your blood sugar as often as necessary. Stress and a change in lifestyle have an impact on blood sugar and a period of adjustment is needed.

Make sure your kit is always handy, particularly if you're out of the house. Tell family members or a friend where you keep it.

Check product expiration dates regularly.

# Equipment List

- Fast-acting glucose tablets or gel.
- Materials for checking blood sugar (lancets, test strips, batteries).
- Ketone monitoring accessories.
- Insulin pen with Humalog, NovoRapid or Apidra insulin and needles.
- Complete pump infusion equipment.
- Gauze, tape and alcohol swipes.
- Spare pump battery.
- Glucagon (check expiration date).
- Coin to open battery compartment.
- Diabetes clinic's business card.
- Emergency contact (parent, guardian) information

# INSULIN PUMP PROGRAM: REPLACEMENT DIAGRAM



If for any reason you cannot use the pump to deliver your insulin, you need a back-up plan to administer it through conventional injections, until the pump is available again.

1. +site):
   a. Basal rate.
   b. Carb ratios for your three meals and bedtime snack.
   c. Day, evening and night sensitivity factors (if they are different).
2. Check blood sugar before each meal, at about 10:00 p.m. (bedtime) and at 3:00 a.m.
3. Give rapid-acting insulin by pen or syringe before each meal, at about bedtime (10:00 p.m.) and at about 3:00 a.m.
4. Here is how to make the calculation:

| CALCULATION | Before breakfast | Before lunch | Before supper | Before bedtime | Nighttime |
|---|---|---|---|---|---|
| | About 8:00 a.m. | About noon | About 5:00 p.m. | About 10:00 p.m. | About 3:00 |
| Basal rate | Add up basal rates from 8:00 a.m. to noon. | Add up basal rates from noon to 5:00 p.m. | Add up basal rates from 5:00 p.m. to 10:00 p.m. | Add up basal rate from 10:00 p.m. to 3:00 a.m. | Add up basal rate from 3:00 a.m. to 08:00 a.m. |
| + | + | + | + | + | + |
| Carb ratio | Calculate meal bolus using the morning carb ratio. | Calculate meal bolus using the noon carb ratio. | Calculate meal bolus using the supper carb ratio. | If you have a snack, calculate meal bolus using the bedtime snack carb ratio. | No meal bolus. |
| + | + | + | + | + | + |
| Correction bolus | Calculate bolus using the morning sensitivity factor. | Calculate bolus using the noon sensitivity factor. | Calculate bolus using the supper sensitivity factor. | Calculate bolus using the bedtime sensitivity factor. | Calculate bolus using the nighttime sensitivity factor. |
| = | | | | | |
| **Total UR Bolus to be Given** | UR | UR | UR | UR | UR |

## EXAMPLE

The insulin pump stops working at 4:50 p.m. The company will deliver a new one around 8:00 a.m. the next day. Here are the broken pump's settings:

| Basal Rate | Meal Bolus | Sensitivity Factor |
|---|---|---|
| Midnight to 08:00 a.m.: 0.5 u/hr | 1u/15 g before breakfast | Midnight to 08:00 a.m.: 6 |
| 08:00 a.m. to noon: 0.7 u/hr | 1u/12 g before lunch | 08:00 a.m. to 5:00 p.m.: 4 |
| Noon to 7:00 p.m.: 0.5 u/hr | 1u/14 g before supper | 5:00 p.m. to midnight: 6 |
| 7:00 p.m. to midnight: 0.6 u/hr | 1u/20 g before bedtime snack | |

What insulin doses should be given until the new pump arrives?
Blood sugar target: 5.5 mmol/L

| | At 5:00 p.m. | At 10:00 p.m. | At 3:00 a.m. |
|---|---|---|---|
| Basal rate | **2.8 u** (0.5u/hr 2, 0.6u/hr 3) | **2.7 u** (0.6u/h x 2, 0.5u/h x 3) | **2.5 u** (0.5u/h x 5) |
| + | | | |
| Carb ratio | **3.5 u** (50 g meal) | **1.0 u** (20 g snack) | **0 u** (No carbs) |
| + | | | |
| Correction bolus | **1.6 u** (Blood sugar = 15 mmol/L) | **1.0 u** (Blood sugar = 11.5 mmol/L) | **0.7 u** (Blood sugar = 9.5 mmol/L) |
| = | | | |
| **Total UR Bolus to Give** | **7.9 u**<br>Round to **8 u** | **4.7 u**<br>Round to **5 u** | **3.2 u**<br>Round to **3 u** |

**Check blood sugar at 8:00 a.m.**
**Install catheter and start-up pump when it arrives**

## PURPOSE

Ensure the safety of the child using the pump by setting a maximum limit to the amount of insulin that can be administered.

## Maximum Basal Rate

The maximum basal rate limits the total amount of basal insulin that can be administered in a day. This maximum is generally calculated according to the day's highest basal rate. The temporary basal rate can safely be twice this amount. This is the formula for determining the maximum basal rate:

Highest basal rate X 2

## Maximum Bolus

The maximum bolus lets you limit the total bolus that can be administered in a day. Insulin requirements change over the course of a child's life. Maximum bolus should be recalculated if the pump's bolus recommendations are higher than your maximum bolus. This is the formula for calculating maximum bolus:

Biggest typical bolus x 2

## Precautions Before Bedtime

Because the child will not be checking blood sugar at night, here are precautions to take before bed:

- Check blood sugar at bedtime.
- Check infusion site.
- The site should be changed at least 2 hours before bed (otherwise, check blood sugar during the night).
- Make sure there's enough insulin in the reservoir.
- Make sure all of the day's alerts are set.

## OTHER RECOMMENDED PRECAUTIONS

1. About residual insulin:
   - Never set the residual insulation interval to under 4 hours, to prevent low blood sugar episodes.
2. Change the pump's time when Daylight Savings starts and ends, as this is not automatic.
3. Use 24-hour time to avoid confusing AM and PM and making mistakes in insulin delivery.
4. Avoid entering blood sugar readings manually, because this can cause errors.
5. If using a $90^{0.}$ catheter, make a safety loop to ensure it is secure.

# Settings

# SETTINGS: INTRODUCTION



This section explains the basic principles involved in configuring your pump. Understanding these concepts is crucial to controlling your blood sugar.

Your pump delivers three kinds of insulin:

**BASAL RATE**

- Controls blood sugar when you're not eating.
- Prevents liver from releasing stored glucose.
- Covers basic metabolic needs.
- Metabolic needs may vary:
  - During the day.
  - When sick.
  - While performing physical activities.
  - With growth.
- Basal insulin is programmed over a 24-hour period.
- The program is automatically activated.

**MEAL BOLUS**

- Lets you metabolize carbohydrates consumed in a meal.
- Is calculated according to your insulin-to-carb ratio pump settings.
- Must be manually activated before meals or snacks.
- The insulin-to-carb ratio is not necessarily the same for each of the day's meals.

**CORRECTION BOLUS**

- This is the insulin that corrects high blood sugar quickly (4 hours).
- It includes a **sensitivity factor,** which is the amount your blood sugar will drop in response to 1 unit of insulin.
- The pump calculates the amount of insulin needed to correct high blood sugar according to this sensitivity factor.
- Check your blood sugar before enabling the pump's calculation and correction functions.

Make sure you understand these three functions so you can set your insulin doses to obtain proper blood sugar and glycated haemoglobin levels.

# INSULIN PUMP PROGRAM: INTERPRETING BLOOD SUGAR



| | |
|---|---|
| **Blood sugar targets** | • Make sure to determine your before-meal and nighttime blood sugar targets with your doctor<br>• Check your blood sugar <u>at least</u> 4 times a time or more, as required by any adjustments. |
| **Before-meal blood sugar** | • Before-meal blood sugar corresponds with the basal rate for preceding hours.<br>• Maximum swings over a 4-hour period should not, generally, exceed 2 mmol/L.<br>• Check your blood sugar every 4 to 6 hours to determine your daytime, evening and night levels, since basal rate may change throughout the day. |
| **Blood sugar 2 hours after meals** | • This blood sugar level reflects the impact of the meal bolus.<br>• It should not exceed before-meal blood sugar by a factor of 1.5.<br>• In practice, this reading should not be over 10 mmol/L if your before-meal blood sugar is from 4 to 7 mmol/L. |
| **Night blood sugar** | • This is the night basal rate.<br>• Night blood sugar must be checked regularly (4 to 6 night readings per month). |

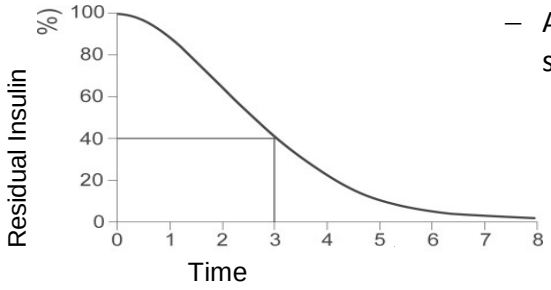
# INSULIN PUMP PROGRAM: Active Insulin



- A pump safety feature monitors the insulin remaining since the last boluses administered over the previous four hours.
- This feature is called **ACTIVE INSULIN**.
- The active insulin feature reduces the chance of hypoglycaemia due to overcorrection with repeated boluses.

## Basic Principle

- Active insulin is based on the duration of action of the UR insulin that acts on blood sugar. Active insulin is expressed in units on the pump.
- This features lets the bolus wizard calculate the amount of insulin still active since the last bolus was taken.
- Active insulin is activated when you input a blood sugar reading to the bolus wizard.
  - Following administration of a carb bolus, the calculator takes active insulin into account, if blood sugar is below your target range.
  - The calculation mode depends on the pump.




## Don't:

- Don't change the active insulin setting to anything other than 4 hours.
- Consequences of this change:
  - Erroneous adjustments in basic parameters.
  - Imbalance between balance and meal insulin.

## RECOMMANDATIONS

1- Don't change the insulin duration, which by default is set at 4 hours (unless the doctor gives other instructions).
2- If blood sugar remains high following a correction, always check for technical reasons for the ketonemia, then validate basic adjustments: basal flow, meal bolus and correction bolus.
3- Space correction boluses for hyperglycaemia of at least 2 hours.
4- Use the bolus wizard as much as possible.
5- If you take a bolus without the pump, wait four hours before administering another correction bolus.

# INSULIN PUMP PROGRAM: Setting the Basal Rate



The basal rate is set to ensure **stable blood sugar**

1. Preferably start test with blood sugar between 4 and 9 mmol/L. If you have an episode of hypoglycaemia, correct it and check basal rate at a different time.
2. Set the basal rate for each of these intervals:

NIGHT → MORNING → AFTERNOON → EVENING

3. Do not engage in intensive exercise before or during the period being evaluated.
4. Don't consume carbs just before or during the interval being evaluated. You may, however, eat moderate amounts of vegetables, proteins and fats.
5. Don't make any corrections (unless blood sugar > 15 mmol/L)
6. Check blood sugar often:
7. Perform your evaluations one period at a time, over about three days.
8. Blood sugar should be STABLE (± 1 to 2 mmol/L) within a 3 to 4 hour period

a. **Night:** bedtime, midnight, 3:00 a.m., 7:00 a.m.
b. **Morning:** waking, 10:00 a.m., lunch
c. **Afternoon:** lunch, 3:00 p.m., supper
d. **Evening:** supper, 8:00 p.m., bedtime

Example 1—Night

| 9:00 p.m. | 0.00 am | 3:00 a.m. | 7:00 a.m. |
|---|---|---|---|
| 12 | 13 | 11 | 13 |
| 11 | 12 | 12 | 13 |
| 13 | 11 | 14 | 14 |

**Answer**: Blood sugar is high, but stable, so the night rate is OK. The problem is in the evening, but every night starts with high blood sugar

Example 2—Night

| 9:00 p.m. | 0.00 am | 3:00 a.m. | 7:00 a.m. |
|---|---|---|---|
| 6 | 8 | 6 | 15 |
| 7 | 7 | 8 | 13 |
| 8 | 6 | 6 | 14 |

**Answer:** Blood sugar rose more than 2 mmol/L from 3:00 a.m. to 7:00 a.m. Consequently, the basal rate should be increased 10 to 20% from 3:00 a.m. to 7:00 a.m.

Example 3—Night

| 9:00 p.m. | 0.00 am | 3:00 a.m. | 7:00 a.m. |
|---|---|---|---|
| 7 | 9 | 11 | 13 |
| 8 | 11 | 14 | 16 |
| 5 | 9 | 12 | 15 |

**Answer:** Blood sugar rose more than 2 mmol/L in each interval, so increase the basal rate by 10 to 20% from 9:00 p.m. to 7:00 a.m.

## Suggested Basal Insulin Progression Scale

+/- 0.025 If basal rate/hr ‹ 0.25 u → +/- 0.025 If basal rate/hr ‹ 0.25 u → +/- 0.025 If basal rate/hr ‹ 0.25 u → +/- 0.025 If basal rate/hr ‹ 0.25 u

## The takeaway: **check blood sugar two hours after eating**

1. Determine when the patient's blood sugar is normal (4-7 mmol/L) before the meal in question.
2. Make sure to count the carbs you've consumed accurately (use a meal that permits easy carb counting).
3. Don't exercise or eat for two hours after the meal.
4. Check your blood sugar two hours after eating.
5. Repeat this test at least three times.
6. Your blood sugar two hours after eating should rise, but not by more than 50%

   Example: if your blood sugar before eating is 6 mmol/L, it should not be above 9 mmol/L (6 + 3 [= half of 6 mmol/L]) afterward.

## Here are three examples of carb ratio adjustments:

1

| Breakfast (7:00 a.m.) | 9:00 a.m. | |
|---|---|---|
| 6 | 12 | **Answer**: Blood sugar is higher 2 hours after eating, but not by more than 50%. The bolus contains the right carbs. |
| 5 | 11 | |
| 4 | 9 | |

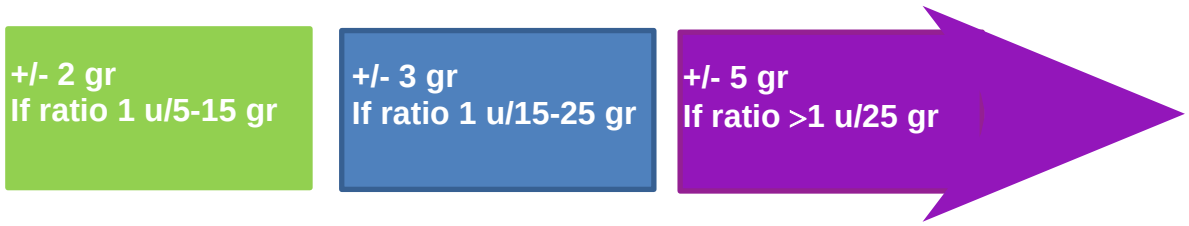
2

| Breakfast (7:00 a.m.) | 9:00 a.m. | |
|---|---|---|
| 6 | 12 | **Answer**: Blood sugar is more than 50% higher 2 hours after eating. The insulin dose must be increased, by reducing the carb ratio. |
| 5 | 11 | |
| 4 | 9 | |

3

| Breakfast (7:00 a.m.) | 9:00 a.m. | |
|---|---|---|
| 6 | 12 | **Answer**: Blood sugar is lower than it was before the meal (or is low after eating). The insulin dose must be decreased, by increasing the carb ratio. |
| 5 | 11 | |
| 4 | 9 | |

## Suggested Ratio Adjustment Scale



# INSULIN PUMP PROGRAM: Setting the Correction Bolus



The Key:
**"Blood sugar should become normal  4 hours of taking the correction bolus."**

1. Make sure the bolus dose matches carbs consumed.
2. Make sure no correction was made in the prior four hours.
3. Make sure you didn't exercise or consume carbs during the interval concerned.
4. Determine the times at which your blood sugar was relatively high (10-15 mmol/L), but not excessive).
5. Make the suggested correction.
6. Check blood sugar 4 hours later.
7. Blood sugar after 4 hours later should be normal (4-7 mmol/L).

## Here are three examples of how to set the correction bolus by adjusting the sensitivity factor:

Example 1

| Breakfast (8.00) | Lunch (noon) |
|---|---|
| 12 | 5 |
| 12 | 6 |
| 14 | 7 |

***Answer**: Blood sugar 4 hours later is normal. The correction (sensitivity) factor is right*

Example 2

| Breakfast (8:00) | Lunch (noon) |
|---|---|
| 11 | 8 |
| 13 | 8 |
| 14 | 9 |

***Answer**: Blood sugar 4 hours later remains high. The insulin dose must be increased by lowering the sensitivity factor*

Example 3

| Breakfast (8:00) | Lunch (noon) |
|---|---|
| 11 | 3 |
| 13 | 3 |
| 14 | 4 |

***Answer**: Blood sugar 4 hours later is too low (low, following high, blood sugar), so you must reduce the insulin dose by increasing the sensitivity factor.*

## Suggested sensitivity progression scale

**+/- 0.5 mmol/L if sensitivity < 1 u /3 mmol**

**+/- 1 mmol/L If between 1 u /3-5 mmol**

**+/- 2 mmol/L If between 1 u/5-15 mmol**

# Technical Guides

This section includes a comparative chart of insulin pumps, the glossary and the file to be uploaded.

| Manufacturer | Medtronic™ | Insulet™ |
|---|---|---|
| Model | 630G™ | OmniPod™ |
| |  |  |
| Weight | 95 gr | 2-part unit<br>Pod™: 25 gr<br>GPD™: 125 gr |
| Size | 5.33 x 9.6 x 2.44 cm | Pod™: 3.9 x 5.2 x1.45 cm<br>GPD™: 6.21 x 11.25 x 2.5 cm |
| Reservoir | 176 units/300 units | 200 units |
| Water resistance | Yes | yes |
| Blood sugar reading link | Contour Link 2.4™ | Freestyle™ |
| Tubing | Yes | No |
| Catheter insertion | Manual or automatic | Automatic |
| Min/max basal rate | 0.025-35 u/hr<br>Δ 0.025 q 30 min | 0.05-30 u/hr<br>Δ0.05 q30min |
| Bolus | 0.025-75 units<br>Δ 0.025.0.05.0.1.0.2 | 0.05-30 units<br>Δ 0.05.0.1.0.5.1.0 |
| Alarm | Blood sugar check reminder<br>Forgotten bolus reminder<br>Blocked<br>Catheter replacement<br>Low reservoir | Blood sugar check reminder<br>Forgotten bolus reminder<br>Blocked<br>Pod™ expiration |
| Continuous blood sugar monitoring (CGMS) $ | Enlite™<br>Possibility: temporary stop if hypoglycemia | No |
| Communication software | Carelink™ | Diasend™ |
| Additional materials | CGMS starter kit<br>2 glucometers | No |
| Additional pump features | Linking up to 6 glucometers<br>ESC button | Remote control (GPD™)<br>Required Pod™ change |
| Representative | Jean Beaulieu | Gaby Boucher |
| Representative's phone # | 514-207-1973 | 514-973-0989 |

| Program Function | Medtronic™ | Omnipod™ |
|---|---|---|
| Alert | Alerts | Alarm history |
| Stop pump | Temporary stop | Suspend |
| Special bolus | Extended combined bolus | Extended |
| Bolus with blood sugar reading | Use bolus assistant | Bolus |
| Combined bolus | Extended combined bolus | Extended |
| Carb bolus | Use bolus assistant | Bolus |
| Regular bolus | Adjust bolus | Bolus |
| Plain bolus without calculator | Manual bolus | Bolus |
| Calculates total day's insulin dose | Daily total | Insulin delivery |
| Basal rate | Basal | Basal programs |
| Temporary rate | Temporary basal | Temp basal |
| Calculate maximum basal dose | Maximum basal rate | Max basal |
| Calculate maximum bolus dose | Maximum bolus | Max bolus |
| Diagnose problem | Self-test | Diagnostics |
| Purge air | Purge | Activate a pod |
| Insulin remaining | Active insulin | Insulin action |
| Increase interval | Incrementation | Bolus increment |
| Automatic stop mode if no user interaction for 12 hours | Auto stop | Auto-off |
| Insulin pump configuration | Bolus assistant configuration | System setup |
| Targeted blood sugar range—<br>Blood sugar targets | Blood sugar target | BG goal |
| Program dial for alert | Time reminder | Custom reminders |
| Program sensitivity factor | Sensitivity | Correction factor |
| Program insulin/carbohydrate ratio | I:G ratio | IC ratio |
| Post-bolus blood sugar check reminders | Blood sugar check reminder | BG reminder |
| Report an insulin omission | Forgotten bolus reminder | Bolus reminders |
| Reduce insulin if below target | Automatic | Reverse correction |
| Lock access to pump functions | Keypad lock | PDM lock |

# INSULIN PUMP PROGRAM: UPLOADING PUMP SETTINGS



**PURPOSE**

Review pump data to adjust treatment.

**HOW**

1. Create an account on the manufacturer's site:

| | OMNIPOD™ | MEDTRONIC™ |
|---|---|---|
| Web site | DIASEND<br>www.diasend.com/ca/ | CARELINK<br>carelink.minimed.com/patient/entry.jsp?bhcp=1 |
| Hospital code | Provided during training, according to pump model | No code needed |

2. To let diabetes team review your data:
   1. Enter hospital code for Diasend.
   2. Give team your Carelink user ID and password.
3. Upload your pump data according to the manufacturer's instructions.
4. Email or call the diabetes team, if necessary, to get our opinion of your latest upload. Make sure to provide the following information:
   a. Name of child and hospital record number.
   b. Contact information for person to be reached.
   c. Insulin pump manufacturer.
   d. Issues of concern.

**WHEN**

1. Before the next doctor's appointment.
2. (24-48 hours ahead—so you don't upload on the morning of the appointment).
3. At least once a month.
4. If you have recurring problems with low or high blood sugar.

**PLEASE NOTE:**

1. The Web site only saves the pump configuration on the date of your last upload. Any new settings you make after your upload will not be stored on our server. Write the latest settings down on a card in case the pump memory is not available.
2. **Update** your computer's operating system and applications regularly, to facilitate pump data uploads.
3. A high-speed connection is often needed to upload your information.
4. You cannot upload pump information by smart phone or tablet.
5. Check the manufacturer's tech support if you have any trouble uploading.

# APPENDIX: A

CHU Sainte-Justine
Le centre hospitalier universitaire mère-enfant
Université de Montréal

**PUMP PROGRAM/ LETTER OF UNDERTAKING**

**Class attendance**

The patient and his/her parents agree to attend the insulin pump class. You must arrive at the diabetes clinic 15 minutes before class time. **If you arrive after 8:30 a.m., you'll have to retake the class, when it becomes available.**
Both parents must attend each session.
Patients aged 10 and above must attend all sessions.

**During the first two weeks with the pump, the family agrees that the patient will:**

Have a fixed diet.
Not have snacks containing carbohydrates.
Not engage in moderate to intense exercise.
Check blood sugar 8 to 10 times a day, including midnight and 4:00 a.m.

**For school and daycare, parents are responsible for:**

Organizing training for the staff if the child attends a daycare centre or an elementary school.

**Keys to proper pump use**
The patient learns to use the pump and is motivated to improve his/her knowledge.
Parents are actively involved in ensuring proper pump use.
A minimum 4 blood sugar readings are taken each day, following the completion of training.
Good dietary control by counting carbs.
Quick and self-reliant response to low and high blood sugar readings.
Regular follow-ups at the diabetes clinic.

**Please note**

**The insulin pump's main function is to ensure proper blood sugar. Two consecutive readings of glycated haemoglobin over 9.5% will result in termination of pump use.**

_____ _____
PARENT'S NAME (block letters) PARENT'S SIGNATURE

_____ _____
CHILD'S NAME (block letters) CHILD'S SIGNATURE (if 10 or over)

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Le centre hospitalier universitaire mère-enfant
Université de Montréal

**DIABETES CLINIC /PUMP INFORMATION FOR SCHOOLS AND DAYCARE**

## INSULIN PUMP INFORMATION

[Date]

To whom it may concern:

Please be advised that this child has type 1 diabetes and will soon be using an insulin pump.

The child's blood sugar must be checked before eating, snacks and physical activities and if the child feels ill or behaves in an unusual manner. The pump provides a continuous small stream of insulin, but larger quantities (bolus) must be added at meals and possibly other times (snacks, high blood sugar readings, etc.).

Please return this letter before registering your child for the program so we know a meeting will be held between the parents and staff concerned (teacher, child care, school nurse, principal, etc.) to discuss the establishment's role (checking blood sugar, providing a bolus at snack or mealtime).

The parents will give you with additional information on using the pump following its installation.

Thank you for your valued cooperation. You can count on our support.
Please contact us should any problems arise or for any other reason.

Last and first names: _____

File #: _____

Last and first names (block letters)

Position (at institution)

Signature

Date

Last and first names of school nurse

School nurse's signature

Date

Diabetes clinic
CHU Sainte-Justine
(514) 345-4980

# ANNEXE : B

Section Diabète
CHU Sainte-Justine
Le centre hospitalier universitaire mère-enfant
Université de Montréal

# INSULIN PUMP: LOW BLOOD SUGAR (< 4)
## TIPS FOR DAYCARE AND SCHOOL

Also on our site (French) at:
www.jeunediabete.com/intervenants-scolaires/Hypoglycemie/

**REASONS**

- Delayed/missed meal or snack
- Physical exercise without additional snack
- Too much insulin
- Vomiting

**SYMPTOMS:**

- Perspiration and clammy skin
  Paleness
- Shivering, weakness
- Poor coordination
- Change in behaviour
- Irritability
- Excessive or sudden hunger
- Headache
- Blurred vision
- Nausea, abdominal pain
- Dizziness
- Fainting, loss of consciousness
- _____
  _____
  _____

**TREATMENT**

**If child is conscious**

1. Give fast-acting sugar:

   □ _____ ml or _____ ounces of fruit juice

   □ _____ 4 Dex tablets or

   □ _____ tube of Dex 4 or Insta-Glucose or

   □ Other: _____

2. **Calmly** wait 15 minutes and take blood sugar again: repeat treatment (steps 1 and 2) until blood sugar ≥ 4.0.
3. Can subsequently resume usual activities.

* Contact parents if 3 or more treatments are needed.

**If child is unconscious**

1. Have child sleep on her/his side (to prevent suffocation).
2. Inject glucagon AND/OR call 911.
3. Stop pump.
4. Check blood sugar.
5. Call parents.

**Additional Suggestions:**

- ✓ If you think or are certain the child has low blood sugar, do not let the child go off on her or his own AND make sure someone is watching the child until correct blood sugar (≥ 4) is restored.
- ✓ Test first to confirm low blood sugar.
- ✓ Always give sugar even if you are not certain (you can't test) of low blood sugar.

First and last names _____ Title _____ Date _____

Section Diabète
CHU Sainte-Justine
Le centre hospitalier universitaire mère-enfant
Université de Montréal

# INSULIN PUMP: HIGH BLOOD SUGAR (≥ 15)
## TIPS FOR SCHOOL AND DAYCARE

Also available from our site (French) at:
www.jeunediabete.com/intervenants-scolaires/hyperglycemie/

**REASONS:**

- Meal/snack without insulin
- Carb/insulin imbalance
- Missed insulin
- Sickness, fever, stress
- Less active than usual
- Alert/technical issue with pump

**SYMPTOMS**

- Dry mouth
- Excessive thirst
- Frequent urination
- Visual problems
- Fatigue
- _____

_____

_____

**TREATMENT**

1. Check blood or urine ketone levels (if equipment available)

| | |
|---|---|
| If ketone level < 0.6 | Repeat blood sugar checks every four hours and test for ketones if necessary. |
| If ketone level = 0.6-1.4 | Call parents and follow their advice. |
| If ketone level ≥ 1.5 | Parents must come and get their child. |

2. **If you can't check ketone levels**, notify parents promptly if blood sugar is ≥ 15.0 **AND** the child is vomiting or has abdominal pain.

3. Let child drink water and use restroom.

_____ _____ _____

First and last name Title Date

# APPENDIX: C

# Medtronic™ PUMP

## MEDTRONIC™

| | | |
|---|---|---|
|  | Silhouette 17 mm<br>Silhouette 13 mm | **0.7 units** |
|  | Mio 30 13 mm | **0.7 units** |
|  | Mio 9 mm<br>Mio 6 mm | **0.5 units**<br>**0.3 units** |
|  | Sure-T | **0 unit** |
|  | Quick set 9 mm<br>Quick set 6 mm | **0.5 units**<br>**0.3 units** |

# MiniMed™ Supplies and Enlite™ Glucose Sensor Price List

| Model Number | Product Description | DIN | List Price |
|---|---|---|---|
| | **RESERVOIRS** | | |
| MMT-326A | MiniMed™ Reservoirs for Pump model 5XX (excluding 50X models) 10/Box | 97799707 | $43.50 |
| MMT-332A | MiniMed™ Reservoir for Pump model 7xx 3.0 ML 10/Box | 97799706 | $43.50 |
| | **INFUSION SETS**<br>Silhouette™ Infusion Sets | | |
| MMT-368600 | MiniMed™ Silhouette™ 13MM x 18" 10/Box | 97799485 | $205.00 |
| MMT-381600 | MiniMed™ Silhouette™ 13MM x 23" 10/Box | 97799716 | $205.00 |
| MMT-383600 | MiniMed™ Silhouette™ 13MM x 32" 10/Box | 97799484 | $205.00 |
| MMT-382600 | MiniMed™ Silhouette™ 13MM x 43" 10/Box | 97799715 | $205.00 |
| MMT-378600 | MiniMed™ Silhouette™ 17MM x 23" 10/Box | 97799718 | $205.00 |
| MMT-384600 | MiniMed™ Silhouette™ 17MM x 32" 10/Box | 97799483 | $205.00 |
| MMT-377600 | MiniMed™ Silhouette™ 17MM x 43" 10/Box | 97799719 | $205.00 |
| MMT-369600 | MiniMed™ Silhouette™ CANNULA ONLY 13MM (10 Cannulas/Box) | 97799529 | $168.00 |
| MMT-370600 | MiniMed™ Silhouette™ CANNULA ONLY 17MM (10 Cannulas/Box) | 97799528 | $168.00 |
| | **Quick-set™ Infusion Sets** | | |
| MMT-394600 | MiniMed™ Quick-set™ 6MM x 18" 10/Box | 97799486 | $205.00 |
| MMT-399600 | MiniMed™ Quick-set™ 6MM x 23" 10/Box | 97799744 | $205.00 |
| MMT-387600 | MiniMed™ Quick-set™ 6MM x 32" 10/Box | 97799487 | $205.00 |
| MMT-398600 | MiniMed™ Quick-set™ 6MM x 43" 10/Box | 97799743 | $205.00 |
| MMT-397600 | MiniMed™ Quick-set™ 9MM x 23" 10/Box | 97799742 | $205.00 |
| MMT-386600 | MiniMed™ Quick-set™ 9MM x 32" 10/Box | 97799488 | $205.00 |
| MMT-396600 | MiniMed™ Quick-set™ 9MM x 43" 10/Box | 97799741 | $205.00 |
| | **Sure-T™ Infusion Sets** | | |
| MMT-862 | MiniMed™ Sure-T™ 6MM x 18" 10/Box | 97799521 | $168.00 |
| MMT-864 | MiniMed™ Sure-T™ 6MM x 23" 10/Box | 97799520 | $168.00 |
| MMT-874 | MiniMed™ Sure-T™ 8MM x 23" 10/Box | 97799519 | $168.00 |
| | **Mio™ Infusion Sets** | | |
| MMT-921600 | MiniMed™ mio™ 6MM x 18" Pink 10/Box | 97799492 | $215.00 |
| MMT-941600 | MiniMed™ mio™ 6MM x 18" Blue 10/Box | 97799491 | $215.00 |
| MMT-923600 | MiniMed™ mio™ 6MM x 23" Pink 10/Box | 97799437 | $215.00 |
| MMT-943600 | MiniMed™ mio™ 6MM x 23" Blue 10/Box | 97799438 | $215.00 |
| MMT-965600 | MiniMed™ mio™ 6MM x 32" Clear 10/Box | 97799490 | $215.00 |
| MMT-975600 | MiniMed™ mio™ 9MM x 32" Clear 10/Box | 97799489 | $215.00 |
| | **Mio30™ Infusion Sets** | | |
| MMT-905600 | MiniMed™ Mio30™ 13MM x 23" Gray 10/Box | 97799252 | $215.00 |
| MMT-906600 | MiniMed™ Mio30™ 13MM x 43" Gray 10/Box | 97799251 | $215.00 |
| | **Continuous Glucose Monitoring (CGM) Enlite™ Sensor*** | | |
| MMT-7008A | Enlite™ Glucose Sensor 5/Pack | 97799397 | $325.00 |
| MMT-7008B | Enlite™ Glucose Sensor 1/Pack | 97799308 | $69.95 |
| | **Serters** | | |
| MMT-305QS600 | MiniMed™ Quick-serter™ | 97799173 | $36.75 |
| MMT-385 | MiniMed™ Sil-serter™ | N/A | $36.75 |
| MMT-7510 | Enlite™ Serter (Available for purchase from Medtronic of Canada only) | 97799396 | $69.95 |
| | **(Available for purchase from Medtronic of Canada only)** | | |
| 1624W | 3M Tegaderm Transparent Dressing Latex Free 100/Box | N/A | $50.00 |
| 403120 | Remove™ Universal Adhesive Remover Wipes 50/Box | N/A | $25.00 |
| MMT-117 | Shower Pack™ 30/Box | N/A | $19.50 |
| MMT-134A | Polyskin® Tape Dressing 100/Box | N/A | $80.00 |
| MMT-172 | Acutek Non Sterile Soft-set Adhesive Patch 50/Box | N/A | $27.50 |
| MMT-174 | IV3000™ I-Hand with Strips & Label 100/Box | N/A | $50.00 |
| HMS-180 | Skin Tac™ Wipe 50/Box | N/A | $22.00 |
| HMS-59420425 | Skin Prep™ Wipes 50/Box | N/A | $18.99 |
| HMS-66800786 | Infusion Set IV3000™ Infusion Set Adhesive Tape 30/Box | N/A | $22.00 |
| HMS-6586C | Microlet™ Lancet 100/Box† | N/A | $8.89 |
| HMS-7091C | CONTOUR™ Test Strips† (for use with Contour Link meter) 100/Box | N/A | $84.99 |
| 7322 | CONTOUR® NEXT Test Strips† (for use with Contour NEXT Link meter) 100/Box | N/A | $84.99 |
| ACC-151 | Energizer® Max® AAA Batteries | N/A | $6.25 |

**For significant savings, convenience and peace of mind sign up for the Medtronic Reccurring Supply Agreement at www.medtronicdiabetes.ca/ASA**
**Remember that you can optimize the effectiveness and safety of your pump[1] by changing your infusion set and reservoir every 2 – 3 days and rotating your site.**

1. Centers for Disease Control (CDC). Toxic-shock syndrome in a patient using a continuous subcutaneous insulin infusion pump—Idaho. MMWR Morb Mortal Wkly Rep. 1983;32(31):404-406, 412.
Terms and conditions. Prices in Canadian dollars. Prices and product subject to change. *CGM requires use of MiniLink™ Transmitter and glucose sensors, (sold separately).
† Before purchasing these items pdirectly from Medtronic of Canada, please check with your private health insurer to see if your plan will allow you to purchase these items without using your drug plan prescription card.

MMT-305QS600

Medtronic

# MiniMed™ 630G
## with SmartGuard™ Technology
## System User Guide


www.medtronicdiabetes.ca

# Buttons description

## *Simple buttons to use*

The Minimed 630G buttons pump has been designed to ensure simple and effective management of your system

**Up, down, left, right**
- Press this button to scroll up or down in a menu or list
- Press this button to go to the desired location on the screen
- Press this button to change the value in a zone

**Previous**
- Press this button to return to a previous screen
- Press and hold this button to return to the Home screen

**To select**
- Press this button to select or confirm a highlighted value or menu option
- Press this button when the instructions say to select

**Menu**
- Press this button to go to the menu
- Press and hold this button to put the pump in standby mode

**Notification light**
- Blinks when an alert or alarm occurs

# Quick Reference

## Delivering or Supervising a Bolus

## Testing and Eating


### A) Perform a blood sugar test

**With a linked meter:**

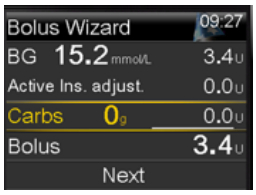
1. Your blood glucose will be displayed on the screen of your insulin pump
2. Select Bolus
3. Select Bolus Wizard

**Without a linked meter:**

1. Select Bolus
2. Select Bolus Wizard
3. Select Blood Glucose
4. Press ^ to enter BG and select

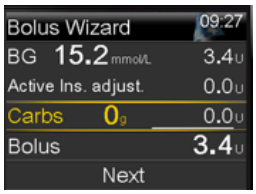
### B) Enter your carbohydrates

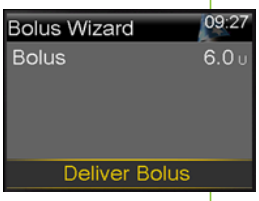
1. Select Carbohydrates (if for a correction only enter 0 g.)
2. Press ^ to the number of carbs you plan to eat and select
3. If the message High Blood Glucose appears, read the text and press v
4. Select OK and take the necessary action




### C) Bolus Administration

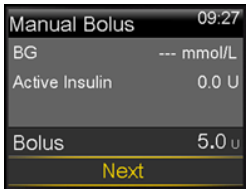
1. Review the dose on the screen of the bolus wizard
2. Click Next
3. Select Deliver Bolus
4. The screen will return to the HOME SCREEN by default

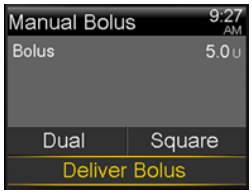



## MANUAL BOLUS ADMINISTRATION

1. Select Bolus
2. Press v to Manual Bolus and select
3. Press ^ to the desired quantity and select
4. Select Next and Deliver Bolus




*The progress screen is displayed until the administration is complete
Note: The amount of active insulin is displayed on the home screen

# Quick Reference

## Stops the delivery

# Stop bolus

Purpose: Stops the delivery of a bolus

**Benefit :**
- Can stop a bolus if insulin is not needed, for example, decided not to eat or bolus was set incorrectly
- Can be done without suspending delivery of basal insulin

**Details :**
- Stop bolus appears on Home screen only while bolus is delivering
- Bolus Stopped screen displays amount of bolus delivered

**While a bolus is delivering:**

1. Select Stop Bolus
2. Press > to Yes and select
3. Review Bolus Stopped screen to see how much bolus was delivered
4. Select Done

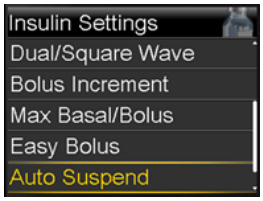

# Auto suspend

**Purpose:**
Stops insulin delivery and begins to alarm (siren) if no buttons are pressed for the period of time set

**Benefit:**
Safety feature especially helpful for those who:
- Manage their own diabetes and live or travel alone
- Have difficulty responding appropriately to lows, have hypoglycemia unawareness or are susceptible to lows due to alcohol intake
- Have a history or fear of lows at night

Details:
- When insulin administration is resumed, only basal insulin will be administered
- When a bolus is being administered during a Auto suspend, the bolus will not restart
- Basal insulin missed during Auto suspend will not be administered

1. Press
2. Press ∨ to Insulin Settings and select
3. Press ∨ to Auto Suspend and select



# MINIMED™ 630G SYSTEM WITH SMARTGUARD™ TECHNOLOGY MENU MAP (WITH SENSOR ON)

## HOME SCREEN


Press

## NAVIGATION

Press from any screen to open the **Menu**.
Press and to scroll through the menu items.
Press on the desired menu items to open.
The scroll bar appears on the menus to indicate when additional text is available.
Press to scroll down to view additional items.
Press to scroll back up.
Press to go to the previous screen.
Hold to return to the **Home** screen.

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## MAIN MENU

- Suspend Delivery
- Audio Options
- History
- Reservoir & Tubing
- Insulin Settings
- Sensor Settings
- Event Markers
- Reminders
- Utilities

## EXPANDED VIEW

**Suspend Delivery**

**Audio Options**
- Audio
- Audio & Vibrate
- Vibrate
- Volume

**History**
- Summary
- Daily History
- Alarm History
- Sensor Glucose Review*
- ISIG History

**Reservoir & Tubing**
- New Reservoir
- Fill Cannula

**Insulin Settings**
- Bolus Wizard Setup
- Basal Pattern Setup
- Preset Temp Setup
- Preset Bolus Setup
- Dual/Square Wave
- Bolus Increment
- Max Basal/Bolus
- Easy Bolus
- Auto Suspend
- Bolus Speed

**Sensor Settings**
- Sensor
- Sensor Connections*
- Alert Silence*
- High Settings*
- Low Settings*
- Calibrate Sensor*
- Auto Calibration*

**Event Markers**
- BG
- Injection
- Food
- Exercise
- Other

**Reminders**
- Personal
- Bolus BG Check
- Missed Meal Bolus
- Low Reservoir
- Set Change
- Calibration*

**Utilities**
- Airplane Mode
- Display Options
- Time/Date
- Remote Bolus
- Block
- Self Test
- Carb Unit
- Manage Settings
- Sensor Demo
- Device Options
- Language

*Only available when Sensor feature is on.

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# Carelink Personal
## for Minimed 630G
# Getting Started

**Product Support**
**1-800-646-4633**

Medtronic

## WHAT YOU'LL NEED

- A stable internet connection
- A computer with a compatible operating system
  - **PC: Windows Vista & up**
  - **Mac: OS X 10.7 – 10.10**

- An upload device - **CONTOUR® NEXT LINK 2.4**
  ***Before the downloading, be sure your meter is linked to your pump***

- Your **PUMP**!

**Did You KNOW?** The Contour Next Link 2.4 is the new version of the Carelink® USB. It uploads ***all the info off your pump.*** If you don't have one yet, please contact Medtronic.


*Carelink® USB users will need to run their web browser as administrator for the first upload to permit driver installation*

## UPLOAD STEPS:

1) Ensure that you are using a **supported Web Browser**

Internet Explorer OR Safari on Mac

Google Chrome Microsoft Edge Firefox
**are not supported and will NOT work**

2) Download the current version of Java from https://java.com

3) Navigate to the Carelink® Personal Website https://carelink.minimed.eu and create an account
(There is also a link accessible from www.medtronicdiabetes.ca )

4) Sign In Or Sign Up Now if you haven't done so already.

Click Upload – Java will run – Proceed to follow the instructions onscreen

***To get more familiar with Medtronic Carelink®, visit the myLearning online product modules and review the Carelink® Course at www.medtronicdiabetes.ca/myLearning***

**If you are experiencing problems or have questions, please call our Product Support department at 1-800-646-4633.**

# Carelink Personal
## for Minimed 630G

## Downloading instructions

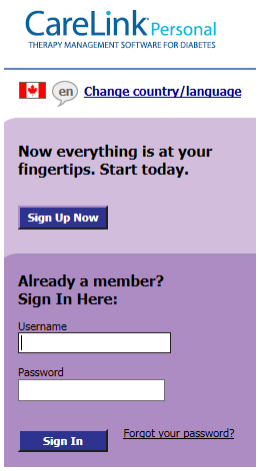
**Product Support**
**1-800-646-4633**

Medtronic

## Create your account

1. Open Internet Explorer or Safari
2. Go to the CareLink™ Personal website: https://carelink.minimed.eu
3. Click on " Sign Up Now "
4. Select a country and a language
5. Accept the Terms of Use and Privacy Statement (Tick the boxes)
6. Complete the registration form
7. Click " Submit "

*Remember to give your user name and password to your health care professional!*




## Downloading your pump

1. Enter your username and password
2. Click on " Upload Data from My Device "
3. Choose your device: MiniMed Insulin Pump
4. Follow the instructions " Check Pump Status... "

5. Enter your pump's 6-character serial number (see details on the website) and click Next
6. Select the Link device ... Choose Contour Next Link 2.4
7. Click Next when you are on the page " Installation Needed... "


8. On the same page, click " Finish " and allow the download
   *(Make sure your pump is near your download key - Contour Next Link 2.4)*

## Recommendations to facilitate the download:

- Always use Internet Explorer or Safari
- Make sure your Java is up to date (Version 6.25 or more)
- Always use your meter **Contour Next Link 2.4**

**DO NOT CONNECT your meter to your computer before using CareLink Personal. You will be prompted to connect your device and download the appropriate driver once you are opening a session.**

*****If you are using a Mac, please contact the technical support.**

**Product Support 1-800-646-4633**

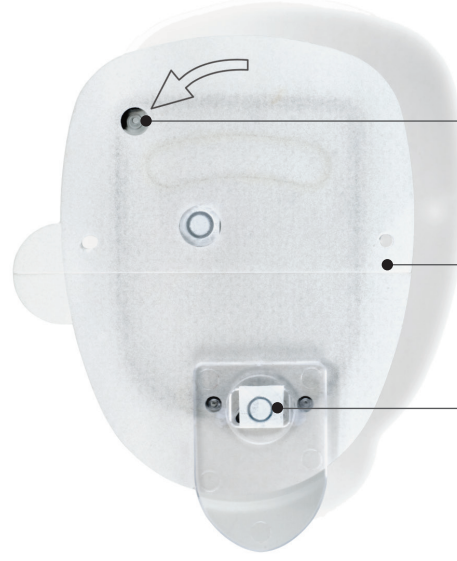
# The **Pod**

A small, lightweight Pod that's easy to apply and wear.

TOP →

Viewing Window

BOTTOM →



Fill port

Adhesive Backing

Needle Cap

# The **PDM**

## A wireless Personal Diabetes Manager (PDM) that's easy to use.


## MAIN MENU ITEMS

**Bolus:** Deliver bolus doses to cover carbohydrates or correct high blood glucose (BG) levels.

**More actions:**

- Change the Pod
- Add BG readings
- Assign/Edit BG tags

**Temp basal:** Adjust insulin delivery for exercise or illness according to the individual's Diabetes Management Plan. *This menu item is present only if the Temp basal option is turned on.*

**My records:** Review insulin delivery, blood glucose history, alarm history, carbohydrate history, and personal user information.

**Settings:**

- Enter, edit and name basal programs
- Program temp basal, carbohydrate and bolus presets
- Customize system settings

**Suspend:** Temporarily suspend insulin delivery.

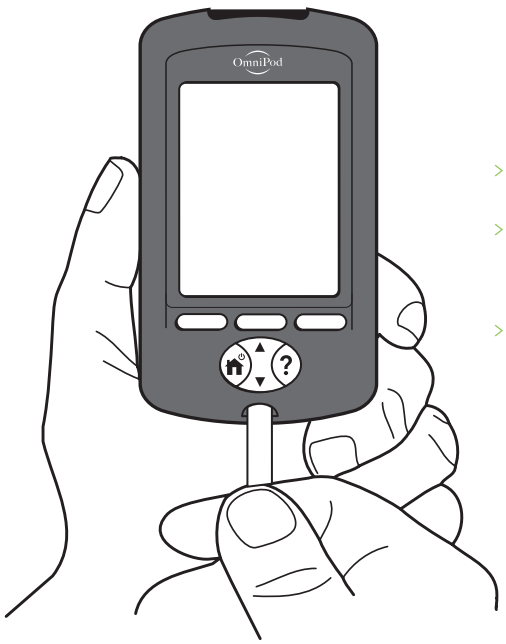
# How to **check blood glucose** and **deliver a bolus**.

A bolus is an extra dose of insulin that helps manage the rapid natural rise in blood glucose (also known as blood sugar) that results when you eat carbohydrates. Follow the steps below to check the individual's blood glucose level, determine the appropriate bolus and deliver the bolus. These steps assume that the suggested bolus calculator has been turned on as part of the individual's Diabetes Management Plan.

Because an individual's food intake may be unpredictable, consult the individual's Diabetes Management Plan or healthcare provider to determine the appropriate timing of insulin delivery.

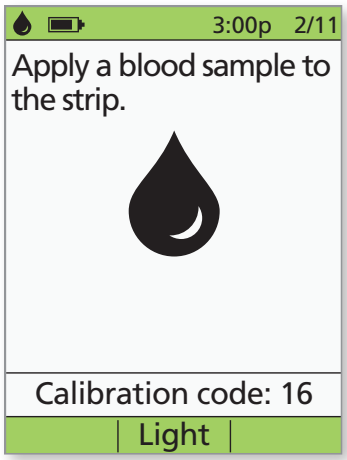
Check the individual's blood glucose frequently. Notify their healthcare provider if the blood glucose test results are outside the goals that the healthcare provider has set or if you observe symptoms that are not consistent with their blood glucose test results.

1.



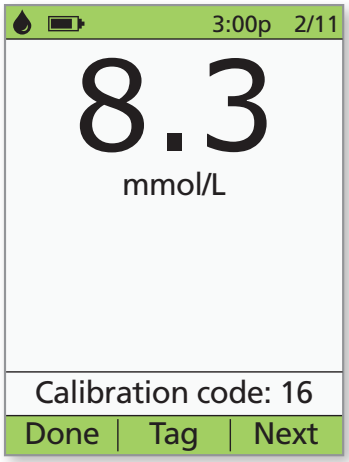

- Insert FreeStyle® test strip into strip port.
- Check that the code on the vial of test strips matches the code on the PDM screen.
- If the codes do not match, use the **Up/down controller** button to match the code on the PDM to the code on the vial.

2.



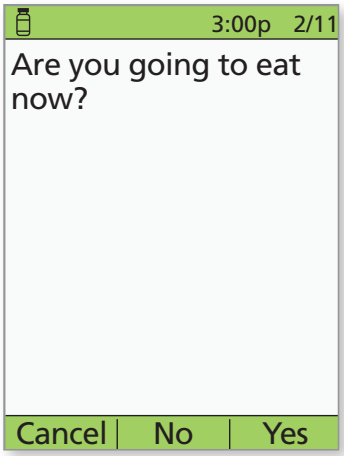

- Wash the finger with soap and water or an alcohol wipe and dry it completely.
- Prick finger with the lancing device.
- Press **Light** to illuminate the test strip in low-light situations.
- Apply blood sample to test strip.

3.




- When blood glucose reading appears, press **Next** to continue.

4.

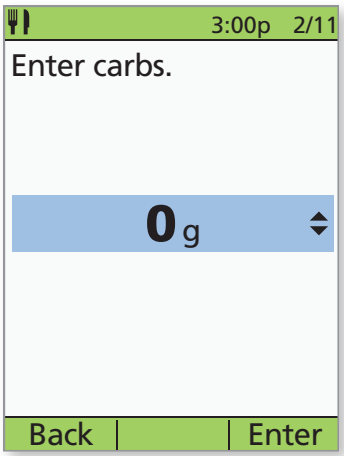



- If eating now, press **Yes**.

  OR

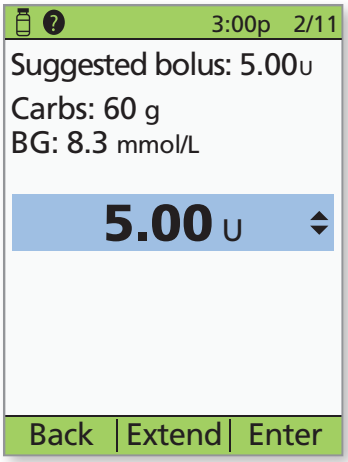
- If not eating, press **No**.

5.



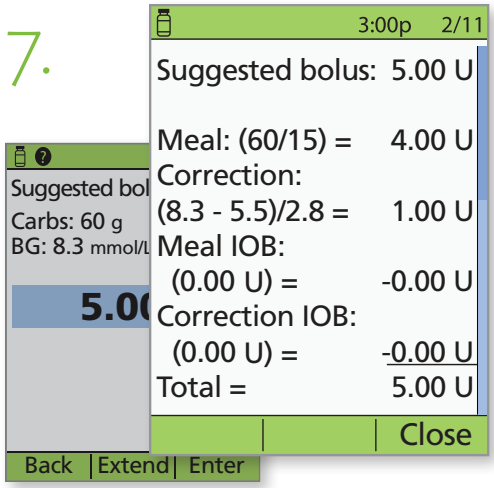

› If eating, press the **Up/down controller** button to enter the correct number of carbs, then press **Enter**.

6.



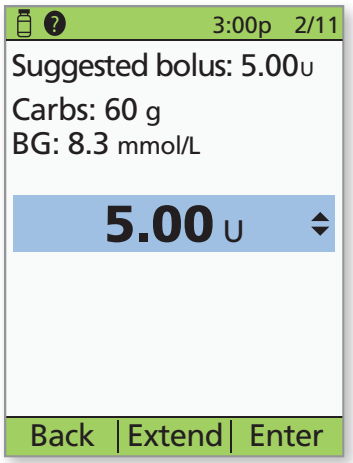

› Review the BG and carb values to make sure they are correct.

7.




› Press the **User info/support** button to view how the suggested bolus is calculated. Then press **Close**.

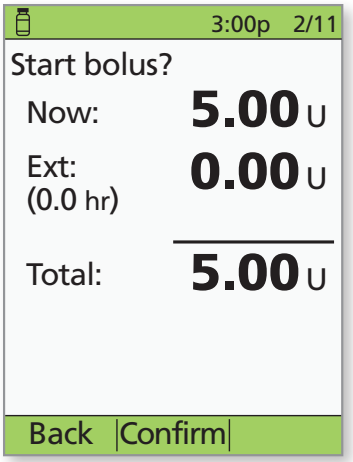
8.




- Press **Enter** to accept the suggested bolus.

  OR
- Press **Extend** and follow on-screen instructions to deliver a portion/percentage of the bolus immediately and the rest over a set period of time. *Only use the **Extend** option when required by the individual's Diabetes Management Plan.*
- If extended boluses are not part of the individual's Diabetes Management Plan, the **Extend** option will not appear on the screen.

9.




- Press **Confirm** to start the bolus.

10.


- The PDM screen will indicate when bolus delivery has begun. If necessary, you may press **Cancel** to stop a bolus while it is being delivered.
- The individual does not need to remain near the PDM during delivery. Delivery time varies based on the size of the bolus dose.
- Once bolus delivery begins, you may press and hold the **Home/power** button to turn off the PDM screen, or wait for it to automatically turn off.

# How to **suspend insulin delivery**.

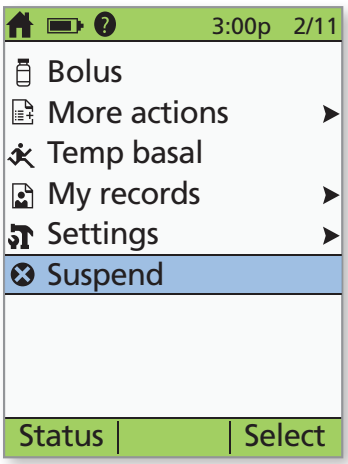
If the individual has severe low blood sugar you may need to suspend insulin delivery.

Never ignore the signs of low blood sugar (no matter how mild). Any time the individual's blood glucose is low, treat immediately. Check it every 15 minutes while you are treating, to make sure you don't cause blood glucose levels to rise too high. If left untreated, severe hypoglycemia can cause seizures or lead to unconsciousness.

**Symptoms of hypoglycemia.** Never ignore these symptoms:

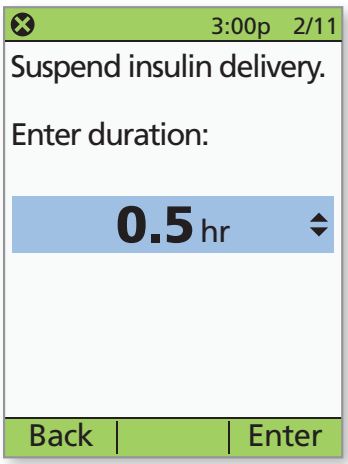
- Shakiness
- Fatigue
- Unexplained sweating
- Cold, clammy skin
- Weakness
- Blurred vision or a headache
- Sudden hunger
- Rapid heart rate
- Confusion
- Tingling in the lips or tongue
- Anxiety

1.



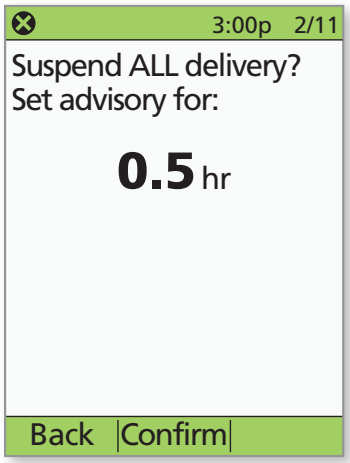

- Turn on the PDM.
- Press the **Home/power** button, then select **Suspend**.

2.



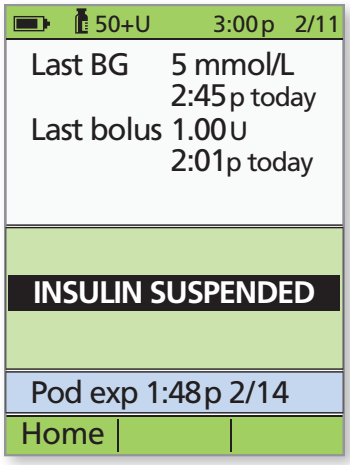

- Enter the length of time the suspension should last (minimum 0.5 hour, maximum 2.0 hours), then press **Enter**.

3.



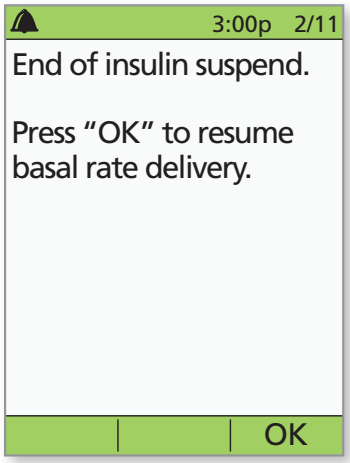

› Press **Confirm**.

4.




› The Status screen indicates that insulin delivery has been suspended.

5.




› The Pod will beep every 15 minutes until the end of the suspension period. At the end of the suspension period, a Pod advisory alarm will occur. At this time, turn the PDM on and press **OK** to resume the active basal program. Insulin delivery will not resume until you press OK.

**CAUTION:** The Pod remains suspended and the Status screen shows INSULIN SUSPENDED until you press OK to resume insulin delivery. If blood glucose is below 3.9 mmol/L, provide the individual with 15 grams of fast-acting carbohydrates, such as glucose tablets, juice, or hard candy.