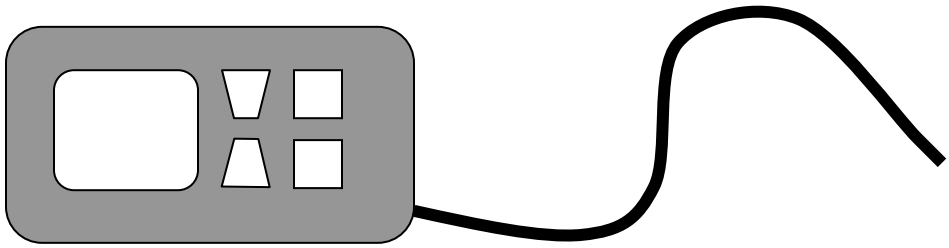
L'Hôpital de Montréal pour enfants
The Montreal Children's Hospital
Centre universitaire de santé McGill
McGill University Health Centre

Are you thinking about an insulin pump!

Information Session

Montreal Children's Hospital
Pediatric Insulin Pump Centre



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ARE YOU A GOOD CANDIDATE FOR AN INSULIN PUMP?

Criteria:

- Advanced carb-counting skills.
- Blood glucose testing at least 4 times per day, ***and recorded***.
- Good injection site rotation; no "lumps".
- Ketone testing when indicated.
- Both the parents and child/teen are highly motivated and have reasonable expectations for the pump.
- Good problem-solving skills; good understanding of diabetes and hypo prevention.
- All adults (parents) responsible for the child, plan to attend the teaching sessions.
- The parents and child/teen "accept" the diabetes; no problems following the treatment regimen.
- Good communication with the diabetes team.

Reasons for insulin pump therapy:

- Previous episode(s) of severe and/or frequent hypoglycemia.
- Dawn phenomenon.
- Very small insulin doses (small children).
- Variable appetite; "picky" eaters.
- Desire for better diabetes control.
- Desire for a better quality of life.

Contra-indications for an insulin pump:

- Inadequate blood sugar testing and recording.
- Poor injection site rotation.
- Extreme fear of lows.
- Lack of parental supervision.
- Frequent ketones/DKA.
- Learning problems of child or parent(s).
- Behaviour problems and/or psychological factors in the child/family that might compromise the safety of the child with a pump.
- Eating disorders.

Advantages:

- No more "food plan"; the child/teen eats according to appetite.
- No more daily injections.
- Able to "sleep in".
- More flexibility for adjusting for sports and activity.
- May potentially help reduce episodes of hypoglycemia.
- May potentially help reduce the HbA1c.
- Sick days and travel may be easier to manage

Disadvantages:

- The cost of the pump and supplies.
- Must wear the pump at all times (removal for short periods only).
- There needs to be reliable and trained personnel at daycare and school for supervision and safety.
- The risk for ketones is increased.
- Possible development of site problems, infections, and allergies.
- High-tech device needs frequent monitoring and adjustments for best results.

Reasons some people do not succeed with pump therapy:

- Insufficient blood glucose testing
- Inadequate supervision leading to missed boluses and poor compliance.
- Not communicating when problems arise.
- Infusion site problems (eg. the catheter is not changed often enough).
- Ketones due to failure to recognize a blocked catheter; insulin omission.
- Extreme fear of hypoglycemia.
- **For safety reasons, any of the above problems may be grounds for a medical decision to remove the pump.**

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GETTING READY FOR AN INSULIN PUMP

Responsibilities:

- Discuss the pump with your Endocrinologist; **you must have a medical prescription to buy a pump.**
- If your doctor approves a pump, he/she will provide a written referral to the nutritionionist so you may start carb-counting classes
- Contact the nutritionist; the pump-start can only be scheduled once the nutritionist has approved the carb-counting skills of the parents and child if he/she is an appropriate age.
- If you have private insurance, contact the company to verify the coverage for an insulin pump and supplies; **you are responsible for obtaining and completing any documentation required by the company**.
- Choose the insulin pump you prefer; consult the pump center personnel for advice if necessary. Do not purchase your pump until at least the second session with the nutritionist.
- Prepare the young child; he/she must understand the concept of wearing a medical device, and also for the insertion of a large subcutaneous needle.
- PREPARE THE SCHOOL or DAYCARE → who will be responsible for supervising or administering the insulin and blood sugar tests?
- Decide when would be the best time to begin pump therapy; it should not be a time when other stressors in the home are present. Please note that summer vacation is not the best time to start the pump.

Before starting:

- You and your child/teen have prepared several food records that have been approved by the nutritionist
- You have completed all the necessary documents for your insurance company, and the Quebec Reimbursement Program.
- You have purchased your insulin pump.
- You have read the pump Manual and have practiced using the teaching materials provided with your pump.

Teaching session 1:

- You will learn how to insert a subcutaneous catheter into your child.
- You will learn the basic principles of insulin pump therapy.
- Bring your pump and any supplies provided from the company.
- A prescription will be given to you at this time.

Teaching session 2:

- A representative from your pump company will arrange to meet you for basic pump programming, and a saline start.
- ***The parent or child will be responsible for the catheter insertion, so make sure you've practiced!***
- Your child will continue with the usual insulin regimen by injections.

Teaching session 3:

- You have practiced the basic pump functions and insertion of the catheter.
- You prepare the pump as taught by the company rep, this time with insulin.
- You (or your child if old enough), inserts the catheter.
- Advanced pump functions are taught in this session.

Follow-up:

- You will need to communicate daily with the diabetes team member who will be responsible for the insulin adjustments after the pump start.

Stabilization phase (2 – 3 weeks):

- **3 meals per day only; NO SNACKS.**
- **No sports or other activities that may cause hypoglycemia.**
- **You will be asked to have your child finish all meals within a ½-hour or less.**
- **Prepare yourself for lots of testing, including overnight!**

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Preparing to Start an Insulin Pump: Carbohydrate Counting

To get the most out of your insulin pump, you will need to learn how to count the grams of carbohydrate you/your child eats. This must be done before you can start the pump. Please do not purchase your insulin pump before you have been told that you are ready.
There are normally 2 carbohydrate counting classes that you will attend. If you need extra teaching, please be ready for more individualized help.

1. **Carbohydrate counting class #1**.: Contact the nutritionist to book this. You will need to prepare a detailed, three-day food, insulin, blood glucose and activity record. You must have a written referral from your Endocrinologist to book this class.

   Please use the food record form provided
   Be sure to include*:*
   - ☑ details about the type of food, and the quantity (either in cups/milliliters/grams/ounces) and the carbohydrate that you have calculated for these foods E.g. 250 ml milk = 12 g carbohydrate
   - ☑ All blood glucose tests. You need at least 4 per day: 1 before each meal and another one at bedtime.
   - ☑ All insulin doses
   - ☑ Information on how you treated low blood glucose or tested for ketones if these occur.
   - ☑ Any other comments that might be helpful (activity, illness, etc)

   This food record must be received 1 week before the scheduled class. If it is not received by this date you will be rescheduled

2. **Carbohydrate class #2**
   - You will prepare another 3 day food record **(see the details in #1)** using the information taught in class #1. This must be received by the date scheduled by the nutritionist
3. **Carbohydrate counting quiz.**
4. **Detailed seven-day food record (see the details in #1).** This food record will be used to calculate starting doses for the pump, so the details are very important. Once your food record is complete and the nutritionist has given her approval, you are ready to move ahead.

Carbohydrate counting resources and tools:

Databases:
- Canadian Nutrient File http://www.hc-sc.gc.ca/fn-an/nutrition/fiche-nutri-data/index_e.html
- USDA Database http://www.ars.usda.gov/Services/docs.htm?docid=7783
- Nutrient Value of Some Common Foods http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/nutrition/nvscf-vnqau_e.pdf

Other tools:
- Salter 1406 or Starfrit : contain a database and a booklet of codes (French and English) Fibre must be subtracted
- Salter 1450: Contains a database. Foods are keyed in. The scale subtracts the amount of fibre and calculates the *available* or *net carbs.* (English only). You can add 99 of your favourite foods or recipes
- Measuring cups and spoons

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Guide to Completing a Food Record

Please print or write clearly, and remember to include the following:

- ☑ Time
- ☑ All blood sugar results
- ☑ All insulin doses **and** types of insulin (NR, H, NPH, etc….)
- ☑ All foods and drinks with the ***quantity eaten or drunk*** (even if you are using a digital scale).
- ☑ The amount of carbohydrate that you have calculated
- ☑ Any information that might be helpful such as brand of food, where you found the information (on the label, etc), activity.
- ☑ What you used to treat any lows (i.e. juice, glucose tablets) and the blood sugar result when you re-test.
- ☑ Ketone tests.

☑ A properly completed food record will show your diabetes team how well you are able to calculate carbohydrate, and where you might need some review. Although it is a lot of work, the better the record, the fewer you will need to prepare.

☑ With the right details in your food record, your nutritionist will be able to find the best doses of insulin to help you.

Example

Incorrect food record:

Meal & time	Blood Glucose	Insulin	Food eaten	Portion	Carbohydrate	Comments (activity, illness, etc.)
Breakfast	**19.2**	**10**	**-Cereal -Banana -Toast -Glass of juice**		**90g**	

☑ *Correct food record:*

Meal & time	Blood Glucose	Insulin	Food eaten	Portion	Carbohydrate	Comments (activity, illness, etc.)
Breakfast 7:30	**19.2 ketones negative**	**10 NR**	**-Corn Flakes -milk -large banana, peeled -whole wheat toast + margarine -orange juice**	**-1¼ cup -200 ml -145g -1 -125 ml**	**-25g (26–1fibre) -9g -30g -15g (17g - 2g fibre) -14g Total 93g**	**Runny nose, sore throat**

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Date Date	*Repas & heure* Meal & time	*Glycémie* Glucose	*Insuline* Insulin	*Nourriture* Food	*Quantité* Portion	*Glucides* Carbohydrate	Commentaires (activités, maladie, etc) Comments (activity, illness, etc.)

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Date				Dej Breakfast	2-h		Diner lunch	2-h			Souper Supper	2-h			Coucher Bedtime
l'heure / time	0h000	03h00													
bolus, correction															
Glucides/carbs															
bolus, gluc./food															
basal															
change catheter															
Date				Dej Breakfast	2-h		Diner lunch	2-h			Souper Supper	2-h			Coucher Bedtime
l'heure / time	0h000	03h00													
Glycémie/glucose															
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