



Insulin Pump



An information session to help you decide if you are ready to use an insulin pump.

Welcome

Welcome to the insulin pump information session.

We hope this session helps you to decide whether using an insulin pump will be right for you.

This booklet has all of the information presented in this session and you can use it to follow along. Feel free to write notes or questions in the booklet and refer to it when you go home.

Table of contents

	Page
Insulin pump.....	1
What is an insulin pump?	2
How does a pump work?	7
What is the difference between Multiple Daily Injections (MDI) and pump therapy?	7
What are the benefits of insulin pump therapy?.....	9
What are the drawbacks of insulin pump therapy?	10
Funding for insulin pumps and one year of supplies	11
How much financial help does ADP provide?	11
Where can I buy pump supplies?	12
Insulin pumps and supply costs	13
What do I need to do in order to start receiving ADP funding?.....	15
When will I find out if I have been approved for ADP funding?.....	15
Starting your insulin pump – 90 day trial period.....	16
How is the ADP funding renewed?	16
What is the criteria to have ADP funding renewed?	17
How do I show that I am meeting ADP criteria?	18
I’ve had a pump for 5 years. Am I eligible for a new pump?.....	18
When does my pump warranty expire?	18
Can ADP funding be taken away?	18
Are you ready to pump checklist.....	19

Insulin pump

Before you decide to use an insulin pump, you will need to:

- learn what an insulin pump is and how it works
- learn the benefits and drawbacks of using a pump
- decide if you are able to give the time and commitment needed to use a pump
- learn about Assistive Devices Program (ADP) funding and how to apply for it
- know the next steps in getting a pump

This session will help you learn about these steps.

What is an insulin pump?

An insulin pump is a small computerized device about the size of a cell phone. It provides you with rapid-acting insulin over 24 hours based on your individual needs and carbohydrate intake.

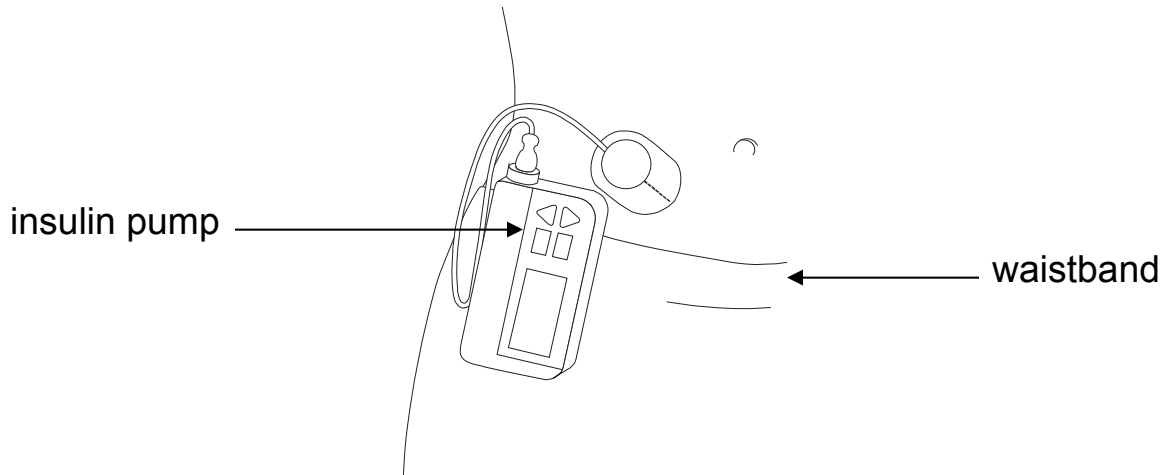
You are still in charge of how much insulin you take and will learn to program the pump with your specific settings.

There are two types of pumps:

1. Pump with tubing
2. Pump without tubing

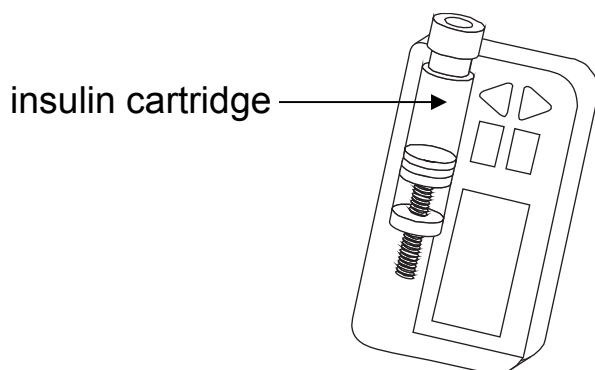
1. Pump with tubing

This type of pump can be attached to a waistband, pocket, bra, sock or underwear.



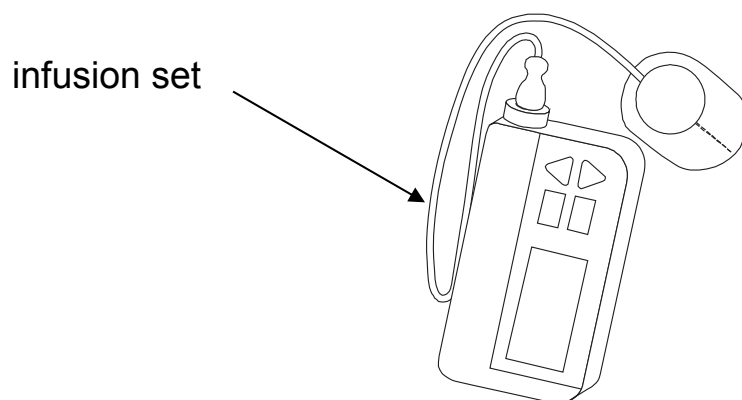
Inside the pump unit is an **insulin reservoir or cartridge**, a tiny battery-operated pump, and a computer chip regulating how much insulin is pumped.

Inside of pump unit

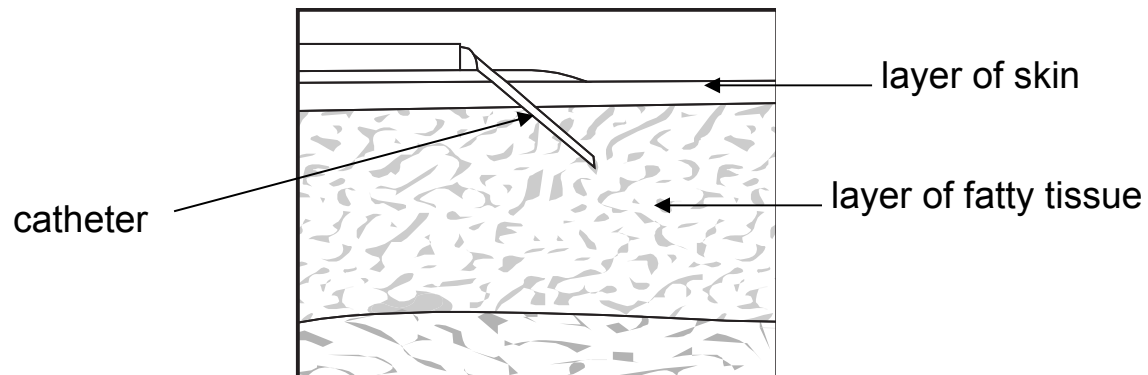


Attached to the insulin cartridge is a thin tube called an **infusion set**.

Outside of pump unit



The infusion set is inserted in the fatty tissue under your skin. There is a needle on the end of the infusion set. Once inserted, the needle is removed leaving a thin plastic catheter that allows insulin to enter your body.



You need to change the infusion set and reservoir every 2 to 3 days. The reservoir holds 180 to 300 units.

You may disconnect the tubing and the pump for short periods leaving the catheter in place.

Note: The Omnipod cannot be disconnected for short periods of time.

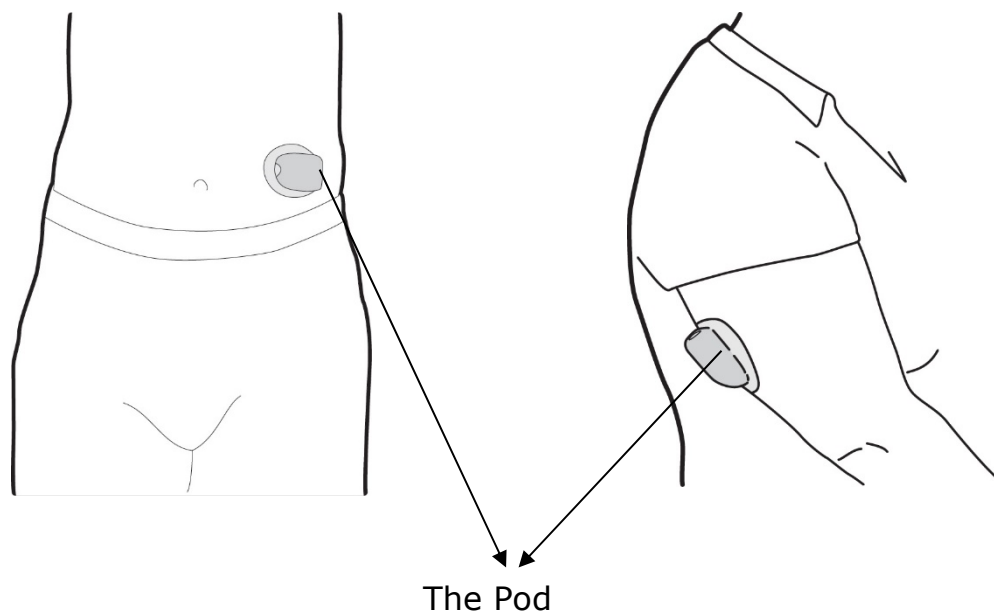
2. Pump without tubing

This type of pump has two parts:

1. The pod
2. The personal diabetes manager.

The pod

The pod is tubeless and can be worn on your stomach, lower back, arm or leg. Your insulin reservoir, a tiny battery-operated pump, and a computer chip regulating how much insulin is pumped is inside the pod. The needle and thin plastic catheter that allows insulin to enter your body is also located inside the pod. The injection is done once the pod is attached to you.



You must change the pod every 48 to 72 hours (or 2 to 3 days).
It holds 200 units of insulin.

The pod cannot be disconnected for short periods.

The Personal Diabetes Manager (PDM)

The PDM is a wireless device that you can hold in your hand. It controls the delivery of insulin.



How does a pump work?

An insulin pump works by giving you a steady amount of insulin throughout the day and night. This type of insulin delivery closely matches how the pancreas works in people without diabetes.

The pump delivers insulin in 2 ways:

1. **Small amounts of insulin on a steady basis.** This is your basal or background insulin. The pump is programmed to deliver insulin every few minutes all day and night. You can program the pump to deliver more than one insulin delivery rate to match your individual needs.
2. **Large amounts of insulin with food.** You need to give a larger or “bolus” dose of insulin before meals. The amount you need depends on how much carbohydrate you eat.

What is the difference between Multiple Daily Injections (MDI) and pump therapy?

You are currently using an MDI insulin system where you give 4 or more injections a day using an insulin pen or syringe.

As you know, an MDI insulin system uses 2 different types of insulin to cover 24 hours:

1. **Basal insulin:** Long-acting or intermediate-acting insulin is used to cover basal needs over night and between meals
2. **Bolus insulin:** Rapid-acting or bolus insulin to cover the carbohydrate in your food.

An insulin pump is different than MDI as it uses only rapid-acting insulin for both your basal and bolus needs. See the chart on page 8 for a summary of the differences between MDI and an insulin pump therapy.

The difference between MDI and insulin pump therapy

Multiple Daily Injections (MDI)	Insulin Pump
<ul style="list-style-type: none"> • Uses 2 different types of insulin to cover a 24 hour period. Long acting or intermediate acting (basal) and rapid acting (bolus). • Basal insulin is injected 1 to 2 times a day. 	<ul style="list-style-type: none"> • Uses only rapid acting insulin to cover basal and bolus needs. • Basal insulin is provided in small frequent amounts. • Allows you to program multiple basal rates over a 24 hour period. • Temporary basal-allows you to adjust the basal rate for exercise and/or sickness. • Extended bolus - allows you to adjust the delivery of bolus insulin for different types of food.
<ul style="list-style-type: none"> • 4 or more injections a day. 	<ul style="list-style-type: none"> • One injection every 2 to 3 days.
<ul style="list-style-type: none"> • Bolus calculations – manually. 	<ul style="list-style-type: none"> • Bolus calculator to help with bolus calculations.

What are the benefits of insulin pump therapy?

The insulin pump has become very popular because it may offer you more flexibility than MDI using insulin pens.

Some of the benefits include:

- **Fewer injections** – You insert one infusion set every 2 to 3 days rather than 4 or more injections a day.
- **Better insulin delivery** – The pump more closely matches the work of a pancreas in a person without diabetes. Insulin is delivered every few minutes. You can also program the insulin pump for more than one basal rate to match your individual needs. Bolus amounts can be calculated and adjusted.
- **Flexibility and Convenience** – People with diabetes can enjoy a more flexible lifestyle using an insulin pump. With a pump, you can make the adjustments for such events as exercise, shift work or staying out late.
- **Fewer severe hypoglycemic reactions.** People who use a pump may have fewer problems with very low blood sugars, if they learn to adjust their insulin doses and use pump safety features correctly!

What are the drawbacks of insulin pump therapy?

The pump is a computerized device and you will need to check your pump several times everyday. You cannot just put it on and forget about it.

Some of the drawbacks include:

- **Possible site infections** – There is a risk that the insertion site might become irritated or infected. The insertion site needs to be changed every 2 or 3 days in order to avoid infection or a blockage to the delivery of insulin.
- **Ketoacidosis** – People using an insulin pump may be at greater risk for developing ketoacidosis because there is only a small amount of insulin in the body at any given time.

If the pump stops working, the insulin is not delivered. As a result, your blood sugars can start to rise quickly. You may not realize the pump is not working until you see a high blood sugar reading. It is very important to test your blood sugars often.

- **Expense** – Although there is a government grant available for pump supplies, the cost of the supplies may be up to \$150.00 each month more than the grant, depending on the system you choose and whether you need to change your site more often than every 3 days.
- **You need to have a back-up plan.** Pumps are mechanical devices that can breakdown. You will need to keep both basal and bolus insulin, and insulin pens or syringes on hand in case your pump does not work.
- **A pump is not a magic bullet.** Despite the benefits of using an insulin pump, your success depends on how well you manage your diabetes. Testing your blood sugar often, and making decisions about how much insulin to take for your food and blood sugar levels are all important to your success in using a pump. At present only one pump has the ability to connect with a continuous glucose monitor system. All pumps link with a blood glucose meter system.

Funding for insulin pumps and one year of supplies

You may be eligible for the Assistive Devices Program (ADP) funding.

The ADP is a government funded program that helps pay for insulin pumps and supplies for adults with type 1 diabetes. ADP funding is only available through designated insulin pump clinics. Visit the ADP website for programs in your area.

<http://www.health.gov.on.ca/english/public/program/adp/adult.html>

How much financial help does ADP provide?

ADP covers:

- the cost of your insulin pump
- \$600 towards pump supplies every 3 months

This includes reservoir/cartridges, infusion sets and tubing.

You must keep all of your receipts for 2 years to prove the money is spent on these items.

ADP does not cover:

- All of the costs of your pump supplies. You will need to cover this cost which can be up to \$150 each month.
- The cost of insulin or test strips.

If you have third party insurance coverage, talk to your representative to find out if they will pay for any costs not covered by ADP.

Where can I buy pump supplies?

You can buy pump supplies:

- directly from the pump company
- some pharmacies
- order online

www.diabetesexpress.ca

www.diabetes-depot.ca

You can save money by buying in bulk orders. Prices can change without notice and may be different at each place of purchase.

You will need to consider the cost of having a back-up plan in case the pump stops working. This includes both basal and bolus insulin, and insulin pens or syringes.

Insulin pumps and supply costs

Pump with tubing

Item	Cost every month	Cost every 3 months	Comments
Required			
Pump			
Covered by ADP			
Tubing/infusion set (\$139 to \$205 for box of 10)	\$182.50 to \$268.71	\$547.50 to \$806.13	Tubing comes as: <ul style="list-style-type: none"> • angled needles, or straight needles, • with or without insertion devices • must be changed every 2 to 3 days
Reservoir and Transfer Device (\$45 to \$60 for box of 10)	\$45 to \$65	\$135 to \$195	Reservoir must be changed at the same time as your infusion set.
Insulin vials (\$40 each)	Amount varies depending on usage	Amount varies depending on usage	Covered by third party insurance. Not an ADP covered item.
Skin prep (\$25 to \$30 for box of 50)	Amount varies depending on usage	Amount varies depending on usage	
Test strips (\$70 to 100 for box of 100)	Amount varies depending on usage	Amount varies depending on usage	Covered by third party insurance. Not an ADP covered item.

Pump with tubing (continued)

Item	Comments
Optional	
Clip Leg strap/bra strap Carry case	These items depend on the type of pump you use. Their costs and availability vary depending on the company and type of pump.

Pump without tubing

Item	Cost every month	Cost every 3 months	Comments
Required			
Pod (\$300 for box of 10)	\$300 to \$450	\$900 to \$1,350	<ul style="list-style-type: none"> • Must be changed every 2 to 3 days • Holds 200 units of insulin
Personal Diabetes Manager (Covered by ADP)			
Insulin vials (\$40 each)	Amount varies depending on usage	Amount varies depending on usage	Covered by third party insurance. Not an ADP covered item.
Skin prep (\$25 to \$30 for box of 50)	Amount varies depending on usage	Amount varies depending on usage	
Test strips (\$70 to 100 for box of 100)	Amount varies depending on usage	Amount varies depending on usage	Covered by third party insurance. Not an ADP covered item.

What do I need to do in order to start receiving ADP funding?

In order to start on an insulin pump and get ADP funding, you must meet all of these criteria:

- Have a valid OHIP card.
- Have Type 1 diabetes and be at least 19 years of age.
- Take both basal and bolus insulin for at least 1 year.
- Have 3 – A1C tests done within 1 year.
- Be able to count carbohydrates and adjust your insulin based on your “insulin to carbohydrate ratio” and “correction factor”.
- Check your blood ketones when your blood sugar is over 14 mmol/L, know what to do if you have ketones.
- Know what to do when you are sick.
- Have attended at least 3 visits with your diabetes team in the past year.
- Bring your log book and blood glucose meter to every visit.

When will I find out if I have been approved for ADP funding?

The timeline for processing ADP's application is 6 to 8 weeks.

If the application is completed correctly, you can expect your first cheque within this timeline. You will not receive a notice that you have been approved before you receive the cheque.

Starting your insulin pump - 90 day trial period

You will have a 90 day trial period once you start using an insulin pump. During this time you will work with your diabetes team to:

- help you learn how to use the pump
- assess and adjust your basal rates
- assess and adjust your bolus calculator settings (carbohydrate to insulin ratio, blood glucose targets and insulin correction factor)
- determine if the pump is working well for you

You will be asked to keep in touch with your diabetes team regularly by phone or email.

This will take a lot of time. In the first 90 days, you will need to test your blood sugar, log your insulin doses and food intake more often than usual.

How is the ADP funding renewed?

Funding is renewed each year.

The ADP office mails a renewal form about 2 months before your renewal is due.

The ADP renewal form must be filled out by your diabetes team and signed by your diabetes doctor.

Book your appointment well in advance of your renewal date to have your ADP renewal form signed.

What is the criteria to have ADP funding renewed?

You must meet **all** of these criteria:

- Test your blood sugar at least 4 times a day.
- Show that you are carbohydrate counting and using an “insulin to carbohydrate ratio”.
- Show that you know how to take extra insulin for high blood sugars by using a “correction factor”.
- Check blood ketones when your blood sugar is over 14 mmol/L and know what to do if you have ketones.
- Have had 2 – A1C tests done 3 months apart during the previous year.
- Have brought your pump data management reports and food records to every visit with your diabetes team.
- Have attended at least 3 regular follow-up visits with your diabetes team during the previous year.
- Have your diabetes doctor sign your ADP renewal form.

You will need to reapply for ADP funding once a year. You must meet all of the above criteria to qualify for renewals.

If you do not meet this criteria, you may have your ADP funding denied.

How do I show that I am meeting ADP criteria?

You will need to:

- Attend regular diabetes appointments – at least 3 each year.
- Bring these to all of your diabetes appointments:
 - pump data management reports
 - your blood glucose meter
 - food records
 - recent blood work including A1C

I have had a pump for 5 years. Am I eligible for a new pump?

No, not necessarily. ADP does not provide automatic replacement when the warranty has expired or after 5 years. A new pump is provided only if the pump is no longer in good working order.

When does my pump warranty expire?

Most pump companies provide at least a 4 year pump warranty that begins on your pump start date. Check your pump warranty with your pump company.

Can ADP funding be taken away?

Yes. If you do not meet the renewal criteria, your funding may be stopped or delayed until the criteria are met.

Are you ready to pump checklist

Use this worksheet to see if you are ready to use an insulin pump. Answering “yes” to all of the statements will help you decide if a pump is right for you.

	Yes	No
I check my blood sugar at least 4 times a day.	<input type="checkbox"/>	<input type="checkbox"/>
I know how to count carbohydrates.	<input type="checkbox"/>	<input type="checkbox"/>
I have the time to learn how to use an insulin pump.	<input type="checkbox"/>	<input type="checkbox"/>
I am able to adjust my bolus insulin doses based on my before meal blood sugar and the carbohydrate content of my meal.	<input type="checkbox"/>	<input type="checkbox"/>
I have the time to work with the health care providers to get my basal and bolus setting right for me.	<input type="checkbox"/>	<input type="checkbox"/>
I have a back-up plan if my pump fails.	<input type="checkbox"/>	<input type="checkbox"/>
I am willing to wear a pump 24 hours a day every day.	<input type="checkbox"/>	<input type="checkbox"/>
I have a plan for how the pump will fit into my activities, swimming, running, hiking, cycling, going out to eat and travelling.	<input type="checkbox"/>	<input type="checkbox"/>
I know the benefits of using a pump.	<input type="checkbox"/>	<input type="checkbox"/>
I know the drawbacks of using a pump.	<input type="checkbox"/>	<input type="checkbox"/>
I have a computer.	<input type="checkbox"/>	<input type="checkbox"/>
I am willing to learn how to use the data management software.	<input type="checkbox"/>	<input type="checkbox"/>
I am able to pay up to \$150.00 each month for supplies not covered by ADP or have third party insurance that will cover the cost.	<input type="checkbox"/>	<input type="checkbox"/>