

## Insulin Pump Therapy

### What is an insulin pump?

An insulin pump is a small battery operated device programmed to deliver rapid acting insulin (Novorapid or Humalog) continuously through an infusion set. The infusion set is inserted under the skin (abdomen/hips) and is changed every 2-3 days. The insulin pump is worn 24 hours a day but can be disconnected for up to 1.5 hour for activities such as water and contact sports. Insulin pumps can be linked to continuous glucose monitoring systems and can be uploaded from home to review your settings with your health care team.

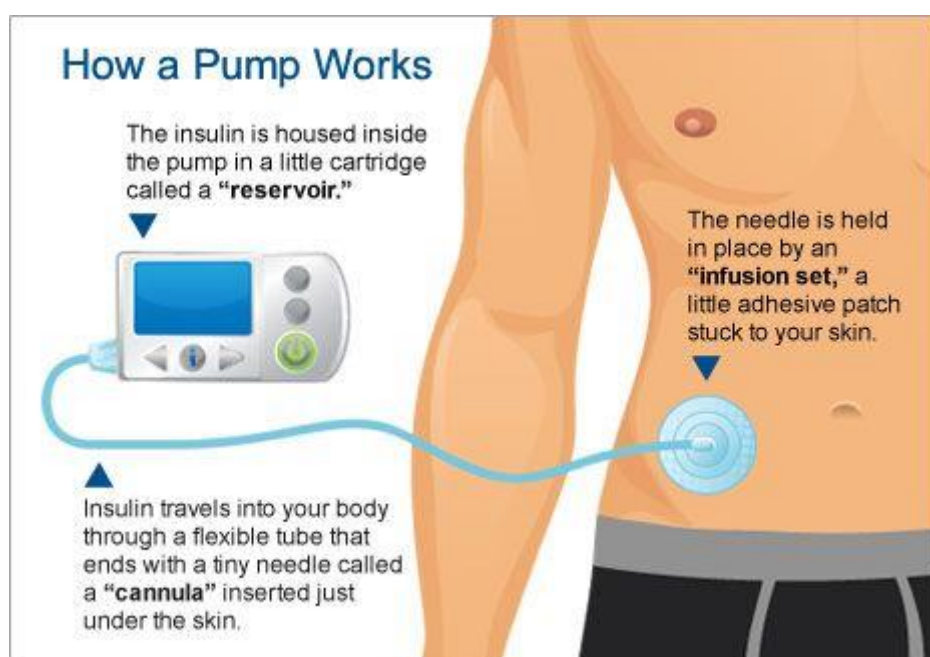


Figure 1

### How is it delivered?

The insulin pump delivers insulin in two ways.

1. **Basal** (background insulin). Continuous insulin delivery that aims to keep the Blood Glucose Levels (BGLs) within the target range when your child is not eating. Programmed rates might vary throughout the day. The basal insulin replaces the need for long-acting insulin like Optisulin or Levemir.
2. **Bolus** is an amount of insulin delivered when your child eats carbohydrates, or to lower high BGL's due to a high blood glucose reading. A bolus dose given for a meal or a snack is called a meal bolus. A bolus dose given to correct a high BGL is called a correction bolus.

## Information for patients, families and carers

### What are the advantages of an insulin pump?

- Improved blood glucose control with fewer fluctuations.
- Easy to correct high blood glucose levels.
- Reduced episodes of hypoglycaemia.
- More flexibility in daily activities.
- More flexibility with meals for example quantity and timing.
- No daily injections.
- Improved quality of life
- It provides an accurate and predictable form of insulin delivery that can be adapted to fit the individual and their changing needs as they grow.

### What are the disadvantages of insulin pump therapy?

- Higher risk of Diabetic Ketoacidosis (DKA) as the insulin pump only delivers fast acting insulin. In a situation where insulin is interrupted, BGL's can rise and ketones can start to develop.
- Skin infections and irritations due to the adhesive tape.
- Constant attachment, 24 hours per day.
- Increased monitoring of glucose levels, 6-8 tests per day or CGM.
- Cost and ongoing consumables
- Steep learning curve with the ability to carbohydrate count and several sessions with the diabetes team for education.

## Information for patients, families and carers

### Frequently Asked Questions

#### What does it cost to buy an insulin Pump?

The cost of an insulin pump can vary between \$8,500 - \$9,500 to purchase outright.

#### Private Health Insurance

For all insulin pumps private health insurance (Hospital cover) will cover the full cost of the insulin pump as long as you have served the 12 month initial waiting period. At Monash Children's Hospital your child is admitted to the Department of Paediatric Diabetes and Endocrinology for the day while you have your pump training and are discharged in the afternoon following education.

**Please Note** \*It is advisable that you check with your health insurer about your level of cover and what rebate is provided. The pump is covered under the prosthesis list of private cover. Please ensure you are up to date with insurance payments and financial on the day of admission.

#### What if I have no private health cover or cannot afford private health cover?

Under 18 with no private health insurance: JDRF Type 1 Diabetes Insulin Pump Grant Program: The program offers a subsidy of up to 100% towards the cost of an insulin pump. The grant is means tested based on gross family income. For more information on the program or to apply for the grant go to <https://www.jdrf.org.au/type-1-diabetes/insulin-pump-program>

Omnipod (without private health insurance) you can purchase a no lock in subscription to Omnipod Australia. It can be purchased providing eligibility to NDSS subsidised Pods as a registered Omnipod user. <https://www.omnipod.com/en-au/subsidy> The Paediatric Endocrinologist needs to approve the insulin pump commencement before proceeding. DPED will provide education once an appointment becomes available.

#### How much does it cost each month to have an insulin pump?

Approximately \$40-50 a month for NDSS subsidized pump consumables (reservoirs and sets, insulin and batteries).

#### Is there a suitable age for an insulin pump?

Having an insulin pump requires commitment by the whole family. Insulin pump therapy can be successful in very young children to adults if the support networks are in place.

#### How do you wear an insulin pump?

It is up to the individual where they wear their insulin pump.

Some examples are:

- On a belt using a clip or case.
- On a waist band using a clip or case.
- In a pocket.
- Some females wear the pump in their bra.
- There are special belts with pump cases that can be used for younger children.
- Numerous websites have different pump accessories for different ages that make wearing a pump more practical.

## Information for patients, families and carers

### Are there safety features with an insulin pump?

Insulin pumps have varied features to ensure safety. There are block out features that are designed so the younger child cannot accidentally give themselves extra insulin or change rates. There is an audio and vibrate alarm on the pumps that lets the wearer know the pump needs attention (e.g. low battery, low reservoir). Safety features will be different depending on the type of pump you purchase.

### If I wanted to commence insulin pump therapy, what would be the next step?

Insulin pump therapy is not for everyone and involves a commitment from the whole team.

- The **first step** is researching whether an insulin pump is suitable for you or your child by carefully reading this information and having an understanding of what insulin pump therapy is and how it can be used to manage my/my child's diabetes.
- **Visit** the insulin pump company websites (below) and have an understanding which insulin pump you wish to proceed with?
- Please visit the Monash Children's website- Department of Paediatric Endocrinology and Diabetes webpage- <https://monashchildrenshospital.org/endocrinology-diabetes/> Here you will find resources and support around insulin pump therapy.
- Please complete the **Insulin Pump Checklist** whilst researching pump therapy.
- Please bring the completed **Insulin Pump Checklist** to your next diabetes clinic appointment for approval and sign off by your endocrinologist. Please note, you cannot proceed with insulin pump therapy if the above steps are not completed.
- Once completed and pump therapy is confirmed and signed off by the Endocrinologist, please hand the completed paperwork to the diabetes educators in clinic.
- You/your child will then be placed on the admission list and a Diabetes Educator will be in contact to arrange an admission in due course.

**The Main Insulin Pumps Used by our Service include:**

- **Tandem T: Slim – Australian Medical and Scientific Ltd (AMSL)**

**Website:** <https://amsldiabetes.com.au/products/tslim-x2-insulin-pump/>

- **Medtronic**

**Website:** <https://www.medtronic-diabetes.com.au/>

- **YpsoPump – Ypsomed Delivery Systems**

**Website:** <https://www.mylife-diabetescare.com/en-AU/>

- **Omnipod**

**Website:** <https://www.omnipod.com/en-au>