# An Introduction to Insulin Pump Therapy

Insulin pump therapy for people with Type 1 Diabetes

**What is an insulin pump?**

An insulin pump is a small electronic device that delivers insulin continuously throughout the day and night via a tiny tube called a cannula, which sits just under the skin. An insulin pump allows you greater flexibility to match your insulin requirements to your lifestyle.

An insulin pump uses fast/rapid acting insulin to deliver a steady basal rate of insulin across a 24 hour period and can be programmed to deliver different amounts of insulin at different times of the day or night. When you eat, you deliver a bolus dose of insulin via the pump to cover the carbohydrate content in each meal or snack.

There are 2 types of insulin pump, a tethered pump and a patch pump.

**A tethered pump (tubed pump)** is attached to your cannula by another small tube and can be carried in your pocket, worn on your belt or under your clothes. The pump itself can vary in size and features.

**A patch pump** is attached directly on to your body (usually legs, arms or stomach) and has no extra tubing therefore is controlled using a remote.

Your diabetes team would be happy to talk to you about what type of insulin pump might work best for you. Information regarding the current pumps offered by NHS Forth Valley can be found on the following websites:

**Omnipod Dash System**

www.omnipod.com/en-gb/home

Patch pump

You can order a free Pod Experience Kit to trial via the website

**Ypsomed**

https://www.mylife-diabetescare.com/en-GB/

Discover the mylife Ypsopump with the 3D simulator app.

*Can link with a Dexcom G6 sensor and CamAPS® FX, the hybrid closed-loop app

**Tandem t:slim X2**

https://www.makingdiabeteseasier.com/uk/

You can download the t:simulator app below.

*Can link with a Dexcom G6 sensor to work as a hybrid closed loop system.

**Criteria for NHS Funding of Continuous Glucose Monitoring (CGM)**

It is our aim to offer closed-loop technology to all people with Type 1 diabetes in Forth Valley over the next 5 years. We have successfully bid for funding from the Scottish Government to start our work towards this. At present, we are aiming to target people who are most in need of technology to help manage their blood sugars.

Current criteria for NHS funding of CGM in adults: (under ongoing review)

- Limited hypoglycaemia awareness
- Time in hypo range ≥10% - identified from Libreview
- pregnancy or pregnancy planning
- Compatible insulin pump to give the option of hybrid closed loop system

As above the pumps available in NHS Forth Valley which have the capability to link with a Dexcom G6 sensor, are the Ypsopump (requires compatible Android phone – see Dexcom website for details) and the Tandem t:slim X2.

**Advantages and Disadvantages of insulin pump therapy**

| Advantages | Disadvantages |
|---|---|
| • Can improve variability in blood glucose levels and HbA1c<br>• The pump is programmed to suit individual insulin requirements<br>• Can deliver insulin in much smaller amounts than injections<br>• Variable basal rates can be set at different times of day<br>• Reduced basal rate programmes can be set during exercise/activity, lowering risk of hypoglycaemia<br>• No need for multiple injections as you only need to change the infusion cannula or patch pump every 2-3 days<br>• A hybrid closed loop pump can help prevent hypos by suspending insulin and prevent high blood sugars by increasing insulin doses. | • Pump does not do all the work<br>• You still need to count carbohydrates and input into the pump<br>• You will be attached to the pump almost all of the time<br>• If there is a problem with the cannula or the pump fails, no insulin will be delivered so you are at increased risk of diabetes ketoacidosis (DKA)<br>• Pumps can be difficult to hide under tight/fitted clothing<br>• If you leave the infusion set in more than 3 days there is a chance of skin infections |

**Who benefits from an insulin pump?**

Starting an insulin pump requires a great deal of commitment, regular clinic attendance and contact with the diabetes team, however if you put in the time and effort it can allow greater flexibility and improved diabetes control. If you have type 1 diabetes, and meet the criteria detailed below you can be considered for an insulin pump.

1. Type 1 Diabetes and manage your diabetes using a basal bolus/multiple daily injection (MDI) insulin regimen ✓
2. Monitor your sugar levels regularly, either finger prick blood glucose monitoring, flash glucose monitoring or continuous glucose monitoring ✓
3. Are skilled at carbohydrate counting ✓

**What do I need to do next?**

If you require any support with carbohydrate counting before proceeding with insulin pump therapy please contact the diabetes dietitians on fv.fvdiabetesdietitians@nhs.scot or 01324 566626.

Further information regarding insulin pump therapy can be found on the following websites:

https://nhsforthvalley.com/health-services/az-of-services/diabetes/pump-therapy/

https://elearning.mydiabetesmyway.scot.nhs.uk/courses/pre-insulin-pump-course/ - Please access and complete this insulin pump course on my diabetes my way website.

**Keen to proceed?**

If you feel an insulin pump is for you please email the pump team on fv.diabetespumpserv@nhs.scot. You will be asked to complete a food diary and attend an insulin pump assessment appointment with a member of the team in order to discuss your requirements in more detail.