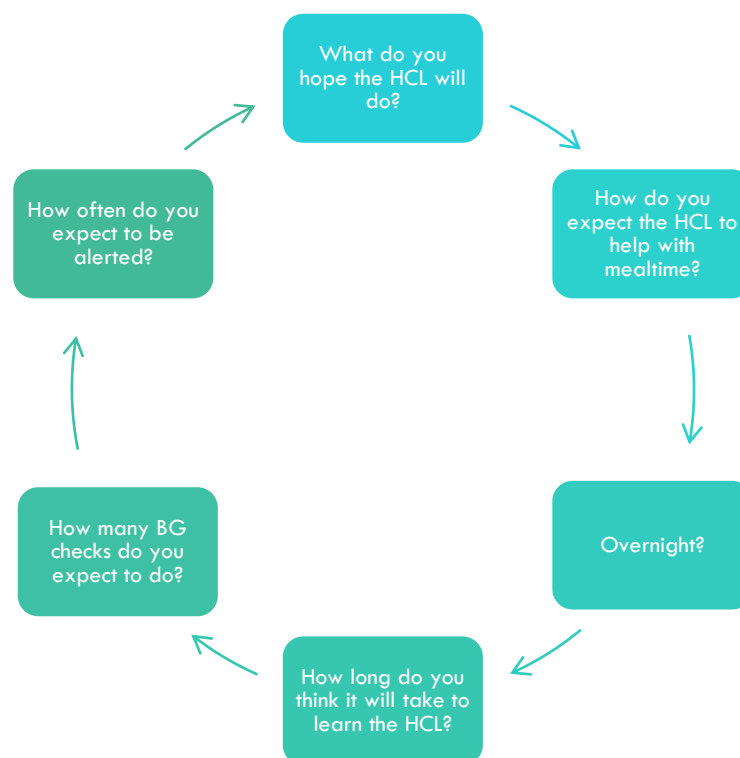


What is a Hybrid Closed Loop pump is it for me?

The Hybrid Closed Loop (HCL) pump is any insulin pump able to deliver variable (automated) basal insulin by using an algorithm and real-time CGM sensor glucose trends. The HCL pump can offer a way of managing your diabetes which can improve your blood glucose levels however it still requires work from the user.

This information sheet includes important information for you to consider when deciding on whether the HCL pump is for you.

What are your Expectations?



- Your realistic expectations about HCL will mean you will do better using this technology
- Realistic expectations leads to better insulin pump, CGM and HCL satisfaction and a positive experience using this feature
- It is important you speak with your diabetes team if you have questions about HCL

An Endocrinologist or Diabetes Educator can make referral for education and training with the HCL.

Some of the common questions and myths associated with HCL:

Open vs Closed loop differences:

The HCL system consists of an insulin pump, a sensor with transmitter attached, and a maths program (an algorithm) in the pump. This HCL program automatically works out how much basal (background insulin) you need every 5 minutes. In other words, it will give you less or more insulin depending on

what your sensor glucose (SG) reading is. When you use the HCL system, you will still need to bolus for your meal just like a normal pump.

For young people already on an insulin pump changing to a HCL pump will require some getting used to different pump functions/settings. The diagram below illustrates the differences with open loop (your pump) and the **HCL delivery of basal insulin (auto basal)**. While bolus remains the same the basal rate delivery is significantly different across the day.

Open Loop versus HCL



Pump settings are different as seen below in the table. There are several pump settings which cannot be changed (non-modifiable) and two settings that can be changed (modifiable) in the HCL pump.

	Non-modifiable	Modifiable
Open Loop		Glucose targets Basal rates Sensitivities/correction I:C ratios Insulin action time
HCL mode	Target – 6.66 mmol/L (120 mg/dl) Auto-basal delivery Sensitivities/correction	I:C ratios Insulin action time

It is important you know what the HCL can and cannot do. The following are some of the most common aspects you must understand about HCL systems.

<p>HCL: adapts to me - so what does it do?</p>	<p>HCL knows:</p> <ul style="list-style-type: none"> • Total daily dose (TDD) • CGM glucose levels and trend • Insulin on board (IOB) • Other components system specific <p>HCL does not know:</p> <ul style="list-style-type: none"> • If you eat high or low carb meal • eating patterns/times • When/how long/how much you are going to exercise • If you are awake or sleeping
<p>HCL: will just run itself</p>	<p>NOT YET – each HCL system has requirements to keep it running</p> <p>670G: Auto Mode maintenance includes:</p> <ul style="list-style-type: none"> • sensor calibrations • “BG now”: entering BGs when required to keep Auto Mode running • Managing Auto Mode exits (due to high BGs, Low BGs, sensor under-reads, max/min system insulin delivery) <p>Each different companies system will be different</p>
<p>Myth: don't need to bolus</p>	<ul style="list-style-type: none"> • All carbs (CHO) bolus must be entered before eating • Time-in range increases when bolus' are given before the meal • HbA1c is directly related to a person's ability to bolus • The HCL still requires BGs entered for correction bolus <p>Reasons for required bolus:</p> <ul style="list-style-type: none"> • Fully closed loop algorithms in development • Rapid acting insulin still too slow • Meal bolus will remain important to all HCL systems in development
<p>Who will struggle on HCL?</p>	<p>Any person who:</p> <ul style="list-style-type: none"> • Anxious obsessive tendencies with diabetes care • Expecting perfect diabetes control • Overrides of pump settings or instructions <p>Person who really does not like doing their diabetes self-care</p> <ul style="list-style-type: none"> • Does not check BGs or able to calibrate correctly • Misses insulin doses or forgets to bolus • Does not adjust pump settings or respond appropriately to high BGs <p>Difficulty wearing CGM or pump</p>
<p>Who is best suited to HCL?</p>	<ul style="list-style-type: none"> • Comfortable wearing pump and CGM sensor • Checks BGs 6+ times/day • Able to bolus prior to meal and counts CHO • Willing to give it 1 – 2 months to get used to new system • Can learn to 'trust' the HCL system



Questions you might bring to your next appointment or want to ask (note here):