bcdiabetes.ca
Patient Care + Research + Clinical Trials

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Loop installation in-house at BCDiabetes

Artificial Pancreas Systems (APS, also termed “automated insulin delivery” AID systems) are here and we are not waiting! On 2020-Aug-1 BCDiabetes began supporting in-house installations of open source (DIY) APS with the tubeless Omnipod-Dexcom G6-iPhone master branch "Loop" system. Although not Health Canada approved, BCDiabetes considers this version of Loop to be the best entry level open source APS available. It uses a conservative algorithm that has been installed by our estimates on more than 25,000 individuals worldwide & is more affordable ($20/day) given coverage by BC Pharmacare of both the Omnipod system & Dexcom G6.

BCDiabetes now uses the acronym SOSAPS (supported open source APS) to describe its clinic-run, clinic-provided APS installation service.

For those who are looking for a tubed system or who are not willing to use a non-health Canada approved solution, we strongly recommend the Tandem T-slim with Control IQ. As of today we do not currently recommend the Medtronic 770G system because its algorithm currently only supports temporary basal rate - once Medtronic’s microbolus algorithm is available to users (it is currently being considered by Health Canada), we will again recommend Medtronic APS. The Ypsopump is expected to come to market with CamAPS in 2023. If you wish to start with either the Medtronic or Tandem systems email us & we will support you by filling in the necessary forms and continue to work with you afterwards. For a CAD$ cost comparison of the various APS options in British Columbia see rows 7-9 of this spreadsheet. It assumes no BC Pharmacare subsidy & that the up-front cost of the pump is amortized over 5 years.

BCDiabetes has to-date installed SOSAPS in its various flavors (Loop, freeAPSX_NexGen =iAPS, AndroidAPS =AAPS) on 260+ clients (including the youngest at 3 years, on 20 children under 10 years of age, and in 17 adults older than 70). The majority of clients use advanced algorithms either iAPS (iPhone) or AAPS (Android). Loop’s simpler algorithm has a simpler interface is our preferred choice for clients < 14 and some adults. For reasons some prefer Loop over iAPS click here. To hear the argument “Why should iPhone users choose the Loop app at all?” click here. The average Time in Range (TIR) immediately pre-Loop was 64% - three weeks later it was 81%. The average A1c immediately pre-Loop was 7.2 - three months later it was 6.7. Quality of Life measures (Diabetes Distress, Fear of Hypoglycemia and Insomnia index) were favorable pre Loop and 3 months later even more favorable. We have seen only one episode of severe hypoglycemia on Loop in almost 250 patient years of Looping experience and no DKAs. For the slidedeck of BCDiabetes’ Looping experience presented at UBC Endocrinology’s Research Fest 2022-Sep-9 click here & for a 20 minute Zoom presentation of the same slidedeck click here. On 2023-Jan-23 BCDiabetes submitted a manuscript describing outcomes for its first 248 supported OSAPS installations to the journal Lancet Diabetes & Endocrinology.

Read a BCDiabetes client's experience of the first two weeks of using Loop. These clients (& the parents of kids on Loop) are all sleeping through the night and experiencing life without the rigors of diabetes for the first time in years. All they need to do is change their pod every 3 days, their CGM every 10 days, charge their smartphone as usual and their Orangelink (if required) every couple of weeks.

For users with good tech skills who are looking to Loop with advanced algorithms, BCDiabetes default installation is with freeAPSX Nex Gen ("iAPS" for iPhone users) & androidAPS (AAPS for Android users). Otherwise the Loop app is used (Loop 3.0 with the option to use Omnipod Dash pods without Orangelink or Omnipod Eros pod with Orangelinkt).

BCDiabetes does not currently support CGM using the Freestyle Libres in combination with a MiaoMiao bluetooth transmitter. With the predicted arrival of the Freestyle Libre 3 in 2023, we expect to be supporting it with all flavors of SOSAPS. People using any version of OSAPS are still generically described as using "Loop", being "Loopers" or to be "Looping". Some of these "Loopers" will actually be using the APS Loop.

In case you want to build, install & configure one of these offerings yourself, here are the links: Loop master branch, freeAPSX & androidAPS. If you have built it but would like help with installation and configuration check out youtube "how-tos" for Loop, freeAPSX and AAPS (a better version with normal aspect ratio will follow shortly). See also this instructive 55 minute youtube powerpoint from our 2020-May-20 webinar from The Weekly webinar focussed on closed-loop pump systems in general, and a 55 minute lecture on the fascinating history of Looping given by Ben Mammon.

Because Loop, iAPS & AAPS are not Health Canada approved, we require an online signed consent & waiver including an undertaking that users will not copy or distribute the installation to others without our consent. Adult BCDiabetes clients should complete this adult consent & waiver; guardians of minor BCDiabetes clients should complete this consent & waiver for minors.

At the time of your Loop installation appointment (in-person preferred) you need to be wearing a

Dexcom G6 with an active connection and

EITHER an

iPhone 6S or newer, (the newer the better….) with an

Omnipod Dash pod up and running with PDM (and spare pod, no Orangelink required) OR

Omnipod Eros pod up & running with PDM (with spare pod) plus **Orangelink Pro**

OR

Android phone (OS 9+) running a special version of the Dexcom G6 app known as **BYODA** or instead of BYODA an app known as xDrip with an

Omnipod Dash pod up & running with PDM (no Orangelink required) OR **Omnipod Eros pod** up running with PDM plus **Orangelink Pro**

If you have an iPhone, enable Apple Health & install TestFlight from the App store (if you don't know how, be sure you know your Apple ID so that we can do it for you) and disable automatic iOS updates. This is to prevent Dexcom failures which sometimes occur after iOS updates (Dexcom is typically 3 months behind).

Regardless of whether you have an iPhone or Android, or an Eros or Dash pump, you need a Looping Safety/Emergency kit in case of component failure.

For iPhone users we will share a link to either the Loop app (Master branch), freeAPSX Next Gen from BCDiabetes' account on TestFlight, Apple's beta-test app store); or Android users we will share androidAPS (3.1.0.2) from our own cloud source both at no change . If you are not a BCDiabetes client you first need to register online, get a referral from any Canadian Physician (click here for quick referral form), and be seen for a regular appointment either in-person or virtually. Once we have the referral you will be seen within 2 weeks. The cost of the appointment and follow up will be covered in full by your Canadian provincial medical plan with the exception of Quebec. For Quebec residents the fee is $1200 (initial appointment plus up to two weeks of daily follow-up).

BCDiabetes does not routinely offer care to non-Canadian residents. If a non-Canadian resident has a letter from his/her referring physician asserting that BCDiabetes' level of care is not readily in their country of residence, BCDiabetes may offer its services on a case-by-case basis.

When you are ready to try Loop, iAPS or AAPS email us requesting an appointment - Loop installation is typically a three-step process: the first appointment is an introductory session; the second appointment is to set up a Nightscout account (provided at no cost to you by BCDiabetes) and to review Nightscout to learn how to - it allows interpretation & analysis of your CGM and Looping data); the third appointment is for the Loop installation itself & lasts 90 minutes. The first and second appointments may be virtual; whether the main installation appointment can be done remotely/virtually will depend on a number of factors - the final decision rests with BCDiabetes staffers. Please note, currently all AAPS installations are done in-person. After Loop installation we will follow-up with you on a daily basis until you are independently able to make adjustments (for most users 2 weeks is sufficient) and then see you every 6-12 months.

If you are not trained on the Omnipod Eros or Dash pump & are a BC resident we will fill out & email a Medical Necessity form to Insulet (the manufacturer). A starter kit with 2 pods will be delivered to your home within a week: once you have been trained online (2 sessions 3 days apart) & been certified, you are ready to Loop.

For the Omnipod pump system setup, request that a BCDiabetes staff member complete paperwork (Letter of Medical Necessity) or email Andrew Muirhead phone +1--604-754-6195.
Omnipod pods, both Eros & Dash, can also be purchased directly in Canada from Diabetes Express phone 1 866-418-3392 fax 1-855-233-3146 & from the US here.
For the Dexcom G6, request that a BCDiabetes staff member complete Special Authority & prescription or order online or email Anthony Petrovich phone +1-604-363-8776, Dexcom G6 can be obtained here.
OrangeLink Pro order online from the manufacturer (pick up at BCDiabetes).
Medtronic 770G pump email Brenda Heaney phone +1-604-312-7101.
Tandem Control IQ email Teri Currie phone +1-778-995-1268
MiaoMiao bluetooth transmitter

Online Loop Support
After Loop installation and initial 2 week intensive support in-house, we encourage BCDiabetes Loopers to join the BCDiabetes Loop support Slack channel (78 members). Other options include
https://www.facebook.com/groups/TheLoopedGroup/
https://www.loopnlearn.org
https://loop.zulipchat.com
Short URL = https://bit.ly/3lbeWKC