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Looping at BCDiabetes: DIY-Automated Insulin Delivery made easy

Since August 1, 2020, BCDiabetes has supported the in-house installation of **open-source (DIY) Artificial Pancreas Systems (APS)**, also known as automated insulin delivery (AID). We focus on systems utilizing the tubeless **Omnipod Dash**, **Dexcom G6/G7**, and AID algorithms compatible with both iPhone and Android. [Here's a picture of a typical setup](#) illustrating both Loop and Omnipod 5. While not yet Health Canada-approved, BCDiabetes considers the [current version](#) of **Loop (Master branch)** to be the ideal entry-level open-source AID for most adults and children with strong family support. Loop has a conservative algorithm and is estimated to have been installed on more than 100,000 individuals worldwide, including 2,703 BCDiabetes clients to date. For our Looping outcomes for our first 1442 clients, presented at the ADA in Chicago in June 2025, click [here](#). For clinicians interested in setting up their own Looping sites as an affiliate of BCDiabetes (apps and waivers shared at no cost), click [here](#).

Our Mission: AID for All Canadians with Type 1 Diabetes, with choice

BCDiabetes' mission is to optimize care and improve outcomes for every person living with diabetes. For those with Type 1 diabetes (T1), AID is now the standard of care. Our two-year goal is to see more than 200,000 Canadians—or 70% of those with T1—and an equal proportion of T1s globally, using some form of AID by choice. AID is not for everybody - [click here](#) for what you might realistically expect, and not expect, of AID.

The reason that BCDiabetes embraced Loop initially was both its availability (in 2016 no other AID existed) and affordability (in British Columbia even today Loop remains the least expensive option, even including Pharmacare coverage of Omnipod 5 and myLifeLoop on 2026-Apr-01. Click [here](#) for a comparison of Omnipod 5 and Loop, two ostensibly similar systems.

BCDiabetes considers [all available retail AID systems in Canada](#) (Medtronic, Tandem, Omnipod 5 and myLifeLoop) and those in the USA not available in Canada ([iLet](#) and [Twist](#)) to be excellent options. For a full cost comparison for all AID systems available in Canada click [here](#). For a comparison of TIR improvements with various AIDs from published studies which are not head-to-head, click [here](#). Curious about head-to-head comparisons with the various AID algorithms? So are we! That's why we're in the advanced planning stages of a [randomized controlled trial](#) comparing Omnipod 5 and Loop.

SOS-AID (Supported Open Source AID) is the acronym BCDiabetes now uses to describe our clinic-run, clinic-provided AID installation service. Individuals using any version of OS-AID are still generally referred to as using "Loop," being "Loopers," and "Looping." To delve into the fascinating history of Looping, watch [Ben Mammon's 55-minute YouTube from 2020](#). To see how far things have progressed in the last five years, check out BCDiabetes' [The Weekly webinar](#) on AID from May 2020 during COVID, which compared Loop, Tandem Control IQ, and Medtronic's 670G.

Our Proven Outcomes and Experience

BCDiabetes has installed SOS-AID (including Loop, iAPS, Trio, and AndroidAPS) on 3252 clients to date. Of these, 33% are pediatric, 12% are under 10 years old (our youngest at 18 months), and 12% are over 70 (our oldest at 86). Loop's elegant interface and straightforward algorithm make it our preferred choice for most clients, and the exclusive choice for those under 14 and over 75. For a comparison of A1c levels achieved by BCDiabetes T1 clients using Loop vs MDI (multiple daily injections), [click here](#). To see what change in A1c you might expect starting on Loop at BCDiabetes based on your age [click here](#). But improving A1c is only a part of the story - it is more about dramatic improvements in Quality of Life through avoiding lows and the fear of lows.

Published, peer-reviewed outcomes for the first 248 Loop installations at BCDiabetes are detailed [here](#). In summary, the average **Time in Range (TIR)** and **GMI** immediately before Loop were 64% & 7.3%, respectively. Just three weeks later, these improved to 80% and 6.7%. Average A1c pre-Loop was 7.2%, dropping to 6.7% three months post-installation. Before Loop, 43% had a TIR greater than 70%, which jumped to 84% post-Loop. Quality of Life measures (Diabetes Distress, Fear of Hypoglycemia, and Insomnia index) also showed favorable improvements. We observed only 3 episodes of severe hypoglycemia, no DKA, and no deaths. These results compare favorably with all published retail AID literature.

Outcomes for the first 1664 Loop installations (all Loop variations included) as of May 1, 2025, can be seen on this powerpoint by [clicking here](#) and **navigating to slides 16-27**. Click [here](#) to see our poster that was presented at the American Diabetes Association annual meeting in Chicago, June 2025 which showcased TIR and Quality of Life outcomes in 1,445 consecutive Loopers with paired before-and-after data. [Click this link](#) for a calculator to predict how much improvement you or a client might expect by going on Loop.

Client Testimonials

Read heartfelt testimonials from BCDiabetes clients about their first two weeks using Loop [here](#), [here](#), and [here](#). These clients (and the parents of kids on Loop) are finally sleeping through the night and experiencing life without the constant demands of diabetes for the first time in years. All they need to do is change their pod every three days, their CGM every 10 days, and charge their smartphone as usual. See BCDiabetes client John Young's Nightscout tracings over 72 hours ([click here](#)) - the first 48 hours on a manual pump and the last 24 hours on Loop. His comment to me sums it up: "I don't know how I managed to cope before this."

Hardware and Software Compatibility

All BCDiabetes SOS-AID apps support **Dexcom G7**. At present **Freestyle Libre 2** is not supported. However, **Freestyle Libre 3+**, expected in Q4 2025, may be supported through its anticipated Apple Health connections.

If you're interested in building, installing, and configuring one of these systems yourself, here are the links: [Loop master branch](#), [iAPS](#), [Trio](#), and [AndroidAPS](#). Building Loop, iAPS, or Trio requires a free Apple developer account, and a rebuild is necessary every three months. With a paid Apple developer account (US\$99/year), a build will last 12 months. For step-by-step visual guides on OS-AID installation, check out our YouTube "how-tos" for [Loop](#) and [iAPS](#) (AAPS updates are coming soon).

Training and Resources

The minimum requirement for Omnipod Dash training in preparation for looping is [described here](#). For BCDiabetes in-house staff teaching tutorials presented at our Journal Club in early 2023, see Nabeel Khan's [Looping 101](#) video and associated [powerpoint](#) (covering Loop & iAPS basic settings), and [Looping 102](#) (openAID advanced settings). For general tips on tuning Loop, [click here](#). For recommended settings

adjustments for common dysglycemic patterns using real-life Nightscout examples, [click here](#) (navigate to slides 53-79). For general Looping FAQs, [click here](#). For support on using Loop at elementary school, [click here](#), or while hospitalized, [click here](#). For tips on Looping in Pregnancy, [click here](#). For a comprehensive list of Loop resources [click here](#).

For clinician FAQs, [click here](#). For BCDiabetes Technology Fellow Dr. Kate Hawke's July 2024 lecture "Open-source AID for Endocrinologists," [click here](#) (and [here](#) for the associated powerpoint PDF). For my "Looping at BCDiabetes" 63-minute Zoom presentation from May 1, 2025, to Alberta Insulin Pump Program Diabetes Educators, [click here](#), and for the slide deck, [click here](#). For BCDiabetes Dr. Clare Henderson's ped-endo-focused March 2024 "Into the Loop" slideshow, [click here](#). Clinicians who wish to set up their own Loop site as an affiliate of BCDiabetes, gaining no-cost access to BCDiabetes' Loop app and consent/waiver forms, [click here](#).

Referrals

Referrals from outside British Columbia: Clinicians wishing to refer a patient for Looping are invited to [click here](#) for our quick referral form, [email us](#) or fax 604-628-3821. In the [Quick Referral form](#), Physicians referring from outside British Columbia, Canada, should enter 99998 for "Doctor's College ID" and 0000000000 for "Patient CareCard #." As of January 10, 2025, the provision of virtual care by our Endocrinologists for non-BC Canadian residents is expressly permitted by the regulatory bodies for all Canadian provinces and territories providing the service is not readily available within that province (note: Quebec requires a separate virtual licensure).

Because Loop, iAPS, Trio, and AAPS are not Health Canada approved, we require a signed consent and waiver from the client/guardian, which includes an undertaking that users will not copy or distribute the installation to others without our consent. The waiver and consent will be completed as part of the [online registration process](#) at BCDiabetes. Here are non-signable versions of the [adult](#) and [minor](#) documents. For parents or guardians who wish to remotely give commands for carbs, boluses, and overrides to their kids, BCDiabetes also offers [Loop Caregiver](#), a companion app which runs on the parent/guardian's iPhone.

Client Requirements

Client Requirements: [Click here](#) for a summary of minimal requirements for Looping. BCDiabetes believes that Looping is suitable for the vast majority of individuals living with Type 1 and Type 2 diabetes. However, it is not intended for those unable to maintain adequate diabetes self-care or who don't see their healthcare provider regularly. We no longer exclude those with poor carbohydrate-counting skills. Loop clients expecting to Loop independently should have good cognitive capabilities and no physical impairments that would make operating the hardware (pump, CGM) challenging. As AID algorithms become more sophisticated with **autoISF** (see iAPS v6.5.1), carb declaration becomes increasingly unnecessary. Click [here](#) for an autoISF tutorial written by iAPS super user & developer Marc Fournier. In collaboration with Professor Sven Carlsen from Trondheim, BCDiabetes has explored the potential for Looping with [dasiglucagon](#) mixed with lispro Lyumjev insulin to enhance the speed of insulin absorption making non-declaration of carbs an option for everybody. There seems to be a striking benefit at high doses of dasiglucagon such as 100 ng dasiglucagon per unit of Lyumjev. Unfortunately dasiglucagon is currently prohibitively expensive. Check this space in 2028 when the European Agency will review the possibility of Professor Carlsen patenting the dasiglucagon/insulin combination.

Hardware & Software Requirements for Your First Looping Appointment

To prepare for your first Looping appointment, clients need:

- A **Dexcom G6/G7 sensor** with an active connection to their smartphone (not a receiver).

- An **Omnipod** (plus a spare) operating with its PDM.
 - **Note:** If the Omnipod pod is an Eros pod, an additional component, an **Orangelink Pro**, must be on hand to connect the Eros pod and the smartphone. Omnipod Dash users do not need an Orangelink.

Other requirements include:

- An **iPhone 13 (or newer) OR**
- An **Android phone (OS 9+)** connected to a Dexcom G6/G7 sensor. Android users should *not* use the usual Dexcom G6 app (uninstall it first) but instead install [xDrip](#) using this [installation instructional video](#), an open-source app compatible with Dexcom G6 & G7. If you have a Dexcom G6, you could alternatively install [BYODA](#) (note, BYODA for Dexcom G7 is currently buggy and not recommended).

With an iPhone, you'll need to enable **Apple Health**, install **TestFlight** from the App Store, and disable automatic iOS updates (this prevents Dexcom failures that sometimes occur after iOS updates, as Dexcom typically lags about three months behind). Regardless of your phone or pump type, you'll need a [Looping Safety/Emergency kit](#) in case of component failure..

Getting Started with SOS-AID

To have an SOS-AID system installed at BCDiabetes, you must first become a BCDiabetes client. [Click here](#) to register at BCDiabetes. For your appointment you also require a referral from a licensed physician or nurse practitioner in your jurisdiction (see [Referrals](#) on the page above). Ideally this will be your endocrinologist or diabetes specialist (see above). Not all endocrinologists/diabetes specialists support Loop; if your endo doesn't, we suggest sharing this document with them to see if it changes their mind. Once you're established on Loop, BCDiabetes recommends follow-up every six months for the first year, and annually thereafter. You should continue to see your regular endocrinologist/diabetes specialist for non-Looping diabetes follow-up.

Once [you've registered](#) and we've received your referral, you'll be seen within two weeks for a regular appointment, either in-person or virtually. The cost of the appointment and follow-up will be fully covered by your Canadian provincial medical plan, with the exception of Quebec, which does not have a reciprocal payment agreement with BC. For Quebec residents the fee is \$1,500 (initial appointment plus up to two weeks of daily follow-up and routine follow-up for up to two years). BCDiabetes will consider cases of financial hardship. We do not routinely offer care to non-Canadian residents, but if a non-Canadian resident provides a letter from their referring physician asserting that BCDiabetes' level of care is not readily available in their country or jurisdiction, we may offer Loop installation on a case-by-case basis.

The wait time for installation of Loop application itself is currently 3 weeks. Once a booking has been received we offer a cancellation list which typically provides for a much shorter wait. Requests for expedited Loop installation, potentially within 5 to 10 business days, will be considered by management if your treating physician [emails](#) us citing extenuating circumstances (such as pregnancy).

Before the Loop installation appointment prospective Loopers must have completed [this online survey](#) which includes an attestation to a completed check list and Quality of Life survey.

Loop Installation - a Two-Step Process

Loop installation and fine-tuning typically involve a two-step process, followed by ongoing support as needed.

1. **First Appointment (usually virtual):** This is an introductory session where a [Nightscout account](#) is set up (if not already in place), and CGM and Looping-specific analytics are discussed. Clients are encouraged to conduct [insulin experiments](#) beforehand to optimize their basal rate, ICR, and ISF for the Loop start to follow. We talk about [Sick Day Management](#) and [Pump failure](#) and share our

[Diabetes reading list.](#)

2. **Second Appointment (preferred in-person, but often virtual):** This 60-90 minute session is offered virtually to most clients at the discretion of BCDiabetes staff.
 - For iPhone users, we provide a link to the latest builds of the Loop app on BCDiabetes' TestFlight account, at no charge. Clicking the TestFlight link installs Loop on the iPhone.
 - For Android users, we share the latest build of AndroidAID from our own cloud source, also at no charge.
 - For Loop users, their Nightscout account will have been pre-configured with their initial Loop basal rate, ICR, ISF, max bolus, and total daily dose of insulin. This means that once the Nightscout credentials are entered and Loop is "closed," they are up and running immediately, with minimized data entry errors.

One and Done Loop Installation

For select low-risk individuals - typically those aged 14-65 with a TIR >30% and no recent diabetes emergencies, BCDiabetes offers a **one and done appointment**, combining the first and second appointment described above at the very first visit.

Post-Installation Fine-Tuning, Follow-up & Support

Following Loop installation, clients receive follow-up, typically virtual, until they are independent and comfortable making adjustments. Default follow-up is at one day, one week, one month, and six months, then annually. All new Loopers are directed to the [BCDiabetes Loopers](#) Facebook support group, which currently has 1200 members. Most problems reported to the BCDiabetes Loopers support group are resolved within hours. During 0900-1600 hrs Monday-Friday BCDiabetes, the clinic, offers support for problems reported [by email](#).

Getting Your Looping Hardware

Not trained on Omnipod Eros or Dash? If you're a BC resident not yet trained on the Omnipod Dash, we'll complete and email a [statement of medical necessity](#) form to Insulet (the manufacturer). Once payment details are sorted, a starter kit with two pods will be delivered to your home within 2-3 business days. After completing online training (two sessions, three days apart) and certification, you'll be ready to Loop. Note that the pod for Omnipod 5 is not compatible with Loop/iAPS/AAPS.

Where to get Looping Hardware:

- **Looping Safety Kit:** BCDiabetes requires all clients using insulin pumps, including all Loopers, to carry a [Looping Safety kit](#) at all times. The bare minimum includes a rapid insulin pen with needles and a finger-poke glucometer. Every client on intensive insulin therapy must also understand and follow [sick day management](#) when unwell and blood sugar is consistently above 10 mmol/L.
- **Omnipod Pump System Setup:** Request that a BCDiabetes staff member complete the paperwork ([statement of medical necessity](#)), or email [Andrew Muirhead](#) or call him at +1-604-754-6195.
- **Omnipod Pod Purchase:** Provided the client was trained in Canada by an Insulet-certified trainer, Omnipod Dash pods can be purchased directly in Canada from [Endor, Naz](#) and [Diabetes Express](#), as well as several smaller pharmacies. Omnipod pods may also be purchased online without a prescription from [these 3 US sources](#) (verified 2025-Aug-08). For Android users who want to practice with the Omnipod Dash without automation, the Omnipod PDM doesn't need to be purchased; it can be replaced by an [open-source app](#) and install the latest version of the apk (=wear-pumpcontrol-release....apk).

- **Dexcom G6/G7:** Request that a BCDiabetes staff member complete a Special Authority & prescription, or order online, or email [Jeff Taylor](#) ph +1 236-333-8029
- **OrangeLink Pro:** Required only for the Omnipod Eros users (not for Dash users). [Order online](#) and pick up at BCDiabetes.
- **Medtronic 780G:** email [Jennifer Rogers](#) ph +1 778-839-2750
- **Tandem Control IQ:** email [Dale Robertson](#) ph +1-778-322-9202
- **Ypsomed myLifeLoop:** email [Akeela Kakhura](#) ph +1 780-385-6317

Online Loop Support

- [BCDiabetes Loopers Facebook group](#) - this group with >1800 members is the default online resource for BCDiabetes Loopers
- [iAPS Canada Support Community](#) (credits to Marc Fournier, iAPS superuser and dev contributor)
- [LoopnLearn](#) (credits to Joanne Milo)
- [The Looped Group](#)
- [Loop Zulip Chat](#)

Special Thanks to Our Contributors

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- **Ben West:** inventor of AID as we know it, co-founder of openAPS, primary developer of Nightscout.
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- **Pete Schwamb:** Loop founder.
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