

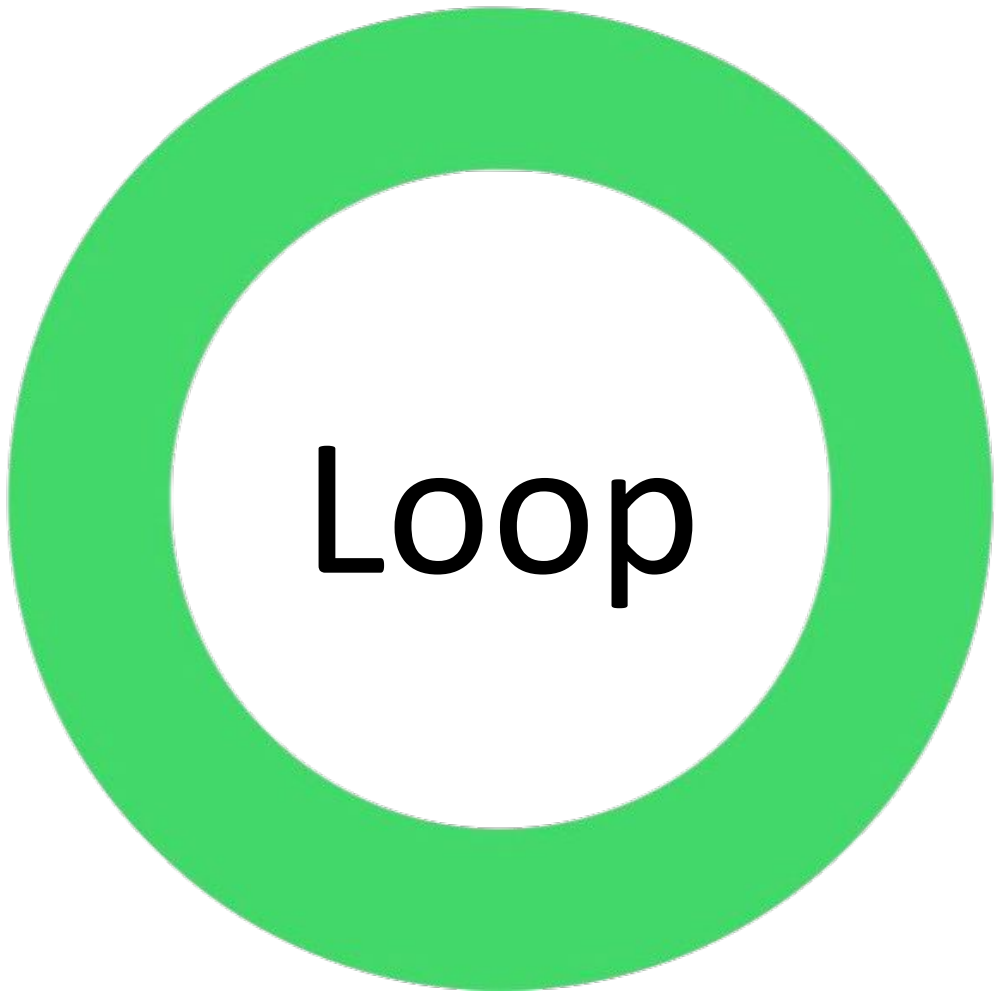
Loop

# DIY (Do-It-Yourself) Hybrid Artificial Pancreas

Benjamin Mammon & Saveli Kotz  
\*NOT experts (just happy users 😊)

“The Weekly” Thursday May 14, 2020

Source Reference: <https://loopkit.github.io/loopdocs/>



# Loop

## **Schedule (8 mins)**

1. Brief Intro to Loop
2. How to Start Looping
3. Ben's Perspective - Looping with Medtronic
4. Saveli's Perspective - Looping with Omnipod
5. Q & A after other presentations

# What is Loop?

Loop is an iPhone app that controls your insulin pump

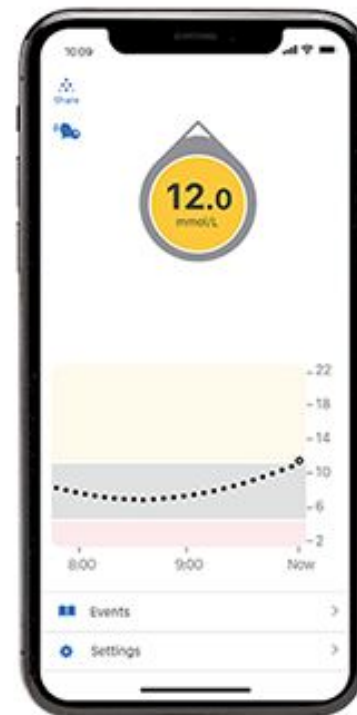


# What is Loop?

Loop is an iPhone app that controls your insulin pump

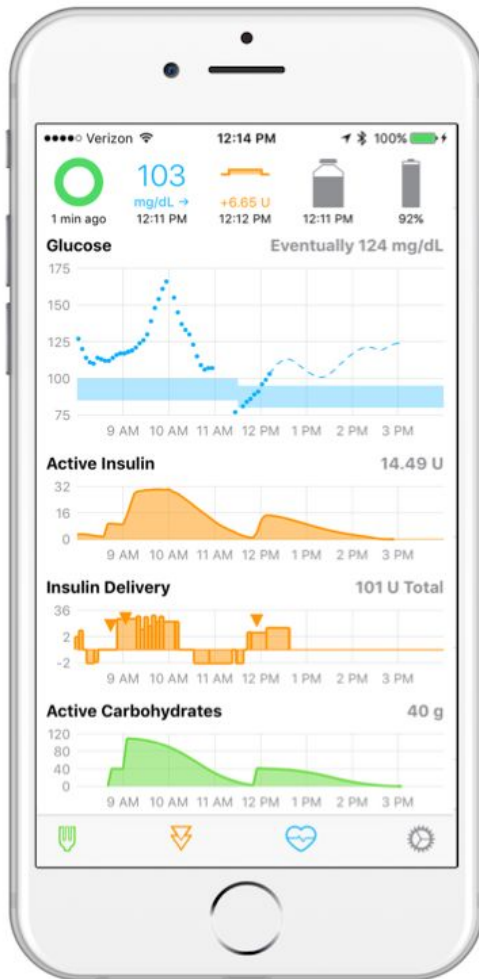


High BG

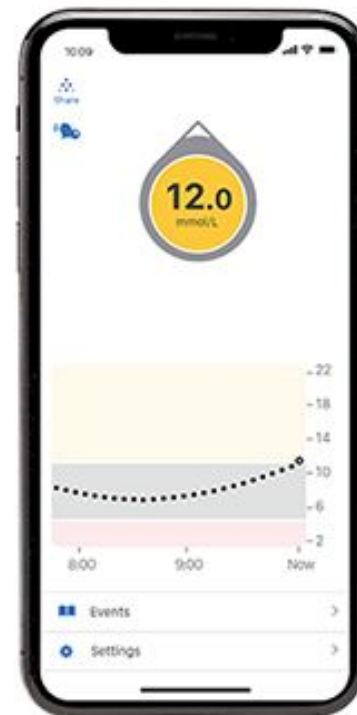


# What is Loop?

Loop is an iPhone app that controls your insulin pump

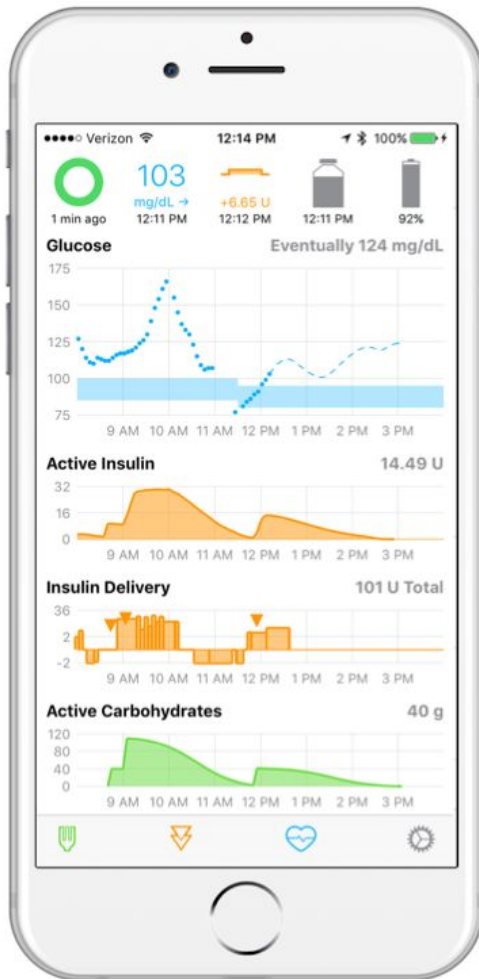


High BG



# What is Loop?

Loop is an iPhone app that controls your insulin pump



Low BG



# What is Loop?

Loop is an iPhone app that controls your insulin pump



Low BG

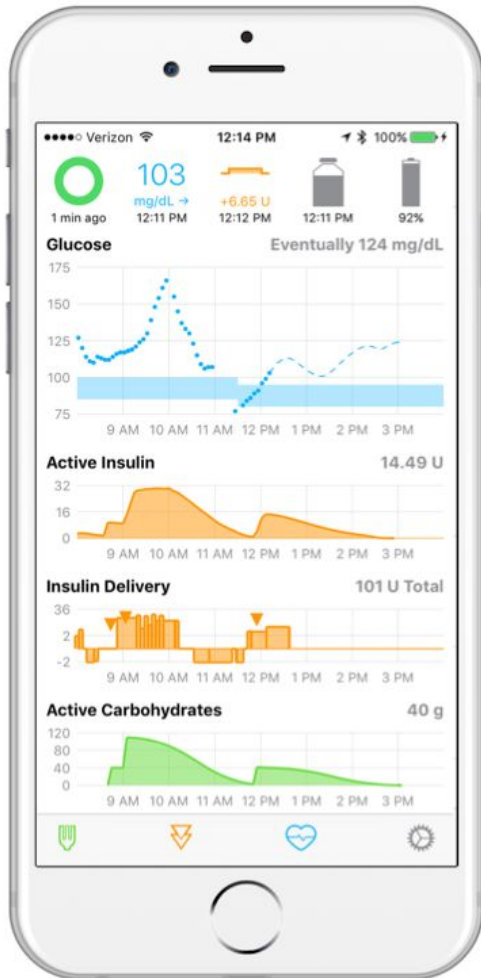


# What is Loop?

Loop is an iPhone app that controls your insulin pump



**AUTOMATICALLY!**

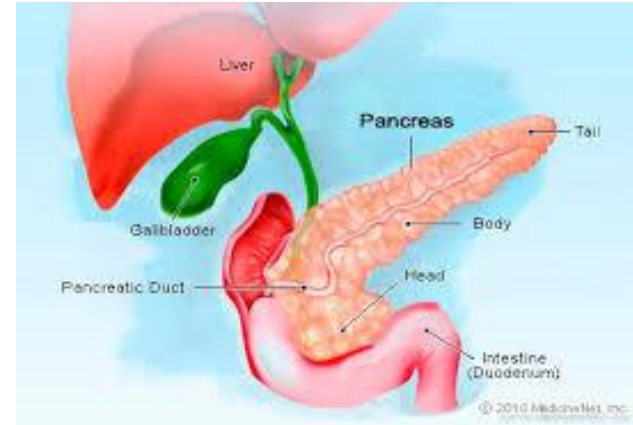


# What is Loop?

Loop is an iPhone app that controls your insulin pump



**AUTOMATICALLY!**

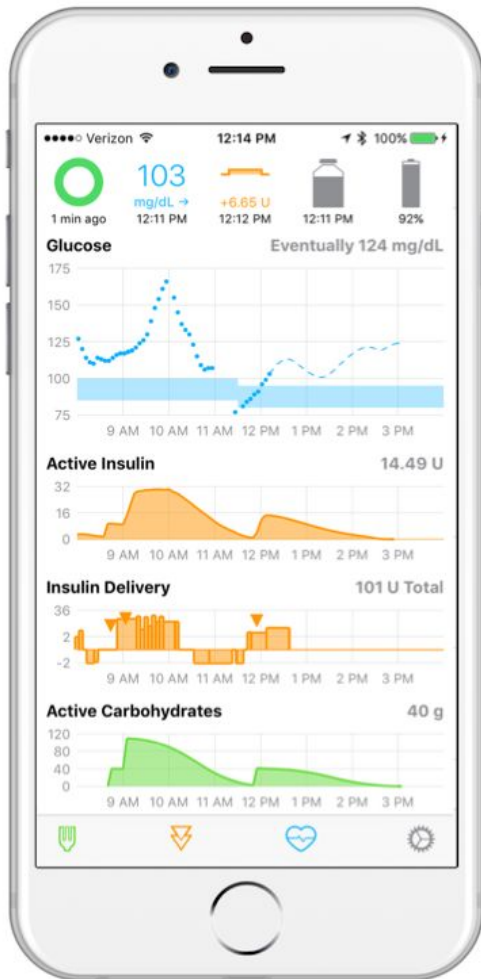


# What is Loop?

Loop is an iPhone app that controls your insulin pump



NOT available in the App store

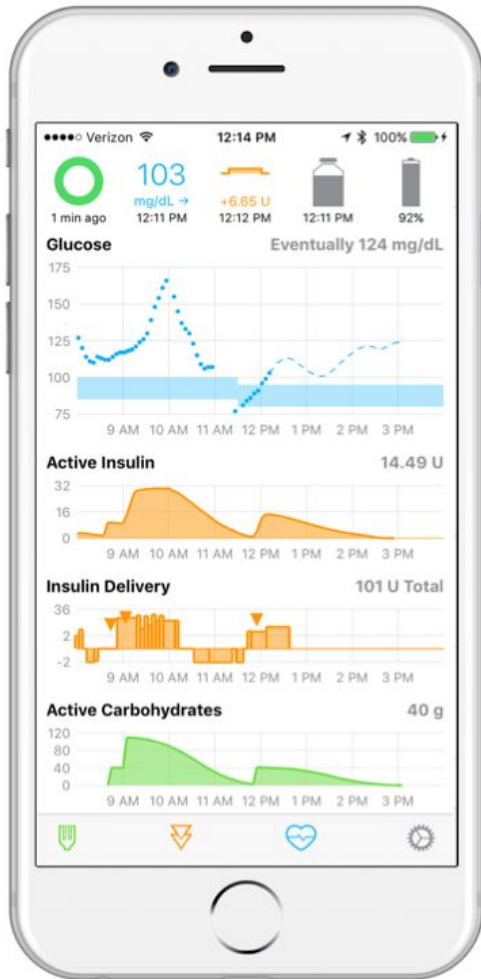


# What is Loop?

Loop is an iPhone app that controls your insulin pump



NOT available in the App store



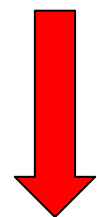
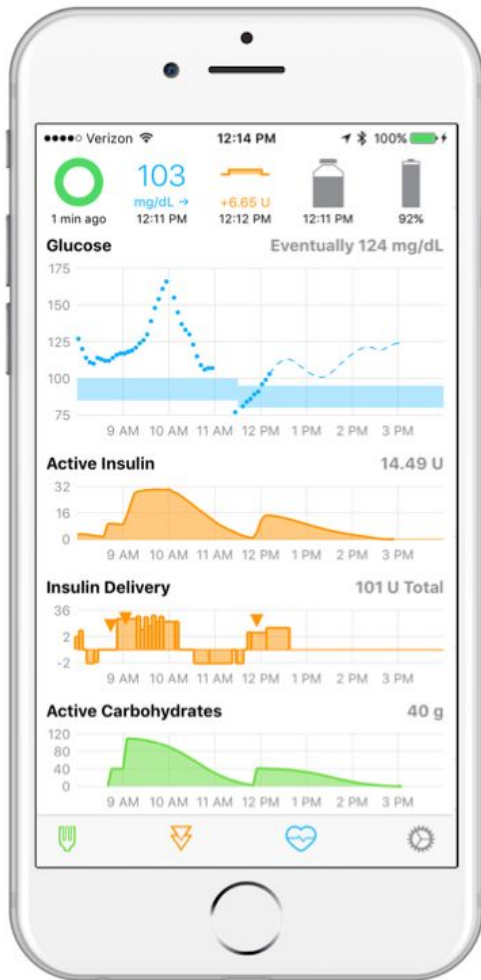
- Not regulated by Health Canada, not medically approved, highly experimental
- Open source movement - App and hardware built by volunteer software engineers with T1D and shared on the internet for free
- #WeAreNotWaiting

# What is Loop?

Loop is an iPhone app that controls your insulin pump



NOT available in the App store



# What is Loop?

Loop is an iPhone app that controls your insulin pump



NOT available in the App store



Reliant on Apple ecosystem

Android NOT supported

Other DIY options exist:

- [OpenAPS](#)
- [AndroidAPS](#)

Not covered in this presentation

# How does Loop work?

## 1. CGM (continuous glucose monitoring)

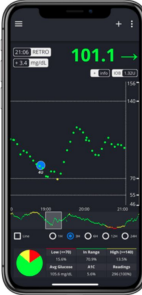
a.



Blood glucose data every 5 mins



b.

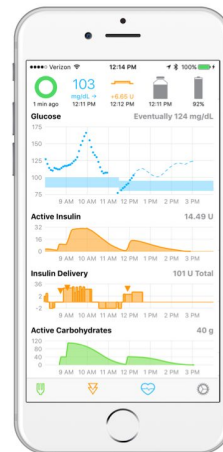
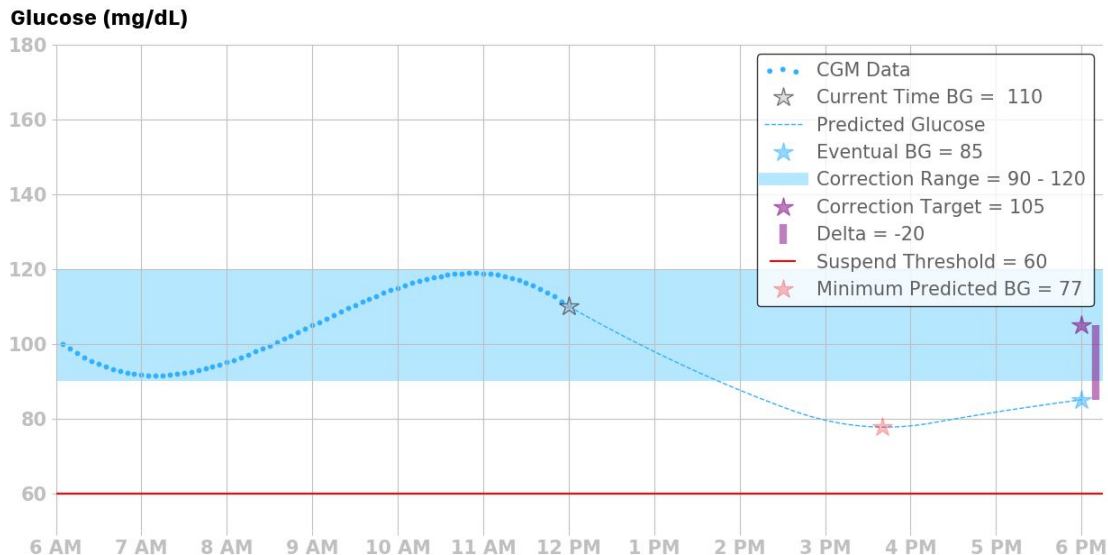


Loop

Libre + [MiaoMiao](#) + [Spike](#)

# How does Loop work?

2. Loop      The app runs an algorithm every 5 mins and recommends basal rate adjustments (increase, decrease, suspend or resume) and/or boluses based on a prediction model



Loop

# How does Loop work?

## 3. [RileyLink](#) + [Pump](#)

a.



Radio Frequency  
←



b.



Radio Frequency  
←



Bluetooth  
←



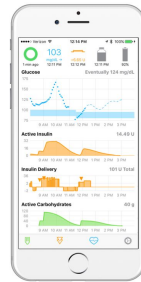
Loop

Obsolete



# What do I need to start Looping?

- Compatible insulin pump: [Medtronic or Omnipod](#)
- Compatible CGM (continuous glucose monitor)
- RileyLink (\$150 USD)
- Compatible iPhone/iPod Touch
- Apple computer
- Xcode (Free)
- Apple Developer Membership (\$99 USD/year)



# Looping with Medtronic



# Benefits

Improved glycemic control with less work

Reduce acute risks of hypoglycemia

Reduce long term risks of complications

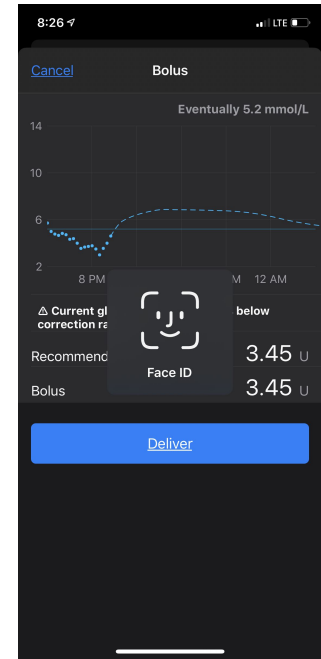
Use iPhone and smartwatch to control insulin delivery

# Safety Measures

If any issues, the pump defaults to the manually programmed basal rates

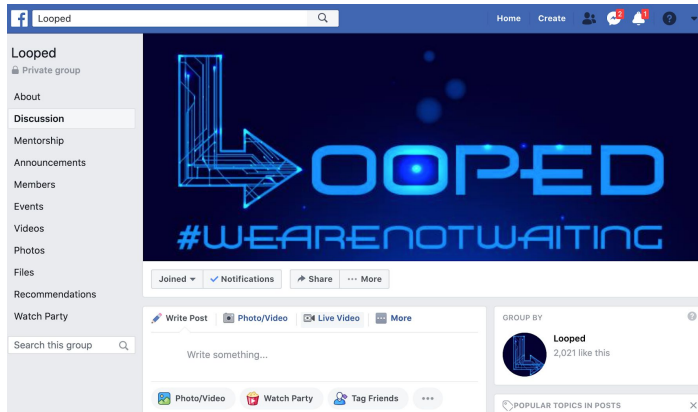
Max basal rates and boluses are programmed in Loop

Bolus requires Touch/Face ID or device passcode



# Downsides to Looping

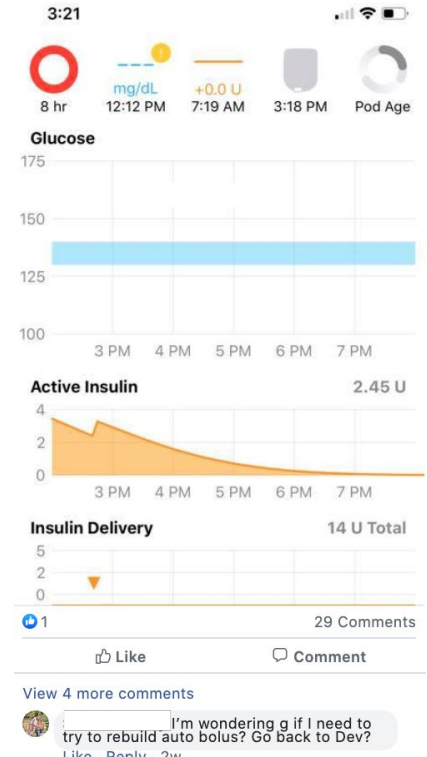
- RileyLink - \$\$, extra hardware to carry around/charge
- Setup requires patience and instruction reading
- Apple developer license \$\$
- For Medtronic: Using out of warranty pump
- Support only through [Looped Facebook group](#)



April 26 at 3:23 PM

Resolved: (thanks Jon) I needed to enter Cgm into loop when changing transmitter!

Ok-I changed my Dexcom transmitter about 8 hours ago and can not get Loop back up and running. Two days ago, I upgraded to Autobolus and do not know how to trouble shoot this, I closed and opened app, restarted the phone and turned Bluetooth off and on. I'm getting readings from Dexcom, but can't figure out how to get Dexcom and Omni taking again...any suggestions?



# Who Should Use Loop?

- Want the most cutting edge technology available for diabetes management
- Want greater flexibility with hardware (CGM/Insulin Pump) and software



- Are willing to stay up to date and troubleshoot online
- Can afford 24/7 CGM, and the cost of RileyLink/Apple Developer membership
- Have enough computer skills to follow online instructions



### The advantages of Looping with Omnipod

- Paid by the provincial health insurance in most cases
- Brand new equipment that is replaceable every 3 days
- Any hardware problem - just put on a new pod
- Waterproof, No dangling chord, Not noticeable

### Disadvantages:

- If you displace the cannula while enjoying the mobility that the pod allows you, you might not notice it right away and there is a chance of going to high blood sugars and DKA
- If you lose your phone or it breaks, you will not be able to operate your pump. You will need to pair a new POD with the OmniPod PDM until you can get another phone, install loop on it and start all of it again
- You have to carry at least 2 PODs and insulin with you (and PDM or a full backup phone) at all times.
- You have to have a RileyLink backup at home if you get serious with looping.

