

# SESSION 5

## DIABETES TECHNOLOGY UPDATE



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# EPIC DIABETES CONFERENCE

MAY 30, 2026 CU ANSCHUTZ MEDICAL CAMPUS

EMPOWERING PATIENTS  
FOR  
INDIVIDUALIZED CARE



# COI

- Cari has been a speaker and consult for Insulet, Sequel and Tandem.



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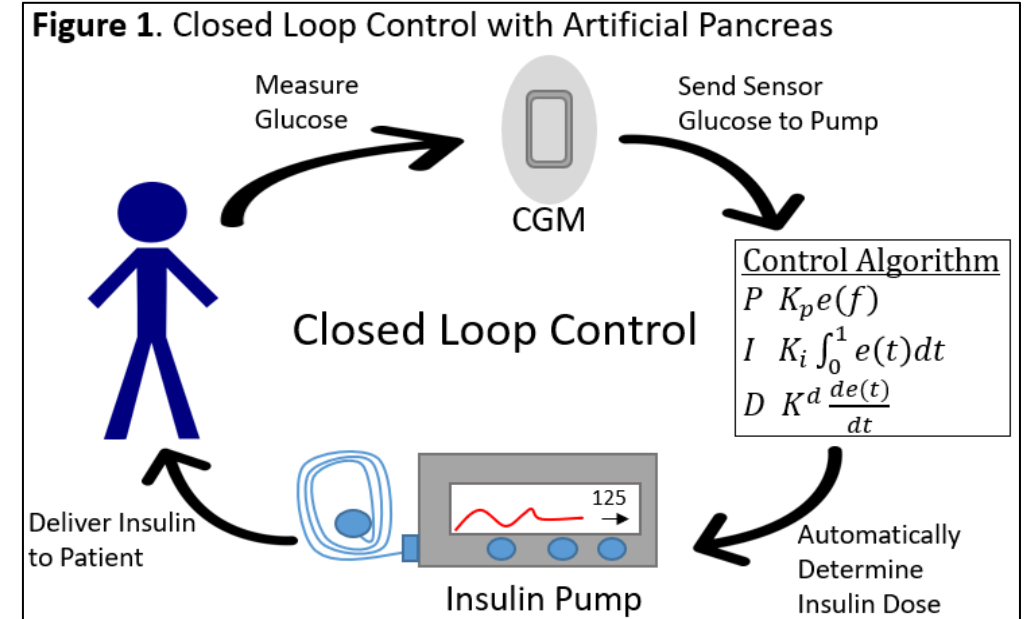


# AUTOMATED INSULIN DELIVERY: DEFINITIONS

**Automated Insulin Delivery (AID):** any automation of basal and/or bolus insulin.

- **Hybrid Closed Loop:** Full automation of basal insulin with users giving meal boluses.
- **Fully Closed Loop:** Full automation of both basal and bolus insulin.

**Artificial Pancreas:** Outdated term. Essentially synonymous with AID.



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# COMMERCIALLY AVAILABLE AID SYSTEMS IN UNITED STATES

- **MiniMed 780G** : T1D ages 7+ (trial for 2-6yo completed); T2D ages 18+
- **Tandem t:slim X2 & Mobi with Control IQ+**: T1D ages 2+; T2D ages 18+; Pregnancy T1D
- **Insulet Omnipod 5**: T1D ages 2+; T2D ages 18+
- **Beta Bionics iLet**: T1D ages 6+; not approved T2D
- **Twist Loop AID**: T1D ages 6+;not approved T2D but trial is complete



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# COMMERCIALY AVAILABLE CGM AND AID SYSTEMS IN THE UNITED STATES IN 2026

CGM System	AID System				
	Medtronic 780G	Tandem Control-IQ	Insulet Omnipod 5	Beta Bionics iLet	Sequel twist
Dexcom G6		Yes	Yes	Yes	
Dexcom G7		Yes	Yes	Yes	Pending
Dexcom G7 - 15 Day		Yes	Yes	Yes	Pending
Abbott Freestyle Libre 2+		Yes	Yes		
Abbott Freestyle Libre 3+	Yes (as Instinct CGM)	Yes	Yes	Yes	Yes
Medtronic Guardian Sensor 4	Yes				
Medtronic Simplera Sync	Yes				
Senseonics Eversense 365					Yes

\*The CamAPS Fx Algorithm is approved, but they don't have a clear pump partner, so it isn't "commercially available."

\*\*The CGMs in gray are being discontinued this year. G7 15 day and Eversense are not approved in kids

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# REGULATORY APPROVAL STUDIES FOR US AID SYSTEMS

Device	Adults or Adults/Adolescents									Children								Young Children									
	Source	Design	TIR 70-180 mg/dL (%)	Change in TIR (%)	Mean SG (mg/dL)	HbA1c (%)	TAR >250 mg/dL (%)	TBR <70 mg/dL (%)	TBR <54 mg/dL (%)	Source	Design	TIR 70-180 mg/dL (%)	Change in TIR (%)	Mean SG (mg/dL)	HbA1c (%)	TAR >250 mg/dL (%)	TBR <70 mg/dL (%)	TBR <54 mg/dL (%)	Source	Design	TIR 70-180 mg/dL (%)	Change in TIR (%)	Mean SG (mg/dL)	HbA1c (%)	TAR >250 mg/dL (%)	TBR <70 mg/dL (%)	TBR <54 mg/dL (%)
Medtronic 780G	Carlson - DTT - 2021	Single-Arm	75.1 / 72.7	+4.2 / +10.3	147 / 150	7.0 / 7.1	4.3 / 5.6	2.3 / 2.4	0.5 / 0.6	Pihoker - DTT - 2023	Single-Arm	70.3	+10.9	152.7	7.4	7.1	2.7	0.6	Trial recently completed, not yet published								
Tandem Control IQ	Brown - NEJM - 2019	RCT	71	+11	156	7.06	5.2	1.58	0.29	Breton - NEJM - 2020	RCT	67	+11	162	7	7.8	1.6	0.2	Wadwa - NEJM - 2023	RCT	69.3	+12.4	155	7	8.4	3	0.6
Insulet OP5	Brown - DC - 2021	Single-Arm	73.9	+9.3	154	6.78	5.8	1.32	0.23	Brown - DC - 2021	Single-Arm	68	+15.6	160	6.99	9.6	1.78	0.32	Sherr - DC - 2022	Single-Arm	68.1	+10.9	157	6.9	9.2	2.5	0.5
Beta Bionics iLet	Russell - NEJM - 2022	RCT	65	+11	164	7.3	8.5	1.8	0.3	Included in the adult/adolescent data								Trial not yet conducted									
Tidepool Loop (twist)	Lum - DTT - 2021	Observational	73	+21	147	6.5	5	2.8	0.4	Included in the adult/adolescent data								Included in the adult/adolescent data (but not approved <6 years)									

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# REGULATORY APPROVAL STUDIES: TYPE 2 DIABETES

## Select Metrics from Device Pivotal Trials

	Source	TIR 70-180 mg/dL (%)	Change in TIR (%)	HbA1c (%)	TBR <70 mg/dL (%)	TBR <54 mg/dL (%)
<b>Medtronic 780G</b>	Bhargarva-2025-DTT	80	+8	7.2	0.3	0.0
<b>Tandem Control IQ</b>	Kudva-NEJM-2024	64	+16	7.3	0.4	0.09
<b>Insulet OP5</b>	Pasquel-JAMA- 2025	66	+20	7.4	0.2	0.04

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# WHAT ARE THE TAKE-AWAYS?

- **AID systems are safe and effective in T1D ages 2+** with demonstrated improvement time in range (TIR) between 4-15%
- **AID systems are safe and effective in T2D ages 18+** with demonstrated improvement in TIR between 8-20%
- Degree of improvement and TIR attainment is **dependent on age, baseline TIR/A1c, how device is used** (% time in automation, bolusing)

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# WHAT ABOUT BEYOND THE NUMBERS: QUALITY OF LIFE!

- AID has an overall positive psychosocial impact
- Meta-analysis of 4 most commonly used PROs in studies; 20 RCTs
- Reduction in fear of hypoglycemia, and diabetes distress and improvement in treatment satisfaction

Gao et al., 2025.<https://doi.org/10.2337/dc25-1178>

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# WHICH AID SYSTEM: HOW DO YOU DECIDE?

**Evidence suggests that AID systems are similar in glycemic outcomes**

- Increase TIR, decrease TBR, decrease A1c
- Help reach ADA goals of 70% TIR with minimal hypoglycemia

**Evidence suggests that AID systems have potential to improve quality of life**

- Reduce fear of hypoglycemia, reduce diabetes distress, improve treatment satisfaction

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# HOW DO YOU DECIDE?

It's a balancing act of benefits vs. burdens

## **The best AID system is the one you want to use**

- You will use of the device if *benefits* outweigh *burdens*
- Ease of use is as important, if not more important, than the algorithm itself

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# CONSIDERATIONS IN DEVICE SELECTION

What are your goals for an AID system?

## Features

- Use of cell phone, CGM preference, remote data sharing options

## Form Factor

- Size and shape of pump, tubing vs no tubing

## Customizability

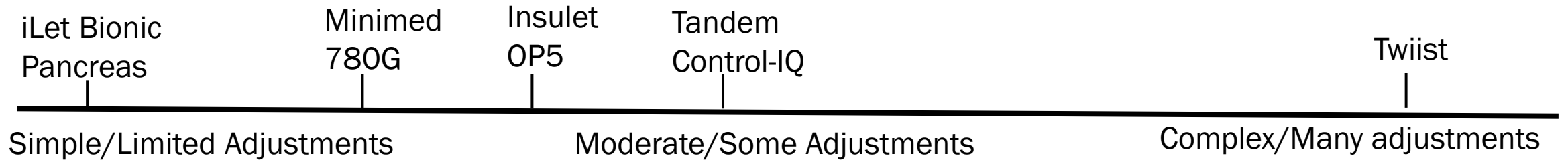
- How much engagement do you want? how much control do you want to let go of?
- How important is it to you to be able to adjust your settings/influence algorithm decisions?
- How difficult or burdensome is it for you to meal bolus?

## Practicality

- Cost, insurance coverage, insulin cartridge size

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# CUSTOMIZATION VS. SIMPLICITY



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# CUSTOMIZATION VS. SIMPLICITY



iLet Bionic  
Pancreas

Minimed  
780G

Insulet  
OP5

Tandem  
Control-IQ

Twist

Simple/Limited Adjustments

Moderate/Some Adjustments

Complex/Many adjustments



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# CUSTOMIZATION: SETTINGS

	780G	Omnipod 5	iLet	Twist	Control-IQ
Can you adjust basal rates?	No	No	No	Yes	Yes
Are there auto-correction boluses?	Yes	No	Yes	No	Yes
Can you adjust target glucose?	Yes (100, 110, 120 mg/dL)	Yes (110,120, 130,140, 150 mg/dL)	Yes (Lower, Usual, Higher)	Yes (87-180 mg/dL)	No (112.5-160 mg/dL FIXED)
What are the special features?	Temp Target	Activity Feature	None	Workout Pre-Set Pre-meal preset	Sleep activity Exercise activity

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# PERSONALIZATION: FEATURES

	780G	Omnipod 5	iLet	Twiiist	Control-IQ
Phone app for pump operation?	No	Yes	No	Yes*	Yes- Mobi* No- t:slim (can mobile bolus from phone )
Insulin Cartridge Size?	300 units  7 day cartridge and infusion set	200 units	180 units	300 units	T:slim = 300 units Mobi= 200 units
Pump Size, other considerations	Largest pump option	Tubeless waterproof	Mid-range, slim design	Small, circular	Mobi has option for on-body patch wear OR tubing of different lengths, including 5" tubing

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# OTHER CONSIDERATIONS: THE ROLE OF THE BOLUS

- Bolusing for meals (or announcing meals if iLet) is main factor in meeting glycemic goals

## **BUT, bolusing does not have to be complicated**

- Simplified bolus strategies can help ease the burden while providing similar benefit to counting carbs
- iLet has a simple meal announcement without carb counting built into the system
- In other devices with traditional bolus calculators, a fixed meal estimation can be just as effective
  - Ex: small, medium, large meal
  - Ex: 30g, 60g, 90g



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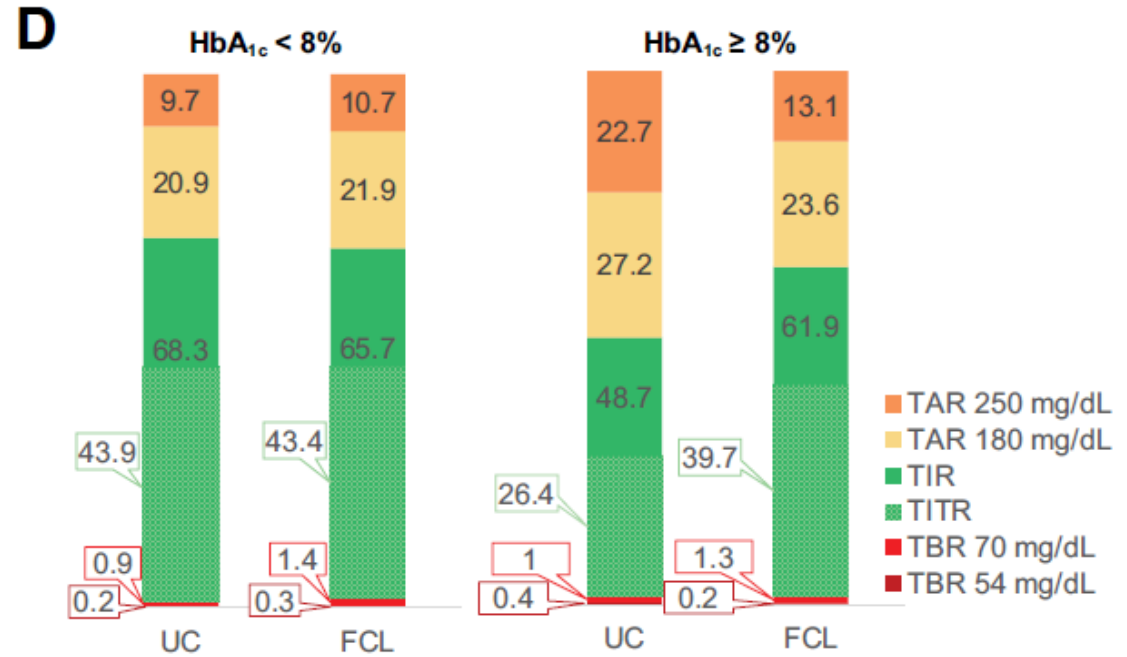
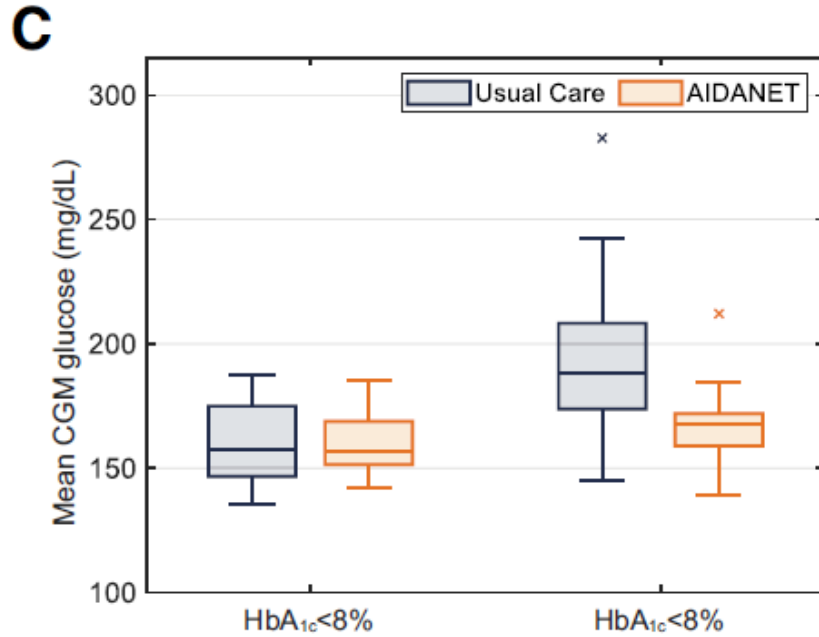
# FULLY CLOSED LOOP: THE FUTURE

Marcela Moscoso-Vasquez, Laya Ekhlaspour, Sue A. Brown, Mark D. DeBoer, Cari Berget, Erin C. Cobry, R. Paul Wadwa, Gina Capodanno, Eda Cengiz, Jenise C. Wong, Elliott C. Pryor, Maria F. Villa-Tamayo, Anas E.L. Fathi, Viola Holmes, Sara Davis Prince, Estella Escobar, Lindsey Towers, Yasaman Hosseini-pour, Avani Narayan, Chaitanya L.K. Koravi, Taylor Nguyen, David Fulkerson, Charlotte L. Barnett, Mary C. Oliveri, Marc D. Breton, and Gregory P. Forlenza, on behalf of the FCL@Home Study Group



Safety and Feasibility of a Fully Automated Insulin Delivery System: FCL@Home, a Multicenter Randomized Clinical Trial in Individuals With Type 1 Diabetes

Diabetes Care 2026;49(3):1-9 | <https://doi.org/10.2337/dc25-1526>



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# MINIMED: FULLY CLOSED LOOP STUDY UNDERWAY

- New, smaller Minimed Flex pump with fully closed loop algorithm
- Operated by cell phone app
- Bolus optional
- With Simplera sensor in the clinical study



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# INSULET: OMNIPOD 6 AND OMNIPOD M CLINICAL TRIALS

- **Randomized controlled trial of Omnipod 6 compared to Omnipod 5**
  - More robust algorithm with lower target option (100 mg/dL)
  - No more exits from automated mode
- **Randomized controlled trial of Omnipod M**
  - Fully closed loop system for adults with type 2 diabetes
  - No system settings
  - No bolus menu at all

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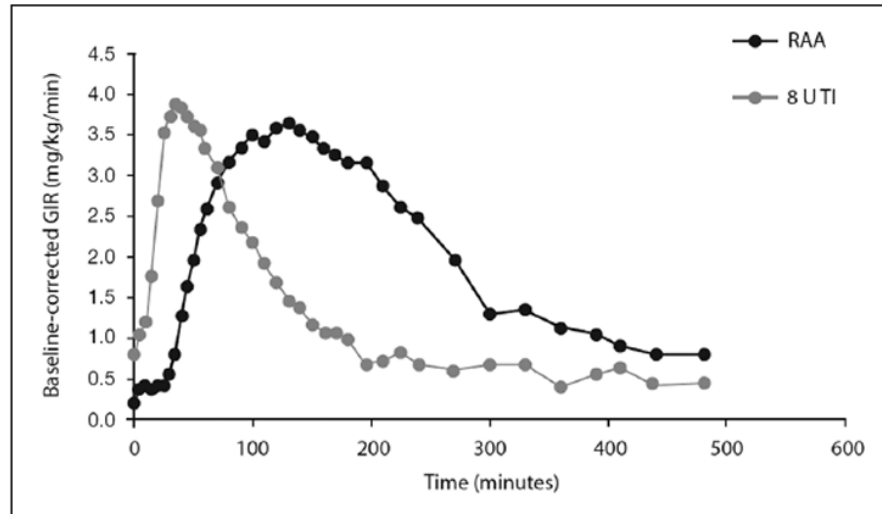
# TANDEM: PREGNANCY INDICATION + FCL TRIALS TO COME

- Tandem's Control IQ + algorithm the first to receive pregnancy indication in the United States
- RCT showed 12% increase in pregnancy TIR (63-140 mg/dL) from 16 week through end of pregnancy compared to standard care
- Use of sleep mode all day
  
- Plans to pivotal trial with UVAs AIDANET FCL algorithm
  - Mobi pump

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# BRAND NEW: INHALED INSULIN APPROVED FOR KIDS

- Been approved for use in adults for over a decade
- Fastest insulin we have, without any pokes!



**Figure 2.** Pharmacodynamics of TI: mean baseline-corrected glucose infusion rate of TI versus RAA in type I diabetes (Study I16).



Heinemann et al., 2023. doi.org/10.1007/s13300-023-01368-7



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**QUESTIONS**

