



Terugblik op het ATTD

MedTech Breakthrough T1D
3 april 2025

Dr Inge Van Boxelaer

Endocrinoloog St-Lucas Ziekenhuis Gent, België



ATTD is grootste congres over
diabetes technologie wereldwijd

- | | |
|--------|------------------|
| > ATTD | 5000 deelnemers |
| > ADA | 12000 deelnemers |
| > EASD | 12000 deelnemers |

Meeste sessies vallen samen in 9 hallen (A-H) => FOMO

Wednesday, 19 March 2025

	RAIL A	RAIL B	RAIL C	RAIL D	RAIL E	RAIL F	RAIL G	RAIL H
08:00 - 08:30			IGATE START: EVERY 15 MIN					
08:30 - 09:00					PRIMARY INDUSTRY cut included in the main event CMCFO credits			
09:00 - 09:30								
09:30 - 10:00								
10:00 - 10:30								
10:30 - 11:00	PARALLEL INDUSTRY cut included in the main event CMCFO credits	PARALLEL INDUSTRY cut included in the main event CMCFO credits	PARALLEL INDUSTRY cut included in the main event CMCFO credits	PARALLEL INDUSTRY cut included in the main event CMCFO credits	PARALLEL INDUSTRY cut included in the main event CMCFO credits	PARALLEL INDUSTRY cut included in the main event CMCFO credits	PARALLEL SESSION 1: ELEVATOR CASE STUDIES, RECENTS, SMALL AND STRATEGIES	RODICE UNUSUAL
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Thursday, 20 March 2025

[illegible]

Friday, 21 March 2025

[illegible]

Saturday, 22 March 2025

	Hall B	Hall C	Hall D1	Hall D2	Hall E	Hall F	Hall G	Hall H	Hall I
08:30-09:30	PARALLEL SESSION 18 DIABETES AND NUTRITION IN THE MIDDLE EAST CANCER UNIT	PARALLEL SESSION 19 DIABETES AND NUTRITION IN THE MIDDLE EAST CANCER UNIT							
09:30-10:30	Break to change Halls								
10:30-11:00	PARALLEL SESSION 20 TREATING DIABETES AT THE HOSPITAL	PARALLEL SESSION 21 ENHANCING CARE FOR THE INDIVIDUALS WITH TYPE 2 DIABETES WITH COGNITIVE / FUNCTIONAL CHALLENGES	ORAL SESSION 1	ORAL SESSION 2	PARALLEL SESSION 22 CLOSED- LOOP FEEDBACK CONTROL	PARALLEL SESSION 23 DECISION TECHNOLOGIES - ARE THEY DELIVERING?	BREAKTHROUGH SESSION 24 NUTRITION AND FOOD TECHNOLOGIES TO IMPROVE OUTCOMES AND QUALITY OF LIFE IN TYPE 1 DIABETES	PARALLEL SESSION 25 NUTRITION AND FOOD TECHNOLOGIES	
11:00-11:30	COFFEE BREAK, EXHIBITION & POSTERS, INTERNATIONAL FAIR OF NEW TECHNOLOGIES IN DIABETES								
11:30-11:50	PARALLEL SESSION 26 THE ROLE OF LIPIDS IN TREATING DIABETES	PARALLEL SESSION 27 CLOSED- LOOP FEEDBACK CONTROL TECHNOLOGIES IN DIFFERENT COUNTRIES: RESULTS OF THE DI-SCOUT	ORAL SESSION 3	ORAL SESSION 4	PARALLEL SESSION 28 INDIVIDUAL ASSOCIATION BETWEEN GLUCOSE AND MUCOSAL IMMUNE RESPONSE IN TYPE 2 DIABETES	PARALLEL SESSION 29 TYPE 2 DIABETES: EXPANDING PATIENTS WITH PERSONALIZED MEDICINE USING INNOVATIVE TECHNOLOGY	PARALLEL SESSION 30 REPORTS ON DIABETES MANAGEMENT AND PUBLIC HEALTH	PARALLEL SESSION 31 REMARKS AND AUTOMATION HOW TO HELP THEM GET ALONG	PARALLEL SESSION 32 REMARKS AND AUTOMATION HOW TO HELP THEM GET ALONG
12:00-13:00									
13:00-14:00	LUNCH BREAK, EXHIBITION & POSTERS, INTERNATIONAL FAIR OF NEW TECHNOLOGIES IN DIABETES								
14:00-14:15	ORAL SESSION 5	PARALLEL SESSION 33 DEBATE: ADAPTIVE TREAT IN THE TENSILAR ERA: TO PLACEBOS OR NOT PLACEBO?	ORAL SESSION 6	ORAL SESSION 7	PARALLEL SESSION 34 AI-DRIVEN HEALTHCARE: UNMET NEED AND CHALLENGES	PARALLEL SESSION 35 DEBATE IS THERE A REAL UNMET NEED AND FOR CONTINUOUS MONITORING?	PARALLEL SESSION 36 ADVANCES IN TECHNOLOGY AND ITS USE	PARALLEL SESSION 37 DEBATE ON COUNTER-VEIN TREATMENT GOALS AND OUTCOME MEASURE IN DIABETES	PARALLEL SESSION 38 DEBATE ON COUNTER-VEIN TREATMENT GOALS AND OUTCOME MEASURE IN DIABETES
14:15-14:30	Break to change Halls								
14:30-15:30					PARALLEL SESSION 39 TOWARD THE CURE OF TYPE 1 DIABETES				
15:30-16:15					CLOSING REMARKS				
16:15-16:45					REFRESHMENTS				

Terugblik op het ATTD 2025

CGM

- Product updates
- Nauwkeurigheid
- Hoe CGM gebruiken bij nieuwe populaties

Closed-loop systemen

- Product updates
- Closed-loop systemen bij type 2 diabetes
- DT-rapport

Dr Inge Van Boxelaer

- Endocrinoloog St-Lucas Ziekenhuis Gent, België
- Oprichter Diabetotech NPO (gesponsord door Dexcom, Abbott en VitalAire)

Other non-profit werk:

- Voorzitter Belgian professional Society for Diabeto-Endocrinologists
- Lid van de Algemene Vergadering Diabetes Liga, België
- Lid van adviesraad DiabetesPlus, Nederland

Disclosures:

- Sprekersvergoeding ontvangen van Abbott, Insulet, Medtronic, Menarini, Sanofi & ViCentra
- Lid van internationale adviesraad Diabeter, Glooko, Roche Diabetes Care

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Dexcom

Dexcom G7 15 dagen CGM

- Dexcom G7 10.5 dagen: MARD 8.2%
- Dexcom G7 15.5 dagen: MARD 8.0%

G7 tijdens **zwangerschap**: MARD 9.0%

Kleinere studies

- **Dialyse**: (n=12) G6 MARD 19.7%, G7 15.6%
- **Duiken**: (n=8) mits kalibratie: G7 MARD 11% (arm), 16% (buik)
($\Leftrightarrow$ 31% zonder kalibratie)



Sinocare

iCan i3

- MARD 8.71%
- Glucose dehydrogenase (geen interferentie)
- 15 dagen sensor, geen kalibratie
- CE-label voor ≥ 2 jaar oud



= GlucoMen iCan

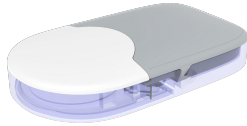
- Verdeeld door Menarini
- Nieuwe vorm (~Firenze Dom)



Medtrum

Standalone CGM

S9 CGM

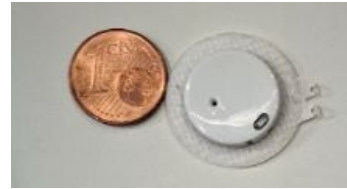


Connected CGM

TouchCare Nano



S10 CGM



TouchCare Nano Pro



Sibionics

Glucose monitor = GS1

- MARD 8.8%



Keton monitor = KS1



ULTRA-THIN
AS SLIM
AS A COIN

Tiny
like a thumb
(24.8*17.8mm)

Lighter
than a sheet of
A4 (1.5g)

Thin
As slim as a coin

Easier to Apply
Attach and Go

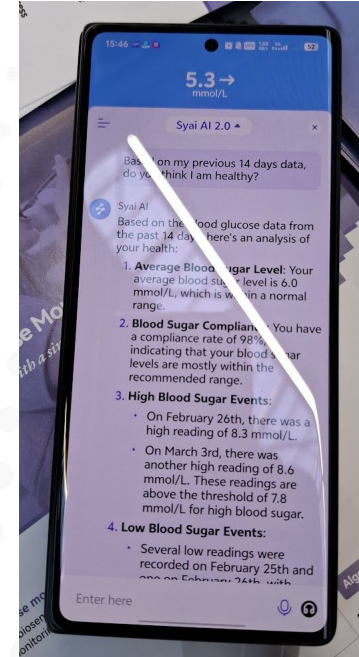


Diabetotech

Syai Health (> SYnchronise AI)

Syai Tag

- MARD 8.11%
- 14-day sensor, geen kalibratie
- Syai AI 2.0: ChatGPT integration
- Beschikbaar in Italië, Hongarije, Tsjechië, Slowakije, Estland, Kroatië, Servië, Bosnië, Macedonië, Griekenland en Slovenië (China, Singapore)



Syai Health

Hub Syai

- Voor gebruik in het ziekenhuis
- Maakt via Bluetooth verbinding met verschillende CGM's en stuurt gegevens naar Syai Cloud



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Waarom MARD niet genoeg is

MARD = gemiddelde
afwijking tussen
CGM-metingen en
referentiebloedglucose

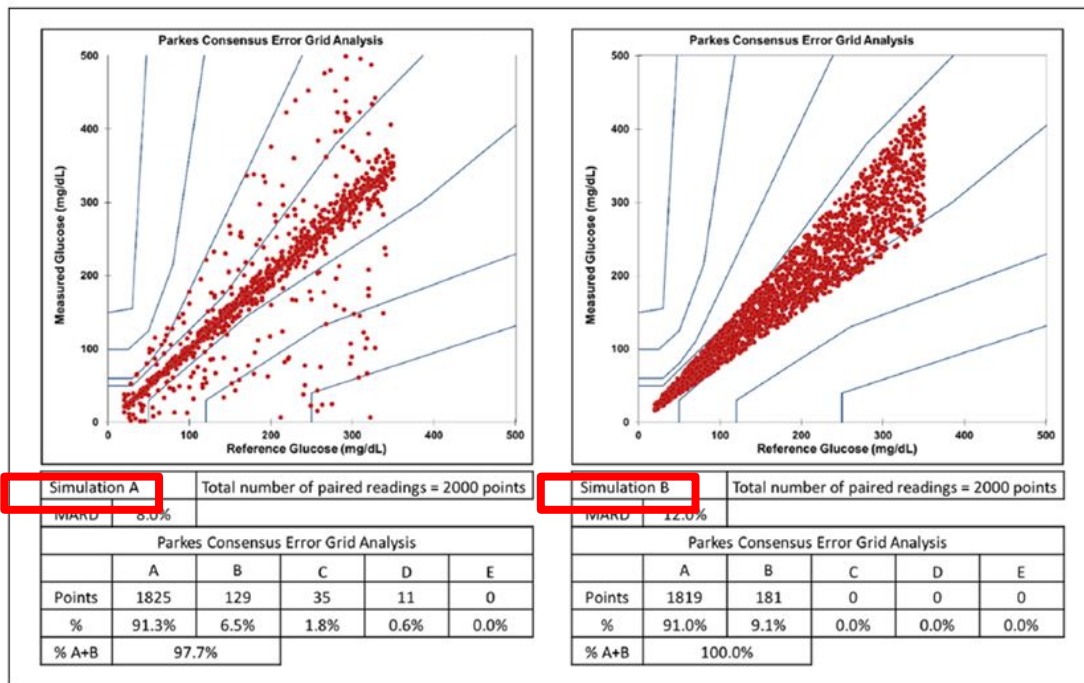
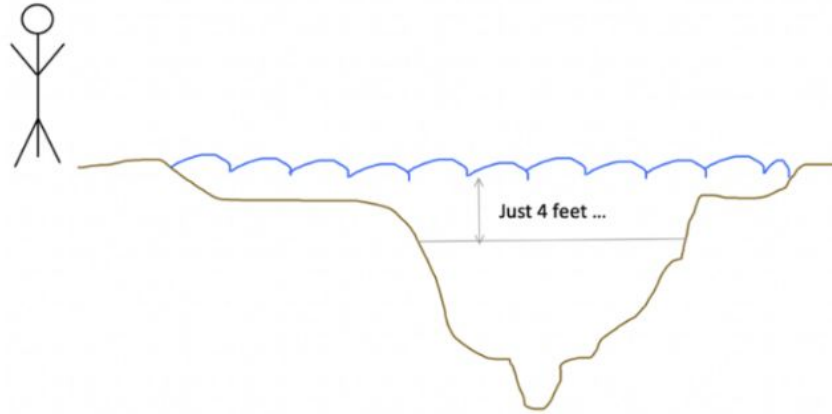


Figure 5. Comparisons of simulated test and reference glucose samples. The MARD and CEG plots of 2000 paired readings can be modelled to illustrate that different methods of analysis may generate different assessments of 'accuracy'.

Waarom MARD niet genoeg is

"Steek nooit een rivier over die gemiddeld 1,2 meter diep is".



Voorgestelde minimumprestaties eCGM

TABLE 1 Proposed minimum performance requirements for regulatory approval of CGM devices in Europe.

Glucose range	Performance against reference reading	Lower boundary of 95% confidence interval (CI)
<70 mg/dL mg/dL (<3.9 mmol/L)	Within ± 15 mg/dL	>85% of readings
70–180 mg/dL (3.9–10.0 mmol/L)	Within $\pm 15\%$	>70% of readings
>180 mg/dL (>10.0 mmol/L)	Within $\pm 15\%$	>80% of readings
<70 mg/dL (<3.9 mmol/L)	Within ± 40 mg/dL	>98% of readings
70–180 mg/dL (3.9–10.0 mmol/L)	Within $\pm 40\%$	>99% of readings
>180 mg/dL (>10.0 mmol/L)	Within $\pm 40\%$	>99% of readings
Across the reportable range	Within $\pm 20\%$	>87%
Overall, across all glucose measuring ranges	Within $\pm 20\%$	>87% of readings
CGM <70 mg/dL (<3.9 mmol/L) when reference > 180 mg/dL (>10.0 mmol/L)		0% of readings
CGM >180 mg/dL (>10.0 mmol/L) when reference < 70 mg/dL (<3.9 mmol/L)		0% of readings
CGM ROC > -1 mg/dL/min when reference ROC < -2 mg/dL/min		<1% of readings
CGM ROC < -1 mg/dL/min when reference ROC > -2 mg/dL/min		<1% of readings

Abbreviations: CGM, continuous glucose monitor; CI confidence interval; ROC, rate of change.

Goedgekeurd als iCGM

- **Dexcom G6 / ONE / G7 / ONE Plus**
- **FreeStyle Libre 2 (Plus) / 3 (Plus)**
- **Eversense E3 / 365**

Nieuwe CGM's op de Europese markt

Manufacturer	Device	MARD (%)	Study Status
Menarini	i-Can	8.7	No study available at stand. Publishing soon.
Yuwell	Anytime CT3	9.07	Chinese only. UK study to be done in April/May
SiBionics	GS3	Better than 8.83	No study information
Bionime	Rightest iFree2 CGM	N/A	No study details available because it's not published (also no CE mark yet)
Syai	Tag	8.106 (!)	Not handed out, but presentation shown privately at booth
iSens	Caresens	8.7	No study available to back up data
Microtech	Linx	8.3	Can't share study because it's not published

Onderzoeksprocedures zijn belangrijk

n=24 volwassenen met type 1 diabetes deden bloedglucosemetingen op D2, D5, D15 en maaltijd + insuline challenge



Figure 1: A study participant wearing all three CGM systems in parallel

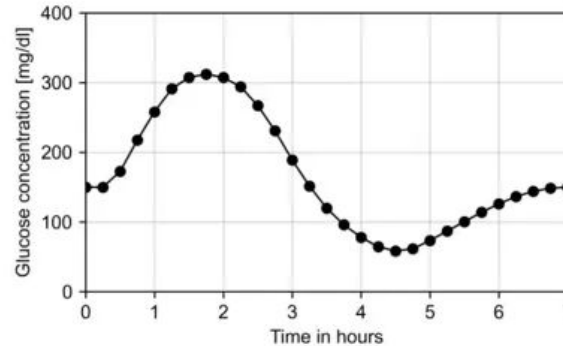


Figure 2: Left: Target glucose profile during glucose manipulation. Right: venous and capillary measurement every 15 minutes



Prestaties / MARD hangt af van “comparator”

	MARD reported by manufacturer	MARD compared with YSI (venous)	MARD compared with INT (venous)	MARD compared with CNX (capillary)
FreeStyle Libre 3	7.5 %	11.6 %	9.5 %	9.7 %
Dexcom G7	8.2 %	12.0 %	9.9 %	10.1 %
Medtronic Simpler	10.2 %	11.6 %	13.9 %	16.6 %

- FreeStyle Libre 3 & Dexcom G7 toonden betere nauwkeurigheid in het normoglycemische en hyperglycemische bereik
- Medtronic Simpler presteerde beter in het hypoglycemische bereik

Maaltijd- en insuline-uitdagingen om de snelle glucosedynamiek in het echte leven na te bootsen

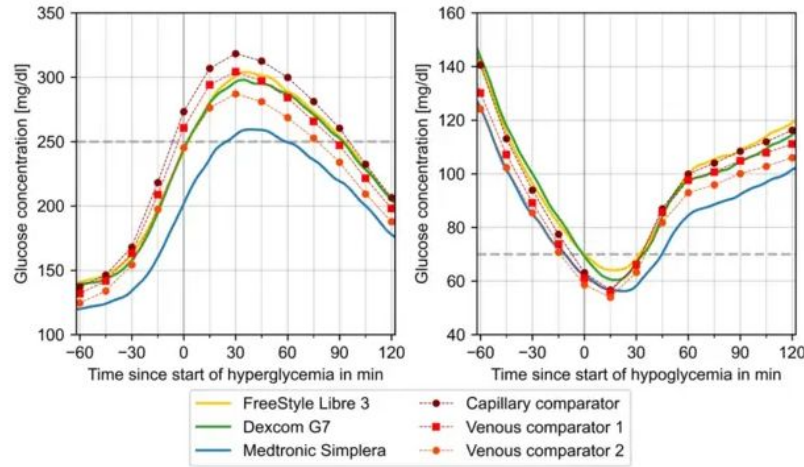


Figure 3: Left: Glucose profile of the three CGM systems and the comparators during hyperglycemia induction. Right: Glucose profile of the three CGM systems and the comparators during hypoglycemia induction. Modified from Eichenlaub et al. J Diabetes Sci Technol. 2025. doi: 10.1177/19322968251315459

- Libre 3 & Dexcom G7 lieten vergelijkbare prestaties zien
- Simplera week meer af (licht negatieve bias)

Een standaard “comparator” is nodig

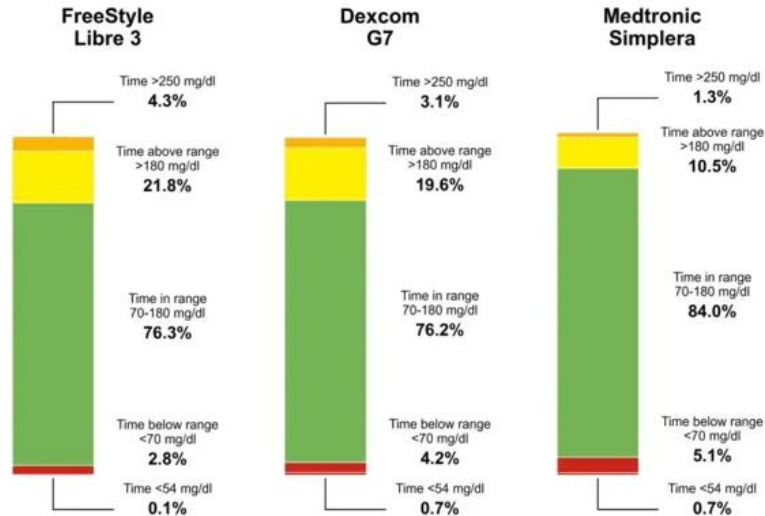


Figure 4: Mean time (as percentage of a day) in different glucose ranges across all study participants according to the three CGM systems

=> Het dragen van een **Simplera** sensor toonde een 8% **hogere TIR** dan het dragen van een Dexcom G7 of FreeStyle Libre 3 sensor.

"Een uniforme vergelijkende meetprocedure voor alle fabrikanten zou beter zijn"

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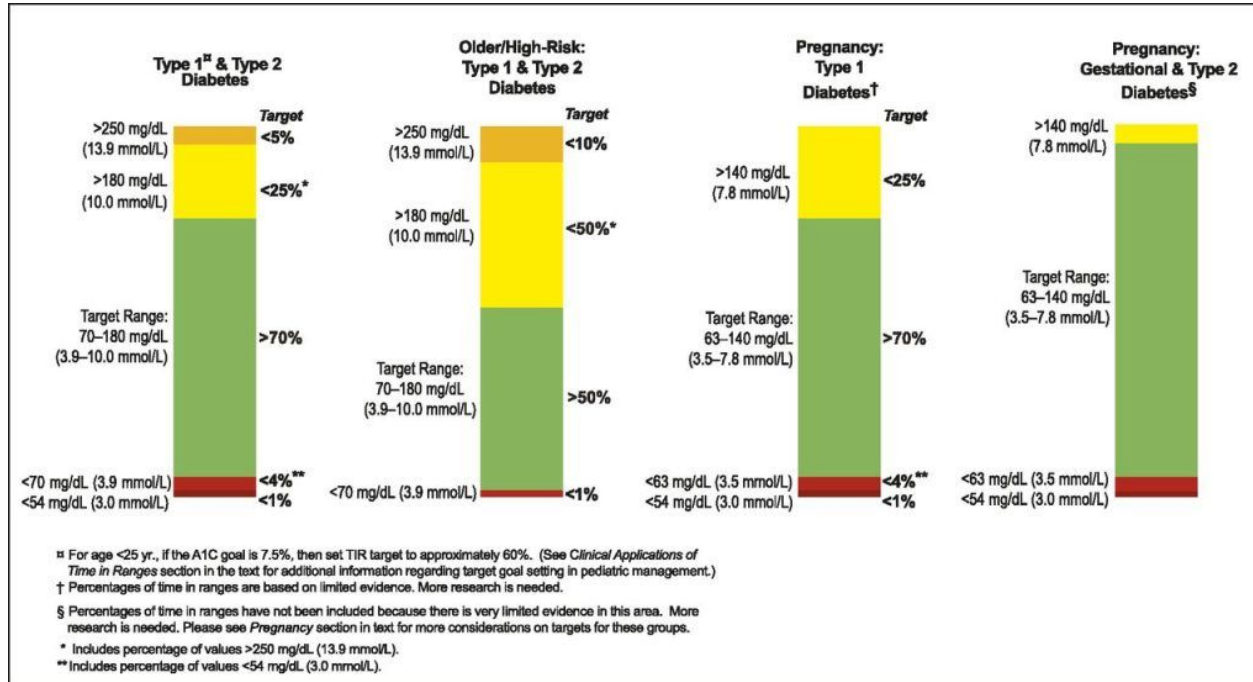
CGM

- Product updates
- Nauwkeurigheid
- Hoe CGM gebruiken bij nieuwe populaties

Closed-loop systemen

- Product updates
- Closed-loop systemen bij type 2 diabetes
- DT-rapport

CGM-doelen voor mensen met diabetes



CGM-doelen voor mensen met diabetes

Aangezien een betere glucosecontrole mogelijk wordt, wordt een Time In Tight Range (TITR) = 3,9-7,8 mmol/l (70-140 mg/dl) doel van > 50-55% overwogen.
+ het kan worden geherdefinieerd als **Time In Normal Glycemia = TING**

- **PRO:** Voor mensen die toegang hebben tot CGM/closed-loop systemen lijkt het haalbaar + strengere doelen zullen leiden tot betere glucosecontrole
- **CONTRA:** Het niet halen van de nieuwe doelen kan extra stress geven en leiden tot meer hypoglycemie

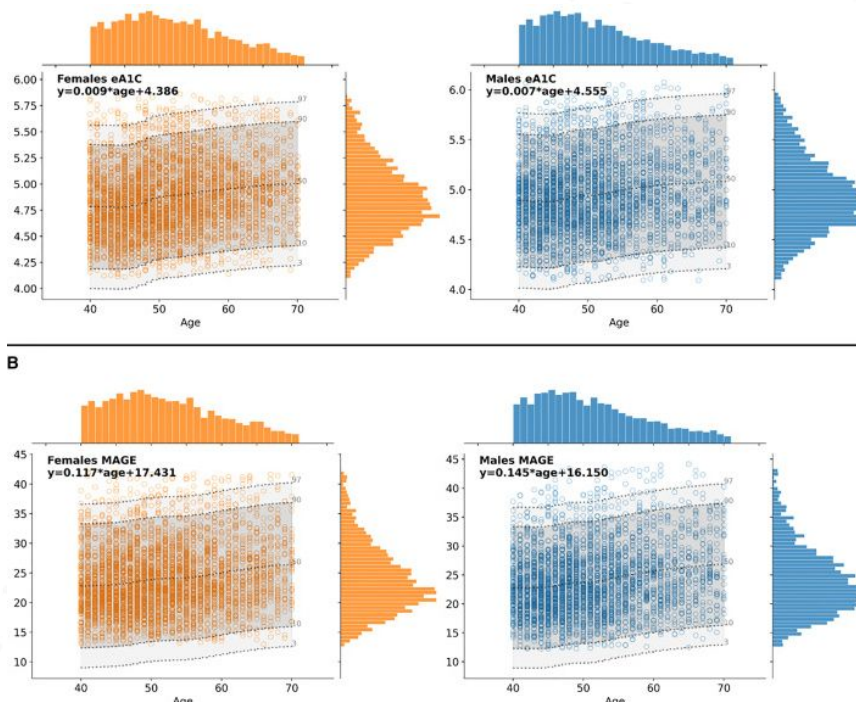
CGM voor het definiëren van mensen met een risico op TYPE 2 diabetes

- Voorlopig wordt de diagnose nog steeds gesteld met nuchtere glucose, OGTT en/of HbA1c.
- Als de tijd boven 7,8 mmol/l (140 mg/dl) (**TAR140**) is **>10%**, dan heb je een verhoogd **risico** op type 2 diabetes (~prediabetes)
- Dynamische markers (glucosevariabiliteit) zijn misschien een betere marker

MAAR, glucosewaarden zijn afhankelijk van veel factoren

CGM-gegevens bij gezonde personen zijn gerelateerd aan

- Leeftijd / geslacht
- BMI, bloeddruk, lipiden, levertesten, slaapstoornissen, voedingsgewoonten



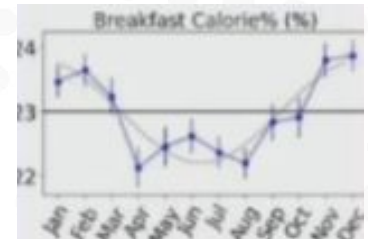
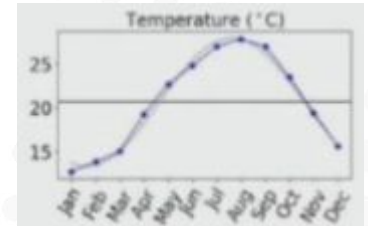
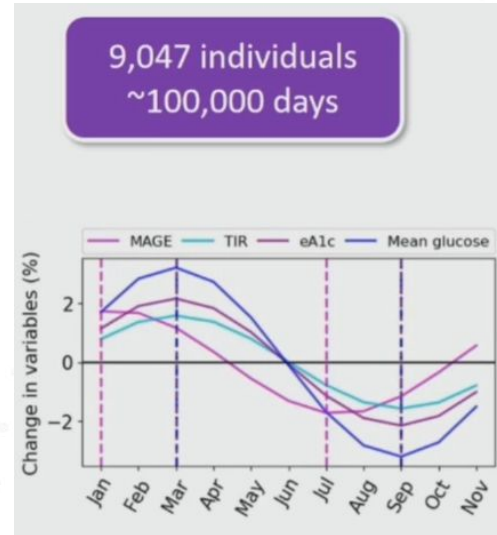
eA1c

MAGE

CGM-glucosewaarden zijn afhankelijk van veel factoren

CGM-gegevens bij gezonde personen zijn gerelateerd aan

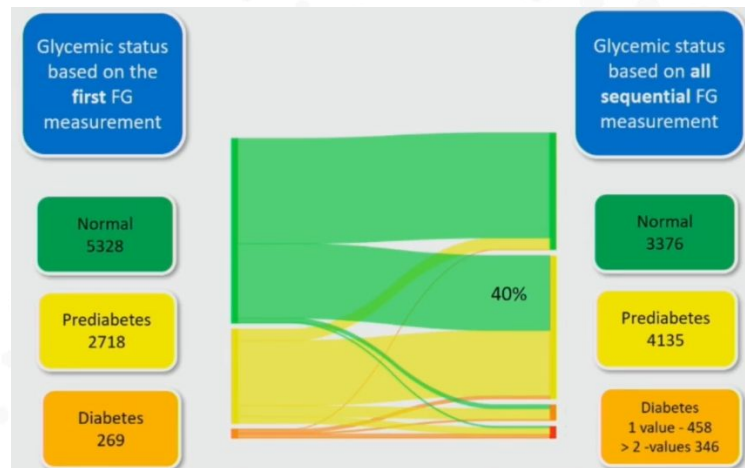
- Leeftijd / geslacht
- BMI, bloeddruk, lipiden, levertests, slaapstoornissen, voedingsgewoonten
- Seizoen
- Microbiom
- Genetica



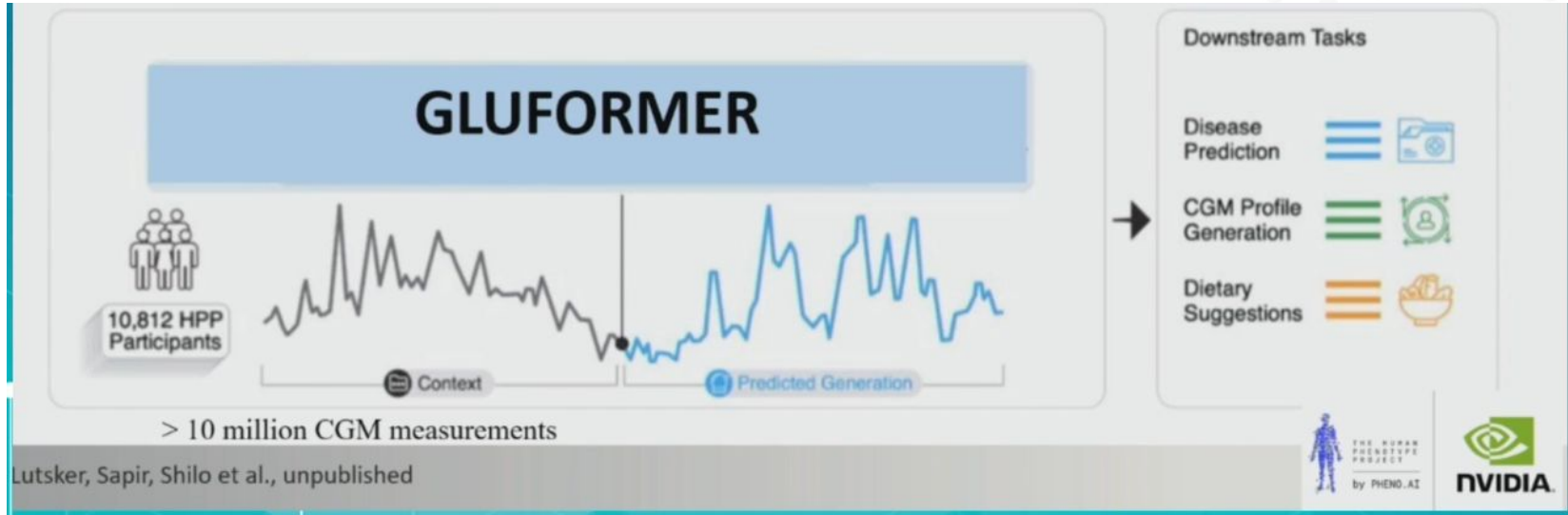
CGM nuchtere glucose toont belangrijke variabiliteit

n=8315 volwassenen zonder diabetes 40-70 jaar: nuchtere glucose gedurende 7 dagen

- **Intrapersoon variabiliteit** van dag tot dag was 7,52 mg/dl => kan leiden tot **foute classificatie van (pre)diabetes**
- Glycemische status moet worden gebaseerd op 6 nuchtere glucosewaarden om het aantal herclassificaties aanzienlijk te verminderen

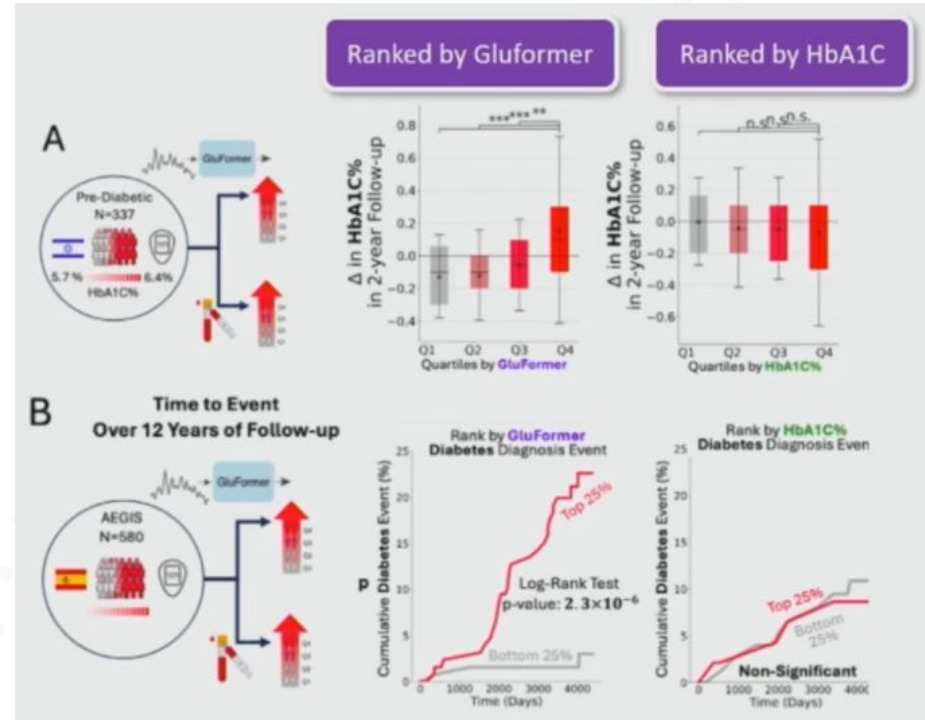


CGM-gegevensanalyse met een “foundational model”

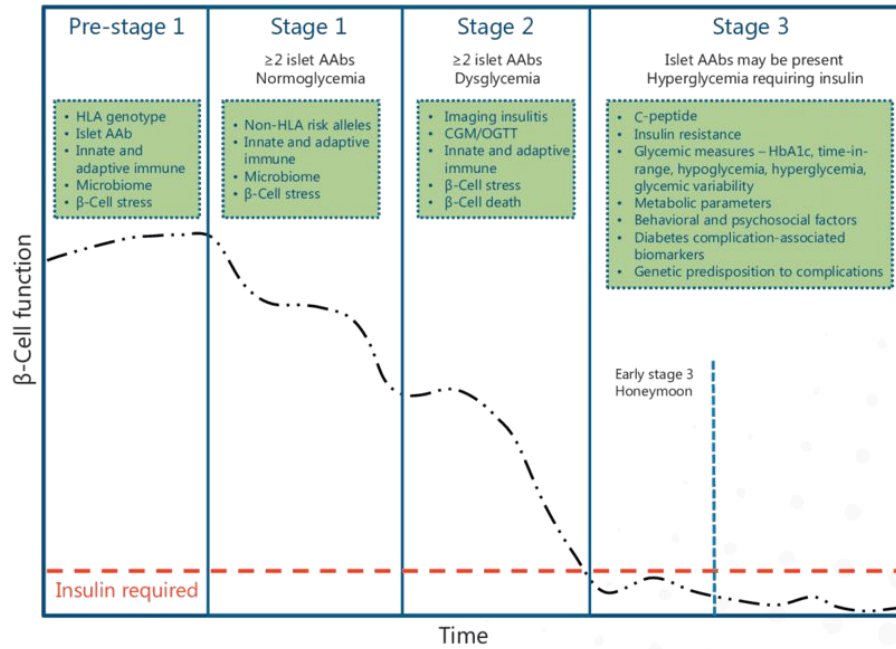


CGM-gegevensanalyse met een “foundational model”

Foundational model
(GluFormer) presteert beter
dan HbA1c bij het
identificeren van individuen
die een risico lopen op
toekomstige verhogingen van
HbA1c en diabetesincidentie
op de lange termijn



CGM voor het bepalen van het risico op progressie van stadium 1 of 2 naar stadium 3 TYPE 1 diabetes



- Bevolkingsonderzoek (1-45 jaar) loopt in Europa en de VS
- Mensen met ≥ 2 autoantistoffen krijgen elke 3-6 maanden OGTT/CGM, HbA1c en C-peptide
- Jongere mensen en mensen met bepaalde auto-antilichamen (IA-2 > GAD) hebben eerder progressie

OGTT Versus CGM to Predict Type 1 Diabetes

Design & Endpoint



AAb screening for FDRs of T1D probands



n=34 multiple AAb-positive participants
Baseline stage 2 T1D: n=2
Baseline age: 17 (13-23) years

Repeated metabolic monitoring with OGTT, HbA_{1c} and 5-day CGM 2x/year



Follow-up: 3.5 (2.0-7.5) years



n=17 progressors to stage 3 T1D



n=17 non-progressors (n=2: stage 2 T1D)

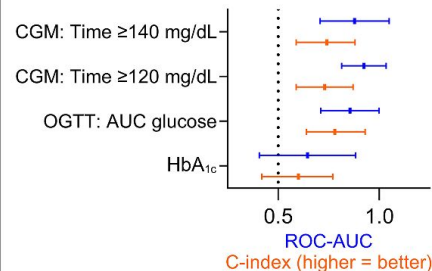
Analysis

BASILINE PREDICTIONS

Statistics

ROC-AUC; diagnostic efficiency
Kaplan Meier
Cox PH regression: hazard ratio, C-index

Results



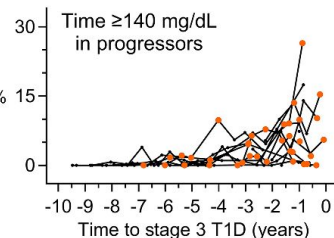
Conclusion

CGM and OGTT perform similarly
HbA_{1c} less informative

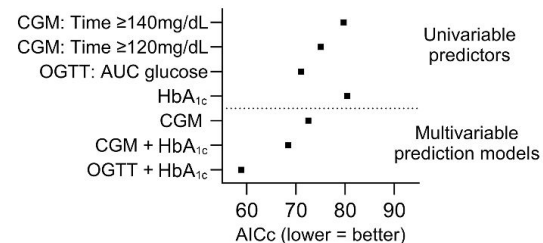
LONGITUDINAL PATTERNS & PREDICTIONS BY MULTIPLE RECORDS (n=197)

Spaghetti plots

Extended Cox PH regression, adjusted for intra-individual correlations: hazard ratio, AICc



• Dysglycemia on OGTT



OGTT $\geq$ CGM; CGM + HbA_{1c}: alternative to repeat OGTT for clinical monitoring
Important intra-individual variability in OGTT and CGM

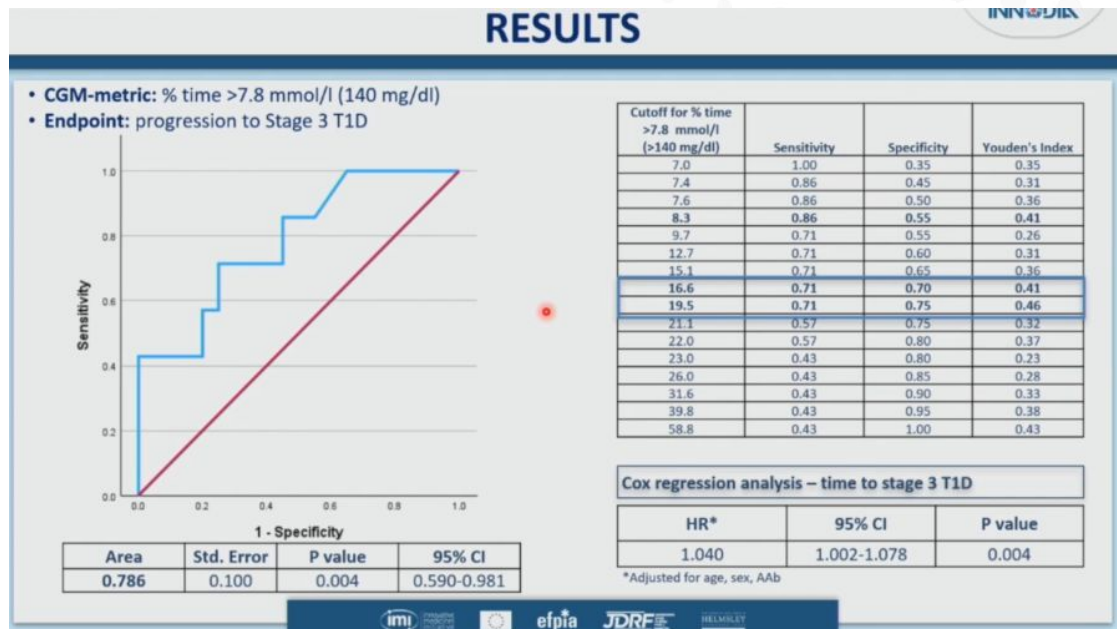
SI units for 140 mg/dL and 120 mg/dL are 7.8 mmol/L and 6.7 mmol/L, respectively. AAb, autoantibody; AICc, corrected Akaike information criterion; AUC, area under the curve; BDR, Belgian Diabetes Registry; CGM, continuous glucose monitoring; FDR, first-degree relative; OGTT, oral glucose tolerance test; PH, proportional hazards; ROC-AUC, receiver operating characteristic area under the curve; T1D, type 1 diabetes.

CGM voor het bepalen van het risico op progressie naar type 1-diabetes stadium 3

INNODIA

- n= 138 mensen met fase 2 type 1 diabetes
- 10-daagse Dexcom G6

=> Mensen met een **tijd >7,8 mmol/l (140 mg/dl) van >18%** hebben een hoog risico op progressie naar stadium 3 type 1 diabetes.



MAAR, casestudy toont genuanceerd verhaal

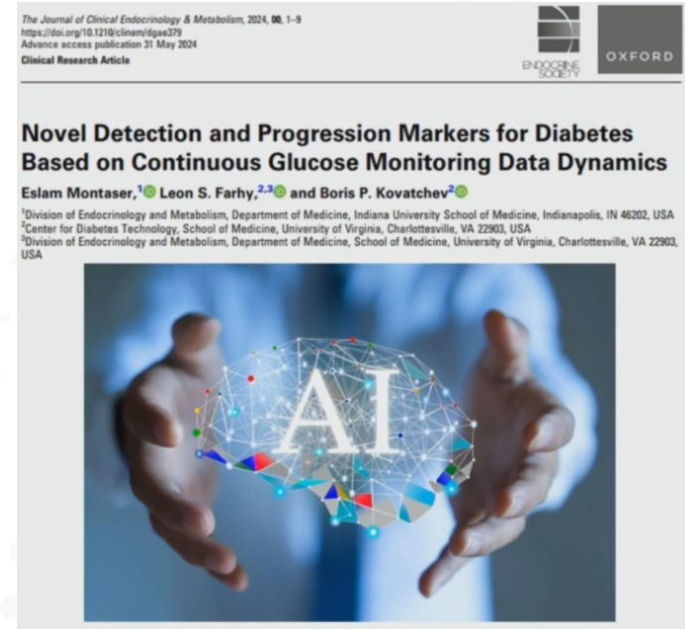
Jongen, 8 jaar oud, broer met T1D, GAD/ZnT8/IAA/IA-2A positief:

Datum	OGTT	HbA1c	CGM	Stadium
Dec 2020	normaal	5,3-5,5%	/ Stadium 1	T1D
Maart 2022	2u 160 mg/dl	5,7%	/ Stadium 2	T1D
Juli 2022	2h 160 mg/dl	5,3%	TAR >140 mg/dl 25%	Stadium 2 T1D
nov 2022	2h 200 mg/dl	5,3%	TAR >140 mg/dl 34%	Stadium 3 T1D
Nov 2023	2u 170 mg/dl	5,7%	TAR >140 mg/dl 12%	Stadium 2 T1D
Nov 2024 / Feb 2025		5,6%		

Nieuwe CGM-parameters worden onderzocht

=> TAR >7.8 mmol/l (140 mg/dl) kan ons helpen stadium 3 T1D te voorspellen, maar zegt niet alles

=> Er wordt gekeken naar nieuwe (dynamische) CGM-parameters



Terugblik op het ATTD 2025

CGM

- Product updates
- Nauwkeurigheid
- Hoe CGM gebruiken bij nieuwe populaties

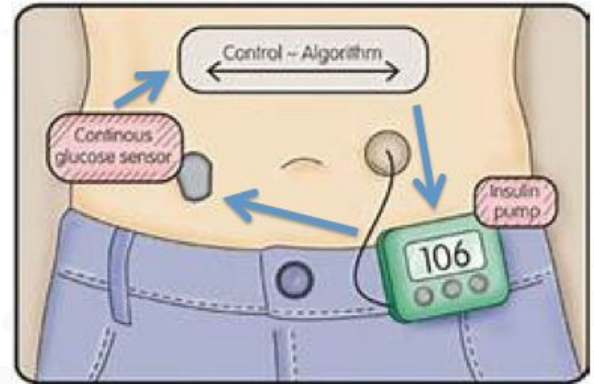
Closed-loop systemen

- Product updates
- Closed-loop systemen bij type 2 diabetes
- DT-rapport

Wat is een closed-loop systeem?

Een closed-loop systeem bestaat uit 3 onderdelen:

- een glucosesensor
- een insulinepomp
- en een algoritme



Hybride closed-loop systeem betekent dat je als gebruiker nog steeds ZELF je koolhydraten moet ingeven en sport aangeven



MiniMed 780G



Tandem Control-IQ



Omnipod 5



Mylife Loop



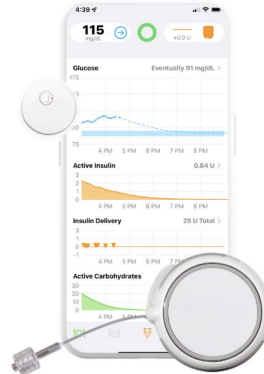
Diabeloop-Kaleido



TouchCare Nano



AndroidAPS



Twist

Luna
Diabetes

Neural-net
artificial pancreas

MiniMed 780G tijdens menstruele cyclus

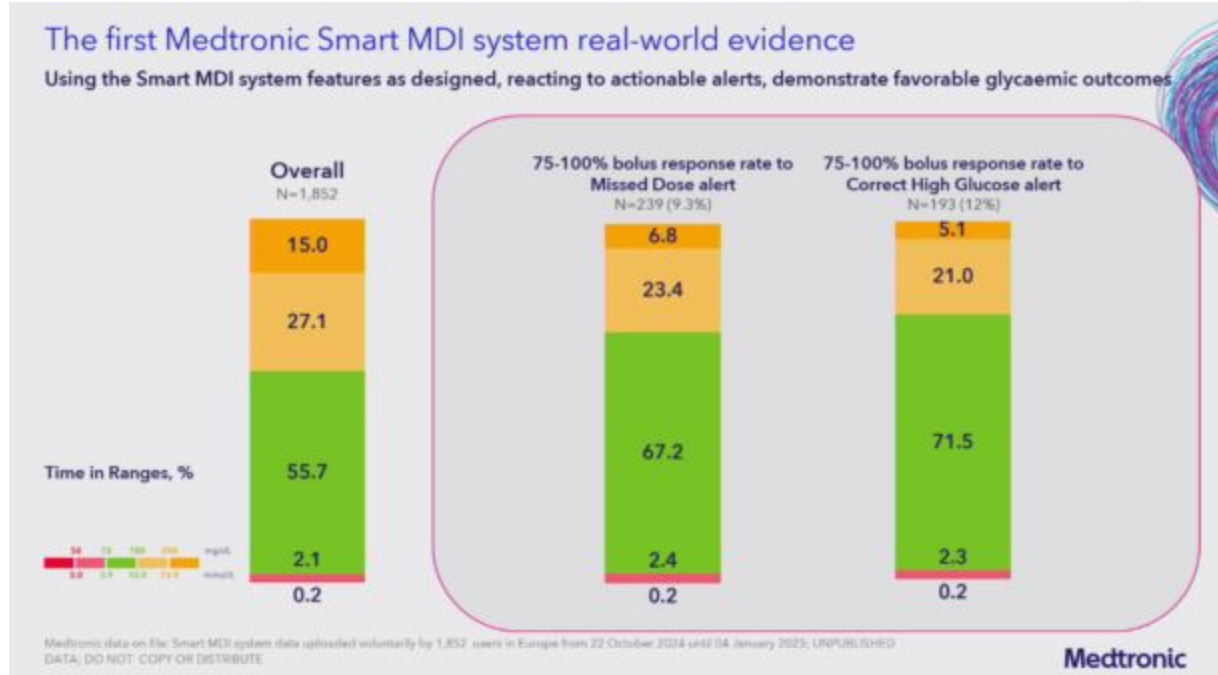
n=12 vrouwen met type 1 diabetes en
MiniMed 780G

- TIR stabiel tussen vroege folliculaire en late luteale fase (idem aan Control-IQ)
- Late luteale fase:
 - Verhoogde insulinebehoefte
 - Lichte stijging van de gemiddelde glucose
 - Iets hogere KH-inname

Table 1. Continuous Glucose Monitoring and Insulin Delivery Metrics in Early Follicular and Late Luteal Phases

	Early follicular phase	Late luteal phase
Automatic mode usage (%)	100 (99, 100)	100 (99, 100)
Average glucose (mg/dL)	131.5 (126.8, 140.2)	139.5 (133.5, 145.2)
GMI (%)	6.6 (6.4, 6.7)	6.7 (6.5, 6.8)
CV (%)	29.8 (3.8)	30.8 (6.2)
TIR (%)	85 (79.8, 89)	83 (76, 87.5)
TBR1 (%)	1 (1, 2.3)	1 (0.8, 2)
TBR2 (%)	0 (0, 0.3)	0 (0, 0.3)
TAR1 (%)	12.4 (6.2)	13.4 (5.2)
TAR2 (%)	1 (0, 2)	2 (0, 4.3)
Total insulin (IU)	33.6 (12.2)	37.2 (11.9)
Insulin (IU/kg)	0.5 (0.2)	0.6 (0.2)
Basal insulin		
IU	13.7 (5.8)	14.9 (5.2)
%	42.6 (6.7)	40.3 (6.5)
Insulin bolus ^a		
IU	17.6 (9.4)	22.3 (8.1)
%	57.4 (6.7)	59.7 (6.5)
Autocorrection bolus		
IU	5.5 (3.3)	5.8 (3.4)
%	26.5 (11.1)	26.9 (9.2)
Meals per day (n)	4.8 (1.5)	5.1 (1.6)
Carbohydrate intake (g/day)	113 (26.5)	124 (32.4)
Cannula change (d)	4.0 (1.3)	4.1 (2.7)

Medtronic InPen 2.0



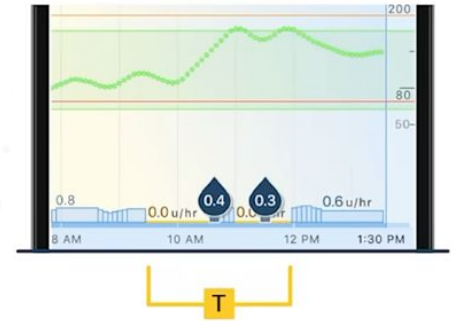
*MiniMed™ 780G system with Guardian 4 sensor, suspend-before-low feature activated; ClinicalTrials.gov ID: NCT05574052; The MiniMed™ 780G insulin pump is indicated for use by patients aged 7-80 years with Type 1 diabetes, whose total daily dose of insulin is 8 units per day or more.

#2 Tandem: Control-IQ +

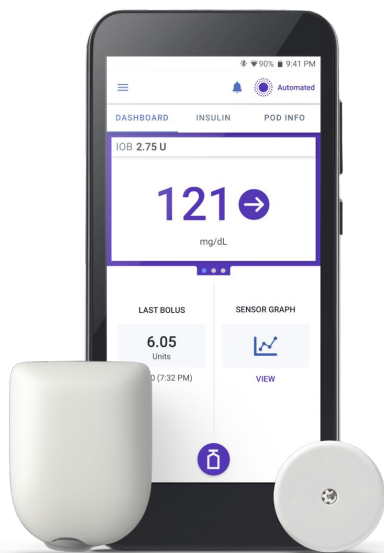


Control-IQ 1.5 > Control-IQ +

- Alleen verkrijgbaar in de VS, voor mensen ≥ 2 jaar met T1D of T2D
- 10-100 => 5-200 E/dag
- 25-140 => 9-200 kg/dag
- Optie voor **tijdelijke basaal** tot 72 uur
- **Verlengde bolus** tot 8 uur tijdens Control-IQ



#3 Omnipod 5: RADIANT studie



188 participants from 19 institutions in **UK, France, and Belgium**

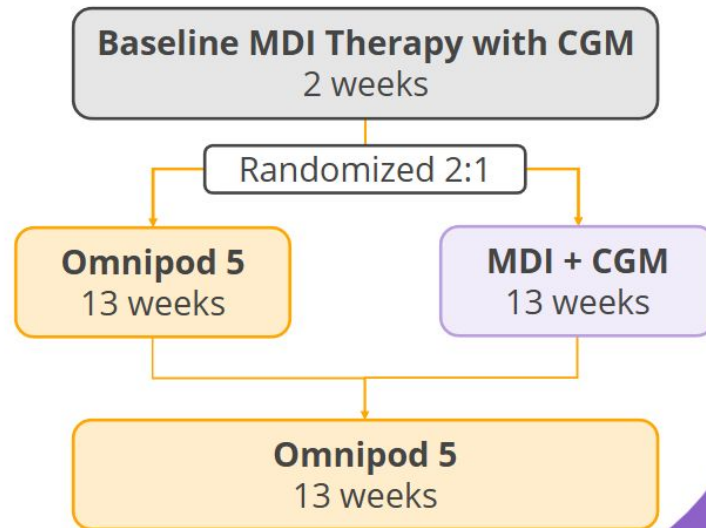
Inclusion Criteria

- 4 - 70 years, T1D $\geq$ 1 year
- MDI + CGM for $\geq$ 3 months
- HbA1c 7.5-11% [58-97 mmol/mol]

Study CGM: FreeStyle Libre 2

Primary Endpoint:

Change in HbA1c at 13 weeks



ClinicalTrials.gov/NCT05923827
Presented by Dr. Emma Wilmer at ATTD 2025 March 19, 2025, Amsterdam.

Primary Outcome: Omnipod 5 Delivers Significant Reduction in HbA1c

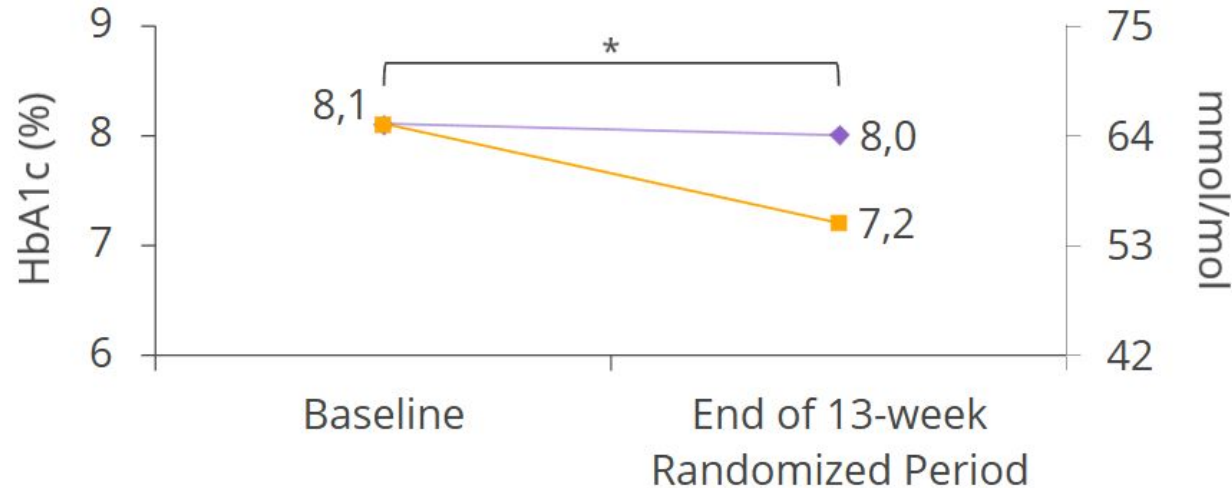
RADIANT
Data

Treatment Grp Difference
Adjusted for Baseline:

**-0.8%
[-9 mmol/mol]**

MDI + CGM: N=63

Omnipod 5: N=125



***p<0.0001[†]**

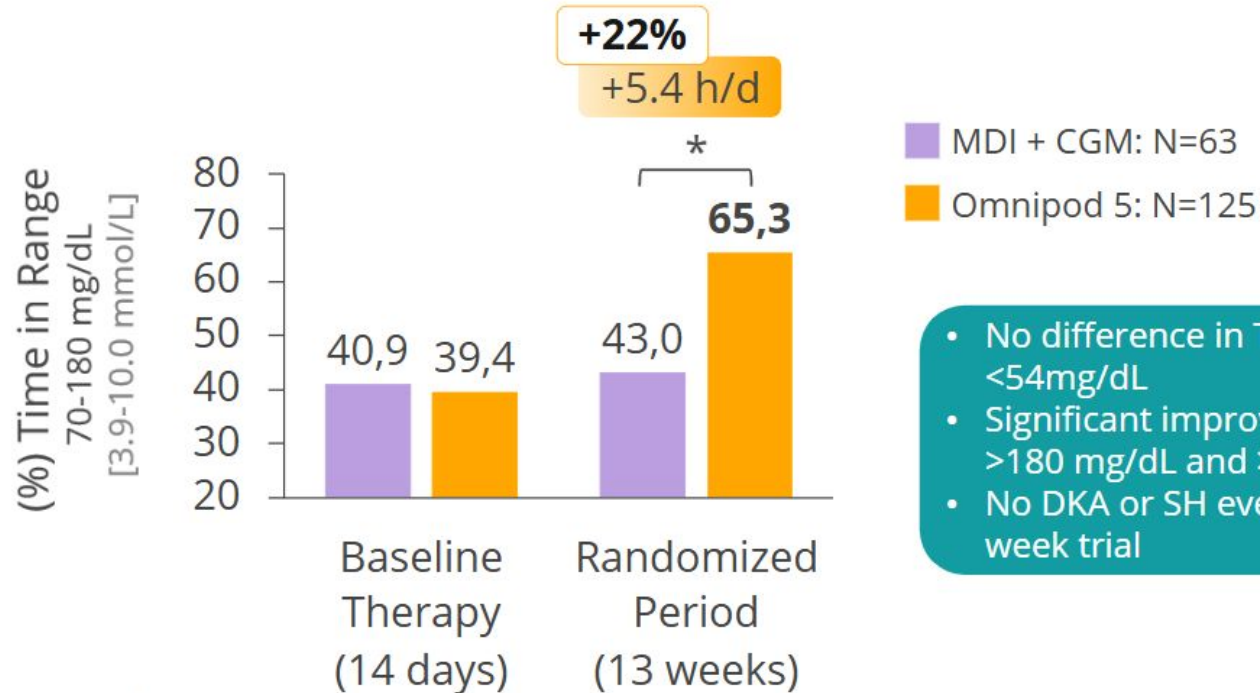
Data shown as mean. [†]p-value based on linear mixed effects model with treatment group, age, sex, duration of diagnosis, and baseline HbA1c as fixed effects.

ClinicalTrials.gov/NCT05923827

Presented by Dr. Emma Wilmot at ATTD 2025 March 19, 2025, Amsterdam.

Omnipod 5 Improves TIR by Over 5 hours a day vs. MDI + CGM

RADIANT
Data



- No difference in TBR <70 mg/dL and <54mg/dL
- Significant improvement in TAR >180 mg/dL and >300 mg/dL
- No DKA or SH events during 13-week trial

***p<0.0001†**

Data shown as mean. †p-value based on linear mixed effects model with treatment group, visit, treatment group by visit interaction, age, sex, duration of diagnosis as fixed effects
ClinicalTrials.gov/NCT05923827. Presented by Dr. Emma Wilmot at ATTD 20205 March 19, 2025, Amsterdam.

#4 Mylife Loop closed-loop systeem



iOS optie

- Eerst in Zweden (vanaf 24-3-2025), Nederland/België vanaf Q2 2025
- Eerst enkel met Libre 3 (Plus)
- Initieel zonder Companion app

#5 Diabeloop-Kaleido: next-gen update



Join our special Kaleido event during ATTD!

Be the first to hear about NextGen Kaleido and the future of AI in Healthcare.

Date: Wednesday, March 19

Time: 17:30 (5:30 PM)

Location: Supperclub, Amsterdam

Kaleido



Kaleido 2.0 met Diabeloop app



Lancering eind 2026/2027

- Kleinere pomp
- Meer kleuren
- Betere batterij
- Nieuwe chip met beter geheugen
- Controle via een app met nieuwe user interface

#6 TouchCare Nano System



200E

Pick & Choose. 6



300E

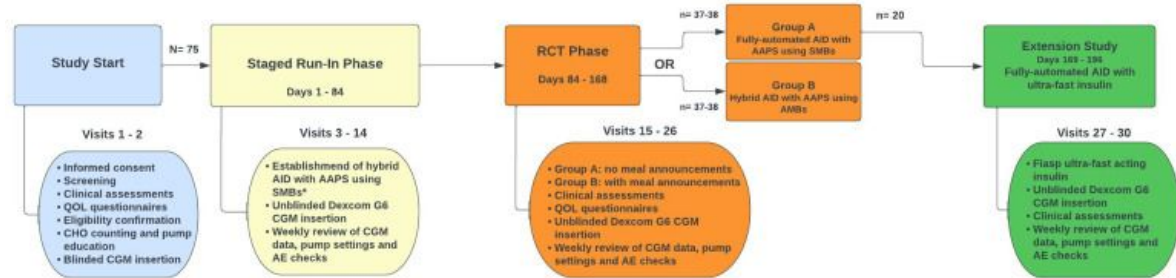
Beschikbaar in Nederland bij

- Menzis bij Mediq en Bosman
- ONVZ bij Mediq
- Zorg & Zekerheid bij Bosman

Auto Modus vanaf 6 jaar,

- gewicht ≥ 22 kg
- en totale insulinedagdos ≥ 10 E

#7 AndroidAPS CLOSE IT Trial



*AID will be commenced in a staged manner, depending on training and discretion of study staff

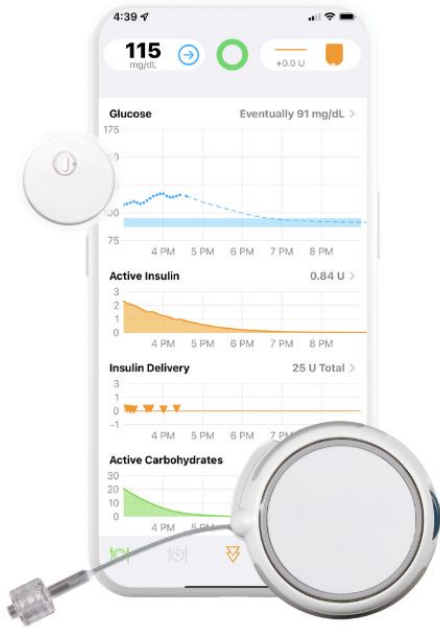
Results

Primary % TIR 70 – 180 mg/dl and secondary end-point HbA1c

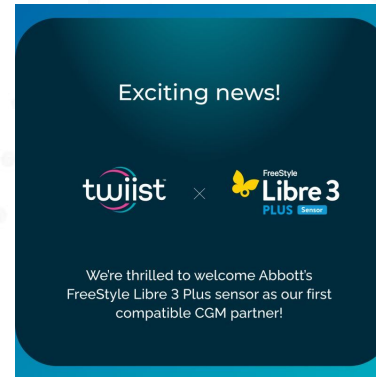
	Run-in		RCT		Estimated difference	
	HCL, N = 37	FCL, N = 36	HCL N = 37	FCL, N = 36	Beta	95% CI ²
%TIR 70–180 (mg/dL)	70 (9)	69 (11)	69 (13)	66 (8)	-2.2	-6.2, 1.7
HbA1c (mmol/mol)	51 (7)	52 (7)	51 (7)	52 (7)	0.09	-1.9, 2.1
HbA1c (%)	6.8 (0.6)	6.9 (0.7)	6.8 (0.6)	6.9 (0.6)	0.01	-0.18, 0.20

Non inferiority % TIR p = 0.009

#8 twiist closed-loop systeem



"twiist™ AID-systeem van Tidepool wordt naar verwachting Q2 2025 gelanceerd in de VS met de FreeStyle Libre® 3 Plus-sensor van Abbott".



#8 Neural net artificial pancreas

3 componenten:

- Tandem t:AP insulinepomp voor onderzoek
- Dexcom G6-sensor
- AIDANET volledig closed-loop algoritme = vervangt een MPC-algoritme door een neuraal netwerk (getraind op het UVA MPC-algoritme)

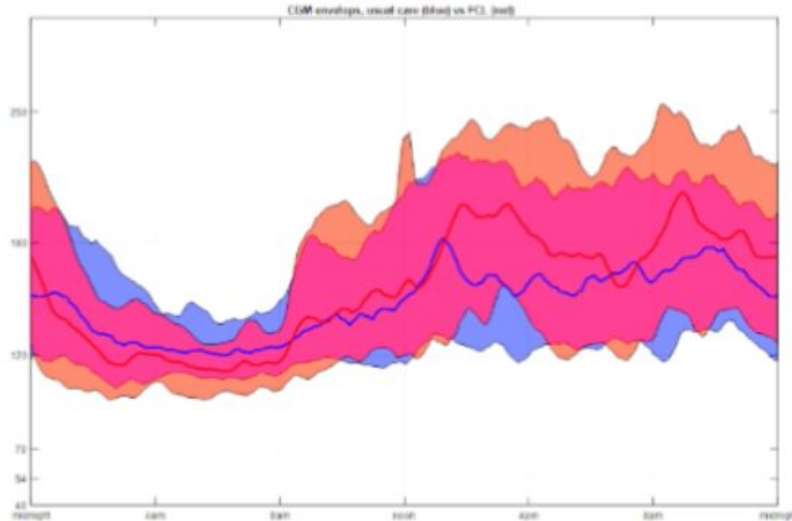


n=36 mensen met T1D gebruikten AIDANET FCL gedurende 1 week thuis

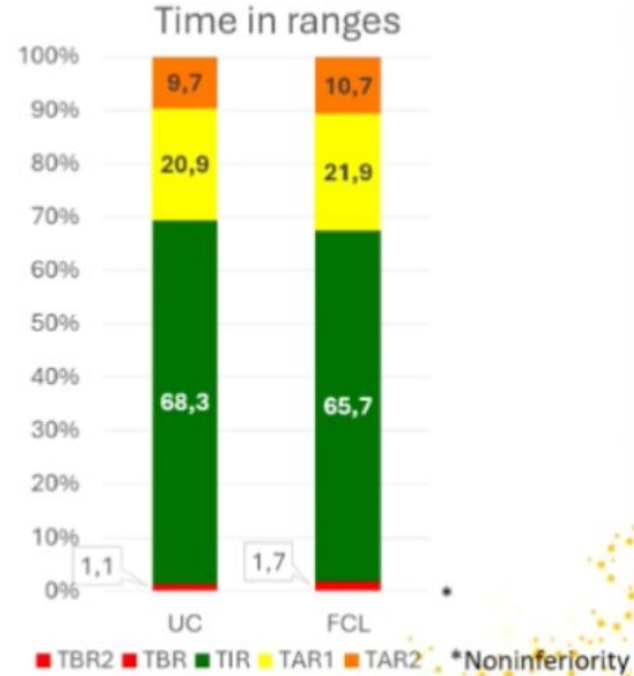
- n=16 met een baseline HbA1c <8,0%
- n=18 met een baseline HbA1c >8,0%

HbA1c <8%

THE 18TH INTERNATIONAL CONFERENCE ON
ADVANCED TECHNOLOGIES &
TREATMENTS FOR DIABETES



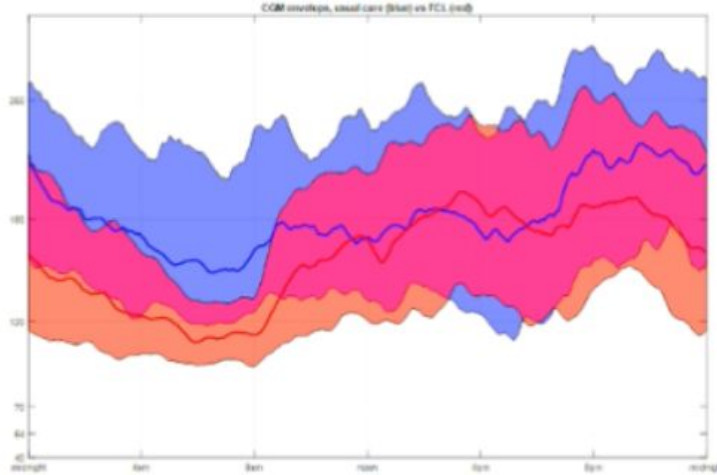
N=16	Usual care	Full Closed Loop	Difference	t-test	
				non inferiority	Difference
mean CGM	160.1 ± 15.5	160.4 ± 12.6	0.3	0.006	0.928



19-22 MARCH 2025, AMSTERDAM & ONLINE

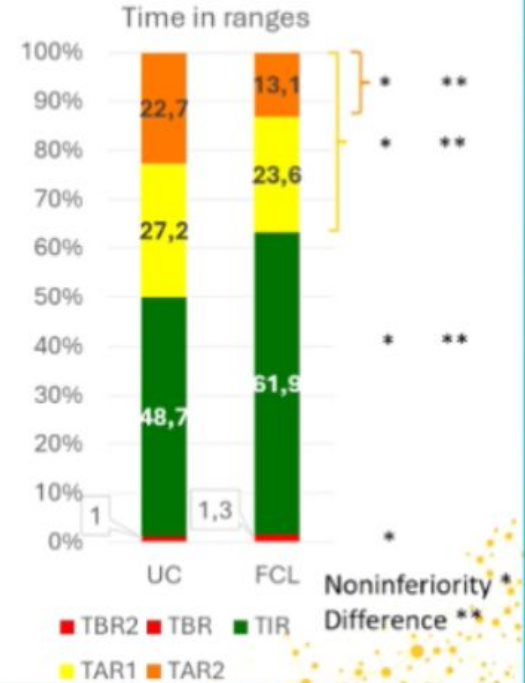
attd.kenes.com

HbA1c >8%



N=18	Usual care	Full Closed Loop	Difference	t-test	
				non inferiority	Difference
mean CGM	193.7 ± 33.4	166.8 ± 16.3	-26.8	0.000	0.007

THE 18TH INTERNATIONAL CONFERENCE ON
ADVANCED TECHNOLOGIES &
TREATMENTS FOR DIABETES



19-22 MARCH 2025, AMSTERDAM & ONLINE

attd.kenes.com

#10 Luna Diabetes



EPISODIC AUTOMATED INSULIN DELIVERY – A PILOT STUDY OF A NOVEL DEVICE AND ALGORITHM IN ADULTS WITH T1D

Jeremy H. Pettus,¹ David Ahn,² Mark Christiansen,³
¹ University of California, San Diego, San Diego, CA, United States; ² Hoag Memorial Hospital Presbyterian, Newport Beach, CA, United States; ³ Diablo Clinical Research, Walnut Creek, CA, United States

Background

The Luna system is a unique AID system intended for episodic use during sleep, in addition to an existing basal-bolus MDI regimen.

Approximately 83% of TIR improvement realized by AID systems occurs at night.⁴ Those who are unwilling or unable to use an AID system must continue MDI therapy with limited to no overnight control.

The body-worn patch pump device consists of a durable pumping mechanism that lasts up to a year and a disposable patch reservoir.



Eligibility

≥ 18 years with T1D using multiple daily injections of insulin (MDI) and continuous glucose monitoring (CGM) who have a history of persistent hyperglycemia during sleep.

Study Design

15 participants over three consecutive nights across three investigational sites in a supervised inpatient setting. Endpoints evaluated safety, functionality, and change in TIR.

Study Flow



Participants

N	15
Age (years)	47.7 ± 18.4
Males (n)	7
Females (n)	8
Duration of Diabetes (years)	27.1 ± 17.5
BMI	26.9 ± 6.8
Long-Acting Dose (U)	21.9 ± 16.9
Baseline HbA1c	7.9 ± 1.6
Baseline TIR (24 hr) (%)	48.1 ± 17.0
Baseline TIR (12 am – 6 am) (%)	51.2 ± 24.1

Results

Intervention TIR (12 am – 6 am) (%)	60.4 ± 32.0
Change in TIR (12 am – 6 am) (%)	+9.4
Change in TIR at wake (6 am) (%)	14.7
Change in time above 250 mg/dL (%)	-17.2
Insulin delivered (U)	1.7 ± 1.5
Est. Change in A1c (3 months)	-0.6%
Device-Related Adverse Events	0

Discussion

- The Luna system generated an increase in TIR (12 am – 6 am) of 9.4%
- The Luna system generated a decrease in estimated HbA1c of 0.6%
- The Luna system may be an attractive option for MDI patients that wish to realize the benefits of an AID system



¹ Kovatchev, Boris P., et al. "Evening and overnight closed-loop control versus 24/7 continuous closed-loop control for type 1 diabetes: a randomised crossover trial." The Lancet Digital Health 2.2 (2020): e64-e73.

Terugblik op het ATTD 2025

CGM

- Product updates
- Nauwkeurigheid
- Hoe CGM gebruiken bij nieuwe populaties

Closed-loop systemen

- Product updates
- Closed-loop systemen bij type 2 diabetes
- DT-rapport

Closed-loop systemen voor type 2 diabetes

AID System	Omnipod 5	Tandem Control-IQ	MiniMed 780G
Picture			
Trial Name	SECURE-T2D Trial	2IQP Trial	IMPACT2D Trial
Trial type	Before (standard therapy with masked CGM) and after (Omnipod 5)	Randomised Controlled Trial (Control-IQ versus CGM and pump in manual mode)	Before (=run-in with CGM and MiniMed 780G in manual mode with or without low glucose suspend) and after (=closed-loop mode)
Trial duration	13 weeks	13 weeks	13 weeks
Participants	305 adults with T2D (73% MDI, 21% basal-only, 6% pump), people with AID were excluded	319 adults with T2D (96% MDI, 4% pump)	95 adults with T2D (61% MDI, 29% pump), people with Medtronic AID were left on closed-loop in run-in phase ("automated basal only")
HbA1c	8.2% > 7.4% (-0.8%)	8.2% > 7.3% (-0.9%)	7.9% > 7.2% (-0.7%)
TIR (70-180 mg/dl)	45% > 66% (+20%)	48% > 64% (+16%)	72% > 80% (+7%)
TBR (<70 mg/dl)	0.2% > 0.2% (not significant)	0.7% > 0.3% (not significant)	0.4% > 0.3% (not significant)
Total Daily Insulin Dose	0.8 U/kg/d > 0.57 U/kg/d (-0.23 U/kg/d)	95 U/d > 87 U/d (-8 U/d)	77 U/d > 92 U/d (+14 U/d)
BMI	35 > 35 (not significant)	34 > 35	36 > 36 (not significant)
Weight	(+0.8 kg)	100.5 > 103 kg (+2.4 kg)	106 kg > 107 kg (not significant)

Terugblik op het ATTD 2025

CGM

- Product updates
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Closed-loop systemen

- Product updates
- Closed-loop systemen bij type 2 diabetes
- DT-rapport

DUT-Report 2025 = Digitalisierungs- und Technologiereport Diabetes

= Interview mit 1165 diabetologen en diabeteseducatoren

Stichprobe: Ärzte/Diabetesberater*innen (HCP)



Gesamt: n = 1078

Schulungs-
kräfte
(DB/DA/Berater)
70,6%

n = 761



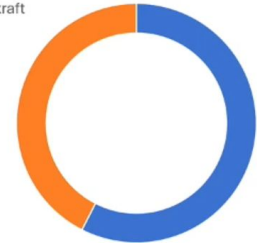
Diabetolo-
gen*innen
29,4%

n = 317

Spanien: Vorläufige Stichprobe (Umfrage noch nicht beendet)



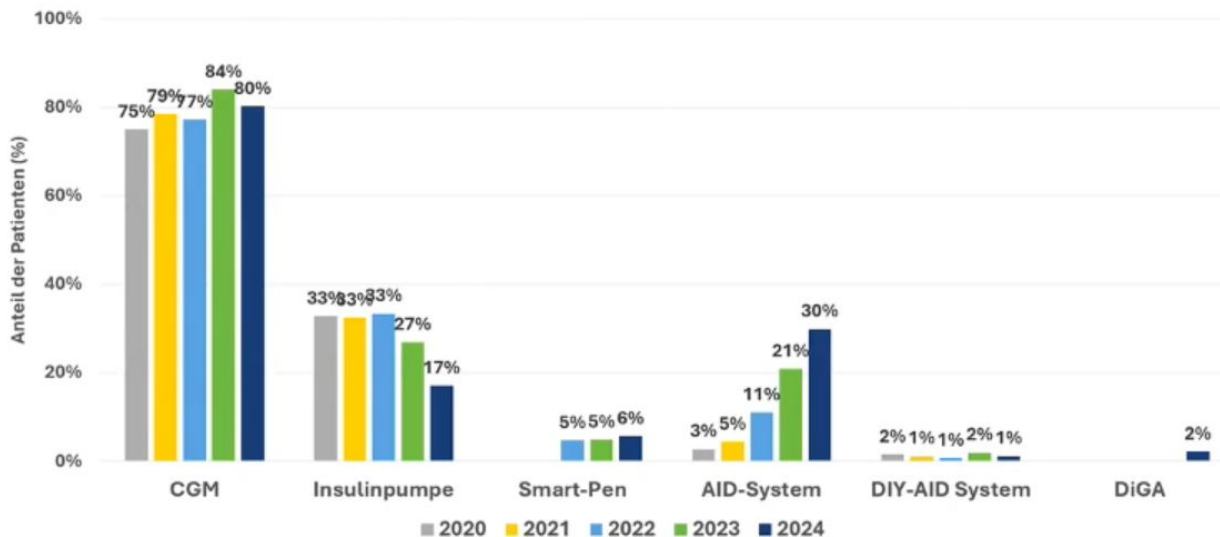
Schulungs-
/Beratungskraft
42,5%



Diabetologe/in
57,5%

Gebruik technologie bij T1D over de jaren heen

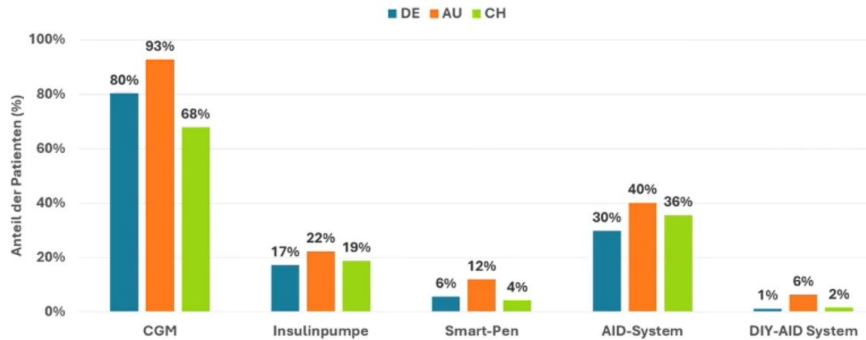
Verlauf: Anteil der Menschen mit Typ-1-Diabetes mit Diabetes-Technologien (DE)



Gebruik technologie bij mensen met T1D in Duitsland, Oostenrijk, Zwitserland en Spanje

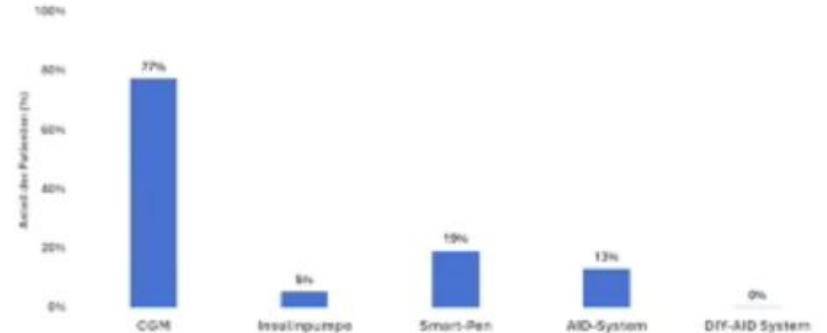
Ländervergleich: Anteil der Menschen mit Typ-1-Diabetes mit Diabetes-Technologien

dt report 2025 HCP

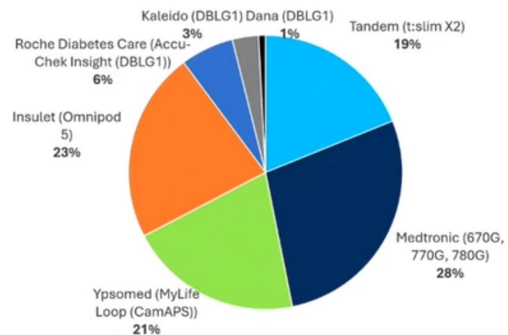


Anteil der Menschen mit Typ-1-Diabetes mit Diabetes-Technologien (ES)

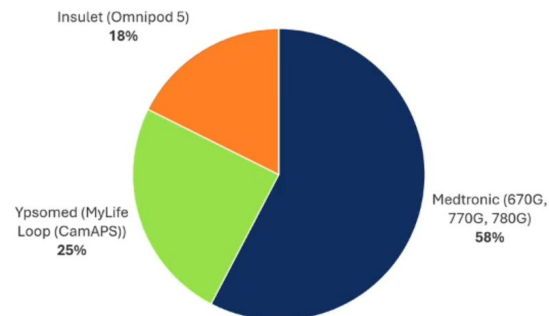
dt report 2025 HCP



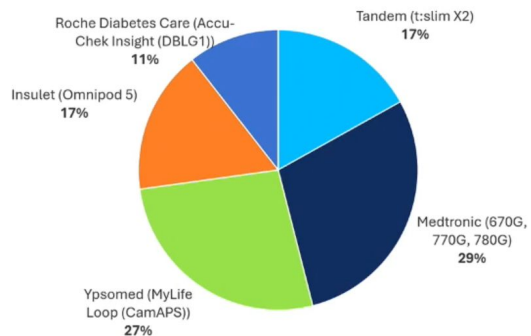
Anteile der AID-Systeme (DE)



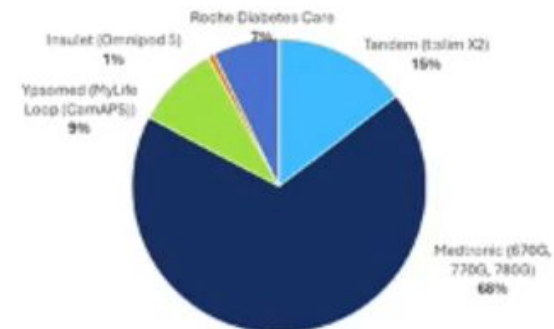
Anteile der AID-Systeme (AU)



Anteile der AID-Systeme (CH)



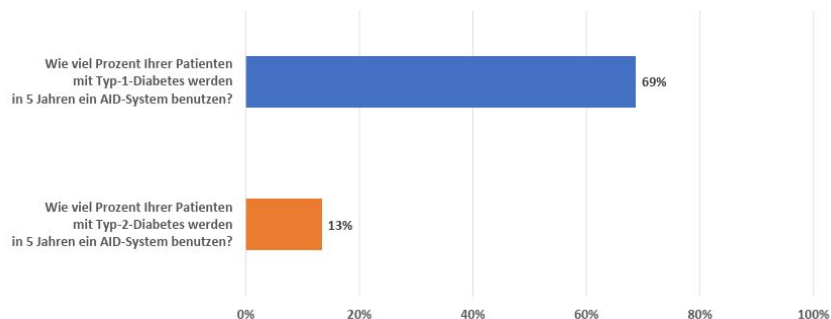
Anteile der AID-Systeme (ES)



Voorspelling gebruik van closed-loop systemen bij T1D en T2D over 5 jaar

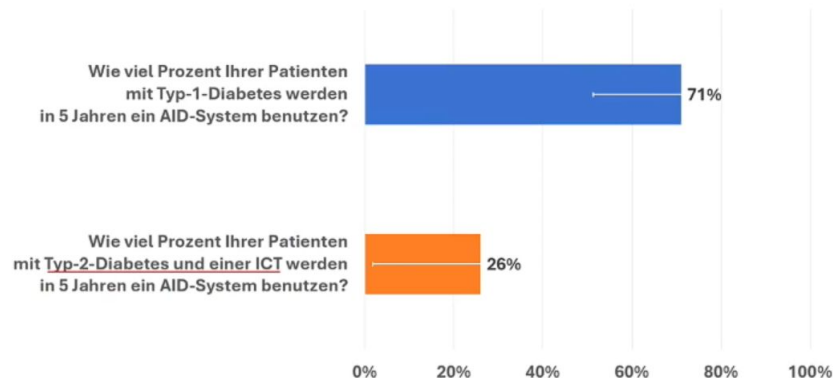
2024

Zukünftige Nutzung von AID-Systemen bei Typ-1- und Typ-2-Diabetes



2025

Zukünftige Nutzung von AID-Systemen bei Typ-2-Diabetes in Deutschland



Terugblik op het ATTD 2025

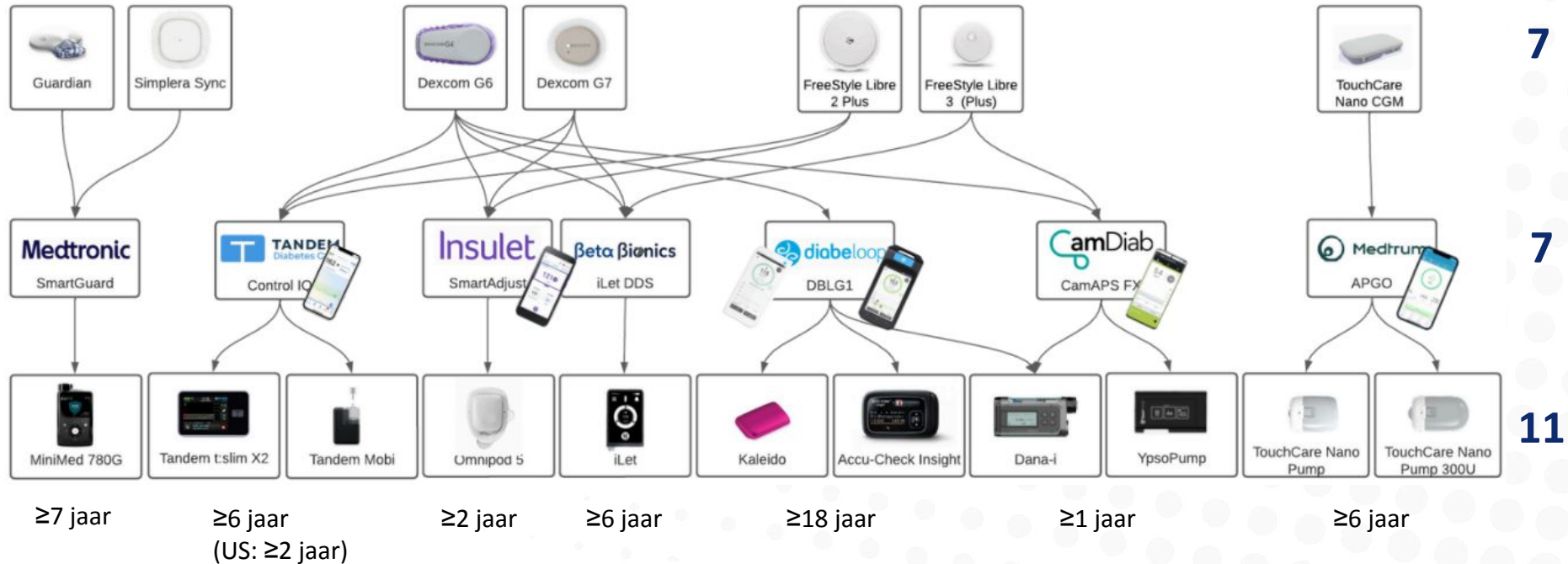
CGM

- Product updates
- Nauwkeurigheid
- Hoe CGM gebruiken bij nieuwe populaties

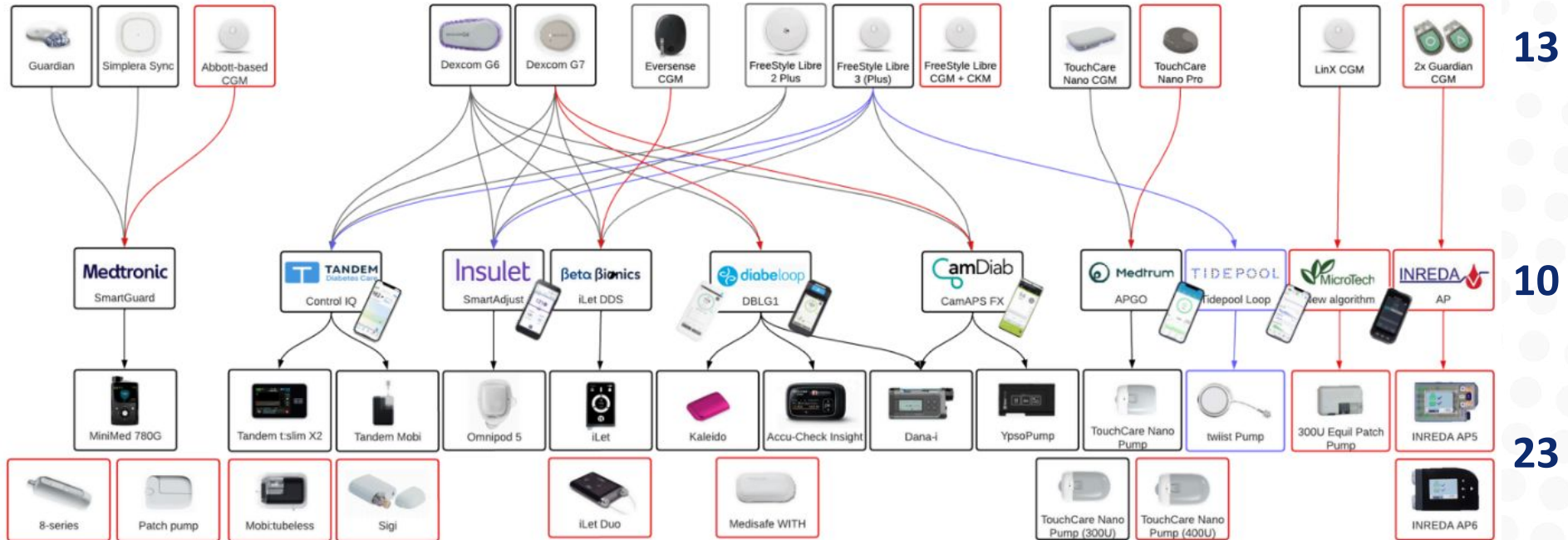
Closed-loop systemen

- Product updates
- Closed-loop systemen bij type 2 diabetes
- DT-rapport

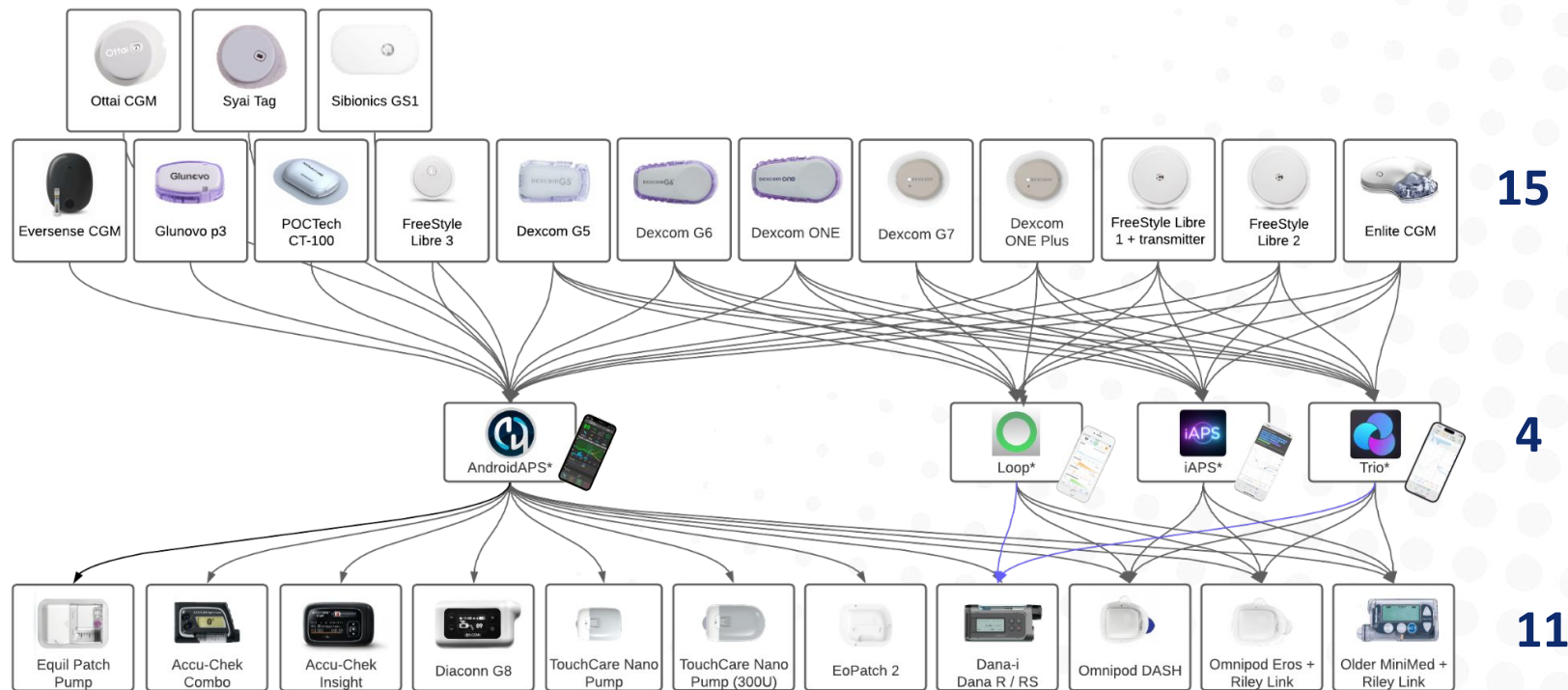
Beschikbare closed-loop systemen



Commerciële closed-loop systemen 2025 / Toekomst



Open-source closed-loop systemen 2025 / Toekomst



*Not approved by medical authorities

Besluit

- CGM's en closed-loop systemen zullen **steeds vaker gebruikt** worden, ook **bij meer vormen van diabetes**
- Diabetes technologie **evolueert sneller** dan we gewoon zijn van andere diabetes behandelingen

Elke sensor,
elke verbetering,
elke stap...
brengt ons dichterbij
een leven met
minder zorgen over
diabetes.



Diabetes Technologie Expert Programm

GLUCOSE SENSORS The Sensor Revolution 48 mins (FREE)	FREESTYLE LIBRE2 59 mins (€10)	DEXCOM ONE 36 mins (€10)
DEXCOM G6 38 mins (€10)	GUARDIAN 4 49 mins (FREE)	FREESTYLE 39 mins (€10)
DEXCOM G7 36 mins (€10)	INSULIN PUMPS The Patient's Choice 49 mins (FREE)	MINIMED 26G6 INSULIN PUMP 39 mins (€10)
DEXCOM ONE PLUS 38 mins (€10)	MYLIFE VISION PUMP 38 mins (€10)	TANDEM TSLIM X2 41 mins (€10)
ACE4CHECK INSIGHT 35 mins (€10)	OMNIPOD DASH 41 mins (€10)	KALEIDO 47 mins (€10)
ILET DEVICE 44 mins (€10)	TANDEM MOBI INSULIN PUMP 43 mins (€10)	

AID SYSTEMS 60 mins (FREE)	MINIMED 26G6 AID SYSTEM 57 mins (€15)	TANDEM CONTROL-IQ 61 mins (€15)
MYLIFE LOOP 61 mins (€15)	DIABELOOP-INSIGHT 71 mins (€15)	OMNIPOD 5 69 mins (€15)
ANDRIODAPS 88 mins (FREE)	DIY LOOP 88 mins (FREE)	IAPS 81 mins (FREE)
DIABELOOP-KALEIDO 71.5 mins (€15)	ILET SYSTEM 61.5 mins (€15)	TANDEM MOBI SYSTEM 61.5 mins (€15)

7 Days Free

