Table 1. Demographic Characteristics and Odds Ratios (95% CI) for Covariates on Achieving CGM Glycemic Targets

	TIR >70% 32.1% (n=286)	TAR < 25% 28.7% (n=256)	TBR <4% 74.9% (n=667)	TIR >70% vs TIR ≤ 70%	TAR < 25% vs TAR ≥ 25%	TBR < 4% vs TBR ≥ 4%
Age (years) (median, IQR)	15.0 (11.5,17.7)	15.0 (11.6, 17.7)	14.7 (11.1,17.6)	**OR 1.06, CI 1.01-1.10**	**OR 1.06, CI 1.02-1.10**	OR 1.03, CI 0.98-1.07
Duration of T1D (median, IQR)	4.8 (2.1,9.4)	4.8 (2.0, 9.4)	5.2 (2.3,9.6)	**OR 0.93 CI 0.89-0.97**	**OR 0.93, CI 0.89-0.97**	**OR 0.94, CI 0.91-0.98**
Female % (n)	55.9 (160)	55.1 (141)	54.7 (365)	OR 0.81, CI 0.61-1.08	OR 0.86, CI 0.64-1.16	OR 0.77, CI 0.57-1.05
Race/Ethnicity % (n)						
NHW	55.9 (159)	56.7 (140)	56.2 (364)	OR 0.56, CI 0.23-1.35	OR 0.55, CI 0.23-1.36	OR 0.36, CI 0.83-1.60
NHB	15.9 (44)	15.4 (38)	20.1 (130)	**OR 0.31, CI 0.12-0.79**	**OR 0.32, CI 0.12-0.81**	**OR 0.20, CI 0.05-0.90**
Latinx	12.7 (35)	13.4 (33)	11.7 (76)	OR 0.65, CI 0.25-1.70	OR 0.72, CI 0.27-1.90	OR 0.45, CI 0.10-2.15
Other	13.8 (38)	14.6 (36)	12.0 (78)	OR 0.60, CI 0.23-0.55	OR 0.67, CI 0.26-1.76	OR 0.28, CI 0.06-1.28
Private Insurance % (n)	39.9 (114)	39.5 (101)	41.3 (274)	OR 0.76, CI 0.78-1.42	OR 1.01, CI 0.74-1.38	OR 1.36, CI 0.98-1.90

Conclusions: Continued efforts to understand the unique characteristics that influence optimal use of diabetes technologies are needed. Approaches that aim to improve AID system uptake and sustained use must consider developmentally appropriate and culturally competent strategies so that youth with T1D are set up to succeed.

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Sustained improvement of glycemic control and person-reported outcomes one year after tandem control IQ^{tm} initiation in children with type 1 diabetes in real-world

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Introduction: Real-world data add value to outcomes from randomized controlled trials on the use of hybrid closed-loop systems in the management of children with type 1 diabetes (T1D).

Objectives: To assess the real-world impact of Tandem Control IQ^{TM} on glycemic control and person-reported outcomes (PROs) in children ≥6 years with T1D over 12 months.

Methods: Between Oct 2021 and Dec 2022, all children ≥6 years with T1D who started Tandem Control IQ^{TM} (n = 114) were recruited at 13 Belgian centers. Data were prospectively collected during routine visits at start, and 4, 8 and 12 months after start of Tandem Control IQ^{TM}. PROs were evaluated through questionnaires (Diabetes Quality of Life for Youth [DQOLY], Hypoglycemia Fear Survey [HFS], HAPPI-D). Data are reported as mean ± SD or least-squares mean (95% CI).

Results: Children were 12.0 ± 3.2 years old, predominantly girls (61.4%), had T1D for 6.1 ± 3.6 years, and 80.7% used an insulin pump before. Time in range (70-180 mg/dL) increased from start to 4 months (51.6% [47.6-55.5] to 67.0% [63.8-70.2], p<0.001) and was sustained up to 12 months (64.4% [61.2-67.5], p<0.001). After 12 months, HbA1c decreased from 7.8% (7.6-8.1) to 7.1% (6.9-7.3), time <70 mg/dL from 3.9% (3.1-4.8) to 2.7% (1.9-3.5), time >180 mg/dL from 44.1% (39.8-48.5) to 32.9% (29.2-36.5), and time >250 mg/dL from 21.7% (17.9-25.5) to 13.0% (10.7-15.3) (all p<0.001). Children scored better on DQOLY satisfaction (70.4 [67.8-73.0] vs 74.0 points [71.3-76.6], p<0.001) and DQOLY impact (54.6 [50.9-58.3] vs 51.3 points [47.4-55.1], p=0.001), and parents on HAPPI-D (22.5 [21.1-23.9] vs 19.6 points [18.2-21.0], p<0.001) and HFS worry (25.0 [21.6-28.4] vs 20.3 points [17.0-23.5], p<0.001) after 12 months. Children missed fewer days of school (620.2 vs 328.1 days/100 patient years, p=0.001) and parents missed less days of work (408.0 vs 95.5 days/100 patient years, p<0.001). Figure 1 shows the overall performance of Tandem Control-IQ^{TM} as composite diabetes octagon.

Conclusions: One year real-world use of Tandem Control-IQ^{TM} in children with T1D is associated with better glycemic control, more diabetes-related QoL and less worries about hypoglycemia for parents.

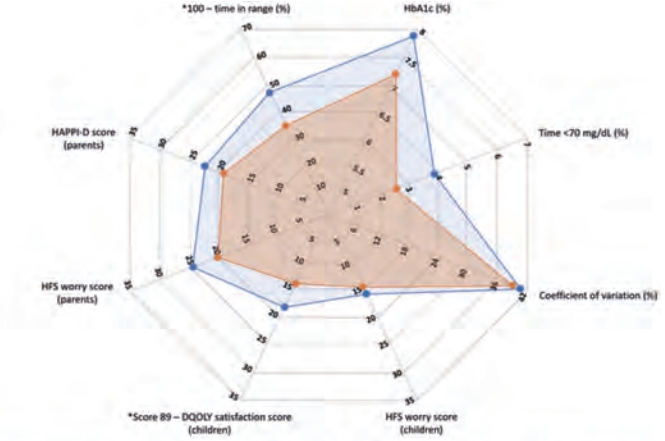

Figure 1. Composite diabetes octagon. Each axis represents a diabetes metric for which the outcomes are compared at start (blue) with those at 12 months (orange), with a lower score indicating better outcomes. *For time in range and DQOLY satisfaction, the difference between the maximum score and the score at start or 12 months was calculated to ensure that a lower score on each axis indicates a better outcome. HFS, Hypoglycemia Fear Survey; DQOLY, Diabetes Quality of Life for Youth questionnaire.