RtCGM Use is Associated with Improved Glycemic Control Compared to isCGM in Commercially Insured People With Type 2 Diabetes on Semaglutide and Insulin

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BACKGROUND and AIMS

- Adding a glucagon-like peptide-1 receptor agonist (GLP-1 RA) to an insulin regimen helps people with type 2 diabetes (PwT2D) improve glycemic control.[1,2]

- Additionally, continuous glucose monitoring (CGM) is beneficial for glycemic management alongside medications.

- This study evaluated the difference in glycemic outcomes between CGM systems: intermittently scanned (isCGM) or real-time CGM (rtCGM) in PwT2D on insulin therapy (basal and/or bolus) and a GLP-1 RA (semaglutide).

METHODS

- A retrospective analysis using Optum Clinformatics® de-identified US commercial administrative claims data was conducted.

- CGM-naïve PwT2D, age ≥30 years using insulin and semaglutide were identified. Index date was first claim for isCGM (FreeStyle Libre, 14 day, Libre 2) or rtCGM (Dexcom G-series) between 01/01/2019 and 06/30/2023.

- Continuous health plan enrollment was required 6 months pre-(baseline) and post-(follow-up) index date. At least one laboratory HbA1c value was required during baseline and follow-up to calculate the HbA1c change.

- Individuals with evidence of pregnancy were excluded.

- Multivariate linear regression was used to analyze HbA1c change by cohorts, controlling for age, gender, baseline HbA1c, comorbidity score, race, and region.

RESULTS

Table 1. Demographics

Characteristics	rtCGM (N = 205)	isCGM (N = 239)
Age, Mean (SD)	54.9 (8.6)	55.5 (8.2)
Race/Ethnicity, n (%)		
Asian	8 (4.1)	13 (5.4)
Black	25 (12.8)	27 (11.3)
Hispanic	19 (9.7)	24 (10.0)
White	138 (70.4)	164 (68.6)
Unknown/Missing	15 (7.3)	11 (4.6)
Female, n (%)	92 (44.9)	98 (41.0)
Charlson Comorbidity Score, Mean (SD)	1.27 (1.47)	1.39 (1.52)
Region, n (%)		
Midwest	40 (19.5)	42 (17.6)
Northeast	12 (5.9)	23 (9.6)
South	121 (15.0)	132 (55.2)
West	32 (15.6)	42 (17.6)

Table 2. Multivariate Regression

Variable	ΔHbA1c, β (SE)	Confidence Interval (C.I.)	p-value
rtCGM use	-0.31 (0.11)	-0.53 to -0.09	0.0068
Age	0.02 (0.01)	0.01 to 0.04	0.0062
Mean HbA1c at baseline	-0.62 (0.03)	-0.69 to -0.56	<0.0001
Race/Ethnicity			
Asian	-0.06 (0.27)	-0.59 to 0.46	0.81
Black	0.22 (0.18)	-0.13 to 0.57	0.22
Hispanic	-0.01 (0.19)	-0.38 to 0.37	0.97
White	Reference		
Unknown/Missing	-0.15 (0.30)	-0.74 to 0.45	0.63
Gender			
Male	-0.15 (0.12)	-0.38 to 0.07	0.18
Female	Reference		
Charlson Comorbidity Score	-0.02 (0.04)	-0.10 to -0.05	0.56
Region			
Midwest	Reference		
Northeast	-0.11 (0.24)	-0.35 to 0.58	0.64
South	0.08 (0.15)	-0.22 to 0.38	0.60
West	0.07 (0.19)	-0.30 to 0.44	0.69

DiD: -0.43%; p=0.0419[*]

mean diff: -1.23%; p<0.0001

mean diff: -0.8%; p<0.0001

rtCGM (n=205) — isCGM (n=239)
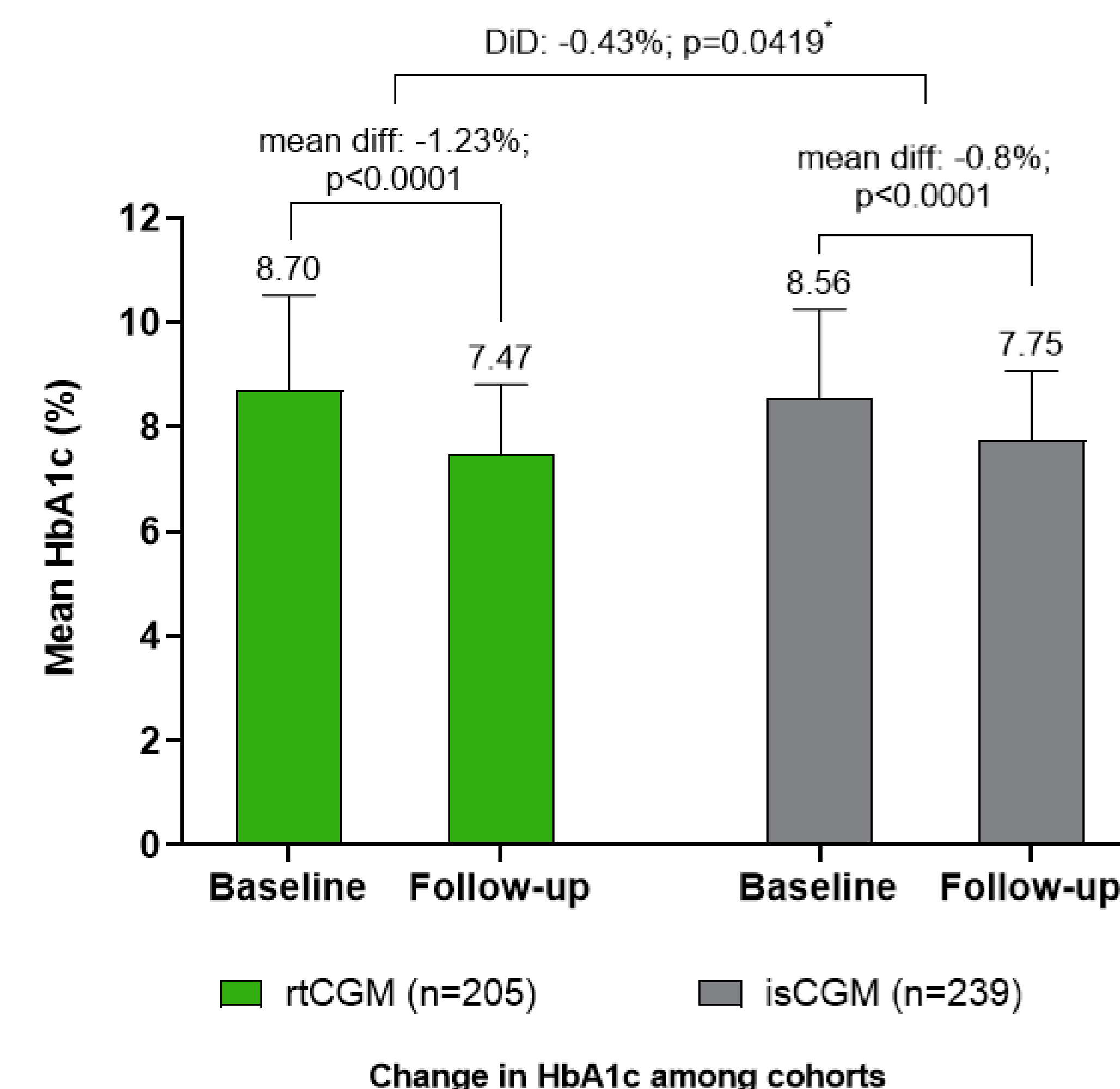
Change in HbA1c among cohorts

Figure. Unadjusted HbA1c Change in Cohorts

❑ Unadjusted HbA1c change estimate was -0.43% (p=0.0419).

❑ After adjusting for covariates, rtCGM use was associated with a -0.31% (p=0.0068) greater reduction in HbA1c compared to isCGM use.

Mean diff = Difference in mean HbA1c for each cohort calculated as follow-up HbA1c value minus baseline HbA1c value

DiD = Difference-in-differences

STRENGTHS and LIMITATIONS

Strengths
- The study used extensive, standardized health data from a large database.

- A robust longitudinal study was conducted over a one-year period to assess outcomes.

Limitations
- Observational study design.

- Generalizability of study findings may be limited to US commercially insured population.

- Study used pharmacy claims data to calculate medication and CGM use over time, which may not reflect the actual extent to which a person used medications or wore a CGM.

- Doses of GLP-1 RA or insulin were not accounted for in this study.

CONCLUSIONS

- RtCGM use was associated with significantly greater reductions in HbA1c compared to isCGM use. This could be due to higher adherence rates in rtCGM systems than with isCGM systems.[3]

- Findings suggest rtCGM use provides an additive glycemic benefit in PwT2D taking both insulin and a GLP-1 RA (semaglutide).

REFERENCES

[1]Anderson SL, Trujillo JM. Basal Insulin Use With GLP-1 Receptor Agonists. *Diabetes Spectr*. 2016;29(3):152-160

[2]American Diabetes Association Professional Practice Committee. 9. Pharmacologic Approaches to Glycemic Treatment: *Standards of Care in Diabetes-2025* 48(Supplement_1):S181–S206

[3]Nemlekar PM, et al. Association Between Adherence, A1C Improvement, and Type of Continuous Glucose Monitoring System in People with Type 1 Diabetes or Type 2 Diabetes Treated with Intensive Insulin Therapy. *Diabetes Ther*. 2024;15(3):639-648.