# **139-LB**

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# Use of Digital Diabetes Solution Is Associated With Improved Glycemic Control Without Increased Risk of Severe Hypoglycemia in Adults With Type 2 Diabetes Mellitus in the United States: Retrospective Cohort Study Nita Thingalaya,<sup>1</sup> David Kerr,<sup>2</sup> Praveen Potukuchi,<sup>1</sup> Laura Wilson,<sup>1</sup> Keni C.S. Lee,<sup>3</sup> Edward Jonathan Han-Burgess,<sup>4</sup> Alison Edwards,<sup>5</sup> Xinyan Yu,<sup>5</sup> Adee Kennedy,<sup>1</sup> Felix Lee<sup>1</sup>

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## INTRODUCTION

- Digital healthcare technology that provides personalized intervention has been associated with a reduction in glycated hemoglobin (HbA1c) levels in patients with type 2 diabetes mellitus (T2DM) compared with usual care.<sup>1,2</sup>
- Dario Diabetes Solution (DDS) is a smartphone digital health application for diabetes management that combines a blood glucose meter and a mobile application, allowing patients to track blood glucose levels in real-time.
- HbA1c level <8% is considered a threshold for glycemic control by the</li> American Diabetes Association (ADA) and Healthcare Effectiveness Data and Information Set (HEDIS; standardized performance measures developed by the National Committee for Quality Assurance) and is a goal for certain subpopulations (eg, patients with a history of severe hypoglycemia).<sup>3,4</sup>
- Severe hypoglycemia (characterized by altered mental and/or physical functioning that required assistance from another person)<sup>4</sup> involving emergency department visits<sup>3</sup> is also a quality measure for HEDIS.

## OBJECTIVE

• To evaluate the impact of DDS on the frequency of severe hypoglycemia events among wellcontrolled patients (reaching HbA1c target of <8%) in DDS users compared with DDS non-users over 6 months

## METHODS

• In this retrospective cohort study, the patient selection window was January 2017 to October 2021 (Figure 1).



EXACT MATCH



Quarter of index date falls

**PROPENSITY SCORE MATCH** 

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CCI, Charlson Comorbidity Index; DDS, Dario Diabetes Solution; HbA1c, glycated hemoglobin.



- Inclusion criteria
- index date
- Patients with HbA1c ≥7% during baseline (index –365 days to index +30 days) – Patients with ≥1 HbA1c measurement during follow-up (index +31 days to index +420 days)
- Secondary endpoints included severe hypoglycemia (defined as event requiring medical intervention) rates for all patients and patient subgroup with baseline HbA1c ≥8%.
- Difference-in-difference results were reported using least squares means from linear models.

• User and non-user cohorts were sequentially matched 1:3 using exact and propensity score matching (Figures 2 and 3).

### Figure 2: Exact and propensity score matching



DDS, Dario Diabetes Solution; LPS, logit of propensity score; PSM, propensity score matching.

– Patients ≥18 years old with T2DM who used DDS or received usual care - Patients receiving  $\geq 1$  diabetes medication (oral or injectable) before

Severe hypoglycemia in DDS users vs non-users was examined.

## RESULTS



\*Medicaid/Managed Medicaid. DDS, Dario Diabetes Solution; HbA1c, glycated hemoglobin.

## Patients with HbA1c ≥8% at baseline

- In this subgroup, mean baseline HbA1c was 10.0±1.7%.
- At 6 months, HbA1c <8% was achieved by 8.9% more DDS users vs non-users (Figure 5).
- Severe hypoglycemia was rare in patients with baseline HbA1c ≥8% who achieved HbA1c <8% at 6 months (Figure 6).

## Severe hypoglycemia rate in all patients

- There was no increased risk for severe hypoglycemia associated with DDS (Figure 7).
- Most hypoglycemia events were from office visits and other outpatient visits (Figure 8).









DDS, Dario Diabetes Solution; ER, emergency room; OP, other outpatient; OV, office visits.

## CONCLUSIONS

- In this retrospective study, a larger proportion of adults with uncontrolled T2DM (subgroup with baseline HbA1c ≥8%) achieved an HbA1c target of <8% after using DDS compared with non-users at 6 months of follow-up.
- 45.0% of DDS users achieved an HbA1c <8% without an increased risk for severe hypoglycemia vs 36.1% of non-users.
- There was no increased risk of severe hypoglycemia in DDS users or non-users with uncontrolled T2DM in the overall population.

### References

1. Chen F, et al. Sci Diabetes Self Manag Care. 2022;48(4):258-269; 2. Stevens S, et al. Front *Clin Diabetes Healthc.* 2022;3:936752; **3.** National Committee for Quality Assurance. Health Effectiveness Data and Information Set (HEDIS) Measures and Technical Resources: Comprehensive Diabetes Care. Diabetes Research and Clinical Practice. Available at: https://www.ncqa.org/hedis/measures/comprehensive-diabetes-care/. Accessed May 2, 2023; **4.** American Diabetes Association. *Diabetes Care.* 2023;46(suppl 1):S1-S291.

### **Disclosures**

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