

# DECREASE IN HYPOGLYCEMIA EVENTS OVER TWO YEARS IN PATIENTS MONITORING WITH DIGITAL DIABETES MANAGEMENT SYSTEM

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## Introduction

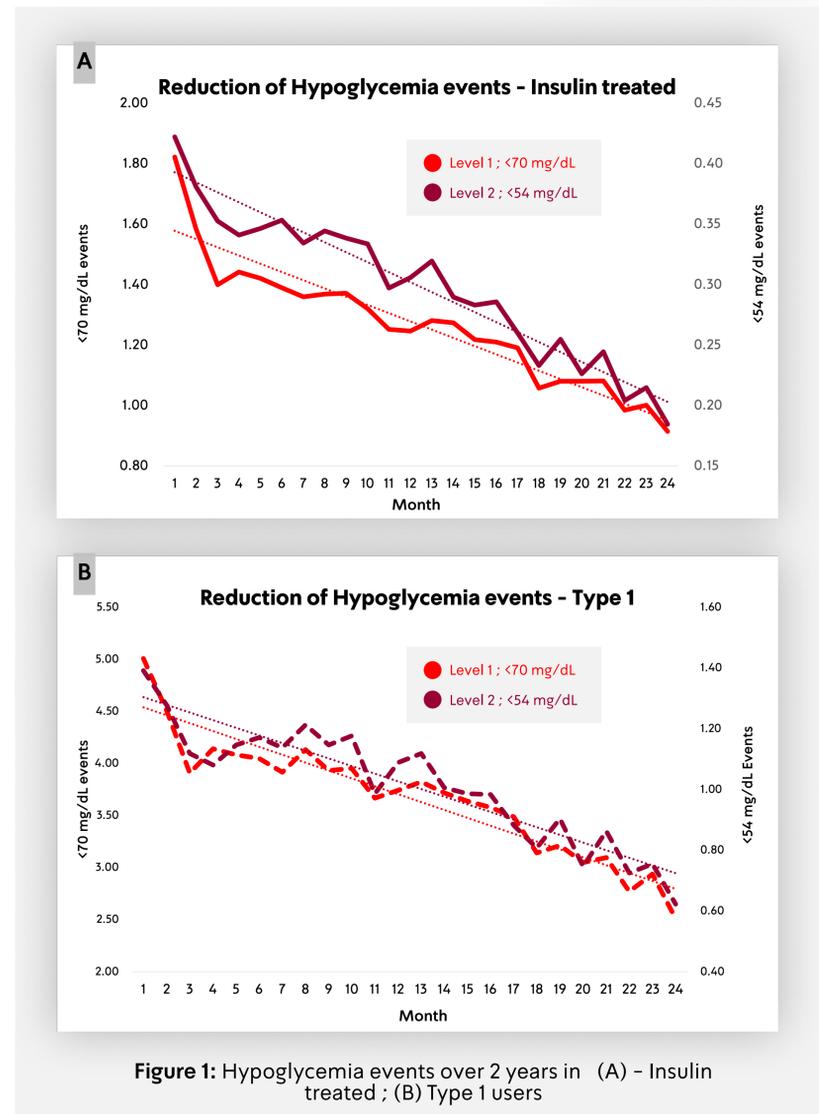
Hypoglycemia events are a burden on health care systems due to the high cost of related emergency visits and hospitalizations<sup>1,2</sup>. Dario, a digital diabetes management system, may assist patients to reduce hypoglycemia events and improve glycemic control in insulin dependent diabetic users.

## Method

A retrospective data analysis was performed on the Dario real-world database. Insulin dependent users with type 1 or type 2 diabetes population was evaluated for two years of continuous system use. Average numbers of level 1 hypoglycemia (<70mg/dL) and level 2 hypoglycemia (<54 mg/dL) events were calculated monthly and compared to baseline (first month).

## Results

- > For 1481 type 1 and type 2 insulin dependent users, average of level 1 hypoglycemia events and level 2 were reduced by 24% and by 17% after 6 months and by 50% and 57% after 2 years vs. baseline, respectively (Fig.1A).
- > Users with type 1 diabetes (N=363) reduced level 1 hypoglycemia events by 50% and Level 2 by 55% after 2 years (Fig.1B).
- > Moreover, a reduction in high readings was observed as well by 40% after 2 years.



Population			Hypoglycemia events per month on average				Reduction percentage*	
Type	Age	Hypoglycemia Level	Baseline	2 months	6 months	24 months	6 months	24 months
All (N=1481)	<45; 172 ≥45; 1309	<70 mg/dL	1.82	1.58	1.39	0.91	24%	50%
		<54 mg/dL	0.42	0.38	0.35	0.18	17%	57%
T1D (N=363)	<45; 130 ≥45; 233	<70 mg/dL	5.01	4.51	4.05	2.51	19%	50%
		<54 mg/dL	1.39	1.28	1.17	0.62	16%	55%
			<b>High events per month on average</b>					
All (N=1481)	<45; 172 ≥45; 1309	>180mg/dL	17.5	14.0	12.8	10.4	26%	40%
T1D (N=363)	<45; 130 ≥45; 233	>180 mg/dL	26.5	23.7	22.5	16.0	15%	40%

\*Consistent reduction was observed in ratios per total measurements in level 1 and level 2.

## Discussion

- > One of the risks in diabetes management is of treatment associated hypoglycemia. Use of insulin, renal impairment, longer duration of diabetes or hypoglycemia unawareness may increase the risk<sup>3</sup>. In this study it was observed that average of level 1 hypoglycemia events and level 2 were reduced by 24% and by 17% after 6 months and by 50% and 57% after 2 years vs. baseline, respectively in insulin-dependent Dario users (Fig.1). Most significant reduction occurred after one month of usage then continuously reduced and remained stable.
- > In younger type 1 (25 to 45 years) severe hypoglycemia is associated with poor glycemic control<sup>4</sup>. In this study, users with type 1 reduced their severe hypoglycemia (<54 mg/dL) gradually, 130 users under 45 years by 64% (0.6 vs.1.7 events per month) over 2 years.
- > Providing patients with real-time actionable information about their current blood glucose levels and alerts when blood glucose values exceed or fall below specified thresholds can affect the rate of extreme blood glucose events. Trends were observed previously with CGM<sup>2</sup>. Overall the study supports the hypothesis that digital diabetes platform may facilitate improvement in hypoglycemic outcomes and may reduce emergency events and hospitalization.

## References

1. "Trends in Emergency Department Visit Rates for Hypoglycemia and Hyperglycemic Crisis among Adults with Diabetes, United States, 2006-2011" Jing Wang et al. PLOS ONE, 2015.
2. "The Potential Cost Implications of Averting Severe Hypoglycemic Events Requiring Hospitalization in High-Risk Adults With Type 1 Diabetes Using Real-Time Continuous Glucose Monitoring." Amy Bronstone et al. Journal of Diabetes Science and Technology 2016. 10: 905-913
3. Diabetes Care. Standards of Medical Care in Diabetes. American Diabetes Association, 2020.
4. "Type 1 Diabetes Self-Management From Emerging Adulthood Through Older Adulthood" Margaret M. McCarthy et al. Diabetes Care 2018; 41:1608-1614.