

# Intermittently-scanned CGM is associated with lower HbA1c and reduced hospital admissions for adults with T2DM on insulin therapy in Sweden: a retrospective controlled study

David Nathanson<sup>1</sup>, Katarina Eeg-Olofsson<sup>2</sup>, Tim Spelman<sup>3</sup>, Erik Bülow<sup>4</sup>, Mattias Kyhlstedt<sup>3</sup>, Fleur Levrat-Guillen<sup>5</sup>, Jan Bolinder<sup>1</sup>





<sup>1</sup>Department of Medicine, Karolinska University Hospital Huddinge, Karolinska Institute, Stockholm, Sweden, <sup>2</sup>Sahlgrenska University Hospital and Department of Molecular & Clinical Medicine, University of Gothenburg, Sweden, <sup>3</sup>Synergus RWE AB, Stationsvägen 18, 184 50 ÅKERSBERGA, Sweden, <sup>4</sup>Registercentrum, Västra Götaland, Sweden, <sup>5</sup>Abbott Laboratories Ltd, Maidenhead, UK

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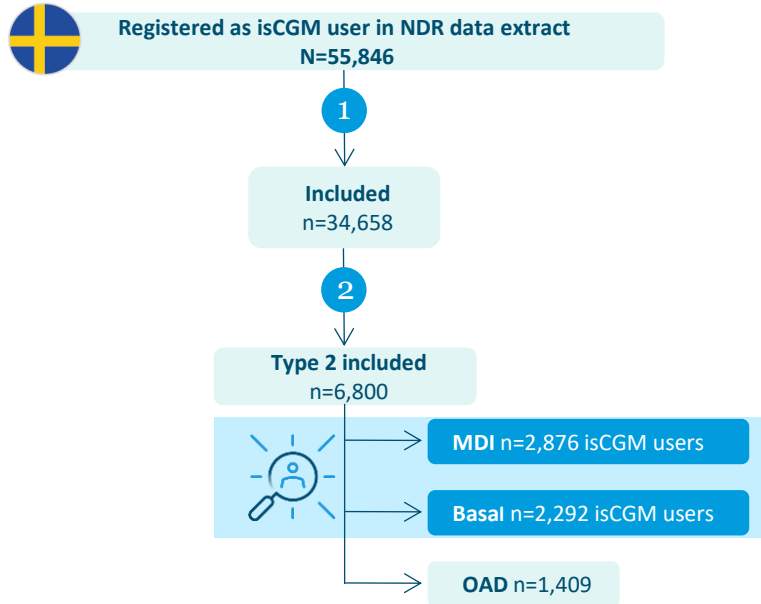
## Introduction and methods

General objectives: to assess the impact of initiating isCGM, compared to BGM, on HbA1c and hospital admissions in adults with insulin-treated T2DM

 <p><b>OVERVIEW</b></p>	<p>Retrospective, controlled study with linked analysis of:</p> <ul style="list-style-type: none"> <li>• Swedish National Diabetes Register (NDR)</li> <li>• Swedish Prescribed Drug Register (SPDR), containing data on prescribed drugs</li> <li>• Swedish National Patient Register (NPR), containing hospital admission data</li> </ul>
 <p><b>PATIENTS</b></p>	<p>Patients aged <math>\geq 18</math> years with T2DM:</p> <ul style="list-style-type: none"> <li>• T2D-B: isCGM users, n=2,292 vs BGM controls, n=43,424</li> <li>• T2D-MDI: isCGM users, n=2,876 vs BGM controls, n=33,584</li> </ul>
 <p><b>OUTCOMES</b></p>	<ul style="list-style-type: none"> <li>• Change in HbA1c up to 24 months (isCGM users vs BGM controls)</li> <li>• Risk of hospitalisation for diabetes-related events (isCGM users vs BGM controls)</li> </ul>
 <p><b>STATISTICAL ANALYSES</b></p>	<ul style="list-style-type: none"> <li>• HbA1c: PS-IPTW mean regression used for analysis</li> <li>• Hospitalisations: PS-IPTW negative binomial regression used to calculate admission rates for diabetes-related events per 100 person-years of mean follow up (cases=3.4 years, controls=3.5 years)</li> </ul> <p><i>Propensity score derived from a range of variables including age, sex, BMI, baseline HbA1c, lipid profile, renal function, smoking status, physical activity, pre-baseline comorbidity and diabetic complications</i></p>

## Results: >5,000 adults with insulin-treated T2DM who initiated isCGM were identified

### Overview of NDR analysis



### Inclusion criteria

1

- First recorded exposure to FreeStyle Libre system after June 1 2017
- No prior use of other CGM

2

- T2DM: HbA1c baseline value 3–14 months prior to index date

## Results: adults with insulin-treated T2DM who initiated isCGM were matched with BGM controls

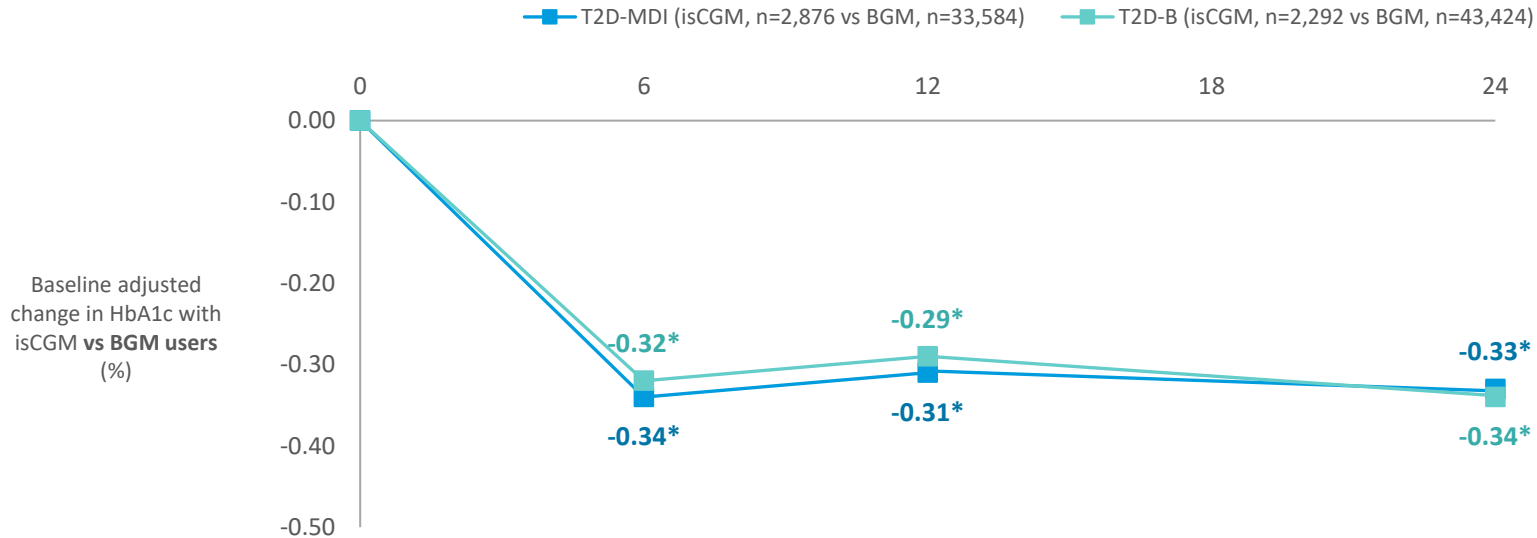
		T2D-MDI			T2D-B		
		isCGM (n=2,876)	BGM controls (n=33,584)	Weighted standardised difference	isCGM (n=2,292)	BGM controls (n=43,424)	Weighted standardised difference
Mean age (yrs) (SD)		62.79 (13.24)	71.38 (10.91)	-0.138	62.88 (12.42)	69.12 (11.47)	-0.114
Sex	Female, n (%)	1,073 (37.3)	13,446 (40.0)	-0.011	877 (38.3)	17,352 (40.0)	0.000
	Male, n (%)	1,803 (62.7)	20,138 (60.0)		1,415 (61.7)	26,072 (60.0)	
Mean BMI (kg/m <sup>2</sup> ) (SD)		30.11 (4.33)	30.67 (4.50)	-0.05	30.46 (4.31)	30.22 (4.30)	-0.045
Mean HbA1c (%) (SD)		8.19 (1.38)	7.59 (1.20)	0.061	8.19 (1.47)	7.88 (1.19)	0.146
Mean diabetes duration (yrs) (SD)		18.95 (10.36)	17.43 (9.12)	0.067	16.18 (8.66)	14.44 (8.32)	0.050

Weighting by PS-IPTW

BMI=body mass index; BGM=blood glucose monitoring; HbA1c=haemoglobin A1c; isCGM=intermittently-scanned continuous glucose monitoring; PS-IPTW=propensity-score based inverse probability of treatment weighting; T2DM=type 2 diabetes; T2D-B=type 2 diabetes on basal insulin ± other glucose lowering medication; T2D-MDI=type 2 diabetes on multiple daily injections with insulin; yr=year

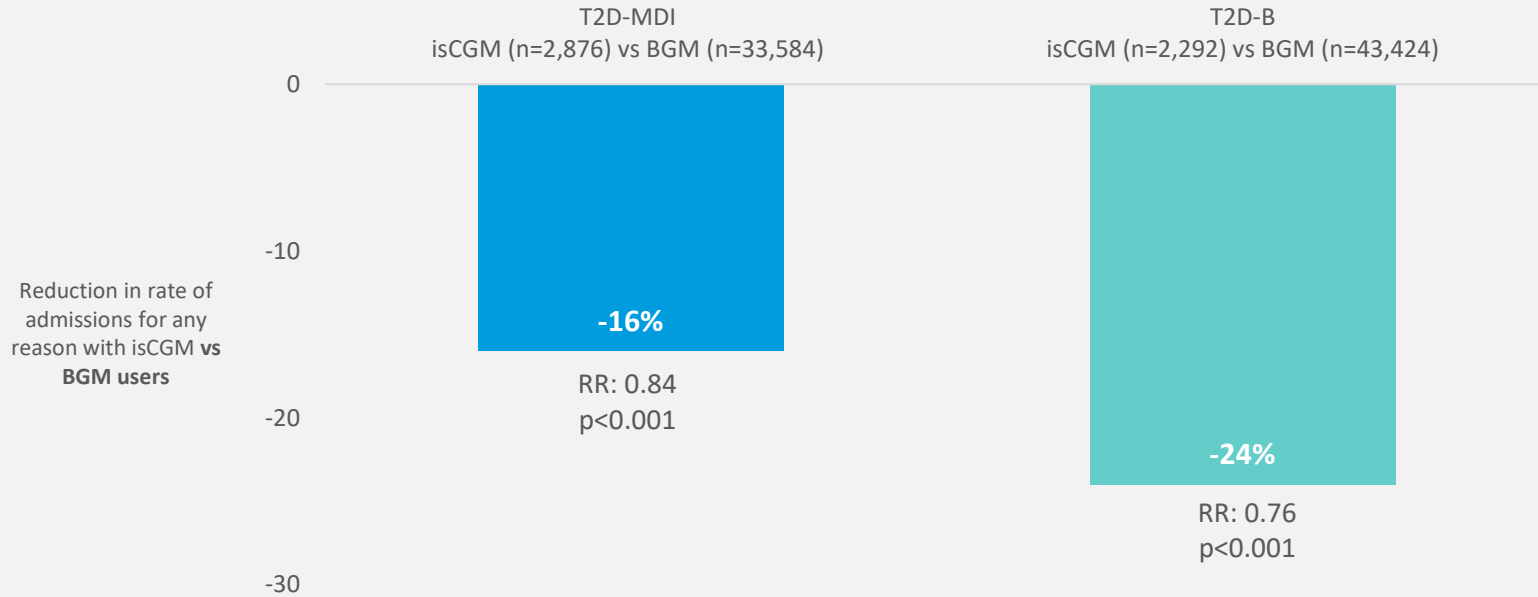
## Results: isCGM use in adults with insulin-treated T2DM was associated with reductions in HbA1c compared with BGM controls

Compared with BGM controls, isCGM use was associated with reductions in HbA1c that were maintained to 24 months and were similar in T2D-MDI and T2D-B cohorts



There were similar significant reductions in HbA1c compared with BGM controls in people with T2D-MDI and T2D-B using isCGM who had suboptimal control at baseline (HbA1c  $\geq$  7.5%)

## Results: isCGM use in adults with insulin-treated T2DM was associated with a lower risk of hospitalisation for any reason compared with BGM controls

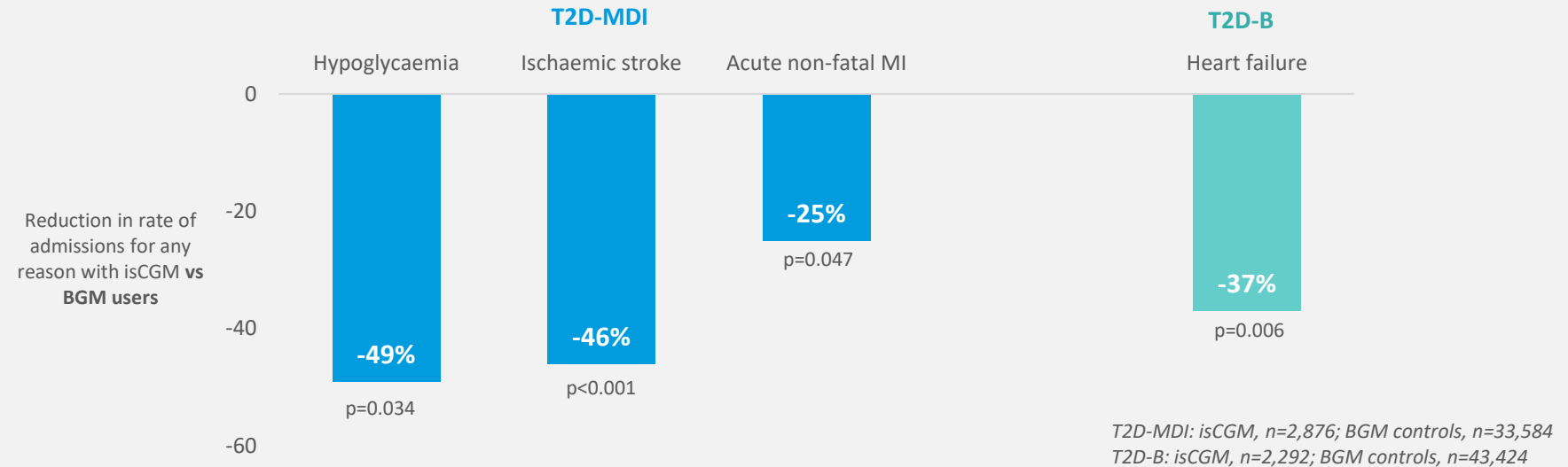


Comparison made with PS-IPTW negative binomial regression

BGM=blood glucose monitoring; isCGM=intermittently-scanned continuous glucose monitoring; PS-IPTW=propensity-score based inverse probability of treatment weighting; RR=risk ratio; T2DM=type 2 diabetes mellitus; T2D-B=type 2 diabetes on basal insulin ± other glucose lowering medication; T2D-MDI=type 2 diabetes on multiple daily injections with insulin

## Results: isCGM use in adults with insulin-treated T2DM was associated with a lower risk of hospitalisation for ischemic stroke, non fatal MI and heart failure

### Complications with significant reduction in risk of admission rates (isCGM vs BGM controls)



Comparison made with PS-IPTW negative binomial regression in people with T2D-B

BGM=blood glucose monitoring; isCGM=intermittently-scanned continuous glucose monitoring; MI=myocardial infarction; PS-IPTW=propensity-score based inverse probability of treatment weighting; RR=risk ratio; T2DM=type 2 diabetes mellitus; T2D-B=type 2 diabetes on basal insulin ± other glucose lowering medication; T2D-MDI=type 2 diabetes on multiple daily injections with insulin

## Conclusion: in people with insulin-treated T2DM, initiation of isCGM is associated with reduced HbA1c and reduced relative risk for hospitalisation compared with BGM controls

- This real-world retrospective cohort study of adults with insulin-treated T2DM in Sweden has shown that, compared to BGM controls, adults with both T2D-MDI and T2D-B have significant and sustained reductions in HbA1c after being prescribed isCGM
- isCGM use in people with insulin-treated T2DM is associated with a significant reduction in the relative risk of admissions for hypoglycemia, ischaemic stroke, non-fatal MI and hospitalisation for any reason
- These results:
  - Indicate that isCGM use in patients with insulin-treated T2DM is associated with better glycaemic control and lower risk for cardiovascular events than BGM use
  - Have implications for the long-term cost-effectiveness of providing access to isCGM for people with insulin-treated T2DM