CGM for Type 2DM

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Continuous glucose monitoring among adults with type 2 diabetes receiving noninsulin or basal insulin therapy in primary care

Stephen Shields, Roy Thomas, Joy Durham, Joseph Moran, Jake Clary, & Elizabeth L. Ciemins

POPULATION

102 MEN

80 WOMEN

Type 2 diabetes at least 90 days prior to enrollment and had two documented readings of A1c ≥ 7.5.

AGE:
18 – 85 Years Old

INCLUSION CRITERIA:
NIIT only and Basal Insulin users limited to 25% of study at six different primary care clinics across the US.

Mean A1C: ≥ 7.5

INTERVENTION

182 patients who were provided with CGMs

91 Continuous Glucose Monitoring

91 No Glucose Monitoring

PRIMARY OUTCOME

Evaluating the impact of CGM use on glycemic control, specifically measuring changes in A1c levels over a three-month period.

KEY FINDINGS

01 CGM was associated with an increased Time in Range from 39.7% - 61.9% during the first 10 days of the unblinded period. (5.3 hours per day)

02 CGM was associated with a significantly greater (-0.62%) reduction in HbA1c.

03 CGM was associated with a decreased Avg Glucose, 212 → 173 mg/dL.

OTHER FINDINGS

- CGM was associated with a decreased GMI: 8.39 → 7.46%
- CGM was associated with a decreased Time Above range:
  - 180 mg/dL (60.1% → 37.9%) & 250 mg/dL (27.6% → 8.5%)
- *These outcomes are also observed during the unblinded baseline period.*

Shields S, et al. Sci Rep. 2024;14(1):31990.

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Continuous glucose monitoring for the routine care of type 2 diabetes mellitus

Ramzi A. Ajjan, Tadej Battelino, Xavier Cos, Stefano Del Prato, Jean-Christophe Philips, Laurent Meyer, Jochen Seufert, & Samuel Seidu

POPULATION

This **Perspective Study** compares a total of:

12 randomized controlled trials (RCTs)

04 retrospective cohort studies with different populations from different locations

LITERATURE REVIEW CRITERIA

Continuous glucose monitoring (CGM) devices for the routine care of people with T2DM.

RECOMMENDATIONS FOR CGM USE IN T2D

- CGM is recommended for all people with T2D and should be at diagnosis.
- Continuous use of CGM is recommended for people on medications that could cause hypoglycemia (insulin and sulfonylureas).
- Intermittent use of CGM is recommended for all people with T2D, even if they are not on insulin.

Summary of Table 2

Proposed use of CGM throughout the natural history of T2DM

- **Newly Diagnosed T2DM**: Use CGM for 5–14 days to identify glucose patterns, guide therapy, and educate on glycemic metrics (TIR, GMI, variability).
- **Stable Disease**: Use CGM to adjust medications (e.g., basal insulin) and detect hypo-/hyperglycemia.
- **Long-Standing T2DM**: Use CGM to support therapy escalation (e.g., insulin, GLP-1 RA) and monitor for glycemic extremes.
- **MDI or Pump Users**: Recommend daily CGM to prevent hypoglycemia and support self-management.
- **Non-Insulin Therapy**: Use CGM intermittently (≥ every 3 months) with HCP review to guide treatment decisions.

CGM, continuous glucose monitoring; HCP, health-care professional; T2DM, type 2 diabetes mellitus. People with long-standing T2DM, with risk of consequent comorbid microvascular and macrovascular disease. People with T2DM at increased risk of frequent hypoglycaemia confirmed during a CGM-led medical review. CCan Include people on insulinotropic oral drugs with low risk of hypoglycaemia confirmed during a CGM-led medical review.

KEY FINDINGS

01 CGM was associated with a reduction in HbA1c.

02 CGM was associated with improved glycemic control

03 CGM was associated with quality of life and treatment satisfaction

04 CGM was associated with a reduction in all cause hospitalizations and acute events.

Ajjan RA, et al. Nat Rev Endocrinol. 2024;20(7):426-40.

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MAT-9023

Impact of continuous glucose monitoring on hospitalizations and glucose control in people with type 2 diabetes: real-world analysis

Satish K. Garg MD, Irl B. Hirsch MD, Enrico Repetto MD, Janet Snell-Bergeon PhD, Brian Ulmer MD, Christopher Perkins MS, & Richard M. Bergenstal MD

POPULATION

37,407 MEN

37,272 WOMEN

Participants were required to have a diagnosis of T2D

AGE
≥ 18
YRS

INSULIN USE:
Non-Insulin: **25,269** participants
Basal Insulin: **16,264** participants
Prandial Insulin: **33,146** participants

Mean A1C:

8.6%	9.0%	8.9%
NIT	BIT	PIT

LOCATION

Patients were located across the United States, using Optum's de-identified Market Clarity data.

INTERVENTION

Transition from traditional blood glucose monitoring (BGM) to **continuous glucose monitoring (CGM)** for

74,679
participants

PRIMARY OUTCOME

Changes in all-cause hospitalizations (ACH), acute diabetes-related hospitalizations (ADH), and emergency room visits (ADER) during the 6- and 12-month periods after switching from blood glucose monitoring to continuous glucose monitoring (CGM).

KEY FINDINGS

- CGM was associated with a reduction in Hospitalizations and Emergency Room Visits
- Reduction in ACH occurred regardless of medication adjustments.
- CGM decreased HbA1c across all therapy types (NIT, BIT, and PIT) regardless of medication changes.

n = 6,030
subgroup analysis

Mean A1c reductions were sustained throughout the post-index period.

The study period coincided with the COVID-19 pandemic, which could have contributed to higher rates of hospitalizations.

Garg SK, et al. Diabetes Obes Metab. 2024;26(11):5202-10.

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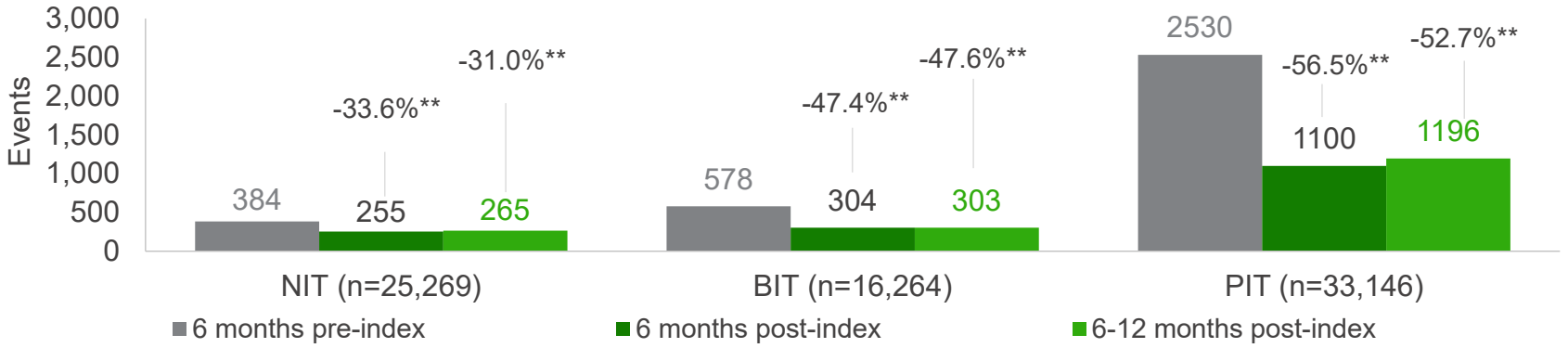
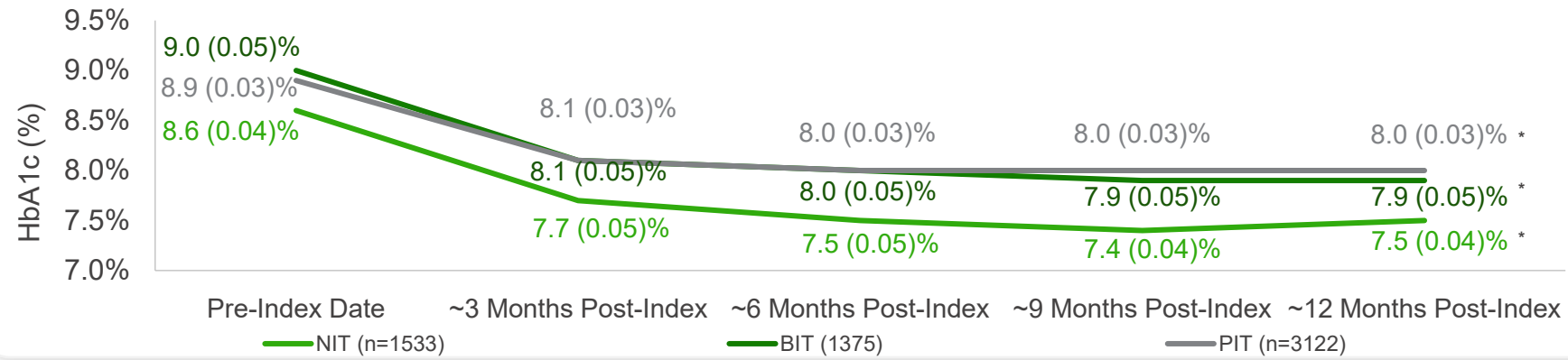
Acute diabetes-related hospitalizations (ADH)



A significant improvement in HbA1c was observed as soon as 3 months and sustained throughout the study



Garg SK, et al. Diabetes Obes Metab. 2024;26(11):5202-10.

MAT-9023

FIG U R E 1B. Reduction in acute diabetes-related hospitalizations (ADH) following continuous glucose monitoring (CGM) use at 6 and 12 months. Non-insulin therapy (NIT), basal insulin treatment (BIT), and prandial insulin therapy (PIT) are represented by grey (pre-index), light blue (6-month post-index), and dark blue (12-month post-index) bars, respectively. Substantial reductions in ADH were observed across all therapy types, with the most pronounced effect in the PIT group. $p < 0.0001$**

FIG U R E 2. Improved glucose control associated with continuous glucose monitoring use at 3, 6 and 12 months. Non-insulin therapy (NIT), basal insulin treatment (BIT) and prandial insulin therapy (PIT) are represented in blue, red and green lines, respectively. A significant improvement was observed in glycated haemoglobin (HbA1c) as early as 3 months and was sustained throughout the study period. HbA1c values are represented as mean ± SEM. *p < 0.0001.