Impact of Continuous Glucose Monitoring on Healthcare Resource Utilization Among Medicaid Beneficiaries with Type 2 Diabetes Treated with Multiple Daily Injection Therapy: Real-World Insights from the US

Authors: Irl B. Hirsch, MD, MACP[1]; Bhavya Sree Burugapalli, MPH[2]; Laura Brandner, MBA[2]; Yeesha Poon, PhD[2]; Marie Frazzitta, DNP[2]; Lakshmi Godavarthi, BTech[2]; Naunihal Virdi, MD[2]

[1]UW Medicine Diabetes Institute, Seattle, Washington, USA

[2]Abbott Diabetes Care, Alameda, California, USA

Disclosures

Irl Hirsch disclosures:

Research support: Dexcom, Tandem, Mannkind

Consulting: Abbott, Roche, Hager, Vertex

Bhavya Sree Burugapalli, Laura Brandner, Yeesha Poon, Marie Frazzitta, Lakshmi Godavarthi, and Naunihal Virdi are employees of Abbott Diabetes Care.

This analysis was funded by Abbott Diabetes Care.

Introduction

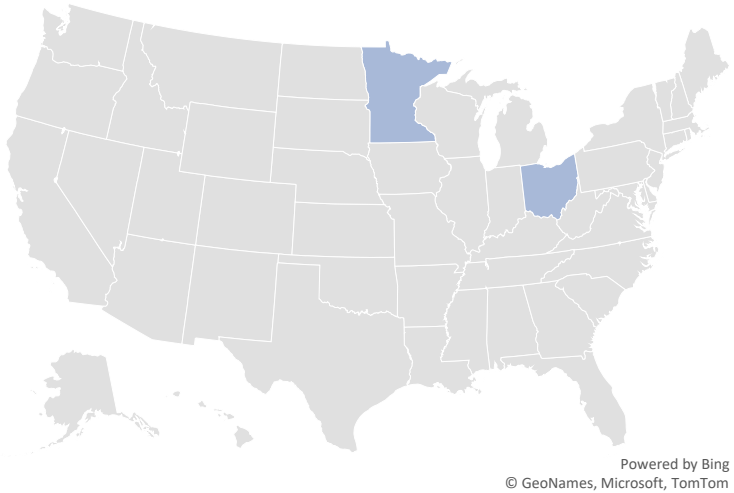
- Medicaid is a US safety net program providing insurance for low income adults and children
- People with type 2 diabetes (T2D) covered by Medicaid have higher rates of emergency department (ED) visits and hospitalizations than those who are privately insured[1]
- We studied the association of continuous glucose monitoring (CGM) on all-cause healthcare resource utilization (HCRU) among Medicaid beneficiaries with T2D treated with multiple daily injections of insulin (MDI) therapy
  - HCRU defined as hospitalizations, ED visits, and outpatient visits

1. Fisher MA, Ma ZQ. Medicaid-insured and uninsured were more likely to have diabetes emergency/urgent admissions. Am J Manag Care. 2015 May 1;21(5):e312-9. PMID: 26167779.

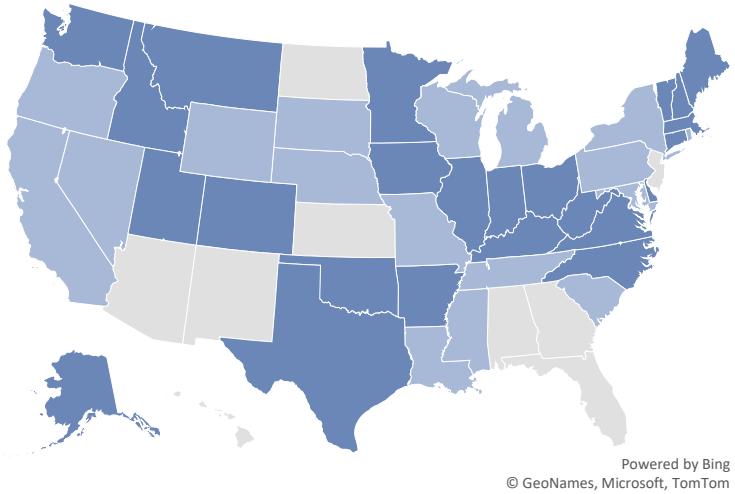
Background

Medicaid coverage for CGM has expanded in the last few years, however it is still lagging behind in some states and for some populations

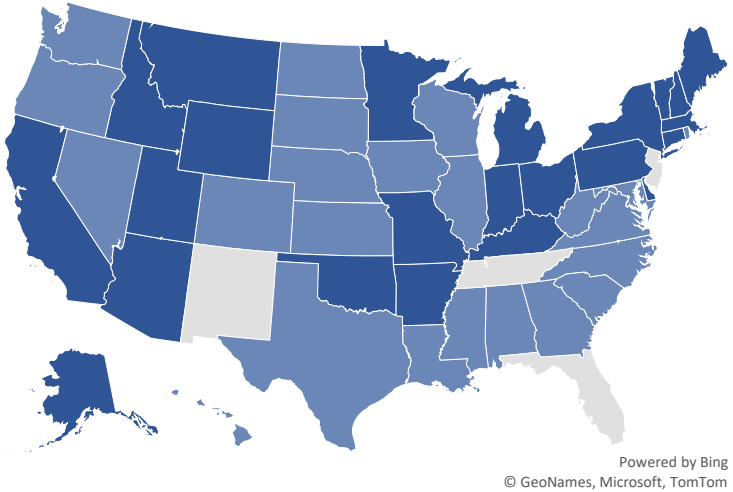
2017



2021



2023

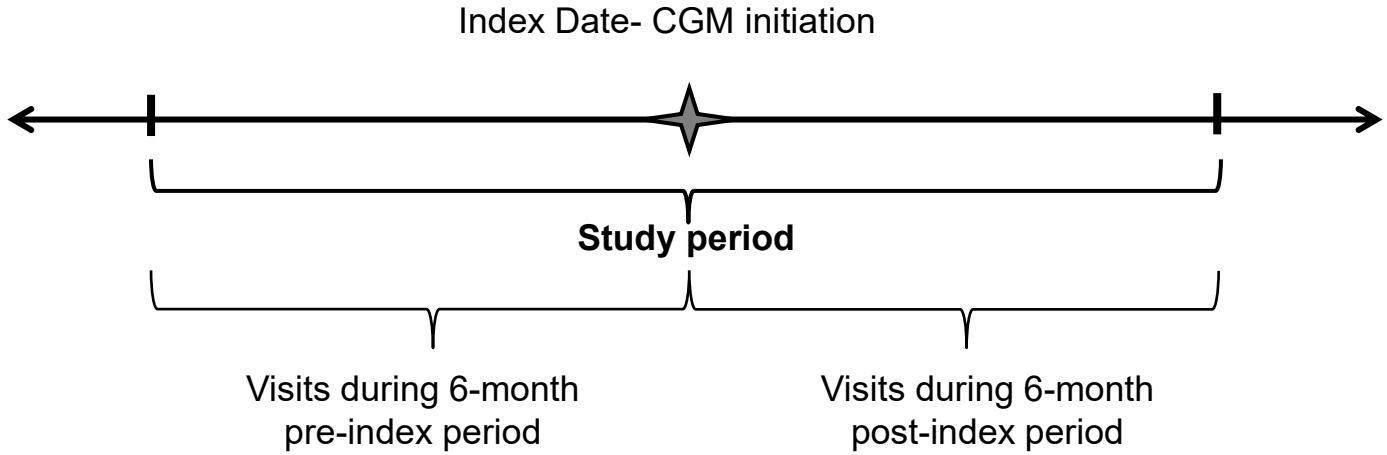


- No CGM coverage
- Coverage for T1D only
- Coverage for T1D and T2 MDI
- Coverage for all insulin users

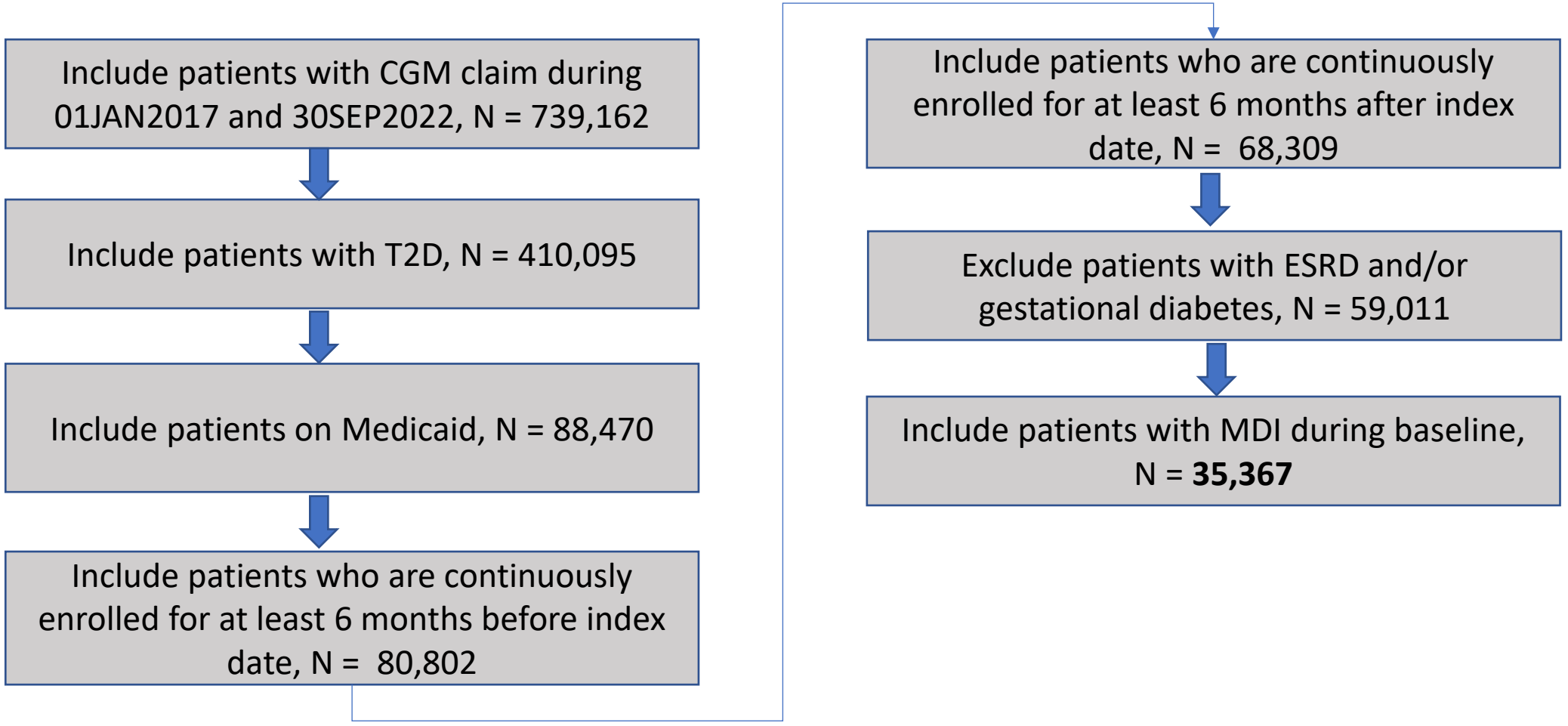
Source: Abbott data on file, state policies

Study Methods

- Managed Medicaid population was analyzed from within the Inovalon Insights claims database
- **Inclusion criteria:** Managed Medicaid payer, <65 years old, at least 1 claim for CGM sensor between Jan 2017-Sept 2022, diagnosis code for T2D, continuous enrollment in the health plan for 6 months before and after index, Rx claims for MDI medication
- **Analyses** Patients as their own control
- **Primary outcomes:** change in hospitalizations, ED visits, and outpatient visits 6-months pre/post CGM acquisition
  - **Subgroup analyses:** Stratified by baseline primary outcomes into low (1-2 visits) and high (≥3 visits) groups during the pre-CGM 6 months



Cohort development



Results – Demographics and Comorbidities

Demographics, N = 35,367		
Age (mean, SD)	Years	47 (13.57)
Gender (N, %)	Female	20,895 (59%)
	Male	14,472 (41%)
Race (N, %)	White	15,133 (43%)
	Black or African American	7,277 (21%)
	Hispanic or Latino	5,856 (16%)
	Unknown	4,884 (14%)
	Some Other Race	1,199 (3%)
	Asian or Pacific Islander	1,018 (3%)

Comorbidities (N, %)	
Myocardial Infarction	3,138 (9%)
Congestive Heart Failure	4,861 (14%)
Peripheral Vascular Disease	5,555 (16%)
Cerebrovascular Disease	3,454 (10%)
Chronic Pulmonary Disease	11,722 (33%)
Moderate to Severe Liver Disease	647 (2%)
Severe Renal Disease	362 (1%)
Hypertension	27,421 (78%)

Results – Healthcare Resource Utilization

- There were significant reductions in HCRU

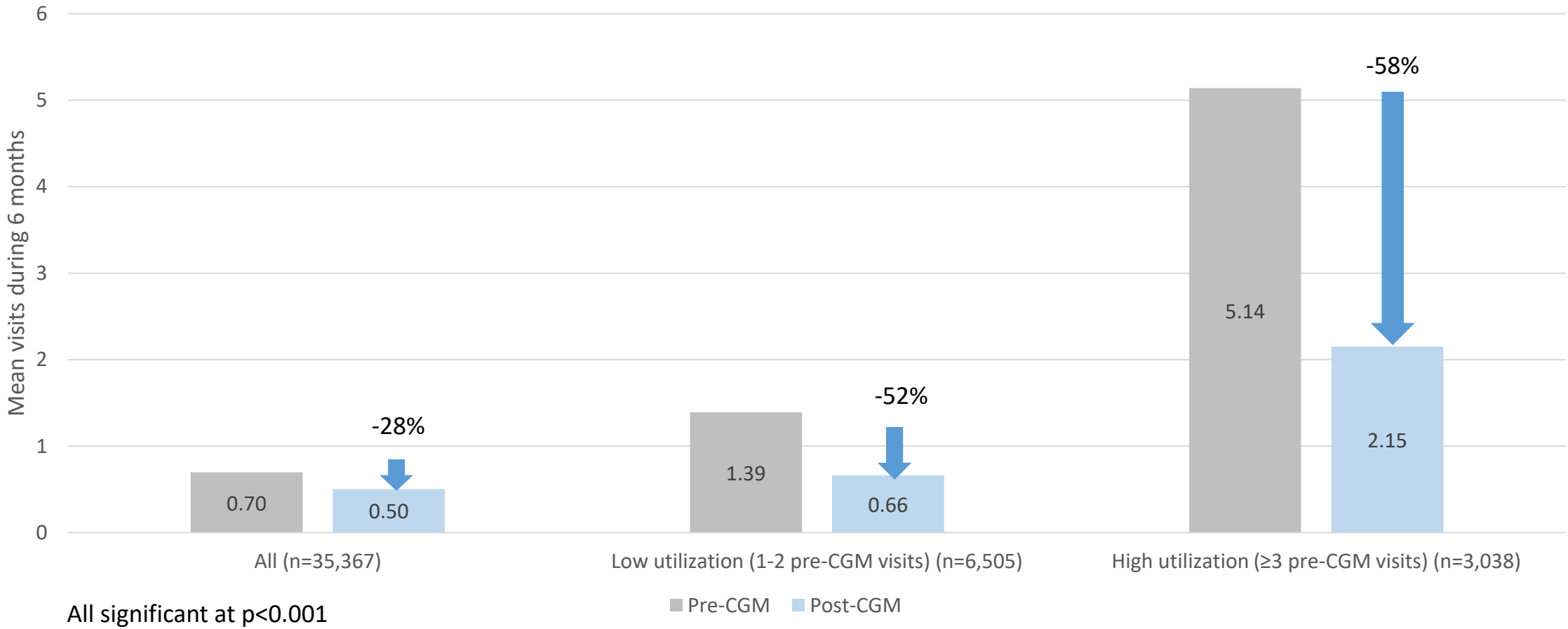
Number of events during 6-month pre- and post-CGM period (N = 35,367)

HCRU metric	Pre-CGM events	Post-CGM events	Change in events
Inpatient hospitalizations	24,658	17,747	-28%
Emergency department visits	47,048	38,959	-17%
Outpatient visits	387,642	360,913	-7%

- Consistent trends were observed across all utilization subgroups for ED visits and hospitalizations.
- Similar trends were observed in outpatient visits among high (≥3 visits pre-CGM) utilization group. However, among low (1-2 visits pre-CGM) utilization group, increased outpatient visits were observed.

Results – Change in Hospitalizations

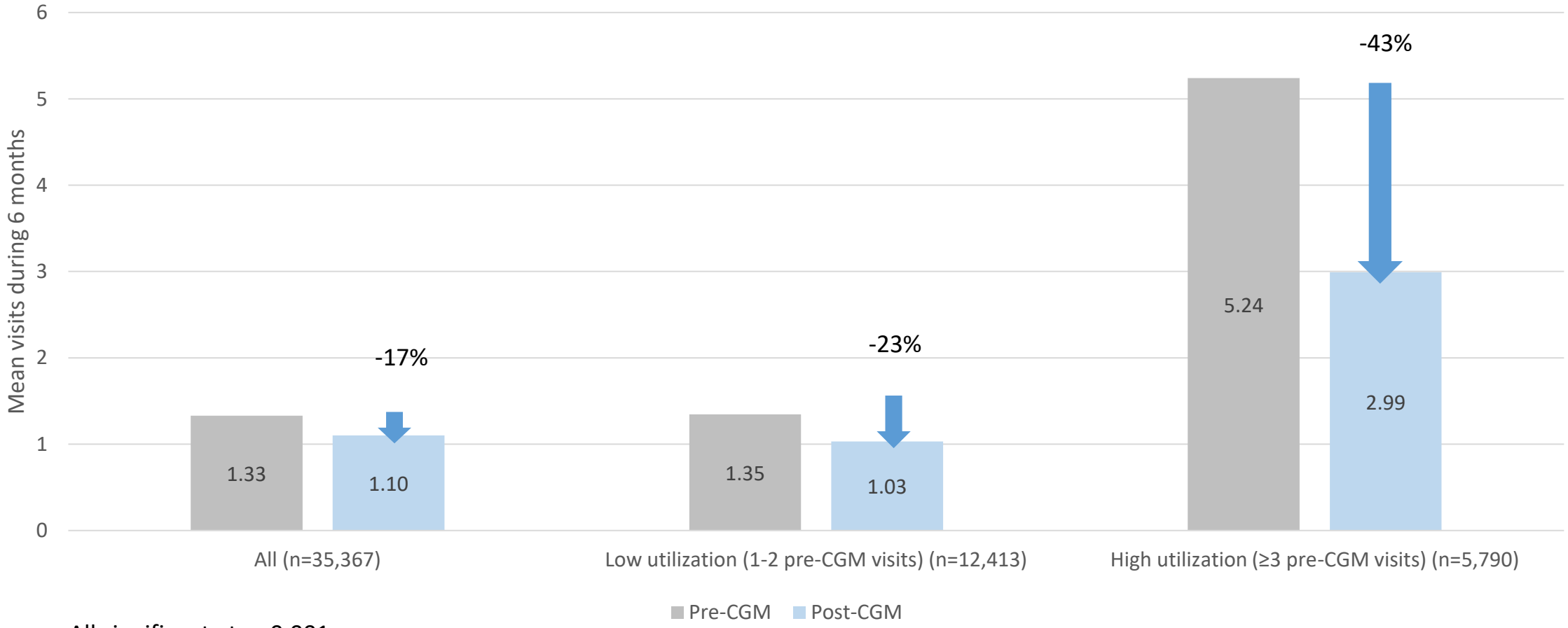
Reductions in hospitalizations seen in all baseline utilization subgroups



All significant at $p<0.001$

Results – Change in Emergency Department Visits

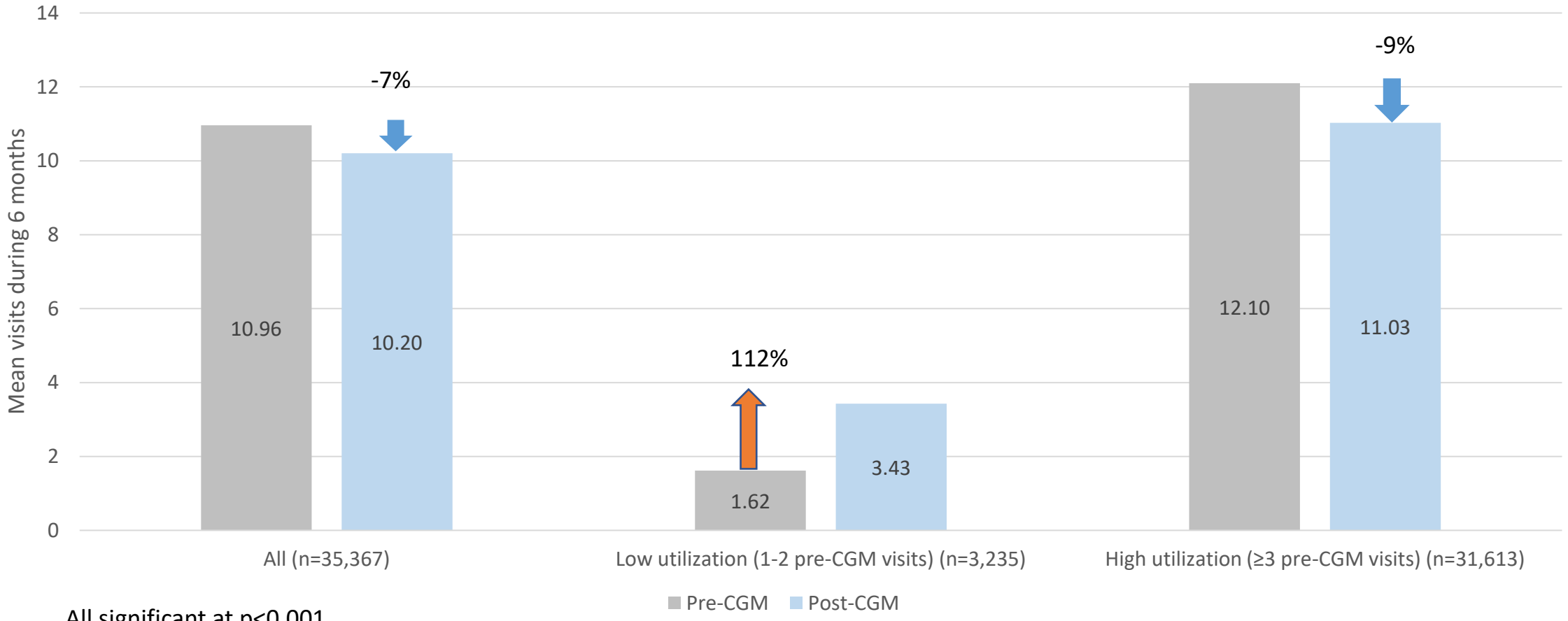
Reductions in ED visits seen in all baseline utilization subgroups



All significant at $p<0.001$

Results – Change in Outpatient Visits

Outpatient visits decreased for those with high baseline utilization, but increased for the low utilization group.



All significant at $p<0.001$

Discussion and Conclusions

- We observed significant reductions in HCRU overall for T2D Medicaid patients on MDI therapy who acquired CGM.
  - Suggests CGM may lead to more efficient use of health care resources
  - The reduction in hospitalizations and ED visits may translate to overall cost savings

- The reduced need for healthcare services could be attributed to the ability with CGM to monitor glucose levels in real-time which can aid in facilitating timely adjustments to treatment plans.

- Further research can assess cost implications, as well as explore if there is a genuine shift towards proactive outpatient care.

- Access to CGM should remain open for people with MDI-treated T2D as this analysis showed that people using CGM had improved outcomes and potentially reduced healthcare costs.