



Trends in Utilization and Out-of-Pocket Spending for GLP-1 Receptor Agonists Among U.S. Adults with Diabetes, 2018-2023: A MEPS Study

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Medical Expenditure Panel Survey (MEPS), 2018-2023

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BACKGROUND AND OBJECTIVES

BACKGROUND

GLP-1 receptor agonists have become increasingly important in diabetes management due to their ability to improve glycemic control and provide cardiometabolic benefits. However, rising use may increase patient cost-sharing and national spending burden. Understanding recent trends in utilization and out-of-pocket (OOP) spending is important for clinicians, payers, and policymakers.

OBJECTIVE

To examine trends in GLP-1 receptor agonist utilization and out-of-pocket spending among U.S. adults with diabetes from 2018 to 2023 using nationally representative MEPS data.

RESEARCH QUESTION

Among U.S. adults with diabetes, how did GLP-1 receptor agonist utilization and out-of-pocket spending change between 2018 and 2023?

METHODS

STUDY DESIGN

A retrospective repeated cross - sectional design was used to construct a **person-year dataset**, with one observation per individual per year.

STUDY POPULATION

Adults ≥18 years with diabetes.
Final sample: 16,278 person-years (~171 million U.S. adults weighted).

DATA SOURCE

Medical Expenditure Panel Survey (MEPS), a nationally representative survey of the U.S. civilian noninstitutionalized population.

IDENTIFICATION OF GLP-1 MEDICATIONS

GLP-1 receptor agonists identified from prescription files using medication names and string matching.
The following medications were included:

- **Semaglutide** (Ozempic, Wegovy, Rybelsus)
- **Dulaglutide** (Trulicity)
- **Liraglutide** (Victoza, Saxenda)
- **Exenatide** (Byetta, Bydureon)
- **Lixisenatide** (Adlyxin)
- **Albiglutide** (Tanzeum)
- **Tirzepatide** (Mounjaro)

Binary indicator created for any GLP-1 use per year.

OUTCOME MEASURES (DEPENDENT VARIABLES

- GLP-1 utilization (%)
- Annual out-of-pocket (OOP) spending
- Zero OOP spending among users (%)
- National OOP spending burden

COVARIATES (INDEPENDENT VARIABLES)

Age, sex, race/ethnicity, insurance status (private, public only, uninsured)

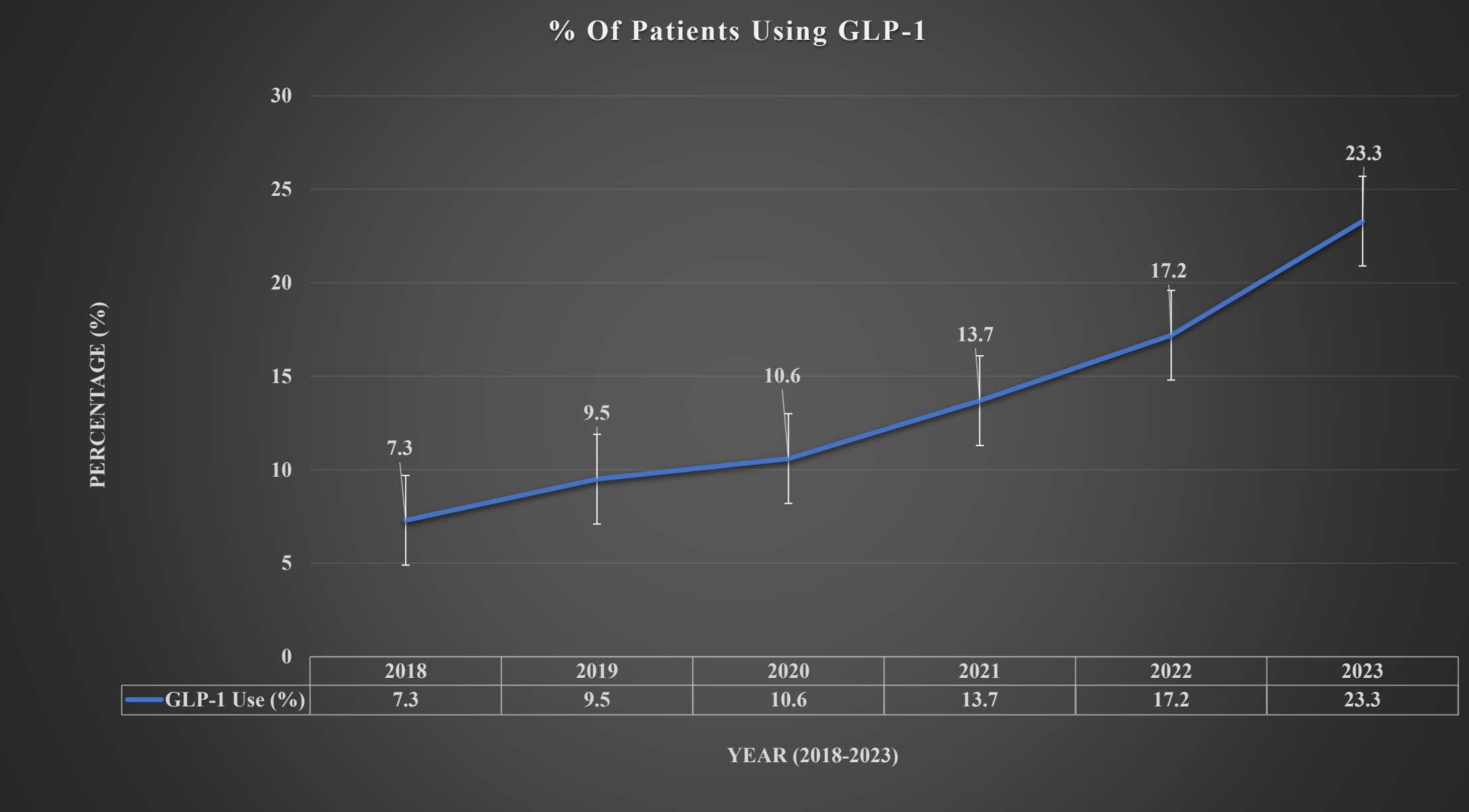
STATISTICAL ANALYSIS

- MEPS survey weights applied for national estimates.
- Complex survey design accounted for (stratification and clustering).
- Trends analyzed across 2018–2023.
- Survey-weighted logistic regression used to assess factors associated with GLP-1 use.
- Adjusted predictive margins estimated probability of use over time.

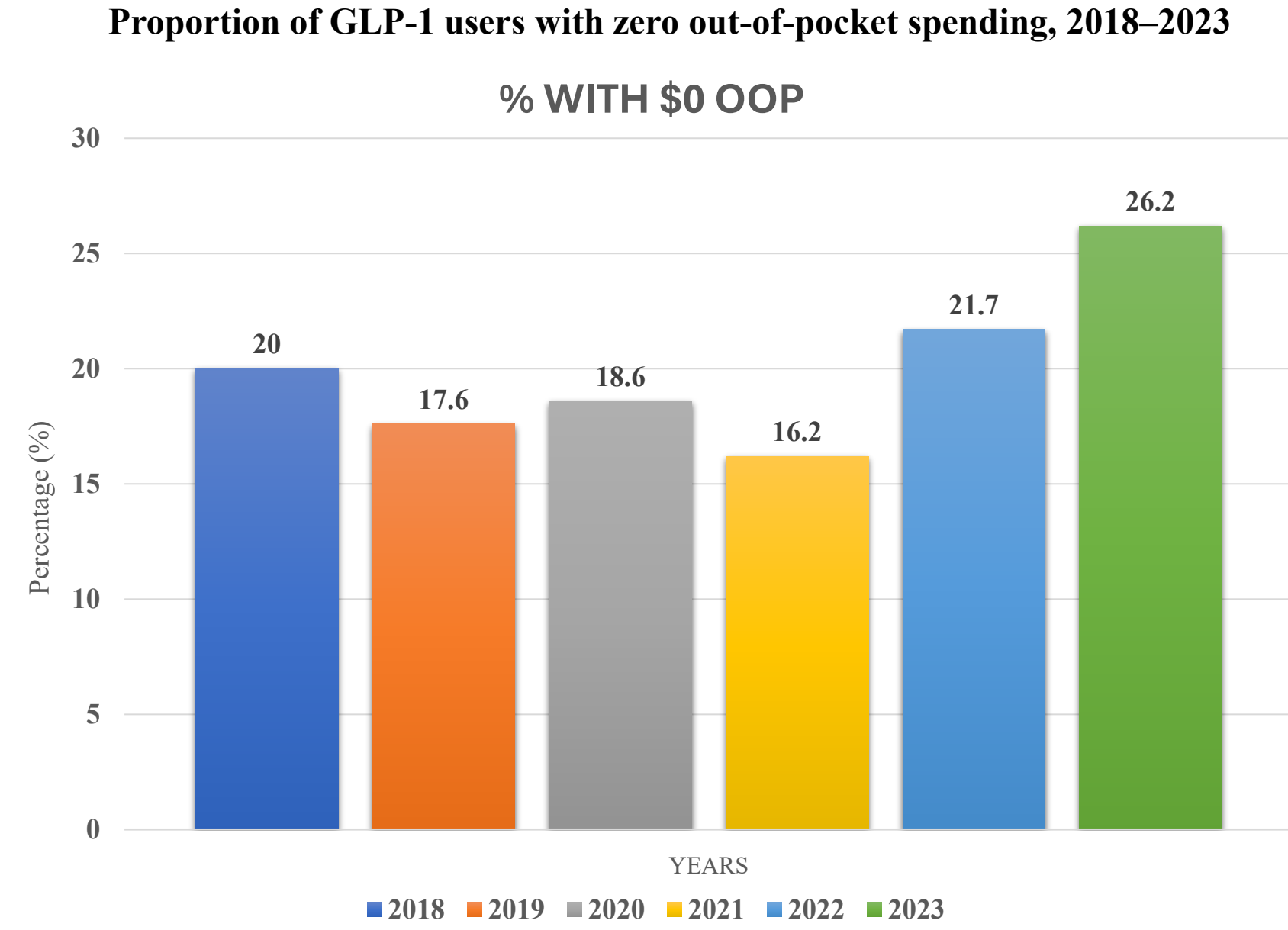
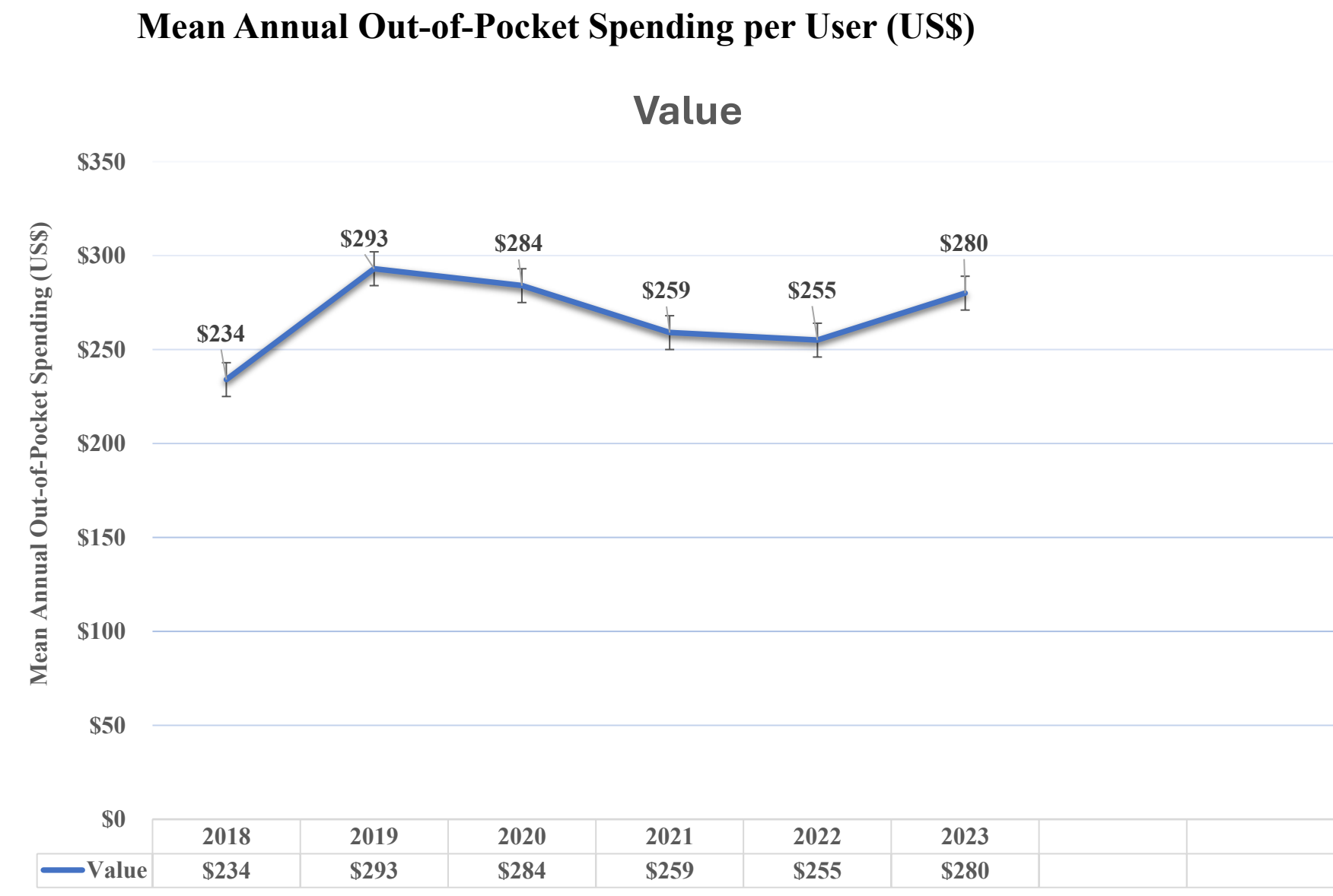
OVERALL GLP-1 UTILIZATION BY YEAR (2018–2023)

Trends in GLP-1 receptor agonist utilization among U.S. adults with diabetes, 2018–2023.

Survey-weighted estimates show that GLP-1 use increased from 7.3% in 2018 to 23.3% in 2023, representing an absolute increase of approximately 16 percentage points over the study period.

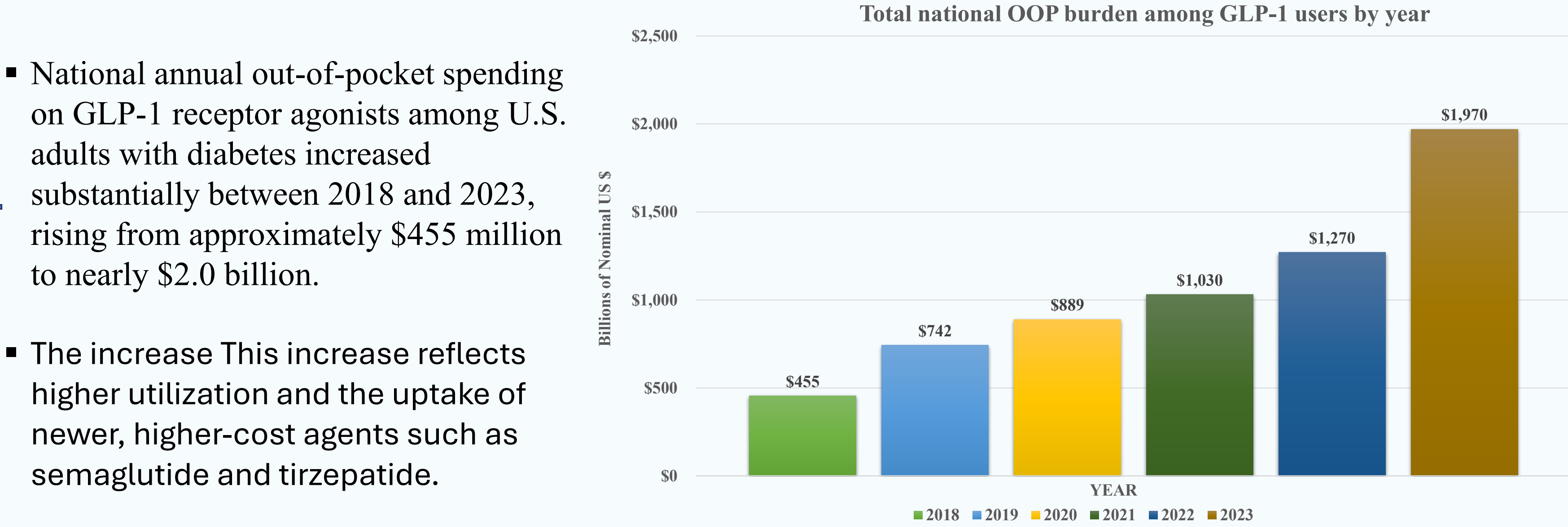


OUT-OF-POCKET SPENDING



While mean annual out-of-pocket spending among GLP-1 users remained relatively stable during the study period, The proportion of GLP-1 users with zero out-of-pocket spending increased over time, rising from 20.0% in 2018 to 26.2% in 2023.

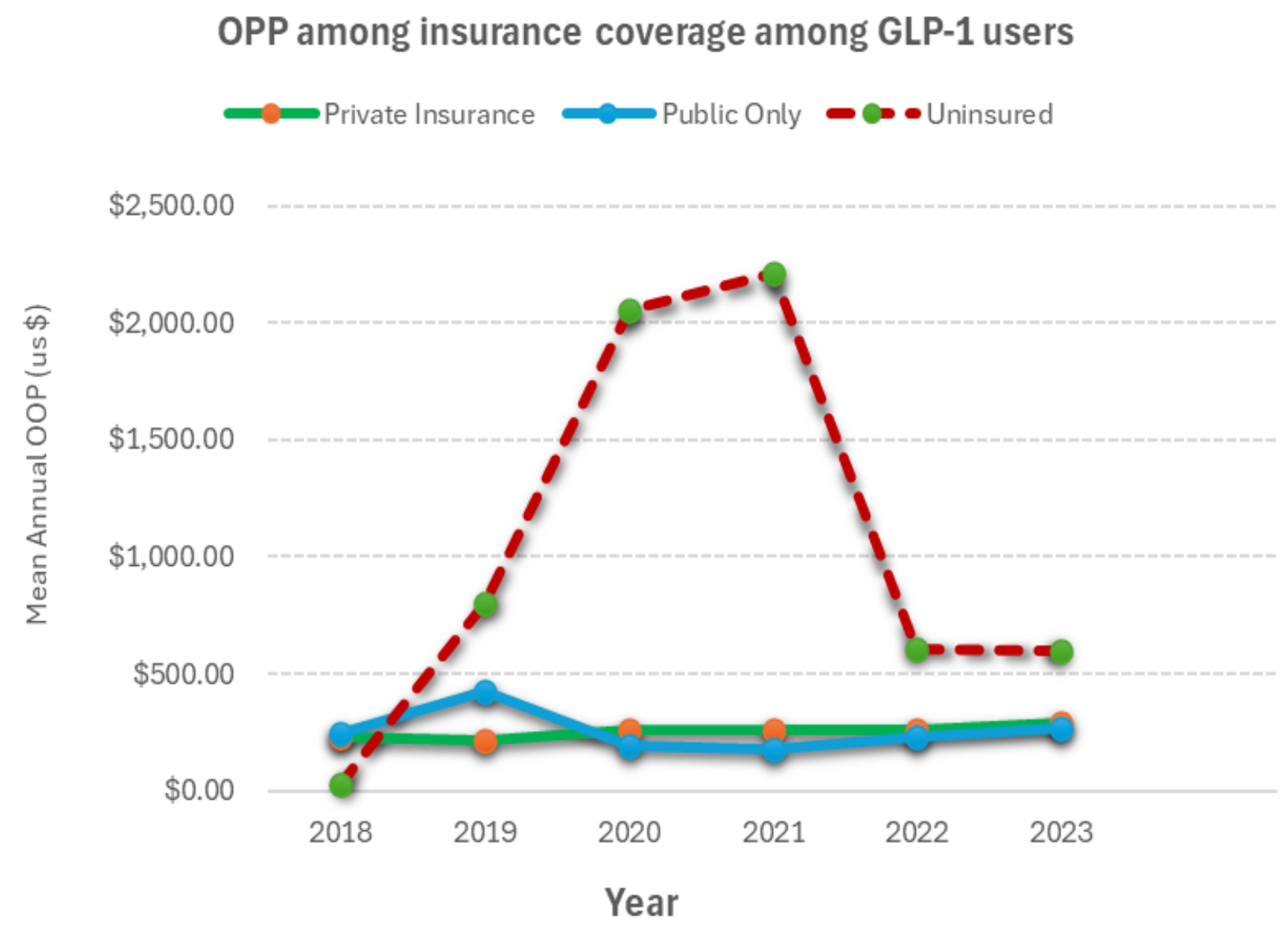
NATIONAL OUT-OF-POCKET BURDEN



MEAN ANNUAL OUT-OF-POCKET SPENDING AMONG GLP-1 USERS BY INSURANCE COVERAGE

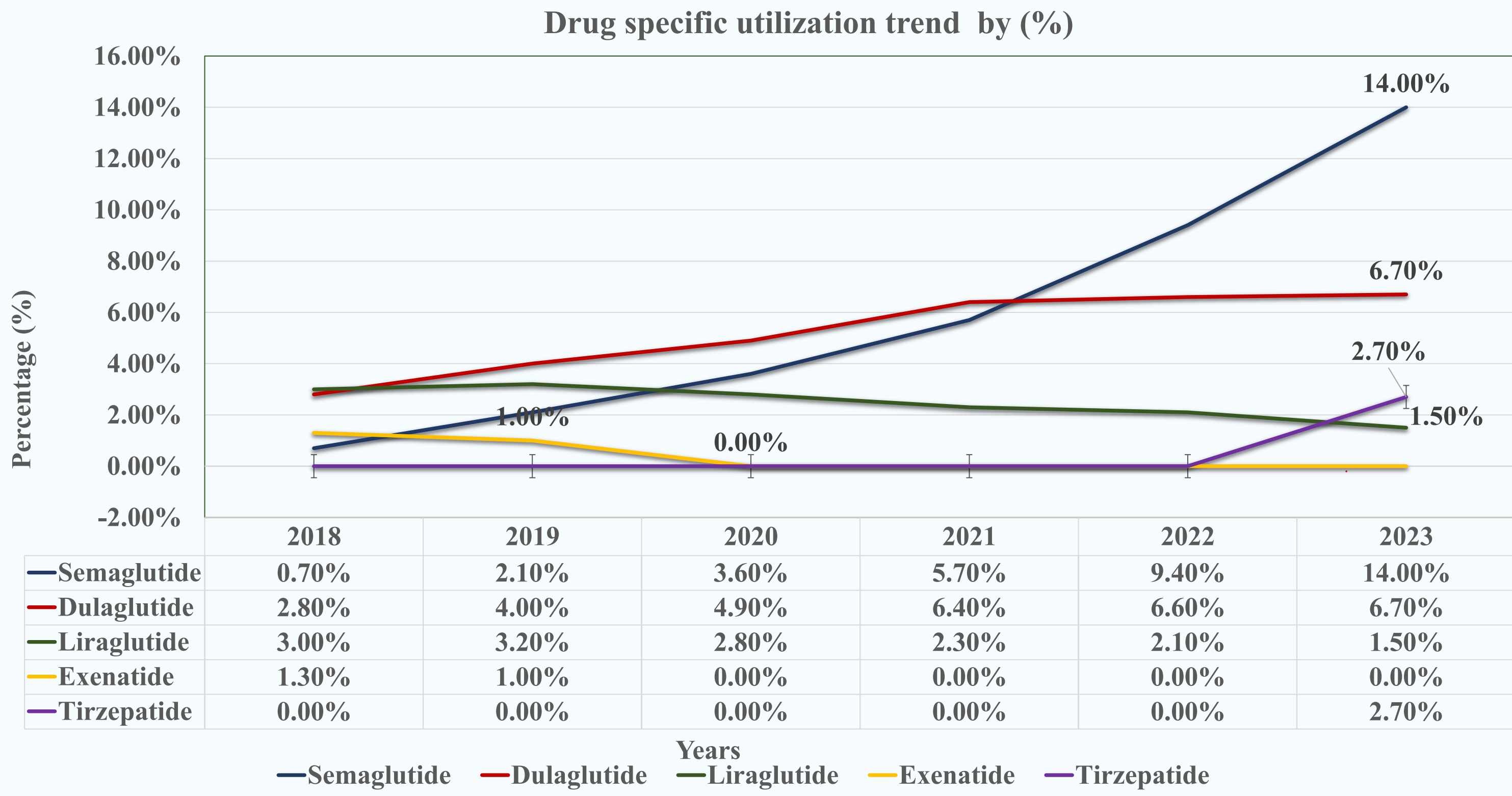
Year	Private Insurance (\$)	Public Only (\$)	Uninsured (\$)
2018	231	246	23
2019	213	423	802
2020	260	191	2,056
2021	259	180	2,214
2022	256	229	606
2023	286	265	598
Total % of Users	64.67%	33.90%	1.43%

Mean annual out-of-pocket (OOP) spending among GLP-1 users varied by insurance status and year. Privately insured individuals had relatively stable OOP costs, ranging from **\$213 to \$286 annually**, while publicly insured individuals incurred costs between **\$180 and \$423**. Uninsured individuals generally faced higher OOP spending; however, these estimates were variable due to **small sample sizes and wide confidence intervals**.



RESULTS

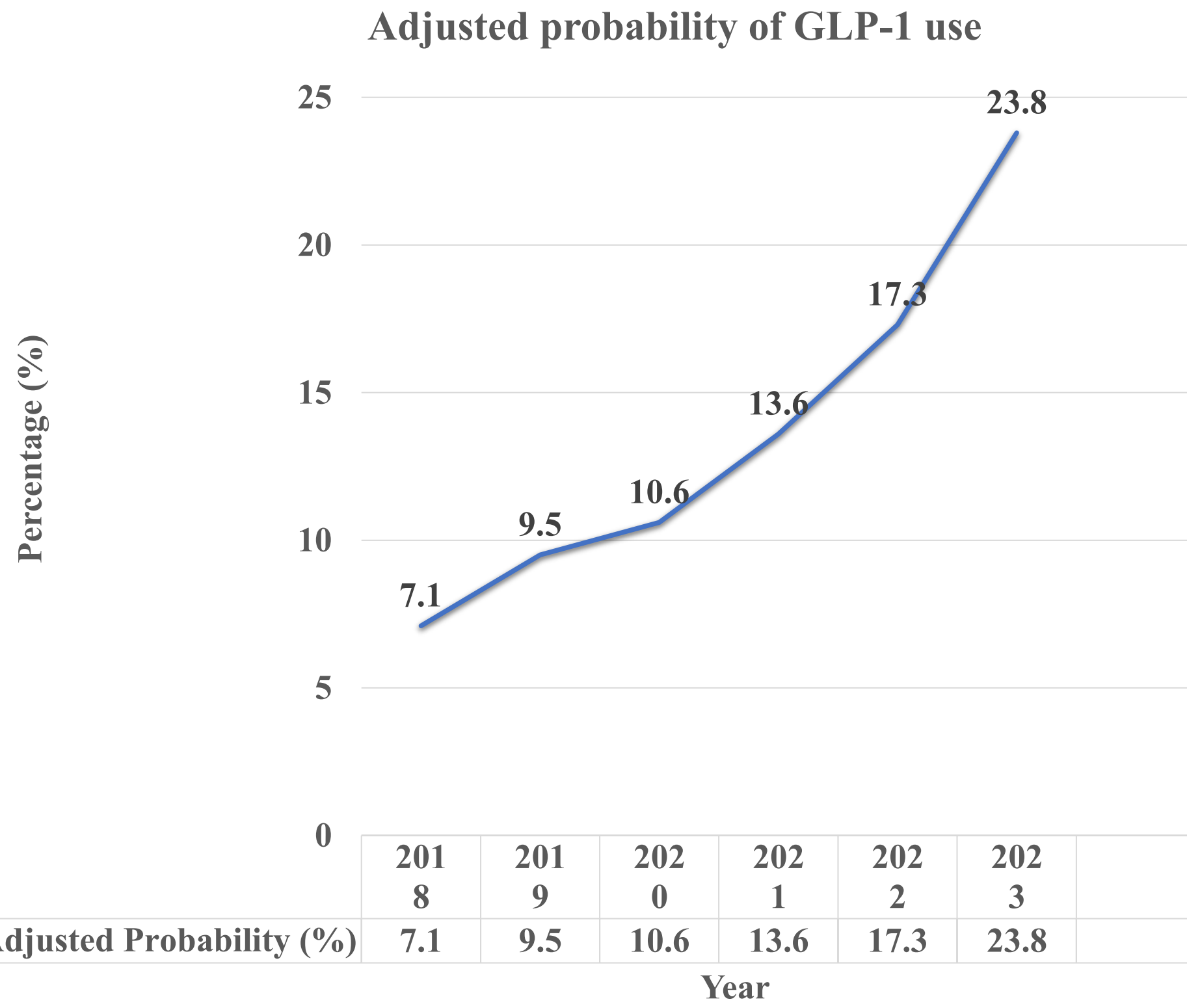
GLP-1 DRUG UTILIZATION TRENDS



Semaglutide use increased substantially from 0.7% in 2018 to 14.0% in 2023, becoming the dominant GLP-1 agent. Dulaglutide showed moderate growth, rising from 2.8% to 6.7%, while liraglutide declined steadily from 3.0% to 1.5%. Exenatide use dropped to 0% after 2019, and tirzepatide emerged as a new therapy in 2023 with a utilization of 2.7%

ADJUSTED ANALYSIS

After adjusting for age, sex, race/ethnicity, and insurance status, the predicted probability of GLP-1 use increased from 7.1% in 2018 to 23.8% in 2023 (p < 0.001), indicating a statistically significant upward trend over time.



LIMITATIONS

- Cross-sectional study design limits causal inference.
- MEPS data are self-reported and may be subject to recall bias.
- Diabetes classification may not fully distinguish type 1 from type 2 diabetes.
- Out-of-pocket spending reflects reported payments and may not capture rebates or manufacturer assistance programs.
- Our study does not include people in nursing homes, so the results may not apply to all patients with diabetes.
- Medication identification based on drug names may lead to misclassification.

POLICY / PRACTICE IMPLICATIONS

GLP-1 receptor agonists have an increasing role in diabetes care, but affordability remains an important issue. Findings from this study may help inform:

- payer coverage decisions
- patient affordability strategies
- prescribing decisions
- policies aimed at improving medication access

CONCLUSION

- GLP-1 use among U.S. adults with diabetes increased substantially from 2018 to 2023.
- Growth was driven mainly by semaglutide.
- Mean annual OOP spending among users remained considerable.
- Total national OOP burden rose sharply as utilization expanded.
- Insurance coverage may play an important role in access and financial burden.

REFERENCES

- Agency for Healthcare Research and Quality. (2023). Medical Expenditure Panel Survey (MEPS). U.S. Department of Health and Human Services. <https://www.meps.ahrq.gov/>
- Wu, J., Perez, A., & Sullivan, P. W. (2025). Patterns and costs associated with glucagon-like peptide-1 receptor agonist use in US adults with type 2 diabetes. Journal of Managed Care & Specialty Pharmacy, 31(10), 1029-1038.