Impact of Glucagon-Like Peptide-1 (GLP-1) Receptor Agonists to Treat Obesity on Non-GLP-1 Costs Among Commercially Insured Members Without Diabetes: A 3-Year Retrospective Analysis

RWD112

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BACKGROUND

- Obesity, which affects 41.9% of the US adult population, creates more than $170 billion in annual health care spending.[1]
- In recent years, GLP-1s for obesity have dominated the nationwide weight loss discussion and are driving affordability concerns.[2]
- These products have been shown to reduce weight by 15% to 20% and reduce cardiovascular events in patients with a history of cardiovascular events.[3-5]
- The impact of GLP-1 products for obesity on overall prescription drug spending is well-understood. However, the extent to which GLP-1 utilization may either offset spending on other prescription drugs through improved comorbidity management or increase other drug spending due to factors such as adverse effect management is not known.
- Additional research is needed to explore potential changes in non-GLP-1 pharmacy spending after GLP-1 initiation.

OBJECTIVE

Our objective is to evaluate 3-year, non-GLP-1 pharmacy spending among commercially insured members without diabetes utilizing GLP-1 obesity treatment compared to matched controls.

METHODS

- This retrospective, observational cohort study analyzed Prime Therapeutics' integrated pharmacy and medical claims data from 16 million commercially insured members covering all regions of the United States across the more than 4-year period of January 1, 2020, to March 31, 2025.
- Study inclusion was limited to members newly initiating a GLP-1, defined as no GLP-1 use in the prior year, between January 1, 2021, and March 31, 2022.
- Inclusion criteria were continuous enrollment during the 12 months prior to the index-new GLP-1 therapy start date (pre-period); an obesity diagnosis on 1 or more medical claims during the pre-period; aged 19 or more years at index; and no GLP-1 use or evidence of diabetes mellitus (DM) during the pre-period.
- Members were excluded if they had a DM diagnosis medical claim during the pre-period, a pharmacy DM drug therapy claim during the pre-period, or a medical claim diagnosis during the pre-period for HIV/AIDS, hemophilia, sickle cell disease, malignant cancer, or end-stage renal disease.
- Using the same inclusion and exclusion criteria, a control group was identified that included 10 million members with at least 1 new pharmacy claim for a maintenance medication between January 1, 2021, and March 31, 2022. Each distinct chronic medication fill date was considered as a potential index date.
- A 2-step matching approach was used to identify a 3:1 matched control group:
  - Step 1: First, a direct match was made based on gender, 10-year age bands, region, line of business (i.e., fully insured, health insurance marketplace, self-insured), Charlson Comorbidity Index (CCI) score band[6], pre-period pharmacy claim fill band, quarter and year of index date, hospitalization in the 91-day period before index, prediabetes, severe obesity, sleep apnea, and any weight loss medication use.
  - Step 2: After the direct match, GLP-1 utilizers were matched using propensity scores on age; month of index study date; body mass index (BMI) grouping; CCI score and conditions[6]; pre-period pharmacy claim fill rates; pregnancy; and pre-period non-GLP-1 obesity drug therapy utilization by class (e.g., phentermine, topiramate, naltrexone, etc.), statin, renin-angiotensin system antagonist (RASA), and/or antidepressants.
  - Balance across cohorts was evaluated using standardized mean differences (SMD), with differences less than 0.1 considered balanced.
- Pharmacy costs, excluding GLP-1 spending, were calculated using rolling 91-day periods relative to index. All members had 4 pre-period and up to 12 post-period measurements, depending on eligibility. Controls who initiated a GLP-1 were censored beginning with the period of initiation. Annual spending estimates were derived from quarterly averages multiplied by 4.
- Spending amounts were adjusted to first-half 2025 dollars using the medical component of the consumer price index (CPI) and capped at the 99th percentile.
- Costs were from claim-paid allowed amounts, after all network provider discounts were applied, and included member share. Pharmaceutical manufacturer rebates and coupons were not included.
- Time series analysis was used to compare the quarterly spending trend before and after index between the 2 groups. Cost changes between groups and across annual periods (e.g. pre-period vs. year 3 post-period) were statistically analyzed using difference-in-difference (DID) regression.

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ISPOR 2026, May 17-20, 2026, Philadelphia, PA
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TABLE 1

Selected Demographics and Clinical Characteristics of Study Sample After Matching

Demographic or Clinical Characteristic	After Matching** GLP-1 Obesity Treatment (N=10,094)	After Matching** Control (N=29,570)	SMD†	*P* value‡
Age in years, mean (SD)	45.7 (10.3)	45.6 (10.5)	0.004	0.731
Gender–female, N (%)	8,129 (80.5%)	23,844 (80.6%)	0.003	0.833
Index year & quarter, N (%)				
Q1 2021	1,079 (10.7%)	3,160 (10.7%)	0.002	1
Q2 2021	1,664 (16.5%)	4,850 (16.4%)		
Q3 2021	1,946 (19.3%)	5,707 (19.3%)		
Q4 2021	2,332 (23.1%)	6,845 (23.1%)		
Q1 2022	3,073 (30.4%)	9,008 (30.5%)		
Severe obesity**, N (%)	4,178 (41.4%)	12,152 (41.1%)	0.006	0.611
BMI Z-code category, N (%)				
30-34.9	1,868 (18.5%)	5,322 (18.0%)	0.035	0.058
35-39.9	1,677 (16.6%)	4,772 (16.1%)		
40-44.9	1,418 (14.0%)	4,397 (14.9%)		
45+	1,393 (13.8%)	3,893 (13.2%)		
No obesity BMI Z-code	3,738 (37.0%)	11,186 (37.8%)		

standard deviation (SD); standardized mean difference (SMD)
*Eligible control group members were matched to GLP-1 treatment members on characteristics and conditions using a combined exact and propensity score matching approach, as described in Methods.
**Severe obesity is defined as BMI ≥40 using ICD-10-CM codes of E66.01 or Z68.4. The number of members with severe obesity exceeds the number of members categorized with BMI of 40 or more due to coding of E66.01 and under-coding of Z-codes for BMI, which are not billable ICD-10-CM codes.
†SMDs assess demographics and characteristics balance between groups, with excellent balance defined as a value <0.1.
‡Statistical comparisons between treatment and control group used t-tests for continuous outcomes and chi-square tests for categorical outcomes.

TABLE 2

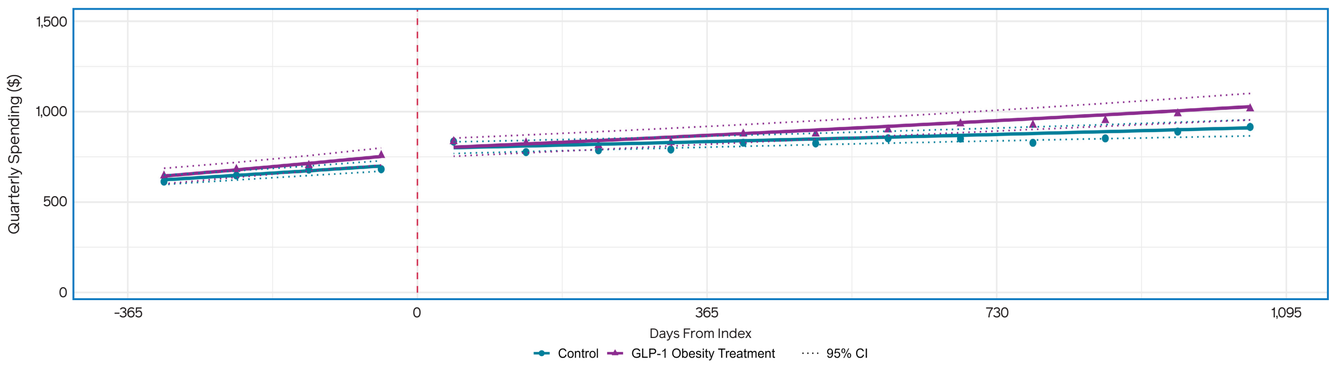
Yearly Change in Non-GLP-1 Pharmacy Benefit Spending Among GLP-1 Obesity Treatment Initiators Without Diabetes and Matched Controls*

	GLP-1 Obesity Treatment		Controls*		Annual Difference-in-Difference vs. Pre-Period (95% CI)	*P* value
	Mean Non-GLP-1 Pharmacy Spending†	Difference vs. Pre-Period (% Change)	Mean Non-GLP-1 Pharmacy Spending†	Difference vs. Pre-Period (% Change)		
Pre-period	$2,788	—	$2,643	—	—	—
Post-period year 1	$3,305	$517 (19%)	$3,247	$604 (23%)	-$87 (-214 to 40)	0.08
Post-period year 2	$3,642	$854 (31%)	$3,420	$777 (29%)	$77 (-116 to 270)	0.74
Post-period year 3	$3,971	$1,184 (42%)	$3,578	$935 (35%)	$249 (-10 to 508)	0.17

confidence interval (CI)
*Eligible control group members were matched to GLP-1 treatment members on characteristics and conditions using a combined exact and propensity score matching approach; see Methods.
†Pharmacy claim-paid allowed amounts were adjusted to first-half 2025 dollars using the medical component of the consumer price index and capped at the 99th percentile. Annual spending estimates were derived from quarterly averages multiplied by 4. Costs are from the claim-paid allowed amounts, after all network provider discounts were applied, and include member share. Pharmaceutical manufacturer rebates and coupons were not included.

FIGURE 1

Non-GLP-1 Pharmacy Benefit Spending Trends



confidence interval (CI)
The 3-year post-index trend for non-GLP-1 pharmacy benefit spending was -0.3% (95% CI: -2.4% to 1.9%). GLP-1 Obesity Treatment N=10,094; Control N=29,570. Outcome is defined as total pharmacy spending excluding GLP-1 product spending.

RESULTS

- Out of an initial pool of 5,112,150 control member-index date combinations and 10,686 GLP-1 obesity treatment without diabetes members, 29,570 (28,378 distinct) controls were matched to 10,094 treatment members.
- The cohorts were well-balanced after matching, with SMD for matching variables all less than 0.1 (Table 1).
- Compared to pre-period costs, non-GLP-1 pharmacy spending was slightly lower in year 1 and higher in years 2 and 3 among treatment versus controls (Table 2).
- Non-GLP-1 pharmacy benefit spending increased in the 3 years post-index, but the change was not significantly different between the treatment and control groups (Figure 1).

LIMITATIONS

- Data were sourced from administrative health care claims; therefore, misclassification bias may have occurred due to using medical and pharmacy claims to exclude individuals without diabetes and to identify those with obesity. Similarly, claims-based identification of GLP-1 utilization may have failed to appropriately classify utilizers of compounded GLP-1 products, individuals procuring GLP-1 through direct-to-consumer programs, or other individuals with non-adjudicated GLP-1 utilization.
- Pharmacy costs do not include pharmaceutical manufacturer rebates and coupons.
- Our study examined commercially insured membership; therefore, results are not generalizable to Medicare or Medicaid populations.
- The impact of an individual's cost sharing, other diagnoses, social determinants of health, or other member characteristics are outside the scope of this analysis and are worthy of future consideration.

CONCLUSIONS

- Pharmacy benefit spending for non-GLP-related products among treatment members compared to controls did not significantly change following initiation of GLP-1 over a 3-year period. Increases in pharmacy spending among GLP-1 utilizers are driven by GLP-1 spend and not by changes in non-GLP-1 spend.
- Additional investigation is needed to assess potentially meaningful pharmacy benefit spend offsets for other conditions or increases due to factors such as GLP-1 adverse effects.
- As such, trends in pharmaceutical spending after GLP-1 initiation are highly sensitive to factors like GLP-1 adherence, which will increase pharmaceutical spending, and reductions in list prices or increases in rebates, which will decrease GLP-1 pharmaceutical spending.

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