An Evaluation of Real-World Persistence, Adherence, and Effectiveness of GLP-1 Medications for the Treatment of Overweight and Obesity in a Medicaid Population

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INTRODUCTION

- In 2023, the Behavioral Risk Factor Surveillance System (BRFSS) reported that 27.4% of Massachusetts (MA) adults were obese and 35.2% were classified as overweight. In 2023, MA had the fourth lowest prevalence of obesity nationally.[1]
- The Food and Drug Administration (FDA) approvals of the glucagon-like peptide-1 (GLP-1) products have advanced the pharmacologic treatment of overweight and obesity. Notable approvals include liraglutide (Saxenda,® 2014), semaglutide (Wegovy,® 2021), and the dual GLP-1/glucose-dependent insulinotropic polypeptide (GIP) receptor agonist tirzepatide (Zepbound,® 2023).[2]
- GLP-1 and GLP-1/GIP agonists have demonstrated high adherence and efficacy in clinical trials. However, real-world adherence and persistence appear substantially lower, potentially limiting the cost-effectiveness of these agents.[3,4]
- Massachusetts Medicaid (MassHealth) initiated coverage of GLP-1 and GLP-1/GIP medications for the treatment of overweight and obesity in January 2024.

OBJECTIVE

- **Primary Objective:**
  - To evaluate real-world persistence and adherence to GLP-1 and GLP-1/GIP medications for overweight and obesity among MassHealth members.
- **Secondary Objective:**
  - To assess the real-world effectiveness of GLP-1 and GLP-1/GIP medications for overweight and obesity, based on change in weight from baseline, as documented on prior authorization (PA) recertifications specifically within the MassHealth Fee-for-Service (FFS) program.

METHODS

- This retrospective, claims-based evaluation included members ≥18 years of age with continuous MassHealth coverage (i.e., gaps <30 days) and ≥1 paid claim for a GLP-1 or GLP-1/GIP medication from January 1, 2024, to December 31, 2024.
  - MassHealth coverage was defined as members in FFS, Primary Care Clinician (PCC), Primary Care Accountable Care Organizations (PCACO), Accountable Care Partnership Plans (ACPP), or Managed Care Organizations (MCO).
- **Exclusion Criteria:**
  - Members with third party liability (TPL) plans.
  - Members taking a GLP-1 or GLP-1/GIP medication solely for the treatment of diabetes, defined as meeting both of the following criteria:
    - No diagnosis of overweight or obesity based on ICD-10 codes AND
    - Claims for an anti-diabetic GLP-1 medication (Ozempic,® Rybelsus,® Trulicity,® Victoza,® or Mounjaro®) accompanied by a diagnosis of diabetes or paid claims for other diabetes medications.
- Persistence was defined as no more than 56-days between fills (one missed fill), measured from the date of first-fill through December 31, 2024, inclusive of switches.
- Adherence was defined as the proportion of days covered (PDC) ≥80%, from date of first fill through December 31, 2024, inclusive of switches.
- A switch was defined as a change from the index drug (first medication filled) to a different brand-name medication at any time during the study period.
- Real-world effectiveness was evaluated in a sub-group analysis of members enrolled in a FFS/PCC/PCACO plan (referred to as FFS), with treatment success defined as ≥5% reduction in weight from baseline.
- Weight-related co-morbidities were evaluated based on ICD-10 codes from medical claims.
- Descriptive statistics were used to compare member demographics and clinical characteristics between medications and for the overall study population.
- Chi-square tests were utilized to evaluate differences in demographics, clinical characteristics, and rates of switching across medications.
- The Cochran-Armitage test for trend was used to assess the impact of the number of weight-related comorbidities and age on rates of persistence and adherence.

DISCLOSURES/ACKNOWLEDGMENTS

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RESULTS

Table 1. Member Demographics and Clinical Characteristics* by Index Medication

	All Members N=27,462 (100%)	Tirzepatide		Semaglutide			Liraglutide		P-value§
		Zepbound®† n=3,506 (12.8%)	Mounjaro®‡ n=3,200 (11.7%)	Wegovy®† n=13,058 (47.5%)	Rybelsus®‡ n=471 (1.7%)	Ozempic®‡ n=5,905 (21.5%)	Saxenda®† n=253 (0.9%)	Victoza®‡ n=1,069 (3.9%)	
Female, n (%)	21,372 (77.8%)	2,867 (81.8%)	2,116 (66.1%)	10,826 (82.9%)	295 (62.6%)	4,188 (70.9%)	215 (85.0%)	865 (80.9%)	P<0.001
Male, n (%)	6,090 (22.2%)	639 (18.2%)	1,084 (33.9%)	2,232 (17.1%)	176 (37.4%)	1,717 (29.1%)	38 (15.0%)	204 (19.1%)	
Average age, years (±SD)	43.3 (±12.5)	41.2 (±12.0)	50.2 (±11.3)	41.6 (±11.8)	51.2 (±13.1)	48.7 (±12.3)	40.2 (±11.3)	44.3 (±11.7)	NR
Average number of weight-related comorbidities, (±SD)	2.6 (±1.7)	2.2 (±1.6)	3.3 (±1.8)	2.3 (±1.6)	3.0 (±1.6)	3.0 (±1.8)	2.5 (±1.7)	2.7 (±1.7)	NR
Diagnosis of overweight or obesity without diabetes, n (%)	10,444 (38.0%)	1,878 (53.6%)	109 (3.4%)	7,101 (54.4%)	41 (8.7%)	804 (13.6%)	140 (55.3%)	371 (34.7%)	P<0.001
Diagnosis of overweight or obesity with diabetes, n (%)	15,549 (56.6%)	1,290 (36.8%)	3,012 (94.1%)	5,148 (39.4%)	416 (88.3%)	4,897 (82.9%)	101 (39.9%)	685 (64.1%)	
Members with ≥1 switch, n (%)¶	5,118 (18.6%)	90 (2.6%)	431 (13.5%)	2,970 (22.7%)	84 (17.8%)	908 (15.4%)	117 (46.2%)	518 (48.5%)	P<0.001

Abbreviations: NR=not reported, PDC=proportion of days covered, SD=standard deviation
* Clinical characteristics and comorbidities measured via ICD-10 codes from medical claims in calendar years 2023 to 2024.
† FDA approved for the treatment of overweight and obesity.
‡ FDA approved for the treatment of diabetes.
§ P-values for categorical variables are derived from a Chi-square test.
¶ A switch was defined as a change from the index drug (first medication filled) to a different brand-name medication at any time during the study period.

Figure 1. Persistence and Adherence by Index Medication

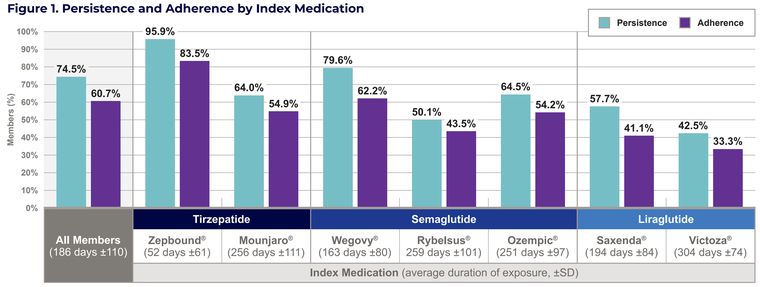
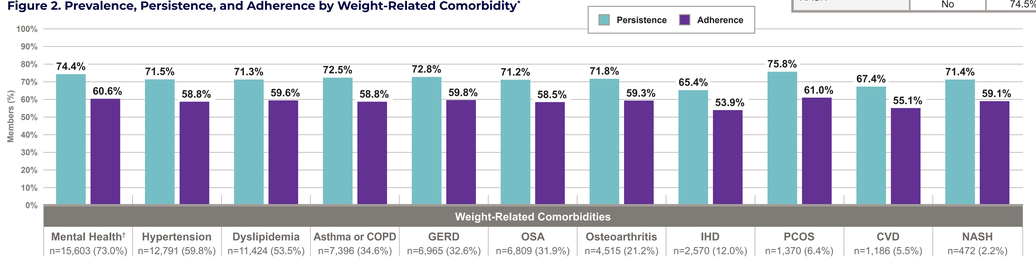


Table 2. Impact of Weight-Related Comorbidities* on Persistence and Adherence

Comorbidity	Present	Persistence	P-value‡	Adherence	P-value‡
Mental Health†	Yes	74.4%	P=0.923	60.6%	P=0.644
	No	74.5%		60.7%	
Hypertension	Yes	71.5%	P<0.001	58.8%	P<0.001
	No	77.0%		62.3%	
Dyslipidemia	Yes	71.3%	P<0.001	59.6%	P=0.001
	No	76.7%		61.5%	
Asthma or COPD	Yes	72.5%	P<0.001	58.8%	P<0.001
	No	75.2%		61.4%	
GERD	Yes	72.8%	P<0.001	59.9%	P=0.066
	No	75.0%		61.0%	
OSA	Yes	71.2%	P<0.001	58.5%	P<0.001
	No	75.6%		61.4%	
Osteoarthritis	Yes	71.8%	P<0.001	59.3%	P=0.042
	No	75.0%		60.9%	
IHD	Yes	65.4%	P<0.001	53.9%	P<0.001
	No	75.4%		61.4%	
PCOS	Yes	75.8%	P=0.034	61.0%	P=0.793
	No	74.4%		60.7%	
CVD	Yes	67.4%	P<0.001	55.1%	P<0.001
	No	74.8%		60.9%	
NASH	Yes	71.4%	P=0.124	59.1%	P=0.499
	No	74.5%		60.7%	

Figure 2. Prevalence, Persistence, and Adherence by Weight-Related Comorbidity*



Abbreviations: COPD=chronic obstructive pulmonary disease, CVD=cerebrovascular disease, GERD=gastroesophageal reflux disease, IHD=ischemic heart disease, NASH=non-alcoholic steatohepatitis, OSA=obstructive sleep apnea, PCOS=polycystic ovary syndrome
* Weight-related comorbidities defined as the presence of an ICD-10 code in any of the first 10 diagnosis positions on a claim in calendar year 2023 or 2024
† Defined as anxiety, depression, or other persistent mood disorder
‡ P-values for categorical variables are derived from a Chi-square test

Figure 3. Persistence and Adherence by Number of Weight-Related Comorbidities

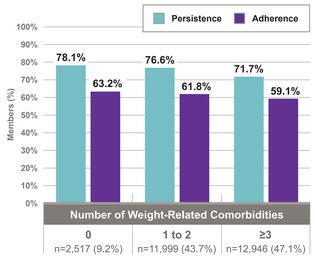


Figure 4. Persistence and Adherence by Diabetes Diagnosis

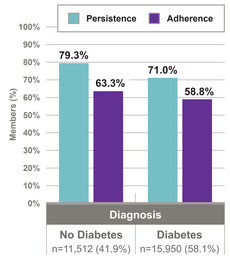


Figure 5. Persistence and Adherence by Age

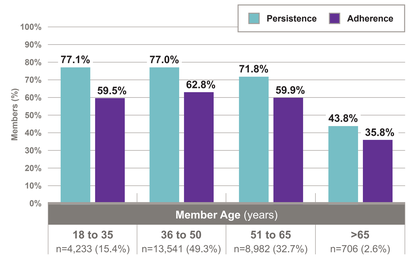


Table 3. Real-World Effectiveness of GLP-1 Medications*

	Semaglutide	
	Wegovy® N=785	Ozempic® N=80
Average baseline BMI (±SD)	40.0 (±9.0)	40.1 (±9.1)
Diabetes, n (%)	357 (45.4%)	51 (63.8%)
Members with ≥5% weight loss from baseline†, n (%)	575 (73.2%)	55 (68.8%)
Persistence, n (%)	625 (79.5%)	63 (78.8%)
Adherence, n (%)	548 (69.7%)	47 (58.8%)

Abbreviations: BMI=body mass index, SD=standard deviation
* Evaluated in MassHealth FFS members with requests for PA recertification only; other medications not included due to low utilization
† PA recertification occurred 4-months after initial approval for Ozempic® and 6-months after initial approval for Wegovy®

DISCUSSION

- In the first year of MassHealth coverage of GLP-1 and GLP-1/GIP medications to treat overweight and obesity, persistence and adherence rates were 74.5% and 60.7%, respectively (Figure 1).
- Despite the cardiovascular benefits of GLP-1 medications, persistence and adherence rates were lower in those with cardiovascular comorbidities (Table 2, Figure 2).
  - Members with ischemic heart disease (IHD) had significantly lower rates of persistence and adherence compared to those without IHD (65.4% vs 75.4%, and 53.9% vs 61.4% respectively, P<0.001).
  - Members with cerebrovascular disease (CVD) also had significantly lower rates of persistence and adherence compared to those without CVD (67.4% vs 74.8%, and 55.1% vs 60.9% respectively, P<0.001).
- A greater number of weight-related comorbidities was also associated with lower rates of persistence and adherence (P<0.001, Figure 3), a concerning trend, as this patient population may be more likely to experience the long-term health benefits associated with use of GLP-1 medications.
- Patients with diabetes had significantly lower rates of persistence and adherence compared to those without diabetes (71.0% vs 79.3%, and 58.8% vs 63.3% respectively, P<0.001, Figure 4).
- Increasing age was associated with lower rates of persistence and adherence. (P<0.001, Figure 5).
- In a sub-group analysis of MassHealth FFS members, approximately 70% of those requesting semaglutide recertification had achieved ≥5% weight loss from baseline (Table 3).
  - However, these members exhibited higher rates of persistence and adherence relative to the full MassHealth population, suggesting that these results likely overestimate true semaglutide efficacy.

LIMITATIONS

- Misclassification bias may have occurred given pharmacy and medical claims data were used to exclude members who filled antidiabetic GLP-1 or GLP-1/GIP prescriptions without an overweight or obesity diagnosis and when members had paid claims for other antidiabetic medications.
- Selection bias may have influenced the evaluation of real-world effectiveness, as members seeking PA recertification for continued GLP-1 or GLP-1/GIP treatment may have experienced more weight loss than those who did not request recertification.
- Drug shortages may have influenced the results, though the study design attempted to minimize this impact by allowing product switching when measuring persistence and adherence.
- This study included data from a single state Medicaid program, which may limit its generalizability to Medicare or commercially insured populations.
- Prior to October 2024, Zepbound® was a non-preferred product on the MassHealth Drug List, limiting its use, and likely resulting in an overestimation of persistence and adherence to this agent.

CONCLUSIONS

- This real-world study of adult Medicaid members with overweight or obesity found moderate rates of persistence (74.5%) and adherence (60.7%) to GLP-1 and GLP-1/GIP medications during the first year of health plan coverage.
- Lower rates of persistence and adherence were observed in patients with diabetes, advanced age, and other comorbidities. These findings offer one-year insights into MassHealth GLP-1 and GLP-1/GIP utilization trends and may support opportunities to develop targeted outreach programs to improve outcomes and assess long-term medication effectiveness in this population.

FUTURE STUDIES

- The impact of social determinants of health and other member-specific characteristics on utilization trends, though beyond the scope of this analysis, are important areas of further research.

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