Real-World Utilization of Glucagon-Like Peptide-1 Receptor Agonists in Overweight and Obese US Adults

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Introduction

- Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are a cornerstone of type 2 diabetes and weight-loss treatments[1,2]
- Approvals of some GLP-1 RAs for weight-loss treatment have increased the popularity of these drugs, resulting in possible off-label usage
- Currently, multiple products utilizing GLP-1 RAs are approved by the US Food and Drug Administration for weight management concurrent with a reduced-calorie diet and increased physical activity[3-5]
  - GLP-1 RA: semaglutide (WEGOVY®)
  - GLP-1 RA: liraglutide (SAXENDA®)
  - Dual glucose-dependent insulinotropic peptide and GLP-1 RA tirzepatide (ZEPBOUND®)
- In the United States, these agents are indicated for patients with a body mass index (BMI) of
  - ≥30 kg/m^2 OR
  - 27 kg/m^2 to <30 kg/m^2 (overweight) and at least 1 weight-related comorbid condition
    - Weight-related comorbid condition: hypertension, dyslipidemia, type 2 diabetes mellitus, obstructive sleep apnea, or cardiovascular disease
- Payer rejection rates of GLP-1 RAs are high (62.4%), primarily attributed to prior authorization requirements and formulary exclusion[6]
- This research aims to characterize real-world usage of GLP-1 RAs among overweight and obese US adults

Methods

- Amplity AnswerY™, which is Amplity's real-world database and platform built from HIPAA-compliant transcriptions of US prescriber–patient visits. Using AI and natural language processing (NLP), it extracts, visualizes, and summarizes treatment discussions and clinical decisions. Covering inpatient and outpatient care across 70+ specialties since 2017, AnsweY was known as *Amplity Insights*™ prior to January 2025
- NLP was used to search and analyze the AnsweY database and platform for records from 12,540 providers for patients who had received a GLP-1 RA as a class or specific agent from January 1, 2017, to October 30, 2024
- Patient demographics and comorbidities were aggregated, and drug-utilization data from 193,193 records were summarized for overweight or obese patients with and without diabetes, and a BMI <25, 25-26, 27-29, and ≥30

Conclusion

- In this real-world US cohort, GLP-1 RA–containing medications are used heavily in overweight and obese populations. However, usage of GLP-1 RAs among overweight and obese patients are overwhelmingly used in patients with diabetes
- Although the analysis focuses on overweight and obese patients, out of the 124,400 patients utilizing a GLP-1 RA, 54,201 (43.6%) were identified as being overweight or obese. The remaining 56.4% of patients were either not obese or phrases suggesting weight status or BMI may have been missing
- Liraglutide was the most utilized GLP-1 RA among overweight and obese patients with or without diabetes. Furthermore, utilization patterns for dulaglutide were different compared with liraglutide and semaglutide
  - As dulaglutide is only approved to improve glycemic control as an adjunct to diet and exercise for patients with type 2 diabetes, usage of dulaglutide in patients without diabetes suggests potential off-label usage[7]
- In combination with the popularity of GLP-1 RAs, potential off-label usage may lead to drug shortages for patients utilizing GLP-1 RAs for type 2 diabetes treatment
  - Drug shortages for GLP-1 RAs such as the one seen from 2022-2024 may lead to pharmacies temporarily compounding GLP-1 RAs, which may have additional patient safety and efficacy concerns not associated with the original product
- Increased manufacturing of brand and generic GLP-1 RAs, faster approvals of additional GLP-1 RAs and other agents in weight-loss treatment, and increased reimbursement for obesity treatment will provide a greater number of options for proper on-label usage of these agents

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DISCLOSURES
All authors are employees of Amplity, Inc.

To learn more about this study and further research by Amplity AnsweY™, please scan this code.

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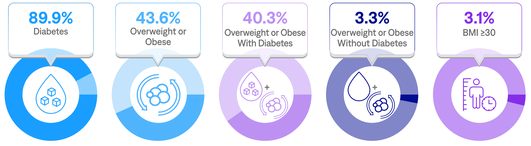
Patients utilizing GLP-1 RAs mostly have diabetes, and 43.6% are overweight or obese

Results: Patient Demographics

- AnsweY identified 124,400 patients utilizing a GLP-1 RA from 19,627 providers from January 1, 2017, to October 30, 2024
- Patients utilizing GLP-1 RAs were older (age, mean ± standard deviation [SD]: 61 ± 12.8 years), and of patients with a known race (46.8%), 11.9% of patients were African-American, 0.4% were Asian, 4.7% were Hispanic, and 82.9% were White
- Among overweight or obese patients, 92.4% of patients had diabetes, whereas 7.6% did not have diabetes. Most patients with a recorded BMI had a BMI ≥30 (68.3%)
- **Figure 1** shows market understanding of GLP-1 RA usage, and **Table 1** shows patient demographics stratified by BMI within the identified cohort utilizing the AnsweY real-world database and platform

Figure 1: Summary of GLP-1 RA Utilizing Patient Demographics (n=124,400)



BMI, body mass index; GLP-1 RA, glucagon-like peptide-1 receptor agonist.

Overweight and Obese Patients (n=53,001)

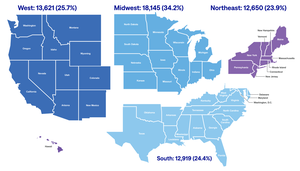


Table 1: GLP-1 RA Utilizing Patient Demographics Stratified by BMI

	BMI <25	BMI 25-26	BMI 27-29	BMI ≥30
Total Number of Patients	213	469	1,123	3,895
Age				
Patients With Record, n (%)	139 (65.3)	310 (66.1)	772 (64.3)	2,547 (65.4)
Mean (SD)	63.2 (13.4)	61.8 (12.8)	61.0 (12.8)	56.6 (13.4)
Gender				
Patients With Record, n (%)	213 (100)	468 (99.8)	1,122 (99.9)	3,887 (100)
Male, n (%)	79 (37.1)	198 (42.3)	484 (43.1)	1,650 (42.4)
Female, n (%)	134 (62.9)	270 (57.7)	638 (56.9)	2,237 (57.6)
Ethnicity				
Patients With Record, n (%)	79 (37.1)	166 (35.4)	381 (33.9)	1,302 (33.4)
African-American, n (%)	12 (15.2)	27 (16.3)	65 (17.1)	175 (13.4)
Hispanic, n (%)	3 (3.8)	11 (6.6)	30 (7.9)	68 (5.2)
White, n (%)	64 (81.0)	128 (77.1)	286 (75.1)	1,059 (81.3)

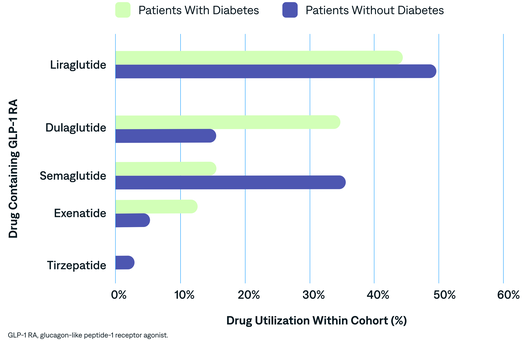
BMI, body mass index; GLP-1 RA, glucagon-like peptide-1 receptor agonist.

Liraglutide is the most utilized GLP-1 RA among overweight and obese patients with and without diabetes, regardless of BMI

Results: GLP-1 RA Utilization

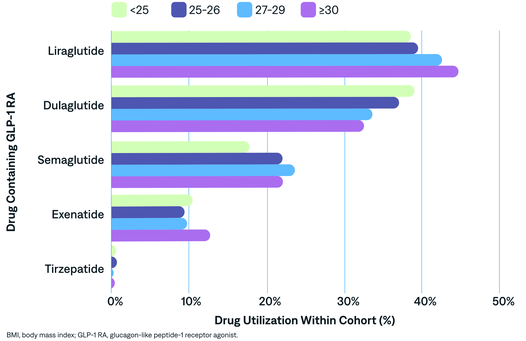
- **Figure 2** shows the most utilized GLP-1 RAs among patients with and without diabetes within the cohort
  - Liraglutide was the most utilized GLP-1 RA among patients with and without diabetes, followed by dulaglutide and semaglutide
  - Liraglutide (49.5% vs 44.5%) and semaglutide (35.6% vs 15.6%) both have higher utilization in patients without diabetes, whereas dulaglutide (15.5% vs 34.7%) shows greater utilization in patients with diabetes
- **Figure 3** shows the most utilized GLP-1 RAs among patients with a recorded BMI, stratified by BMI
  - Utilization of GLP-1 RAs among BMI-stratified cohorts was similar to patients with and without diabetes, with liraglutide having higher overall utilization rates than other agents
  - Among those that utilized dulaglutide, patients with a BMI of <25 utilized dulaglutide more than patients with higher BMIs (BMI <25 vs BMI ≥30: 39.0% vs 32.5%)

Figure 2: GLP-1 RA Agent Usage Among Patients With and Without Diabetes



GLP-1 RA, glucagon-like peptide-1 receptor agonist.

Figure 3: GLP-1 RA Agent Usage Stratified by BMI



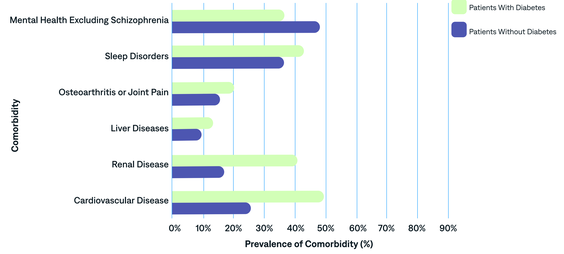
BMI, body mass index; GLP-1 RA, glucagon-like peptide-1 receptor agonist.

Patients with diabetes utilizing GLP-1 RAs show higher rates of most comorbidities compared with patients without diabetes

Results: Comorbidities

- Comorbidities were present in 82.1% and 64.9% of patients with and without diabetes, respectively. **Figure 4** shows the most common comorbidities among both cohorts
  - Compared with patients with diabetes, patients without diabetes experience overall lower rates of all comorbidities except for mental health disorders (36.5% vs 47.9%)

Figure 4: Prevalence of Comorbidities Among Patients With and Without Diabetes



Some patients utilizing GLP-1 RAs utilize SGLT2i's. Among those patients, regardless of having diabetes or a patient's BMI, empagliflozin was the most common SGLT2i utilized

Results: SGLT2i Usage

- Sodium-glucose cotransporter-2 inhibitors (SGLT2i's) were used among 16.5% of all patients in the cohort. **Table 2** shows the usage of the most common SGLT2i's among all overweight and obese patients with and without diabetes, and stratified by BMI
  - Among all patients and the entire cohort, empagliflozin was the most utilized concomitant medication

Table 2: SGLT2i Usage Among Patients Utilizing GLP-1 RAs

	All Patients	Overweight and Obese With Diabetes	Overweight and Obese Without Diabetes	BMI <25	BMI 25-26	BMI 27-29	BMI ≥30
All Patients (%)	100	100	100	100	100	100	100
Any SGLT2i (%)	16.5	17.4	3.6	20.7	21.5	21.5	19.7
Canagliflozin (%)	25.3	26.2	23.8	18.2	23.6	23.8	26.4
Dapagliflozin (%)	23.4	23.9	19	22.7	22.8	25.6	20.3
Empagliflozin (%)	57.3	56.4	58.5	68.2	62.4	59.5	59.8

BMI, body mass index; GLP-1 RA, glucagon-like peptide-1 receptor agonists; SGLT2i, sodium-glucose cotransporter-2 inhibitor.

Strength

- Large number of overweight and obese patients found in the AnsweY real-world database and platform bolsters confidence in the robustness of the results

Limitation

- Patients who obtain GLP-1 RAs outside of traditional healthcare channels, including online purchases, mail order, or weight-loss clinics, would not be captured in this analysis unless they provided information to their healthcare provider