Poster
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Characteristics of Patients Initiating Glucagon-like Peptide-1 (GLP-1) Receptor Agonists (RAs) for Cardiometabolic Risk Reduction in a Medicare Population

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Background and Rationale

- Glucagon-like Peptide-1 (GLP-1) Receptor Agonists (RAs) have been approved for Type 2 diabetes (T2D), and obesity.
- More recently, in March 2024, Wegovy ® (semaglutide) became the first GLP-1 RA approved for cardiovascular risk reduction, followed by Ozempic® (semaglutide) approval in January 2025 for reduction in the risk of worsening kidney disease and cardiovascular death in adults with T2D and chronic kidney disease.
- However, GLP-1 RA trends across these indications have not been well characterized among Medicare beneficiaries.

Objective: to describe clinical characteristics, treatment patterns, and outcomes of GLP-1 RA initiators in the US Medicare 100% Fee-for-Service (FFS) population.

Methods

Study Design

- We conducted a retrospective observational cohort study of patients initiating GLP-1 RAs using the 100% Medicare FFS claims database.
- **Data Source**: This study uses data from the 100% Medicare FFS database and pharmacy data. The Medicare FFS is a traditional fee-for-service health plan with two parts: Part A [Hospital Insurance] and Part B [Medical Insurance]). Part B insurance contains information related to inpatient, outpatient, and office visits.

Eligibility Criteria

- All patients initiating GLP-1 RAs between January 01, 2018–June 30, 2024.
- At least 18 years of age at index date.
- At least 6 months of continuous health plan and pharmacy enrollment (Part A, Part B, & Part D) prior to the index date.

Outcomes

- Real-world overall survival (rwOS), defined as death in the follow-up period.
- Myocardial infarction (MI), defined as the presence of ICD-10-CM code of I21.XX for acute myocardial infarction in the follow-up period.
- Discontinuation was defined as a gap of >90 days between one claim/pharmacy fill date plus days supply and the subsequent fill date.

Analysis

- **Index date**: date of GLP-1 RA initiation within study period.
- Baseline and clinical characteristics within 6 months prior to index date were described.
- Utilization was described by generic drug over years.
- Outcomes (rwOS, MI) were presented overall and by generic drug.

Time to event analysis

- Patients indexed between 2018-2023 were included to allow for the opportunity of ≥6 months of follow-up.
- **rwOS**: time from index date to earliest of date of death, or end of enrollment, discontinuation of any GLP-1 RA drug, or end of study period (censoring criteria).
- **MI**: time from index date to earliest of MI, or date of death, end of enrollment, discontinuation of any GLP-1 RA drug, or end of study period (censoring criteria).
- Additional censoring criteria for by-drug analysis included discontinuation of the specific generic, or date of switch to different generic drug.

Key Findings

- Median age of patients initiating GLP-1 RA was 69 (IQR: 65-74) and more than half were female (55.7%). 74.9% of patients were White (Table 1).
- Majority of specialty of the prescribing provider was primary care physician (53.7%), followed by nurse practitioners (18.4%).
- The majority of GLP-1 RA patients had T2D (87.8%) and 45.5% were obese/overweight.
- Semaglutide (Ozempic, Rybelsus, Wegovy) increased yearly in the Medicare population and accounted for half the GLP-1 RAs initiated during the study period, with Ozempic and Rybelsus accounting for 53.8% and 11.4%, respectively, on or after 2022 (Figure 3). Wegovy was initiated predominantly from March 2024 onwards.
- The 3-year cumulative incidence of myocardial infarction (MI) was 9.5% (95% CI: 9.4–9.6%) (Figure 4a), with numerically varied by drug (Figure 4b).
- Overall survival at 3 years was 87.5% (95% CI: 87.4-87.6%) among GLP-1 RA initiators (Figure 5a), and numerically varied by generic drug (Figure 5b).

Limitations

- The study was descriptive and does not establish causal relationships between GLP-1 RA use, indications, and death and cardiovascular outcomes.
- The study population was limited to Medicare FFS beneficiaries and may not be representative of other populations (e.g., younger patients, Medicare Advantage).
- Cardiovascular outcomes were identified using administrative claims data, which may be subject to coding inaccuracies.
- Key variables such as BMI, lab values, or lifestyle factors were not available or had high missingness in claims.

Why is this Research Important

- GLP-1 RAs are medications used to treat Type 2 diabetes and help reduce heart and metabolic risks.
- Semaglutide use increased rapidly over the study period, becoming the most commonly used GLP-1 RA by 2023.
- While endocrinologists can prescribe GLP-1 medications, most patients received theirs from primary care doctors or nurse practitioners.
- This study tracked MI and overall survival over three years among Medicare patients taking GLP-1 medications, providing real-world benchmarks across all GLP-1 indications.
- In this analysis, semaglutide and tirzepatide demonstrated a numerically greater reduction in death and MI compared to other GLP-1 receptor agonists. Further investigation is warranted to understand the factors contributing to these differences.

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Results

Figure 1. Attrition Diagram for Patients Initiating GLP-1 RAs in 100% Medicare FFS Population

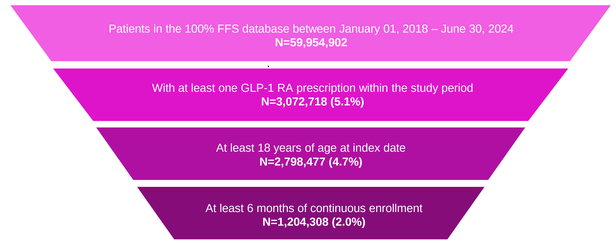
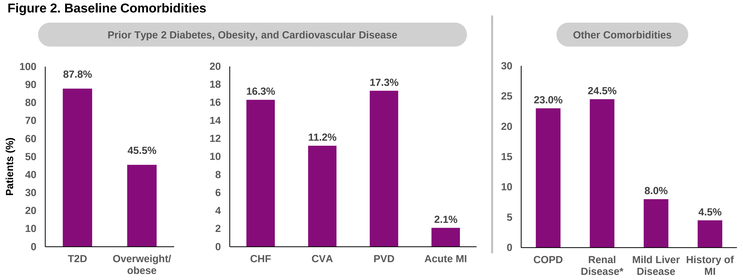


Table 1. Baseline Demographic and Clinical Characteristics

	All GLP-1 RA initiators N=1,204,308 n (%)
Age at GLP-1 RA initiation (years)	
Mean (STD)	67.8 (10.46)
Median (Q1-Q3)	69 (65-74)
Sex	
Male	533,758 (44.32%)
Female	670,549 (55.68%)
Unknown	1 (<0.01%)
Race/ethnicity	
White	901,533 (74.86%)
Black	118,217 (9.82%)
Asian	34,508 (2.87%)
Hispanic	102,621 (8.52%)
Other/Unknown	47,429 (3.94%)
Region	
Midwest	267,167 (22.18%)
Northeast	225,829 (18.75%)
South	475,147 (39.45%)
West	236,165 (19.61%)
Specialty	
Primary care physician	646,758 (53.70%)
Nurse practitioner	221,782 (18.42%)
Endocrinologist	181,264 (15.05%)
Other	153,270 (12.73%)
Unknown	1,234 (0.10%)

Comorbidities are identified within the 6-month baseline period. Overweight or obesity is derived using ICD-10-CM diagnosis codes. Specialty of the prescribing provider for the index drug is reported. STD = standard deviation; Q1 = quartile 1; Q3 = quartile 3.

Figure 2. Baseline Comorbidities



T2D = type 2 diabetes; CVA = cerebrovascular disease; MI = myocardial infarction; CHF = congestive heart failure; PVD = peripheral vascular disease; COPD = chronic obstructive pulmonary disease. *Moderate to severe renal disease. Baseline characteristics within the 6 months prior to index date are reported.

Figure 3. Yearly Uptake of GLP-1 RAs in 100% Medicare FFS Population

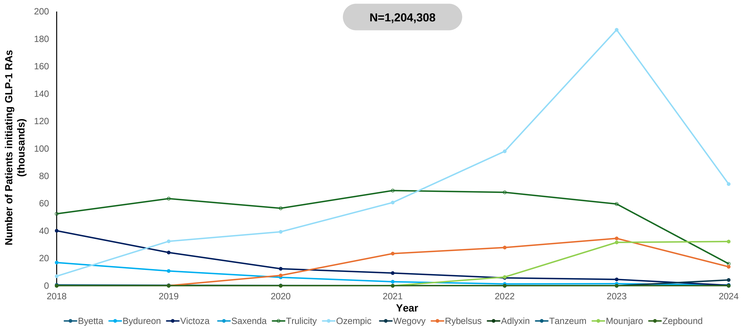


Figure 4. Cumulative Incidence of Myocardial Infarction among GLP-1 RA Initiators

	Events/ Total	Number Censored	Total PT at risk (years)	1 year Cumulative Incidence (95% CI)	2 year Cumulative Incidence (95% CI)	3 year Cumulative Incidence (95% CI)
Overall	60,101/1,062,624	1,002,523	1,722,938	3.6% (3.6-3.7%)	6.5% (6.5-6.6%)	9.5% (9.4-9.6%)
Exenatide	3,700/40,897	37,197	115,095.6	3.5% (3.3-3.7%)	6.2% (5.9-6.4%)	8.8% (8.5-9.2%)
Liraglutide	9,167/96,383	87,216	245,099.8	4.1% (4.0-4.2%)	7.4% (7.2-7.6%)	10.4% (10.2-10.7%)
Dulaglutide	27,980/369,792	341,812	756,963.7	4.1% (4.0-4.2%)	7.2% (7.1-7.3%)	10.1% (10.0-10.2%)
Semaglutide	23,055/517,576	494,521	734,180.8	3.2% (3.2-3.3%)	5.8% (5.7-5.9%)	8.6% (8.4-8.7%)
Tirzepatide	995/37,976	36,981	36,475.66	2.7% (2.6-2.9%)	4.7% (3.9-5.5%)	NE (NE-NE)

Figure 4a, Overall

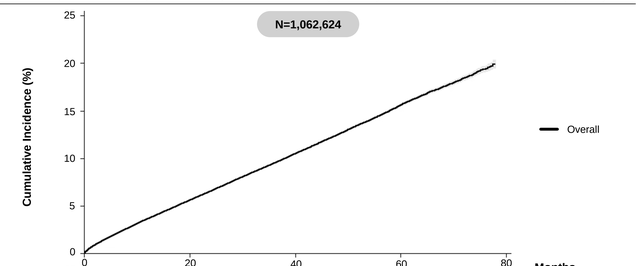


Figure 4b, by Generic GLP-1 RA

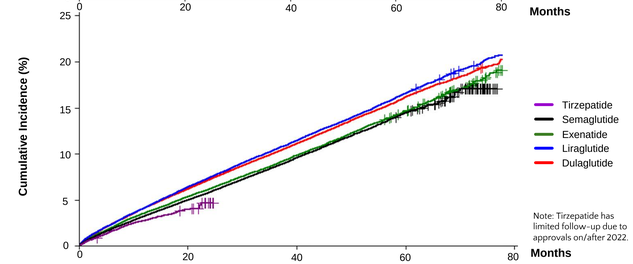


Figure 5. Real-World Overall Survival among GLP-1 RA Initiators

	Event/Total	Number Censored	Total PT at risk (years)	1 year rwOS (95% CI)	2 year rwOS (95% CI)	3 year rwOS (95% CI)
Overall	74,355/1,062,624	988,269	1,791,066	96.9% (96.9-97.0%)	92.5% (92.4-92.6%)	87.5% (87.4-87.6%)
Exenatide	4,777/40,897	36,120	121,052.8	96.9% (96.8-97.1%)	92.7% (92.4-93.0%)	88.2% (87.8-88.6%)
Liraglutide	10,717/96,383	85,666	260,305.3	96.7% (96.5-96.8%)	92.4% (92.2-92.5%)	87.5% (87.3-87.8%)
Dulaglutide	36,486/369,792	333,306	792,638.5	96.1% (96.0-96.2%)	91.4% (91.3-91.5%)	86.6% (86.5-86.8%)
Semaglutide	21,815/517,576	495.761	756,512.6	97.7% (97.7-97.8%)	94.3% (94.2-94.4%)	90.3% (90.1-90.4%)
Tirzepatide	560/37,976	37,416	37,009.51	98.5% (98.3-98.6%)	96.6% (95.9-97.2%)	NE (NE-NE)

Figure 5a, Overall

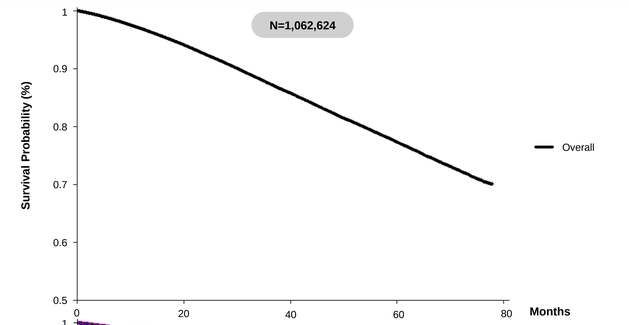
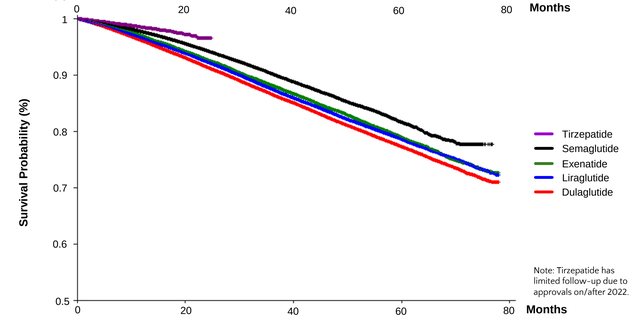


Figure 5b, by Generic GLP-1 RA



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References

References are available upon request to the corresponding author: Shivani@landmarkscience.com

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Disclosures

SA, JW, and DG are employees of or are contracted to Landmark Science, Inc. SV, NA, and PB are employees of Humbi, LLC.