Changes in Demographic and Clinical Characteristics of Patients with Type 2 Diabetes (T2DM) Initiating Subcutaneous Semaglutide

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Background and Aims

- The characteristics of patients prescribed new medications often evolve over time after market entry.
- The types of clinicians prescribing new medications may also change over time after product launch.
- We sought to describe the baseline demographic and clinical characteristics as well as antidiabetic medication use in patients with T2DM initiating subcutaneous semaglutide (a glucagon-like peptide-1 [GLP-1] receptor agonist). Our analysis evaluated the use of subcutaneous semaglutide from its introduction in the US in a commercially-insured/Medicare Advantage population.

Methods

- Patients with T2DM newly initiating subcutaneous semaglutide between 2/1/2017 and 3/31/2020 were identified using the HealthCore Integrated Research Database (HIRD™) in 8 quarterly refreshes (with Refresh 1 starting 7/1/2018). Populations included in each refresh were independent from one another.
- HIRD contains medical/pharmacy claims and eligibility data from 14 geographically diverse commercial health plans in the US as well as Medicare Advantage plans. Laboratory results data is integrated for approximately one third of the population.
- The index date was set as the fill date of the earliest semaglutide pharmacy claim.
- Patient inclusion criteria: ≥1 pharmacy claim for subcutaneous semaglutide during the study period, ≥90 days of pre-index and post-index enrollment, ≥12-months continuous eligibility pre-index, and ≥1 claim with a diagnosis for type 2 diabetes.
- Study measures: prescribing clinician, non-insulin antidiabetic medication use prior to initiation of subcutaneous semaglutide, patient comorbidities, and patient HbA1c levels in the 3-months prior to initiation of subcutaneous semaglutide.
- Patients were stratified based on prior GLP-1 use (experienced/naïve).

Results

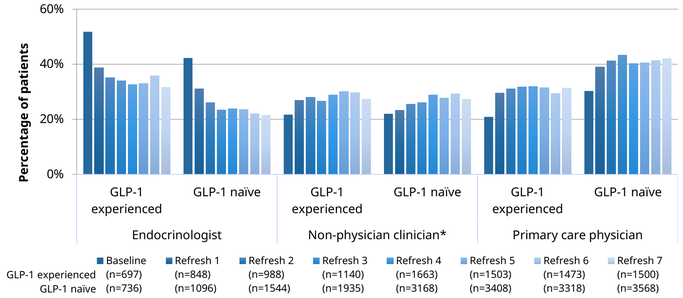
- Eight quarterly refreshes were included (baseline to refresh 7), totaling 31,031 patients with T2DM (20,272 GLP-1 naïve and 10,759 GLP-experienced) (**Table 1**).
- At launch, most patients received prescriptions from endocrinologists, but over time, a larger proportion of patients received prescriptions from non-physician clinicians (nurse practitioners/physician assistants) and PCPs (**Figure 1**).

Results

Table 1: Sample characteristics

	Baseline	Refresh 1	Refresh 2	Refresh 3	Refresh 4	Refresh 5	Refresh 6	Refresh 7
Sample size, n	1433	1944	2532	3075	4831	4911	4791	5068
GLP-1 experienced	697	848	988	1140	1663	1503	1473	1500
GLP-1 naïve	736	1096	1544	1935	3168	3408	3318	3568
Age, mean years (SD)	53.5 (±9.5)	54.1 (±9.6)	54.6 (±10.0)	54.5 (±10.2)	54.4 (±10.0)	54.3 (±10.0)	54.3 (±10.1)	54.8 (±10.2)
Female, %	53.0	52.8	50.2	49.9	50.4	50.6	50.6	50.0

Figure 1: Prescribing clinician



*nurse practitioner/physician assistant

- Metformin and sodium-glucose cotransporter-2 (SGLT2) were the most commonly used anti-diabetic medications in both groups prior to subcutaneous semaglutide initiation, with SGLT2 usage rates slightly decreasing over time. SGLT2 usage was more common in GLP-1 experienced patients than in GLP-1 naïve patients (**Figure 2**).
- Non-anti-diabetic medication use was high in both groups, including antihypertensives (79.9-81.7%) and lipid lowering therapy (71.9-73.9%). Compared to GLP-1 naïve patients, more GLP-1 experienced patients were using lipid lowering therapy (75.3-81.7% among GLP-1 experienced, 68.6-71.6% GLP-1 naïve). Roughly one-third of patients were prescribed antidepressants (35.5% among GLP-1 experienced, 32.9% GLP-1 naïve).
- The most common comorbidities included hypertension, dyslipidemia, obesity, and sleep apnea, with these trends staying stable (**Figure 3**).
- In the 3-months prior to initiation of subcutaneous semaglutide, most patients had HbA1c levels above 7% in both groups, with no significant trends over time (**Figure 4**). Compared to GLP-1 naïve patients, GLP-1 experienced patients had lower mean HbA1c levels (**Figure 5**).

Figure 2: Non-insulin antidiabetic medication use prior to subcutaneous semaglutide initiation

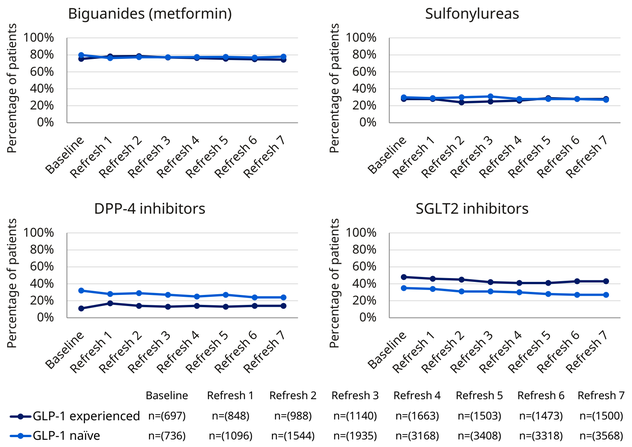
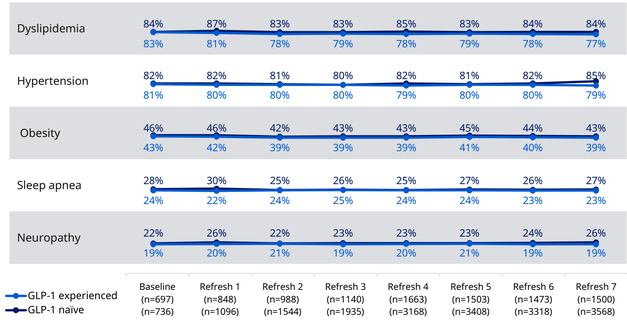


Figure 3: Patient comorbidities



Abbreviations: DPP4, dipeptidyl peptidase-4; GLP-1, glucagon-like peptide-1; HbA1c, hemoglobin A1c; SGLT2, sodium-glucose cotransporter-2.

Figure 4: Grouped patient HbA1c levels in the 3 months prior to index, among patients with ≥1 HbA1c test result

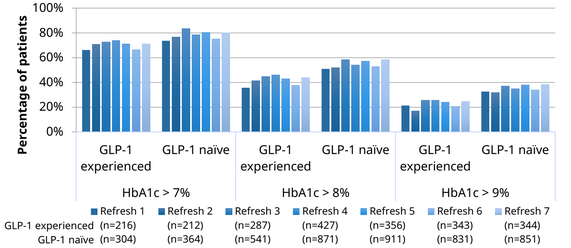
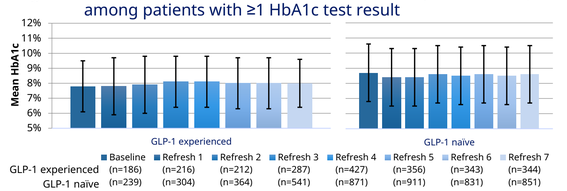


Figure 5: Mean patient HbA1c levels in the 3 months prior to index, among patients with ≥1 HbA1c test result



Summary and Conclusions

- After US product launch, the patient population initiating subcutaneous semaglutide experienced some changes in demographics, clinical characteristics, and baseline treatment experience, with differences seen between patients who are GLP-1 experienced and GLP-1 naïve in most metrics evaluated.
- Most patients were prescribed subcutaneous semaglutide by endocrinologists at baseline, with this trend slowly decreasing over time and PCPs becoming the primary prescribers.
- Usage of SGLT2 inhibitors within the first cohort was higher than usage at later refreshes.
- Compared to GLP-1 naïve patients, GLP-1 experienced patients appeared to have better HbA1c control prior to initiation of subcutaneous semaglutide and were more likely to receive their prescription from endocrinologists.
- Changing patient and prescriber demographics may be of interest to those studying prescription drugs in the real-world, as the population is not static once a drug enters the market.

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Disclosures:
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