REal-World Impact of Oral Semaglutide on G**L**ycemic Control and Weight Outcomes Based on Highest Dose Received and Persistence With Treatment in Type 2 Di**A**be**TE**s (**RELATE** – Oral Semaglutide)

https://sciencehub.novonordisk.com/adces2023/Amamoo.html?cid=qr-bc2o4fhj1a

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Aim

The aim of this real-world, retrospective database study was to assess the impact of oral semaglutide type 2 diabetes mellitus (oral sema T2D) on glycated hemoglobin (HbA_{1c}) and weight outcomes from baseline to the end of a 12-month follow-up period, based on highest dose received and persistence with treatment over the follow-up period.

Introduction

- Oral sema T2D is indicated to improve glycemic control as an adjunct to exercise and diet in adults with T2D.[1]
- The safety and efficacy of oral sema T2D has been demonstrated in several clinical trials[2-5]; however, real-world studies investigating its clinical effectiveness are limited.

Methods

Study design

- This observational cohort study identified new initiators of oral sema T2D in patients with T2D by utilizing a linked patient population from IQVIA's Longitudinal Prescription Claims (LRx), Professional Fee Claims (Dx), and Ambulatory Electronic Medical Records (AEMR) databases in the US.
- Selection occurred between October 1, 2019 and September 30, 2021, and study period was between October 1, 2018 and September 30, 2022. The date of the first observed claim was termed the index date.
- Demographic data and clinical characteristics were collected at baseline (i.e. over the 12 months before index date). AEMR were used to assess HbA_{1c} and weight outcomes at baseline and at the end of the 12-month follow-up period.

Outcomes

- Changes in HbA_{1c}, weight, and body mass index (BMI) over the 12-month post-index period had been assessed for the main population and presented at the American Diabetes Association (ADA) 83rd Scientific Sessions, San Diego, CA, June 23–26, 2023.
- In the present analysis, changes in HbA_{1c}, weight, and BMI were assessed for subgroups of patients over the 12-month post-index period: **1)** patients receiving oral sema T2D at a dose of ≥7 mg; **2)** patients who were persistent with oral sema T2D; **3)** patients receiving oral sema T2D at a dose of 14 mg; **4)** patients who were persistent with oral sema T2D and were receiving oral sema T2D at a dose of 14 mg. Persistent with oral sema T2D were those who did not have a gap of more than 60 days in days' supply during the 12-month follow-up period.
- Post-index values for HbA_{1c} and weight were measured at 12 months post-index (360 days post-index ± 90 days, taking the value closest [absolute] to day 360).

Data analysis

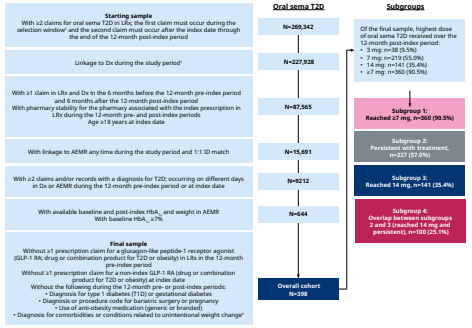
- Within-group comparisons of baseline and post-index measurements were conducted using descriptive statistics for all study measures. Changes in HbA_{1c}, weight, and BMI were compared between baseline and the 12-month post-index period for all patient subgroups.
- Paired t-tests were conducted on the mean and Wilcoxon signed-rank tests on the median for continuous variables, and McNemar's tests for categorical variables.

Results

Study population

- The final sample consisted of 398 patients with sample sizes for subgroups ranging from 100 to 360 patients. Patient selection and subgroups are shown in **Figure 1**.
- Of all patients, 49.7% were male; mean (SD) age was 59.9 (10.9) years. Demographic characteristics for the overall patient sample and subgroups are presented in **Table 1**.

Figure 1. Patient selection



*Cohorts are not mutually exclusive.
†Including cancer (except non-melanoma skin cancer), human immunodeficiency virus, acute/chronic pancreatitis, feeding difficulties, eating disorders, liver cirrhosis, stage 5 chronic kidney disease/dialysis/renal failure; procedure codes also used for dialysis.

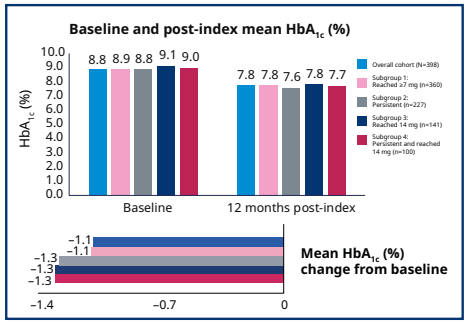
Table 1. Demographic characteristics

	Overall cohort N=398	Subgroup 1 Reached ≥7 mg n=360	Subgroup 2 Persistent n=227	Subgroup 3 Reached 14 mg n=141	Subgroup 4 Persistent and reached 14 mg n=100
Age (years)					
Mean (SD)	59.9 (10.9)	59.8 (10.7)	59.5 (11.0)	58.7 (10.1)	58.1 (10.0)
Age group (years) (n, %)					
18–44	29 (7.3)	25 (6.9)	18 (7.9)	8 (5.7)	7 (7.0)
45–54	89 (22.4)	83 (23.1)	56 (24.7)	39 (27.7)	28 (28.0)
55–64	159 (39.9)	143 (39.7)	89 (39.2)	57 (40.4)	42 (42.0)
65+	121 (30.4)	109 (30.3)	64 (28.2)	37 (26.2)	23 (23.0)
Sex (n, %)					
Male	198 (49.7)	174 (48.3)	116 (51.1)	72 (51.1)	55 (55.0)
Female	200 (50.3)	186 (51.7)	111 (48.9)	69 (48.9)	45 (45.0)

Change in HbA_{1c}

- At the end of the 12-month post-index period, patients initiating oral sema T2D had a statistically significant decrease in mean HbA_{1c} compared with baseline (for overall cohort and all subgroups, p<0.001); the decrease was numerically greater for subgroups 3 and 4 **(Figure 2)**.

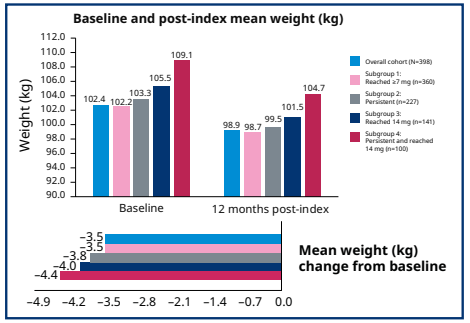
Figure 2. Change in HbA_{1c} from baseline to the end of the 12-month post-index period



Change in weight

- Patients initiating oral sema T2D had a statistically significant decrease in mean weight compared with baseline (for overall cohort and all subgroups, p<0.001). Patients in subgroup 4 had the greatest numerical decrease in mean weight **(Figure 3)**.

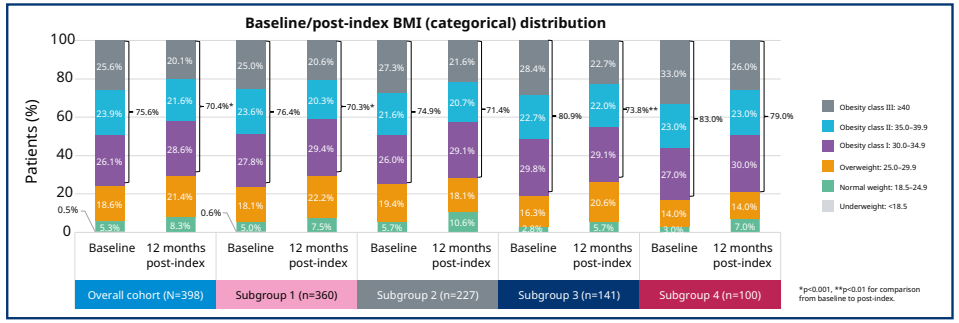
Figure 3. Change in weight from baseline to the end of the 12-month post-index period



Change in BMI

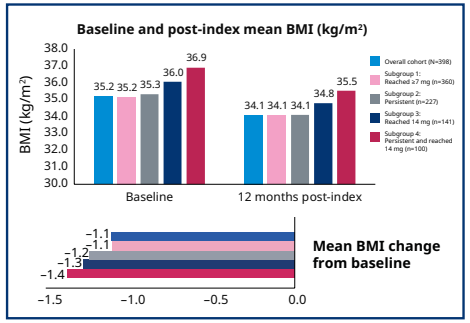
- At the end of the 12-month post-index period, the overall oral sema T2D cohort and its subgroups had a lower percent of patients with class II/III obesity, and a higher percent of patients with normal weight compared with baseline **(Figure 4)**.
- In all subgroups, the percent of patients with obesity (BMI ≥30.0 kg/m²) decreased from 75–83% at baseline to 70–79% at 12 months post-index. This decrease was statistically significant for the overall cohort, subgroup 1 (reached ≥7 mg), and subgroup 3 (reached 14 mg). The decrease was not statistically significant for subgroup 2 (persistent with treatment) or subgroup 4 (persistent and reached 14 mg) **(Figure 4)**.

Figure 4. Percent of patients in each BMI category at baseline and at the end of the 12-month post-index period



- Patients initiating oral sema T2D had a statistically significant decrease in mean BMI compared with baseline (for overall cohort and all subgroups, p<0.001). Patients in subgroup 4 had the greatest numerical decrease in mean BMI **(Figure 5)**.

Figure 5. Change in BMI from baseline to the end of the 12-month post-index period



Study limitations

- These descriptive pre-post study findings establish associations, not cause-and-effect relationships.
- There is a potential for miscoding or misclassification in claims data.
- The use of an open-source claims database meant that there was no cost-comparisons cohort for this study.
- Our sample may be biased towards capturing patients who more frequently touch the healthcare system and have available values for HbA_{1c} and weight.

Conclusions

- This real-world study found that patients who were initiating oral sema T2D had significant decreases in HbA_{1c} levels, body weight, and BMI from baseline to the end of the 12-month follow-up period.
- These findings highlight the importance of treatment adherence and dose escalation when available and appropriate as part of treatment planning.
- There is a need for further studies to compare the effects with other anti-diabetic medications and further describe the correlations observed.

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The authors acknowledge the medical writing assistance provided by IQVIA. Presented at the Association of Diabetes Care & Education Specialists (ADCES) Annual Conference, Houston, TX, August 4–7, 2023.

References
(1) Rybelsus® (semaglutide tablets) Prescribing Information. Available at: https://www.novo-pi.com/rybelsus.pdf. Accessed April 25, 2023. **(2)** Rodbard HW, et al. *Diabetes Care*. 2019;42(12):2272–81. **(3)** Rosenstock J, et al. *JAMA*. 2019;321(15):1466–80. **(4)** Pratley R, et al. *Lancet*. 2019;394(10192):39–50. **(5)** Mosenzon O, et al. *Lancet Diabetes Endocrinol*. 2019;7(7):515–27.