Was There Off-Label Prescription of Glucagon-like Peptide-1 for Weight Loss in Japan? An Analysis of Health Insurance Claims Data

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OBJECTIVES

In Japan, physicians may prescribe off-label medications, based on their clinical judgment. However, it is said that they are often provided as non-insured care, because justifying the medical appropriateness of off-label prescribing for insurance coverage seems to require a huge burden for physicians.

Glucagon-like peptide-1 receptor agonists (GLP-1RAs) have long been used to treat diabetes. In Japan, semaglutide 2.4 mg (Wegovy®) became the first GLP-1RA receptor agonist to be approved for the treatment of obesity on March 27, 2023; it was listed for reimbursement on November 22, 2023, and launched on February 22, 2024.

Even before 2024, when GLP-1RAs for weight loss were not covered, there may have been prescribed off-label for weight reduction.   The purpose of this poster is to examine trends in the prescription of insurance-covered GLP-1RAs, in order to infer whether such claims existed.

METHODS

We used a database provided by DeSC Healthcare Inc. containing health insurance claims and health checkup data (April 2014—August 2024, approximately 17.5 million individuals).

We analyzed trends in the age- and sex-adjusted number of individuals prescribed any antidiabetic agents (ADAs) or any GLP-1RAs in the month of first type 2 diabetes (T2DM) diagnosis (April 2016—March 2024). For those with health checkup data, HbA1c levels within 6 months before the first GLP-1RA prescription were also assessed.

RESULTS

- The number prescribed GLP-1RA increased sharply from 2021 and was 3.04 times higher in 2023 than 2020, while only a 1.05-fold increase in T2DM patients.

- The number of patients prescribed ADA showed a recurring annual peak in April, likely due to patients found to have high HbA1c levels during health checkups, which are mostly conducted in April, whereas no such peak was observed for GLP-1RAs.

- The proportion with HbA1c <7 for GLP-1RAs takers was higher after 2021 (55.2%) than before 2020 (18.5%).

CONCLUSIONS

Our findings strongly suggest that, prior to 2023, GLP-1RAs were being prescribed off-label for obesity in Japan, and that a substantial portion of these prescriptions were likely reimbursed under public insurance coverage.

■ Trends in the number of people with a confirmed diagnosis of T2DM.

$$index = \frac{\text{number of people with a T2DM diagnoses in the month}}{\text{expected number of people with a T2DM diagnoses for that month based on demographics}}$$
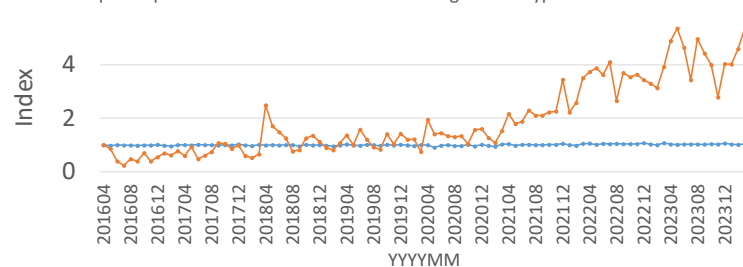
- The expected number is calculated by multiplying, for each age–sex stratum, the number of insured persons in that month by the age–sex–specific proportion of T2DM diagnoses estimated over the entire data period, and then summing across strata.
- T2DM is defined as ICD-10 codes E11 or E14.

■ Trends in the number of patients who received a GLP-1 prescription in the month of their initial diagnosis of type 2 diabetes.

$$index = \frac{\text{number of patients in the month who were first diagnosed with T2DM and received a GLP-1 prescription}}{\text{expected number of such patients for that month based on demographics}}$$

- It does not exhibit the April peak commonly observed across ATC A10, which suggests that it is unrelated to the detection of elevated HbA1c at routine health checkups.
- It has surged since around 2021

Trends in the number of patients with a T2DM and who received a GLP-1 prescription in the month of their initial diagnosis of type 2 diabetes.
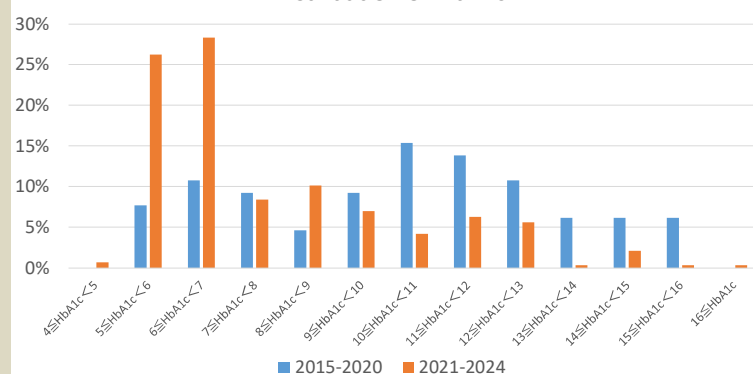

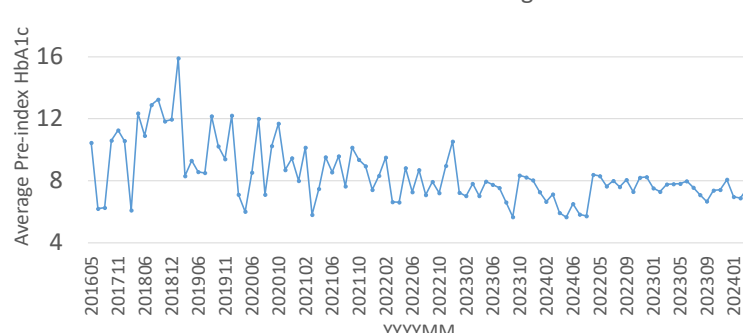→ Trends in the number of people with a confirmed diagnosis of T2DM.

→ Trends in the number of patients who received a GLP-1 prescription in the month

- For patients who were prescribed GLP-1 in the month of their first T2DM diagnosis, we defined the "most recent" HbA1c as the value measured within the 6 months before that month (if multiple measurements were available, we used the later one).
- The mean of this most-recent HbA1c has gradually declined over time.
- Comparing 2020 and earlier with 2021 and later (categorizing HbA1c using Int(HbA1c × 100)), a larger share had HbA1c < 7% in 2021 and later.

Distribution of HbA1c

Legend: 2015-2020, 2021-2024

Average Pre-index HbA1c in Patients Prescribed a GLP-1 at the Month of Initial T2DM Diagnosis

GD1 Is this indicative of the "prevalence" rate, this is, the number of people with a diagnosis at any given time, vs the "incident" population who received an initial diagnosis?

If incidence rates, I suggest clarifying that the numerator and denominator both use "initial diagnosis of T2DM"

If prevalence, maybe you should discuss the number of people diagnosed as opposed to the count of diagnoses, as many patients will have multiple diagnosis throughout the year

Gabriela Dieguez,
2025-11-02T00:55:50.488

GD1 0 So, instead of "number of T2DM diagnoses" "number of people with a T2DM diagnosis "

Gabriela Dieguez,
2025-11-02T00:57:31.661

AC1 1 Thank you I have changed as you suggested. Thank you so mcuh.

Ayano Chida,
2025-11-04T04:24:12.168