This report was developed by the Michigan Value Collaborative
and The Michigan Collaborative for Type 2 Diabetes

Type 2 Diabetes (T2D) in Michigan

A state-of-the-state report on the demographics, healthcare visits, and
prescription utilization rates of patients with type 2 diabetes in Michigan.

SEPTEMBER 2024

About This Report

This report was developed by the Michigan Value Collaborative and The Michigan Collaborative for Type 2 Diabetes. Both organizations are collaborative quality initiatives supported by Blue Cross Blue Shield of Michigan through the Value Partnerships Program.

The Details

This analysis was conducted using medical and pharmacy insurance claims data for BCBSM/ BCN, Medicare FFS, and Medicaid beneficiaries. Beneficiaries were identified by payer/enrollment identifier, and do not necessarily represent individual patients because a patient may experience a change in provider or plan over time.

How did we identify the beneficiary population?

Beneficiaries aged 18 and older with a Type 2 Diabetes (T2D) diagnosis (E11.x or O24.1x) were identified yearly, January 1, 2017 - December 31, 2023 using a quarterly one-year lookback across professional and facility medical claims.

Demographics:

Demographic characteristics including age, sex, race, and insurance provider (payer) are described for all beneficiaries in MVC data, across all payers, 2017-2023 and for all beneficiaries with a T2D diagnosis 2017-2023. Age is calculated as of 2020. Missing, unknown, or 'other' race categories are excluded from the description of race.

Emergency Department (ED) and Inpatient (IP) Hospital Utilization:

Facility claims were used to identify Emergency Department (ED) utilization and inpatient admissions.

ED utilization was identified by the presence of revenue codes 045X. Inpatient (IP) claims were identified by bill type 11X on claims without indication of IP rehab or long-term acute care hospitalization. Among both ED and IP claims, relation/non-relation to T2D was categorized based on the presence of a T2D diagnosis code as the primary diagnosis code on the claim. Utilization was assessed as the proportion of beneficiaries with at least one qualifying claim during a given year among T2D beneficiaries enrolled during that year.

Provider Visit Utilization:

Professional claims were used to identify office visits which were categorized as primary care, nephrology, or endocrinology based on categorization of provider NPI on the claim according to National Plan and Provider Enumeration System (NPPES) files. Utilization was assessed as the proportion of beneficiaries with at least one qualifying claim in a given year among T2D beneficiaries enrolled during that year. Note that rates may be an underestimate of actual utilization due to claim availability and categorization limitations.

Prescription Utilization:

Filled prescriptions from pharmacy claims were assessed among T2D beneficiaries with corresponding prescription coverage. Medicare beneficiaries were excluded from 2022 and 2023 prescription utilization rates because Medicare pharmacy claims were only available through 12/31/2021. Diabetes-related drug classes were identified in pharmacy claims based on NDC as well as standardized prescription names and classes.

Demographics

In 2023, a total of 8.2% of beneficiaries covered by BCBSM/ BCN, Medicare FFS (Michigan only), and Michigan Medicaid had a confirmed diagnosis of T2D. This represents 1,117,340 out of the 13,548,878 beneficiaries identified in MVC 2023 claims data. Below is information about all beneficiaries covered by insurance in Michigan 2017-2023, stratified by whether they have T2D and by sex, age, race/ethnicity, and payer.

Key Takeaway!

Compared to all insurance beneficiaries, T2D beneficiaries were older and more likely to be male, Black, and covered by non-commercial insurance plans.

Insurance Beneficiaries Stratified by T2D and Sex

Population Mean Age*

43 Years

Mean Age for All Beneficiaries

66 Years

Mean Age for Beneficiaries with T2D
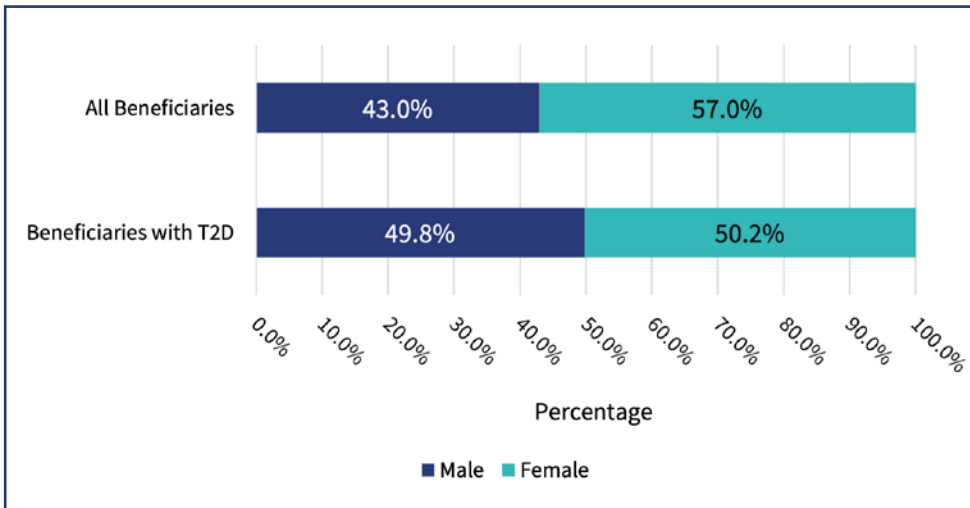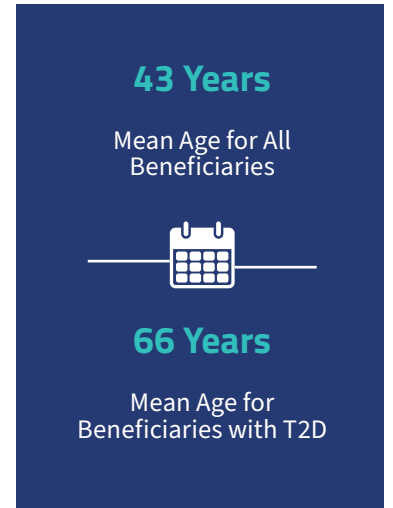
*Age is calculated as beneficiary age in 2020 (age at midpoint of the analytic period)

Insurance Beneficiaries Stratified by T2D and Race/Ethnicity*

*Missing, unknown, and 'other' race categories are excluded from the summary of race.

Insurance Beneficiaries Stratified by T2D and Payer

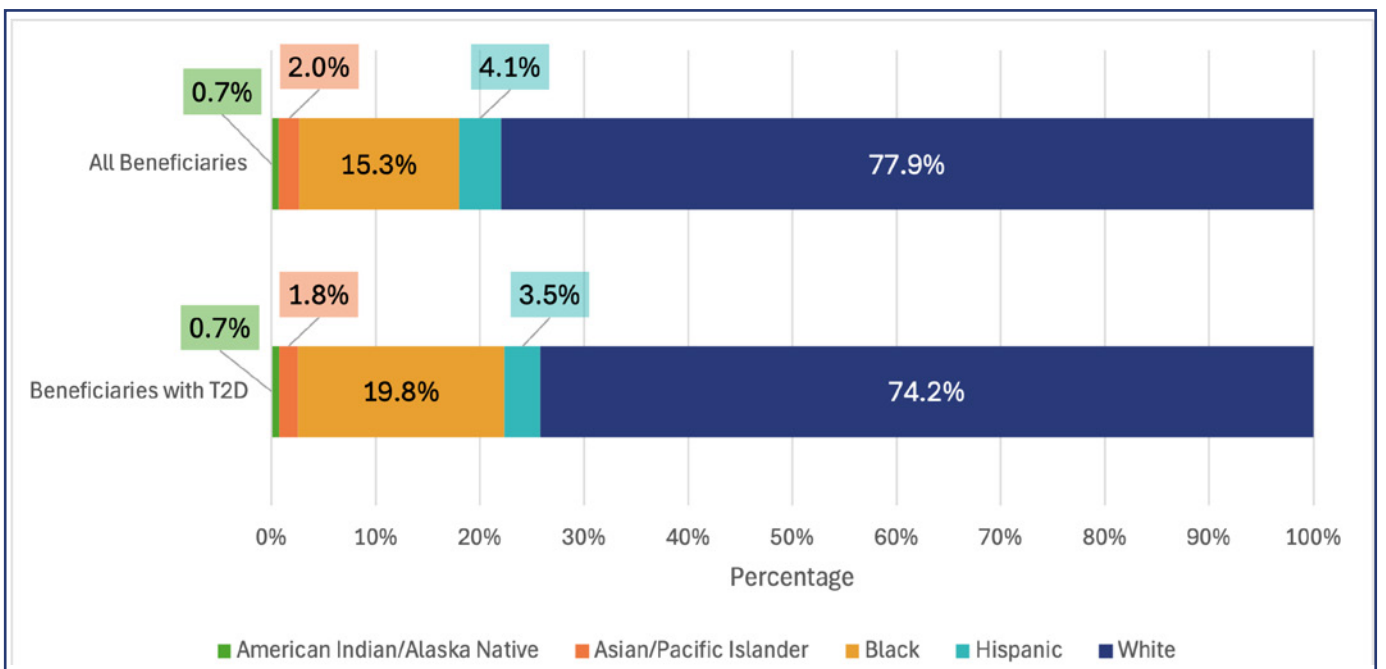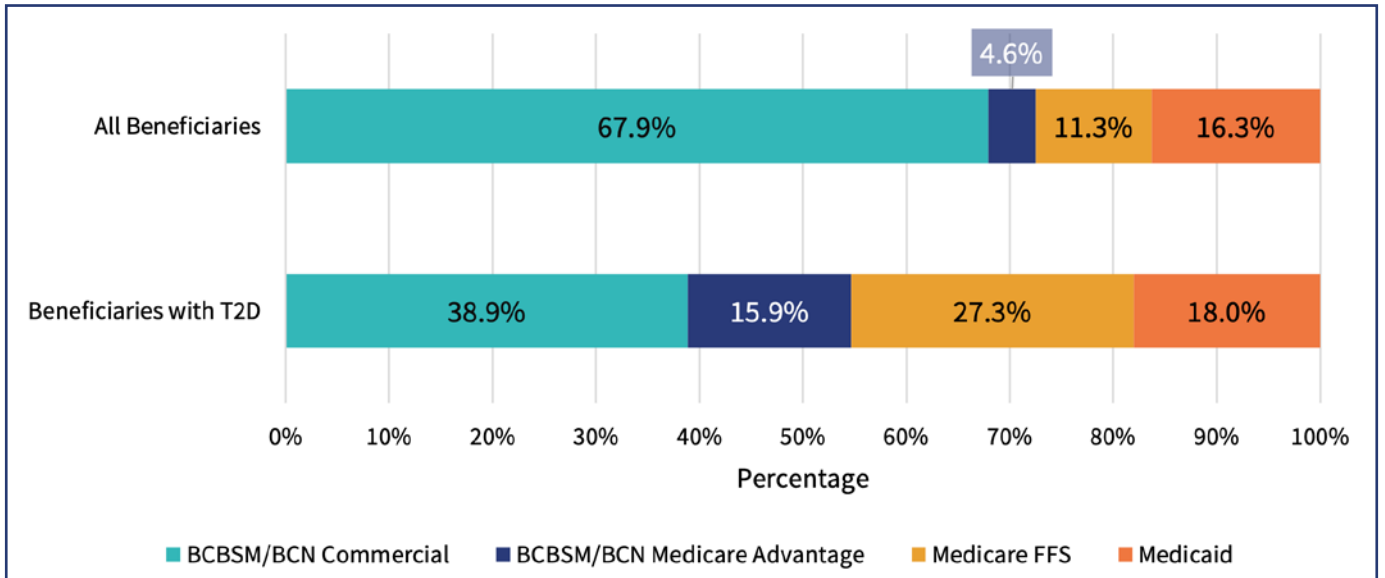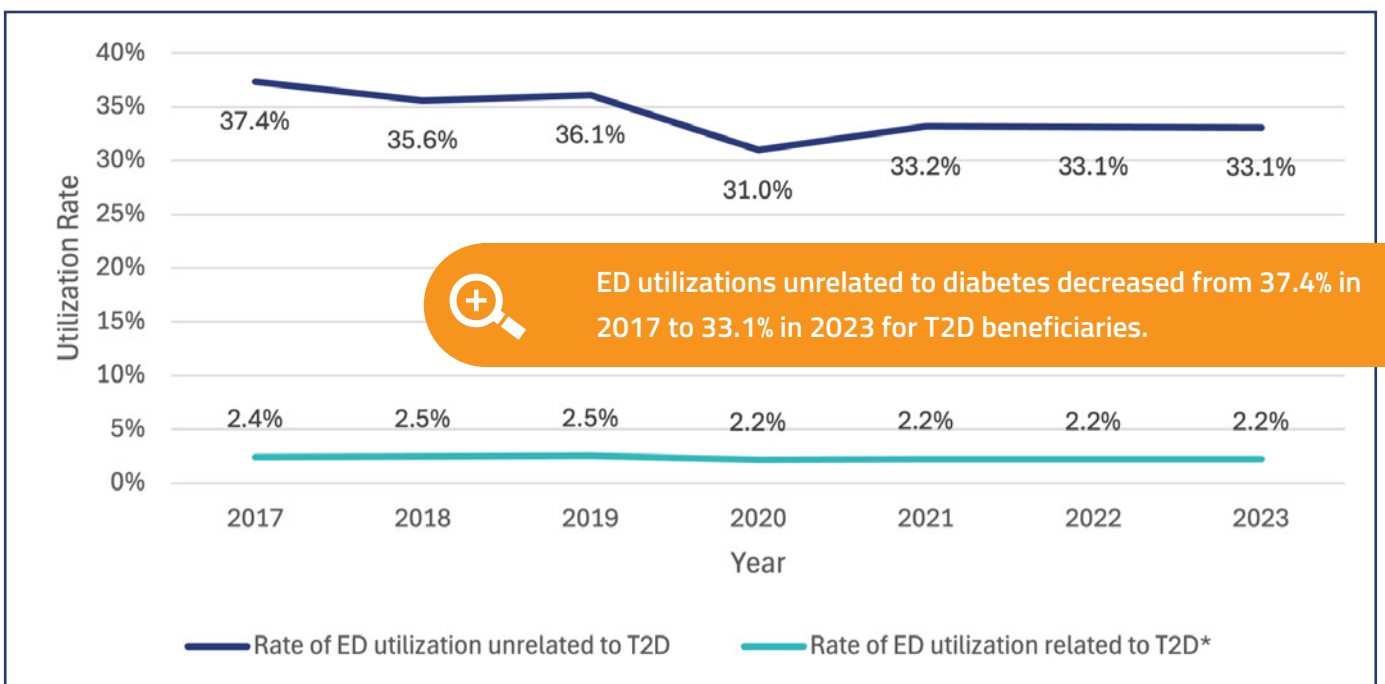**All Beneficiaries:** BCBSM/BCN Commercial 67.9%, BCBSM/BCN Medicare Advantage 4.6%, Medicare FFS 11.3%, Medicaid 16.3%

Beneficiaries with T2D: BCBSM/BCN Commercial 38.9%, BCBSM/BCN Medicare Advantage 15.9%, Medicare FFS 27.3%, Medicaid 18.0%

Percentage

Legend: ■ BCBSM/BCN Commercial ■ BCBSM/BCN Medicare Advantage ■ Medicare FFS ■ Medicaid
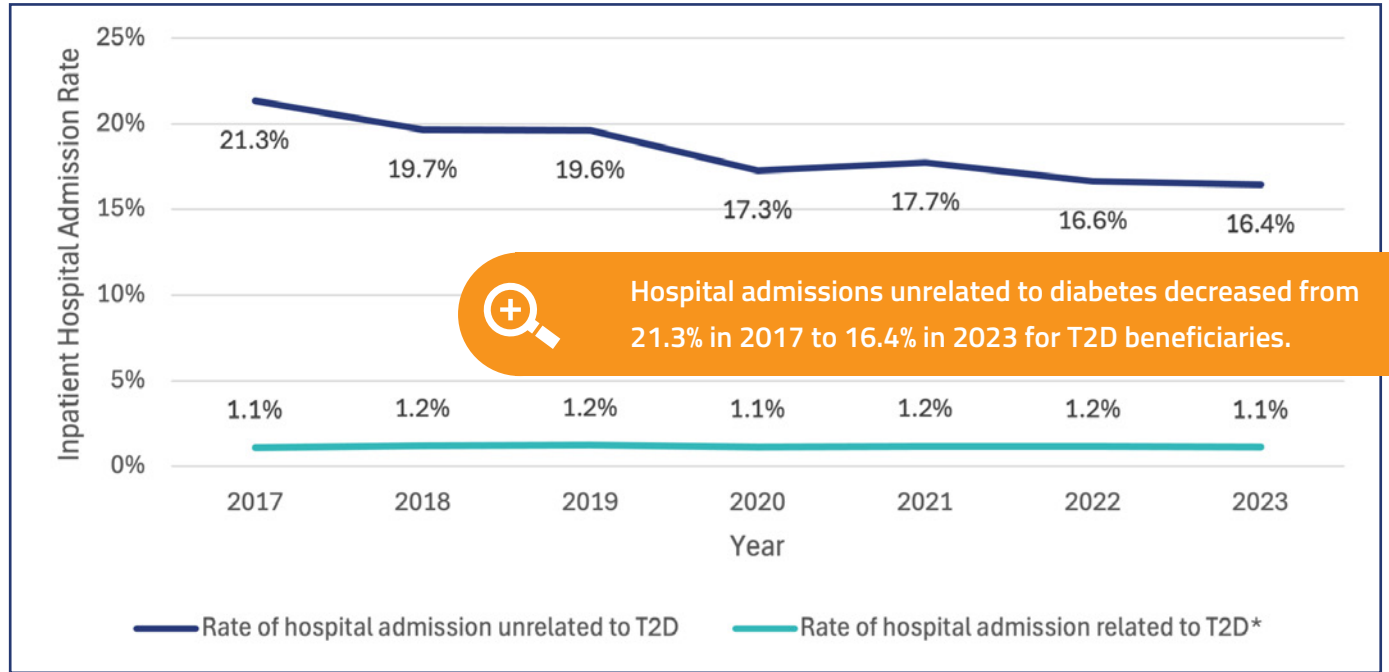
Healthcare Utilization

T2D-related emergency department (ED) visits and hospitalizations are often triggered by hyperglycemia, hypoglycemia, or complications like infections and cardiovascular events. While T2D has been a historical driver of ED visits, between 2017 and 2023, there were notable decreases in non-diabetes related ED visit and in-patient hospital utilization, while diabetes-related utilization stayed fairly static.

Yearly Rates of Emergency Department Utilization among T2D Beneficiaries*

Rate of ED utilization unrelated to T2D: 2017: 37.4%, 2018: 35.6%, 2019: 36.1%, 2020: 31.0%, 2021: 33.2%, 2022: 33.1%, 2023: 33.1%

Rate of ED utilization related to T2D*: 2017: 2.4%, 2018: 2.5%, 2019: 2.5%, 2020: 2.2%, 2021: 2.2%, 2022: 2.2%, 2023: 2.2%

🔍 **ED utilizations unrelated to diabetes decreased from 37.4% in 2017 to 33.1% in 2023 for T2D beneficiaries.**

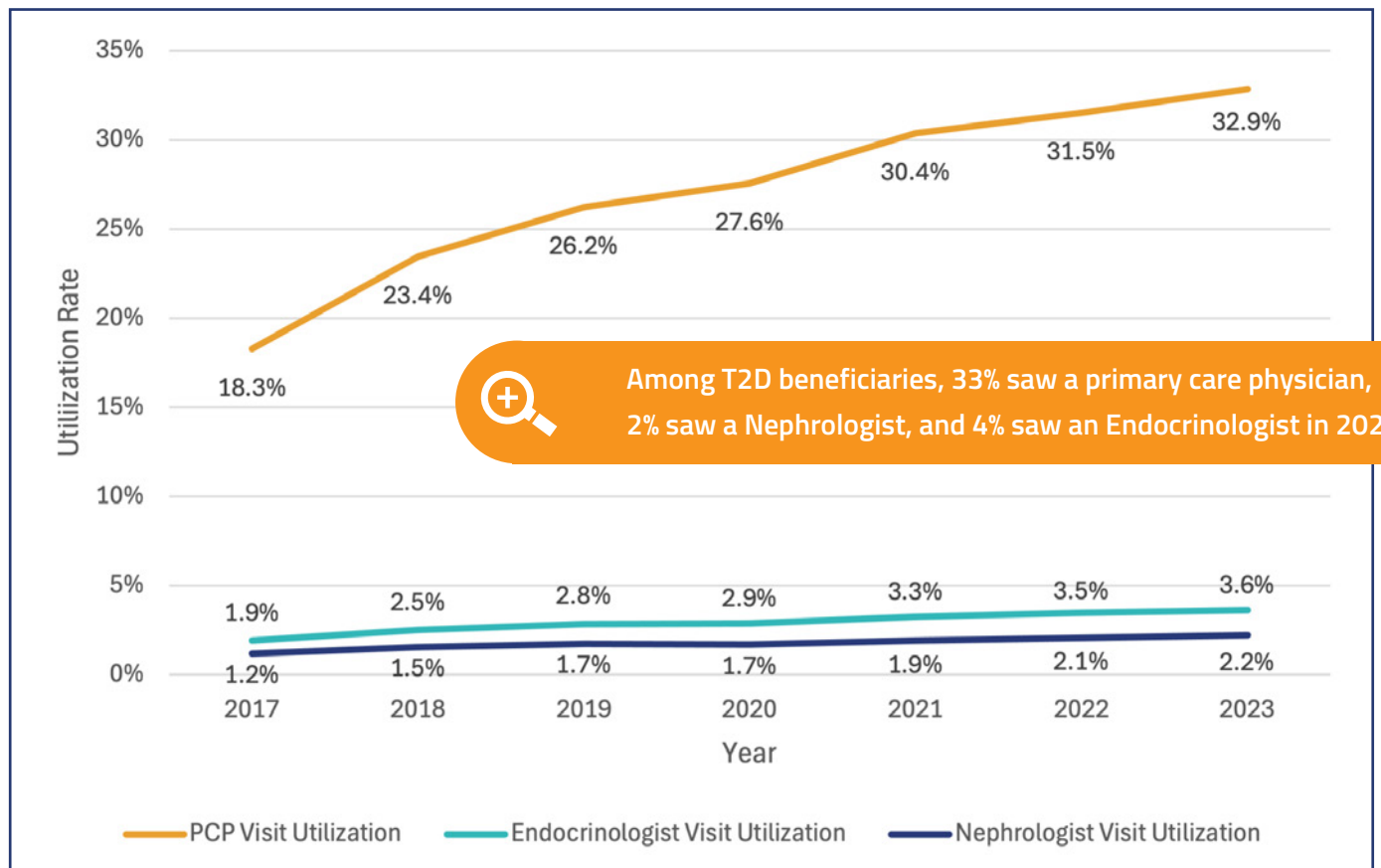Legend: Rate of ED utilization unrelated to T2D   Rate of ED utilization related to T2D*

*ED visits are identified as related to T2D based on a primary diagnosis code of T2D (E11X or O24.11X) on the claim

Yearly Rates of Inpatient Hospital Utilization Among T2D Beneficiaries*

Hospital admissions unrelated to diabetes decreased from 21.3% in 2017 to 16.4% in 2023 for T2D beneficiaries.

21.3% 19.7% 19.6% 17.3% 17.7% 16.6% 16.4%

1.1% 1.2% 1.2% 1.1% 1.2% 1.2% 1.1%

2017 2018 2019 2020 2021 2022 2023

Inpatient Hospital Admission Rate

Year

— Rate of hospital admission unrelated to T2D   — Rate of hospital admission related to T2D*

*IP Hospital admissions are identified as related to T2D based on a primary diagnosis code of T2D (E11X or O24.11X) on the claim

Yearly Rates of Provider Visit Utilization Among T2D Beneficiaries by Provider Type*

Among T2D beneficiaries, 33% saw a primary care physician, 2% saw a Nephrologist, and 4% saw an Endocrinologist in 2023.

18.3% 23.4% 26.2% 27.6% 30.4% 31.5% 32.9%

1.9% 2.5% 2.8% 2.9% 3.3% 3.5% 3.6%

1.2% 1.5% 1.7% 1.7% 1.9% 2.1% 2.2%

2017 2018 2019 2020 2021 2022 2023

Utilization Rate

Year

— PCP Visit Utilization   — Endocrinologist Visit Utilization   — Nephrologist Visit Utilization

*Utilization in a given year is defined as at least one evaluation and maintenance visit with a provider of a given specialty in the year.
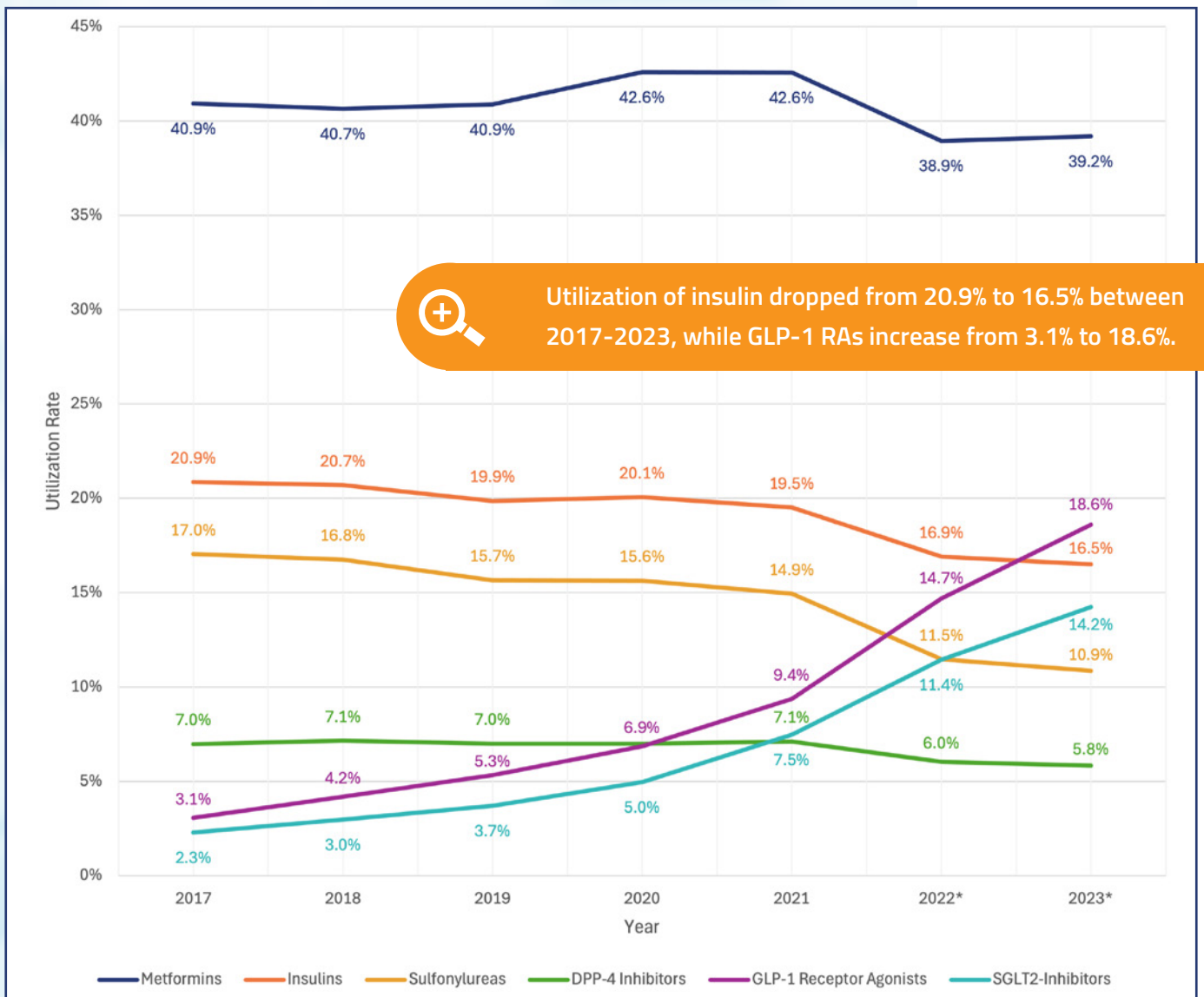
Prescription Utilization

Evidence for appropriate first- and second-line medications for T2D is evolving. Newer medications, such as GLP-1 RAs and SGLT2is, improve glucose control, reduce mortality, slow kidney disease progression, and aid in weight loss. The American Diabetes Association now advises the use of these newer medications for patients with cardiovascular disease, kidney disease, and obesity. The data below shows statewide progress in aligning prescribing with guideline-directed care.

Key Takeaway!

Utilization of newer agents including GLP-1 RAs and SGLT2is has increased drastically since 2017, while prescription fills for insulin and sulfonylureas have decreased.

T2D Medication Utilization Among Beneficiaries with T2D, 2017-2023*

Utilization of insulin dropped from 20.9% to 16.5% between 2017-2023, while GLP-1 RAs increase from 3.1% to 18.6%.

Metformins: 40.9%, 40.7%, 40.9%, 42.6%, 42.6%, 38.9%, 39.2%

Insulins: 20.9%, 20.7%, 19.9%, 20.1%, 19.5%, 16.9%, 16.5%

Sulfonylureas: 17.0%, 16.8%, 15.7%, 15.6%, 14.9%, 11.5%, 10.9%

DPP-4 Inhibitors: 7.0%, 7.1%, 7.0%, 6.9%, 7.1%, 6.0%, 5.8%

GLP-1 Receptor Agonists: 3.1%, 4.2%, 5.3%, 7.5%, 9.4%, 14.7%, 18.6%

SGLT2-Inhibitors: 2.3%, 3.0%, 3.7%, 5.0%, 7.5%, 11.4%, 14.2%

*Years 2022 and 2023 do not include Medicare FFS beneficiaries (corresponding Rx data is not yet available)

** Cohort for analysis of prescription utilization was limited to T2D beneficiaries with prescription drug coverage from the same insurance provider

Conclusions

This report provides a high-level overview of healthcare utilization among medical insurance beneficiaries with type 2 diabetes in Michigan. Limitations include that the data are derived from medical insurance claims, and thus exclude uninsured individuals and key indicators of T2D outcomes, such as HbA1C levels, blood pressure, continuous glucose monitors utilization, and retinopathy screening that are not accurately captured in claims data.

Despite these gaps, the data reveal promising trends in diabetes care, including increased primary care visits, greater use of guideline-directed medications proven to show significant benefit, and reduced emergency department visits. Our analyses also underscore areas for improvement, such as the need to address health equity gaps and continued promotion of guideline-directed medical therapy.

About MVC

The goal of the Michigan Value Collaborative (MVC) is to improve the health of Michigan through sustainable, high-value healthcare. MVC is a partnership between Michigan hospitals, physician organizations, and Blue Cross Blue Shield of Michigan/Blue Care Network. Working in conjunction with the many specialty-specific Collaborative Quality Improvement (CQI) programs in BCBSM's Value Partnership Program, MVC aims to understand variation in healthcare use, identify best practices, and lead interventions for improving care across sites of care in Michigan. MVC improves healthcare quality across Michigan through rigorous performance feedback, empirical identification of best practices, and collaborative learning.

michiganvalue.org

About MCT2D

The Michigan Collaborative for Type 2 Diabetes (MCT2D) was established in 2021 to accelerate a new way forward through collaboration, innovation, and investment in quality, evidence based care for type 2 diabetes. MCT2D strives to prevent type 2 diabetes and its complications by fostering a collaborative community of clinicians and patients to accelerate the equitable implementation of evidence-based diabetes care for all patients in Michigan.

mct2d.org