

HPC DATAPPOINTS

Polypharmacy Trends in Massachusetts: Examining the Prevalence of Multiple, Concurrent Prescriptions

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BACKGROUND

Pharmaceutical spending has been a major driver of health care spending growth in recent years, [growing](#) 10% from 2022 to 2023. Consumer out-of-pocket costs for prescription drugs have also been increasing, contributing to growing [affordability challenges](#) and medical debt among Massachusetts residents. Reflecting the urgent need for enhanced transparency and a deeper understanding of trends in pharmaceutical prices, utilization, prescribing patterns, and the interrelation of medications and other medical care, [recent legislation](#) established a new [Office of Pharmaceutical Policy and Analysis](#) (OPPA) within the Health Policy Commission (HPC). OPPA is charged with researching, reporting, and issuing policy recommendations to mitigate spending growth, promote affordability, and enhance pharmaceutical access. In this issue of the DataPoints series, HPC investigates trends in polypharmacy prescribing in Massachusetts.

Polypharmacy is [commonly defined](#) as the regular, concurrent use of five or more medications. The prevalence of polypharmacy [in the U.S.](#) overall has been rising: the share of individuals using five or more prescription drugs has grown from 9.2% in 2004 to 11.7% in 2020. In Massachusetts, the percentage of residents reporting the use of any prescription drugs is [increasing over time](#), and in 2023, approximately [two-thirds](#) of Massachusetts residents reported taking at least one prescription drug during the past 12 months. Yet, little is known about the types or number of prescription drugs used each day by Massachusetts residents, especially the share of individuals taking multiple prescription drugs on a daily basis.

While polypharmacy may be clinically appropriate for many patients, literature focused on polypharmacy in older adults has indicated that the concurrent use of multiple medications is [associated with](#) increased risk of adverse outcomes, and that these risks increase when an individual's prescriptions are not properly managed due to fragmentation of care, lack of regular medication reviews, and poor record-sharing between prescribing organizations. As the majority of existing literature on polypharmacy focuses on adults over the age of 65, the HPC is utilizing commercial pharmacy claims data to explore trends in polypharmacy in the under 65 adult commercially insured Massachusetts population.

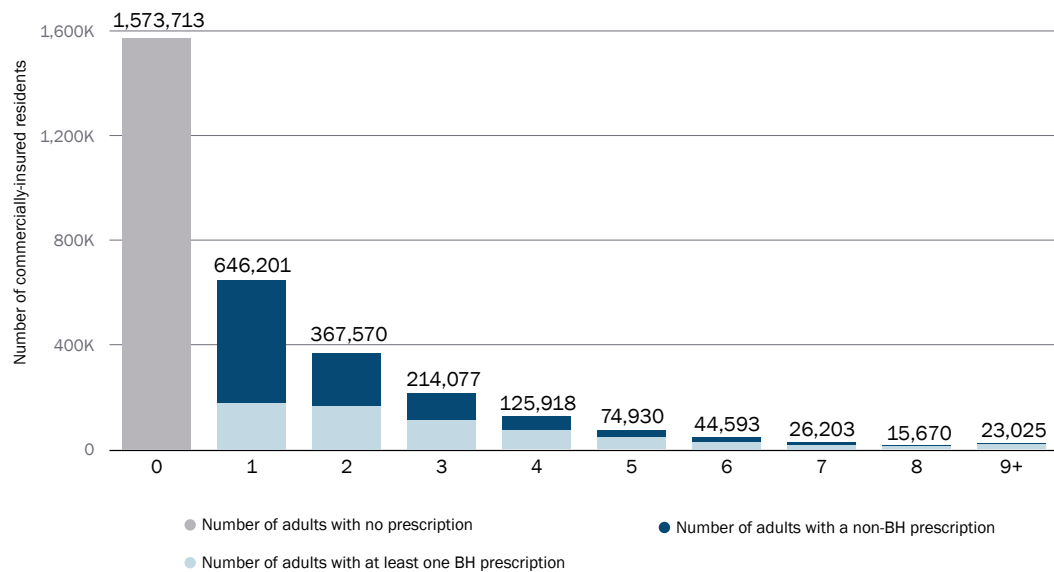
This analysis identified commercially insured Massachusetts residents between the ages of 18 and 64 with full-year pharmacy coverage in the Massachusetts All-Payer Claims Database from 2018-2022 with at least one claim for a prescription medication. Individuals were considered to have polypharmacy if they concurrently used five or more prescriptions to manage chronic conditions for at least thirty days.¹

This is a printable version of DataPoints. The online version features interactive graphics that show additional information, and is available on the HPC's website at masshpc.gov/publications/datapoints.

TRENDS IN PRESCRIBING AND POLYPHARMACY

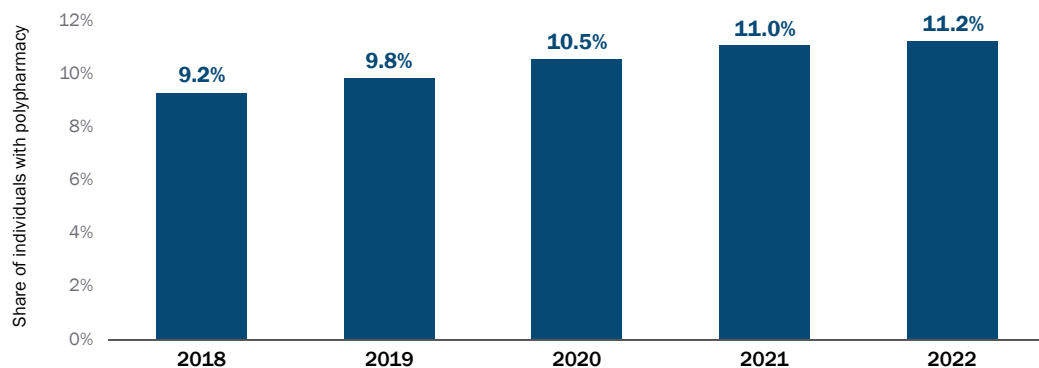
On any given day, approximately one half of commercially insured Massachusetts residents took at least one prescription drug, and about a quarter of those individuals used at least one medication to treat a behavioral health condition, such as an antidepressant or anti-anxiety medication.

Number of prescriptions on July 1st, 2022, and share of adults that have at least one behavioral health prescription



Approximately one in ten commercially insured adults with any prescription drug utilization in Massachusetts used five or more prescription drugs to manage chronic conditions concurrently at any point in the year, and this share has been gradually increasing over time.²

Share of members with polypharmacy, among individuals with any prescription drug utilization, 2018-2022

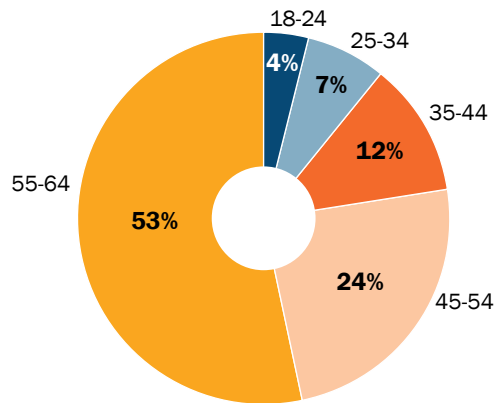


Approximately **one in ten** commercially insured adults with any prescription drug utilization used **five or more** prescription drugs concurrently.

The prevalence of polypharmacy is correlated with age and health status. Individuals with polypharmacy are more likely to be older. In 2022, over half of adults under age 65 with polypharmacy were between ages 55 and 64. Further, 81% of individuals with polypharmacy had at least one chronic condition, compared to only 33% of individuals without polypharmacy.³ Though polypharmacy is most common among older adults, the rate of polypharmacy grew by 1 to 2 percentage points in all age groups between 2018 and 2022.

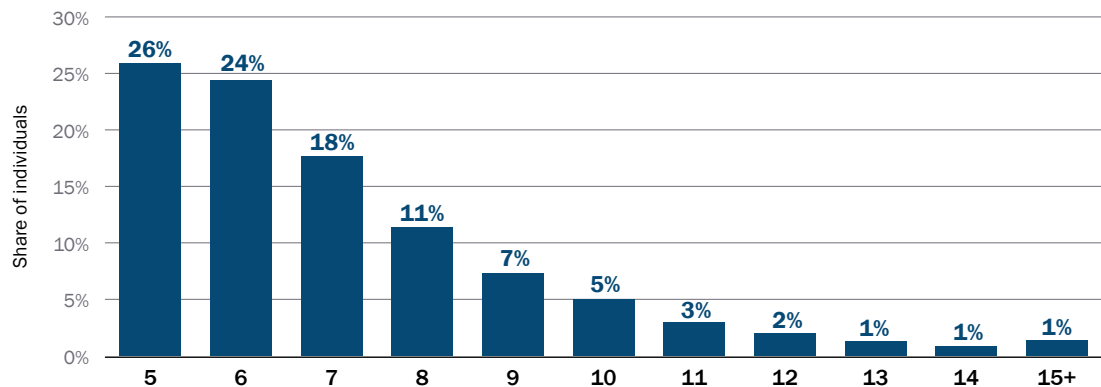
Individuals with polypharmacy are more likely to be **older** and have **chronic health conditions**.

Age of individuals with polypharmacy, 2022



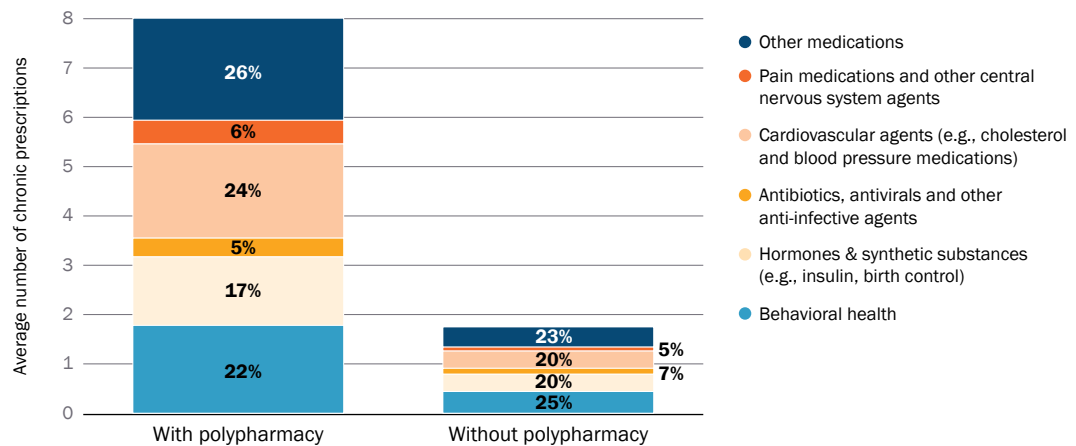
Fifty percent of individuals with polypharmacy in this analysis used a maximum of five or six prescriptions for chronic conditions concurrently at any point in the year, while 13% used a maximum of 10 or more. A large share (40.7%) of individuals with polypharmacy in 2022 had been taking five or more prescription drugs for more than a year, suggesting that they were managing multiple chronic conditions. Less than a third (28.6%) of individuals with polypharmacy used 5 or more drugs for fewer than 5 months, potentially indicating shorter-term episodes of care, such as stabilization after a major health event.

Maximum number of prescriptions to manage chronic conditions used concurrently during 2022, among individuals with polypharmacy



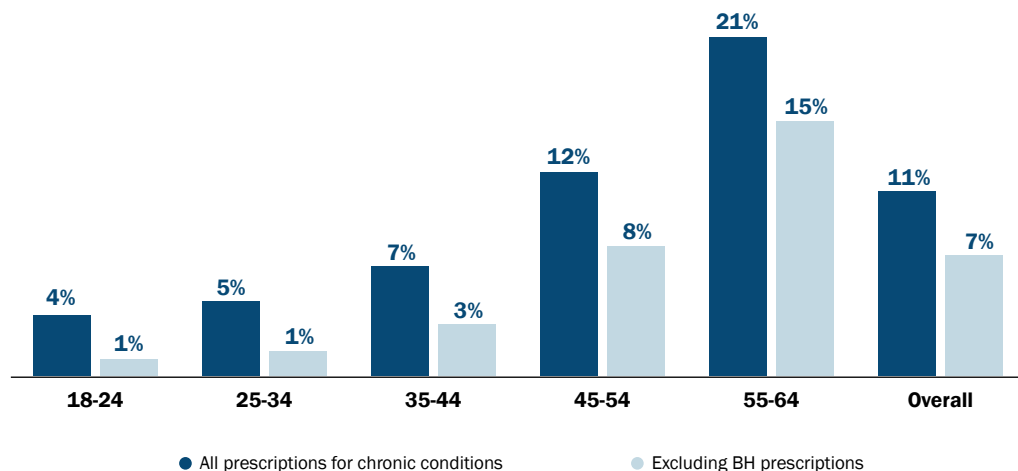
Though individuals with polypharmacy take more prescription drugs throughout the year than those without polypharmacy, the distribution of prescriptions by drug class is relatively similar for both groups.⁴ However, the distribution of drug classes used by individuals with and without polypharmacy does vary by age group, due to the variation in chronic disease prevalence across ages. For example, behavioral health drugs account for 42% of the prescriptions for chronic conditions used by individuals aged 18 to 24 with polypharmacy, but only 16% of those used by adults aged 55 to 64 with polypharmacy. Likewise, cardiovascular agents (such as medications used to treat high cholesterol and hypertension), represent 6% of the prescriptions used by individuals aged 18 to 24 with polypharmacy to manage chronic conditions, but 30% of those used by adults aged 55 to 64 with polypharmacy.

Average number of prescriptions used to manage chronic conditions per member by therapeutic class, by polypharmacy status, 2022



Medications to treat behavioral health conditions are a notable contributor to the prevalence of polypharmacy among younger age groups. When excluding medications used to treat behavioral health conditions, the share of all individuals experiencing polypharmacy at any point in 2022 decreases by one third (from 11% to 7%). This shift is much greater among individuals between the ages of 18 and 44, indicating that prescriptions for behavioral health drugs are a main driver of polypharmacy rates among younger adults, potentially due to the relatively low prevalence of other chronic conditions in this population.

Share of individuals with polypharmacy at any point in the year, by measurement and age group, 2022

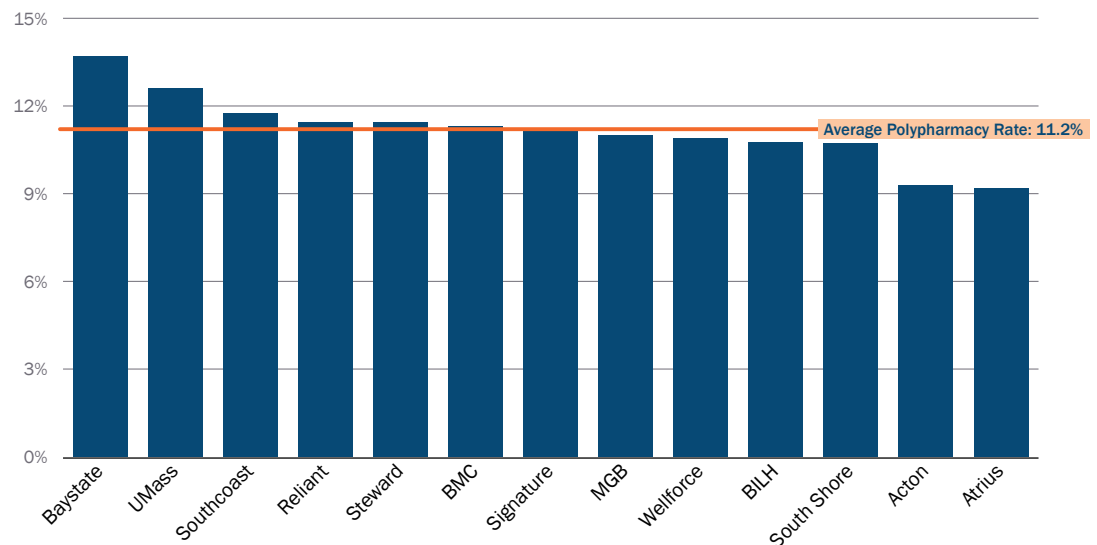


Medications to treat **behavioral health** conditions are a notable contributor to the **prevalence of polypharmacy** among younger age groups.

[Previous HPC research](#) has indicated that a growing number of individuals are seeking behavioral health services, as demonstrated by an increase in psychotherapy utilization among commercially insured Massachusetts residents. The HPC also found that a growing share of commercially insured members had at least one behavioral health prescription, with the largest increase among younger adults. [Literature on polypharmacy](#) in psychiatry indicates that the use of multiple behavioral health prescriptions to manage an individual's condition is becoming more common over time. An [increase in prescribing](#) to manage behavioral health conditions has been documented among psychiatrists and may be attributed to shifting reimbursement structures that favor medication management over psychotherapy sessions, along with an increase in the availability of drugs to treat behavioral health conditions.

The share of members with polypharmacy varies by their attributed provider organization.⁵ After adjusting for age and chronic disease status, 13.7% of individuals attributed to a Baystate-affiliated primary care provider had polypharmacy at any point during 2022, compared to 9.2% of individuals attributed to an Atrius-affiliated provider.

Share of individuals with polypharmacy by attributed provider organization, among individuals with any prescription drug utilization, adjusted for age and chronic disease status, 2022



The share of members with polypharmacy varies by their **attributed provider organization**.

POLYPHARMACY AND CARE UTILIZATION

Previous literature has shown that polypharmacy is most [common](#) among older individuals with multiple chronic conditions, and the HPC's analysis suggests that the relationship between chronic disease status and polypharmacy exists in younger populations, as well. Seeing multiple providers to manage multiple conditions [can increase](#) the likelihood of polypharmacy. The likelihood of duplicative prescribing and adverse drug interactions [can increase](#) if care is not coordinated among providers. The HPC analyzed trends in medical conditions and the use of multiple providers among commercially insured Massachusetts residents with polypharmacy.

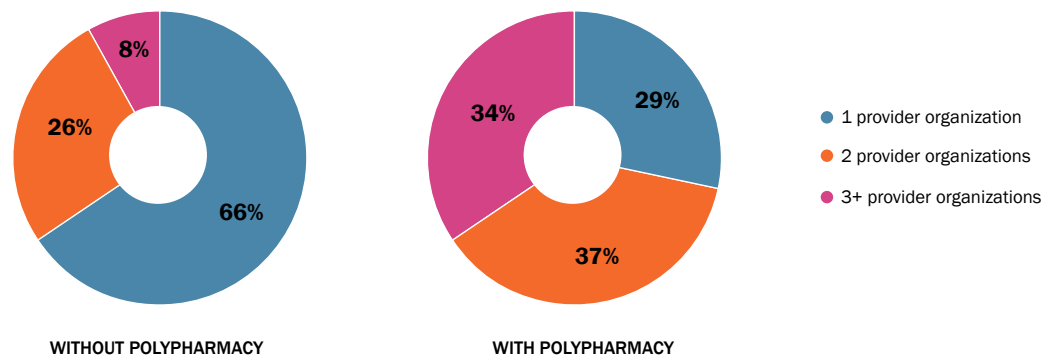
Compared to those without polypharmacy, residents with polypharmacy receive prescriptions from a greater number of unique prescribing providers; in 2022, individuals with polypharmacy received prescriptions from an average of 4.2 unique clinicians, compared to 2.0 unique clinicians for those without polypharmacy.

Residents with polypharmacy **receive prescriptions** from a greater number of **unique** prescribing providers.

Furthermore, individuals with polypharmacy were more likely to receive prescriptions from clinicians from multiple provider organizations. While just under one-third of individuals without polypharmacy received prescriptions from clinicians across two or more provider organizations in 2022, nearly three-quarters of those with polypharmacy had. These results may reflect individuals with multiple chronic conditions seeing different specialists to manage those conditions, and underscore the importance of timely and accurate information sharing between organizations to ensure that an individual's prescription drug use is properly managed to reduce the risk of duplicative prescribing or harmful drug interactions.

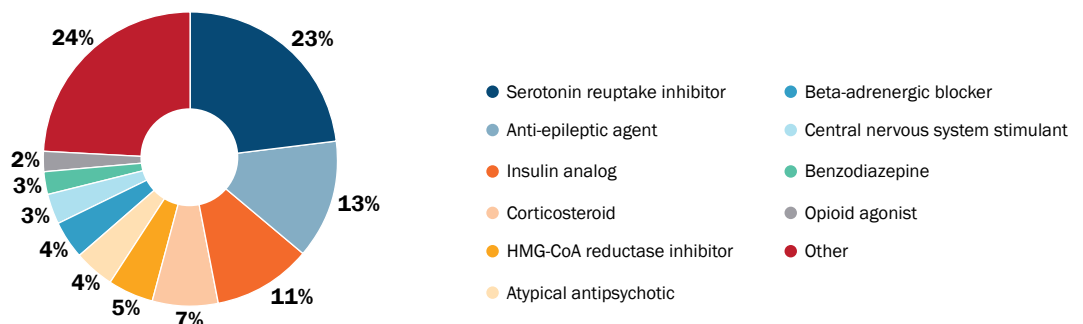
Nearly **three quarters** of individuals with polypharmacy received prescriptions from clinicians across **two or more provider organizations**.

Number of unique prescribing provider organizations, among individuals with and without polypharmacy, 2022



The HPC explored potentially duplicative prescribing among individuals with polypharmacy and found that nearly 30% of those with polypharmacy filled prescriptions for two or more drugs of the same type⁶ for 30 days or longer, and over 15% filled prescriptions for two or more drugs of the same type for 90 days or longer. While a 30-day overlap may be the result of an individual switching between an old and new drug to treat a condition, this circumstance is less likely, though still possible, with a 90-day or longer overlap. While some duplication may be therapeutically beneficial, such as [combining two antidepressants](#) with different pharmacological mechanisms or the use of [multiple types of insulin to manage diabetes](#), other forms of duplication could be inappropriate and unsafe, such as [combining two blood thinners](#).

Most commonly-duplicated drug classes, among individuals with polypharmacy, 30-day overlap, 2022



The Massachusetts Health Policy Commission (HPC)

is an independent state agency working to improve the affordability of health care for all residents of the Commonwealth. Through data-driven analysis, actionable policy insights, public accountability, and innovative investments, the HPC seeks to improve health care delivery, lower costs, and reduce health disparities.

HPC DataPoints is a series of online briefs that spotlight new research and data findings relevant to the HPC's mission to drive down the cost of health care. It showcases brief overviews and interactive graphics on relevant health policy topics. The analysis underlying these briefs is conducted by HPC staff. To view all HPC DataPoints, visit our [website](#).

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Limitations of this claims-based research include that the data indicate only whether a prescription was filled, not whether the patient used the medication. These data also do not provide information about whether potentially interacting or duplicative medications were clinically warranted. Further, these data do not capture the use of over-the-counter medications or medications purchased without using insurance (i.e. self-pay). Despite these limitations, this analysis suggests that trends in care utilization seen in older adults with polypharmacy, such as seeing multiple providers to manage multiple chronic conditions, are also present in the commercially insured population. These trends present opportunities for providers and payers to ensure adequate medication management and coordination.

CONCLUSION

The prevalence of polypharmacy is growing among commercially insured Massachusetts adults and is highest among older individuals and those with chronic conditions. While individuals with polypharmacy tend to take more medications from each class, the types of prescriptions taken by individuals with polypharmacy do not substantially differ from prescriptions taken by those without polypharmacy. The rate of polypharmacy has grown in the context of [increased prescription drug utilization](#) overall, and these trends merit further monitoring and exploration within the context of [growing prescription drug spending](#) in the Commonwealth.

Endnotes

- 1 The HPC used prescription fill dates and the number of days of medication supplied to calculate the amount of time an individual was in possession of a drug and the number of concurrent, overlapping prescriptions each individual possessed. This analysis excludes claims for devices and medical supplies, vaccines, and diagnostic agents. To avoid inaccurate duplication of prescriptions due to changes in dosage or drug source (i.e., branded vs. generic), different prescriptions for drugs with the same active ingredients were treated as the same drug. Only prescriptions with more than one fill or more than thirty days supplied during the year were included in this count, to distinguish between prescriptions to manage a chronic condition (and assumed to be taken at least once per day) and those used to manage short-term or acute conditions (such as a two-week course of antibiotics or a rescue inhaler to treat an asthma attack). Active ingredients were identified using IBM Micromedex® RED BOOK® ("RED BOOK") product names and class codes. The [RxNorm database](#), accessed through [RxMix](#), was used to identify products that were not included in RED BOOK.
- 2 [Previous literature](#) has indicated that changes in prescription drug use may reflect underlying changes in population demographics and health status. However, after adjusting for changes in population age distribution and chronic disease status, the rate of polypharmacy in MA still increased over time, from 9.6% in 2018 to 11.3% in 2022.
- 3 This share includes individuals with at least one diagnosis of the following 12 health conditions: AIDS/HIV, asthma, arthritis, cancer, cardiovascular disease, diabetes, epilepsy, hypertension, mood disorder, multiple sclerosis, psychosis, and renal failure.
- 4 For this analysis, drug classes were adapted from RED BOOK therapeutic class codes and regrouped for greater specificity. Categories are descriptive but may not be fully representative of every indication for each drug.
- 5 In this analysis, members are attributed to the provider organization with which their primary care provider is affiliated. Primary care providers are identified using provider organization data from the 2022 Registration of Provider Organizations (RPO) supplemented with a commercial database obtained from IQVIA, Inc. Details of the attribution methodology have been [previously published](#).
- 6 In this analysis, drugs are classified by "Established Pharmacologic Classes" (EPC). As defined by the [FDA](#), an EPC is a pharmacologic class associated with an "approved indication of an active moiety that the FDA has determined to be scientifically valid and clinically meaningful." EPCs were linked to NDCs using a crosswalk [published by CMS](#).