

2024

**ANNUAL HEALTH
CARE COST TRENDS
REPORT AND POLICY
RECOMMENDATIONS**



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CHAPTER 1:
INTRODUCTION

CHAPTER 1: INTRODUCTION

This year, the issuance of the Massachusetts Health Policy Commission’s (HPC) annual health care cost trends report takes place in a period of significant upheaval and reflection for the Commonwealth’s health care system. The bankruptcy and dissolution of Steward Health Care, previously the third largest hospital system in Massachusetts, led to substantial disruptions to the state’s health care market and has taken a significant toll on communities, patients, provider organizations, and health care workers across the region. This market instability is occurring while many providers across the health care continuum are still struggling to adapt to a post-pandemic “new normal” state, wrestling with capacity constraints, financial volatility, unnecessary administrative burdens, and workforce recruitment and retention challenges. The economic pressures placed on many health care providers are confounded by persistent wide variation in commercial health insurance payments for the same types of services, without commensurate differences in value.

Alarming, at the same time, an increasing number of Massachusetts residents are struggling with health care affordability and medical debt. Massachusetts has the second highest family health insurance premiums in the country – including out of pocket spending, the average annual cost of health care for a family exceeds \$29,000. Recently, more than half of residents surveyed (51 percent) cited the cost of health care as the most important health care issue, far surpassing those that identified access (19 percent) or quality (18 percent). Due to high costs, 40 percent of survey respondents (and 48 percent of those with income below \$50,000) said they are putting off seeing a doctor or going to a hospital. These affordability challenges are disproportionately borne by populations of color, and those in Massachusetts with less resources, contributing to widening disparities in access to care

and health outcomes. The annual cost of inequities experienced by populations of color in Massachusetts is estimated to exceed \$5.9 billion and is growing every year.¹

Massachusetts residents pinpointed affordability not only as the top issue in health care, but as a top issue of concern overall, behind only inflation and the cost of housing, and only one of two categories (along with housing) of growing concern since 2022.² Rising health care costs represent a top concern for employers of all sizes, but small businesses and their employees tend to experience affordability challenges most acutely, and small businesses continue to shift costs to employees through high deductible health plans to limit the impact of premium increases.³

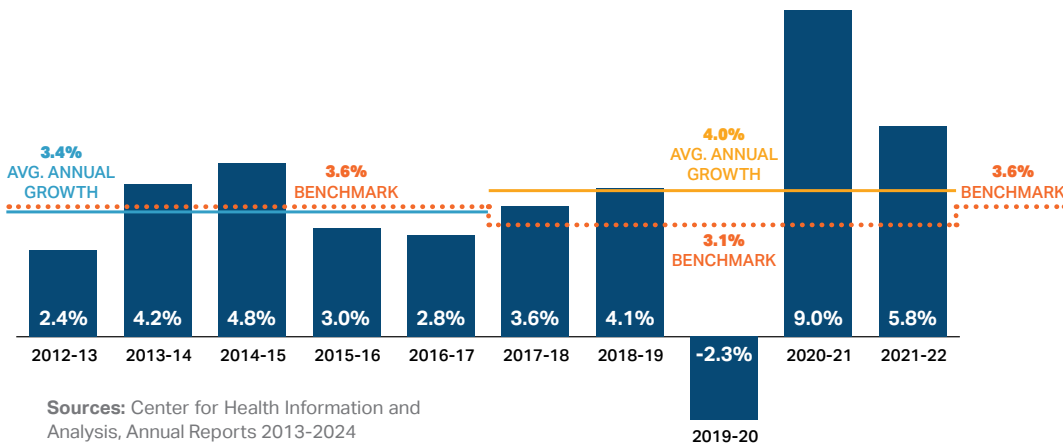
Addressing health care affordability in a meaningful way will be necessary to meet the Healey-Driscoll Administration’s goal of making the Commonwealth more economically competitive for families and businesses to stay and thrive.

These challenges require bold action to move the health care system from the status quo to a new, more affordable, sustainable, and equitable trajectory. Massachusetts has a history of demonstrating that its leadership can deliver transformative change. More than a decade ago, the Legislature responded to the health care challenges of the time by enacting comprehensive health care reform. These reforms (Chapter 224 of the Acts of 2012) introduced a first-in-the-nation statewide target for moderating growth in total health care spending. The law also established the HPC to monitor and guide this ambitious effort (see **What is the Massachusetts Health Policy Commission?**). Following passage of the law, health care spending growth in Massachusetts was below the comparable U.S. rate for most years, leading to billions of dollars in avoided spending for Massachusetts residents.

By the end of the decade, however, spending growth had accelerated, surpassing the benchmark in 2018 and 2019. From 2021 to

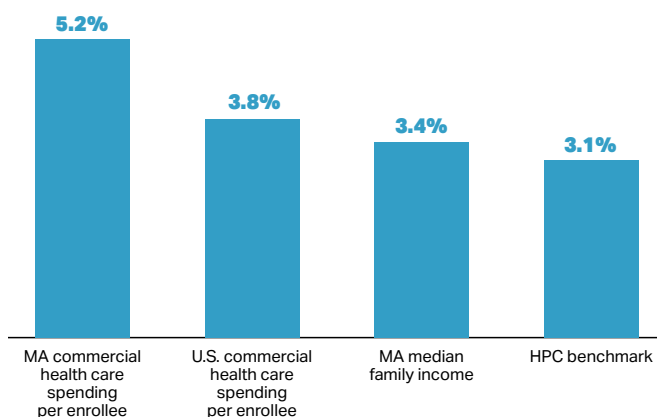
2022, the most recent year evaluated, total health care spending in Massachusetts grew 5.8 percent per capita, the highest growth rate in a decade (with the exception of 2021, which reflected a rebound from the pandemic year of 2020) (**Exhibit 1.1**).

Exhibit 1.1. Annual growth in total health care expenditures per capita in Massachusetts



This growth was driven by commercial spending, which grew 5.2 percent per member in 2022. Commercial health care spending growth significantly exceeded the increase in average family incomes in Massachusetts (3.4 percent), resulting in health care consuming a larger share of family budgets (**Exhibit 1.2**).

Exhibit 1.2. Annual growth in commercial health care spending, family income and the HPC benchmark, 2019-2022



Sources: HPC analysis of data from the Center for Health Information and Analysis and the Center for Medicare and Medicaid Services (National Health Expenditure Accounts); American Community Survey, family income, one-year tables

In this annual report, analyses provide new insights on key drivers of spending growth. Commercial spending growth has been driven primarily by the acceleration of prices, seen for both health care services and prescription drugs. Price growth translates directly to increases in health insurance premiums and out of pocket spending, which in turn puts more families in the position of making hard choices, such as whether to skip needed care or cut back on other necessities to pay for medical bills.

This year's report also highlights variation in the practice of medicine that impacts the care that patients receive, with the goal of starting a conversation about why practices often vary substantially between providers and how to ensure that all patients receive the care that is best for their needs and outcomes.

In previous Cost Trends Reports, the HPC issued a set of policy recommendations that reflect a comprehensive approach to promote health care affordability, improve access, and advance equity. The HPC continues its call to action on these recommendations. This year, in the wake of the considerable harm caused by the bankruptcy of Steward Health Care and other recent market disruptions, the HPC is focusing this year's Cost Trends Report

policy recommendations on market reforms necessary to better protect the system and patients from predatory actors, strengthen market oversight and transparency, and ensure greater stability moving forward.

HOW THE REPORT IS ORGANIZED

The report includes material presented in a narrative report and a graphic chartpack. Select material is also highlighted in an interactive Tableau format on the HPC's website. This report is informed by sources including the data and research of the Center for Health Information and Analysis (CHIA), as well as by presentations and testimony submitted during the HPC's 2023 Annual Health Care Cost Trends Hearing. **Chapter 2** of the report compares health care cost growth in 2022 to the state's health care cost growth benchmark, discusses trends and levels of health care spending in Massachusetts and the nation overall, highlights trends in prescription drug spending that contributed to higher growth in spending and expectations for future pharmacy spending, and examines trends in health care affordability and how rising health care spending impacts residents of the Commonwealth. **Chapter 3** examines practice pattern variation in intensity of care, analyzing several common clinical scenarios that exhibit variation in intensity of care across provider groups and in which research literature and clinical guidelines suggest higher intensity treatment options can be overused. **Chapter 4** presents the HPC's policy recommendations, which are focused this year on market oversight reforms to address the causes and consequences of the dissolution of the Steward Health Care system. **Chapter 5** contains a dashboard summarizing the Commonwealth's performance on key measures of spending, quality, and health equity.

The chartpack updates and presents new insights on annual topics reported by the HPC. Topics presented in the chartpack include spending and use of primary care and behavioral health care, trends and variation in prices across a range of services, and areas for improvement in care delivery, such as decreasing avoidable hospital inpatient and emergency department visits and maximizing value and access for post-acute care. The chartpack also explores variation in practice patterns by provider organization, including use of low value care services.

WHAT IS THE ROLE OF THE MASSACHUSETTS HEALTH POLICY COMMISSION?

The Massachusetts Health Policy Commission (HPC) is an independent state agency working in the public interest to improve the affordability of health care for all residents of the Commonwealth. Established in 2012, the agency maintains a permanent staff to fulfill its statutory responsibilities and is accountable to an 11-member Board of Commissioners. HPC staff and commissioners work collaboratively to oversee and improve the performance of the Massachusetts health care system.

Key responsibilities of the organization include: setting the annual health care cost growth benchmark; assessing and enforcing provider and payer performance relative to the health care cost growth benchmark; analyzing the impact of health care market mergers, acquisitions, and other transactions on cost, quality, access, and equity; collecting and disseminating key information about the structure and functioning of Massachusetts health care providers through the Registration of Provider Organizations; evaluating the pricing and value of certain prescription drugs; creating care delivery standards for Accountable Care Organizations; investing in innovative care models; and administering independent external reviews of insurer medical necessity denials and risk-based provider organization decisions, as well as open enrollment waivers.

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- 2 Blue Cross Blue Shield of Massachusetts. “Press release: Massachusetts residents cite high costs as the most important issue in health care.” March 20, 2024. Available at: <https://newsroom.bluecrossma.com/2024-03-20-MASSACHUSETTS-RESIDENTS-CITE-HIGH-COSTS-AS-THE-MOST-IMPORTANT-ISSUE-IN-HEALTH-CARE>
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CHAPTER 2:
**TRENDS IN SPENDING
AND CARE DELIVERY**

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TRENDS IN SPENDING AND CARE DELIVERY

The Commonwealth’s landmark health care cost containment law, Chapter 224 of the Acts of 2012,¹ establishes a benchmark for sustainable growth in health care spending, recognizing that containing spending growth is critical to easing the burden of health care spending on government, households, and businesses. Chapter 224 directs the Massachusetts Health Policy Commission (HPC) and the Center for Health Information and Analysis (CHIA) to monitor health care spending growth annually relative to the benchmark, which is indexed to the rate of the Commonwealth’s long-term economic growth. The HPC is charged with analyzing trends and drivers in health care spending (see **Sidebar: Factors underlying health care spending**) and making policy recommendations. This chapter describes those trends through 2022, including a discussion of their implication for affordability of care among Massachusetts residents.

From 2013 to 2017, the benchmark for annual health care spending growth was set by law at 3.6 percent. From 2018 to 2022, the law set the benchmark at a default rate of 3.1 percent, but the HPC had the authority to increase it to as high as 3.6 percent. On April 14, 2021, the HPC’s board voted to maintain the benchmark at the default rate of 3.1 percent for the 2022 calendar year – the period of focus for much of the data presented in this chapter.

While this chapter briefly reviews spending trends from 2021 to 2022, the predominant analysis in this section focuses on changes from 2019 to 2022. The COVID-19 pandemic led to a drastic reduction in health care use in 2020 followed by a “bounce-back” in 2021. The pandemic remained an influence on care use and spending in 2022, though less so than in 2020 and 2021, with the Omicron wave peaking in early 2022.ⁱ Certain one-year changes from 2021 to 2022 continue to reflect the pandemic’s influence on utilization patterns in 2021 (for example, a considerable amount of vaccine spending occurred in 2021 as well as some potential delayed utilization that would have otherwise occurred in 2020²). Averaging across these 2019 to 2022 annual trends offers a generally more representative view of patterns in health care use, prices, and spending and affordability among Massachusetts residents during this time period.

i For example, hospitals were required to reduce their volume of elective surgeries to no more than 50% of their 2019 volume between February 14 and February 28 in 2022 to accommodate a surge of COVID-19 admissions during the Omicron wave.

SIDEBAR: FACTORS UNDERLYING HEALTH CARE SPENDING

Total health care spending is a function of the price of health care services as well as the utilization of those services. Utilization, in turn, is affected by both the number of people receiving health care services and the frequency, type, care setting, and intensity of the services provided. The HPC’s Cost Trends Report examines the latest available data regarding changes in both price and utilization in Massachusetts, as well as factors that may explain and contextualize recent trends in health care spending. This report largely focuses on aspects of the health care system that can be influenced by policymakers and market participants in the state rather than population health factors such as aging of the population that are beyond the scope of this report.

The Commonwealth examines health care spending growth against the benchmark by calculating the change in Total Health Care Expenditures (THCE) per state resident. CHIA calculates THCE using data from the state and federal governments as well as data reported by health insurers. THCE includes health care spending by individuals (e.g., co-payments, co-insurance, and insurance deductibles), health insurers (e.g., claims, administrative expenses, incentive payments), the state (e.g., MassHealth), and the federal government (e.g., MassHealth and Medicare). CHIA reported that total spending in Massachusetts increased by \$3.9 billion, from \$67.8 billion in 2021 to \$71.7 billion in 2022.^{iii,3} Per capita THCE in Massachusetts was \$10,264 in 2022, a 5.8 percent increase from 2021 which exceeded the health care cost growth benchmark of 3.1 percent set by the HPC.ⁱⁱⁱ

ii The spending totals reported by CHIA do not include pandemic-related supplemental funding from the federal government such as via the CARES Act, the Paycheck Protection Program, or the American Rescue Plan Act. It does include COVID-19 supplemental payments distributed by MassHealth.

iii The increase in THCE from 2021 to 2022 was reported as \$3.9 billion, or 5.8%. Massachusetts’ resident population during this period remained relatively unchanged as reported by the U.S. Census Bureau.

Including the 2022 increase, THCE growth per capita exceeded the benchmark in three of the past four years and combined for an average annual rate of growth of 4.0 percent from 2018 to 2022, above the 3.1 percent benchmark set for this period (Exhibit 2.1). Overall, for the ten years since the passage of Chapter 224 for which THCE growth has been evaluated (2012-2022), average annual spending growth has been 3.7 percent.

SPENDING GROWTH FROM 2021-2022

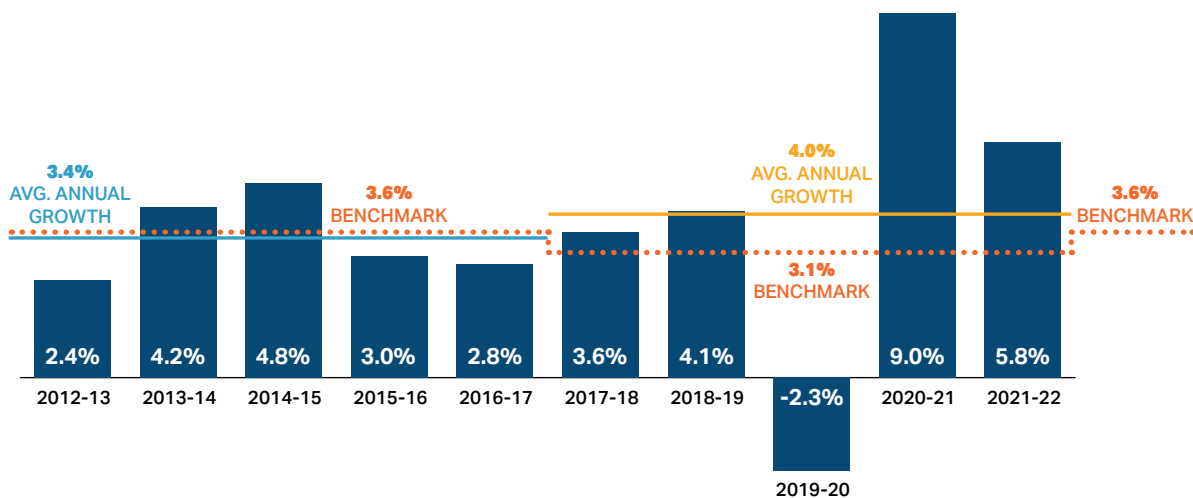
Spending growth from 2021 to 2022 was led by an increase in commercial spending per member (5.1 percent) followed by smaller increases in Medicare spending per enrollee (3.3 percent) and MassHealth spending for full-coverage enrollees (2.3 percent). The overall increase in per-capita THCE (5.8 percent) was greater than the increase in each of the market segments partly due to \$600 million in COVID-19-related payments from MassHealth to providers in 2022 (which accounted for 0.8 percentage points of THCE growth) that is not included in the figure above.

The 5.8 percent increase in THCE also reflects a \$700 million increase in the net cost of private health insurance (NCPHI), some of which is also included in the 5.1 percent increase in commercial spending per member noted above.^{iv} NCPHI consists of insurers' administrative costs of providing health insurance and includes

any surpluses or losses from the difference between premiums collected and medical claims paid after accounting for these administrative costs. The increase in NCPHI in the commercial market was large in 2022, accounting for 1.4 percentage points of the 5.1 percent increase in commercial spending. However, NCPHI tends to move up and down year over year as insurers review their performance and course-correct. For example, if insurers set premiums too low to cover expenses in one year and experience losses as a result, they will typically raise premiums to offset those losses in the following year (which results in a larger surplus and hence, a larger NCPHI). Because performance is often influenced by the same market factors, these up-down cycles tend to be consistent across insurers. These swings were particularly volatile during the COVID-19 pandemic. For the fully-insured commercial market, NCPHI increased from \$1.31 billion in 2019 to \$1.70 billion in 2020 (when utilization of care dropped during the pandemic), subsequently decreasing to \$1.05 billion in 2021 and then increasing again to \$1.41 billion in 2022.³

By category of care, prescription drug spending had the largest increase across all payer types in 2022 (\$775 million), followed by hospital outpatient department (HOPD) spending (\$628 million). Later sections of this chapter detail further trends and breakdowns of these categories in the commercial market.

Exhibit 2.1. Annual growth in total health care expenditures per capita in Massachusetts



Sources: Center for Health Information and Analysis (CHIA), Annual Report on the Performance of the Massachusetts Health Care System 2013-2024

iv According to the Center for Health Information and Analysis' 2024 annual report, NCPHI increased by roughly \$350 million in the commercial market in 2022, \$150 million among MassHealth ACO/MCOs and \$180 million among Medicare Advantage plans.

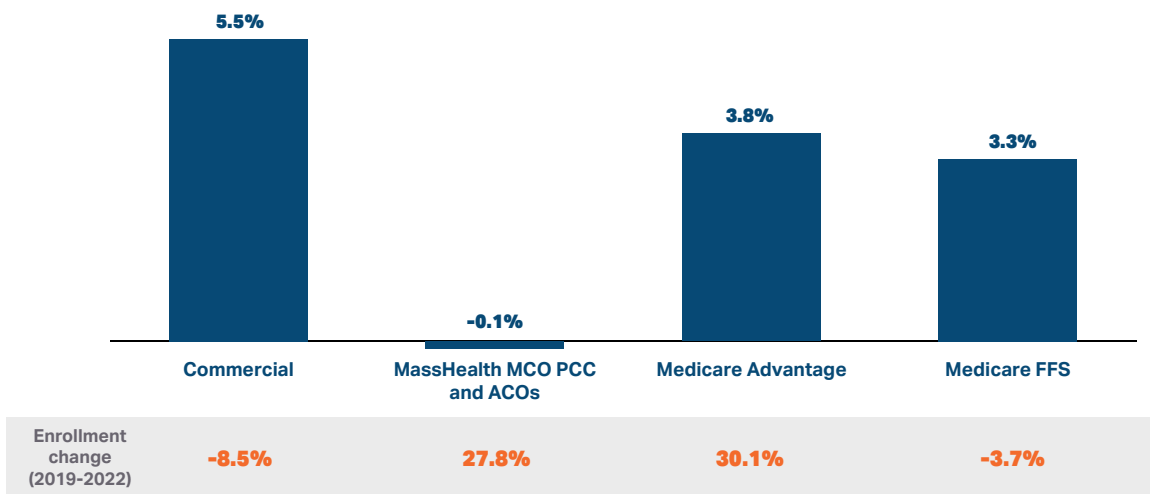
MASSACHUSETTS SPENDING TRENDS FROM 2019-2022

It is useful to examine spending patterns over the full 2019 to 2022 period because that period captures both the pandemic-related disruptions in care delivery experienced in 2020 and the rapid restoration of care delivery in 2021. Between 2019 and 2022, average annual spending growth per member increased for all major payer types except MassHealth (**Exhibit 2.2**). In the commercial sector, spending per enrollee increased 5.5 percent on average per year from 2019 to 2022 — the largest increase among the major payer types —while enrollment decreased 8.5 percent overall during the same period.

For MassHealth enrollees with full coverage through the Primary Care Clinician (PCC) program, managed care organizations (MCO),^v or the Accountable Care Organization (ACO) program, spending per enrollee decreased 0.1 percent per year on average

from 2019 to 2022, while enrollment increased 27.8 percent overall, partially as a result of a federally-mandated suspension of Medicaid eligibility redeterminations during the pandemic.^{vi} In the Medicare program, spending per enrollee increased 3.3 percent per year on average from 2019 to 2022 for beneficiaries enrolled in Original (fee-for-service) Medicare while enrollment declined 3.7 percent overall from 2019 to 2022. For enrollees in the privately administered Medicare Advantage program, spending per enrollee increased 3.8 percent per year on average from 2019 to 2022, and enrollment increased 30.1 percent in total during the same period. During this period, the share of Massachusetts Medicare beneficiaries enrolled in Medicare Advantage increased from 20 percent to 25 percent.

Exhibit 2.2 Average annual growth in spending per enrollee by major payer type, 2019-2022, with total enrollment change



Notes: Commercial spending includes net cost of private health insurance and is net of prescription drug rebates. MassHealth includes only full coverage enrollees in the Primary Care Clinician (PCC), Accountable Care Organization (ACO-A, ACO-B), and Managed Care Organization (MCO) programs. Figures are not adjusted for changes in health status.

Sources: HPC analysis of Center for Health Information and Analysis (CHIA), Annual Report on the Performance of the Massachusetts Health Care System, 2023-2024

v This excludes, for example, disabled enrollees or other enrollees receiving coverage on a fee-for-service basis and enrollees who are dually eligible for Medicare coverage and MassHealth benefits.

vi The Families First Coronavirus Response Act (FFCRA) required state Medicaid agencies to continue coverage for all members enrolled on or after March 18, 2020, irrespective of changes in their circumstances or regularly scheduled eligibility reassessments. The continuous coverage requirement for Medicaid programs ended on March 31, 2023, per the Consolidated Appropriations Act of 2023.

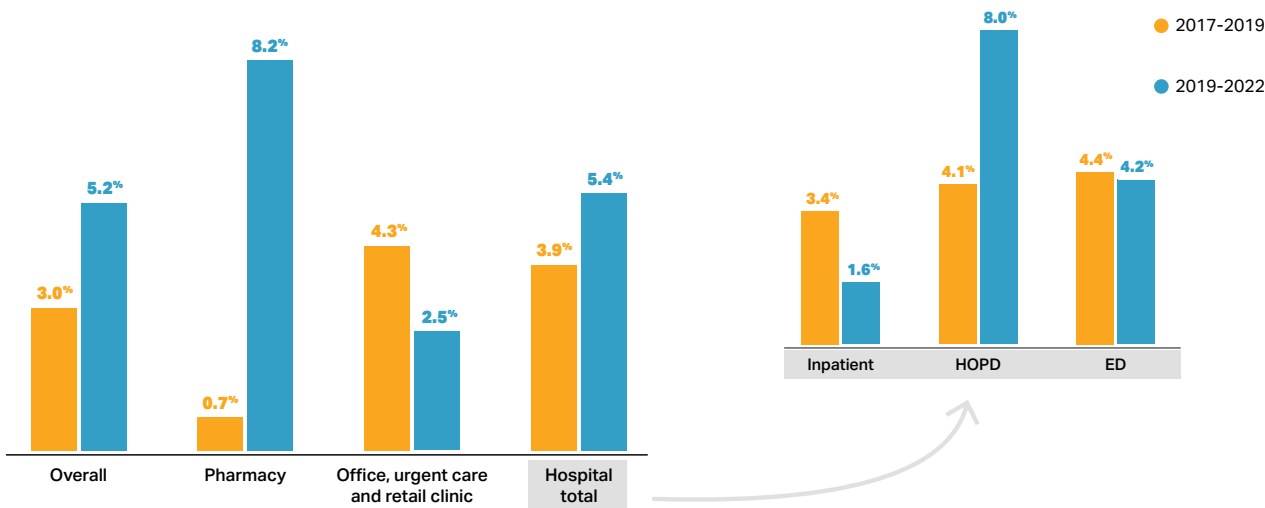
SPENDING GROWTH BY CATEGORY OF SERVICE

From 2019 to 2022, commercial spending grew 5.2 percent annually, representing an acceleration from 3.0 percent annual spending growth from 2017 to 2019 (see **Exhibit 2.3**).^{vii} Spending occurring in office-type settings (such as physician’s offices and urgent care centers) grew more slowly from 2019 to 2022 (2.5 percent annually) compared to 2017 to 2019 (4.3 percent annually).

On the other hand, hospital spending per enrollee grew an average of 5.4 percent per year from 2019 to 2022, faster than the 3.9 percent annual growth from 2017 to 2019. The faster growth

from 2019 to 2022 was driven by faster spending growth in HOPDs, for which per enrollee spending grew on average 8.0 percent per year – twice the rate of 2017-2019 annual growth (4.1 percent). The faster growth in HOPD spending from 2019 to 2022 is due, in part, to a trend of surgeries shifting from inpatient to outpatient settings (for example, joint replacement surgeries—see **Chartpack: Post-acute care**). This trend also partly explains slow annual growth in commercial spending on hospital inpatient care (1.6 percent) from 2019 to 2022.

Exhibit 2.3. Average annual growth in spending per enrollee by site of care, 2017-2019 versus 2019-2022

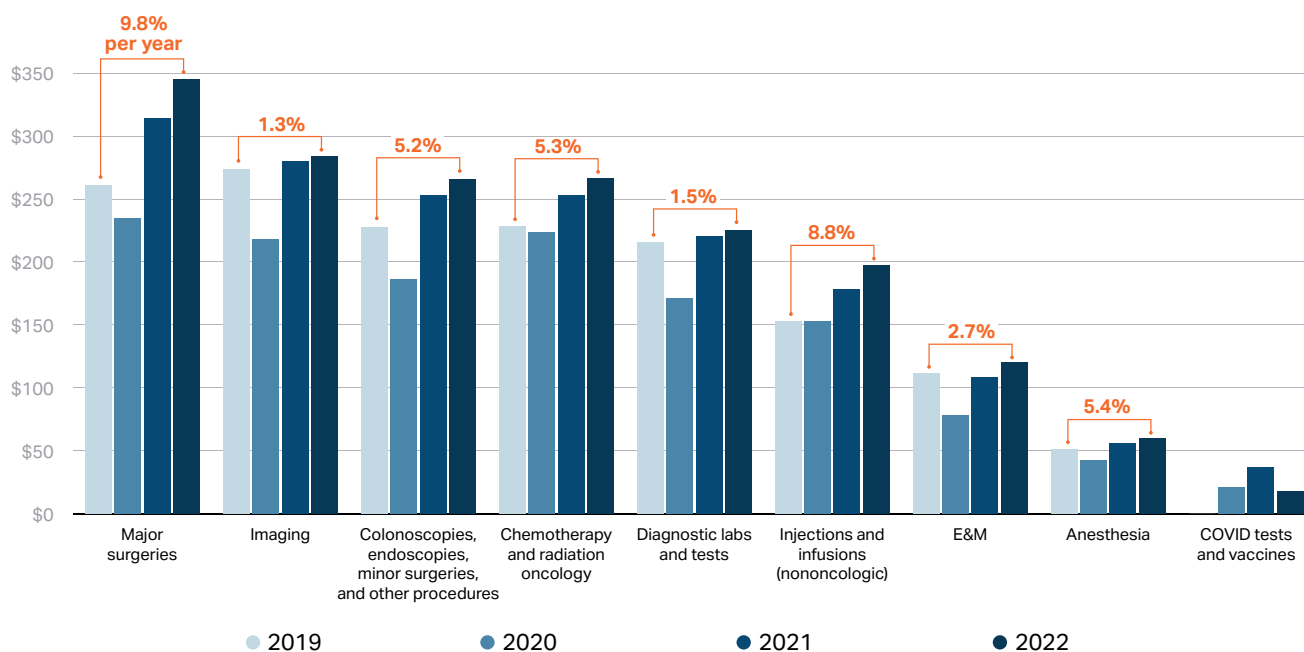


Notes: Pharmacy spending is net of rebates. Commercial spending represents full-claims only and does not include the net cost of private health insurance. Spending amounts in all hospital categories include both professional and facility spending (for example, professional fees incurred as part of a hospital surgery are included in hospital spending). This method contrasts with reporting by the Center for Health Information Analysis where all professional spending is grouped in a “professional” service category.

Sources: HPC analysis of Center for Health Information and Analysis (CHIA) All-Payer Claims Database V2021, 2017- 2019 and V2022, 2019-2022 (for hospital and office spending); CHIA Annual Report 2021 (2017-2019) and 2024 (2019-2022) (for pharmacy and overall spending)

vii Annual commercial spending growth in this section is somewhat lower than reported earlier (5.2% versus 5.5%) because it is based on spending growth for commercial payers reporting full claims only (not those reporting partial claims information) and excludes the net cost of private health insurance.

Exhibit 2.4. Commercial spending per member per year for HOPD services by type of service, 2019-2022



Notes: E&M = evaluation and management services. Includes spending from Massachusetts acute hospitals only. Service categories adapted from Restructured BETOS Classification System 2023 and Agency for Health Care Research and Quality Surgery Flags Software. Categories are mutually exclusive, e.g., diagnostic labs and tests category does not include COVID-19 tests. Categories with small spending amounts are omitted (e.g., durable medical equipment).

Sources: HPC analysis of Center for Health Information and Analysis (CHIA) All-Payer Claims Database V2022, 2019-2022

The large increase in HOPD spending varied by type of service. Major surgeries had the highest growth in per member per year (PMPY) spending from 2019 to 2022 (from \$261 to \$346), with an average annual growth rate of 9.8 percent (see **Exhibit 2.4**), reflecting increases in both price and utilization, as noted later in the chapter. Spending growth for non-oncologic injections and infusions, as well as chemotherapy and radiation oncology, was also relatively high, with average annual increases in PMPY spending of 8.8 percent and 5.3 percent from 2019 to 2022, respectively. Together these two categories (non-oncologic injections and infusions and chemotherapy and radiation oncology) represented 25 percent of all HOPD spending in 2022. Colonoscopies, endoscopies, and other minor procedures, likewise, also experienced high average annual growth in PMPY spending of 5.2 percent (see **Chapter 3**).

Pharmaceutical spending was the other major driver of faster commercial spending growth from 2019 to 2022 compared to the earlier 2017 to 2019 period. Net of rebates, pharmacy spending per enrollee grew an average of 8.2 percent per year from 2019 to 2022, compared to an average of 0.7 percent per year from 2017 to 2019.

This rate of growth contributed meaningfully to overall commercial spending growth from 2019 to 2022: if pharmacy spending had instead grown at the benchmark rate (3.1 percent), average annual growth in total spending would have been 4.1 percent, rather than 5.2 percent. The specific types of drugs driving this increase along with additional discussion about expectations for future trends is discussed in the next section and **Sidebar: Expectations for future pharmacy spending**. When combined with spending on clinician-administered drugs (many of which fall into the chemotherapy and the infusion and injection HOPD spending categories highlighted in the previous paragraph), drugs accounted for 24.4 percent of commercial spending in 2022.^{viii}

As in prior years, the increase in prescription drug spending was driven by branded drugs, which comprise only 15 percent of commercial pharmacy volume, but account for the majority of prescription drug spending on a gross basis (roughly 80 percent).² Even after accounting for rebates, which have grown year over year, the HPC has shown that the share of prescription drug spending represented by branded drugs has increased over time.²

viii Pharmacy spending is net of rebates. Drug spending excludes vaccines.

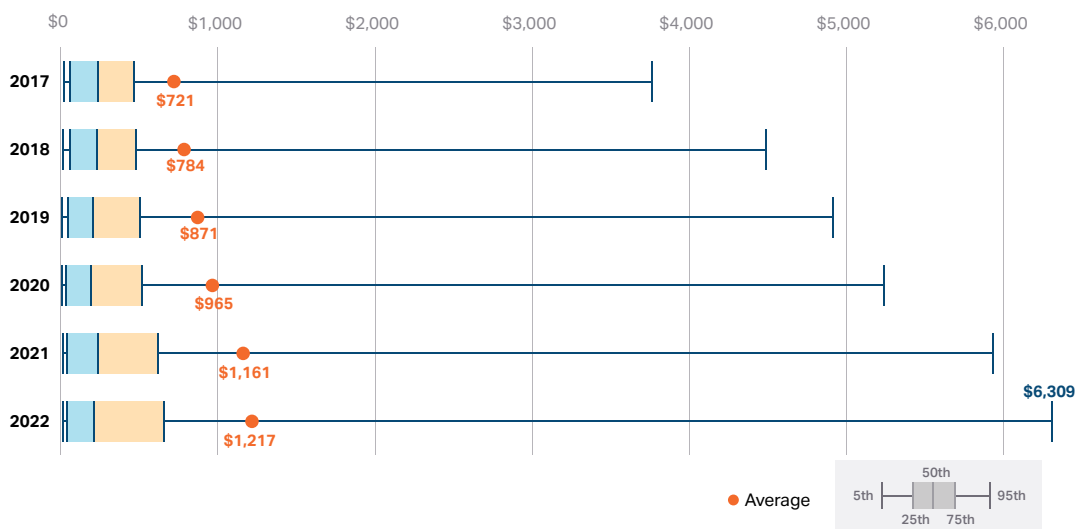
Growth in branded drugs' share of prescription drug spending in this period was driven by price increases on existing drugs and high launch prices for new drugs.^{4,5} These factors have led to a 68.9 percent growth in average gross spending per branded prescription from 2017 to 2022, from \$721 to \$1,217 (**Exhibit 2.5**). Five percent of prescriptions filled in 2022 had prices exceeding \$6,309.

Patients with chronic health conditions who rely on branded drugs are particularly affected by higher drug prices. The HPC analyzed patient cost sharing associated with several chronic conditions that

rely primarily on branded drugs for treatment. From 2017 to 2022, the average cost sharing per prescription (30-day supply) for each class of drugs grew by 50 percent or more, with the exception of insulin (**Exhibit 2.6**). There was increased policy focus on cost sharing for insulin drugs over this period, which may be partly responsible for the decreases in 2021 and 2022.

Notably, cost sharing for antiarthritic drugs and drugs for multiple sclerosis (MS) increased by 148.0 percent and 119.7 percent from 2017 to 2022, respectively.

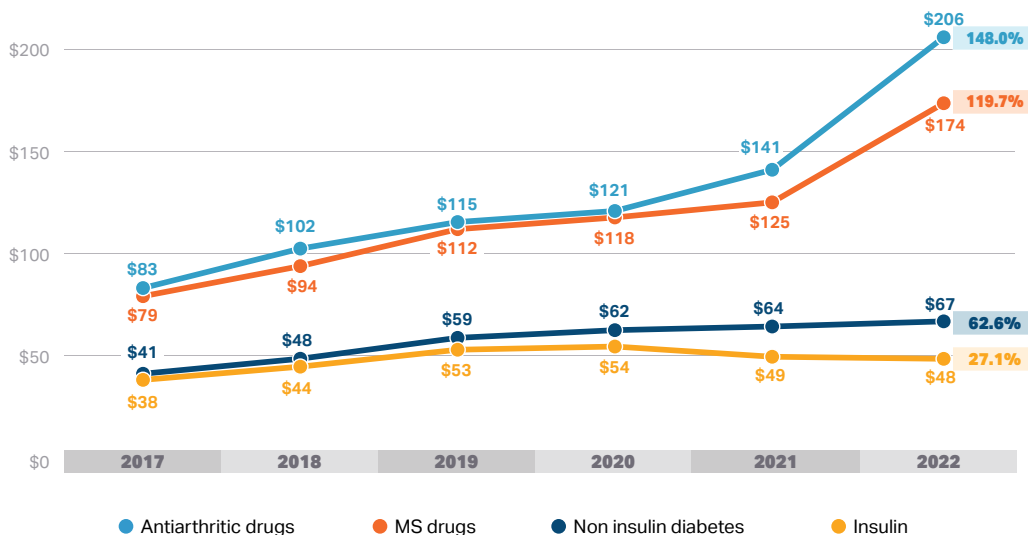
Exhibit 2.5. Distribution of gross spending per branded prescription, 2017-2022



Notes: Pharmacy claims include data from five payers: BCBSMA, Tufts, HPHC, MGB Health Plan, and HNE. COVID-19 vaccines are excluded.

Sources: HPC analysis of Center for Health Information and Analysis (CHIA) All-Payer Claims Database, V2021, 2017 and V2022, 2018-2022

Exhibit 2.6. Average cost sharing per prescription (30-day supply) in selected classes of drugs, 2017-2022



Notes: Drugs were identified based on lists or clinical guidelines published by the Arthritis Foundation, American College of Rheumatology, American Diabetes Association, and National MS society. The analysis does not include clinician-administered drugs, which are typically covered under a plan's medical benefit. Pharmacy claims include data from five payers: BCBSMA, Tufts, HPHC, MGB Health Plan, and HNE.

Sources: HPC analysis of Center for Health Information and Analysis (CHIA) All-Payer Claims database, V2021, 2017 and V2022, 2018-2022

PHARMACY SPENDING TRENDS BY DRUG CLASS

Prescription drugs have consistently been one of the service categories with the highest spending growth, with annual increases above the benchmark in most years since 2014. From 2021 to 2022, total net-of-rebate prescription drug spending grew 8.3 percent across all payers and 10.5 percent for commercial payers.³ In addition to the high overall spending growth, there were notable and distinct trends by drug class.

Using gross commercial prescription drug spending data from CHIA, the HPC found that immunosuppressants have been the biggest driver of spending growth in recent years (**Exhibit 2.7**). This class of medications, which reduces the body’s immune response and is used for conditions including autoimmune disorders and organ transplants, accounted for more than 60 percent of gross commercial prescription drug spending growth from 2018 to 2022. A single brand within this class – Humira – was responsible for 13.6 percent of commercial gross prescription drug spending growth from 2018 to 2022 and had the highest total gross spending of any prescription drug each year during this time.

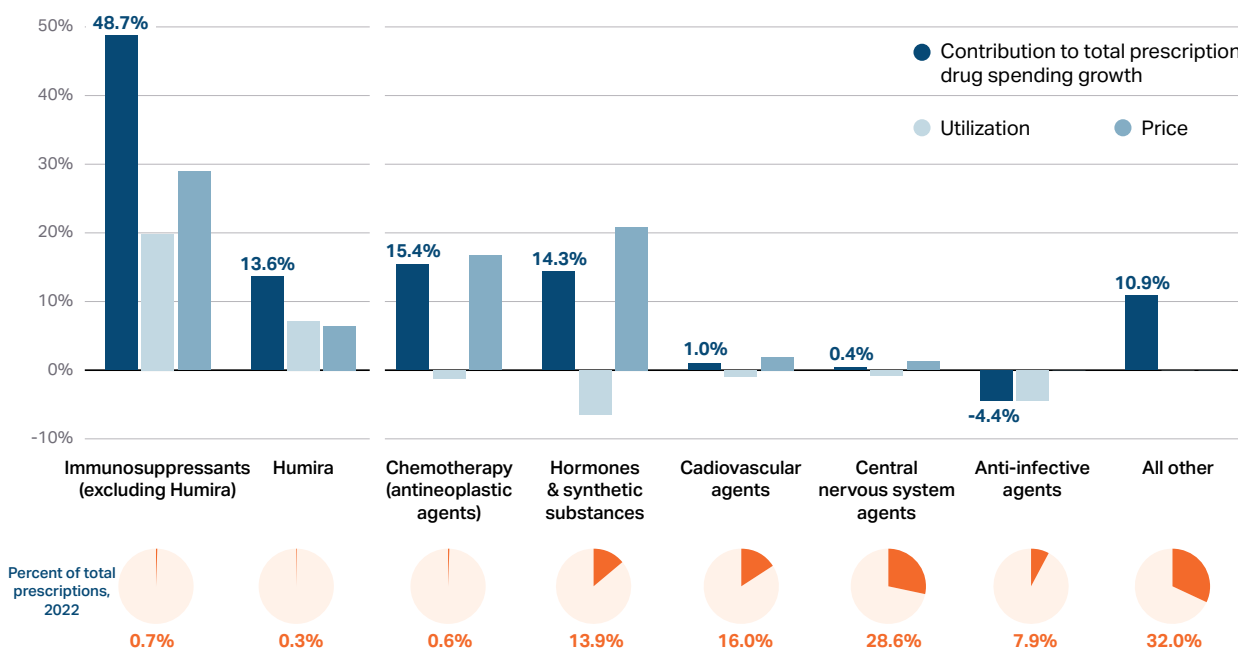
Growth in immunosuppressant spending was driven by price increases for existing drugs as well as new entrants and increased utilization. For example, Humira’s list price was \$13,589 for an annual supply in 2003 and subsequently grew to an estimated \$84,000 in 2022, representing more than a 500 percent increase.⁶ Net-of-rebate price growth for Humira is likely more moderate but still substantial.⁷ Utilization of drugs in this category also increased

significantly since Humira launched, in large part due to the approval of its use for additional indications. Humira was originally approved in 2002 for the treatment of rheumatoid arthritis in adults and was subsequently approved for other conditions for adult and pediatric patients including psoriatic arthritis (2005), Crohn’s disease (2007), plaque psoriasis (2008) and ulcerative colitis (2012). A similar dynamic of increases in both prices and indication-driven utilization was found among other top spending immunosuppressants, such as Stelara, Enbrel, and Dupixent. Combining increases in utilization and prices, national estimates suggest that net spending for immunosuppressants increased 186 percent from 2018 to 2023.⁸

These dynamics contrast with trends found in other classes such as chemotherapy, where price increases alone have been the primary driver of spending growth. Rebates also play a smaller role for this class of drugs: chemotherapy agents generally do not compete directly with each other and are often paid under the patients’ medical benefit, which typically involve less rebate negotiation.⁸

Finally, there are other classes of prescription medications that contributed little to drug spending growth from 2018-2022, such as cardiovascular agents and central nervous system agents. These classes are dominated by generic use and tend to account for large prescription volume and small shares of spending. For estimates of future drug spending trends and analysis of factors, see **Sidebar: Expectations for future pharmacy spending**.

Exhibit 2.7. Contribution to gross commercial prescription drug spending growth by select drug class, price vs utilization, 2018-2022



Notes: Clinician-administered drugs are not included. Therapeutic class based on Red Book.

Sources: HPC analysis of Center for Health Information and Analysis (CHIA) report, Commercial Prescription Drug Use & Spending, 2018-2022. Available at: <https://www.chiamass.gov/prescription-drugs>

EXPECTATIONS FOR FUTURE PHARMACY SPENDING

Prescription drug spending is expected to continue increasing at high rates in the future. Between 2019 and 2023, net spending on retail prescription drugs and clinician-administered drugs in the U.S. grew an average of 5.2 percent per year, and such spending is projected to continue to grow between 4 and 7 percent per year over the next five years.⁸ Growth will likely be driven by increased utilization and new products, while overall prices are expected to moderate. Specifically, spending growth for immunosuppressants is expected to slow while chemotherapy is projected to be a leading driver of spending growth.^{8,9} More than 100 new oncologic drugs are expected based on the current pipeline, focusing increasingly on drugs that treat relatively narrow patient populations with high price tags.⁸ Glucagon-like peptide-1 (GLP-1) agonists, a class of drugs approved for diabetes and chronic weight management including semaglutide, tirzepatide and others, are also projected to be a major contributor of spending growth. The HPC analyzed GLP-1 prescriptions through September 2023 and found that 3.2 percent of Massachusetts commercial members were prescribed a GLP-1 drug in the first nine months of 2023, a 7-fold increase compared to 2018.¹⁰ Total gross commercial spending on GLP-1 drugs in Massachusetts is projected to surpass \$270 million in 2023, more than doubling the amount in 2022.

The impact of biosimilar drugs on spending is uncertain. Biosimilars are FDA-approved biologic drugs that are very similar to original biologic drugs, which are complex molecules made with biological material. Biosimilars may be made in different ways and of slightly different materials than the original drug, but to earn FDA approval, must have no clinically meaningful differences from the original drug. While new biosimilar products could offset future spending growth by offering lower prices, the degree will depend on the speed of approvals and payer uptake. As of late July 2024, biosimilars have been approved for only 17 biologic agents in the U.S., compared to the more than 300 biologic medicines on the market.^{12,ix} Uptake of biosimilars has varied dramatically by molecule, ranging from 8 percent of volume for insulin lispro (Humalog) to 82 percent for bevacizumab (Avastin).¹² Notably, multiple biosimilars of Humira that launched in 2023 only captured 2 percent of national volume of adalimumab by the end of 2023, due to AbbVie, the drug manufacturer that makes Humira, offering discounts to pharmacy benefit managers, as well as patient preference differences in the formulation between Humira and its biosimilars.^{x,12} Furthermore, biosimilars may still have high prices that may be only marginally less expensive than prices for the originator drug: for example, in 2023, the lowest cost biosimilar to Humira (Amjevita) cost more than double the launch price of Humira.⁷ Lastly, some research also suggests that biosimilar adoption does not necessarily lead to lower patient cost sharing.¹¹ The market for biosimilars will likely continue to evolve at a rapid pace.

Lastly, cell and gene therapy (CGT) is another important area of focus. CGT is an emerging generation of treatments that modify genetic material to fight and sometimes cure diseases, many of which are serious and

relatively rare. While these treatments may have transformative clinical impact, they come with extraordinarily high costs. Many of the most expensive drugs in the U.S. are CGTs. Among the 37 CGTs approved by the FDA to date, many regimens cost over \$1 million, with Lenmeldy being the most expensive, at \$4.25 million for a one-time treatment for children with a rare genetic disease.¹² Spending on these therapies will likely make up a small share of total spending overall due to their limited patient populations, the costs associated with these treatments pose significant challenges for public and private payers.¹³ Payers may not realize downstream savings from these therapies, as patients may change insurance coverage. Patient access to these treatments, as well as financial sustainability, may depend on development of novel financing strategies.¹⁴ One example is CMS' Center for Medicare and Medicaid Innovation (CMMI) new Cell and Gene Therapy Access Model, a voluntary model for state Medicaid programs and manufacturers, in which CMS would negotiate with manufacturers on behalf of all state participants regarding pricing and individual patient outcome measures.¹⁵ Other proposed strategies include population outcomes-based agreements, where outcomes are measured as averages across the patient population (reducing the burden of following individual patients over time and potentially across payers), and the creation of risk pools, where payers contribute a portion of patient premiums into a fund from which payments for CGT are made.¹⁶ Proposed legislation in Rhode Island would establish a risk pooling program.¹⁷ In Massachusetts, Harvard Pilgrim Health Care has reportedly negotiated outcomes-based agreements with gene therapy manufacturers covering Luxturna, Zolgensma, and Zynteglo, while some state Medicaid programs – including Massachusetts – have implemented outcomes-based contracts for Zolgensma.¹⁶

Policy developments could impact these trends. Unlike many other countries, the U.S. does not generally regulate or negotiate the price of drugs, leaving the negotiation to commercial and individual government payers, often through pharmacy benefit managers (PBMs). However, the Inflation Reduction Act signed into law in 2022 gave Medicare the authority to begin negotiating prices with manufacturers. The law is limited in its scope, as only 10 drugs were selected in the first round of negotiation, and the new prices will not go into effect until 2026.¹⁸ While the law directly impacts prices for the Medicare program, the negotiation results may have spill-over effects to commercial payers by helping them obtain better prices through their own negotiations. States have also been experimenting with policy approaches that target the high prices of certain branded drugs, such as through the establishment of prescription drug affordability boards. Eleven states now have such boards that monitor and review drug prices, with varying levels of authority to reduce spending.¹⁹ In February 2024, the Colorado Prescription Drug Affordability Board deemed the arthritis medication Enbrel to be unaffordable for patients in the state and voted to apply an upper payment limit to the drug. Amgen, the drug manufacturer that makes Enbrel, filed a lawsuit challenging the board's action and authority.²⁰

Mitigating the impact of drug spending on patients and payers while protecting access to innovative and effective therapies will require continued policy action to moderate prices and price growth and to increase transparency and accountability at all points in the pharmaceutical supply chain. In particular, access to drug-specific rebate data is needed to improve analysis of trends in Massachusetts, since the lack of transparency in net spending presents challenges to oversight.

ix Biosimilar approval based on HPC analysis of the U.S. Food & Drug Administration database of FDA-Approved Biosimilar Products. Accessed July 25, 2024. Data current as of July 22, 2024. Available at: <https://www.fda.gov/drugs/biosimilars/biosimilar-product-information>

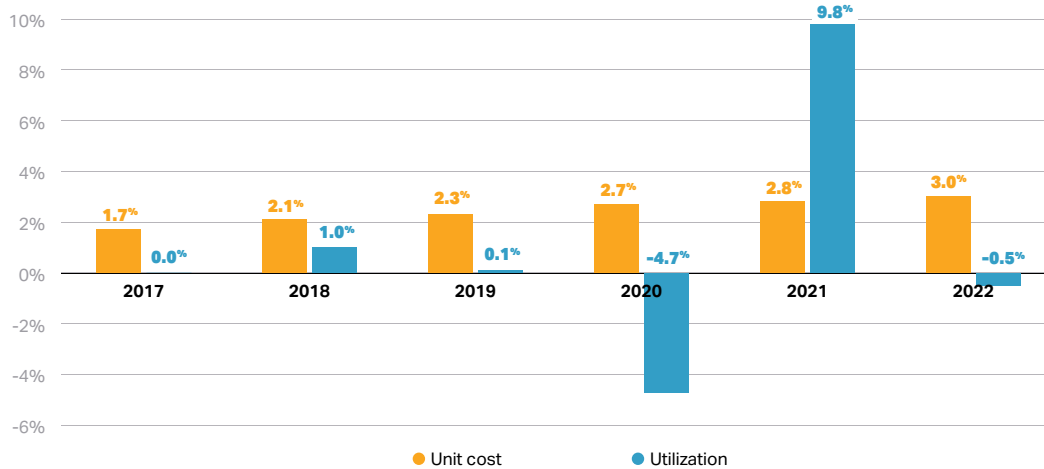
x AbbVie introduced a citrate-free version of Humira in 2018. Citrate serves as a preservative in medications but can cause pain upon injection, so citrate-free formulations are preferred by some patients. Not all FDA-approved biosimilars of Humira are citrate-free.

SPENDING GROWTH: CONTRIBUTIONS OF PRICE AND UTILIZATION

Growth in commercial spending in 2022, and during the 2019-2022 period, was primarily the result of continued acceleration in the amount paid for given services (prices), and less so due to an increase in the amount of care used (utilization). This trend is illustrated in **Exhibit 2.8** with data reported by one large payer in the commercial market.

These findings are consistent with HPC analysis of the 2019 to 2022 period which found substantial average price increases across all broad service categories examined, while changes in utilization (number of services used) were smaller or negative (see **Exhibit 2.9**). More detail on prices and price trends is available in **Chartpack: Commercial price trends**.

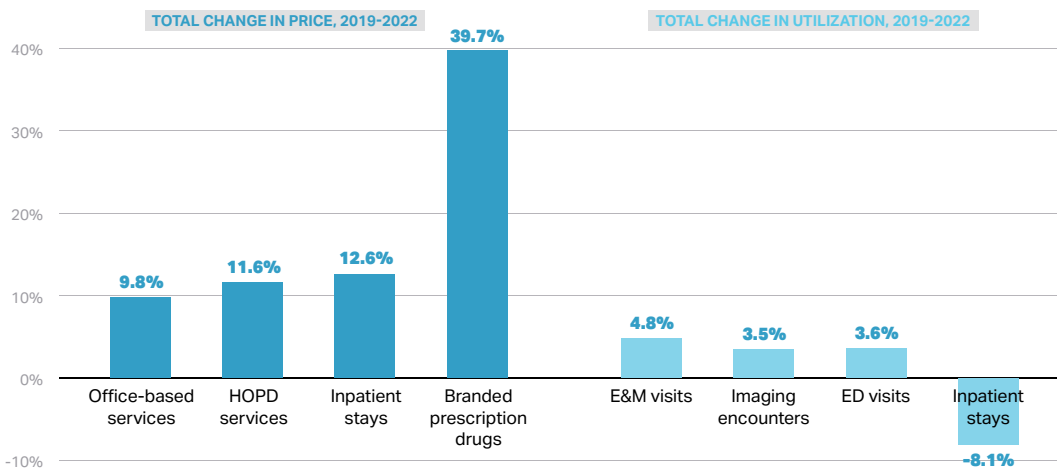
Exhibit 2.8. Annual percent change in commercial unit costs (prices) and utilization for Blue Cross Blue Shield of Massachusetts



Notes: E&M = evaluation and management services. In payer-reported decomposition analyses of the drivers of spending growth such as these, utilization is typically not measured directly, but rather assumed to account for the 'residual' of the remainder of spending growth after changes in prices and provider or service mix are accounted for.

Sources: Pre-Filed Testimony submitted to the HPC in advance of the 2021, 2022 and 2023 Annual Cost Trends Hearings

Exhibit 2.9. Changes in prices and per-member utilization of key service categories for the Massachusetts commercial population, 2019-2022



Notes: Average prescription drug price increases are gross of rebates and are for branded drugs excluding COVID-19 vaccines. E&M visits include all visits with codes 99201-99205 and 99211-99215.

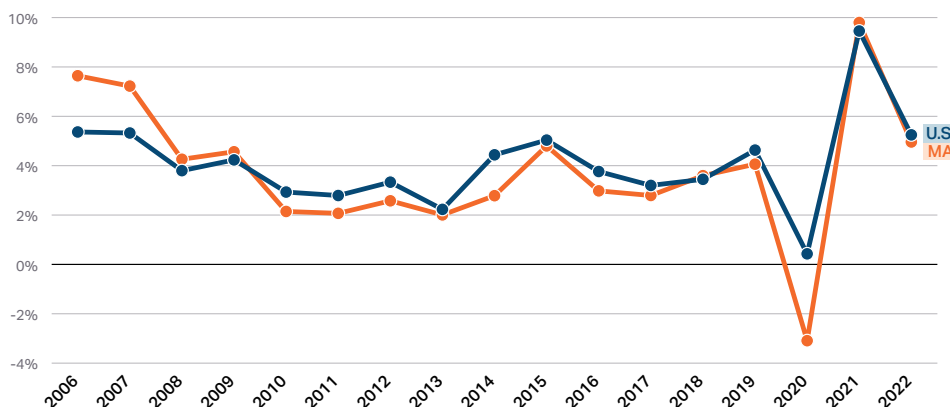
Sources: HPC analysis of Center for Health Information and Analysis (CHIA) All-Payer Claims Database V2022, 2019-2022, Hospital Inpatient Discharge Database and Emergency Department Discharge Database

COMPARISON TO NATIONAL TRENDS

While above the benchmark, Massachusetts' total health care spending growth in 2022 was slightly below the national rate.^{xi} With similar patterns of year-to-year variation, spending growth in Massachusetts has generally been lower than national growth since 2010, except in 2021, when Massachusetts experienced slightly higher growth after disruptions in care due to the COVID-19 pandemic (**Exhibit 2.10**).^{xii}

Despite lower overall growth in most recent years, Massachusetts remains among the highest-spending states in the U.S., with the third highest spending in both 2019 and 2020, after New York and Alaska.^{xiii} While the relatively slower growth from 2010 to 2022 reduced the gap between Massachusetts and the U.S. in total per capita spending on a percentage basis (from 36 percent to 27 percent), the gap has grown on a dollar basis, from \$1,784 in 2009 to \$2,171 in 2022 (**Exhibit 2.11**). More than half of the additional \$2,193 in annual health care spending per person in Massachusetts in 2019 was accounted for by higher hospital spending in Massachusetts.

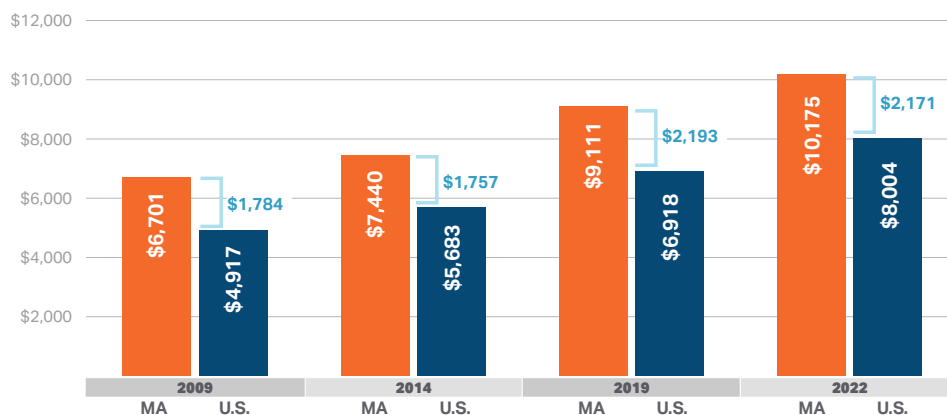
Exhibit 2.10. Annual growth in total health care spending per capita in Massachusetts and the U.S.



Notes: U.S. data includes Massachusetts. U.S. data excludes federal COVID-19 relief funding.

Sources: Centers for Medicare & Medicaid Services, National Healthcare Expenditure Accounts Personal Health Care Expenditures Data, 2014-2022 and State Healthcare Expenditure Accounts, 1999-2014; Center for Health Information and Analysis (CHIA), Total Health Care Expenditures, 2014-2022

Exhibit 2.11 Total health care spending per capita in Massachusetts and the U.S. overall, 2009-2022



Notes: U.S. data includes Massachusetts. Massachusetts and U.S. data exclude federal and state COVID-19 relief funding. See Sources for more details.

Sources: U.S. figures and spending growth are sourced from Centers for Medicare & Medicaid Services (CMS) National Health Expenditures. Massachusetts (MA) spending growth from 2009 to 2019 was sourced from CMS State Healthcare Expenditure Accounts. The 2020-2022 MA figures are sourced from Center for Health Information and Analysis (CHIA) Annual Reports 2023-2024 and exclude COVID-19 relief funding. The CMS data includes additional spending not included in CHIA's THCE reporting (e.g. spending data for some employers are not reported to CHIA). To make the data consistent with THCE, an adjustment was applied to all U.S. figures based on the ratio of MA spending according to CMS in 2019 and MA spending according to CHIA in that year.

xi The 2022 national spending figure was calculated using CMS U.S. personal health expenditures minus federal COVID-19 spending, which includes Paycheck Protection Program (PPP) loans, Provider Relief Fund (including American Rescue Plan Act Rural Payments), and additional COVID-related Health Resources and Services Administration (HRSA) programs. Because of these adjustments to create more valid comparisons, the additional MassHealth supplemental spending that occurred in Massachusetts in 2022 was removed from the state totals as well, resulting in Massachusetts' per capita spending growth of 5.0 percent.

xii Massachusetts spending growth was also slightly higher than the U.S. average in 2018.

xiii HPC analysis of Centers for Medicare & Medicaid Services (CMS) State Healthcare Expenditure Accounts (2009-2020). Data reported include all 50 states and exclude Washington D.C.

When compared to national estimates, per member spending in the commercial sector increased more slowly in Massachusetts from 2021 to 2022 than in the U.S. overall (**Exhibit 2.12**).^{xiv} However, considering the overall period covering the pandemic and pandemic recovery, average annual commercial spending from 2019 to 2022 was higher in Massachusetts (5.2 percent) than in the U.S. average (3.8 percent), driven by significantly higher growth between 2020 and 2021.

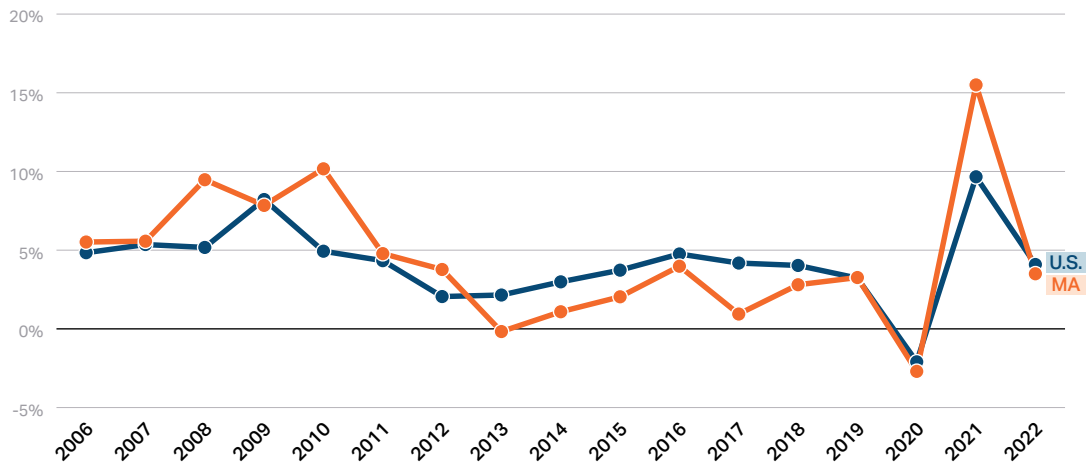
Implications of this rapid growth in commercial health care spending for the affordability of care are discussed in the next section.

AFFORDABILITY OF CARE

The rapid growth in commercial health care spending from 2019-2022, including health care premiums and cost sharing, added further strain to Massachusetts residents' ability to afford health

care while meeting other essential needs. Health insurance premiums increased 15.2 percent in total over this period, amounting to an average of \$8,054 for single plans and \$23,348 for family plans in 2022 (family premiums increased further to \$26,355 in 2023, 2nd highest in the U.S.).^{xv} Ten percent of residents' premiums exceeded \$31,000 annually in 2022. This growth occurred even as the percentage of members with high deductible plans increased from 37 percent to 42 percent (which lowers premiums but shifts spending to out-of-pocket spending). The percentage of members with deductibles in excess of \$2,500 annually increased from 11.5 percent in 2019 to 18.2 percent in 2022. When accounting for out-of-pocket spending, average health care spending for a family of four in Massachusetts in 2022 exceeded \$26,000— a figure that approaches the full annual salary of a minimum wage worker that year.^{xvi}

Exhibit 2.12. Annual growth in per capita commercial health care spending, Massachusetts and the U.S.



Notes: Massachusetts data represent full-claims members only. Commercial spending is net of prescription drug rebates and excludes net cost of private health insurance.

Sources: Centers for Medicare and Medicaid Services, National Healthcare Expenditure Accounts Personal Health Care Expenditures, 2014-2022 and State Healthcare Expenditure Accounts 2005-2014; Center for Health Information and Analysis (CHIA) Annual Report on the Performance of the Massachusetts Health Care System 2014-2022

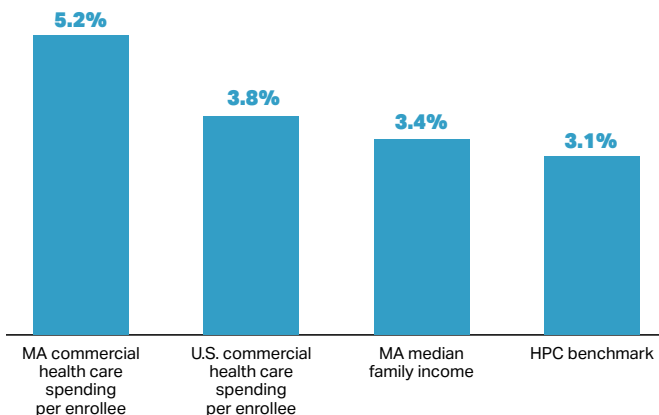
xiv Differences in commercial spending growth from 2021 to 2022 reported earlier (5.1%) versus in Exhibit 2.12 (3.5%) are due to the inclusion of the net cost of private health insurance (NCPHI) and partial claims in the earlier figure, which are excluded in Exhibit 2.12.

xv Data in this section are sourced from CHIA's Annual Reports (2023-2024) and the Agency for Health Care Research and Quality, Medical Expenditure Panel Survey. CHIA's data represents fully-insured premiums only while the data from AHRQ represents all employer-sponsored private insurance.

xvi Minimum wage in 2022 was \$14.25 in Massachusetts. Thus, a full-time minimum wage worker would earn \$28,500 before taxes if working 2,000 hours.

Importantly, over the 2019-2022 period, commercial spending growth (and premiums) also outpaced growth in Massachusetts family income and the HPC benchmark (Exhibit 2.13), ultimately compounding health care affordability challenges for state residents.

Exhibit 2.13. Average annual growth in commercial health care spending, family income and the HPC benchmark, 2019-2022

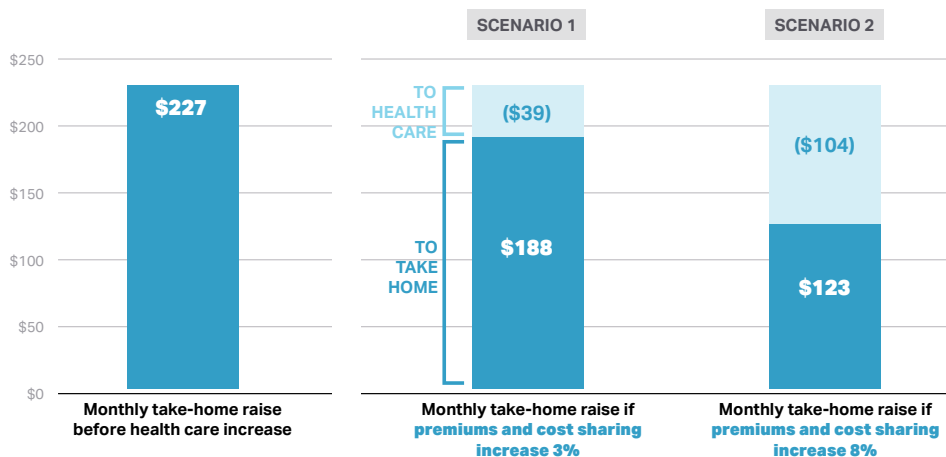


Sources: HPC analysis of data from the Center for Health Information and Analysis (CHIA) and the Center for Medicare and Medicaid Services (National Health Expenditure Accounts), 2019-2022; Median income based on the American Community Survey 1-year tables, family income. Inflation based on the Consumer Price Index (CPI-U)

Health insurance premiums and out-of-pocket spending increases that exceed income growth have immediate consequences for workers and their families. Exhibit 2.14 shows the impact of such premium and cost sharing increases on how much additional take-home pay a typical worker with a median family income (\$117,000 in 2022) would see in their paychecks following an annual salary adjustment. In a scenario in which an employer grants a 3 percent raise, typical employees would experience a roughly \$227 increase in monthly take home pay after taxes but before accounting for any increase in health insurance premiums or out-of-pocket costs.

If health insurance premiums and out-of-pocket spending were to increase by 3 percent, the value of the employee’s raise would decrease from \$227 per month to \$188 per month. An increase of 8 percent in health insurance premiums and out-of-pocket spending (representing a typical rate increase in the individual and small group market in 2022) would consume nearly half (46 percent) of that raise.^{xvii} Increases in health insurance premiums and out-of-pocket payments reduce residents’ take-home pay and their ability to afford rising costs of housing, transportation, childcare and other aspects of their lives. Furthermore, they may also lead employers to lay off workers in cases in which they are unable to absorb or pass on the health care cost increases to their employees. A recent study found that a 5 percent increase in hospital prices leads to a 2 percent reduction in jobs outside of the health care sector, with the greatest impact being on employees with wages between \$20,000 and \$100,000.²¹

Exhibit 2.14. Consequences of health insurance and out-of-pocket spending increases on worker after-tax take home pay given a 3% raise



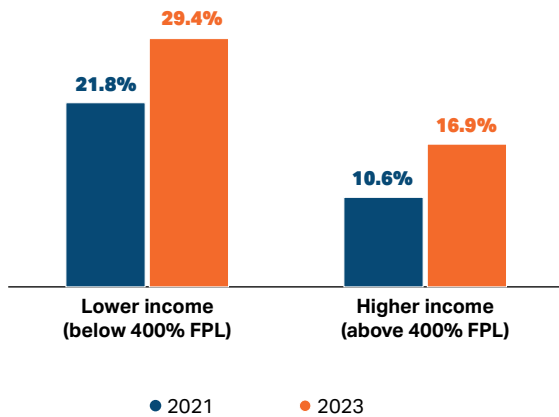
Notes: The 3% raise represents a 3% increase in total compensation inclusive of the employer’s health care spending on behalf of the employee. Modeling assumes that 1) 75% of employees in the firm take health care coverage offered by the hypothetical employer, 2) the employee faces a 20% average tax rate on salary and a 30% marginal tax rate on the salary increase, and 3) employer and employee premium contributions are not taxed but out-of-pocket spending is after-tax.

xvii Average merged market (the insurance market for individual purchasers and employers with fewer than 50 employees) premium increases exceeded 8% for three of the four quarters of 2022. Data from the Massachusetts Division of Insurance.

Increases in costs (health care premiums, deductibles and copayments) also lead people to avoid needed care.³ HPC analysis of 2023 survey data from CHIA finds that, among persons with employer-sponsored insurance, those with lower incomes were roughly twice as likely to go without needed physician care, mental health care or prescription drugs due to cost (**Exhibit 2.15**). Furthermore, these proportions increased from 2021 to 2023 for residents with both higher and lower incomes: from 22 to 29 percent for individuals with income below four times the federal poverty level and from 11 to 17 percent for individuals with higher income.

In all, these findings show concerning trends for the Commonwealth: rising health insurance premiums and out-of-pocket costs leading to more residents going without needed care, paying off increasingly large medical bills, and needing to devote a higher share of their income to health care while leaving less for other priorities. The HPC’s recommendations to address these challenges without sacrificing quality of health care are found later in this report.

Exhibit 2.15. Proportion of residents avoiding need care due to cost by community income, 2021 and 2023



Notes: Data includes Massachusetts residents covered by employer-sponsored insurance with continuous coverage in the previous 12 months. Unmet healthcare needs are considered for the respondent and their family. The survey question asked, "Was there any time in the past 12 months that, due to cost, you did not get needed care of the type indicated?" The figure shows the percentage of residents who responded that they did not get needed physician care, mental health care, or prescription drugs due to cost.

Sources: HPC analysis of Center for Health Information and Analysis (CHIA), 2021 and 2023 Massachusetts Health Insurance Surveys

Consistent with the results in **Exhibit 2.15**, the survey also found an increase from 2021 to 2023 in the proportion of residents with employer-sponsored insurance reporting any affordability issue (from 47.8 percent to 50.5 percent among those with lower income and from 22.4 percent to 26.2 percent among those with higher income) and in the amount of medical bills residents reported paying off over time. Among the 20 percent of residents with lower incomes paying off medical bills over time, the proportion with bills exceeding \$2,000 increased from 36 percent to 51 percent from 2021 to 2023.

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CHAPTER 3:
**VARIATION IN
INTENSITY OF CARE**

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INTRODUCTION

A key part of the mission of the Massachusetts Health Policy Commission (HPC) is to examine drivers of health care spending and spending growth in the Commonwealth. Numerous factors drive spending, many of which have been examined in previous Cost Trends Reports, including prices, the amount of care used, where that care is provided (for example, in a doctor's office or a hospital outpatient department), and changes in population acuity (whether through true changes or through provider coding practices). An additional factor that is not captured in price or utilization trends but can also impact spending is the intensity of the care provided, in particular, the choice of a higher- versus lower-resource approach to treat a given condition or event. Data reported to the Massachusetts Health Policy Commission pursuant to its 2023 Annual Cost Trends Hearing suggest that increasing care intensity accounts for approximately 10-15 percent of health care spending growth over the 2019-2022 period.

Changes in care intensity can result from shifts in the technology of how health care is provided. For example, as described elsewhere in this report, the shift of joint replacement operations from requiring a full hospital inpatient stay to being performed as a same-day outpatient surgery reflects changing technology of care delivery (note, this shift would decrease care intensity, all else equal).

Changes in care intensity also reflect variation in how providers practice medicine. Definitive, evidence-based guidelines do not exist to inform most clinical decisions, leaving clinicians to apply their own subjective judgment to many, if not most, clinical situations.¹ This situation is not inherently problematic. Clinicians spend many years building experience and knowledge and developing clinical judgment. But even assuming best efforts at objectivity, there are many forces that exist in the U.S. health care system that explicitly or implicitly encourage care that is more intensive, sometimes more invasive, and ultimately more expensive. Those forces can be structural (e.g. the availability of

more hospital beds, high tech treatments and diagnostic tools like MRIs, and whether clinician practices are hospital-owned)^{1,2,3}; financial (e.g. higher reimbursement for specialist services or more invasive treatments)⁴; cultural (e.g. community or physician group practice patterns)⁵; and individual (e.g. risk tolerance or beliefs about evidence).⁶ Those forces can be influenced by additional factors such as patient preferences (though studies typically find that patient preferences play little to no role in systematic variation, such as variation in intensity of care between regions)^{6,7} and the impact of industry marketing and promotion of products or services.⁸

This complicated mix of influences leads to substantial variation in the types of care that different patients receive for the same diagnosis, both warranted and unwarranted, and often results in increased costs without commensurate improvements in quality or outcomes. Such variation in medical practice and treatment intensity has been observed across countries, regions within the U.S., practices within regions, and even among physicians within practices. For example, U.S. residents receive roughly 50 percent more CT and MRI scans than the average of 10 advanced countries, suggesting a higher-tech approach to treatment.⁹ As another example, just 11 percent of U.S. births are attended by nurse midwives (with the remainder generally attended by Ob/Gyn physicians) in contrast to 50-75 percent among other high-income countries.^{10,11} Within the U.S., researchers from Dartmouth have documented extensive variation in practice for similar groups of patients, finding, for example, that patients in high spending regions of the U.S. in their last six months of life spent twice as much time in the ICU and were twice as likely to receive intense interventions, such as vena cava filters, emergency intubation, and feeding tubes, as patients in lower spending regions.¹²

In a more recent investigation of physician practice variation within the U.S., researchers documented extensive variation in physician practice patterns even in areas of care with guidelines concerning appropriateness of care. For example, they found that patient C-section rates for low-risk births ranged from 3 percent to over 60 percent across physicians and that patient use of physical therapy before elective knee or hip replacement (which is recommended) ranged from 4 percent to 65 percent among physicians.¹³ Similarly, analysis by the HPC has found that given

i A recent review found that just half of currently recommended care practices across medical specialties in the U.S. were based on evidence of improved patient outcomes, and only 18 percent were supported by consistent and unbiased evidence. See Ebell, M. H., Sokol, R., Lee, A., Simons, C., & Early, J. (2017). How good is the evidence to support primary care practice?. *BMJ Evidence-Based Medicine*.

the subjectivity and discretion involved in the decision of when to admit a patient from the emergency department for an inpatient stay, hospitals in Massachusetts vary enormously in that decision, admitting between 13 percent and 45 percent of patients for the same set of conditions even after controlling for patient comorbidities and other factors (see **Chartpack: Hospital utilization**).

In this chapter, the HPC makes use of four case studies to characterize variation in treatment intensity with regard to commercially insured residents of the Commonwealth. Variation is shown at the level of the provider organization, which reflects less of the variation that might exist from physician to physician (e.g. individual beliefs), and more of the variation that might stem from differences in peer-group culture and organizational incentives. As the number of potential clinical scenarios is vast and nuanced, the HPC chose scenarios that met the following criteria: 1) the scenario encompasses a large number of commercial patients and amount of commercial spending, 2) there exist clinical guidelines or research suggestive that the higher-intensity treatment alternative(s) within the scenarios may be overused.

Since this analysis relies on claims data rather than detailed medical records that contain additional information such as patient preferences, laboratory values, and patient prior history, the HPC research is not able to evaluate the appropriateness of a given care strategy for any individual patient. Furthermore, some variation observed by provider group may reflect differences in patient populations—yet given the large number of patients involved in each scenario, it is unlikely that all of it does. Ultimately, the aim of the chapter is to explore variation and initiate discussions oriented toward improving the delivery of health care such that it meets the goals of affordability, patient-centeredness, and high quality outcomes for all residents.

A. C-SECTION DELIVERIES

The use of cesarian section (C-section) delivery for low-risk births versus vaginal delivery is a particularly high-volume example of practice pattern variation in treatment intensity. C-section is the most frequent surgical procedure performed in the U.S.¹⁴ It is a potentially life-saving intervention, necessary in some cases to protect the lives and health of the birthing parent and newborn. Compared to vaginal deliveries, C-sections have some

advantages, including lower risk of pelvic muscle injury and urinary incontinence for the birthing parent, and potentially lower risk to the baby compared to alternative procedures (such as use of forceps) that might be needed to assist a vaginal delivery.^{15,16} However, the procedure carries other risks such as higher risk of maternal infection, additional short-term and long-term surgical complications and a longer recovery time, potential health risks to the baby, and a higher risk of complications in subsequent deliveries.¹⁷ Furthermore, when a birthing person has a C-section delivery, subsequent vaginal deliveries can be more complicated; thus, future births are also often by C-section.^{18,19} For certain cases, such as a breech-position baby where efforts to turn the baby head-down before birth have been unsuccessful, clinical consensus indicates C-section.²⁰ In other cases, clinical consensus is clear that the risks of C-section outweigh the benefits, such as elective C-section solely due to convenience. But in many cases, the use of C-section exists in a gray area.

Researchers have estimated that population C-section rates should be between 15 and 19 percent of all births to optimize the health of the baby and birthing person.²¹ Yet in the U.S., approximately one in three births are delivered by C-section, higher than the median rate of 28 percent among OECD countries,ⁱⁱ and an increase from roughly 20 percent in 1996.^{22,23} In an effort to limit unnecessary C-section deliveries, the U.S. CDC has promulgated a goal of 23.6 percent of low-risk births being delivered by C-section though its Healthy People program,²⁴ and the Leapfrog group regularly tracks hospitals' performance relative to this goal.²⁵

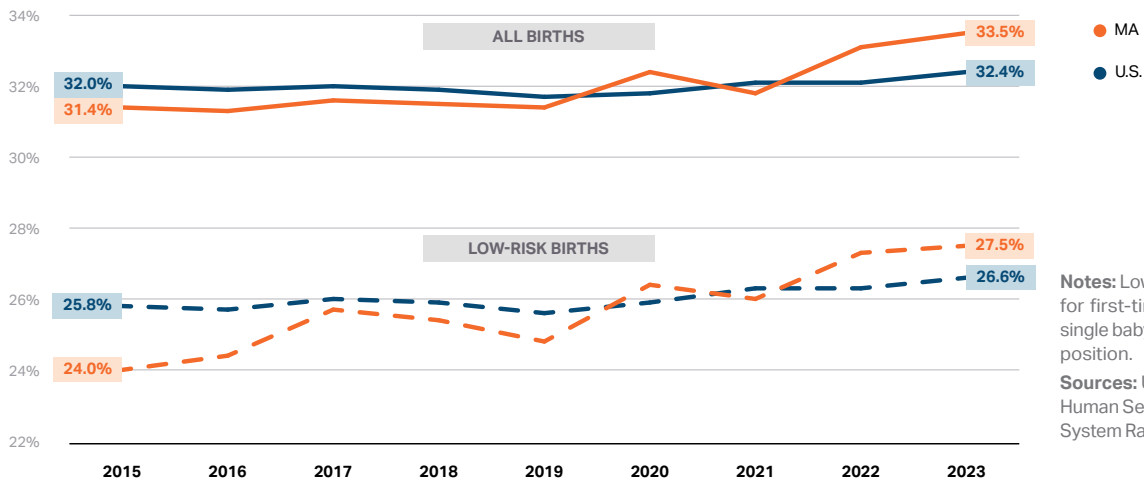
Many factors have been shown to lead to higher C-section rates, such as lack of use of nurse midwives, overuse of technology such as continuous fetal monitoring for low-risk birthing people (which can lead providers to overestimate risk of fetal distress),²⁶ labor and delivery room layout and management,²⁷ and the profitability of the procedure.^{14,28} Researchers have generally found that differences in preferences between patients play a minimal role in observed variation in C-section rates.^{29,30} Prior HPC research has also found lower C-section rates in Massachusetts hospitals with greater use of nurse midwives.³¹ The HPC has identified higher total and out of pocket patient costs for C-section deliveries compared to vaginal deliveries.³²

ii There is considerable variation by country, from 14.8% in Israel to 53.1% in Turkey.

Exhibit 3.1 displays the percentage of all births and low-risk births in Massachusetts and the U.S. that were delivered by C-section from 2015 to 2023. The statewide C-section rate in Massachusetts was slightly below the U.S. average from 2015 to 2019, but increased from 31.4 percent to 33.5 percent for all births and from 24.8 percent to 27.5 percent for low-risk births from 2019 to 2023. By 2023, Massachusetts rates exceeded the Healthy People target for low-risk births, and greatly exceeded the WHO’s recommended optimal rate of 15-19 percent C-sections overall.

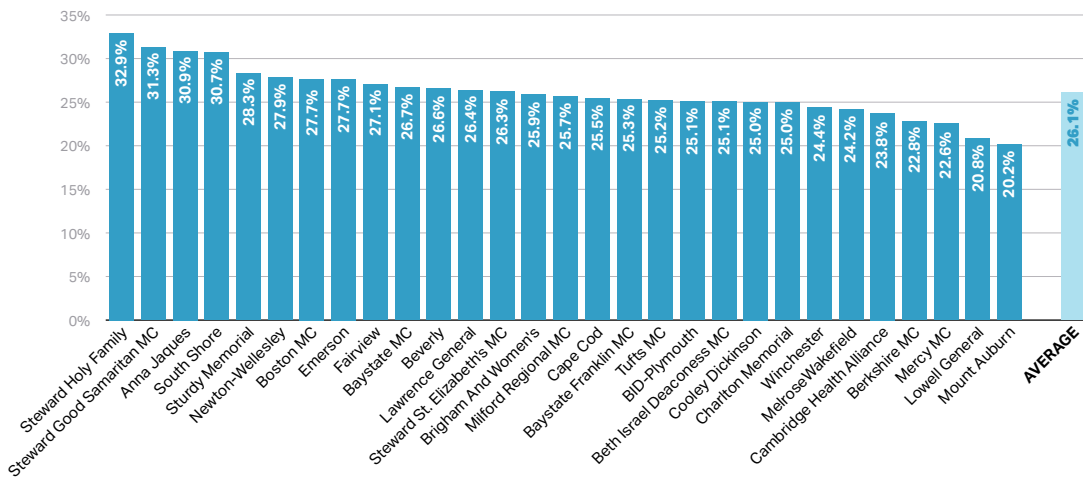
There is also considerable variation in C-section rates within Massachusetts among low-risk births by hospital (**Exhibit 3.2**). C-section rates for low-risk births across Massachusetts hospitals, aggregated from 2018 to 2022, ranged from one in five at Mount Auburn Hospital to one in three at Holy Family Hospital.ⁱⁱⁱ Between 2021 and 2023 when the large statewide increase occurred, the C-section rate for all births increased by more than two percentage points in 14 hospitals while declining by more than two percentage points in four hospitals.^{iv}

Exhibit 3.1. Percentage of births by C-section in MA and the U.S., overall and for low-risk births, 2015-2023



Notes: Low-risk is defined as C-sections for first-time mothers giving birth to a single baby, at full-term, in the head down position.
Sources: U.S. Department of Health and Human Services, National Vital Statistics System Rapid Release Tables, 2017-2024

Exhibit 3.2. C-section rates for low-risk births by hospital, 2018-2022 average



Notes: Low-risk is defined as C-sections for first-time mothers giving birth to a single baby, at full-term, in the head down position. Hospitals included are those with data for years 2018-2022. Some hospitals did not report data for any year and 14 hospitals had at least one year of missing data and were therefore not included in the exhibit, including Falmouth Hospital, Health Alliance Clinton, Heywood Hospital, Holyoke Medical Center, Massachusetts General Hospital, Metrowest Medical Center, Morton Hospital, Norwood Hospital, Salem Hospital, Signature Brockton Hospital, St. Luke’s Hospital, Saint Vincent Hospital, Tobey Hospital, and UMass Memorial Medical Center.
Sources: HPC analysis of Center for Health Information and Analysis Annual Report Databooks, 2021-2024

iii Massachusetts hospitals with lower C-section rates also tended to have better performance on avoiding episiotomies according to data reported in the Center for Health Information Analysis’ 2024 Annual Report.
 iv Based on HPC analysis of the Center for Health Information and Analysis (CHIA) Hospital Inpatient Discharge Database, FY2021-preliminary FY2023, the hospital with the largest increase was Steward St. Elizabeth’s Medical Center, whose C-section rate increased from 33% to 42%, the highest of all hospitals in the state.

Finally, the HPC found increases in C-section rates for all racial/ethnic groups studied from 2021 to 2023 in Massachusetts, but a persistently higher C-section rate among Black birthing people compared to that of other racial and ethnic groups (**Exhibit 3.3**).^v

The HPC could not identify any differences in chronic disease status or other risk factors that could explain the differences in C-section rates by race/ethnicity. Notably, other researchers have similarly identified differences in C-section rates by race/ethnicity.^{33,34} One recent study of more than 1 million births in New Jersey found that persistently higher C-section rates among Black birthing people were not due to health-related factors but, instead, were due to “a higher propensity of doctors to perform C-sections on low-risk Black patients when the costs of doing so are low,” that is, when the hospital had unused capacity in the operating room.³⁵

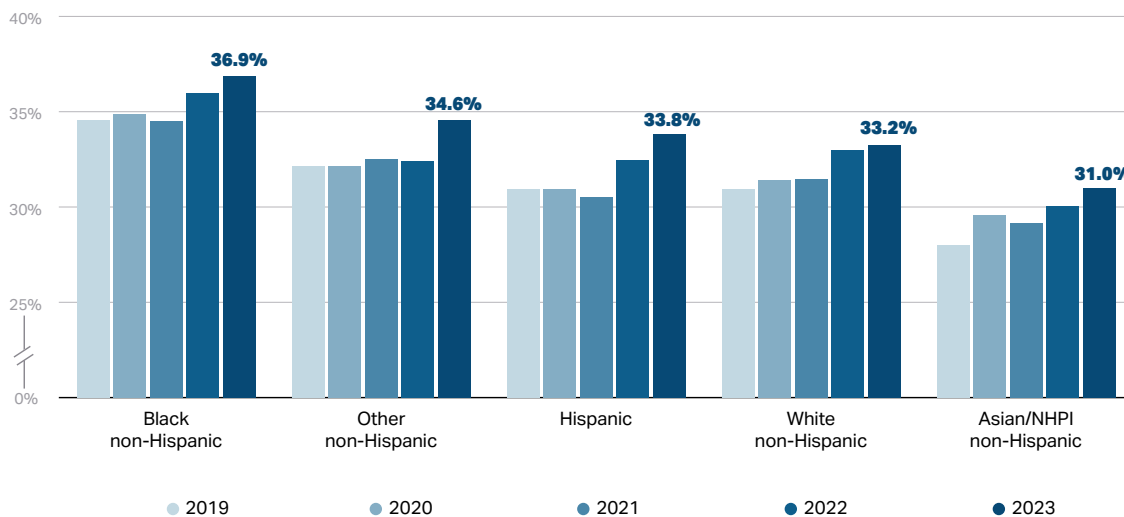
These differences in rates, absent differences in clinical indications, further suggest that non-clinical factors, such as the effect of structural racism and bias on maternal health outcomes, may influence variation in C-section rates.³⁴ This is an area that the

HPC has sought to address through care delivery transformation and investment programming, and will continue to explore.³⁶

B. KNEE OSTEOARTHRITIS

Knee osteoarthritis is characterized by knee joint pain related to changes in the tissue and cartilage, which can lead to discomfort, stiffness, and swelling. Several medical approaches are typically used in response, ranging in intensity from physical therapy (PT) to arthroscopic knee surgery or knee arthroscopy (inserting a small tool through an incision to diagnose and seek to repair the injury) to total replacement of the knee joint (arthroplasty). Recent research has found no benefit of arthroscopy on average.¹³ Evidence and guidelines support the use of physical therapy, which may resolve the pain on its own (and avert the need for surgery) and can also improve outcomes if a knee replacement is ultimately warranted.³⁷ Researchers have found substantial variation between physicians in their patients’ use of physical therapy prior to elective hip or knee replacement surgery (from 4 percent to 65 percent of a physician’s patients) and in use of arthroscopy (from 2 percent to 30 percent) even after adjusting for patient characteristics.^{37,38}

Exhibit 3.3. C-section rates for all birthing people by race/ethnicity, FY2019-2023



Notes: NHPI: Native Hawaiian / Pacific Islander. “Other non-Hispanic” group includes American Indian and Alaskan Natives, individuals with unknown or unreported race information, and individuals identified by the facility as a race other than those listed.

Sources: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, FY2019-preliminary FY2023

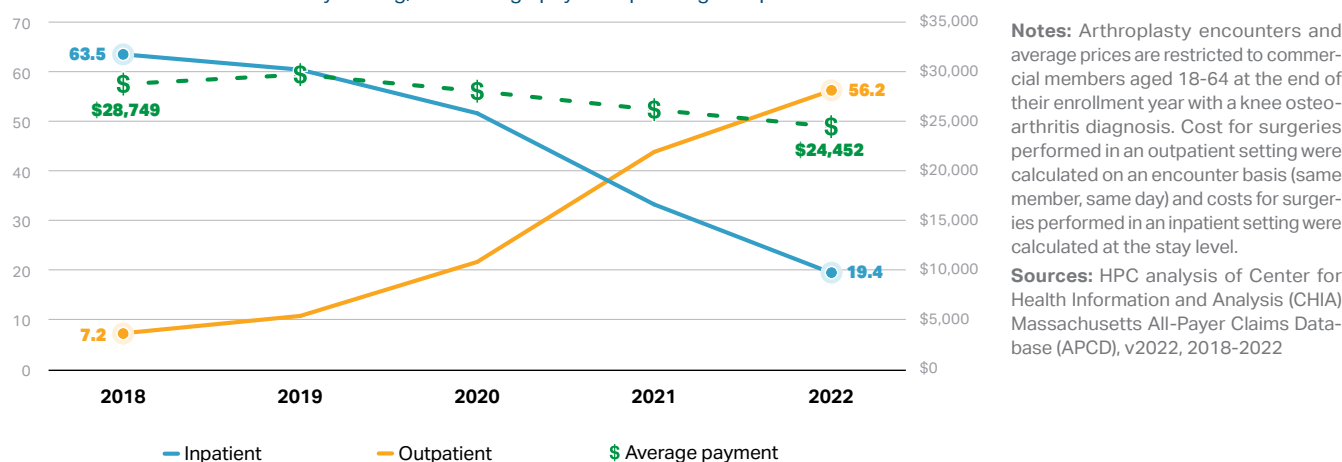
^v Note: the exhibit also reveals substantial differences at a point in time in C-section rates by racial/ethnic group, with particularly high rates among Black birthing people, which is continuing to be investigated. The HPC has not identified any differences in underlying health status, age, or comorbidity (e.g. rates of diabetes, substance use disorders, obesity, or hypertension) by race/ethnicity of birthing people that could explain these differences.

From 2018 to 2022, the volume of commercial knee replacement surgeries in Massachusetts increased by 6.8 percent while physical therapy encounters for patients with knee osteoarthritis increased by 5.8 percent. Total spending for commercially-insured residents with knee osteoarthritis likewise increased 8.6 percent from 2018 to 2022 – even though knee replacement shifted over this time from mostly an inpatient procedure to mostly an outpatient procedure, and as a result has decreased in price (**Exhibit 3.4**) from approximately \$29,000 to \$25,000 on average.

Consistent with other research, the HPC also found considerable variation in approaches to treatment across provider organizations

for their patients diagnosed with knee osteoarthritis. The proportion of patients undergoing knee replacement surgery within 12 months of their first diagnosis who had any use of physical therapy prior to the surgery ranged across Massachusetts provider organizations, from 7.7 percent to 53.6 percent. More broadly, provider organizations appear to exhibit varying orientation toward physical therapy relative to knee replacement: the ratio of use of physical therapy to knee replacement ranged from 2.7:1 to 1:1 for their commercially-insured patient populations (see **Exhibit 3.5**).^{vi} As noted above, while arthroscopy is generally considered ineffective for isolated knee osteoarthritis, several organizations employ it to a considerable degree, also shown in **Exhibit 3.5**.

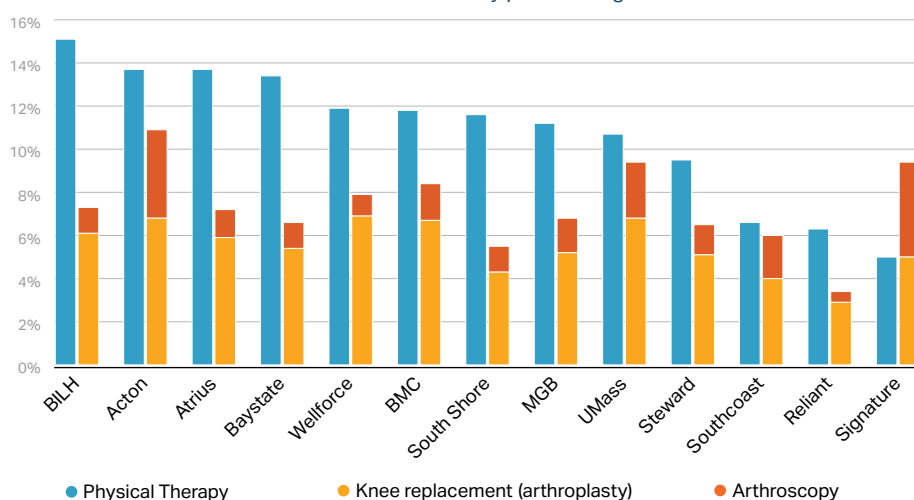
Exhibit 3.4. Number of knee replacements per 1,000 commercially-insured patients with knee osteoarthritis by setting, and average payment per surgical episode



Notes: Arthroplasty encounters and average prices are restricted to commercial members aged 18-64 at the end of their enrollment year with a knee osteoarthritis diagnosis. Cost for surgeries performed in an outpatient setting were calculated on an encounter basis (same member, same day) and costs for surgeries performed in an inpatient setting were calculated at the stay level.

Sources: HPC analysis of Center for Health Information and Analysis (CHIA) Massachusetts All-Payer Claims Database (APCD), v2022, 2018-2022

Exhibit 3.5. Variation in treatments provided to commercially-insured patients diagnosed with new knee osteoarthritis by provider organization, 2022



Notes: Members included in this sample include members aged 18-64 at the end of their enrollment year with 12 months of commercial coverage who could be attributed to a provider organization. Members had a new knee osteoarthritis diagnosis, defined here as having a first diagnosis in 2021. Treatments were identified up to 12 months after the initial diagnosis date. Members who had physical therapy (PT) 12 months after their first diagnosis but only after a knee replacement are not included in the share of members who had PT.

Sources: HPC analysis of Center for Health Information and Analysis (CHIA) Massachusetts All-Payer Claims Database (APCD), v2022, 2020-2022

vi Although these rates are grouped at the level of provider organizations based on primary care attribution, it should be noted that the decision regarding interventions for knee osteoarthritis often include orthopedic surgeons and practices, physical therapists, primary care clinicians, and patients themselves.

C. CORONARY ARTERY DISEASE AND CARDIAC CATHETERIZATION

Researchers have also found extensive variation in treatment for cardiovascular disease,^{39,40} which is the leading cause of death in the U.S.⁴¹ Coronary artery disease (CAD), a type of cardiovascular disease, is caused by plaque buildup that narrows or blocks the arteries that supply blood to the heart. The restriction of blood flow may result in stable angina – chest pain from physical activity or emotional stress. To determine whether a patient’s chest pain is due to CAD versus a different cause, a doctor can pursue a range of testing strategies, including less intensive (stress tests) and more intensive (cardiac catheterization). Clinical guidelines generally suggest stress testing before catheterization, as initial invasive procedures have not been found to reduce risks of cardiovascular events compared to more conservative strategies.^{37,42} Stress tests are simple exercise tests that can be performed in an office setting. By contrast, cardiac catheterization, where a catheter is inserted into a blood vessel and threaded to the heart to examine or diagnose heart conditions, is an intensive procedure that must be performed in a hospital setting.

Researchers have found that physicians employed by hospitals have higher rates of cardiac catheterization than independent physicians, including higher rates of cardiac catheterization without a preceding stress test and higher rates overall. This suggests that more aggressive use of high-intensity testing can be driven by structural or organizational factors and not strictly clinical and patient criteria.²

The HPC found that in Massachusetts, although the CAD diagnosis rate in the commercially insured population was stable from 2018 to 2022, the rate of stress tests per 1,000 commercial members with CAD has decreased 28 percent while catheterization encounters have increased 7.2 percent for this population. Consistent with those findings, the share of individuals with CAD who had a stress test prior to receiving a cardiac catheterization has declined over time, from 14.6 percent in 2018 to 10.7 percent in 2022. The percentage of individuals with stress tests prior to a catheterization varies considerably by provider organization, ranging from 6 percent to 16 percent (based on 2021 and 2022 data combined). Finally, consistent with the study noted earlier, the HPC found that provider organizations affiliated with hospitals were more likely to employ cardiac catheterization without a prior stress test: 11.3 percent of patients whose PCPs were affiliated with hospitals received a stress test prior to cardiac catheterization vs. 15.0 percent of patients whose PCPs were independent of hospitals (see technical appendix for data).^{vii,2}

vii As a proxy for PCP-hospital affiliation, the HPC compared the rate of cardiac catheterizations without prior stress tests among patients with CAD for patients attributed to Atrius and Reliant, the two large Massachusetts provider organizations not hospital owned or affiliated, with those for patients attributed to all other hospital-affiliated provider organizations.

D. COLORECTAL CANCER SCREENING

Finally, the HPC also examined provider variation in colorectal cancer screening. Cancer is second to cardiovascular disease as a leading cause of death in the U.S., and colon and rectal cancers together account for the second-largest share of U.S. cancer deaths. The lifetime risk of death from colorectal cancer is roughly 1.45 percent.⁴³ Both incidence of, and mortality from, colorectal cancer have declined by roughly half in the U.S. over the past several decades.⁴⁴

Screening of healthy asymptomatic patients can detect certain indicators associated with colorectal cancer, and several screening methods have been recommended at various intervals by the U.S. Preventive Services Task Force (USPSTF) for all individuals aged 45 to 75.⁴⁵ These recommendations are based on studies that have found a reduction in colon cancer mortality from screening (a recent study found no reduction, however)^{viii}, and the USPSTF estimates that adherence to its screening guidelines can reduce the lifetime risk of mortality from colon cancer by approximately 25%, that is, from approximately 1.8 percent to 1.3 percent.^{ix} The USPSTF also estimates that roughly 1 to 1.5 percent of those screened experience gastrointestinal and cardiovascular complications over the 30 year recommended screening period.

There are two broad strategies used to screen for colorectal cancer. One approach uses non-invasive stool-based testing performed by individuals at home. Guaiac fecal-occult blood tests (gFOBT) and fecal immunochemical tests (FIT) assess the presence of blood in the stool (which can be related to colon cancer) using a chemical-based or antibody-based approach, while stool-based DNA testing (sDNA) screens for DNA-based biomarkers for cancer cells. There is only one FDA-approved version of the latter (Cologuard), which also embeds a FIT test. Average commercial prices for these tests range from \$52 (FIT) to \$526 (Cologuard) in Massachusetts. Guidelines recommend the tests be repeated annually (FIT and FoBT) or every three years (Cologuard) and that positive results are followed up with a colonoscopy procedure.

viii Notably, a recent randomized controlled trial of colonoscopy among healthy adults aged 55 to 64 found an insignificant reduction in colorectal cancer mortality over 10 years among patients who were randomly selected to undergo colonoscopy versus those who were not (0.28% versus 0.31%) and no difference in mortality from all causes (11.03% vs 11.04%), see Bretthauer et al. Effect of Colonoscopy Screening on Risks of Colorectal Cancer and Related Death. *New England Journal of Medicine*. 2022.

ix This calculation is based on the following assumptions: 1) 1.45% overall mortality rate from colon cancer screening, 2) 70% of the target age population is currently participating in screening and 3) screening reduces colon cancer mortality by 26%.

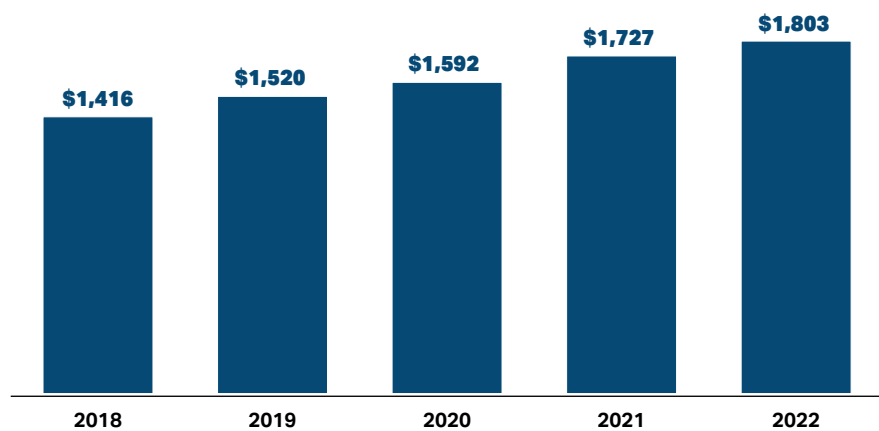
Colonoscopy is the other main approach used to screen for colorectal cancer. During a colonoscopy, a gastroenterologist inserts a scope with a camera into the rectum and colon to inspect the colon for signs of cancer, including precursors of cancer known as polyps. If polyps are found, they can be removed during the procedure. Colonoscopy can detect colorectal cancer more accurately than the stool-based methods and is recommended to be repeated every 10 years. The average price of a screening colonoscopy in Massachusetts was roughly \$2,500 between 2018 and 2022. The procedure also involves time and travel costs for patients (as well as for caregivers if the patient receives anesthesia and needs assistance with transportation); requires extensive patient preparation, including a limited diet, fasting, and use of laxatives; and is associated with a small risk of complications.

Colonoscopy can also be performed with different degrees of sedation. Traditionally, the gastroenterologist would employ moderate sedation for the patient, which can be directed by a nurse or the physician performing the procedure. Increasingly, practices employ full anesthesia, which is a deeper level of sedation, typically with propofol, that requires administration by an anesthesiology

professional. Full anesthesia typically adds hundreds of dollars to the cost of the procedure and can increase the risk of patient complications,^{46,47,48} though it can also increase patient comfort and increase patient throughput via shorter recovery times.^{x,49} Regional variation in anesthesia modes is extensive – one study found 53 percent of colonoscopy procedures employing full anesthesia in the Northeast compared to 8 percent in the Western U.S.⁴⁷

Given the range of options and differences in costs and other tradeoffs, the HPC investigated trends in use of colorectal cancer screening modes and sedation level among commercially-insured patients in Massachusetts. Approximately 4.3 percent of the commercial population was screened for colorectal cancer in 2022 using any of these modes, resulting in approximately \$285,000,000 in spending in 2022 – more than 1 percent of all commercial spending in Massachusetts in that year. Colonoscopy accounted for the vast majority of this spending.^{xi} **Exhibit 3.6** shows that spending per screening has increased over time in Massachusetts, from \$1,416 per screening in 2018 to \$1,803 in 2022, an increase of 27 percent.

Exhibit 3.6. Commercial spending per colorectal cancer screening encounter over time, 2018-2022



Notes: Screening methods include FIT, FoBT, Cologuard, colonoscopy and other direct visualization methods. Incomplete screenings were excluded. Colorectal cancer screenings were identified through CPT procedure codes, ICD10 diagnosis codes, and procedure modifiers. Encounters may include additional services or screenings provided on that date, including moderate sedation or anesthesia services, laboratory and pathology, as well as physician or other health professional services. Screenings provided in inpatient, observation, emergency department, or urgent care settings were excluded. See technical appendix for details.

Sources: HPC analysis of the Center for Health Information and Analysis (CHIA) All-Payer Claims Database (APCD), V2022, 2018-2022.

x Blue Cross Blue Shield of Massachusetts announced that full anesthesia was not medically necessary and announced in late 2023 that it would not be covered. However, in the ensuing months, after pushback from providers, they rescinded enforcement of the policy. <https://www.bluecrossma.org/myblue/colonoscopy-sedation>.

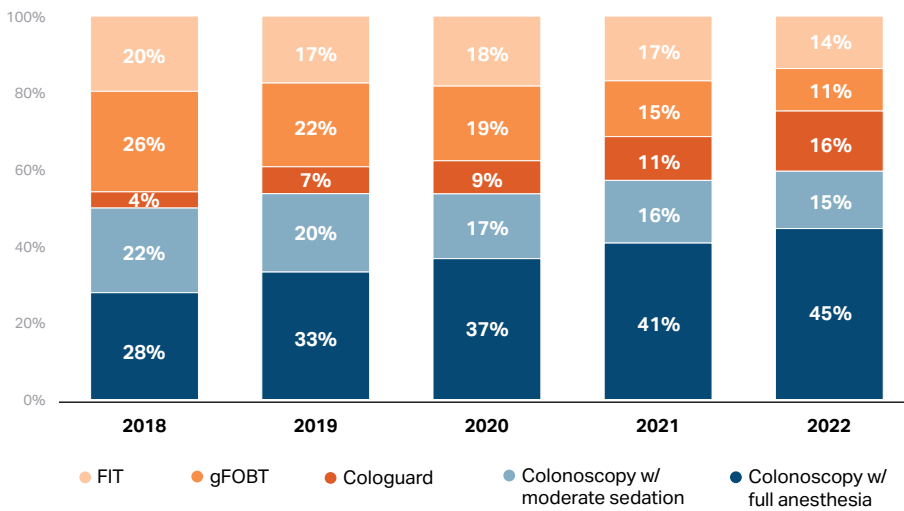
xi Screening colonoscopy accounted for approximately \$260 million in commercial spending in Massachusetts in 2022. A national study found that screening colonoscopy accounted for \$23.7 billion in spending in the U.S. as a whole in 2021, more than half of combined spending for all types of screening for colorectal, breast, cervical, lung and prostate cancer combined. See <https://www.acpjournals.org/doi/10.7326/M24-0375>.

Part of this increase is due to an increase in prices, but approximately half of the increase is due to shifting screening methods: that is, the increasing use of colonoscopy (and increasing use of full anesthesia) and the decreasing use of FIT and gFOBT as screening methods (Exhibit 3.7). In 2018, colonoscopy accounted for half of colorectal cancer screenings and FIT and gFOBT comprised most of the remainder (46 percent). By 2022, colonoscopy accounted for 60 percent of screens while FIT and gFOBT comprised just one in four.

Screening modes varied extensively by provider organization in 2022 (Exhibit 3.8). For example, Reliant and Boston Medical

Center patients were among the least likely to use colonoscopy as a screening tool (less than half of patients) and most likely to use other methods, though Reliant patients mostly used Cologuard over FIT (with a ratio of roughly 5:1) while BMC patients mostly used FIT over Cologuard (a ratio of roughly 4:1). Other provider groups such as Signature, Baystate, and Acton Medical used colonoscopy with full anesthesia as their predominant screening tool. Use of moderate sedation was employed for 25 percent of BILH patients and 27 percent of patients at MGB, but ranged from minor to negligible at most other provider organizations.

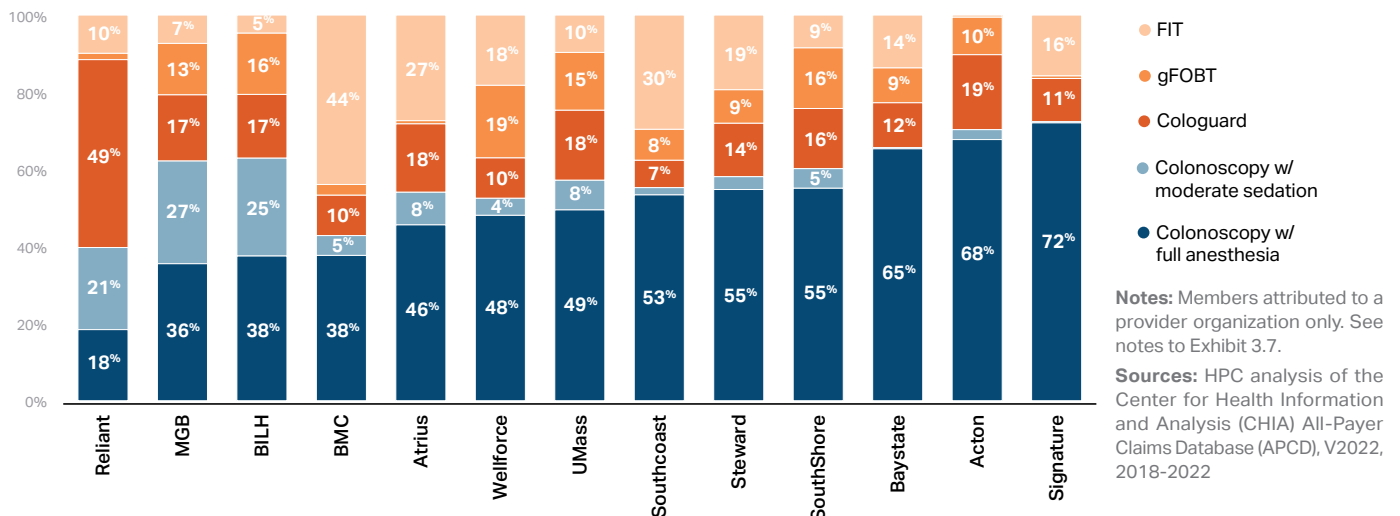
Exhibit 3.7. Distribution of colorectal cancer screening modes among commercial patients, 2018-2022



Notes: Incomplete screenings were excluded. Screenings were identified through CPT procedure codes, ICD10 diagnosis codes, and procedure modifiers. Colonoscopy includes other types of direct visualization. Encounters may include additional services or screenings provided on that date, including moderate sedation or anesthesia services, laboratory and pathology, as well as physician or other health professional services. Screenings provided in inpatient, observation, emergency department, or urgent care settings were excluded. Moderate sedation and anesthesia care were identified through CPT procedure codes, ICD10 diagnosis codes, procedure modifiers, anesthesia drug or professional codes, and revenue codes. See technical appendix for details.

Sources: HPC analysis of the Center for Health Information and Analysis (CHIA) All-Payer Claims Database (APCD), V2022, 2018-2022

Exhibit 3.8. Variation in colorectal cancer screening mode among commercial patients by provider organization, 2022



Notes: Members attributed to a provider organization only. See notes to Exhibit 3.7.

Sources: HPC analysis of the Center for Health Information and Analysis (CHIA) All-Payer Claims Database (APCD), V2022, 2018-2022

DISCUSSION

This degree of variation across a range of common medical scenarios suggests opportunities among the payer, provider, and policy communities to further understand the underlying drivers of variation and to seek to improve care delivery to achieve better outcomes for patients while improving the affordability of care. Below are several recommendations that could help to address some of the sources of this variation not due to underlying patient differences.

Tracking, reporting, and quality improvement: Provider organizations often perform assessments and improvement initiatives to uncover variation among their own providers that may be unwarranted and misaligned with evidence-based practices.^{50,51} Publicly-reported information on variation at the institutional level can motivate provider organizations to explore the sources of that variation, leveraging detailed data and quality improvement practices to identify root causes down to the level of practices and individual providers. These types of efforts can engage clinicians and appeal to professionalism while motivating organizations and individuals to improve.⁵² As an example, one Massachusetts hospital partnered with Ariadne Labs, a Massachusetts-based center for health systems innovation, in an initiative to reduce its C-section rate and lowered the rate of C-sections in the target population by 4 percent in the first six months of the project.⁵³ In another, the California Maternal Quality Care Collaborative partnered with hospitals to share C-section rate data, clinical best practices, and uncover hospital-specific barriers to lowering C-section rates. The statewide C-section rate for low-risk births was reduced during the period of the engagement from 26.0 percent to 22.8 percent.⁵⁴ These efforts can be supported and motivated by further reporting of data and variation, which will continue to be an important part of the HPC’s research and reporting, and by partnering with providers to elevate best practices and recognize successes.

Provider financial incentives: As noted above, one factor that can lead to use of higher-intensity care is financial incentives. When there are multiple treatment alternatives that can be clinically justified, but that offer providers or health systems different degrees of profitability, care delivery can tilt toward the more profitable alternative – which is often the higher-intensity option.^{xiii} Health systems sometimes transfer these incentives to provide more, and higher-intensity care to their providers through use of “productivity incentives” in which they reward their employed providers with higher pay in proportion to how much the care they provide would be billed under the Medicare fee schedule.^{55,56} One study found that physicians facing such productivity incentives tend to provide higher-intensity, higher-cost care,⁵⁷ while another study in an academic medical center found that these incentives led physicians to order more tests and procedures (including when they were only marginally indicated) and spend less time with patients, with an overall decrease in quality of care.⁵⁸ Health systems might reconsider their use of productivity incentives in physician compensation – which have also been shown to contribute to physician burnout.⁵⁹

More fundamentally, policymakers could directly address the underlying problem of prices that overly reward higher-intensity care, relative to its cost. Washington state, for example, implemented innovative pricing constraints in its signature public option plan within its exchange, such that commercial prices could not exceed 160% of what Medicare would have paid overall, but prices for primary care services had to be at least 135% of what Medicare would pay.⁶⁰ Such constraints could help to reduce differences in profitability of higher-intensity care versus lower-intensity care.

Overuse of high-intensity care is also a motivation for alternative payment models and global budgets, yet the penetration of these models has stalled in Massachusetts and their effectiveness can be undermined through gaming of the risk adjustment methodologies they typically employ.^{61,62,63}

xiii The Medicare Payment Advisory Commission has found, for example, that Medicare’s fee schedule (which is typically replicated, and even exacerbated, in private insurer fee schedules) generally overpays for services such as procedures, images, and tests relative to cognitive services (e.g. evaluation and management visits). A reason for this is that high-tech, capital-intensive health care interventions often become more efficient and cheaper over time (as opposed to cognitive services that primarily involve clinician-patient time). Yet Medicare’s resource-based relative value scale (RBRVS) payment system, which bases prices on the estimated costs of interventions as they are newly introduced, does not typically reflect these efficiency gains. See MedPAC Report to the Congress: Medicare and the Health Care Delivery System, June 2018. In the private market, these differences can be exacerbated by the greater market power that hospitals or specialist physicians may have in negotiations with insurers. Commercial prices are generally higher, relative to Medicare, for hospital-based and specialist physician services relative to primary care services. See Congressional Budget Office, “The Prices That Commercial Health Insurers and Medicare Pay for Hospitals’ and Physicians’ Services”, January 20, 2022.

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CHAPTER 4:
**2024 HEALTH CARE
COST TRENDS
REPORT POLICY
RECOMMENDATIONS**

CHAPTER 4:

2024 HEALTH CARE COST TRENDS REPORT POLICY RECOMMENDATIONS

The bankruptcy and dissolution of Steward Health Care, the third largest hospital system in Massachusetts, led to substantial disruptions in the state's health care market and has taken a significant toll on communities, patients, provider organizations, and health care workers across Massachusetts. Recognizing the HPC's unique role and expertise in health care market monitoring, the HPC has chosen to focus the 2024 Cost Trends Report Policy Recommendations on addressing the causes and consequences of this ongoing tragedy, some of which remain to be seen.

The policy actions detailed below would serve to better protect the health care system, workforce, and patients from predatory actors, strengthen market oversight and transparency, including transactions involving private equity, and ensure greater market stability moving forward. These reforms would also address long-standing market dysfunctions that underlie both financing inequities and the drive to provider consolidation.

In previous years including in the [2023 Health Care Cost Trends Report](#), the HPC has advanced recommendations such as strengthening the existing health care cost growth benchmark, creating new benchmarks for affordability and equity goals, enhancing oversight of pharmaceutical spending, enhancing accountability from health plans for affordability, increasing investment in primary and behavioral health care, strengthening the health care workforce, addressing administrative complexity, and advancing health equity for all. Urgent action on those recommendations, as well as the reforms described below, will enable Massachusetts to rebuild a stronger health care system that is **affordable, equitable, and puts patients first**.

1. STRENGTHEN AND EXPAND THE STATE'S MARKET

OVERSIGHT TOOLS. Massachusetts' current market oversight processes should be enhanced to allow for better monitoring and accountability of all actors in the health care market.

A. Strengthen and Expand the Material Change Notice

(MCN) Process. One of the key mechanisms through which Massachusetts understands and assesses health care provider transactions (mergers, acquisitions, and other types of affiliations) is the Material Change Notice (MCN) and Cost and Market Impact Review (CMIR) processes. Under current law, an MCN generally must be filed with the HPC when a provider proposes a transaction that involves merging

or affiliating with other providers or payers. The HPC can initiate a full investigation, or CMIR, of those transactions it determines are likely to result in a significant impact to health care costs or market functioning in Massachusetts, culminating in a public report on the likely impacts.

The law authorizing the HPC to review health care provider transactions should be broadened to ensure that all significant health care transactions involving private equity require notice to the HPC. For example, significant new for-profit investment in a provider or the acquisition of a provider by any entity, including private equity investors, should require the filing of an MCN. Additionally, the acquisition of a provider's assets (e.g., real estate) by any entity, including private equity investors, such as in a sale-leaseback, should require notice and review. Expanding the filing requirements in these ways would allow for both public notice and thorough HPC review of a broader range of transactions. It would also provide additional insight into the potential cost, quality, access, and equity impacts of transactions before new private equity investments in or sales of health care providers occur in Massachusetts. Similar to approaches used in other states, the Commonwealth should consider a process for imposing conditions upon parties to transactions. Potential conditions that could be applied to concerning transactions include requirements that essential services be maintained for a specific period of time, ongoing compliance monitoring and public reporting, requirements to ensure financial stability, such as limitations on financially risky activities, and other conditions related to subsequent sales of provider investments (e.g., exits).

2. STRENGTHEN AND EXPAND THE STATE'S TRANSPARENCY REQUIREMENTS.

While Massachusetts has greater transparency into health care market functioning than many other states, current transparency processes should be enhanced to ensure a better understanding of the entire health care provider market, including sectors with significant for-profit and private equity investment.

A. Require that New Provider Types, including Types Frequently Targeted by Private Equity Investors, Report to the Massachusetts RPO Program. The Massachusetts

Registration of Provider Organizations (RPO) program collects key information about the organizational structure, affiliations, and financial status of the largest health care providers in Massachusetts. These publicly available data are a critical source of information for health care oversight agencies, law enforcement, and interested stakeholders. However, under current law, the RPO program may only collect information from providers with significant revenue from commercial insurers, which largely excludes behavioral health providers, nursing homes, and other provider types that have been frequently targeted by private equity investors. This statute should be updated to allow the RPO program to collect information from a broader range of provider types, including those with revenue primarily from self-pay sources, Medicare, and Medicaid.

B. Enhance Enforcement Mechanisms for Financial Reporting. Hospitals and other health care providers are required to provide key financial information to CHIA and the HPC through the Massachusetts RPO program and other authorities. Notably, notwithstanding financial penalties, Steward Health Care System did not submit its financial statements as required for 2017-2022, and instead filed suit against the Commonwealth. Given the importance of financial oversight, the Commonwealth should strengthen enforcement mechanisms to ensure compliance with state-mandated financial reporting.

3. REVITALIZE HEALTH PLANNING TO ENSURE THAT THE SUPPLY OF HEALTH SERVICES ALIGNS WITH COMMUNITY HEALTH NEEDS AND TO PROTECT THE INTERESTS OF HISTORICALLY UNDERSERVED COMMUNITIES. Recent health care market activity, including the closures of Carney Hospital and Nashoba Valley Medical Center as well as some recent proposed provider expansions, has highlighted the need for a better understanding of the allocation of health care resources across the Commonwealth and its implications for quality, affordability, and equity of care. A revitalized approach to health planning could support efforts to ensure that providers are focused on providing services needed by Massachusetts residents, and not only those services that are the most profitable. There is also opportunity to enhance the current regulatory framework to proactively plan and prepare for changes in services and better prioritize the public interest over market forces that may be at odds with that interest. Specifically, the HPC recommends:

A. Conduct Focused Assessments of Need, Supply, and Distribution. The Commonwealth should conduct focused, data-driven assessments of the supply and distribution of services based on identified needs or disparities in outcomes. Such targeted assessments would identify specific provider types or service lines that warrant examination (e.g., obstetrics, mental health and substance use disorder outpatient treatment, inpatient pediatric care, oncology, etc.) with respect to geographic distribution, access, cost, and other factors in the public interest, such as specific populations served. The examination could also include an evaluation of the current and future workforce needs of the specific provider type or service lines, necessary to forecast areas of shortages. Formal findings of an assessment could include designating a specific set of services or class of providers as critical to the proper functioning of the Massachusetts health care system, identifying barriers impacting accessibility of available supply by specific populations, and making recommendations to address misalignment of need, supply, and distribution.

B. Strengthen Tools to Monitor and Regulate Supply of Health Care Services. Massachusetts' existing frameworks for monitoring and regulating provider supply and distribution, including its Determination of Need (DoN) Program and Essential Services Closures process, can be strengthened as follows:

- i. Strengthen the Review of Proposed Expansions to Ensure Alignment with State Cost Containment and Health Equity Goals.** The DoN program should be updated to align with the focused assessments of need described above, along with cost growth, affordability, and health equity goals. In addition, given the significant potential for impacts on health care spending, quality, access, and equity of market expansions, the existing MCN process should be amended to require notice to the HPC before a provider substantially increases capacity.
- ii. Better Equip the State to Monitor and Respond to Essential Service Closures.** The Essential Services process could be improved through enhancing financial monitoring of providers who may be at-risk, earlier confidential notice of potential reduction in services or closure, broadening the scope of services covered, and allowing for sensitive information to be provided confidentially to better inform regulator response.

4. ADDRESS KNOWN MARKET DYSFUNCTIONS THAT BOTH DRIVE CONSOLIDATION AMONG PROVIDERS AND CREATE OPPORTUNITIES FOR PREDATORY ACTORS TO PROFIT THROUGH ACTIONS THAT CAN HARM PATIENTS, HEALTH CARE WORKERS, AND OTHERS.

A. Address Long-Standing Inequities in Provider Prices.

Prices continue to be the primary driver of health care spending growth in Massachusetts. The significant variation in prices among Massachusetts providers for the same sets of services (without commensurate differences in quality) continues to divert resources away from smaller and/or unaffiliated community providers, many of which serve vulnerable patient populations, toward generally larger and more well-resourced systems. Commercial prices for health care services (including fee-for-service prices, global budgets, and other units of payment) and other contract terms are currently established exclusively through negotiations between payers and providers. Therefore, those prices generally reflect the bargaining leverage of the negotiating parties rather than differences in quality or other indications of value. As a result, providers often seek to consolidate with larger systems to gain bargaining leverage to command higher, excessive prices (and other favorable contract terms) from payers. Past market initiatives (e.g., tiered and narrow network products, price transparency efforts, risk contracting) have failed to meaningfully restrain provider price growth or reduce unwarranted variation in provider prices in Massachusetts. Many states (e.g., Rhode Island, Oregon, Colorado, and Maryland) have recognized that some level of price regulation is necessary, rather than market initiatives alone, to ensure an equitable and affordable health care system. Similarly, the Legislature should take action to compress unwarranted variation in prices between different providers and ensure that pricing reflects value, limit excessive commercial provider prices beyond reasonable benchmark amounts for the highest priced providers, and allow price increases to accrue appropriately to lower-priced providers. These include many community hospitals, community health centers, and other providers that care for populations facing the greatest health inequities, thereby strengthening the viability of critical community resources.

B. Require Site-Neutral Payment. Many routine health care services are safely provided in both hospital outpatient departments and non-hospital settings such as physician offices. Commercial prices and patient cost-sharing are generally substantially higher (often twice as high or more) at hospital outpatient sites due to the addition of a hospital payment component or “facility fee.” In many cases, patients

may not realize that pricing can be substantially higher at those sites licensed as hospital outpatient departments, and they face higher costs as a result. To limit these higher prices which often spur further hospital/physician consolidation and to enhance consumer protections, policymakers should take action to require site-neutral payments for certain ambulatory services that are commonly provided in office-based settings (e.g., office visits, lab tests, basic imaging and diagnostic services, and clinician-administered drugs).

C. Adopt Default Out-of-Network Payment Rate. The Legislature should enact the default out-of-network payment rate for “surprise billing” situations recommended by the Executive Office of Health and Human Services in its 2021 report. This would further constrain excessive provider prices and reduce a market dysfunction often utilized by private equity investors and others looking to profit in ways that do not deliver value to patients. Data from early implementation of the arbitration process established by the federal No Surprises Act (to resolve out-of-network provider payment disputes) demonstrate significant administrative challenges and disadvantages of relying on the federal arbitration process. The Commonwealth should join other states that have enacted a default rate for the fully insured market, with a potential opt-in for self-insured plans. A default rate would reduce the incentive for predatory market entrants, provide predictability, transparency, and simplicity, and reduce health care spending in Massachusetts. Establishing a default out-of-network rate is also a critical component of a policy response to long-standing pricing inequities.

As noted earlier, the effectiveness of these recommendations would be bolstered by complementary action on the HPC’s policy recommendations from previous years. For example, the Commonwealth should prioritize planning, investments, and other policy efforts to enhance access for **primary care and behavioral health**. Current market forces often undervalue these services, leading to financial instability for important community providers, which ultimately contributes to disparities in access and outcomes as documented in this report.

Additionally, the Massachusetts **health care workforce** continues to experience substantial disruption, with high turnover and shortages of care providers in many roles throughout the care continuum. Recognizing bold new investments by the Healey-Driscoll Administration and the Legislature in health care workforce development, ongoing opportunities remain to stabilize, strengthen, and expand the health care workforce.

Related to workforce challenges, **administrative complexity** that does not add value permeates the U.S. health care system. These administrative and operational burdens on providers contribute to burnout, accelerate retirements, and influence provider decisions to pursue mergers, sales, or arrangements with management services organizations. Pursuing opportunities to reduce unnecessary administrative complexity for providers, such as in non-standardized prior authorization protocols, will further reduce the appeal of affiliation with potentially predatory actors.

Finally, the HPC reiterates significant concern regarding the unsustainable growth in **pharmaceutical spending trends**. Net of rebates, pharmacy spending per enrollee grew an average of 8.2 percent per year from 2019 to 2022, contributing significantly to the state's overall growth rate. The uptake of blockbuster drugs (e.g., GLP-1s) and the introduction of new high-priced gene therapies, among many other market developments, suggest these spending trends will continue. At a minimum, the Commonwealth should take action to increase transparency of drug price growth and value, as this sector continues to account for an increasing proportion of overall health care spending. Currently, there is little state oversight of pharmaceutical manufacturers and pharmacy benefit managers (PBMs), the key stakeholders that set drug prices and establish policies that influence how patients access pharmaceuticals. The Commonwealth should add pharmaceutical manufacturers and PBMs explicitly into the HPC's oversight authorities, authorize CHIA to collect data on pharmaceuticals from payers and PBMs, and consider other oversight such as licensure of PBMs and expansion of the HPC's authority to conduct reviews of drug pricing. By allowing these companies to operate outside the state's accountability framework and without providing data and information that other market actors are required to provide, the state risks further inviting predatory behavior that will act against the interests of the public and patients.

History has proven that the Commonwealth of Massachusetts and its leadership can deliver transformative change. This leadership, along with a renewed commitment by all stakeholders, is critical in this distressing moment for the Massachusetts health care system and broader public. The HPC stands ready to support these prospective efforts with its data insights and independent policy leadership.

CHAPTER 5:
**DASHBOARD OF
HPC PERFORMANCE
METRICS**

Exhibit 5.1. Massachusetts Health System Performance

- ▲ Better performance
- Similar performance
- Worse performance

		MASSACHUSETTS TIME TREND			U. S. COMPARISON			
		Previous	Most Recent	Performance	Most Recent	Comparison		
HEALTH EQUITY AND AFFORDABILITY	1	Individuals under age 65 with high out-of-pocket spending relative to income	DISPARITY	8% (2020-2021)	8% (2021-2022)	●	10% (2021-2022)	▲
	2	Share of total compensation devoted to health care for middle class families		22.9% (2018-2020)	21.7% (2021-2023)	▲	20.0% (2021-2023)	■
	3	Adults who reported needing to see a doctor but could not because of cost in the past year	DISPARITY	7.3% (2021)	7.1% (2022)	●	11.2% (2022)	▲
	4	Rate of uninsurance among non-elderly adults with income less than 200% FPL		4.8% (2021)	4.6% (2022)	●	15.7% (2022)	▲
	5	Adults without all age- and gender-appropriate cancer screenings	DISPARITY	24.8% (2020)	28.4% (2022)	■	35.4% (2022)	▲
	6	Infant mortality (per 1,000 live births)	DISPARITY	3.9 (2020)	3.2 (2021)	▲	5.4 (2021)	▲
	7	Adults ages 18–64 who report fair or poor health	DISPARITY	9.9% (2021)	12.3% (2022)	■	16.0% (2022)	▲
	8	Share of population living in a food insecure household		9.2% (2022)	9.0% (2023)	●	11.7% (2023)	▲
	9	Share of population living in a Health Professional Shortage Area		7.6% (2022)	6.6% (2024)	▲	21.8% (2024)	▲

DISPARITIES BY INCOME

MEASURE	HIGH INCOME	LOW INCOME	DISPARITY (PPT)	STATE RANK (Rank from prior year)
Individuals under age 65 with high out-of-pocket spending relative to income	0.8%	28.6%	28	
Adults who reported needing to see a doctor but could not because of cost in the past year	3.5%	15.5%	12	12 (4)
Adults without all age- and gender-appropriate cancer screenings	19.4%	32.2%	13	48 (39)
Adults ages 18–64 who report fair or poor health	5.4%	23.2%	18	7 (30)

DISPARITIES BY RACE / ETHNICITY

MEASURE	MOST RECENT	DISPARITY
Adults ages 18–64 who report fair or poor health	12.3%	
<i>AANHPI (Group with best outcome)</i>	5.5%	–
<i>White</i>	9.6%	4.1
<i>Black</i>	10.9%	5.4
<i>Hispanic</i>	20.6%	15.1
Infant mortality (per 1,000 live births)	3.2	
<i>White (Group with best outcome)</i>	2.3	–
<i>Hispanic</i>	4.1	1.8
<i>Black</i>	6.4	4.2

Exhibit 5.1. Massachusetts Health System Performance cont.

- ▲ Better performance
- Similar performance
- Worse performance

		MASSACHUSETTS TIME TREND			U. S. COMPARISON		
		Previous	Most Recent	Performance	Most Recent	Comparison	
BENCHMARK AND SPENDING	10	Growth of THCE per capita (performance assessed relative to 3.1% benchmark)	9.8% (2021)	5.0% (2022)	■	5.2% (2022)	▲
	11	Growth in commercial health care spending per capita (performance assessed relative to 3.1% benchmark)	15.5% (2021)	3.5% (2022)	■	4.1% (2022)	▲
	12	Employer-based health insurance premiums, single coverage (performance assessed relative to 3.1% benchmark)	\$7,693 (2019-2021)	\$7,865 (2020-2022)	▲	\$7,373 (2020-2022)	■
	13	Benchmark premium for second-lowest-cost exchange plan, single coverage (performance assessed relative to 3.1% benchmark)	\$5,004 (2023)	\$5,028 (2024)	▲	\$5,724 (2024)	▲
EFFICIENT, HIGH-QUALITY CARE DELIVERY	14	Readmission rate (Medicare)	18.3% (2021)	18.4% (2022)	●	16.9% (2022)	■
	15	Readmission rate (All payer)	16.0% (2021)	15.8% (2022)	●	N/A	N/A
	16	ED utilization (per 1,000 persons)	303.1 (2022)	311.2 (2023)	■	MA = 462 US = 411 (2022)	■
	17	BH-related ED utilization (per 1,000 persons)	19.5 (2022)	18.6 (2023)	▲	N/A	N/A
	18	Avoidable ED utilization (per 1,000 persons)	112.7 (2022)	124.2 (2023)	■	N/A	N/A
	19	Hospital admissions among Medicare beneficiaries age 65+ for ambulatory care sensitive conditions (per 1,000 beneficiaries)	35.8 (2021)	32.1 (2022)	▲	25.0 (2022)	■
	20	Percentage of inpatient discharges to institutional PAC	17.0% (2022)	17.2% (2023)	●	MA = 15.8% US = 14.4% (2021)	■
	21	Rate of C-sections among low-risk births	27.3% (2022)	27.5% (2023)	●	26.6% (2023)	■
VALUE-BASED MARKETS	22	Percentage of discharges in top 5 networks	60.8% (2021)	62.0% (2022)	■	N/A	N/A
	23	Share of newborn deliveries in community hospitals	48.9% (2022)	49.1% (2023)	●	N/A	N/A
	24	Share of discharges from hospitals with relative price above 1.2	24.5% (2021)	24.1% (2022)	●	N/A	N/A
APM	25	Total share of APMs for all insurance types	45.9% (2021)	46.2% (2022)	●	N/A	N/A

Notes: APM = alternative payment method; BH = behavioral health; ED = emergency department; HMO = health maintenance organization; MCO = managed care organization; PAC = post-acute care; THCE = total health care expenditures. ED utilization - MA trend uses CHIA ED Database, MA/US comparison use KFF State Health Facts. Percentage of inpatient discharges to institutional PAC - MA trend uses Case-Mix data, MA/US comparison uses HCUP data. For additional notes and sources, see Technical Appendix.

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Under the leadership of Dr. David Auerbach, the HPC's Research and Cost Trends staff conducted the analyses and prepared the annual cost trends report and chartpacks. They are as follows: Dr. Sasha Albert, Charlotte Burlingame, Alicia Duran, Dr. Katya Fonkych, Yue Huang, Justin Kiel, Dhruv Mandalia, Lyden Marcellot, Dr. Laura Nasuti, Sara Sadownik, and Diana Sanchez Váscones. Ashley Johnston designed the report.

Many additional HPC staff contributed significantly to the report from each of the HPC's departments: Office of the Chief of Staff (led by Hannah Kloomok), Office of the General Counsel (led by Lois Johnson), Health Care Transformation and Innovation (led by Kelly Hall), and Market Oversight and Transparency (led by Kate Scarborough Mills). The HPC received input and guidance from a number of clinical and policy experts, including Brady Post, PhD, Assistant Professor of Public Health and Health Sciences, Department of Health Sciences, Northeastern University; Gil Welch, MD, General internist, Center for Surgery and Public Health, Brigham

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The Massachusetts Health Policy Commission (HPC) is an independent state agency working in the public interest to improve the affordability of health care for all residents of the Commonwealth. Established in 2012, the agency maintains a permanent staff to fulfill its statutory responsibilities and is accountable to an 11-member Board of Commissioners. HPC staff and commissioners work collaboratively to oversee and improve the performance of the Massachusetts health care system.

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SUGGESTED CITATION

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The page features a white background with two prominent diagonal stripes in shades of blue. One stripe is a lighter, medium blue, and the other is a darker, navy blue. They run from the top-left towards the bottom-right, creating a dynamic, modern aesthetic.

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