

2018 Annual Health Care

COST TRENDS REPORT



MASSACHUSETTS
HEALTH POLICY COMMISSION

FEBRUARY 2019

TABLE OF CONTENTS

INDEX OF ACRONYMS	1
EXECUTIVE SUMMARY	3
CHAPTER 1: INTRODUCTION	8
CHAPTER 2: TRENDS IN SPENDING AND CARE DELIVERY	12
Exhibit 2.1 Annual growth in total health care expenditures per capita in Massachusetts	
Exhibit 2.2 Change in enrollment, per enrollee spending, and total spending by major market segment, 2016-2017	
Exhibit 2.3 Annual growth in total health care spending per capita, Massachusetts and the U.S., 2000-2017	
Exhibit 2.4 Annual growth in per capita commercial health care spending, Massachusetts and the U.S., 2006-2017	
Exhibit 2.5 Rates of spending growth in Massachusetts by category, 2015-2017	
Exhibit 2.6. Variation by hospital in chemotherapy drug unit prices and volume, 2016	
Exhibit 2.7 Annual out-of-pocket health care spending from all sources for Massachusetts residents with employer-based coverage, 2014-2017	
Exhibit 2.8 Portion of total income devoted to health care spending for Massachusetts residents by type of coverage in 2017	
CHAPTER 3: HOSPITAL ADMISSIONS FROM THE EMERGENCY DEPARTMENT	24
Exhibit 3.1 Composition of ED visits, 2016	
Exhibit 3.2 Discharge destination of 1.7 million medical ED visits in Massachusetts, 2016	
Exhibit 3.3 Distribution of admission rates from the ED by hospital for selected diagnoses, 2016	
Exhibit 3.4 Rates of admission from the ED for all medical diagnoses, CHF, and pneumonia for the top 25 hospitals by ED volume, 2016	
Exhibit 3.5 Relationship between 2015 and 2016 admission rates from the ED by diagnosis for top 25 hospitals by ED volume	
CHAPTER 4: LOW VALUE CARE.	32
Exhibit 4.1. Low value care measures	
Exhibit 4.2 Flowchart of cervical cancer screening outcomes, 2013-2015	
Exhibit 4.3 Total low value services and spending for 19 measures for the three largest commercial payers in Massachusetts, 2013-2015	
Exhibit 4.4 Low value care screening tests: rate, spending, and cost sharing, 2013-2015	
Exhibit 4.5 Low value care imaging services: rate, spending, and cost sharing, 2013-2015	
Exhibit 4.6 Pre-operative testing for cataract surgery among the three largest commercial payers in Massachusetts, 2013-2015	
Exhibit 4.7 Low value care pre-operative testing, procedures, and inappropriate prescribing: encounters, spending, and cost sharing, 2013-2015	
Exhibit 4.8 Percentage of residents by region who received at least one low value service, 2013-2015	
Exhibit 4.9 Attributed patients with at least one low value service by provider organization, 2013-2015	
Exhibit 4.10 Spending on low value care per attributed member, by provider organization, 2013-3015	
Exhibit 4.11 Index of low value care by attributed provider organization, 2013-2015	

TABLE OF CONTENTS

CONTINUED

CHAPTER 5: PROVIDER ORGANIZATION PERFORMANCE VARIATION – SPENDING VARIATION FOR CLINICALLY SIMILAR POPULATIONS	43
Exhibit 5.1 Cohort descriptive statistics and differences in total spending per person, 2015	
Exhibit 5.2 Risk-adjusted spending per patient per year by cohort and provider organization, 2015	
Exhibit 5.3 Categories of health spending per patient by cohort and organization type, 2015	
Exhibit 5.4 Percentage of services delivered in a hospital outpatient department setting, diabetes cohort, 2015	
Exhibit 5.5 Hospital outpatient and professional spending for ambulatory services, all cohorts, 2015	
Exhibit 5.6 Comparison of AMC-anchored utilization to physician-led utilization by cohort, 2015	
Exhibit 5.7 Diabetes cohort: comparison of differences in utilization and price between AMC-anchored and physician-led organizations, 2015	
Exhibit 5.8 Utilization and price of recommended monitoring tests for the diabetes cohort, 2015	
CHAPTER 6: COMMERCIAL PRICE TRENDS AND COMPARISON TO MEDICARE PRICES	52
Exhibit 6.1 Distribution of average facility price per discharge at Massachusetts hospitals, commercial and Medicare, 2016	
Exhibit 6.2 Distribution of average hospital facility price per discharge, commercial and Medicare, select diagnoses, 2016	
Exhibit 6.3 Average price per hospital outpatient department procedure, commercial and Medicare, colonoscopy and brain MRI, 2016	
Exhibit 6.4 Average price per evaluation and management service in the emergency department, commercial and Medicare, 2016	
Exhibit 6.5 Average price per evaluation and management service in a primary care office, commercial and Medicare, 2016	
Exhibit 6.6 Growth in hospital average commercial price per discharge overall and by service category, adjusted for changes in acuity and provider mix, 2014-2016	
Exhibit 6.7 Growth in average spending for evaluation and management and other services per commercial emergency department visit, 2014-2016	
Exhibit 6.8 Change in average commercial inpatient prices, utilization, acuity, and spending, 2014-2016	
CHAPTER 7: POLICY RECOMMENDATIONS	61
Exhibit 7.1 Dashboard of HPC system performance metrics	
Exhibit 7.2 Dashboard of HPC improvement targets	
LIST OF TECHNICAL APPENDICES	70
ACKNOWLEDGMENTS	71

INDEX OF ACRONYMS

ABIM	American Board of Internal Medicine
ACA	Affordable Care Act
ACG	Adjusted Clinical Groups
ACO	Accountable Care Organization
AGO	Attorney General's Office
AMC	Academic Medical Center
APCD	All-Payer Claims Database
APRN	Advanced Practice Registered Nurse
BIDCO	Beth Israel Deaconess Care Organization
BMC	Boston Medical Center
CHF	Congestive Heart Failure
CHIA	Center for Health Information and Analysis
CHW	Community Health Worker
CMIPA	Central Massachusetts Independent Physician Association
CMS	Centers for Medicare and Medicaid Services
COPD	Chronic Obstructive Pulmonary Disease
CPT	Current Procedural Terminology
CT	Computed Tomography
DRG	Diagnosis-Related Groups
ED	Emergency Department
EEG	Electroencephalogram
EKG	Electrocardiogram
FFS	Fee-For-Service
FPL	Federal Poverty Level
HCCI	Health Care Cost Institute
HMO	Health Maintenance Organization
HOPD	Hospital Outpatient Department
HPC	Health Policy Commission
ICD	International Classification of Diseases
IVC	Inferior Vena Cava
LVC	Low Value Care
MCO	Managed Care Organization
PBM	Pharmacy Benefit Manager
PCC	Primary Care Clinician Plan
PCP	Primary Care Provider
PFT	Pulmonary Function Test
PMPY	Per Member Per Year
POS	Point Of Service
THCE	Total Health Care Expenditures
TME	Total Medical Expenditures
UTI	Urinary Tract Infection

EXECUTIVE SUMMARY

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The Massachusetts Health Policy Commission (HPC), established in 2012, is charged with monitoring health care spending growth in Massachusetts and providing data-driven policy recommendations regarding health care delivery and payment system reform. Consistent with this mandate, the HPC's annual cost trends report presents an overview of trends in health care spending and delivery in Massachusetts, describes in-depth analyses of utilization of care, spending by provider organization, and prices of care in Massachusetts, and makes policy recommendations for strategies to increase the quality and efficiency of care in the Commonwealth.

This executive summary presents a concise overview of the findings and recommendations detailed in this sixth annual report.

KEY FINDINGS

TRENDS IN SPENDING

- In 2017, Total Health Care Expenditures (THCE) in Massachusetts grew 1.6 percent per capita, considerably lower than the 3.6 percent health care cost growth benchmark set by the HPC. The average annual rate of growth in THCE in Massachusetts from 2012 to 2017 was 3.2 percent, below the state's benchmark.
 - The Massachusetts growth rate of 1.6 percent in 2017 was below the national growth rate of 3.1 percent, continuing a consecutive eight year trend of spending growth below the U.S. rate.
 - Growth in commercial health care spending was also below the national rate for the fifth consecutive year. Cumulatively between 2012 and 2017, this lower growth rate amounts to commercial spending that was \$5.5 billion lower over this time period than would have been the case if growth rates matched the national average.
- Per enrollee spending grew slower than the benchmark rate for all population segments: 2.5 percent among commercial enrollees, 3.5 percent among full coverage

MassHealth enrollees in the MCO and PCC programs (mostly due to greater health risk), and 1.0 percent among Original Medicare enrollees.

- Prescription drug and hospital outpatient department spending continued to be the highest growth areas in 2017, at 4.1 percent and 4.9 percent respectively, although increases for both were slightly below rates the previous year.
- The average total premium for employer-based coverage in Massachusetts remains one of the highest in the country, with an average family paying over \$21,000 per year for coverage in 2017 (including employer contributions) and single enrollees paying \$7,000, which are the fourth and seventh highest in the U.S., respectively. These figures do not include out-of-pocket spending such as copayments and deductible spending, which grew 5.9 percent in 2017 for commercially-insured enrollees.
 - Employer-sponsored insurance premiums in Massachusetts increased sharply for those employed by small companies (6.9 percent); these premiums are now the second highest in the U.S. The number of people obtaining coverage through small employers continued to decline (3.6 percent) in 2017.
 - In contrast, premiums for health insurance plans chosen by the enrollees at the Massachusetts Health Connector, which are available to individuals and small employers, were the second lowest in the U.S. in 2017 and 23 percent below premiums in the fully-insured employer market.
- Individuals with employer-based insurance whose incomes were between 139 percent and 299 percent of the federal poverty level spent approximately one-third of their total income on health care in 2017, including premium spending, out-of-pocket spending, and taxes to fund state and federal health care programs.

UTILIZATION OF CARE

Overall trends

- The overall rate of hospitalization among Massachusetts residents was unchanged between 2014 and

2017, though the rate dropped 8 percent among the commercially-insured.

- The rate of hospital readmissions within 30 days among all Massachusetts residents increased in 2017. Readmissions among Medicare enrollees increased in 2017 in Massachusetts, but declined in the rest of the U.S.
- The share of patients discharged from the hospital to institutional post-acute care dropped from 18.9 percent in 2016 to 18.0 percent in 2017.
- The share of hospital admissions for community-appropriate conditions occurring at community (non-teaching) hospitals increased slightly from 57.8 percent in 2016 to 57.9 percent in 2017.

Hospital admissions from the emergency department

- There is considerable variation among hospitals in the likelihood that a patient's emergency department (ED) visit results in an inpatient admission. Controlling for patient characteristics including diagnosis, rates of admission from the ED ranged from 18 percent to 30 percent among the 25 Massachusetts hospitals with the highest ED volume.
- Hospitals with high rates of admissions from the ED for certain conditions tended to have high rates for other conditions as well, controlling for patient health status and other characteristics. For example, hospitals with high admission rates for congestive heart failure also tend to have high admission rates for pneumonia ($r=0.84$, indicating a strong positive relationship between the two admission rates).
- Patients discharged from the ED at hospitals with lower admission rates did not generally experience higher rates of revisits to the ED than those discharged from hospitals with higher admission rates.

Low value care

- Over a two-year time period, the HPC found that 20.5 percent of a sample of commercial patients received at least one of 19 low value care screenings, tests, and services identified by the Choosing Wisely Campaign as unnecessary and wasteful.

- Spending on these low value procedures totaled \$80 million, with more than \$12 million paid out-of-pocket by patients, a conservative figure that does not include spending for additional follow-up tests and procedures as well as indirect costs, such as lost work time.
- The HPC found that the provision of these low value services varied as much as two-fold by provider organization. Attributing results based on the affiliation of patients' primary care providers (PCPs), the HPC identified the lowest rates of low value services among patients with providers at Atrius Health, and the highest rates among patients with providers at Lahey Health.

TOTAL SPENDING AND PRICES OF CARE

Patient spending by provider organization

- Total health care spending per patient varies substantially by provider system. Based on the affiliation of a patient's PCP, annual spending per commercially-insured patient ranged from \$5,393 per year (for patients with PCPs in the Boston Medical Center Health System) to \$7,668 per year (for patients with PCPs in the Partners HealthCare system), a 30 percent difference in 2017. These differences grew between 2015 and 2017.
- Spending differences persisted even when analyzing groups of patients with similar demographics and health status, such as patients with diabetes and no other chronic conditions.
 - Spending for patients with diabetes with PCPs in physician-led organizations was 19 percent lower than spending for similar patients with PCPs in hospital-based organizations anchored by an academic medical center (AMC), such as Partners HealthCare or Beth Israel Deaconess Care Organization (BIDCO).
 - The difference in spending was particularly stark in the area of outpatient services, such as labs, tests, and minor surgeries, where average spending at the AMC-anchored organizations was over 70 percent higher than spending at physician-led organizations. These services are typically performed in hospital outpatient departments in the higher-spending organizations, often involving additional facility fees.

- In addition to differences in utilization, the HPC also found price differences between AMC-anchored and physician-led organizations. For example, patients with diabetes had similar utilization of HbA1c lab tests, but prices per test averaged 38 percent higher in AMC-anchored organizations.
- Despite the differences in spending, relevant quality indicators were no different across the organization types.

Prices of care

- Commercial insurers in Massachusetts pay higher prices to providers than Medicare pays for the same services. For hospital inpatient care, average prices among the three largest Massachusetts insurers were 57 percent higher than Medicare prices for similar patients (\$15,913 versus \$10,117, respectively). Commercial insurers also paid considerably more for typical outpatient services, including brain MRIs, ED visits, and physician office visits.
- Commercial prices also varied nearly twice as much as Medicare prices. Commercial insurers paid the highest-priced hospital 2.7 times more per discharge than the lowest-priced hospital, whereas Medicare paid the highest-priced hospitals approximately 1.5 times more per discharge than the lowest-priced hospitals. Price differences between commercial insurers and Medicare also varied by condition. For example, median hospitals' average commercial prices for inpatient care were 54 percent higher than Medicare prices for hip or knee replacements and 76 percent higher for septicemia.
- Commercial prices for many services have grown significantly in recent years. Controlling for changes in patient and provider mix, commercial prices per inpatient discharge increased 5.2 percent between 2014 and 2016. This trend resulted in continued growth in inpatient hospital spending despite a 6.6 percent decline in the number of commercial inpatient stays over this period.

RECOMMENDATIONS

In order to continue progress in achieving the Commonwealth's goal of better health, better care, and lower costs, the HPC recommends action within the following primary

policy priorities: 1) Strengthening market functioning and transparency, and 2) Promoting an efficient, high-quality health care delivery system. These recommendations are summarized below (see **Chapter 7** for the full set of recommendations).

STRENGTHENING MARKET FUNCTION AND TRANSPARENCY

1. **Administrative complexity:** The Commonwealth should take action to identify and address areas of administrative complexity that add costs to the health care system without improving the value or accessibility of care. Specific areas of focus should include complexity in payment arrangements, insurance billing and coding, risk adjustment, quality measurement reporting, provider credentialing, and use of electronic health records.
2. **Pharmaceutical spending:** The Commonwealth should take action to reduce drug spending growth. Specific areas of focus should include authorizing the Executive Office of Health and Human Services to establish a process that allows for a rigorous review of certain high-cost drugs, increasing the ability of MassHealth to negotiate directly with drug manufacturers for additional supplemental rebates and outcomes-based contracts, increasing public transparency and public oversight for pharmaceutical manufacturers, medical device companies, and pharmacy benefit managers, addressing price variation in drugs provided under enrollees' medical benefits, and encouraging providers and payers to use treatment protocols and electronic health record prescribing alerts to maximize value for patients.
3. **Out-of-network billing:** The Commonwealth should take action to enhance out-of-network (OON) protections for consumers. Specific actions should include requiring advance patient notification of a potential OON provider, establishing consumer billing protections in emergency and "surprise" billing scenarios, and setting a reasonable and fair reimbursement for OON services established through a statutory or regulatory process.
4. **Provider price variation:** Policymakers should advance specific, data-driven interventions to address the pressing issue of continued provider price variation in the coming year.

5. **Site-based and provider-based billing reform:** Policymakers and payers should act to limit both newly-licensed and existing sites that can bill as hospital outpatient departments and implement site-neutral payments for select services for similar patients. Additionally, all outpatient sites that charge hospital fees should be required to conspicuously and clearly disclose this fact to patients, prior to delivering care.
6. **Demand-side incentives:** The Commonwealth should encourage payers and employers to enhance strategies that empower consumers to make high-value choices. Employers, particularly those with fewer than 50 employees, should seek to offer their employees a choice of plans, and should strongly consider purchasing health insurance through the Massachusetts Health Connector. Employers and payers should also offer financial incentives (e.g., reduced premiums, lower deductibles) for employees who choose primary care providers affiliated with high-quality, efficient provider groups.

PROMOTING AN EFFICIENT, HIGH-QUALITY HEALTH CARE DELIVERY SYSTEM

7. **Unnecessary utilization:** The Commonwealth should focus on reducing unnecessary utilization and increasing the provision of coordinated care in high-value, low-cost settings. Payers and providers should reduce the use of avoidable high-cost care, such as avoidable ED visits, behavioral health-related ED visits, readmissions, use of teaching hospitals and academic medical centers for community-appropriate inpatient care, and institutional post-acute care by ensuring access to high-value, low-cost settings, and shifting care, as appropriate, to these settings. Further, the employer community should continue to collaborate with health plans, providers, and other stakeholders to continuously engage their employees and families and encourage them to seek high-quality, high-value care at appropriate settings in the community.
8. **Social determinants of health:** The Commonwealth should take steps to address the social determinants of health that impact health care access, outcomes, and cost. Specific areas of focus should include flexible funding to address health-related social needs, inclusion of social determinants in payment policies and performance measurement, continued evaluation of innovative interventions to build the evidence base, and collaboration between health systems, community-based organizations, and local municipalities.
9. **Health care workforce:** The Commonwealth should support advancements in the health care workforce that promote top-of-license practice and new care team models. Policymakers should review and amend scope of practice laws that are restrictive and not evidence-based, including for Advanced Practice Registered Nurses (APRNs), certify a new level of dental practitioner to increase access to oral health care, particularly for low income and underserved populations, and continue to support new health care roles designed to meet the unique needs of the communities and patient populations they serve, such as community health workers (CHWs), patient navigators, peer support specialists, and recovery coaches.
10. **Scaling innovations in integrated care:** The Commonwealth should continue to invest in testing, evaluating, and scaling innovative care delivery models to integrate medical, behavioral, and social care and enhance access for underserved populations. Specific areas of investment should include telehealth and mobile integrated health.
11. **Alternative payment methods:** The Commonwealth should continue to promote the increased adoption of alternative payment methods (APMs) and improvements in APM effectiveness. Specific areas of focus should include movement to two-sided risk payment models (including global payment) for Medicare and commercial members, following the lead of the MassHealth Accountable Care Organization (ACO) program. Also, as part of a strategy to reduce spending, payers should develop plans to lessen the unwarranted disparities in global budgets paid to different providers by establishing stricter targets for spending growth for highly paid providers, moving away from historical spending as the basis of global budgets, and using bundled payments for certain care episodes where evidence has shown effectiveness.

CHAPTER 1:
INTRODUCTION

CHAPTER 1: INTRODUCTION

The Massachusetts Health Policy Commission (HPC) is charged with monitoring health care spending growth in Massachusetts and providing data-driven policy recommendations regarding health care delivery and payment system reform (see **Sidebar: What is the role of the Massachusetts Health Policy Commission?**).

Chapter 224 of the Acts of 2012, the comprehensive health care reform legislation that established the HPC, set a state-wide target for a sustainable rate of growth of total health care expenditures. From 2016 to 2017, the state's health care spending growth was 1.6 percent, a full two percentage points below the benchmark target of 3.6 percent, and the lowest observed since the HPC was established six years ago. Since 2013, annual health care spending growth in Massachusetts has been, on average, below the benchmark and lower than national growth trends.

In this annual cost trends report, the HPC examines key cost drivers and evaluates the state's progress in meeting several cost containment, care delivery, and payment system goals set by the Commonwealth and the HPC. The report includes a set of policy recommendations for market participants, policymakers, and government agencies to consider in our collective work toward a high-value, well-functioning health system.

By many important indicators, Massachusetts has a high performing health care system. Massachusetts has the lowest rate of uninsured residents in the U.S., having undertaken health reform before the federal Patient Protection and Affordable Care Act (ACA) passed in 2010. Massachusetts ranked among the top three states in the Commonwealth Fund's scorecard on state health system performance, both overall and within the categories of access, prevention and treatment, healthy lives, and income disparity.¹ The United Health Foundation, a nationally-recognized foundation dedicated to improving health and health care, ranked Massachusetts as the second healthiest state in the country.² Massachusetts is also home to many high-quality, nationally- and internationally- recognized health care institutions that positively contribute to health care research, education, and innovation.

Yet, significant opportunities for improvement remain, especially for health care affordability and health equity. Average employer-based insurance premiums for a family of four in Massachusetts, including typical copayments and deductibles, exceeded \$23,000 annually in 2017, the fourth highest in the nation.³ In addition, consumers and small employers are disproportionately bearing the high and rising cost of health care. From 2016 to 2017, consumer out-of-pocket spending and small employer premiums rose by 5.7 percent and 6.9 percent, respectively.⁴ These trends are impacting the ability of Massachusetts residents to access needed care, as one in four residents reported having gone without needed medical or dental care due to cost in 2017.⁵ Finally, as detailed in the Massachusetts Department of Public Health's *2017 Massachusetts State Health Assessment*, despite long-standing commitments to health care reform, access to care, and progressive public health policies, there remain persistent health disparities among certain Massachusetts populations.⁶

In addition, across a number of key metrics, Massachusetts continues to trail the country. Despite recent gains, emergency department, hospital outpatient, and acute care hospital use are above national averages, and the hospital readmissions rate in Massachusetts is higher than nearly every state in the U.S. Consistent with these data, the Commonwealth Fund's scorecard ranked Massachusetts 29th in the nation for avoidable hospital use and costs and the United Health Foundation ranked Massachusetts 37th in preventable hospitalizations.^{1,2} Massachusetts' performance challenges reflect, in part, a still fragmented delivery and payment system that is not aligned to meet the needs of all patients efficiently, especially patients with complex medical, behavioral health, and health-related social needs.

Realizing the vision of a health care system that delivers better care, better health, at a lower cost across the Commonwealth will require the continued and concerted action of all stakeholders and market participants. This report is intended to contribute to these efforts by providing new research insights and data analyses that enhance the collective understanding of health care spending trends, cost drivers, and opportunities for improvement.

HOW THE COST TRENDS REPORT IS ORGANIZED

The report includes material in two formats, a narrative written report and a graphical chartpack. This report is informed by the research of the Center for Health Information and Analysis (CHIA) and the Massachusetts Attorney General’s Office (AGO), as well as by presentations and testimony submitted during the HPC’s 2018 Annual Cost Trends Hearing.

Chapters 2 through 6 of the report compare health care cost growth in 2017 to the state’s health care cost growth benchmark and discuss trends and levels of health care spending in Massachusetts and the nation overall; explore variation in hospitals’ rates of admitting patients from the emergency department to the inpatient setting for particular conditions; examine use of low value services in the Commonwealth; examine sources of spending variation among provider groups for particular subgroups of similar patients; and analyze levels and growth in prices for inpatient care, hospital outpatient procedures, and ambulatory services both in the commercial sector and relative to Medicare prices for the same services. Chapter 7 contains the HPC’s policy recommendations for improving efficiency in health care spending and quality of care in Massachusetts, as well as a dashboard summarizing performance in the Commonwealth on key measures.

The chartpack presents updated results and trends previously reported by the HPC. These include areas for improvement in care delivery performance, such as decreasing avoidable hospital utilization and maximizing value in post-acute care, and progress in aligning incentives, including expanding the use of alternative payment methods. The chartpack also explores trends in insurance premiums by different markets and analyzes trends in spending by provider group.

WHAT IS THE ROLE OF THE MASSACHUSETTS HEALTH POLICY COMMISSION?

The Massachusetts Health Policy Commission (HPC), established in 2012, is an independent state agency charged with monitoring health care spending growth in Massachusetts and providing data-driven policy recommendations regarding health care delivery and payment system reform. The HPC’s mission is to advance a more transparent, accountable, and innovative health care system through independent policy leadership and innovative investment programs. The HPC’s goal is better health and better care – at a lower cost – across the Commonwealth.

Key agency activities include setting the health care cost growth benchmark; setting and monitoring provider and payer performance relative to the health care cost growth benchmark; creating standards for care delivery systems that are accountable to better meet patients’ medical, behavioral, and social needs; analyzing the impact of health care market transactions on cost, quality, and access; investing in community health care delivery and innovations; and safeguarding the rights of health insurance consumers and patients regarding coverage and care decisions by health plans and certain provider organizations.

The HPC’s strategic framework is driven by the following two policy priorities:

- Strengthening market functioning and transparency to promote a health care system in which payers and providers openly compete, providers are supported and equitably rewarded for providing high-quality and affordable services, and health system performance is transparent in order to implement reforms and evaluate performance over time.
- Promoting an efficient, high-quality system with aligned incentives that reduces spending and improves health by delivering coordinated, patient-centered, and efficient health care that accounts for patients’ behavioral, social, and medical needs through the support of aligned incentives between providers, payers, employers, and consumers.

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CHAPTER 2:
**TRENDS IN SPENDING
AND CARE DELIVERY**

CHAPTER 2: 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 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 a projection of the Commonwealth’s long-term economic growth. From 2013 to 2017, the benchmark for annual health care spending growth has been set at 3.6 percent.ⁱ

In keeping with the HPC’s mandate to monitor spending relative to the health care cost growth benchmark and to monitor value and performance in the health system overall, this chapter discusses the state’s performance relative to the benchmark in 2017 and broad trends affecting health care spending in the Commonwealth (see **Sidebar: Factors underlying health care spending**).

SPENDING GROWTH FROM 2016 TO 2017

The measure of spending growth that is compared to the benchmark is the change in Total Health Care Expenditures (THCE) per state resident per year. THCE includes health care spending incurred by individuals, the state, and the federal government via Medicaid (MassHealth) and Medicare, as well as commercial spending as reported by health insurers to CHIA. CHIA reported that, from 2016 to 2017, the per capita growth in THCE in Massachusetts was 1.6 percent, considerably below the state’s benchmark of 3.6

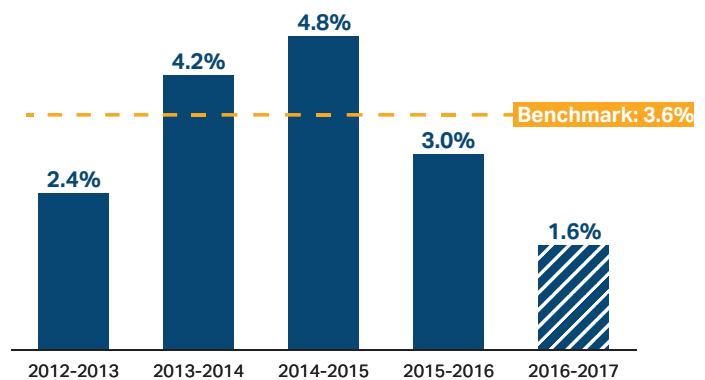
- i From 2018 to 2022, the benchmark was set by law to equal potential gross state product minus 0.5 percent, or 3.1 percent, unless the HPC’s Board of Commissioners votes to maintain the benchmark at 3.6 percent. On March 29, 2017, the Board voted unanimously to allow the benchmark to drop to 3.1 percent for the 2018 calendar year relative to 2017. Performance against this lower benchmark will be assessed in the HPC’s 2019 Cost Trends Report.
- ii Final 2015 and 2016 spending amounts were revised upward from \$57.2 billion and \$59.0 billion to \$57.8 billion and \$59.8 billion, respectively. These adjustments primarily reflect non-claims risk sharing and other payments to providers.

percent.² Total spending increased from \$59.8 billion in 2016ⁱⁱ to \$61.1 billion in 2017,ⁱⁱⁱ while the state’s population was estimated to have grown from 6.82 million to 6.86 million residents over the same time period, resulting in an increase in per capita spending from \$8,765 to \$8,908. This marks the third year of performance below the benchmark rate in those five years since the passage of Chapter 224 for which THCE growth can be assessed. The average annual growth rate over the five years is 3.2 percent, below the benchmark rate (see **Exhibit 2.1**).

FACTORS UNDERLYING HEALTH CARE SPENDING

Total health care spending is a function of the prices of health care services as well as health care utilization. Utilization, in turn, is affected by both the number of people who use health care services and the frequency and intensity of the services they receive. The HPC’s Cost Trends Report examines the latest changes in both prices and utilization in Massachusetts, as well as factors that may explain and contextualize these recent trends in health care spending. This report largely focuses on aspects of the health care system that can be influenced by policymakers, government agencies, and market participants in the state, instead of population health factors such as aging of the population and other underlying changes in health status.

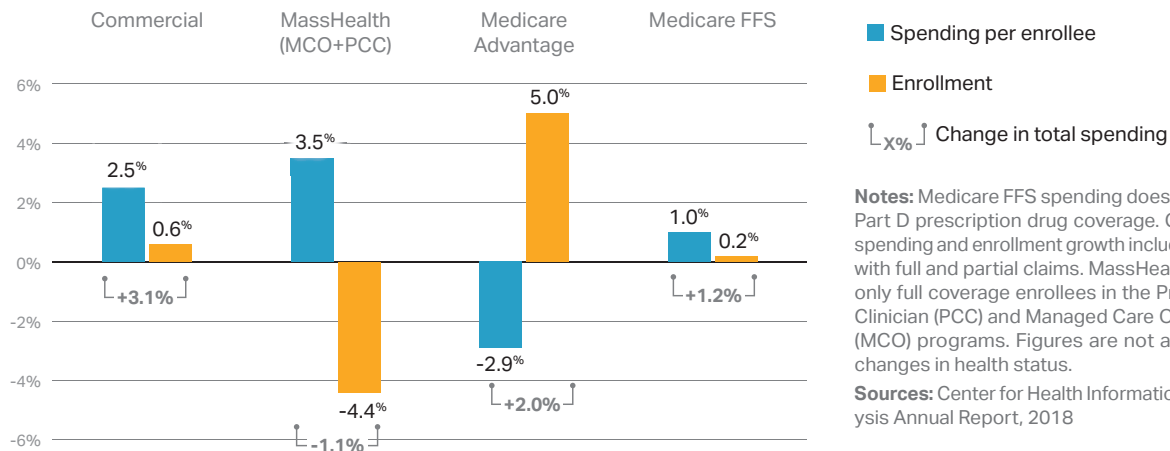
Exhibit 2.1 Annual growth in total health care expenditures per capita in Massachusetts



Notes: 2016-2017 spending growth is preliminary.

Sources: Center for Health Information and Analysis Annual Report, 2018

iii This figure is preliminary.

Exhibit 2.2 Change in enrollment, per enrollee spending, and total spending by major market segment, 2016-2017

Across the three major market segments (Medicare, MassHealth, and commercial), spending growth per enrollee was also below the benchmark rate: spending per enrollee increased 2.5 percent among commercial enrollees, 3.5 percent for those receiving full benefits and coverage through MassHealth, 1.0 percent for those enrolled in Medicare Fee For Service (FFS), and spending per enrollee *declined* 2.9 percent among Medicare Advantage enrollees (see Exhibit 2.2). There were notable enrollment shifts toward Medicare Advantage from Medicare FFS, and a small reduction in MassHealth enrollment due to program integrity efforts. Combining enrollment changes and changes in spending per enrollee, total spending grew 3.1 percent in the commercial sector, 2.0 percent and 1.2 percent respectively in Medicare FFS and Medicare Advantage, and declined 1.1 percent among MassHealth full coverage enrollees.

Within the commercial sector, there were important differences between the individual and employer markets, as well as among different segments of the employer market (e.g., for employers of various sizes). Premiums per enrollee in the individual market, most of whom obtain insurance through the Massachusetts Health Connector, increased 2.9 percent in 2017 after declining in 2016 and 2015.^{iv} Adjusting for benefit levels, individual premiums in the Massachusetts Health Connector remained 23 percent below premiums in the fully-insured employer market.^{v,3} In the fully-insured

iv HPC analysis of data from Center for Health Information and Analysis. Performance of the Massachusetts health care system, 2018 Annual Report: Coverage Costs and Cost Sharing Databook. Sept. 2018. Available at: <http://www.chiamass.gov/assets/2018-annual-report/2018-Annual-Report-Databooks-2.zip>.

employer market overall, premiums grew by 5.8 percent and cost sharing increased by 5.9 percent on average in 2017, compared to 2.9 percent and 0.5 percent in the individual market. Within the employer market, both premiums and cost sharing rose more sharply for small firms in particular; at the same time, 57.5 percent of small firm employees and dependents were enrolled in a high-deductible health plan in 2017, compared to 51 percent, 34.3 percent, and 22 percent for enrollees in mid-size, large, and jumbo firms, respectively.^{2,vi}

There were also distinct trends in enrollment in commercial insurance by market segment, with enrollment growing by 10.6 percent (to nearly 290,000 enrollees) in the individual market in 2017 but only 2.7 percent in the employer-based market (to nearly 4,360,000 enrollees).^{vii} Enrollment in small group employer-based insurance declined by 3.6 percent (to

- v Connector premiums are reported based on an unsubsidized Silver Plan which has an actuarial value of 70%; most employer plans typically have actuarial value of 85-95% (i.e. they cover a higher portion of total health spending). The figure of 23 percent adjusts for this difference but does not reflect differences in the underlying health risk of Health Connector enrollees versus group market enrollees; previous work has suggested that the premium difference would be even larger if it were adjusted for health risk.
- vi Small, mid-size, large and jumbo firms are defined as those with 1- 50 employees, 51-100 employees, 101-499 employees, and 500+ employees, respectively.
- vii The increase in enrollment in the employer market was driven by a 5.1 percent increase in jumbo group enrollment. However, the 2018 CHIA Annual Report noted that jumbo group enrollment growth was mainly driven by the administrative relocations of several larger employer accounts; these “new” contract members may not all reside in Massachusetts.

over 470,000 enrollees), continuing the prior year's trend (see **Chartpack** for challenges faced by small group insurance).

Medicare spending in Massachusetts continued to grow very slowly in 2017, with spending per FFS enrollee increasing 1.0 percent,^{viii} below the national rate of 1.8 percent in 2017. Consistent with trends in population aging nationwide and in Massachusetts, enrollment in Medicare grew 1.0 percent. The aging of the population in Massachusetts is, in itself, expected to contribute 0.5 percent in THCE spending growth each year.⁴

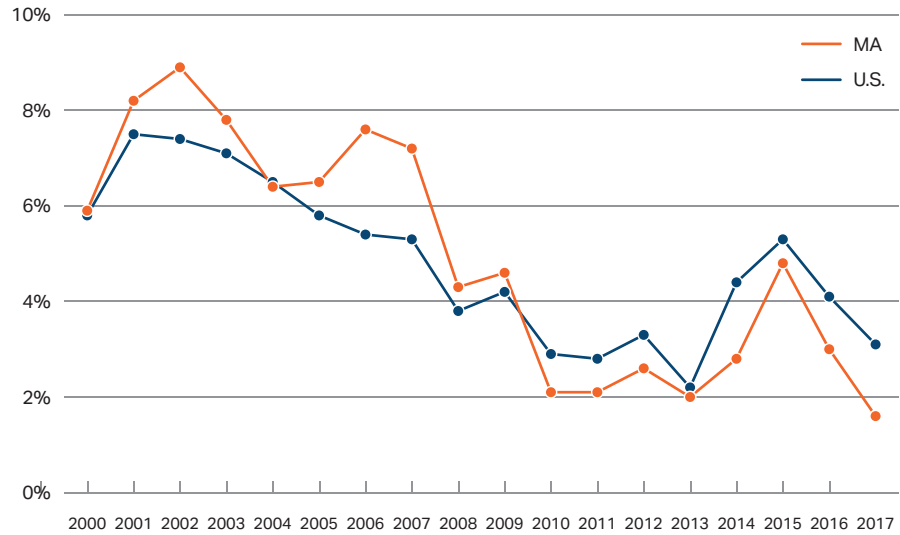
COMPARISON TO NATIONAL TRENDS

In terms of overall per capita spending growth, the Massachusetts total health care spending growth rate of 1.6 percent per capita in 2017 was below the U.S. rate of 3.1 percent, continuing a consecutive eight year trend of spending growth below the national growth rate (see **Exhibit 2.3**). In the commercial sector, per-member spending growth rates also continued to be below the national average (see **Exhibit 2.4**).

Cumulatively, from 2013 to 2017, these lower growth rates resulted in commercial spending that was \$5.5 billion lower than would have been the case if growth rates matched the national average.

^{viii} Medicare FFS spending does not include Part D prescription drug coverage.

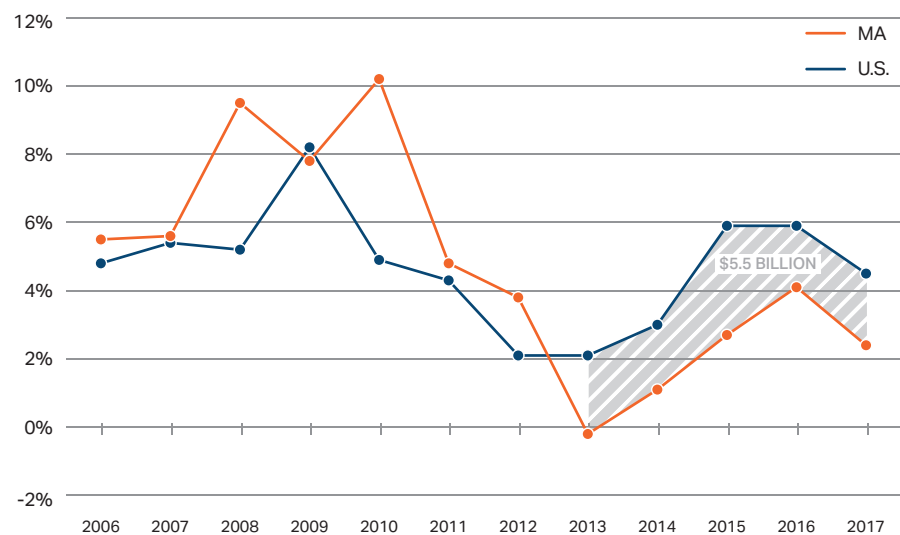
Exhibit 2.3 Annual growth in total health care spending per capita, Massachusetts and the U.S., 2000-2017



Notes: U.S. data include Massachusetts. Massachusetts 2016-2017 spending growth estimate is preliminary.

Sources: Centers for Medicare and Medicaid Services, National Health Expenditure Accounts Personal Health Care Expenditures, 2014-2016 and State Health Expenditure Accounts, 1999-2014; Center for Health Information and Analysis, Total Health Care Expenditures, 2014-2017

Exhibit 2.4 Annual growth in per capita commercial health care spending, Massachusetts and the U.S., 2006-2017



Notes: U.S. data include Massachusetts. Massachusetts 2016-2017 spending growth estimate is preliminary. CHIA Analysis data are based on full-claim commercial total medical expenditures (TME).

Sources: Centers for Medicare and Medicaid Services, National Health Expenditure Accounts Personal Health Care Expenditures, 2014-2017 and State Health Expenditure Accounts, 2005-2014; Center for Health Information and Analysis, Total Health Care Expenditures, 2014-2017

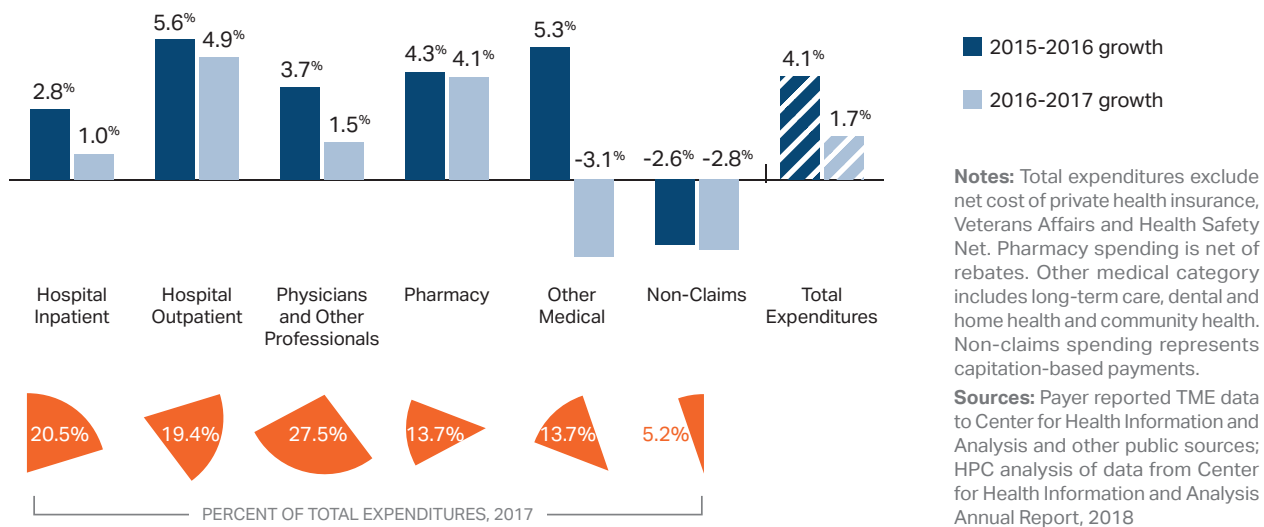
SPENDING BY CATEGORY OF SERVICE

Hospital outpatient and prescription drug spending were the fastest growing categories of spending in Massachusetts in 2017, with growth rates of 4.9 percent and 4.1 percent (net of rebates) respectively (see **Exhibit 2.5**). Containing growth in prescription drug spending has been an emerging focus for policymakers in Massachusetts and other states (see **Sidebar: Emerging state strategies to address prescription drug spending**).

Prescription drug spending growth per member net of rebates varied by market segment. In the commercial market, it moderated to 1.1 percent in 2017 after growing by 3.4 percent in 2016. This decline was partly due to an increase in rebates, which accounted for 12.4 percent of gross prescription drug spending in 2017, up from 10.8 percent in 2016. Drug spending growth per member net of rebates in Medicare Advantage declined by 3.9 percent, and spending per member net of rebates among Medicare FFS enrollees in Medicare Part D increased 2.4 percent. Among enrollees in MassHealth MCOs, spending per member net of rebates increased by 9.9 percent in 2017.

These drug spending figures do not include spending for drugs covered under an insurance plan’s medical benefit (e.g., Part B in Medicare). Medical drugs, such as chemotherapy agents, are typically administered by providers in a clinic or hospital outpatient department and paid for under a medical benefit rather than a prescription drug benefit. Research estimates medical drugs represent about 20 percent of all commercial prescription drug spending in Massachusetts.⁵ Spending on medical drugs has also grown in recent years: commercial drug spending under the medical benefit in Massachusetts grew 9.5 percent in 2016 and 5.1 percent in 2015.^{ix} In the future, drug spending under the medical benefit is expected to grow even faster than drug spending under the pharmacy benefit due to the composition of drugs in the pipeline for approval, including a large number of chemotherapy agents.⁶ Price levels and price increases for these medical drugs can be influenced by the market leverage of the provider administering the drugs because the prices paid for such medical drugs are generally negotiated between payers and providers in a similar manner to prices for medical services. HPC research on price variation for commonly used chemotherapy drugs in Massachusetts is discussed in **Sidebar: Hospital price variation for oncology drugs**.

Exhibit 2.5 Rates of spending growth in Massachusetts by category, 2015-2017



ix HPC analysis of Massachusetts All-Payer Claims Database, 2014-2016.

EMERGING STATE STRATEGIES TO ADDRESS PRESCRIPTION DRUG SPENDING

The number of states passing legislation to address drug spending continues to grow, as has the breadth of new ideas for policy action. In 2018 alone, 28 states passed 45 new laws.⁷ Diverse models – some implemented and others at various proposal stages – include a robust price transparency law in Connecticut, drug importation from Canada in Vermont, value-based purchasing in Oklahoma, a price gouging law in Maryland (a Federal court injunction blocking its implementation is under appeal to the U.S. Supreme Court), and bills to create all-payer drug rate setting in Minnesota and Maryland. Louisiana has gained CMS approval for a subscription model to treat hepatitis C in its corrections and Medicaid programs, in which the state would provide a specified budget to a single hepatitis C drug manufacturer to treat an unlimited number of cases. This program is designed to align incentives for the state to maximize the number of cases treated and increase the predictability of the drug spending budget.

A particularly promising initiative in New York has shown success in its first year of operation. In 2017, New York designated a drug spending cap within its Medicaid program and created a Drug Utilization Board to determine whether to pursue supplemental rebates for particular drugs based on factors including a drug’s impact on spending, justification given for price increases, and the cost of the drug relative to its therapeutic benefits. In the first year of New York’s program, officials identified 30 drugs that were priced too high and most of the manufacturers of these drugs agreed to provide larger rebates.⁸

States have also increased oversight of pharmacy benefit managers (PBMs) to ensure that public dollars are spent efficiently at all points in the drug distribution chain. PBMs manage drug benefits for many health plans; negotiate prices, discounts, and rebates with manufacturers; and negotiate payments to pharmacies. At least 20 states have passed legislation increasing transparency for PBMs.⁷ In addition, in August 2018, the Ohio Department of Medicaid regulated how Medicaid MCOs pay PBMs. Ohio had identified a large difference or “spread” between the prices PBMs charged MCOs for generic drugs and the amount the PBMs paid the pharmacies that dispensed the drugs. PBMs kept the difference as profit, accounting for 31 percent of the \$662.7 million paid by MCOs on generic drugs, according to an Ohio state audit of Medicaid MCO programs.⁹ To

address this problem, the Ohio Department of Medicaid instructed its MCOs to end contracts with PBMs that use spread pricing and instead adopt new practices using a “pass-through” model.¹⁰ In this model, the PBM must charge the MCO exactly what it paid the pharmacy, plus an administrative fee. Particularly in the context of mergers between PBMs and payers, PBM practices may represent an important area for attention.

The past year has also seen a focus on efforts to directly reduce prices for patients. In many cases, consumers are unaware that their copayment or other cost sharing may be more expensive than a cash price at the pharmacy. Following action from numerous states, in October 2018 the U.S. Congress passed a law banning PBMs from restricting information that pharmacists can provide to consumers on drug prices. Some states, including Florida and California, have gone further to require the proactive disclosure of some information to consumers. The HPC released research in October highlighting savings that would have resulted if consumers had paid the cash price of drugs when the cash price was lower than their cost sharing.¹¹ In a limited sample of common low-priced generics, consumers using the best cash price in cases of overpayment would have had 27 percent lower cost sharing, reducing total spending by 36 percent. Another example of price reduction for patients is UnitedHealthcare’s March 2018 announcement that it would share the drug rebates it receives with customers. Members with high deductibles who use drugs with large rebates will likely see the greatest savings.¹²

In addition to growing state level efforts, the U.S. Department of Health and Human Services has recently announced a number of new strategies to reduce prescription drug spending growth within the Medicare program, including a proposal for international price benchmarks for medical drugs, and a prohibition on rebate agreements between manufacturers and PBMs for brand name drugs. Any such discounts would instead have to be credited at the pharmacy counter when patients fill a prescription.^{13,14,15}

Finally, in Massachusetts, over 50 bills have been filed to address pharmaceutical spending growth for consideration in this year’s legislative session, including a new proposal from the Baker-Polito Administration that enhances the ability of MassHealth to negotiate directly with drug manufacturers for additional supplemental rebates and outcomes-based contracts.¹⁶ With continued innovation

and legislative action in Massachusetts, public and private payers in the state can support a more value-based marketplace, moderate future drug spending growth, and improve the affordability of drugs for all residents (see **Chapter 7: Policy Recommendations**).

HOSPITAL PRICE VARIATION FOR ONCOLOGY DRUGS

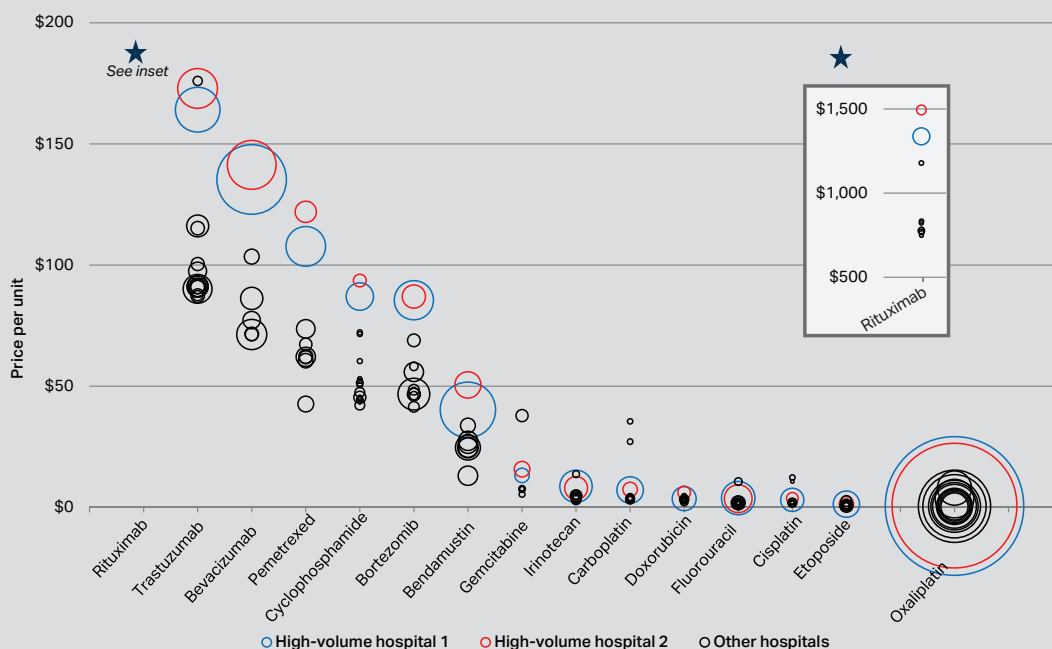
Oncology drugs represent one of the largest categories of drug expenditures by therapeutic class in both Massachusetts and the U.S. Spending on oncology drugs in Massachusetts totaled \$700 million in 2014.¹⁷ In the U.S., spending on oncology drugs grew an average 15.9 percent annually from 2013 to 2017 and continued high growth is expected as innovation continues, with hundreds of oncology drugs currently in the global pipeline.⁶ Many oncology drugs, including chemotherapy drugs, are covered under a patient’s medical benefit. A provider typically purchases such drugs from a manufacturer or wholesaler. When a provider administers the drug to a patient, the payer reimburses the provider for both the drug itself and the administration of the drug. The prices providers receive for such drugs are negotiated with payers, and thus subject to provider market leverage, similar to prices for other medical services. Thus, prices for the same drug may vary significantly across providers.

Given that oncology drugs comprise a large and growing share of drug spending, the HPC examined commercial price variation for chemotherapy drugs administered by injection (including by infusion) to better understand the market for these drugs in Massachusetts and implications for spending. Notably, this price analysis does not evaluate treatment outcomes or other differences in the value of the oncology care offered by each provider.

The HPC examined hospital drug prices and utilization for the most commonly used injectable chemotherapy drugs, defined as drugs for which there were more than 10 claims from at least 10 hospitals among two of the state’s largest commercial payers in 2016.^x This definition resulted in a set of 15 injectable chemotherapy drugs. To compare prices for the same drug between hospitals, the HPC calculated reimbursement received per unit of the drug, excluding administration fees. A patient may receive multiple units of a drug, which are billed together on a claim.

The HPC found that commercial prices varied substantially by hospital for each of these drugs. For 14 of the 15 drugs examined, the price per unit of the highest-priced hospital was more than double that of the lowest-priced hospital (**Exhibit 2.6**). Similar to findings that high volume providers tend to also have higher prices for medical services,¹⁸ the HPC found that those hospitals with the highest volume for these drugs also had the highest prices. Across the 15 drugs,

Exhibit 2.6. Variation by hospital in chemotherapy drug unit prices and volume, 2016



Notes: Data include 2016 Blue Cross Blue Shield of Massachusetts and Tufts Health Plan claims. Sample includes all injectable chemotherapy drugs for which there were more than 10 claims in at least 10 hospitals in 2016. Each bubble represents one hospital in Massachusetts. The area of each bubble is scaled by the total number of units administered by each hospital. Prices represent volume-weighted averages of claims. Claims from Harvard Pilgrim Health Care were excluded due to coding anomalies. See **Technical Appendix** for additional data.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2016

58 percent of units administered were priced more than 20 percent above the median price per drug, and 40 percent of units administered were priced more than 50 percent above the median price per drug. Spending for all claims in the sample totaled \$22.1 million. If all of these claims had been reimbursed at the median price, spending in the sample would have been approximately \$6.8 million (31 percent) lower.

The two hospitals that billed the largest volume of these drugs consistently received the highest prices for them. For the 15 drugs examined, these two hospitals billed 55 percent of total units and 54 percent of claims. They received higher prices than any other hospital for 6 of the 15 drugs, and were among the top four highest-priced hospitals for all of the drugs. On average, these two hospitals had prices per unit that were 71 percent and 92 percent higher than the median drug price, respectively.^{xi} The variation in price per unit translated into comparable variation in total spending per claim.

Excluding the two high-priced outlier hospitals, neither of which had 340B status in 2016,^{xii} the 340B-eligible hospitals in the data set did not have consistently higher or lower prices than the non-340B hospitals. This finding suggests that hospitals with lower drug acquisition costs do not necessarily have lower drug prices. In other words, 340B discounts on drug acquisition costs are not typically passed along to commercial payers and consumers.

In summary, the HPC found substantial variation in commercial hospital prices for the most frequently used injectable chemotherapy drugs, with the two consistently highest-priced hospitals billing a large share of the volume. This pattern is consistent with past HPC findings that volume across a range of inpatient and outpatient services tends to be concentrated among higher-priced providers. It suggests that market leverage may allow higher-volume hospitals to obtain higher commercial prices than lower-volume hospitals for the same commodity product. These findings indicate the need for broader transparency and accountability of drug prices and spending in the Commonwealth, including those drugs for which providers receive a negotiated reimbursement.

x The Massachusetts All-Payer Claims Database includes claims for the three largest payers in Massachusetts: Blue Cross Blue Shield of Massachusetts, Tufts Health Plan, and Harvard Pilgrim Health Plan. Harvard Pilgrim Health Plan was excluded from this analysis due to data anomalies.

xi Eight of the 15 drugs in the sample had a Medicare reimbursement rate included in the 2016 Centers for Medicare & Medicaid Hospital Outpatient Prospective Payment System. The median commercial payment rates for these eight drugs were similar to the Medicare reimbursement rate, ranging from 84 percent to 111 percent of the Medicare rates.

xii The federal 340B Drug Discount Program requires that pharmaceutical drug manufacturers provide drugs to hospitals that serve disproportionately low-income patients at significantly reduced prices in order to relieve the burden of high drug prices on these hospitals.

Hospital outpatient spending growth was lower in 2017 than 2016, but, similar to prior years, remained higher than growth in other categories of spending. Growth in hospital outpatient spending can occur due to a number of factors, including price increases, volume increases, and shifts in care to outpatient settings from either more costly inpatient settings or less costly non-hospital settings. The HPC has previously reported on outpatient spending and continues this examination in **Chapters 5 and 6** of this report.^{3,19} Hospital outpatient spending is far higher among provider groups in systems anchored by an academic medical center (AMC) (see **Chapter 5**), which tend to use hospital outpatient settings for common procedures such as labs, tests, and even physician visits. Accordingly, patient shifts toward AMC-anchored provider groups can also increase hospital outpatient spending.

Growth in hospital inpatient spending in 2017 was relatively low at 1.0 percent, continuing a trend of low growth. This is partly driven by a decrease in inpatient utilization among commercially-insured individuals (see **Chartpack**), although rising commercial inpatient prices have prevented the decrease in utilization from resulting in decreased commercial inpatient spending (see **Chapter 6**).

Massachusetts also appears to be making progress in using less of other types of institutional care. Following an inpatient hospital stay, use of institutional post-acute care, such as skilled nursing facilities, dropped again in 2017. This decrease was driven by a reduction in discharge to institutional post-acute care for patients who had an inpatient stay for musculoskeletal conditions, with the rate of discharge to institutional post-acute care for such patients decreasing from 44 percent to 37 percent between 2014 and 2017 (see **Chartpack**). Total skilled nursing facility spending among Medicare FFS beneficiaries in Massachusetts also dropped over 5 percent per beneficiary in 2017, after dropping nearly 11 percent per beneficiary in 2016.

AFFORDABILITY OF CARE

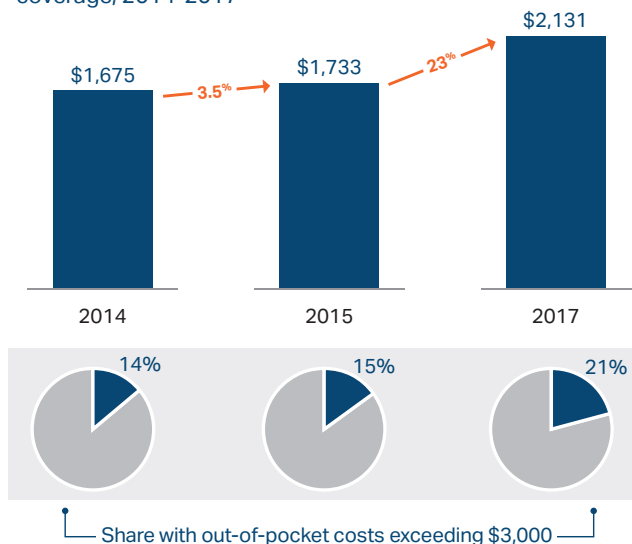
Massachusetts has long been a leader in health care innovation and access, while affordability has remained a persistent challenge despite the lower spending growth rates in recent years discussed earlier. Massachusetts continues to have the lowest uninsured rate in the nation at 2.8 percent of the population in 2017, which was substantially lower than the national average of 8.7 percent.²⁰ The percentage of Massachusetts residents who had high out-of-pocket spending

in 2016 is below the U.S. average (11 percent versus 14 percent), and ranks 10th lowest among states and D.C.²¹

Despite these achievements, many Massachusetts residents continue to face considerable challenges with health care affordability. The average total premium for employer-based coverage in Massachusetts remains one of the highest in the country, with an average family paying over \$21,000 per year for coverage in 2017 and single enrollees paying \$7,000, which are the fourth- and seventh-highest premiums in the U.S., respectively.^{xiii} The HPC estimates that when including typical copays and deductibles, health insurance spending for an average family in Massachusetts exceeded \$23,000 per year, a figure that doesn't include other out-of-pocket costs for health care such as costs for non-covered services (such as visits to out-of-network providers) or over-the-counter drugs.

Out-of-pocket costs, in particular, are growing in Massachusetts. Results from CHIA's 2017 Massachusetts Health Insurance Survey show that, from 2014 to 2017, average out-of-pocket spending for people with employer-based coverage grew 27 percent (**Exhibit 2.7**). Over the same period, the share of people spending more than \$3,000 out-of-pocket for health care grew 7 percentage points

Exhibit 2.7 Annual out-of-pocket health care spending from all sources for Massachusetts residents with employer-based coverage, 2014-2017



Notes: Figures rounded to nearest whole number. Out-of-pocket spending is defined as the amount of money survey respondents paid for health care that was not covered by insurance.

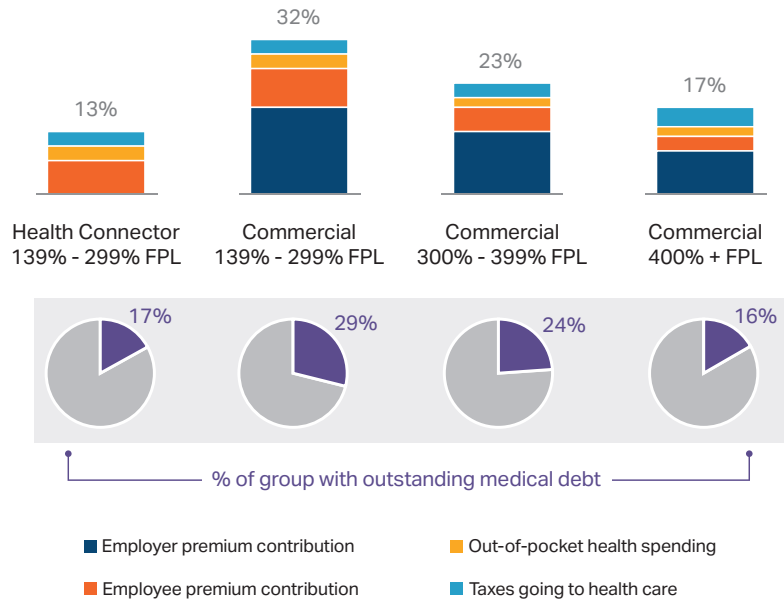
Sources: Massachusetts Health Interview Survey (CHIA) data from 2017.

(14 percent to 21 percent). In addition, one in four Massachusetts residents reported having gone without needed medical or dental care due to cost.²²

This growing burden of health care spending is felt by some more than others. The costs of employer-based insurance are particularly burdensome and unaffordable for lower-income residents. Those between 139 percent and 299 percent of the Federal Poverty Level (FPL) with employer-sponsored insurance contributed nearly a third of their income to health care expenses in 2017 (Exhibit 2.8).

29 percent of these residents had outstanding medical debt they were paying off over time. At the same level of income, residents receiving insurance through the Health Connector contributed significantly less – about 13 percent of their income – to health care, primarily due to federal and state premium and cost sharing subsidies for health insurance and the lower premiums available for coverage through the Connector compared to the employer-sponsored market. These residents were also less likely to have outstanding medical debt compared to those insured in the employer-sponsored insurance market at similar levels of income.

Exhibit 2.8 Portion of total income devoted to health care spending for Massachusetts residents by type of coverage in 2017



Notes: Figures rounded to nearest whole number. Total income represents total family income and includes employer payments, if any, toward health insurance premiums. Two-person families are excluded. Insurance status is self-reported in the survey. "Commercial" represents insurance received through work or a union; "Health Connector" represents all private, non-group plans available through the Health Connector.

Sources: Center for Health Information and Analysis, Massachusetts Health Interview Survey data from 2017.

xiii HPC analysis of data from the Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey. Data available at: https://meps.ahrq.gov/mepsweb/data_stats/quick_tables.jsp

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CHAPTER 3:
**HOSPITAL ADMISSIONS
FROM THE EMERGENCY
DEPARTMENT**

CHAPTER 3: HOSPITAL ADMISSIONS FROM THE EMERGENCY DEPARTMENT

Hospital inpatient stays are a major driver of overall health care spending, accounting for more than 20 percent of total medical expenditures (TME) in 2017. Massachusetts has a higher rate of hospital inpatient use than the U.S. overall and scores below average (29th overall) on the Commonwealth Fund’s *Scorecard on State Health System Performance* metric of avoidable hospital use and cost.¹ The high rate of hospital stays is compounded by the fact that Massachusetts ranks fifth in the country for the most expensive inpatient stays, averaging \$2,955 per day.² In addition to the initial cost, inpatient stays can also pose safety risks to the patient (e.g., hospital acquired infections), which may result in the need for additional medical treatment and spending.³ This chapter focuses on opportunities to reduce avoidable hospital stays by better understanding the roughly 50 percent of inpatient admissions that begin with an emergency department (ED) visit.⁴

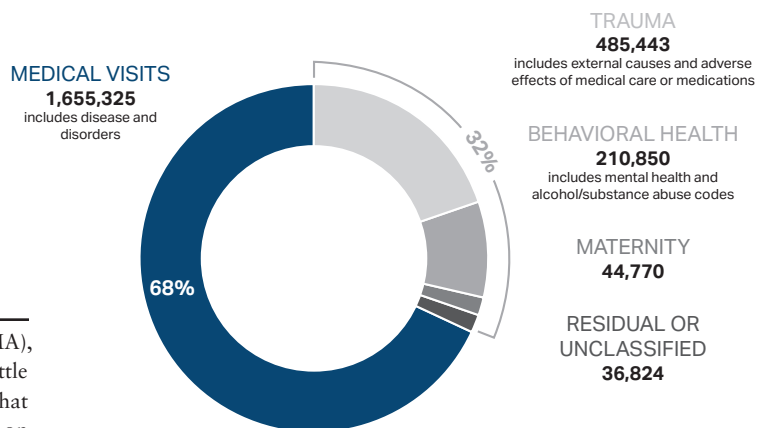
In recent years, researchers have found wide variation in hospital admission rates from EDs, particularly for certain diagnoses.^{5,6} The high variation may indicate that there is significant provider discretion or other factors at play in admission decisions, beyond purely clinical ones. Administrative and social factors affecting the decision to admit include whether a patient has a primary care provider or is otherwise able to adequately manage their care at home, the risk-tolerance of the physician, hospital wait times

for diagnostic testing, availability of on-call coverage for specialists, Medicare coverage of a skilled nursing facility stay, or hospital-level factors such as occupancy rates and financial incentives.ⁱ For example, one study found that admission rates from EDs declined following the introduction of hospital global budgets compared to hospitals paid under fee-for-service contracts.⁷

METHODOLOGY

The analyses in this chapter explore variability in admission rates from the ED by diagnosis across Massachusetts acute care hospitals. Analyses focus solely on adult medical ED visits as identified in the Center for Health Information and Analysis’ (CHIA) Hospital Inpatient Discharge Database, Emergency Department Database, and Outpatient Observation Database in 2015 and 2016.ⁱⁱ Discharges with maternity, behavioral health, trauma, or unclassified diagnoses are excluded, as well as those from specialty hospitals. In 2016, medical ED visits comprised 1.7 million (68 percent) of all adult ED visits to general acute care hospitals (see **Exhibit 3.1**). The definition of an admission from the ED as used in this chapter is described in more detail in **Sidebar: Defining hospital admissions from the ED**.

Exhibit 3.1 Composition of ED visits, 2016



Sources: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, Emergency Department Database, and Outpatient Observation Database, 2016

i In an extreme example, Health Management Associates (HMA), a Florida-based hospital chain, paid over \$260 million to settle a case with whistleblowers and the Department of Justice that involved HMA setting mandatory admission benchmarks on inpatient admissions from the ED (15-20 percent for all patients presenting to an ED, 50 percent for patients 65 or older). This 2018 case garnered national attention and highlighted the potential for discretionary inpatient admissions from the ED. Source: U.S. Dept. of Justice. Hospital Chain Will Pay Over \$260 Million to Resolve False Billing and Kickback Allegations; One Subsidiary Agrees to Plead Guilty. Sept. 25, 2018. Available at: <https://www.justice.gov/opa/pr/hospital-chain-will-pay-over-260-million-resolve-false-billing-and-kickback-allegations-one>.

ii These years are federal fiscal years (e.g., the 2015 data includes any discharges from October 1, 2014 through September 30, 2015).

DEFINING HOSPITAL ADMISSIONS FROM THE ED

For these analyses, an admission from the ED was defined as any encounter in the CHIA Hospital Inpatient Discharge Database, Emergency Department Database, or Outpatient Observation Database beginning in the ED and resulting in a stay in an inpatient unit, a transfer to another ED or acute care hospital, or a stay in observation status for longer than 48 hours (see **Exhibit 3.2**).

- *Inpatient stays* were counted as an admission from the ED if the inpatient discharge indicated that the patient was admitted directly from the ED, or if the patient entered observation status following their visit to the ED and was then admitted to the hospital.⁸
- *Transfers to other acute hospitals* were counted as an admission from the ED because these transfers likely involved patients of higher severity who needed more extensive treatment or services that were not available in the presenting ED. To avoid double counting admissions for the second hospital in the chain of care, all transfers received by other hospitals were excluded from the analysis.
- *Observation stays for longer than 48 hours* were included as an admission from the ED due to resource utilization resembling a typical inpatient discharge. Research indicates longer observation stays are increasingly used as a substitute for an inpatient stay.⁹

Adjusting for patient characteristics

In order to understand how admissions from the ED vary by hospital and by diagnosis, the HPC adjusted admission rates to account for patient characteristics including age, gender, race, payer, income (based on average income in the patient's zip code), and diagnosis category (where applicable). The HPC also adjusted for drive time to the nearest ED (based on patient zip code), as patients who live further from the hospital may be more likely to be admitted.¹⁰ All else equal, the HPC found that non-whites were 2 to 4 percentage points less likely than whites to be admitted, men were 2 percentage points more likely than women to be admitted, those with Medicare coverage were 7 percentage points more likely than those with commercial insurance to be admitted, older patients were more likely to be admitted, and patients living at least 20 minutes away from the nearest ED were one percentage point more likely than those who live closer to be admitted. Adjusting for these factors impacted admission rates from the ED by hospital. These adjustments were relatively small within each category but could be substantial when summed across a patient population. For example, adjusted admission rates for pneumonia differed from unadjusted rates by less than 5 percentage points for 44 of 55 hospitals. However, Holyoke Medical Center had the largest difference in adjusted and unadjusted admission rates from the ED for pneumonia, with an unadjusted rate of 6 percent and an adjusted rate of 26 percent.

OVERALL RATE OF ED VISITS RESULTING IN INPATIENT ADMISSIONS

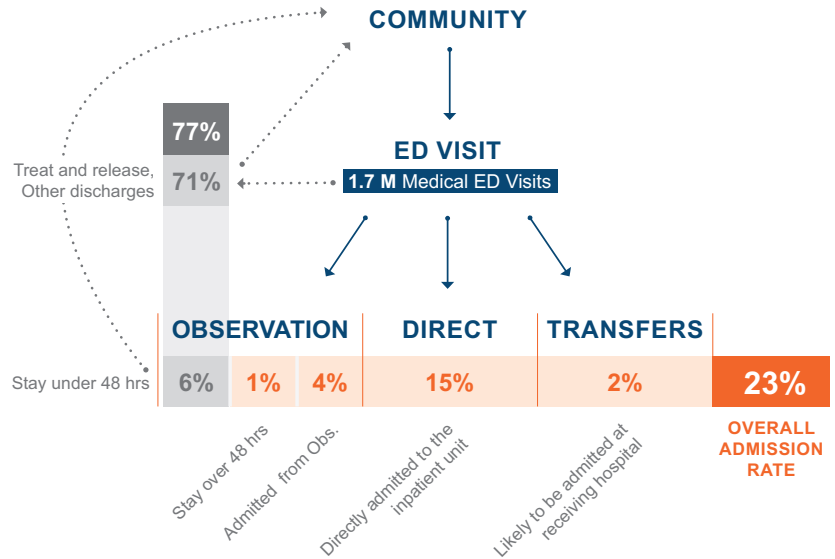
Overall, among the 1.7 million ED visits that took place in Massachusetts in 2016 (excluding trauma, behavioral health, and maternity visits), 23 percent (375,757) resulted in a hospital admission (see Exhibit 3.2). Of these admissions, 15 percent were directly admitted to inpatient care from the hospital's ED, 5 percent were admitted via observation status, and 2 percent were admitted via a transfer to another acute care hospital.

VARIATION IN ADMISSION RATES FROM THE ED BY DIAGNOSIS

The main factor determining whether a patient is admitted to the ED is the patient's clinical diagnosis.ⁱⁱⁱ For example, patients with septicemia, a serious condition typically involving infection of the bloodstream, are nearly always admitted to the hospital once diagnosed (see Exhibit 3.3). All hospitals admitted at least 70 percent of patients with septicemia, and half of the hospitals admitted between 96 and 99 percent of septicemia patients. In contrast, chronic obstructive pulmonary disease (COPD) had a very wide range of admission rates from the ED across hospitals, from 25 percent at the hospital at the 25th percentile to 47 percent at the hospital at the 75th percentile, with a total range from 6 percent to 60 percent. The HPC found wide variation between hospitals in rates of discharge to institutional post-acute care for certain conditions, similarly suggesting that differences in practice patterns may be seen more clearly in conditions for which less clinical consensus exists.¹¹

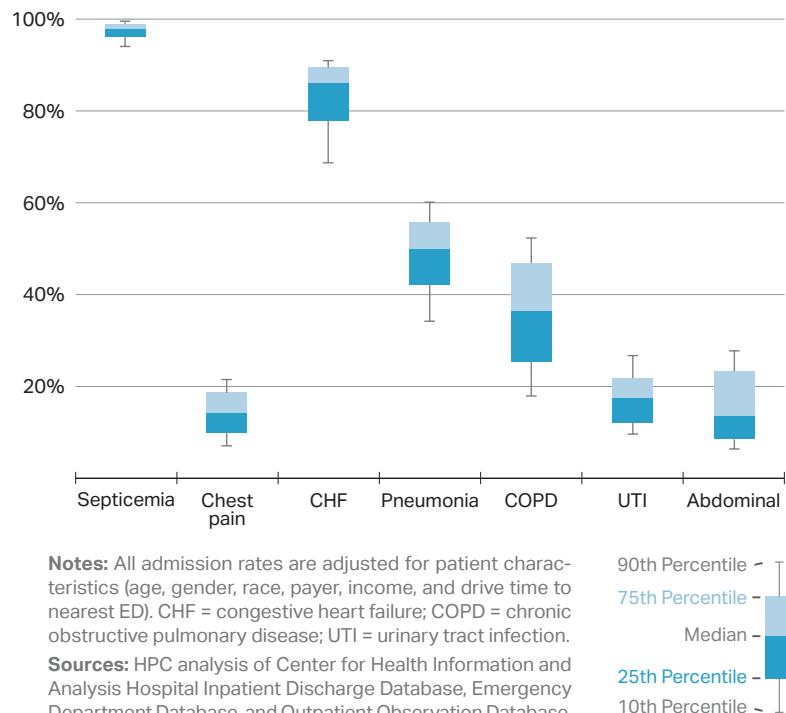
iii Clinical diagnosis categories based on Healthcare Cost and Utilization Project's Beta Clinical Classifications Software. Healthcare Cost and Utilization Project. Beta Clinical Classifications Software (CCS) for ICD-10-CM/PCS. Available from: <https://hcup-us.ahrq.gov/toolssoftware/ccs10/ccs10.jsp> (last visited Jan. 31, 2019).

Exhibit 3.2 Discharge destination of 1.7 million medical ED visits in Massachusetts, 2016



Sources: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, Emergency Department Database, and Outpatient Observation Database, 2016

Exhibit 3.3 Distribution of admission rates from the ED by hospital for selected diagnoses, 2016



Notes: All admission rates are adjusted for patient characteristics (age, gender, race, payer, income, and drive time to nearest ED). CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease; UTI = urinary tract infection.

Sources: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, Emergency Department Database, and Outpatient Observation Database, 2016

VARIATION IN ADMISSION RATES FROM THE ED BY HOSPITAL

Exhibit 3.4 depicts admission rates from the ED for all medical diagnoses, as well as for pneumonia and congestive heart failure (CHF) specifically, at the 25 hospitals with the largest ED volume. Overall, these hospitals admitted between 30 percent (Brigham and Women’s Hospital) and 18 percent (Steward’s Morton Hospital) of all patients from the ED, controlling for patient characteristics including diagnosis.^{iv}

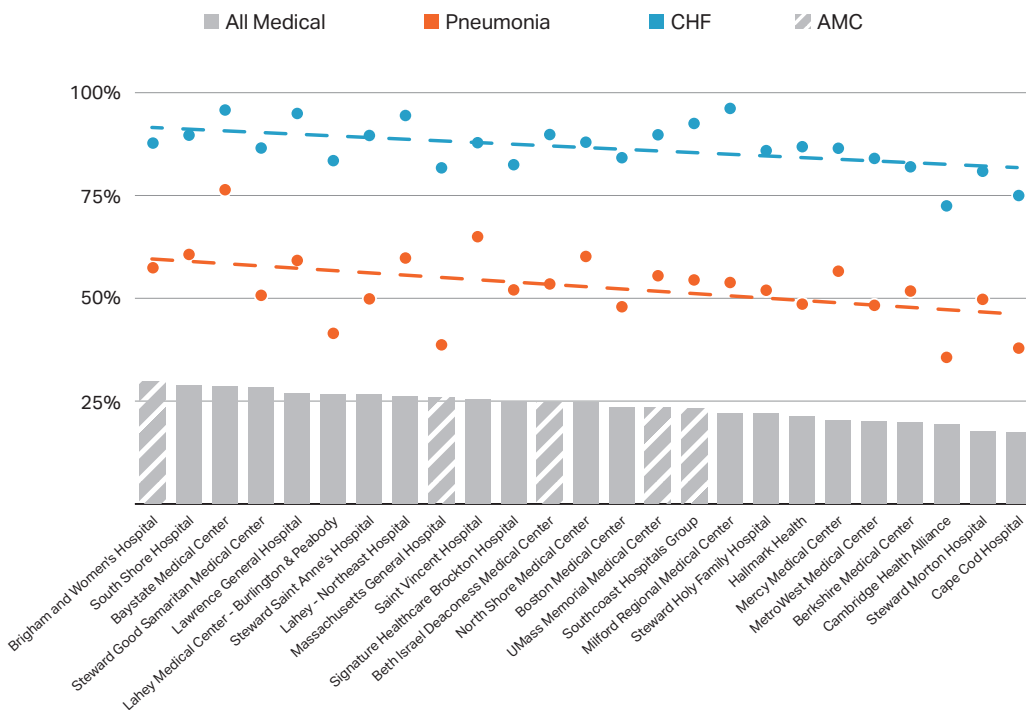
Exhibit 3.4 also shows admission rates for CHF and pneumonia, two diagnoses for which there was relatively wide variation in ED admission rates across hospitals (see Exhibit 3.3). Hospitals with high admission rates for CHF tended to have high admission rates for pneumonia as well ($r=0.84$, indicating a strong positive relationship between

the two admission rates). Admission rates for COPD and urinary tract infection (UTI) also tended to be strongly correlated with admission rates for CHF and pneumonia (and with each other) across hospitals, with correlation coefficients between 0.72 and 0.85.^v These correlations suggest that there may be systemic practice pattern variation in admitting practices at the hospital level.

VARIATION IN ADMISSION RATES FROM THE ED OVER TIME

Hospitals with high rates of admissions from the ED in 2015 also tended to have high rates in 2016 (see Exhibit 3.5). The correlation between 2015 admission rates and 2016 admission rates across the 25 highest-volume hospitals were between 0.70 and 0.77 for CHF, COPD, pneumonia, and UTI. These correlations further demonstrate practice pattern variation in admitting practices.

Exhibit 3.4 Rates of admission from the ED for all medical diagnoses, CHF, and pneumonia for the top 25 hospitals by ED volume, 2016



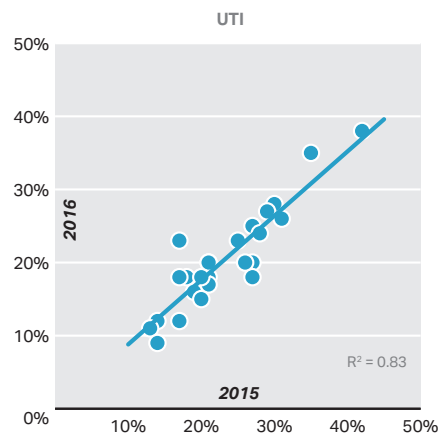
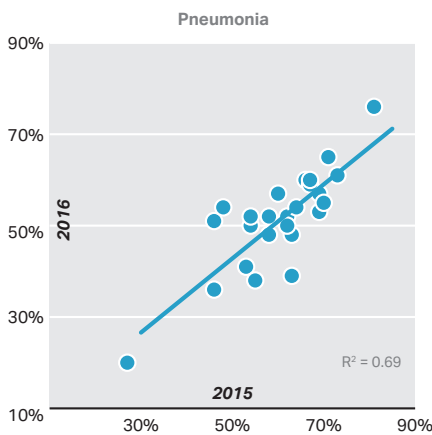
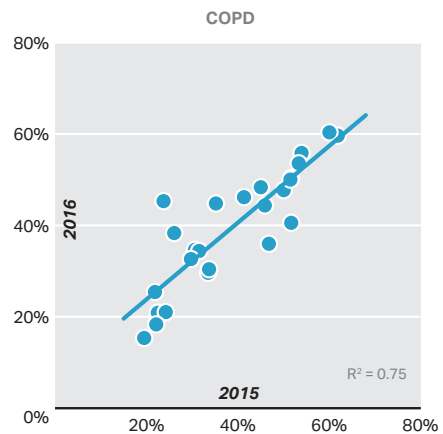
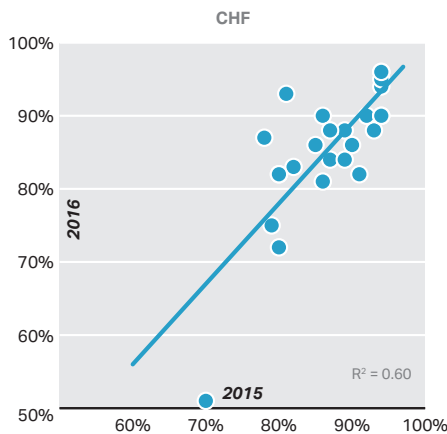
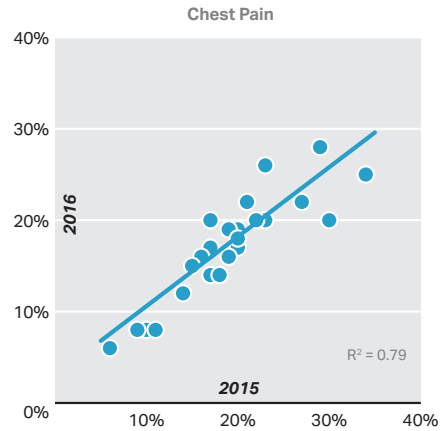
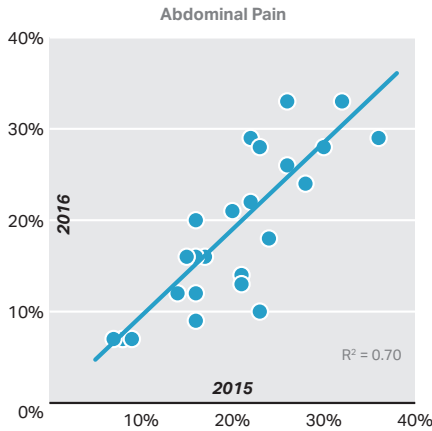
Notes: Hospitals are ordered by patient-adjusted rates of admission from the EDs. All admission rates are adjusted for patient characteristics (age, gender, race, payer, income, and drive time to nearest ED). Lowell Hospital was not included in this analysis due to data abnormalities. CHF = congestive heart failure; AMC = academic medical center.

Sources: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, Emergency Department Database, and Outpatient Observation Database, 2016

iv The range of admission rates from the ED for all medical patients across all 55 general acute care hospitals in Massachusetts was from 12 percent (Baystate Noble Hospital) to 30 percent (Brigham and Women’s Hospital).

v Admission rates for chest pain and abdominal pain were correlated with each other ($r=0.67$) but not with the other conditions examined.

Exhibit 3.5 Relationship between 2015 and 2016 admission rates from the ED by diagnosis for top 25 hospitals by ED volume



Notes: All admission rates are adjusted for patient characteristics (age, gender, race, payer, income, and drive time to nearest ED). CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease; UTI = urinary tract infection. The R^2 values provided in the graphic are a measure of how well the data fit the predicted line.

Sources: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, Emergency Department Database, and Outpatient Observation Database, 2015 and 2016

REVISITS FOLLOWING DISCHARGE FROM THE ED

Finally, the HPC explored one potential outcome that could be tied to varying rates of admission from the ED. If hospitals with lower rates of admission from the ED are discharging potentially unstable patients who should have been admitted to the hospital, these patients might have higher subsequent revisits to the ED and readmissions. Examining only those patients who visited the ED but were not admitted, the HPC calculated seven-day revisit rates.^{vi} Across the diagnoses examined, there did not appear to be a strong relationship between admission rates from the ED and revisit rates.^{vii} In other words, admitting a higher percentage of patients from the ED does not appear to prevent a significant number of patients from experiencing a revisit to the ED.

CONCLUSION

These results represent an exploratory analysis of variation in rates of admissions from the ED in the Commonwealth. This early work indicates that there is significant variation in hospitals' rates of admission from the ED overall as well as by certain diagnoses, and these rates do not seem related to patient outcomes, at least as seen by revisit rates. Hospitals with high admission rates for some diagnoses tended to have high rates for other diagnoses (e.g., CHF, COPD, pneumonia, and UTI), and admission rates were strongly persistent across the years of data examined.¹² The HPC plans to continue research to understand drivers of variation in admission rates (at the patient, regional, or hospital level), as well as the impact of medically unnecessary inpatient stays from both a cost and patient safety perspective.

vi Revisits include any ED visit in a seven-day time period after an ED visit for any of the conditions examined in **Exhibit 3.5** except for CHF which did not have sufficient numbers to calculate a revisit rate. For more information, see Center for Health Information and Analysis. Emergency Department Visits After Inpatient Discharge in Massachusetts SFY 2015 **Technical Appendix**. July 2017. Available at: <https://archives.lib.state.ma.us/bitstream/handle/2452/734860/on1001313662-technicalappendix.pdf?sequence=3&isAllowed=y>.

vii Examining correlations between admission rates and revisit rates, the strongest relationship was observed for UTI ($r=-0.26$). For example, hospitals with double the admission rate from the ED (20 percent versus 10 percent) had an ED revisit rate that was roughly one percentage point lower (10 percent versus 11 percent).

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CHAPTER 4:
LOW VALUE CARE

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Reducing low value care has been identified as a strategy to address rising health care costs and create a more efficient, high quality health care system. Low value care refers to services recognized by clinicians as not based on evidence and typically unnecessary, such as imaging for lower back pain or for uncomplicated headaches. The American Board of Internal Medicine (ABIM) launched the Choosing Wisely initiative in 2012, which convened experts in over 70 medical specialties to select procedures and other services often performed in their fields that yield little to no clinical benefit and in some cases can pose risk of harm to patients.¹ Choosing Wisely has produced a list of over 550 services that meet this definition of low value care with the aim of promoting conversations between clinicians and patients to choose care that is “free from harm, and truly necessary.” Similar efforts have been made by other organizations such as the U.S. Preventative Services Task Force and Consumer Reports.^{2,3}

Alongside efforts of clinicians to reduce low value care, there has been a growing body of research to quantify its prevalence. Identifying instances of low value care in claims data is difficult, as many services are only considered low value when provided to a patient with a particular medical history. Nevertheless, leading researchers created a methodology in 2014 with Medicare claims data to identify a subset of low value services that could be reasonably identified without a detailed review of the patient’s medical chart.⁴ Subsequent research has expanded and improved identification of low value care in commercially-insured and Medicaid populations. This research has further documented the extent and cost of low value care and illuminated certain factors associated with variation by provider type (e.g., Medicare beneficiaries enrolled in accountable care organizations (ACOs) receive less low value care than those not enrolled in ACOs).^{5,6,7,8}

The Massachusetts Health Policy Commission (HPC) applied these methods to estimate the prevalence, variation, and cost of a limited set of 19 select measures of low value care for commercially-insured patients in the Massachusetts All-Payer Claims Database (APCD) (**Exhibit 4.1**).¹ The HPC’s analytic approach was highly conservative and

should be interpreted accordingly. The HPC selected measures that could be captured using claims data, have a relatively high prevalence or cost per instance, and have detailed technical specifications in existing literature. The analysis excludes instances where provision of the service in question may have benefited the patient due to a particular condition that could have made the service warranted (e.g., head imaging for uncomplicated headache where the patient had a stroke). Finally, the analysis also considers only the cost of the identified services and not any potential downstream costs (see **Sidebar: Cascading costs of low value care**). Although it is impossible to know with certainty that the identified services were truly unnecessary in all cases, clinical experts concur that the use of these services should be rare, if ever. Specific codes and sources for each measure can be found in the **Technical Appendix**. The HPC used a timeframe of 2013 to 2015 because several measures required a look-back period.

Exhibit 4.1 Low value care measures

Screening	25-OH-Vitamin D deficiency screening	
	Homocysteine screening	
	Carotid artery disease screening for those at low-risk	
	Pap smears for women under 21	
Pre-operative	Pre-operative cardiac stress test before low-risk, non-cardiac surgery	
	Pre-operative pulmonary function test (PFT) for low and intermediate risk surgery	
Procedures	Spinal injections for low-back pain	
	Arthroscopic surgery for knee osteoarthritis	
	IVC Filters	
Imaging	Head imaging for uncomplicated headache	Imaging for diagnosis of plantar fasciitis/heel pain
	Back imaging for patients with non-specific low back pain	Neuroimaging in children with simple febrile seizure
	Head imaging in the evaluation of syncope	Sinus CT for simple sinusitis
	Electroencephalogram (EEG) for uncomplicated headache	Abdominal CT with and without contrast
		Thorax CT with and without contrast
Pharmacy	Inappropriate antibiotics for sinusitis, pharyngitis, suppurative otitis media, and bronchitis	

CASCADING COSTS OF LOW VALUE CARE

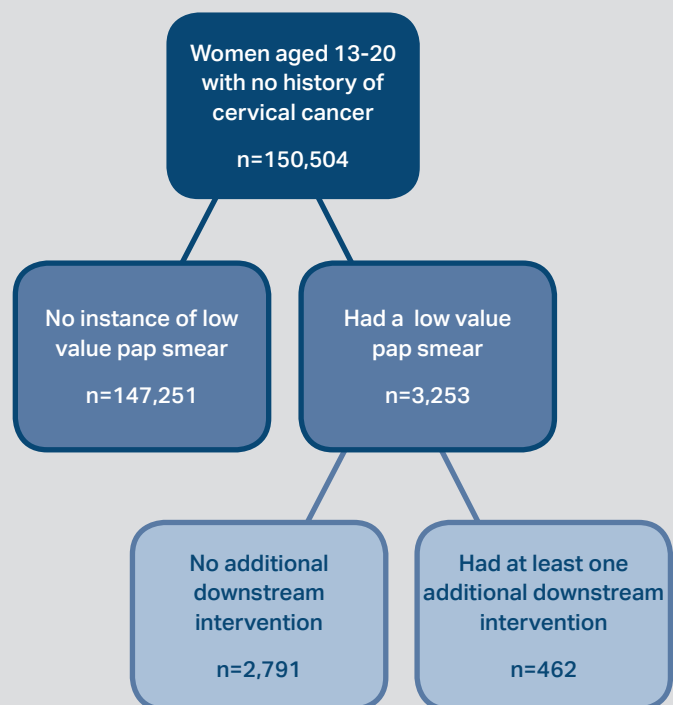
This analysis focuses on a limited set of low value services, screenings, imaging, procedures, tests, and prescriptions; it does not attempt to quantify any additional services that patients received stemming from that low value care. While screening and diagnostic technologies are often lower cost, the resulting treatment from false positives or indeterminate results, such as biopsies and specialized testing, may add significant costs. These costs are in addition to the emotional stress and other costs (such as time off work) to the individual patient.

Most studies to date have not documented downstream medical costs, likely due in part to the insufficient clinical detail in claims data to directly tie the low value care to downstream interventions. In some cases, however, claims data do allow for identification of some related downstream costs following a low value test or procedure. For example, cervical cancer screening using pap cytology is considered low value care when applied to the population of women under the age of 21. Along with the initial instance of cytology screening, additional instances of pap cytology use can be measured through the APCD. Further cervical cancer-related interventions such as colposcopies can also be attributed to previous instances of low value cytology screening.⁹

In an analysis of women aged 13-20, the utilization of low value pap cytology cost \$205,885 across 3,253 women screened for that initial service from 2013 to 2015 (Exhibit 4.2). Adding in further cytology screens for those patients to identify costs that are most likely attributed to the initial low value encounter resulted in added costs of \$75,082. Several possible procedures may follow directly from the results of a pap screen, including colposcopies, cervical biopsies, cervicectomies, and others. If the initial screen and these downstream interventions are aggregated for the 3,253 women in the analysis (462 of whom were identified as receiving cascading interventions), the total cost was \$319,262. By only examining the initial low value cytology screen, the original cost estimate accounted for only 64 percent of total costs as a result of initial low value cervical cancer screenings.

The aggregation of downstream costs attributed to low value care can be complicated by two issues. First, datasets may not allow for a clear assessment of which costs should or should not be attributed to a low value intervention. Second, it is unclear whether or not costs for appropriate care that follows an incidence of low value care, such as a cervicectomy as a result of true positive pap cytology, should be included. While those costs originated from a low value intervention that should not have occurred, they also may represent care that improved health. While complicated, consideration of cascading costs may more accurately reflect the true economic burden of low value care and, in turn, highlight the significant benefit that can be gained by reducing instances of low value care.

Exhibit 4.2 Flowchart of cervical cancer screening outcomes, 2013-2015



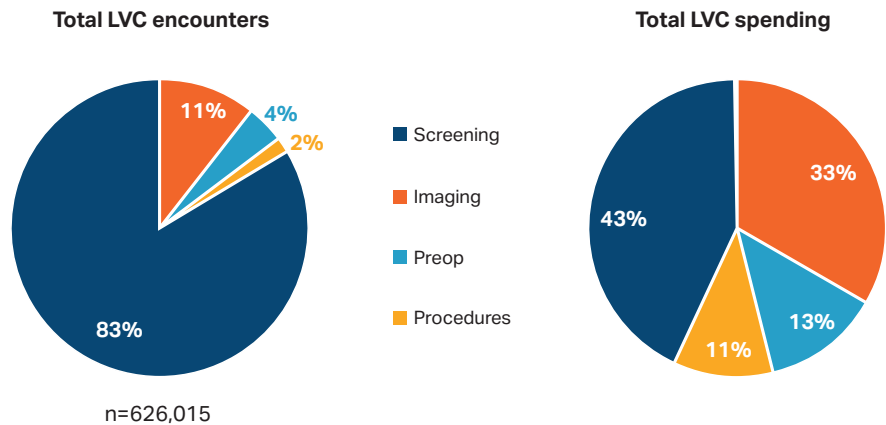
Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

OVERVIEW OF LOW VALUE CARE IN MASSACHUSETTS

Overall, the HPC found that more than 1 in 5 commercially-insured patients in the study (485,377) received at least one low value care screening, test, imaging, prescription, or procedure from 2013 to 2015. About a quarter of patients receiving at least one low value service had more than one. In total, there were nearly 800,000 low value services identified, accounting for nearly \$80 million in health care spending. Of that spending, patients paid 15 percent (\$12 million) in copayments, coinsurance, or spending to meet their deductible.

More than four in five low value encounters identified (83 percent) were screenings, but, given the relatively low cost, accounted for only 43 percent of low value care spending (see Exhibit 4.3). Conversely, unnecessary imaging represented 11 percent of low value encounters, but, given the relatively high cost, accounted for one in three dollars spent on low value care.

Exhibit 4.3 Total low value services and spending for 19 measures for the three largest commercial payers in Massachusetts, 2013-2015



Notes: LVC = Low Value Care

The study required the 2013-2015 time frame because much of the literature is based on ICD-9 diagnosis codes and several measures require a 'look-back' period. See **Technical Appendix** for details.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

Screenings

Screening was the most prevalent category of low value care in Massachusetts during this period. Of people identified as receiving low value care, over 87 percent (426,884) had at least one low value screening. Screening for vitamin D deficiency was the most common low value screening with a rate of 16.5 per 100 (or about one in six people) (Exhibit 4.4). Routine vitamin D screening in healthy, asymptomatic patients is considered low value because a positive test

Exhibit 4.4 Low value care screening tests: rate, spending, and cost sharing, 2013-2015

Measure	Numerator (persons)	Denominator (persons)	Rate per 100 persons	Total spending	Patient cost sharing
Vitamin D screening	324,844	1,972,864	16.5	\$20,671,940	\$3,871,343
Homocysteine screening	180,910	2,214,607	8.2	\$8,522,157	\$1,522,468
Screening for carotid artery disease, low risk	10,450	1,576,037	0.7	\$4,904,014	\$611,667
Pap smears, women ages 13-21	3,253	150,504	2.2	\$205,885	\$7,805

i The analysis includes 2.36 million commercial patients with at least one year of continuous enrollment between October 1, 2013 and September 30, 2015.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

Exhibit 4.5 Low value care imaging services: rate, spending, and cost sharing, 2013-2015

Measure	Numerator (encounters)	Denominator (encounters)	Rate per 100 encounters	Total spending	Patient cost sharing
Head imaging for headache	14,646	295,243	4.96	\$9,328,263	\$1,591,384
Back imaging	25,880	785,448	3.29	\$6,820,911	\$1,554,662
Abdominal CT with and without contrast	6,412	141,871	4.52	\$6,204,164	\$713,520
CT for sinusitis	3,918	317,422	1.23	\$1,599,571	\$348,031
Plantar Fasciitis	12,697	144,102	8.81	\$1,396,395	\$302,085
Syncope	1,991	45,201	4.4	\$899,170	\$126,198
Thorax CT with and without contrast	648	81,312	0.8	\$292,235	\$29,708
EEG for headache	388	538,405	0.07	\$152,576	\$26,756
Neuroimaging for febrile seizure	65	2,533	2.57	\$57,291	\$4,052

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

result is unlikely to change a physician's advice that a diet rich in vitamin D fortified foods, vitamin D supplements, or increased sun exposure is sufficient.^{10,11,12,13,14} Though the average vitamin D test only costs about \$60, spending in Massachusetts for these lab screenings totaled \$20.7 million over the two-year period examined.ⁱⁱ

Imaging

A previous HPC analysis found that Massachusetts ranks 4th in the nation in Medicare spending for imaging,

ii As of 2018, some insurers in Massachusetts typically do not consider Vitamin D screening in asymptomatic healthy adults as medically necessary or as a covered service. See, for example, Blue Cross Blue Shield of Mass. Medical Policy: Testing serum vitamin D levels. https://www.bluecrossma.com/common/en_US/medical_policies/746%20Testing%20Serum%20Vitamin%20D%20Levels%20prn.pdf. (last visited Jan. 31, 2019).

reflecting both higher utilization and greater use of higher-priced hospital outpatient departments versus offices or freestanding facilities.¹⁵ Common diagnostic imaging includes X-rays, CT scans, and MRIs. Many of these imaging services have been shown to have no diagnostic value for certain conditions. The nine low value imaging tests analyzed over the two-year period accounted for \$26.7 million in spending including \$4.6 million in out-of-pocket spending (see **Exhibit 4.5**). Beyond the direct expense of the tests, unnecessary imaging can also lead to radiation risks and further unnecessary spending due to false positives or follow-up on benign (non-cancerous) findings.¹⁶

Procedures and pre-operative testing

In addition to screening and imaging, the HPC also examined a limited set of other procedures and pre-operative tests that have been identified as low value. While not as prevalent, these services also result in significant spending for the service and associated patient cost sharing (see **Sidebar: Pre-operative testing for cataract surgery** for a discussion of pre-operative testing for a specific low-risk surgery). Further, these services can be both costly and invasive, resulting in missed work, pain or discomfort, and added health risks from complications and medical errors for patients, as well as added costs for providers.^{17,18}

Over the time period studied, \$8.5 million was spent on approximately 15,000 low value procedures. The procedure accounting for the highest total cost was spinal injection for lower back pain, with over \$5.5 million in total spending and \$435,896 in patient cost sharing. Arthroscopic surgery for knee osteoarthritis had the highest spending per

procedure at \$3,365, with average cost sharing of \$171 per person (**Exhibit 4.7**).

Overall, the pre-operative tests examined accounted for \$10.2 million, including \$860,146 in patient out-of-pocket spending. Average spending on pre-operative cardiac stress tests was \$790 per person and totaled over \$9 million in the two-year study period. The pre-operative cardiac stress test and pulmonary function test were the two highest volume tests, together accounting for nearly 50,000 low value tests during this period (**Exhibit 4.7**). Pre-operative testing for low-risk surgical procedures may be performed as a result of local provider practice patterns, concern about other physicians' expectations, legal concerns, and lack of awareness of evidence-based guidelines.¹⁹

Inappropriate use of antibiotic prescribing

The final category of low value care examined was inappropriate use of antibiotic prescribing for sinusitis, suppurative

PRE-OPERATIVE TESTING FOR CATARACT SURGERY

Cataract surgery is a low-risk surgery for which pre-operative tests are routinely ordered despite the fact that most of these pre-operative tests have been established as providing no clinical value.²⁴ Cataracts are the clouding of the lens inside the eyes and can result in vision loss. They are typically removed in the outpatient setting with local anesthetics. Pre-operative tests, such as cardiac stress tests, have not been found to decrease adverse events nor improve outcomes for this low-risk surgery. In addition, clinicians are not likely to make accommodations or delay surgery based on these tests.²⁵

The HPC analyzed the prevalence and costs of 10 types of pre-operative tests, such as metabolic panels and pulmonary function tests, associated with first-time cataract surgery among commercially-insured patients in Massachusetts. As shown in **Exhibit 4.6**, the analysis found that more than half of people who had cataract surgery received pre-operative testing. While the average test was relatively low cost at \$39 per test, there were over 11,000 of these potentially wasteful tests performed during the sample period. The most common pre-operative test performed was an EKG (21 percent), followed by complete blood count (18 percent). Because this analysis only included commercial patients and the majority of cataract surgeries are performed on people over 60 years of age, these findings likely underestimate the total spending impact of pre-operative testing for cataract surgery in the Commonwealth.²⁶

Exhibit 4.6 Pre-operative testing for cataract surgery among the three largest commercial payers in Massachusetts, 2013-2015

Members with pre-operative testing	Members with first-time cataract surgery	Percent	Total spending	Patient cost sharing
4,294	7,996	54%	\$449,016	\$46,413

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

Exhibit 4.7 Low value care pre-operative testing, procedures, and inappropriate prescribing: encounters, spending, and cost sharing, 2013-2015

Measure	Type	Low value encounters	Total spending	Patient cost sharing
Cardiac stress testing for low-risk, non-cardiac surgery	Pre-operative	13,537	\$9,151,667	\$750,993
Pulmonary function testing for low and intermediate risk surgery	Pre-operative	11,519	\$1,124,133	\$109,153
Spinal injections	Procedures	9,055	\$5,502,985	\$435,896
Arthroscopic surgery	Procedures	793	\$2,617,637	\$133,172
IVC filters	Procedures	394	\$444,940	\$7,478
Antibiotics for sinusitis, suppurative otitis media, bronchitis and pharyngitis	Pharmacy	4,624	\$103,377	\$36,911

Notes: For the antibiotic measure, only 2014 examined due to the APCD prescription file structure.

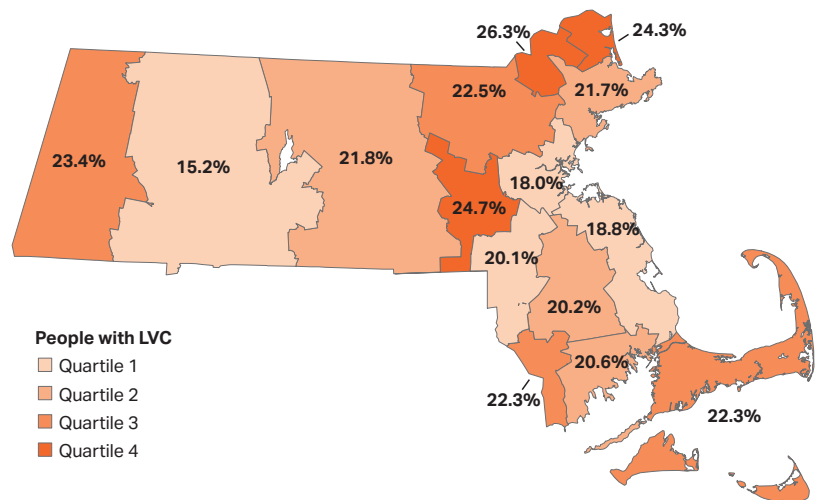
Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

otitis media (middle ear inflammation), bronchitis, and pharyngitis. In addition to being unnecessary for certain conditions, inappropriate prescribing of antibiotics has been identified as a public health concern because it can increase general population resistance to antibiotics.²⁰ In 2014, there were 4,624 inappropriate antibiotics prescriptions resulting in \$103,377 in total spending; over one-third of this spending was out-of-pocket (Exhibit 4.7).

VARIATION IN PREVALENCE OF LOW VALUE CARE IN THE COMMONWEALTH

The HPC further examined the prevalence of low value care across the Commonwealth by geography and by provider organization, identifying significant variation. More than one in four residents of the East Merrimack region received one or more low value services between 2013 and 2015, while one in seven Pioneer Valley/Franklin County residents had a low value service (Exhibit 4.8). This geographic variation is consistent with previous national and HPC findings that local provider practice patterns are correlated with region.^{21,22}

Exhibit 4.8 Percentage of residents by region who received at least one low value service, 2013-2015



Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

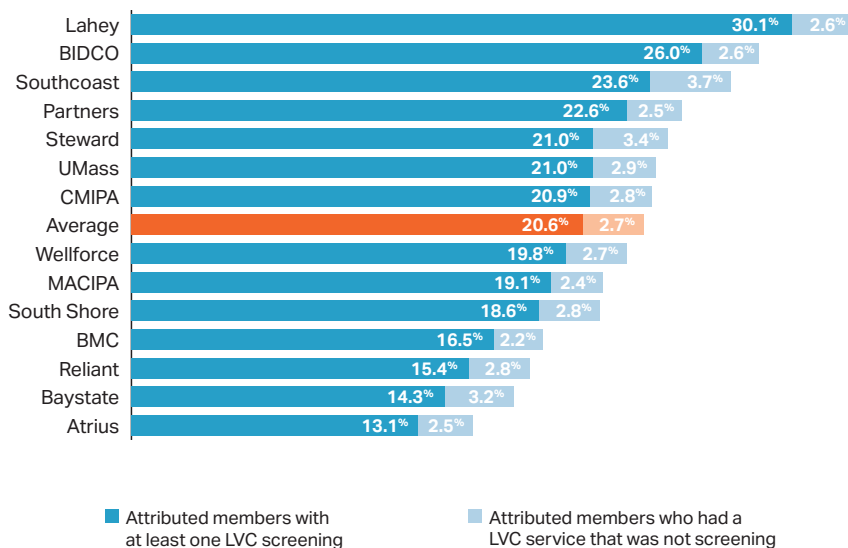
Rates of low value care also vary by provider organization, suggesting that some provider organizations may have taken a more proactive approach to reducing the delivery of low value care than others. In a national study, Schwartz, et. al., found distinct patterns of low value service use among provider organizations over time.²³ The

HPC similarly found that low value screenings are the major driver of variation in rates of low value care across Massachusetts provider organizations (Exhibit 4.9). Of the 1.6 million commercially-insured patients attributed via their primary care providers to the 14 largest provider organizations in the state,ⁱⁱⁱ 23 percent received at least one low value service. The share of commercial patients who received at least one low value service varied from 15.5 percent of patients attributed to Atrius Health to 32.7 percent of patients attributed to Lahey Health (Exhibit 4.9). Excluding screening encounters, the rate of other low value services (e.g., imaging, procedures) had a substantially smaller variation across provider organizations, ranging from 2.2 percent for Boston Medical Center (BMC) patients to 3.7 percent for Southcoast Health System (Southcoast) patients.

In addition to rates of service use, the cost of low value care provided to attributed patients is impacted by prices charged for the services by provider organizations. Across all attributed patients, including those who did not receive any low value care, spending per patient was highest for Lahey patients at almost \$50 while spending was lowest for Baystate Health patients at \$24 per attributed patient (Exhibit 4.10). Among patients who received at least one low value service, the amount spent on low value care ranged from \$136 at Reliant to \$185 at Partners.

ⁱⁱⁱ See 2017 Cost Trends Report for more information on this methodology.

Exhibit 4.9 Attributed patients with at least one low value service by provider organization, 2013-2015

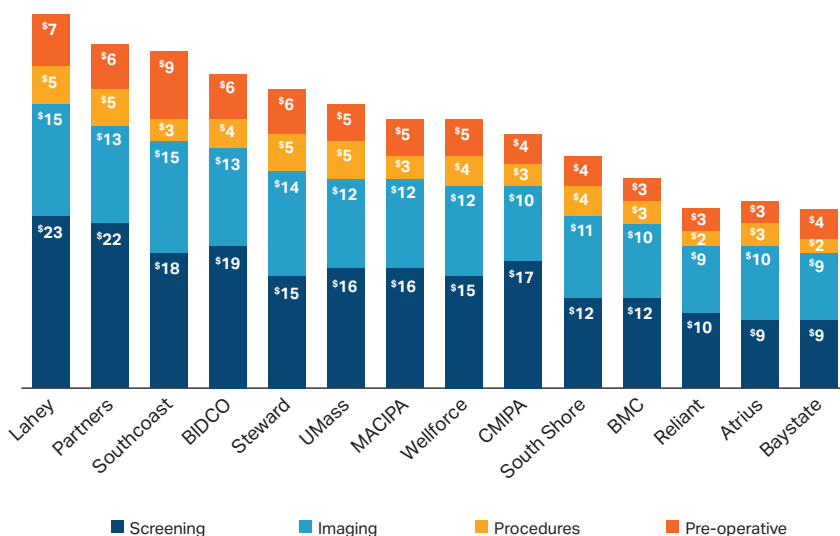


Notes: LVC = Low Value Care

Analysis uses HPC provider attribution methodology to assign patients to a provider organization. See the 2017 Cost Trends Report for more information on this methodology.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

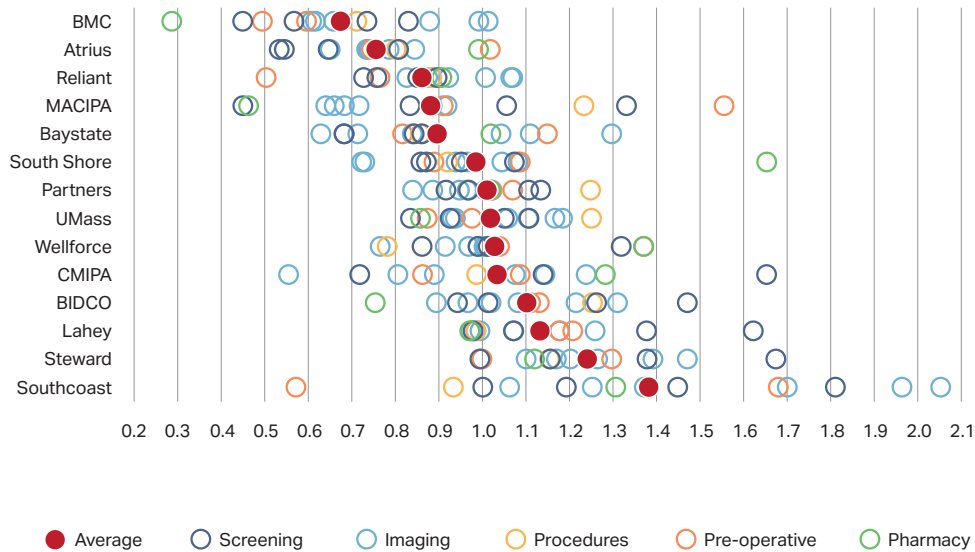
Exhibit 4.10 Spending on low value care per attributed member, by provider organization, 2013-2015



Notes: Analysis uses HPC provider attribution methodology to assign patients to a provider organization. See 2017 Cost Trends Report for more information on this methodology.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

Exhibit 4.11 Index of low value care by attributed provider organization, 2013-2015



Notes: Analysis uses HPC provider attribution methodology to assign patients to a provider organization. See 2017 Cost Trends Report for more information on this methodology.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2013-2015

To assess the relative rates at which provider organizations deliver particular types of low value care, the HPC compared each specific service and organization as shown in Exhibit 4.11. Each circle represents one measure. For example, the rate of pulmonary function testing (a pre-operative screening test) at BMC was 50 percent below the statewide rate, indicated by the third circle to the right of BMC. The exhibit illustrates that those organizations that were more likely to provide one low value service often provided others at high rates as well. BMC had the lowest overall average rate among provider organizations at 0.7 while Southcoast had the highest at 1.4, double the rate of BMC.

CONCLUSION

This analysis shows that a significant number of Massachusetts patients are receiving low value care. Over 20 percent of the 2.36 million patients in the analysis received at least one instance of low value care, contributing \$80 million dollars in potentially unnecessary health care spending. Patients directly bore nearly 15 percent of this spending in the form of higher out-of-pocket cost sharing, further contributing to ongoing affordability challenges in the Commonwealth.

Notably, the study reflects just a third of the overall population of Massachusetts and does not include residents with Medicare and MassHealth coverage who typically have greater health needs and more encounters with the medical system. Even within the population analyzed, this estimate of the extent of low value care is conservative because the number of low value services identifiable in claims with proven research methods represents a small subset of all low value services provided to patients. This analysis also does not include services with low cost-effectiveness, those that may produce a small improvement in health care quality or outcomes but for which that improvement does not justify the cost of the service. Furthermore, the results do not include the downstream costs to patients in terms of additional follow-up tests and procedures, as well as non-monetary costs such as time and the emotional toll of unnecessary care.

The HPC will continue to examine the prevalence and cost of low value care in order to support provider organizations in their efforts to reduce wasteful health care spending and potentially harmful interventions to patients.

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CHAPTER 5:
**PROVIDER ORGANIZATION
PERFORMANCE VARIATION**
SPENDING VARIATION FOR CLINICALLY
SIMILAR POPULATIONS

CHAPTER 5:

PROVIDER ORGANIZATION PERFORMANCE VARIATION – SPENDING VARIATION FOR CLINICALLY SIMILAR POPULATIONS

In the 2017 Cost Trends Report, the Massachusetts Health Policy Commission (HPC) reported on variation across a range of spending and utilization outcomes among different Massachusetts provider organizations, utilizing a patient attribution model linking patients to their primary care provider (PCP) and their affiliated provider organizations.¹ This work examined performance across each provider organization’s entire patient population and found that patients with a PCP affiliated with a provider organization that is anchored by an academic medical center (“AMC-anchored”) had higher health care spending compared to patients with a PCP affiliated with a physician-led provider organization, even after adjusting for patient risk score and other demographic characteristics.^{i,1} This research indicated that most of the total spending difference between AMC-anchored systems and physician-led organizations was explained by differences in hospital outpatient spending. The HPC’s finding of lower health care spending for physician-led organizations is consistent with a growing body of research finding better accountable care organization (ACO) performance across a range of metrics when an ACO does not include a hospital.^{2,3}

In this chapter, the HPC advances this research by analyzing provider organization performance variation for highly comparable patient populations in Massachusetts. The findings contribute to a greater understanding of the drivers of provider organization performance variation, providing more information to policymakers, patients, payers, and purchasers of care to identify and promote the use of high-quality, efficient provider organizations.

UNDERSTANDING VARIATION IN SPENDING FOR CLINICALLY SIMILAR POPULATIONS

For the new analyses, the HPC studied spending variation by provider organization for clinically similar populations of

patients, or cohorts. Focusing on clinically similar patients allowed the HPC to better isolate true differences in practice and pricing patterns across organizations, compare performance for specific services, and more precisely align spending performance for a given clinical cohort with applicable quality measures.⁴

The analyses included commercially-insured adults, age 18 and older, with uninterrupted coverage from a commercial health plan in the 2015 All-Payer Claims Database, who were attributed to an AMC-anchored or physician-led organization. The HPC constructed three cohorts using claims-based chronic disease indicators:ⁱⁱ

1. Healthy cohort [n = 500,098]: No major chronic diseases on record and a risk score less than 2;
2. Cardiometabolic cohort [n = 158,970]: Members have at least one cardiometabolic condition (cardiovascular disease, hypertension, diabetes);
3. Diabetes cohort [n = 10,403]: Members have diabetes and no other major chronic diseases. The diabetes cohort is a subset of the cardiometabolic cohort.

Exhibit 5.1 shows that these cohorts, as compared to the overall population, had risk scores and average ages that were very similar between AMC-anchored and physician-led organizations. Despite these similarities, the two types of organizations had considerable differences in total health spending across cohorts. For the healthy cohort, average annual spending per person was \$541 (26 percent) higher for patients of AMC-anchored organizations. Annual spending differences were even greater among the two chronic condition cohorts. In the cardiometabolic cohort and diabetes cohort, spending per person was \$1,166 (14 percent) and \$1,284 (19 percent) higher on average in AMC-anchored

i Only two of the fourteen largest provider organizations in the Commonwealth are anchored by community hospitals without an AMC (South Shore Health System and Southcoast Health System). Performance varied between these two systems, making it difficult to compare their collective performance to AMC-anchored and physician-led organizations.

ii The All-Payer Claims Database commercial analytic file includes flags for 12 chronic conditions. Cohorts were based on the Johns Hopkins DRG grouper and were not mutually exclusive with the exception of the healthy cohort, which included none of the 12 chronic conditions, and was further restricted to individuals with ACG risk scores less than two. The cardiometabolic and diabetes cohorts are restricted to individuals with ACG risk scores less than five.

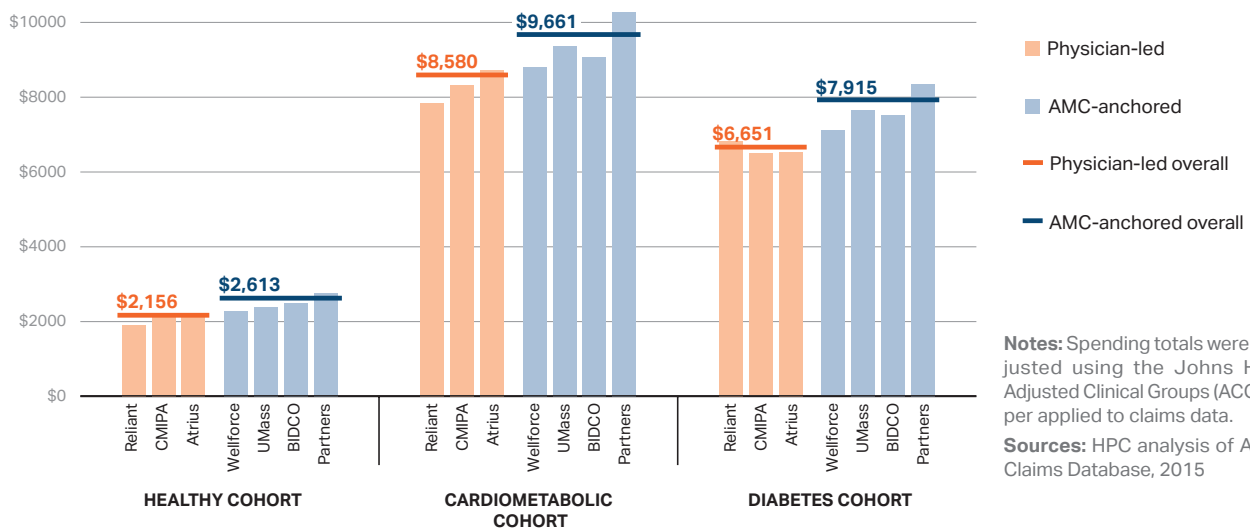
Exhibit 5.1 Cohort descriptive statistics and differences in total spending per person, 2015

	N	Risk Score	Average Age	% Female	% HMO/POS	Total Spend (Not risk-adjusted)	% Difference in Spending
OVERALL							
AMC-anchored	588,722	1.41	44.5	53.3%	65%	\$5,438	22%
Physician-led	203,182	1.29	43.1	54.6%	70%	\$4,442	
HEALTHY COHORT							
AMC-anchored	368,104	0.59	41.4	52.0%	67%	\$2,659	26%
Physician-led	131,994	0.57	40.1	53.4%	72%	\$2,118	
CARDIOMETABOLIC COHORT							
AMC-anchored	120,558	1.81	52.2	48.5%	62%	\$9,706	14%
Physician-led	38,412	1.80	51.8	49.2%	67%	\$8,540	
DIABETES COHORT							
AMC-anchored	7,633	1.35	51.7	41.6%	63%	\$7,926	19%
Physician-led	2,770	1.35	51.2	42.3%	67%	\$6,642	

Notes: AMC-anchored provider organizations included Beth Israel Deaconess Care Organization (BIDCO), Partners HealthCare System (Partners), UMass Memorial Health Care (UMass), and Wellforce; physician-led provider organizations included Atrius Health (Atrius), Central Mass. Independent Physician Association (CMIPA), and Reliant Medical Group (Reliant). Boston Medical Center (BMC) was not included in the AMC-anchored category due to data abnormalities. The study population was determined using the 2015 APCD commercial analytic file (includes three commercial payers: Blue Cross Blue Shield, Harvard Pilgrim Health Care, and Tufts Health Plan). Individuals included in the study population were successfully attributed to a provider organization, had at least one year of continuous enrollment, had an ACG risk score <5, and were age 18+. Individuals were excluded from study if sex could not be determined based on the member eligibility file.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2015

Exhibit 5.2 Risk-adjusted spending per patient per year by cohort and provider organization, 2015



Notes: Spending totals were risk-adjusted using the Johns Hopkins Adjusted Clinical Groups (ACG®) grouper applied to claims data.

Sources: HPC analysis of All-Payer Claims Database, 2015

organizations, respectively. While the percentage differences in the cardiometabolic and diabetes cohorts were smaller than in the healthy cohort, the absolute dollar differences were greater because average spending for these patients with chronic diseases was significantly higher.

After adjusting for the slight differences in risk scores within patient cohorts, total spending remained greater for all

AMC-anchored organizations than for all physician-led organizations in each cohort, as shown in Exhibit 5.2. In terms of provider organization size, Partners HealthCare comprises the largest portion of patients in the AMC-anchored group (47 percent), while Atrius Health comprises the largest share of patients in the physician-led group (76 percent).

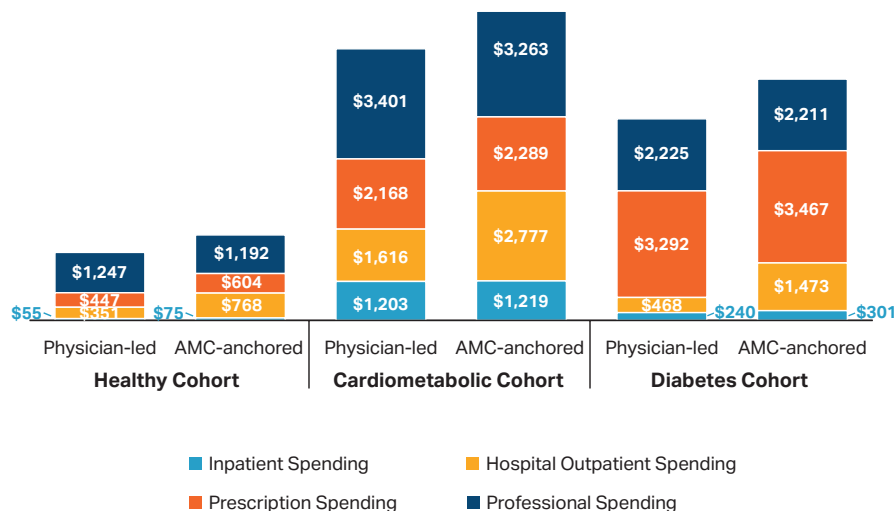
Variation by category of spending

The HPC further examined this variation by identifying spending categories with the greatest variation between AMC-anchored and physician-led organizations (see Exhibit 5.3).

Hospital outpatient department spending represented the largest contribution to the total difference in spending between the AMC-anchored and physician-led organizations. Spending per patient for hospital outpatient services was \$416 (118 percent) higher for patients in the healthy cohort, \$1,161 (72 percent) higher for patients in the cardiometabolic cohort, and \$1,005 (215 percent) higher for patients in the diabetes cohort.

These spending differences largely reflect the fact that many services can be safely performed in either a hospital outpatient department or a physician office, but the same service delivered in a hospital outpatient department will often cost much more.² When a physician clinic is owned by a hospital, as is the case for many outpatient clinics within an AMC-anchored organization, it may be licensed as a hospital outpatient department. A physician-led organization cannot license its clinics as hospital outpatient departments. The HPC examined the site of care for a set of common ambulatory services and found that patients attributed to AMC-anchored organizations were much more likely to receive these services in a hospital outpatient setting (see Exhibit 5.4).

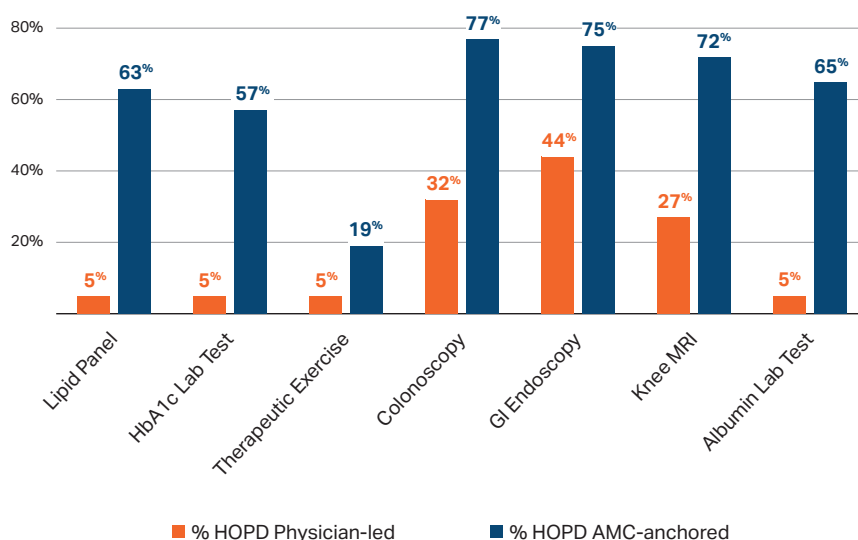
Exhibit 5.3 Categories of health spending per patient by cohort and organization type, 2015



Notes: Spending was categorized into inpatient, outpatient, professional, and prescription spending using Health Care Cost Institute (HCCI) methodology (see **Technical Appendix**). Some smaller categories of spending included in earlier totals, such as post-acute and long-term care, are omitted from this figure.

Sources: HPC analysis of All-Payer Claims Database, 2015

Exhibit 5.4 Percentage of services delivered in a hospital outpatient department setting, diabetes cohort, 2015



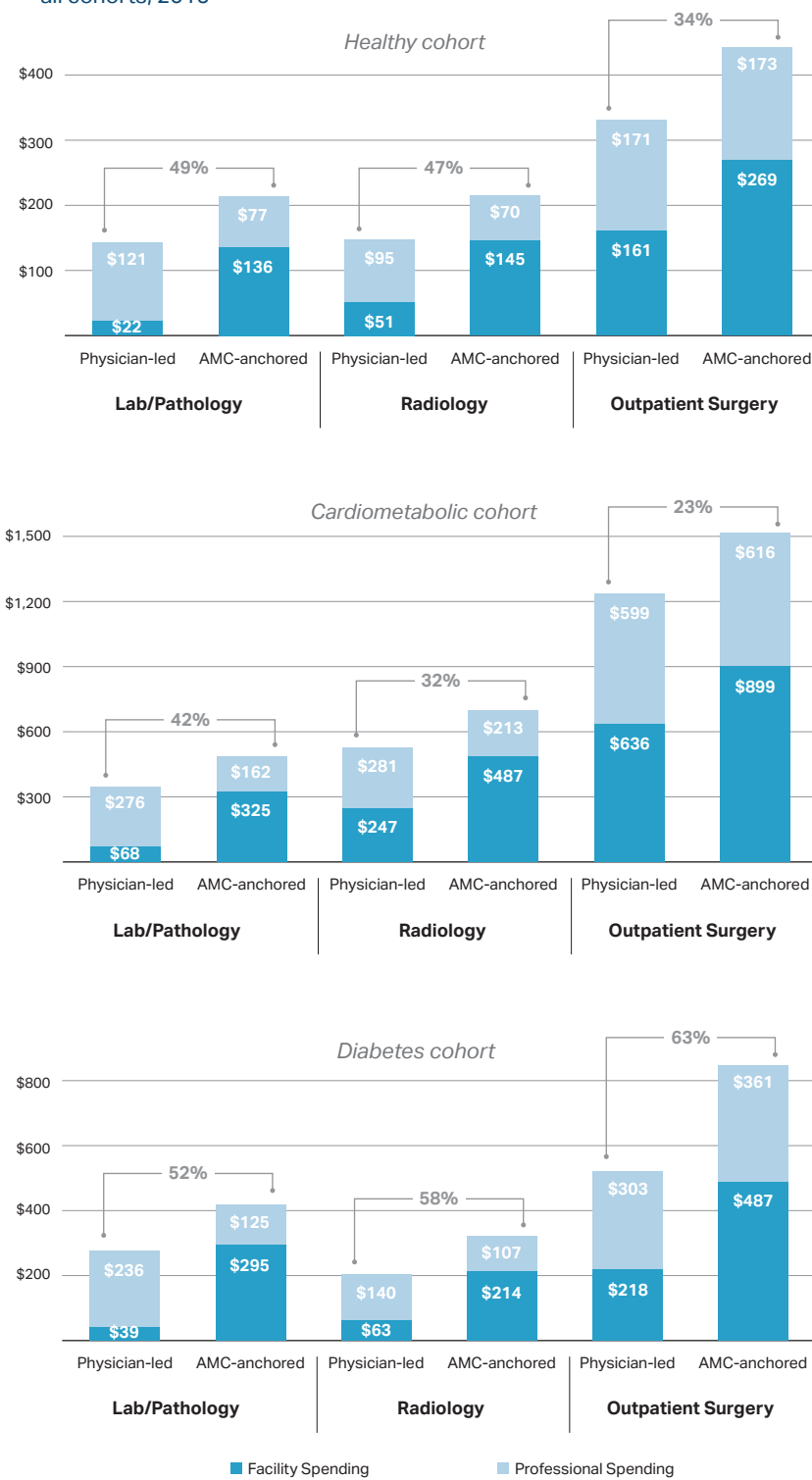
Notes: Exhibit is limited to results for the diabetes cohort, which includes only those individuals with diabetes, and no other chronic disease indicators. All x-axis categories reflect a single clinical procedural terminology (CPT) code: 80061, 83036, 97710, 45378, 43239, 73721, and 82043, respectively. HOPD = hospital outpatient department; AMC = academic medical center.

Sources: HPC analysis of All-Payer Claims Database, 2015

To better understand the spending differential between AMC-anchored and physician-led organizations for services that could be provided in either a physician clinic setting or a hospital outpatient setting, the HPC combined spending for service categories that have comparable facility and professional billing components to ensure that it could compare services in hospital outpatient departments (which may be billed with separate professional and technical/facility components) and physician clinics (which generally involve only professional billing). Exhibit 5.5 shows that spending for common ambulatory services across all of the cohorts is higher for AMC-anchored organizations, even when professional spending is included in the totals.

Across all cohorts, AMC-anchored organizations had higher spending for lab/pathology, radiology, and outpatient surgery services, even after accounting for different proportions of spending under facility or professional spending. Lab/pathology spending was 42 to 52 percent higher in AMC-anchored organizations, radiology spending was 32 to 58 percent higher in AMC-anchored organizations, and outpatient surgery was 23 to 63 percent higher in AMC-anchored organizations.

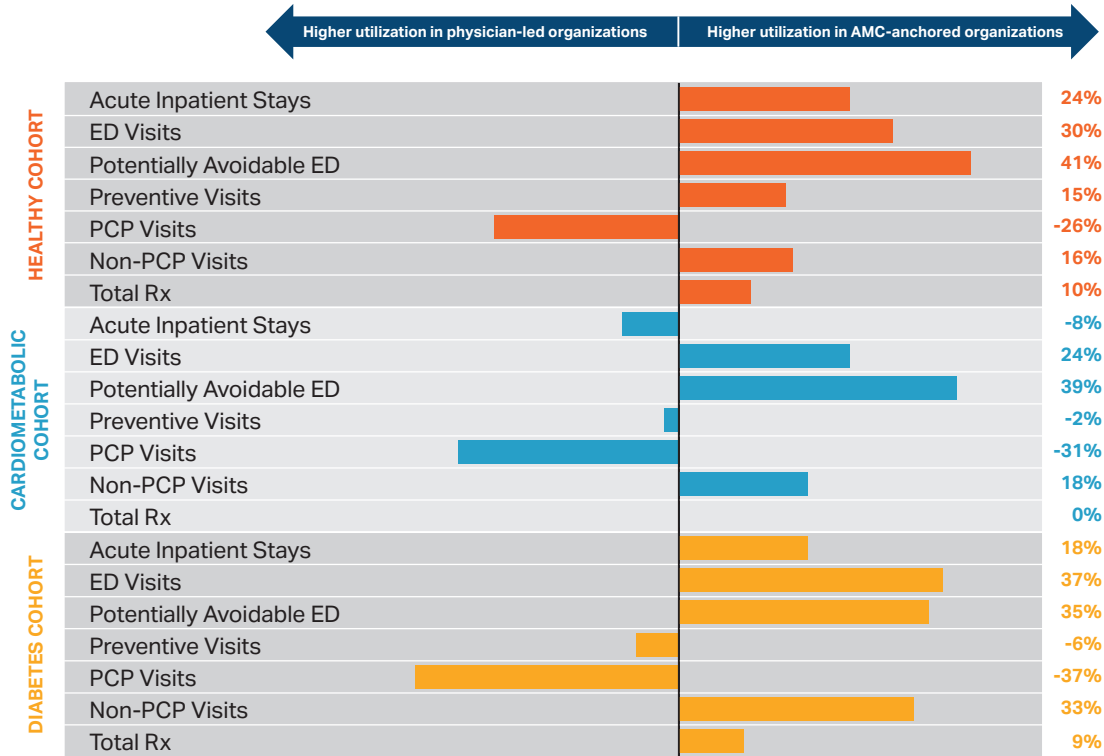
Exhibit 5.5 Hospital outpatient and professional spending for ambulatory services, all cohorts, 2015



Notes: Analysis used HCCI categories that had comparable facility and professional spending categories (see **Technical Appendix**).

Sources: HPC analysis of All-Payer Claims Database, 2015

Exhibit 5.6 Comparison of AMC-anchored utilization to physician-led utilization by cohort, 2015



Notes: Bars to the left of the divider indicate higher utilization in physician-led organizations, and bars to the right of the divider indicate higher utilization in AMC-anchored organizations. Percentage values on the right are reported in reference to AMC-anchored organizations only; therefore, negative percentages indicate lower utilization in AMC-anchored organizations and higher utilization in physician-led organizations. ED = emergency department; PCP = primary care physician; Rx = prescription drugs.

Sources: HPC analysis of All-Payer Claims Database, 2015

DRIVERS OF SPENDING: PRICE AND UTILIZATION

In addition to examining differences in site of service, the HPC also examined differences in utilization and prices broadly between AMC-anchored and physician-led organizations. Exhibit 5.6 shows differences in utilization for each type of service by patients of AMC-anchored organizations compared to patients of physician-led organizations.

As shown in Exhibit 5.6, AMC-anchored organizations had roughly 20 to 40 percent higher utilization of emergency department (ED) visits (including potentially avoidable

visits), hospital stays, and non-PCP (e.g., specialist) visits compared to physician-led organizations. Physician-led organizations had higher utilization of routine PCP visits across all cohorts and preventive visits in both the diabetes and cardiometabolic cohorts.ⁱⁱⁱ These findings suggest that AMC-anchored organizations may rely more heavily on higher cost services such as the ED and specialist visits for ongoing management of chronic conditions rather than primary care.⁵

ⁱⁱⁱ Preventive visits include visits with a PCP. See **Technical Appendix** for more details.

The HPC then assessed price and utilization differences by provider organization type for the same set of discrete, common services. **Exhibit 5.7** shows results for the diabetes cohort (results were similar for all cohorts). For most of these services, utilization was similar across organization type while prices were substantially higher in the AMC-anchored organizations.

DIABETES-RELATED SERVICE UTILIZATION AND QUALITY METRICS

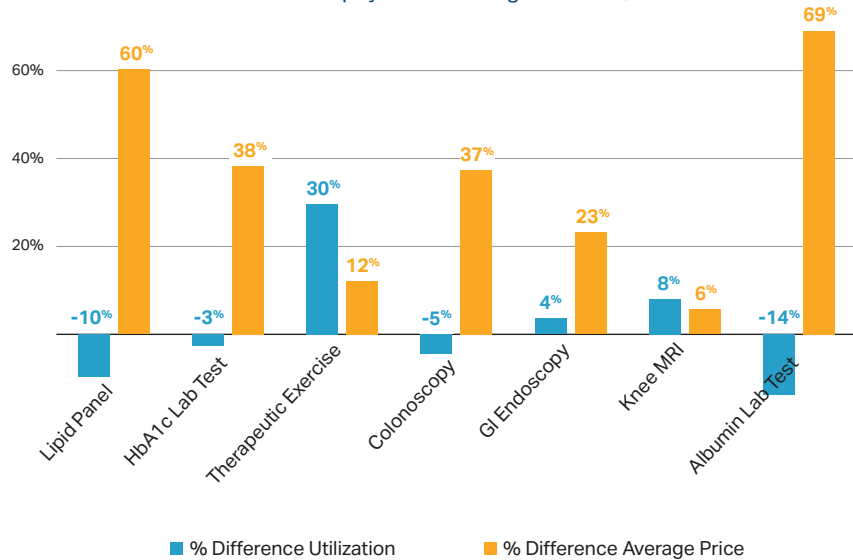
Higher spending might be rationalized, or even recommended, if it corresponded directly with better quality of care for patients. The HPC further examined the diabetes cohort to understand whether differences in spending, utilization, and/or price were associated with indicators of higher quality care, such as fewer avoidable ED visits or better process quality scores that indicate better management of this chronic disease.

For the diabetes cohort, AMC-anchored and physician-led groups had similar rates of recommended monitoring tests (approximately two HbA1c tests per member per year (PMPY) and approximately one albumin lab test PMPY), while prices in AMC-anchored groups were 38 percent higher for each HbA1c lab test and 69 percent higher for each albumin lab test (see **Exhibit 5.8**).^{6,7,8,iv}

Downstream indicators of proper medical management of chronic conditions were also favorable for patients with

iv Quality guidelines indicate that individuals with diabetes should receive two HbA1c tests per year (CPT 83036) and one albumin lab test to address medical attention for nephropathy per year (CPT 82043).

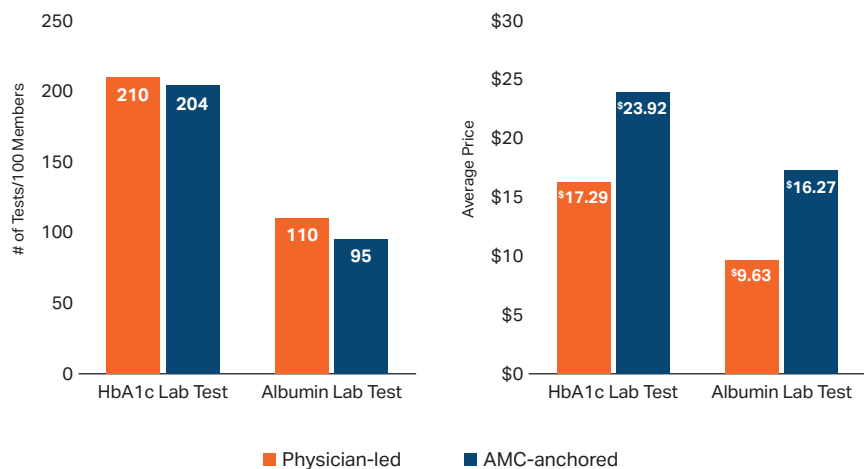
Exhibit 5.7 Diabetes cohort: comparison of differences in utilization and price between AMC-anchored and physician-led organizations, 2015



Notes: All x-axis categories reflect a single CPT code: 80061, 83036, 97710, 45378, 43239, 73721, and 82043, respectively. Percentages compare AMC-anchored organizations to physician-led organizations (see **Technical Appendix**).

Sources: HPC analysis of All-Payer Claims Database, 2015

Exhibit 5.8 Utilization and price of recommended monitoring tests for the diabetes cohort, 2015



Notes: HbA1c lab test (CPT 83036) and albumin lab test (CPT 82034).

Sources: HPC analysis of All-Payer Claims, 2015

diabetes in physician-led groups, as they experienced fewer inpatient stays, ED visits, and potentially avoidable ED visits compared to patients with diabetes in AMC-anchored groups (1.4 compared to 1.6 inpatient stays, 12.3 compared to 13.9 ED visits, and 3.5 compared to 4.8 potentially avoidable ED visits per 100 patients of physician-led organizations and AMC-anchored organizations, respectively). At the system level, AMC-anchored provider organizations did not score better on two process measures of quality diabetes care (95 percent compared to 94 percent on HbA1c testing for physician-led and AMC-anchored organizations, respectively; 94 percent compared to 89 percent on Medical Attention for Nephropathy for physician-led and AMC-anchored organizations, respectively).^v These findings may indicate that patients with diabetes in physician-led organizations received equivalent or higher quality care for a lower cost compared to patients in AMC-anchored organizations.

CONCLUSION

AMC-anchored organizations generally had higher spending per patient than physician-led organizations among clinically similar cohorts of patients, and spending differences were amplified when individuals had health needs that required them to interact with the health care system more frequently. As found in prior research, members

attributed to AMC-anchored groups had higher hospital outpatient department spending. Higher overall spending in AMC-anchored organizations was driven in part by higher spending for services delivered in hospital outpatient departments (e.g., due to additional facility fees charged in hospital outpatient departments or “global fees,” where professional and facility components are combined into a single bill) that were higher than the equivalent service in a clinic setting but was not entirely explained by this factor alone. In addition, patients attributed to AMC-anchored organizations tended to have higher utilization for all services examined except for PCP visits, as well as higher prices for these services compared to patients of physician-led organizations. Although utilization did contribute to higher spending, the higher prices in AMC-anchored organizations appeared to be a primary driver of the higher costs of care.

This work further examined the impact of organizational structures on health care spending by comparing clinically similar cohorts of patients. The HPC will continue to report on provider organization performance variation in future publications to identify broader system trends and to highlight opportunities for improvement in the Commonwealth to lower the cost of care while supporting improved health outcomes.

^v HPC analysis of Center for Health Information and Analysis Databook: A Focus on Provider Quality, 2016.

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CHAPTER 6:
**COMMERCIAL PRICE
TRENDS AND COMPARISON
TO MEDICARE PRICES**

CHAPTER 6:

COMMERCIAL PRICE TRENDS AND COMPARISON TO MEDICARE PRICES

The Massachusetts Health Policy Commission (HPC) and other state agencies have conducted a number of studies of commercial health care prices and their impact on spending.^{1,2,3,4} Most of these efforts have focused on variation in commercial prices between providers, such as comparing the average price of one hospital or physician group to the average price across a given commercial payer's network. In this chapter, the HPC for the first time compares commercial price levels to fee-for-service (FFS) Medicare price levels across a variety of settings of care in Massachusetts. This chapter also analyzes commercial price growth over time compared to Medicare price growth and evaluates the impact of commercial price growth on health care spending.

COMMERCIAL VERSUS MEDICARE PRICES

Using the Massachusetts All-Payer Claims Database (APCD), the HPC examined commercial pricesⁱ for Massachusetts providers for services across a variety of settings of care, calculating acuity-adjusted average prices for inpatient discharges, hospital outpatient services (including emergency department (ED) services), and physician office services for adult patients.ⁱⁱ The HPC then used Medicare payment rules to calculate how much Medicare would have paid those providers for the same services (see **Technical Appendix** for data sources and **Sidebar: Differences between Medicare prices and commercial prices**). Overall, the HPC found that commercial prices for Massachusetts providers are substantially higher than Medicare prices across all types of services, with broader variation in prices for the same services.

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- i Throughout this chapter, the term “prices” for commercial payers refers to negotiated “allowed amounts” for a given service. These include amounts paid to providers from payers as well as cost-sharing amounts expected to be received directly from patients. The amounts providers actually receive may differ slightly from these prices if, for example, cost-sharing amounts are never collected.
- ii The commercial price analyses in this chapter are based on APCD data for 2014 through 2016, which include only claims for fully-insured members of the three largest commercial payers in the Commonwealth (Blue Cross Blue Shield, Harvard Pilgrim Health Care, and Tufts Health Plan) and members of Group Insurance Commission (GIC) plans. Analyses include only adult patients ages 18 through 65. See **Technical Appendix** for details.

DIFFERENCES BETWEEN MEDICARE PRICES AND COMMERCIAL PRICES

Medicare prices and growth rates are established by the federal government in a manner that, conceptually, seeks to set prices for services that would be sufficient to cover costs for an efficient provider. Formulas usually include a base rate for a given service that grows according to an inflation-based index, with certain payment adjustments that account, for example in the case of inpatient hospitals, for regional wages of health care workers, hospital teaching status, the share of patient population that is low-income, and other factors.⁵ Because of Massachusetts' higher wage index, large number of teaching hospitals, and higher proportional utilization of teaching hospitals, the average Medicare price in Massachusetts is approximately 21 percent higher than the national average for inpatient care and 12 percent higher for outpatient hospital care, respectively ranking as the 6th highest and 4th highest among all states.ⁱⁱⁱ

Commercial prices and growth rates, on the other hand, are negotiated confidentially between health care provider organizations and commercial payers. These negotiations are subject to market dynamics and reflect the relative negotiating leverage of the payer and provider. As a result, commercial payments vary much more widely than do Medicare payments (because market leverage is highly variable) and are generally higher (given that no commercial insurance company has the authority to unilaterally set rates).⁶ Previous research by the HPC and other organizations has shown that market leverage is a significant driver of higher commercial prices, and that higher commercial prices are not generally associated with higher quality or other common measures of value, or with higher proportions of public payer patients.²

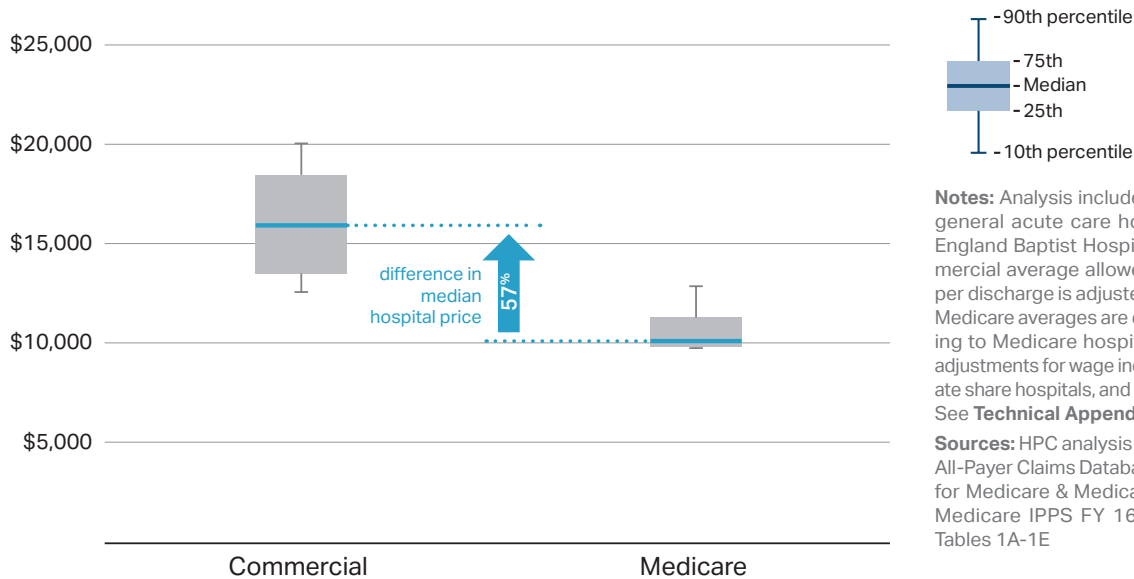
- iii HPC analysis of data from the Centers for Medicare & Medicaid Services, Public Use File (from State Table – Beneficiaries 65 and Older, 2016 data year). Data available from: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Geographic-Variation/GV_PUF.html.

Inpatient care

Exhibit 6.1 shows the range of average commercial prices per discharge at Massachusetts hospitals in 2016,^{iv} adjusting for differences in patient acuity,^v compared to the Medicare prices the same hospitals would have received. The median hospital’s commercial price for an average inpatient stay was \$15,913, which was 57 percent higher than the median hospital’s Medicare price for an inpatient stay (\$10,117). This difference is comparable to commercial-to-Medicare

price ratios found across the country, according to recent studies.⁶ Commercial prices, in addition to being much higher on average, varied nearly twice as much as Medicare prices. For commercial discharges, the highest-priced hospital was paid 2.7 times more on average per discharge than the lowest-priced hospital, whereas Medicare paid the highest-priced hospital approximately 1.5 times more on average per discharge than the lowest-priced hospital.

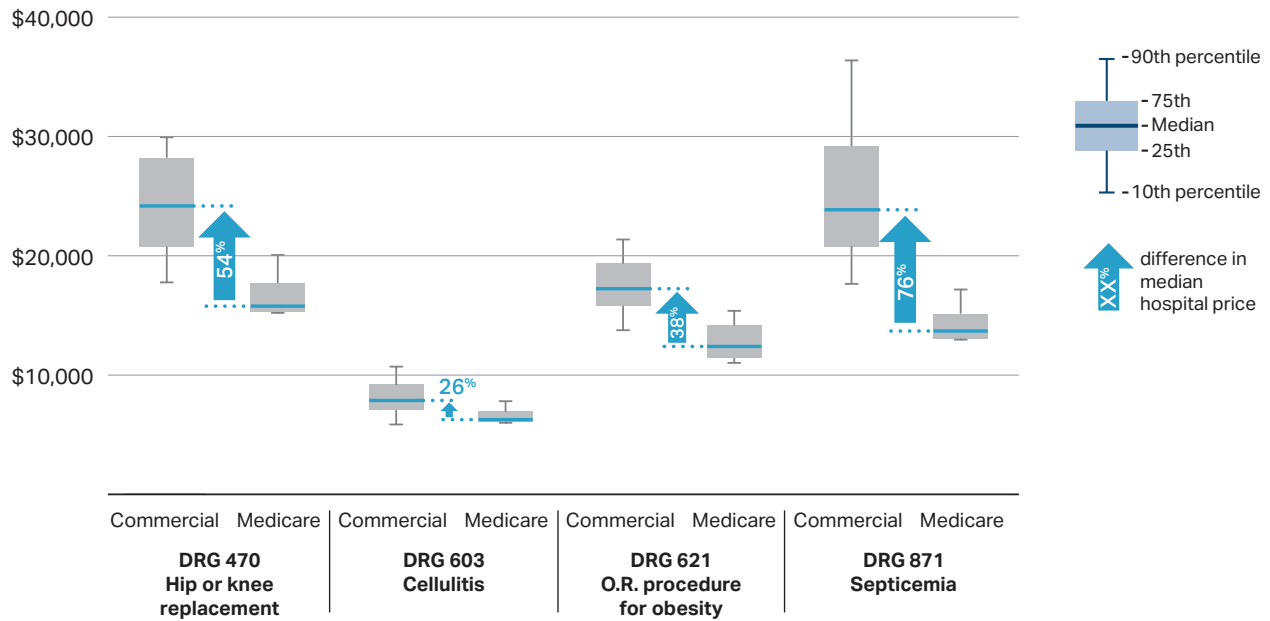
Exhibit 6.1 Distribution of average facility price per discharge at Massachusetts hospitals, commercial and Medicare, 2016



iv The data analyses in this chapter include Massachusetts general acute care hospitals that are paid under Medicare’s Prospective Payment System. The analyses also include New England Baptist Hospital despite its specialty hospital status because of its substantial share of hip and knee replacement services. Hospitals paid under different Medicare payment systems, such as hospitals designated as Critical Access Hospitals, are excluded from analyses.

v The price for each discharge was adjusted for acuity by dividing by the case weight of the diagnosis related group (DRG) associated with the discharge. Each hospital’s mean relative price per discharge was then multiplied by the statewide average case weight to produce a case-mix adjusted price per discharge.

Exhibit 6.2 Distribution of average hospital facility price per discharge, commercial and Medicare, select diagnoses, 2016



Notes: Analysis includes Massachusetts general acute care hospitals and New England Baptist Hospital. Commercial average allowed amount (price) per discharge is adjusted for case weight. Medicare averages are calculated according to Medicare hospital-level payment adjustments for wage index, disproportionate share hospitals, and teaching hospitals. See **Technical Appendix** for details.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2016; Centers for Medicare & Medicaid Services data: Medicare FY 16 Impact File and Tables 1A-1E

The difference between commercial and Medicare prices, and the degree of variation in prices among hospitals, varied by type of discharge, as identified by the associated diagnosis related group (DRG). As shown in Exhibit 6.2, the median hospital’s commercial price for an average inpatient stay for cellulitis was 26 percent higher than the Medicare median, while for septicemia the median hospital’s commercial price was 76 percent higher than Medicare. Commercial price variation between higher- and lower-priced hospitals was relatively narrow for hip and knee replacement procedures,

for which the highest-priced hospital was paid approximately 2.9 times more on average than the lowest-priced hospital, and broader for septicemia, for which the highest-priced hospital was paid approximately 5.3 times more on average than the lowest-priced hospital. These findings align with recent findings from the Massachusetts Attorney General’s Office (AGO) that commercial payers set prices using a variety of complex methods rather than applying a common ‘markup’ over Medicare prices.^{7,vi}

vi An examination of commercial payer pricing for hospital services by the AGO found that commercial payers use a variety of methods for setting commercial prices, including fee schedules and multipliers that vary across payers, as well as by service category and product type within each payer. This complexity serves as a barrier to price transparency, and adds substantial costs to the health care system.

Hospital outpatient care

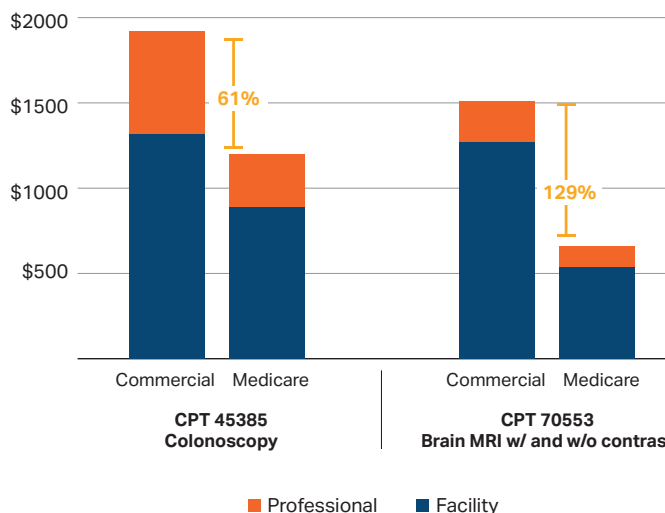
Commercial prices for hospital outpatient services were also substantially higher than Medicare prices. For services that occur in a facility setting, including hospital outpatient departments, commercial and Medicare payments typically include separate payments for the professional component of the service (generally covering the clinician's labor) and the facility component of the service (generally covering use of equipment and overhead expenses). The HPC compared prices for both components. **Exhibit 6.3** shows the difference in average commercial and Medicare prices for two common and high-cost hospital outpatient procedures: colonoscopy and MRI scan of the brain. For the professional component of the service, commercial prices were almost double Medicare prices for both procedures (97 percent higher for colonoscopy and 99 percent higher for brain MRI); for the facility component of the service, commercial prices were 48 percent higher than Medicare for colonoscopy and 136 percent higher for brain MRI. The combined commercial prices were 61 percent higher than Medicare for colonoscopies and 129 percent higher for brain MRI.

Emergency department care

To examine care delivered in EDs, we focused on evaluation and management services performed in this setting (clinician evaluation of ED patients).^{vii} Analyses of claims for these services show that average commercial prices in EDs were substantially higher than Medicare prices for both the professional and facility components (**Exhibit 6.4**).

vii Analyses of evaluation and management services in the ED in this chapter include current procedural terminology (CPT) codes 99281-99285. Average prices for these services discussed in this chapter reflect the average of allowed amounts for these codes, weighted by the volume of each code.

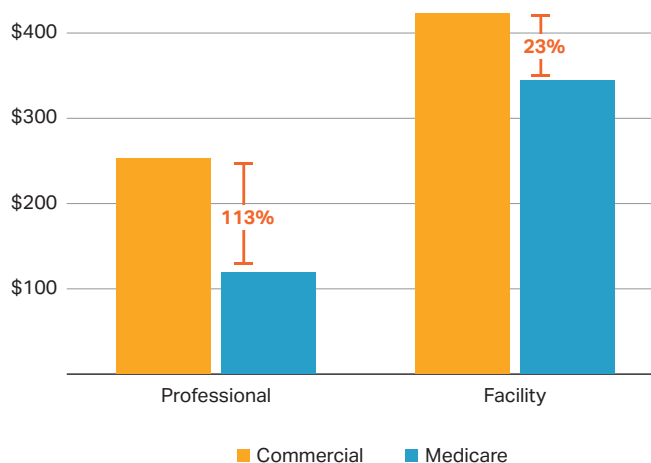
Exhibit 6.3 Average price per hospital outpatient department procedure, commercial and Medicare, colonoscopy and brain MRI, 2016



Notes: Analysis of commercial mean allowed amounts (price) per procedure and Medicare analogues for Massachusetts general acute care hospitals and New England Baptist Hospital. Commercial averages are weighted by hospital volume. Medicare professional averages are based on statewide average payments for these services; Medicare facility averages are calculated according to Medicare payment rules, and assume the same patient distribution as commercial visits. See **Technical Appendix** for details.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2016; Centers for Medicare & Medicaid Services data: Medicare FY 16 Impact File, Outpatient Prospective Payment System Addendum B for Oct. 2016 (OPPS CY16), and State HCPCS Aggregate Summary Table CY16 (HCPCS Table CY16)

Exhibit 6.4 Average price per evaluation and management service in the emergency department, commercial and Medicare, 2016



Notes: Analysis of commercial mean allowed amounts (price) per claim and Medicare analogues for CPT codes 99281-99285 at Massachusetts general acute care hospitals. Commercial averages are weighted by hospital volume. Medicare professional average based on statewide average payments for these services; Medicare facility average calculated according to Medicare payment rules, and assumes the same patient distribution and mix of procedure codes as commercial visits. See **Technical Appendix** for details.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2016; Centers for Medicare and Medicaid Services data: Medicare FY 16 Impact File, OPPS CY16, and HCPCS Table CY16

Evaluation and management services in provider offices (clinics)

Finally, the HPC examined prices for evaluation and management services in non-hospital primary care clinics (routine clinician office visits).^{viii} Exhibit 6.5 compares average prices for new patient visits, established patient visits, and for all visits combined. Commercial insurers paid, on average, 69 to 77 percent more for these visits than did Medicare, similar to the differentials found for inpatient and outpatient services.

COMMERCIAL PRICE TRENDS

The HPC used the APCD to examine increases in commercial prices for inpatient care and increases in payments for hospital ED services, and compared these with trends in Medicare prices. The HPC then did a side-by-side comparison of price trends for commercial inpatient care to trends in inpatient utilization, acuity, and total medical expenses to highlight the impact prices have had on spending trends.

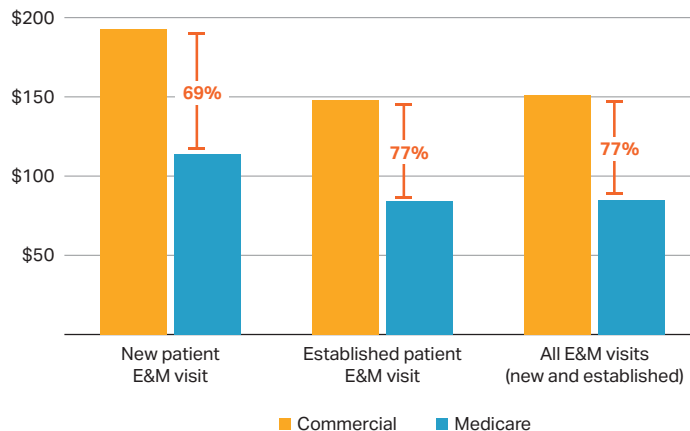
Inpatient care

Inpatient utilization in Massachusetts has declined in the commercial population in recent years (see Chartpack). Despite this decline in utilization, commercial spending for inpatient care in the Commonwealth has increased, in large part due to increases in commercial prices.

Average commercial prices have been increasing steadily over time. As shown in Exhibit 6.6, average commercial prices for inpatient care increased 5.2 percent overall from 2014 to 2016. Medicare prices for comparable inpatient services grew more slowly at a rate of 3.3 percent during this time period.⁸

^{viii} Evaluation and management codes for clinic services are defined as CPT codes 99211-99215; while these services are similar in some respects to evaluation and management services provided in hospital EDs, evaluation in an ED typically includes more complex services and is billed using a distinct set of CPT codes. Average prices for clinic evaluation and management services discussed in this section reflect the average of allowed amounts for these codes, weighted by the volume of each code.

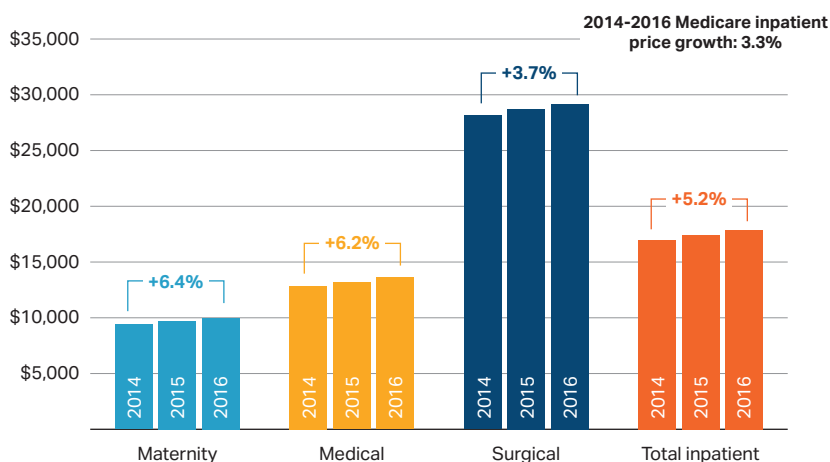
Exhibit 6.5 Average price per evaluation and management service in a primary care office, commercial and Medicare, 2016



Notes: Analysis of commercial mean allowed amounts (price) per claim and Medicare analogues for CPT codes 99211-99215 in Massachusetts primary care provider clinics. Medicare professional averages are based on statewide average payments for each CPT code, and assume the same patient distribution and mix of procedure codes as commercial visits. See **Technical Appendix** for details.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2016; HPC Registration of Provider Organizations 2017 filings, SK&A Office Based Physicians Database 2016; Centers for Medicare & Medicaid data: Medicare HCPCS Table CY16

Exhibit 6.6 Growth in hospital average commercial price per discharge overall and by service category, adjusted for changes in acuity and provider mix, 2014-2016



Notes: Analysis of commercial mean facility allowed amounts (prices) for Massachusetts general acute care hospitals and New England Baptist Hospital. Analysis excludes claims with invalid payment codes, outlier claims at each hospital, transfers, and some maternity stays for which claims for the mother and newborn cannot be distinguished. Average allowed amounts per discharge in each service category are adjusted for changes in case weight across hospitals using 2015 DRG weights for consistency across years, and adjusted for changes in provider mix over time by holding distribution of hospital volume constant at 2014 levels. Categories are mutually exclusive; medical and surgical categories exclude maternity DRGs. See **Technical Appendix** for details.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2016; Medicare Unit Cost Increases 2014-2016

Exhibit 6.6 also shows that commercial prices for maternity and medical care increased more than for surgical care, for which prices per discharge were already relatively high. The price increases in these analyses control for changes in acuity (patients receiving more or less intensive services) and provider mix (patients going to more or less expensive hospitals) over time (see **Sidebar: Changes in coding over time in evaluation and management services** for an example of changes in acuity over time).

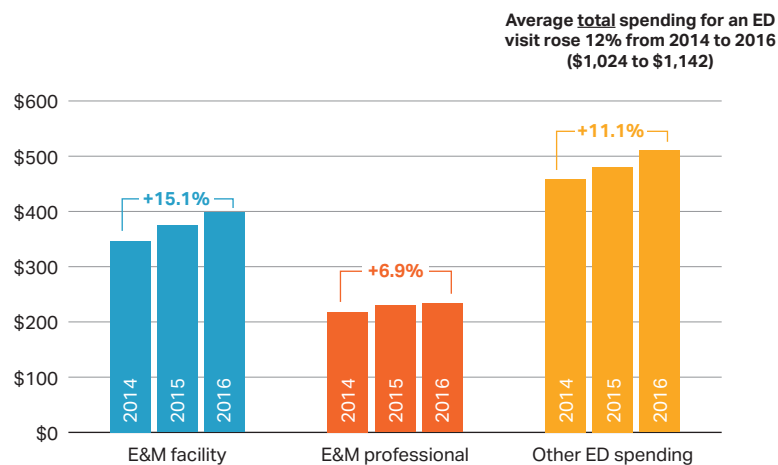
Emergency department care

Commercial prices for ED services also increased over time. For clinician evaluation services provided in EDs, facility prices increased by 13.2 percent from 2014 to 2016, while professional prices increased by 4.8 percent.^{ix}

Total spending for ED visits that included clinician evaluation increased over time due to a number of factors in addition to price, including changes in patient acuity coding (see **Sidebar: Changes in coding over time in evaluation and management services**). As shown in Exhibit 6.7, average spending for the professional component of these visits grew 6.9 percent from 2014 to 2016, average spending for the facility component grew by 15.1 percent, and average spending on other ED services, such as labs and testing, grew by 11.1 percent. These components accounted for approximately 20 percent, 35 percent, and 45 percent of spending on an average ED visit in 2016, respectively. Overall, the average total spending for an ED visit with evaluation and management services, including amounts for other ED services (e.g., radiology, laboratory), increased nearly 12 percent (from \$1,024 to \$1,142) between 2014 and 2016.^x

ix This analysis includes all facility or professional claims for a clinician evaluation CPT code, as defined in note vii, with a valid payment amount, excluding outliers. It does not include other claims associated with the visit. These increases are adjusted for changes in the proportion of higher- and lower-acuity codes over time. The low volume of each CPT code at each hospital in each year prevented accurate adjustment for changes in provider mix over time. However, an analysis of average allowed amounts for the two most common ED clinician evaluation codes holding patient distribution across hospitals constant suggest that changes in provider mix had little impact on trends in ED spending.

Exhibit 6.7 Growth in average spending for evaluation and management and other services per commercial emergency department visit, 2014-2016



Notes: Analysis of commercial mean allowed amounts for select ED visits at Massachusetts general acute care hospitals. Includes all claims associated with ED visits with valid facility ED evaluation codes. See **Technical Appendix** for details.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2016

In contrast with significant growth in inpatient prices and prices per ED visit, prices for evaluation and management services provided in non-hospital clinic settings increased only 1.8 percent from 2014 to 2016.^{xi} Medicare prices for these visits declined by 0.5 percent in Metro Boston and 0.3 percent in the rest of the state during this period.^{xii}

x This analysis includes only claims associated with ED visits for which the HPC identified a valid facility claim for an evaluation and management CPT, as defined in note vii. This narrows the analysis to approximately 35 percent of ED claims that involved a clinician evaluation and for which the patient was not subsequently admitted. The trend in average total payments for an ED visit is likely the result of both changes in prices and changes in the mix of other ED services provided over time.

xi Average spending per evaluation and management service in a physician clinic increased 3.9 percent from 2014 to 2016, but this increase was due in part to changes in coding intensity, similar to the changes described in the **Sidebar: Changes in coding over time for evaluation and management services**. The analysis does not report price changes for outpatient procedures due to the impact of complexity in payment methodology on analysis of commercial claims data.

xii Based on HPC analysis of Medicare fee schedules for CPTs 99211-99215 for 2014 and 2016, weighted by the mix of procedure codes observed in commercial visits in 2014.

CHANGES IN CODING OVER TIME FOR EVALUATION AND MANAGEMENT SERVICES

In addition to price increases over time for evaluation and management services, commercial spending for these services has increased as a result of changes in the acuity of codes billed by hospitals. From 2014 through 2016, a higher proportion of ED evaluation and management claims have been billed using higher acuity codes, for which hospitals are paid more.^{xiii} The three lowest acuity codes accounted for 47.4 percent of ED evaluation and management volume in 2014, but their share fell to 45.1 percent in 2016, while the two highest acuity codes rose from 52.6 to 54.9 percent of ED evaluation and management volume in this time period. As a result, the average spending per claim for evaluation and management in an ED rose more quickly than it otherwise would have. Average spending for the professional component of the visit would have grown by 4.8 percent instead of 6.9 percent from 2014 to 2016, and average spending for the facility component of the visit would have grown at 13.2 percent rather than 15.1 percent (spending growth is shown in Exhibit 6.7). It is unclear to what extent this shift reflects changes in coding practices versus changes in patient complexity, an important area for further study.

Impact on spending

As shown in the **Chartpack**, commercial patients have been using less inpatient hospital care in recent years. Despite this trend, commercial spending for inpatient care has increased. This is due in part to increases in commercial prices. Exhibit 6.8 compares trends from 2014 through 2016 in commercial inpatient prices, average inpatient acuity, and utilization; each of these factors impacts commercial inpatient spending.^{xiv}

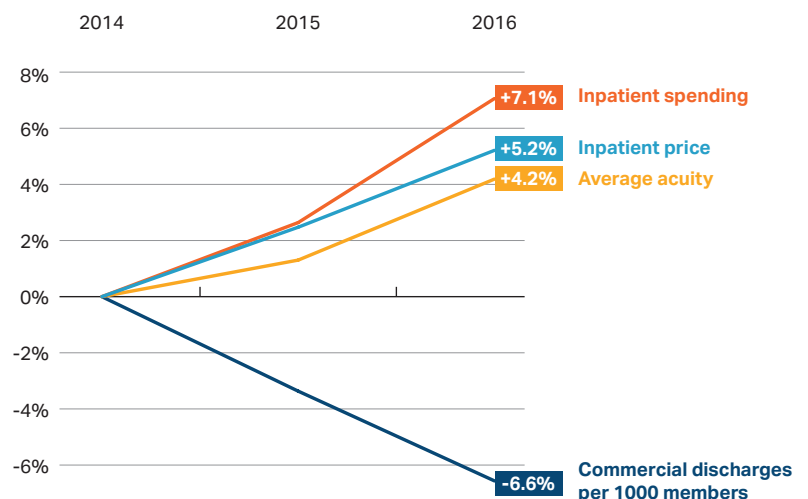
CONCLUSION

The HPC's analyses provide new insight into commercial prices across different hospital and non-hospital services. The analyses show that commercial payers pay more, in some cases substantially more, than Medicare for the same services. Results also show the substantial variation in commercial prices paid to different hospitals for the same services. Commercial prices have continued to increase more quickly than Medicare prices over time, and have contributed to ongoing growth in inpatient spending despite declines in utilization.

xiii HPC analysis of APCD data for 2014-2016, based on volumes of facility claims for ED clinician evaluation CPT codes, as defined in note vii, excluding outliers and claims without valid payment amounts.

xiv The volume, price, and acuity figures in Exhibit 6.8 do not necessarily add up to the overall inpatient trend due to a lack of perfect correspondence between acuity changes and commercial payment rates, non-claims-based-spending, and different data sources used for the different trends.

Exhibit 6.8 Change in average commercial inpatient prices, utilization, acuity, and spending, 2014-2016



Notes: Average price trend based on commercial mean facility allowed amounts (prices) for Massachusetts general acute care hospitals and New England Baptist Hospital, adjusted for changes in acuity and provider mix over time. Acuity trend calculated based on all commercial discharges in Center for Health Information and Analysis (CHIA) discharge datasets, using 2015 DRG weights. Commercial spending (total medical expense) trend based on facility allowed amounts per member per month for all commercial payers. Discharge trend based on discharges per 1000 commercial members for all commercial payers using CHIA discharge datasets.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2016; Center for Health Information and Analysis Hospital Inpatient Discharge Database, 2014-2016; Center for Health Information and Analysis Total Medical Expense files

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CHAPTER 7:
POLICY
RECOMMENDATIONS

CHAPTER 7: POLICY RECOMMENDATIONS

RECOMMENDATIONS BY TOPIC:

- | | | |
|------------------------------|---|--|
| 1. Administrative Complexity | 5. Site-Based and Provider-Based Billing Reform | 9. Health Care Workforce |
| 2. Pharmaceutical Spending | 6. Demand-Side Incentives | 10. Scaling Innovations in Integrated Care |
| 3. Out-of-Network Billing | 7. Unnecessary Utilization | 11. Alternative Payment Methods |
| 4. Provider Price Variation | 8. Social Determinants of Health | |

INTRODUCTION

In light of the findings presented in this report, as well as the Massachusetts Health Policy Commission's (HPC) other research, policy, and program work over the past six years, the HPC has developed policy recommendations for market participants, policymakers, and government agencies. These include **NEW** recommendations for 2018, designated in blue, and renewed recommendations from previous years' cost trends reports. For these renewed recommendations, continued action, effort, and attention are required to address the policy issues.

In order to continue progress in achieving the Commonwealth's goal of better health, better care, and lower costs, the HPC recommends action within the following primary policy priorities: 1) Strengthening market functioning and transparency, and 2) Promoting an efficient, high-quality health care delivery system.

Throughout these recommendations, the term, "**The Commonwealth**," is intended to be broadly inclusive of all relevant stakeholders, both public and private, that influence the delivery and payment of health care in Massachusetts and whose commitment to action is necessary for advancing the recommended policy changes.

STRENGTHENING MARKET FUNCTION AND TRANSPARENCY

#1. NEW ADMINISTRATIVE COMPLEXITY. The Commonwealth should take action to identify and address areas of administrative complexity that add costs to the health care system without improving the value or accessibility of care.

As discussed extensively at the 2018 Cost Trends Hearing, administrative complexity is endemic in the U.S. health care system, including in payment arrangements, insurance billing and coding, risk adjustment, quality measurement reporting, provider credentialing, and use of electronic health records. It is associated with negative impacts, both financial and non-financial, and is one of the principal reasons that U.S. health care spending exceeds that of other high-income countries. The costs of such complexity are borne by payers and providers, and ultimately passed on to employers and residents of the Commonwealth in higher premiums and cost sharing. Other impacts include provider consolidation, clinician burnout, and barriers to value-driven decision-making. There is an opportunity to reduce these costs, enhance transparent market functioning, and improve care throughout the health care system. To advance this policy imperative in 2019, the HPC intends to collaborate with stakeholders from across the health care industry in order to identify, prioritize, and develop strategies to address unnecessary administrative complexity.

#2. PHARMACEUTICAL SPENDING. The Commonwealth should take action to reduce drug spending growth. Pharmaceutical spending growth in Massachusetts continues to outpace most other categories of health care services and the health care cost growth benchmark. Many states are taking action to moderate drug spending growth and enhance transparency, and Massachusetts should adopt promising strategies and test new innovative approaches. Specific areas of focus should include:

- a. **NEW MassHealth drug pricing review and accountability process:** Lawmakers should authorize the Executive Office of Health and Human Services to pursue new

strategies for maximizing value in drug spending for the MassHealth program, including establishing a process that allows for a rigorous review of certain high-cost drugs and increases the ability of MassHealth to negotiate directly with drug manufacturers for additional supplemental rebates and outcomes-based contracts. Consistent with the HPC's existing oversight of providers and payers with excessive health care spending growth, the HPC should be further authorized to review manufacturers of high-cost drugs, publicly report on its findings, and, if warranted, refer its findings to the Attorney General's Office for consumer protection action. With these strategies, the state will be better positioned to negotiate prices for covered drugs and promote market competition that can moderate drug prices and spending.

- b. Transparency and oversight:** Beyond MassHealth reforms, lawmakers should take action to increase public transparency and public oversight for pharmaceutical manufacturers, medical device companies, and pharmacy benefit managers (PBM), consistent with existing requirements on payers and providers, including through mandated participation in the HPC's annual cost trends hearing and inclusion in CHIA and HPC's annual reports on health care cost drivers.
- c. NEW Proactive consumer price disclosure and other consumer-focused policies:** Consumers should have access to the lowest priced drugs. In some cases, a patient's cost-sharing under their insurance plan may be higher than the price of the drug without insurance (usual and customary price) or through a discount program. Pharmacies should be provided information about such alternatives and should be encouraged to proactively disclose such information to patients. In addition, Massachusetts payers and PBM should be required to disclose any manufacturer rebates it receives and take action to pass those savings on to employers and patients, as some national commercial plans have done.
- d. NEW Greater oversight of pharmacy benefit manager prices:** The practice of "spread pricing," in which a contracted PBM charges payers a price for a generic drug that substantially exceeds the amount that the PBM reimburses pharmacies for the drug, with the PBM keeping the excess or "spread" as profit, may contribute to higher overall drug spending. The Commonwealth

should increase state oversight of PBM pricing and take steps to limit the practice of "spread pricing."

- e. NEW Medical drug spending:** Policymakers should similarly consider strategies to address prices for drugs covered under the medical benefit of a health insurance plan. Efforts should include the following areas:
- **Attention to medical drug spending through price variation:** Since prices for medical drugs reflect the same market dynamics as prices for other medical services, with prices varying substantially by provider, policies to address provider price variation should include prices for drugs covered under the medical benefit.
 - **Consideration of Medicare reforms:** The Federal government has proposed reforms for Medicare coverage of medical benefit drugs, including indexing reimbursement levels to international price benchmarks. Payers and policymakers should continue to monitor potential Medicare reforms and consider their applicability to other commercial and public programs.
- f. Provider and payer strategies to maximize value:** Payers and providers should pursue a range of strategies to maximize value in drug spending, including:
- **Value-based contracting strategies:** Payers should pursue the use of value-based benchmarks when negotiating prices and consider opportunities for the use of risk-based contracting with manufacturers.
 - **Treatment protocols and guidelines:** Payers and providers should work together to develop and use treatment protocols and guidelines that make appropriate use of lower-cost drugs when available and to achieve consensus on appropriate use of new high-cost drugs when they enter the market.
 - **Prescriber education and variation in prescribing patterns:** Health systems and Accountable Care Organizations (ACOs) should disseminate information to front-line prescribers on drug and treatment alternatives and invest in system technology to alert prescribers to alternatives. Providers should also monitor prescribing patterns, particularly for identification of outlier behavior, to help ensure that prescribing is consistent with value-based and evidence-based guidelines.

#3. OUT-OF-NETWORK BILLING. The Commonwealth should take action to enhance out-of-network protections for consumers.

Consumers and payers may face higher charges from out-of-network hospitals and physicians in certain circumstances where consumers do not have the ability or information to select an in-network provider, including in emergency situations and when services are received at in-network facilities but provided by out-of-network providers without the consumer's informed agreement. These high out-of-network charges can create financial burdens for consumers who may pay some or all of the charges.

When, as is often the case, such costs are borne primarily by payers, these charges increase overall spending and premiums. They can also impair the functioning of tiered and limited network products because the savings that can be achieved by excluding high-priced providers from a network are reduced when patients receive services unintentionally from those providers, for which the insurer pays high out-of-network charges. Further, such high out-of-network charges impact insurer-provider rate negotiations, as payers may be encouraged to agree to higher negotiated rates to keep those high-priced providers in-network, as those higher rates would still be less than out-of-network charges that could occur. This dynamic can undermine value-driven payment and result in overall increases in health care spending.

Many other states have recently enacted out-of-network billing protections. The Commonwealth should take action to strengthen existing protections, including:

- a. **Advance patient notice:** Prior to delivery of non-emergency services, providers should be required to inform patients if the provider is not part of the patient's insurance network.
- b. **Consumer billing protections:** Consumers should be limited to their in-network cost-sharing levels for unintentional out-of-network services, including for emergency services, and providers should be prohibited from balance billing consumers.
- c. **Reasonable and fair provider reimbursement:** Policymakers, either by statute or through an appropriate state regulatory process, should establish a reasonable price for out-of-network services that will enhance the viability of limited and tiered network products, facilitate

value-driven payer and provider rate negotiations, and ensure that out-of-network protections for consumers do not increase overall spending.

#4. PROVIDER PRICE VARIATION. The Commonwealth should take action to reduce unwarranted variation in provider prices.

Extensive variation in prices paid to health care providers for the same set of services is a persistent issue in the Commonwealth, driving increased health care spending and perpetuating inequities in the distribution of health care resources across different communities, as certain providers have the ability to negotiate higher prices and others do not.

Unwarranted price variation persists despite efforts to improve transparency, and is not likely to decrease absent direct policy action. Policymakers should advance specific, data-driven interventions to address the pressing issue of continued provider price variation in the coming year.

#5. SITE-BASED AND PROVIDER-BASED BILLING REFORM. The Commonwealth should take action to equalize payments for the same services for similar patients between hospital outpatient departments and physician offices.

In many cases, the same service can be provided at both hospital outpatient departments and physician offices, but hospital outpatient department rates and cost-sharing are often substantially higher than those of physician offices due to the addition of hospital "facility fees." The ability to charge these fees promotes acquisition of physician groups by hospital systems which can result in higher prices paid for services. Policymakers and payers should act to limit both newly licensed and existing sites that can bill as hospital outpatient departments and implement site neutral payments for select services for similar patients. Additionally, all outpatient sites that charge hospital fees should be required to conspicuously and clearly disclose this fact to patients, prior to delivering care. These reforms are necessary both to reduce inappropriate health care spending and to reduce confusion for patients who can face increased cost sharing at hospital outpatient sites.

#6. DEMAND-SIDE INCENTIVES. The Commonwealth should encourage payers and employers to enhance strategies that empower consumers to make high-value choices, including increasing the transparency of comparative prices and quality.

Specific areas of focus should include:

- a. **Employee incentives for choosing high-value plans:** Employers, particularly those with fewer than 50 employees, should seek to offer their employees a choice of plans if possible, and should strongly consider purchasing health insurance through the Massachusetts Health Connector, which provides consumers the opportunity to shop among a range of product options at competitive market rates.
- b. **Value-based provider choices:** Employers and payers should continue to encourage employees to choose high-value providers, including through improved tiered and limited products, direct employer contracts with preferred providers, and/or financial incentives (e.g., reduced premiums, lower deductibles) for employees who choose primary care providers affiliated with high-quality, efficient provider groups.
- c. **Transparent price and quality information:** Payers and purchasers should also take advantage of price and quality information available via CompareCare (mass-comparecare.gov) to empower and reward employees for choosing high-value care. Consistent with the Commonwealth's goal to be a national leader in health care data transparency, the Center for Health Information and Analysis (CHIA) should continue efforts to make detailed health care price information easily available to the public and should encourage self-insured employers and payers to submit claims information to the Massachusetts All-Payer Claims Database.

PROMOTING AN EFFICIENT, HIGH-QUALITY HEALTH CARE DELIVERY SYSTEM

#7. UNNECESSARY UTILIZATION. The Commonwealth should focus on reducing unnecessary utilization and increasing the provision of coordinated care in high-value, low-cost settings.

Unnecessary utilization and the provision of care in higher cost settings (e.g., avoidable emergency department (ED)

visits, BH-related ED visits, readmissions, use of teaching hospitals and academic medical centers for community-appropriate inpatient care, institutional post-acute care) continue to be significant drivers of health care spending. Payers and providers should be accountable for making progress to ensure access to high-value, low-cost settings, and for shifting care, as appropriate, to these settings. Further, the employer community should continue to collaborate with health plans, providers, and other stakeholders to continuously engage their employees and families to encourage them to seek high-quality, high-value care at appropriate settings in the community to reduce overall health care costs.

#8. SOCIAL DETERMINANTS OF HEALTH. The Commonwealth should continue to address the impact of social determinants of health (SDH) on health care access, outcomes, and costs.

Evidence demonstrates that addressing health-related social needs (e.g., housing, nutrition) improves health outcomes, reduces health disparities, and lowers avoidable health care utilization. Policymakers and market participants should advance efforts to address SDH in policies designed to reduce systemic health inequities. Building on the leadership of the Baker-Polito Administration's Executive Office of Health and Human Services through MassHealth's Delivery System Reform Incentive Program (DSRIP) and other initiatives, specific areas of focus should include:

- a. **Payment for health-related social needs:** MassHealth offers flexible services funding to DSRIP-participating ACOs and Community Partners to address specific health-related social needs (e.g., housing supports, medically-appropriate meals) that are not otherwise reimbursed by MassHealth. Other payers should replicate and expand such payment innovations to provide flexible funding to medical providers to address a range of health-related social needs for patients, including under global budget models.
- b. **Inclusion of SDH in payment policies and performance measurement:** Provider payment policies and performance measurement that do not account for SDH can disadvantage providers and payers that serve high-need populations. Risk adjustment methodologies and performance metrics should account for socioeconomic and environmental factors where possible, and payers and

providers should seek to expand reliable and consistent collection of data necessary to understand the socio-demographics of the populations they serve (i.e., data on race, language, education level, and income).

- c. **NEW Community collaborations to address SDH:** As health systems and ACOs develop population health strategies, they should take advantage of opportunities to work collaboratively with community-based organizations and local municipalities to address SDH. Health systems that include non-profit hospitals can also use their required Community Health Needs Assessments to align community benefit programs to address both population and community need.
- d. **Research and dissemination:** Government agencies, researchers, providers, and payers should continue to pilot and evaluate innovative interventions, strategies, and policies that address health-related social needs. Research and evaluation of programs that demonstrate improvements in health and reductions in unnecessary health care spending should be widely disseminated.

#9. HEALTH CARE WORKFORCE. The Commonwealth should support advancements in the health care workforce that promote top-of-license practice and new care team models.

In order to enhance the successful implementation of new care delivery and payment reform initiatives, the Commonwealth should continue to support workforce innovations, such as multi-disciplinary care teams that include new types of roles and professions. Additionally, in order to improve access to high-quality care, policymakers should ensure that all providers can efficiently and effectively deliver care without restriction, consistent with their license and training. Specific areas of focus should include:

- a. **Addressing scope of practice barriers:** Policymakers should review and amend scope of practice laws that are restrictive and not evidence-based, including for Advanced Practice Registered Nurses (APRNs). Policymakers should also certify a new level of dental practitioner to increase access to oral health care, particularly for low income and underserved populations.
- b. **Certification and training for new members of the workforce, such as recovery coaches, peers, and pharmacists:** The Commonwealth should continue to support new

health care roles designed to meet the unique needs of the communities and patient populations they serve (e.g., community health workers (CHWs), patient navigators, peer support specialists, recovery coaches). Evidence from the HPC's Community Hospital Acceleration, Revitalization, and Transformation (CHART) and Health Care Innovation Investment (HCII) grant programs indicates that employing these types of workers on the care team, particularly to address patients' behavioral health and health-related social needs, helps reduce unnecessary hospital utilization and improve outcomes. However, standardizing competencies for these new roles and ensuring quality care will be important as new care teams are scaled. Consistent with a new certification and training program for CHWs released by the Department of Public Health (DPH), policymakers should consider establishing a robust training or streamlined certification process for peers both in substance use disorder and mental health settings aligned with other states' and national standards.

#10. SCALING INNOVATIONS IN INTEGRATED CARE.

The Commonwealth should continue to invest in testing, evaluating, and scaling innovative care delivery models to integrate medical, behavioral, and social care and enhance access for underserved populations. Early evidence from the HPC's grant programs indicates that targeted investments in innovative care models, supported by policy reforms, can successfully improve outcomes, reduce unnecessary utilization, and strengthen access to community-based care. Specific areas of investment should include:

- a. **Telehealth:** Telehealth is an evidence-based care model that provides convenient access to care for certain high-need services and patient populations. Given known access challenges to behavioral health services in the Commonwealth, both mental health and substance use disorder care are especially important areas of focus. Building on the recent MassHealth decision to cover, at payment parity to an in-person visit, behavioral health services delivered through telehealth, teletherapy, and telepsychiatry, other commercial payers should adopt this important payment innovation and expand to other service areas, as clinically appropriate. Further, the Commonwealth should examine and address other policy and payment issues related to the increased use of telehealth,

including licensing and practice standards, coverage and reimbursement rules, eligible care settings and provider types, and allowable modes of communication.

- b. **Mobile integrated health:** A 2018 DPH regulation allows Emergency Medical Services (EMS) providers to deliver care outside of the hospital in the community to avoid acute care use through a model called mobile integrated health. Providers and local communities should collaborate to implement and evaluate this model to meet the needs of vulnerable populations in the community, and payers should consider efficient methods of payment for such care given its cost savings potential.

#11. ALTERNATIVE PAYMENT METHODS. The Commonwealth should continue to promote the increased adoption of alternative payment methods (APMs) and improvements in APM effectiveness. Payers and providers have not made sufficient progress to meet the HPC's targets. While APM coverage will increase in 2018 due to the implementation of the new MassHealth ACO program, considerable opportunities remain in the commercial market for payers and providers to increase APM adoption for self-insured and PPO populations. Payers should also align and improve features of APMs in order to increase their effectiveness. Specific areas of focus should include:

- a. **NEW Two-sided risk:** Under new program rules issued by the Centers for Medicare and Medicaid (CMS), all Medicare ACOs must move to two-sided risk payment models (i.e., upside/downside); likewise, MassHealth made two-sided risk mandatory for all 17 ACOs participating in its program. Commercial payers in Massachusetts should consider shifting their global budget payment models to two-sided risk to maximize the impact of the incentives to improve health outcomes and value.
- b. **Disparities in budget levels:** As part of a strategy to reduce spending, payers should develop plans to lessen the unwarranted disparities in global budgets paid to different providers by establishing stricter targets for spending growth for highly paid providers and by moving away from historical spending as the basis of global budgets.

- c. **Bundled payments:** As a complement to the global payment, the predominant APM used in Massachusetts, payers and providers should expand implementation of bundled payments for common and costly episodes of care such as joint replacement, cardiac, and maternity care. Bundled payments can be a core strategy to reduce unnecessary post-acute and specialist utilization and to promote coordinated and efficient care across an episode.

CONCLUSION

In the coming year, the HPC will pursue and support the activities outlined above and work collaboratively with the Baker-Polito Administration, the state Legislature, the health care industry, employers, consumers, and other stakeholders to advance the goal of a more transparent, accountable, and innovative health care system in Massachusetts.

Exhibit 7.1 Dashboard of HPC system performance metrics

- ▲ Better performance
- Similar performance
- Worse performance

		MASSACHUSETTS TIME TREND			U.S. COMPARISON		
		Previous	Most Recent	Performance	Most Recent	Comparison	
AFFORDABILITY	1	Individuals with high out-of-pocket spending relative to income	11% (2013-2014)	11% (2015-2016)	●	14% (2015-2016)	▲
	2	Family premium contribution for lowest wage quartile of employer	\$6,687 (2016)	\$6,976 (2017)	■	\$5,784 (2017)	■
ALTERNATIVE PAYMENT METHODS	3	Percentage of Original Medicare beneficiaries covered by APMs	36.9% (2016)	48.1% (2017)	▲	25.9% (2017)	▲
	4	Percentage of commercial HMO patients in APMs	59.1% (2016)	54.9% (2017)	■	N/A	N/A
	5	Percentage of commercial PPO patients in APMs	14.7% (2016)	18.7% (2017)	▲	N/A	N/A
	6	MassHealth Managed Care Member Months Under APMs	35% (2016)	36% (2017)	▲	N/A	N/A
BENCHMARK AND SPENDING	7	Growth of THCE per capita (performance assessed relative to 3.6% benchmark)	3.0% (2016)	1.6% (2017)	▲	3.4% (2017)	▲
	8	Growth in commercial health care spending per capita	4.1% (2016)	2.4% (2017)	▲	3.3% (2017)	▲
	9	Employer-based health insurance premiums, single coverage	\$6,621 (2016)	\$7,031 (2017)	■	\$6,368 (2017)	■
	10	Growth in employer-based health insurance premiums, single coverage	1.6% (2016)	6.2% (2017)	■	4.4% (2017)	■
	11	Benchmark premium for second-lowest-cost exchange plan, single coverage	\$3,084 (2016)	\$2,976 (2017)	▲	\$4,332 (2017)	▲
	12	Growth in the benchmark premium for second-lowest-cost exchange plan, single coverage	-1.5% (2016)	-3.5% (2017)	▲	20.7% (2017)	▲
EFFICIENT, HIGH-QUALITY CARE DELIVERY	13	Readmission rate (Medicare)	18.0% (2016)	18.1% (2017)	●	16.6% (2016)	■
	14	Readmission rate (All payer)	15.9% (2016)	16.1% (2017)	●	N/A	N/A
	15	ED utilization (per 1,000 persons)	368 (2016)	358 (2017)	▲	N/A	N/A
	16	BH-related ED utilization (per 1,000 persons)	29 (2016)	28 (2017)	●	N/A	N/A
	17	Low-acuity avoidable ED Utilization	40 (2016)	39 (2017)	▲	N/A	N/A
	18	Percentage of inpatient discharges to institutional PAC	18.9% (2016)	18.0% (2017)	▲	MA = 18.2% U.S. = 15.4% (2015)	■
	19	At-risk adults without a doctor visit	7% (2015)	7% (2016)	●	12% (2016)	▲
VALUE-BASED MARKETS	20	Enrollment in tiered network products	19.2% (2016)	18.8% (2017)	■	N/A	N/A
	21	Enrollment in limited network products	3.4% (2016)	3.3% (2017)	■	N/A	N/A
	22	Percentage of discharges in top 5 networks	59.5% (2015)	61.2% (2017)	●	N/A	N/A
	23	Percentage of community appropriate discharges from community hospitals	57.8% (2016)	57.9% (2017)	●	N/A	N/A

Exhibit 7.2 Dashboard of HPC improvement targets

Metric	Current	HPC Target	Performance	
Growth of total health care expenditures per capita	1.6% (2017)	3.6% (2017)	▲	
All-payer readmission rate (the rate at which patients who have been discharged are admitted again within 30 days for all payers)	16.1% (2017)	13.0% (2019)	■	▲ Better performance
Percentage of commercial HMO patients in Alternative Payment Methods	54.9% (2017)	80.0% (2017)	■	▲ Projected to meet target
Percentage of commercial PPO patients in Alternative Payment Methods	18.7% (2017)	33.0% (2017)	■	● Similar performance
Percentage of inpatient discharges to institutional PAC	18.0% (2017)	17.1% (2020)	▲	■ Worse performance
				■ Projected to not meet target

Notes: APM = alternative payment method; BH = behavioral health; ED = emergency department; HMO = health maintenance organization; MCO = managed care organization; PAC = post-acute care; PCC = primary care clinician; PPO = preferred provider organization; THCE = total health care expenditures. For additional notes and sources, see **Technical Appendix**.

**LIST OF TECHNICAL
APPENDICES &
ACKNOWLEDGMENTS**

LIST OF TECHNICAL APPENDICES

A	Acute Care Hospitals in Massachusetts by Type of Hospital
B1	Trends in Spending and Care Delivery
B2	Admissions from the ED
B3	Low Value Care
B4	Provider Organization Performance Variation: Spending Variation for Clinically Similar Populations
B5	Commercial Price Trends and Comparison to Medicare Prices
B6	Dashboard
C1	Hospital Utilization
C2	Post-Acute Care
C3	Alternative Payment Methods
C4	TME by Provider Group
C5	Small Group Insurance
D	D Data Sources

ACKNOWLEDGMENTS

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