

**2023**

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

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# **PRIMARY CARE AND BEHAVIORAL HEALTH**

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# INTRODUCTION

## PRIMARY CARE AND BEHAVIORAL HEALTH

Policymakers across the U.S. have sought to strengthen primary care and behavioral health care (PCBH) as these services are associated with better health outcomes and more efficient use of health care overall yet remain relatively underpaid compared to specialty health care services.<sup>1,2</sup>

In order to track spending in these areas, in 2022 the Center for Health Information and Analysis (CHIA) worked with stakeholders to define PCBH services and report on aggregate spending. Their first report found that 15.5% of all Massachusetts health care spending was for PCBH services in 2019 and 16.0% in 2020. Medicare Advantage plans had the lowest share of spending on PCBH services in 2020 at 6.5%. Medicaid managed care organization and accountable care organization members had the highest share, with 27.4% of total spending for PCBH (20.8% of which was for behavioral health). Finally, commercial members had 14.3% of their total spending in 2020 on PCBH. Demographic differences between payer populations are likely a major factor in differences between shares of spending on PCBH. Across payer categories, CHIA found that spending on behavioral health increased from 2019 to 2020, while primary care spending stalled or declined.<sup>3</sup>

In this chartpack, the HPC builds on CHIA's report and analyzes utilization and spending trends for primary care and behavioral health services in Massachusetts with a focus on the commercial market. Using the All-Payer Claims database, the HPC examines longer term trends in primary care spending, spending by provider group, and disparities in primary care use based on community-income level. The HPC also examined trends in primary care visits for behavioral health concerns, which is a focus area for some payers and providers as they try to integrate behavioral health into primary care settings.

The HPC continues to monitor key metrics in behavioral health service provision. This chartpack presents updated trends in the use of telehealth for psychotherapy services, trends in opioid-related hospitalizations as well as other behavioral health-related inpatient stays and ED visits. Because of legal restrictions on receiving certain substance use-related claims, this chartpack only reports aggregate behavioral health spending as reported by CHIA.<sup>3</sup> This analysis includes only spending for claims submitted to insurance plans (including Medicare Advantage and Medicaid MCO plans). The data do not include, for example, out-of-pocket payments to BH providers who are not covered by insurance.

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- 1 National Academies of Sciences, Engineering, and Medicine. 2021. Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care. Washington, DC: The National Academies Press.
  - 2 Primary Care Collaborative. Primary Care Spending: High Stakes, Low Investment. December, 2020. Available at: [https://thepcc.org/sites/default/files/resources/PCC\\_Primary\\_Care\\_Spending\\_2020.pdf](https://thepcc.org/sites/default/files/resources/PCC_Primary_Care_Spending_2020.pdf)
  - 3 Center for Health Information and Analysis. Payer Data Reporting: Primary Care and Behavioral Health Care Expenditures: Baseline Report. Available at: <https://www.chiamass.gov/pcbh>

# KEY FINDINGS

## PRIMARY CARE AND BEHAVIORAL HEALTH

### PRIMARY CARE

- In Massachusetts, primary care spending continues to grow more slowly than other categories of medical spending; from 2017-2021, primary care spending grew 7.6% in total compared to 23.5% for all other spending. During this time, primary care declined as a percentage of all commercial spending from 9.1% in 2017 to 8.1% in 2021.
- Commercially-insured residents in low-income communities were more likely to have zero primary care spending than those in high-income communities.
- Primary care visits that included a primary diagnosis for a mental health or developmental disorder increased from 4.6% of all visits in 2017 to 6.6% in 2021.

### BEHAVIORAL HEALTH

- Ambulatory and other outpatient behavioral health care comprised more than half of behavioral health spending among commercial members in 2020.
- Between 2017 and 2021, psychotherapy visits more than doubled and mental health prescriptions increased 75% for young adults (18-25).
- The share of patients admitted to acute care hospitals for mental health conditions who stayed for more than 14 days grew from 19% to 28% from 2016 to 2022. Lengths of stay for patients admitted for substance-use conditions remained similar over this time period with a slight increase in stays over 14 days (2% in 2016 to 4% in 2021).
- Children (aged 0-17) had the highest share of behavioral health-related ED visits that resulted in boarding at the end of 2022 (45%) followed by adults aged 18-64 (36%) and those aged 65+ (31%).
- Although overall opioid-related hospitalizations had dipped from 2016 to 2022, Black, non-Hispanic residents experienced a continued increase in these hospitalizations from 2016 to 2020 and had higher rates of these hospitalizations compared to residents from any other racial/ethnic group in 2022.



# METHODS

## PRIMARY CARE AND BEHAVIORAL HEALTH

### PRIMARY CARE

- Data source: CHIA All-Payer Claims Database (APCD), V2021
- Primary care services were defined based on two criteria:
  - Professional claim containing a primary care service procedure code, which includes office-type visits (e.g., sick visit), preventive visits (e.g., wellness exam), vaccines (including COVID-19 vaccines), and other services.
  - Performed by a primary care provider, identified using taxonomy codes from CHIA's primary care and behavioral health data code list (which include physicians, nurse practitioners, physician assistants), as well as HPC's primary care provider (PCP) attribution methodology (see below).
- Analyses rely on attribution of patients to a PCP based on data in the APCD and linking PCPs to their affiliated provider organization based on data from the 2021 Registration of Provider Organizations (RPO). The RPO data was supplemented with a 2021 commercial database obtained from IQVIA, which has information on additional Massachusetts providers including nurse practitioners. Details of the methodology can be found in the technical appendix for the Provider Organization Performance Variation section of the chartpack.

### BEHAVIORAL HEALTH

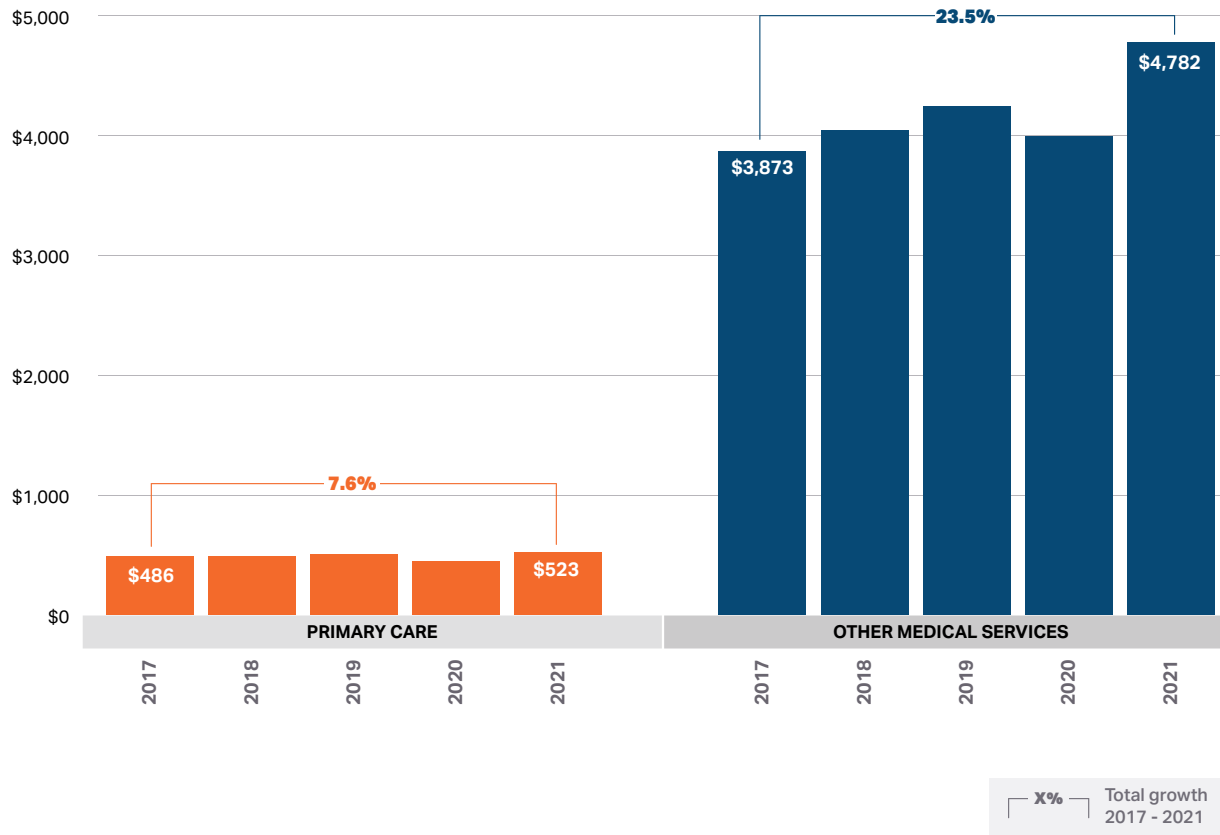
- Data sources: CHIA APCD, V2021. Massachusetts Acute Hospital Case Mix Discharge Databases: Hospital Inpatient and Emergency Department Database, and Primary Care and Behavioral Health (PCBH) Expenditures: Baseline Report Databook
- HPC analyzed trends in ED visits and acute care hospital stays for behavioral health (all-payer) based on diagnosis codes or APR-DRGs as well as ambulatory visits for psychotherapy defined by procedure codes (commercial only).
- Comparisons to other states are based AHRQ FastStats.

NOTES: Primary care services were defined based on CHIA's primary care and behavioral health data code list; however, the HPC excluded obstetrics services. Available at: CHIA Payer Data Reporting: Primary and Behavioral Health Care Expenditures: <https://www.chiamass.gov/payer-data-reporting-primary-and-behavioral-health-care-expenditures/>

# PRIMARY CARE SPENDING AND UTILIZATION IN MASSACHUSETTS

PRIMARY CARE AND BEHAVIORAL HEALTH

# COMMERCIAL MEDICAL SPENDING BY CATEGORY PER MEMBER PER YEAR, 2017–2021



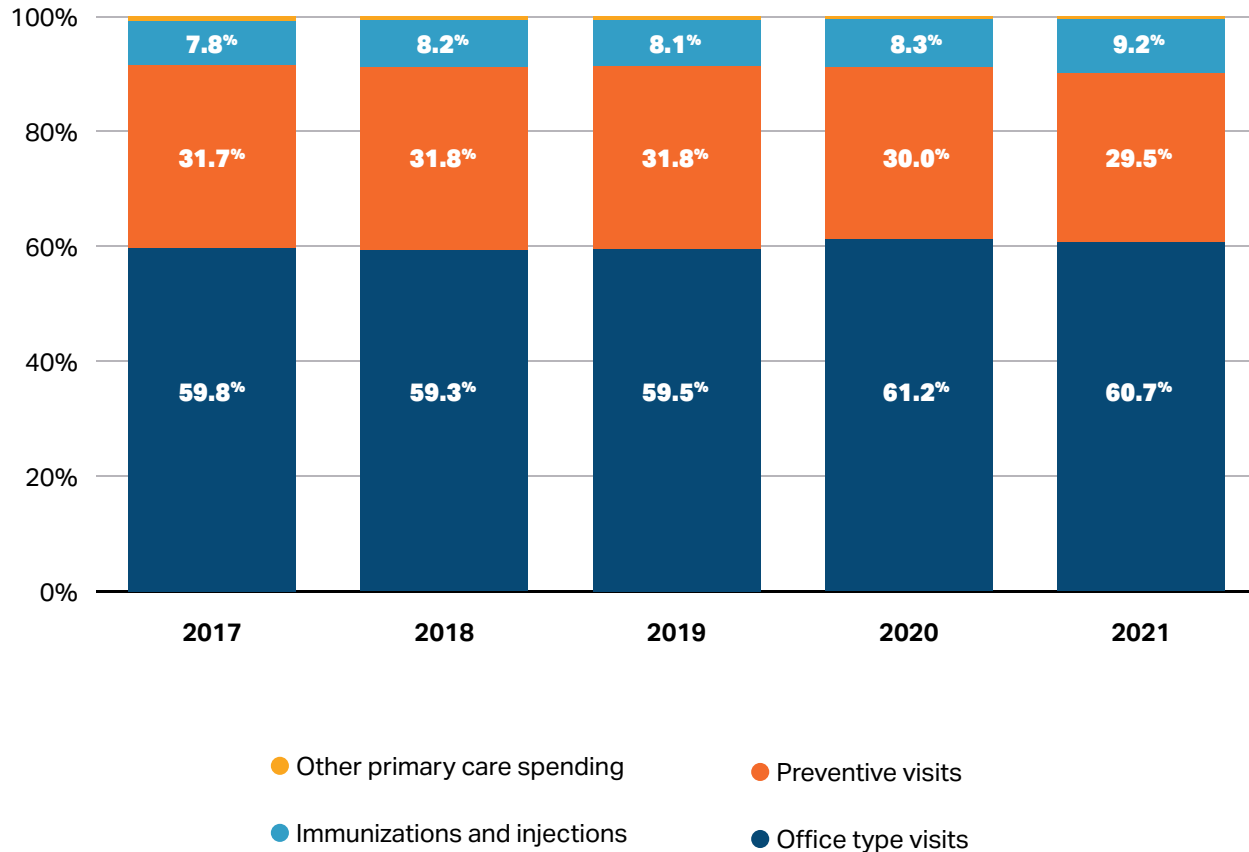
- Between 2017 and 2021, per member spending on primary care grew 7.6% in total, from \$486 in 2017 to \$523 in 2021. In contrast, per member spending on other medical care grew three times as fast (23.5%) during the same period.
- Primary care declined as a percentage of all commercial spending from 9.1% in 2017 to 8.1% in 2021.

PCBH

NOTES: Analysis restricted to members under 65 and those with prescription drug coverage. Prescription drug spending is not included in “Other medical services”. Prescription drug spending (net of rebate) is included in total commercial spending when calculating the share of all commercial spending that is primary care.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021

# DISTRIBUTION OF PRIMARY CARE SPENDING BY YEAR FOR COMMERCIAL PAYERS, 2017–2021

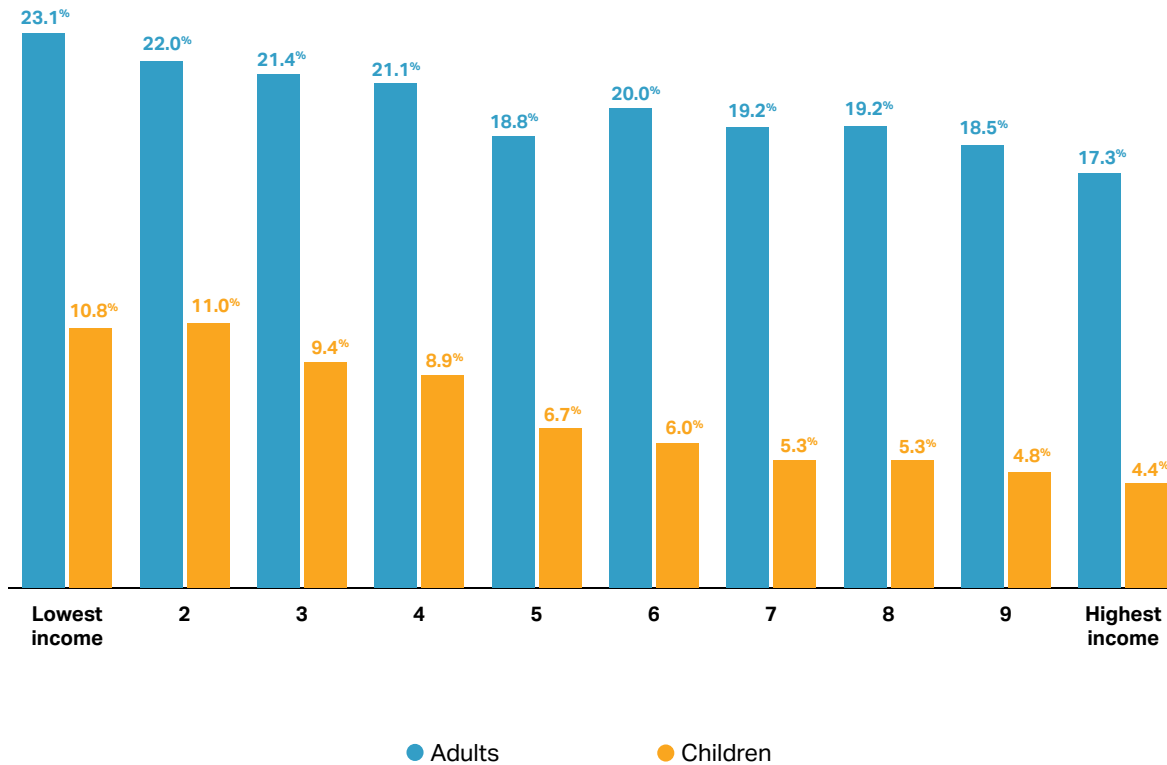


- The breakdown of primary care spending by service category has remained relatively stable from 2017 to 2021. Roughly 60% of spending consisted of office type visits, such as common evaluation and management services. About 30% of spending was for preventive visits such as wellness exams, counseling, and screenings.
- Notably, the share of primary care spending on immunizations and injections increased from 8.3% in 2020 to 9.2% in 2021, which reflects the introduction of COVID-19 vaccines.

NOTES: Analysis restricted to members under 65. Categories of care defined based on CHIA primary care and behavioral health data code list but excludes obstetrics services.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021

# PERCENT OF COMMERCIAL MEMBERS WITH NO PRIMARY CARE SPENDING BY COMMUNITY INCOME DECILE, 2021



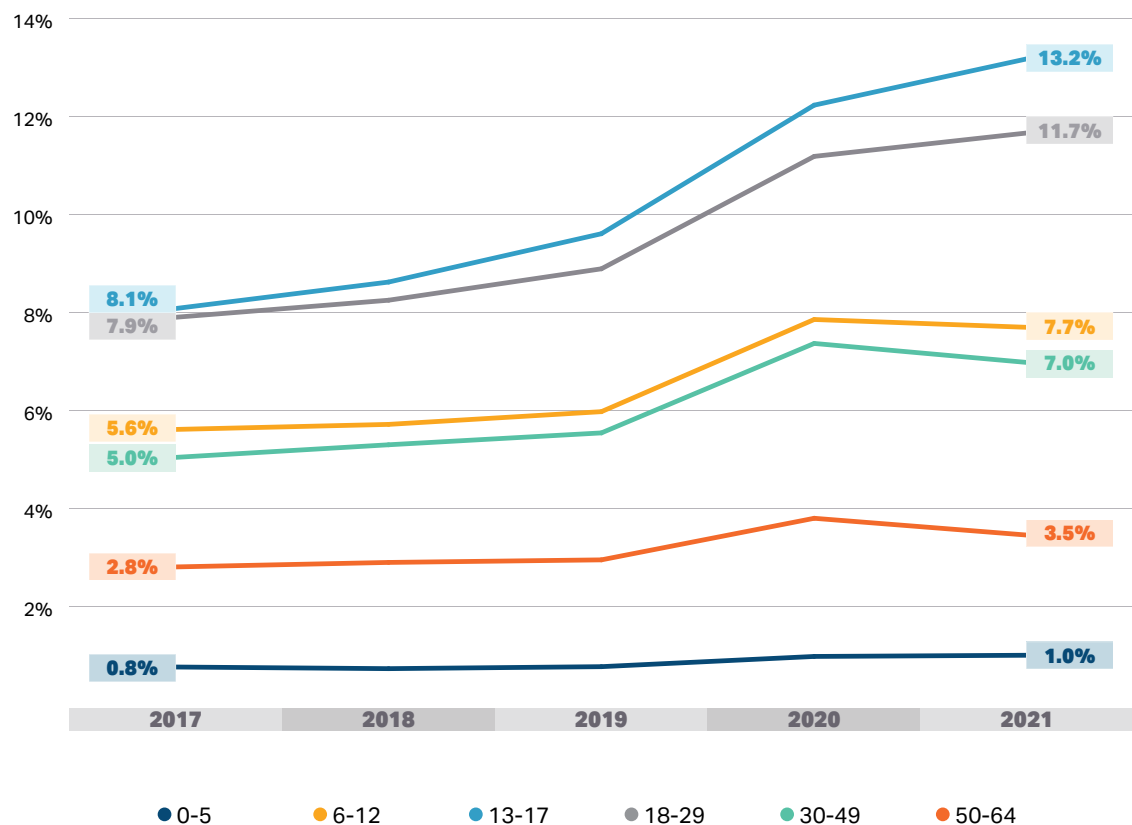
- Prior HPC research found that, among commercially insured residents, those living in lower-income communities were more likely to go without medical care.<sup>1</sup> This pattern remains true for primary care. In 2021, 23.1% of adults living in the lowest income decile of zip codes had no primary care spending, compared to 17.3% in the highest income decile.
- The difference is even more stark among children. In the lowest income zip codes, 10.8% of commercially-insured children did not have primary care spending in 2021, more than double the share (4.4%) in the highest income zip codes.

NOTES: Analysis restricted to members under 65 with full year medical coverage. Children are defined as those under 18 years old. Adults are those aged 18 to 64. Income deciles were assigned based on median income of zip code.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2021.

1. Massachusetts Health Policy Commission. 2022 Cost Trends Report, Sep 2022. Chapter 3. Available at: <https://www.mass.gov/doc/2022-health-care-cost-trends-report-and-policy-recommendations/download>

# PERCENT OF PRIMARY CARE VISITS WITH A PRIMARY DIAGNOSIS FOR A MENTAL HEALTH CONDITION OR DEVELOPMENTAL DISORDER, 2017–2021



- The percentage of primary care visits that included a primary diagnosis for a mental health condition or developmental disorder increased overall from 4.6% in 2017 to 6.6% in 2021.
- This trend was seen among all age groups, but the largest increase occurred among adolescents (13-17) and young adults (18-29), for whom the share of such visits grew by 5.1 and 3.8 percentage points, respectively.

PCBH

NOTES: The HPC does not have substance use claims included in the All-Payer Claims Database and is thus unable to evaluate primary care visits for substance use disorders.

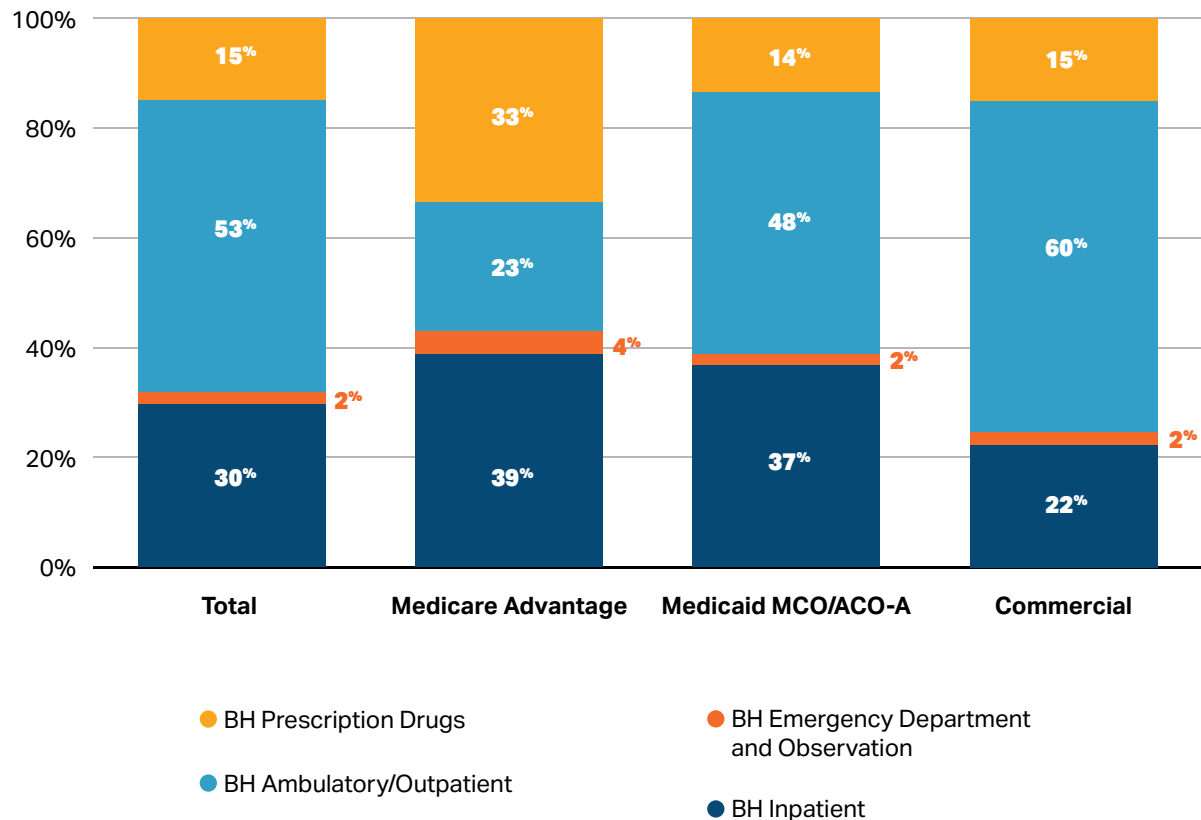
SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021



# BEHAVIORAL HEALTH CARE SPENDING AND UTILIZATION IN MASSACHUSETTS

## PRIMARY CARE AND BEHAVIORAL HEALTH

# PERCENT OF BEHAVIORAL HEALTH SPENDING BY PAYER AND CATEGORY, 2020



NOTES: Aetna and Cigna data were excluded due to quality concerns. Figures on this page reflect data for commercial full-claim members only. Percent changes are calculated based on non-rounded expenditure amounts. Non-claims data was excluded from these percentages.

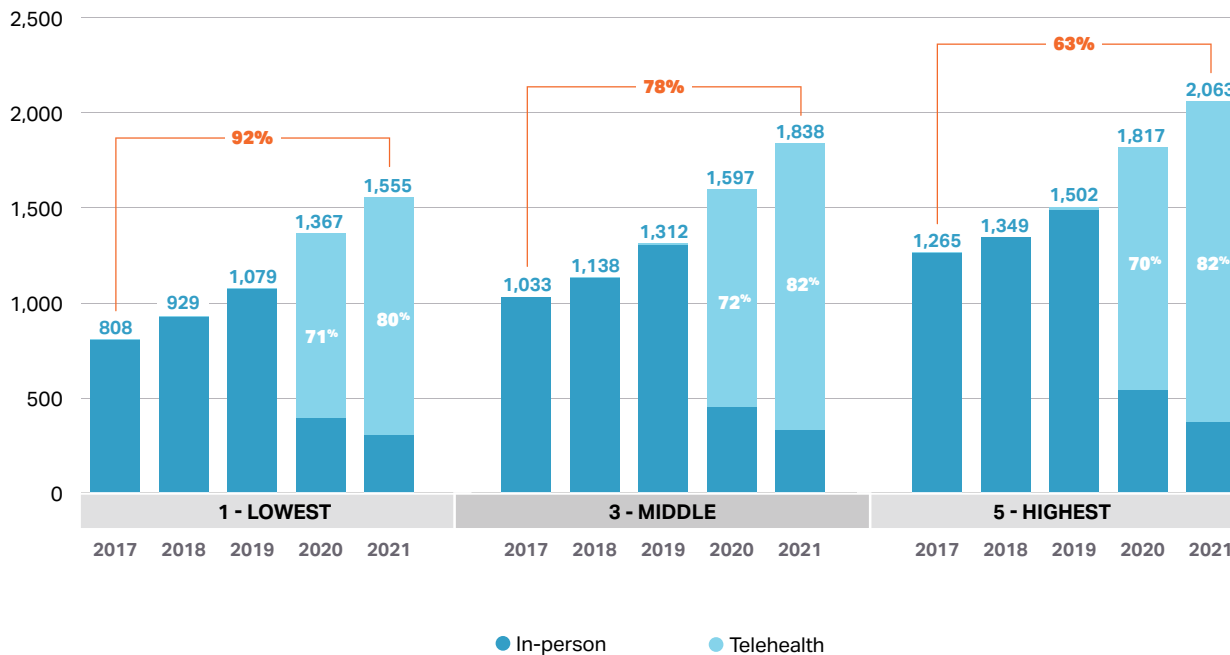
SOURCES: HPC Analysis of Center for Health Information and Analysis Primary Care and Behavioral Health (PCBH) Expenditures: Baseline Report September 2022 Databook. Accessed at: <https://www.chiamass.gov/pcbh>

- Overall, BH spending accounted for 7.0% of commercial spending, 1.9% of Medicare Advantage spending, and 20.8% of Medicaid MCO/ACO-A spending in 2020. Drivers for these differences may include patient demographics, access to covered services, and reimbursement levels.
- Commercial members had the highest share of BH spending going toward ambulatory/outpatient services. Ambulatory/outpatient services include psychotherapy, medication management visits, as well as intensive outpatient services and residential treatment.
- For Medicare Advantage and Medicaid patients, inpatient spending represented over 1/3 of all BH spending. Commercial patients had a far lower share of inpatient BH spending (22%).
- Among patients with Medicare Advantage coverage, while overall BH spend was quite low, the share of BH spending represented by prescription drugs (33%) was more than double the share for patients with Medicaid or commercial coverage (14% and 15%, respectively).



# PSYCHOTHERAPY UTILIZATION BY COMMERCIAL MEMBERS, BY INCOME, 2017–2021

Number of commercial psychotherapy visits per 1,000 members by type of visit and community income quintile, 2017 to 2021



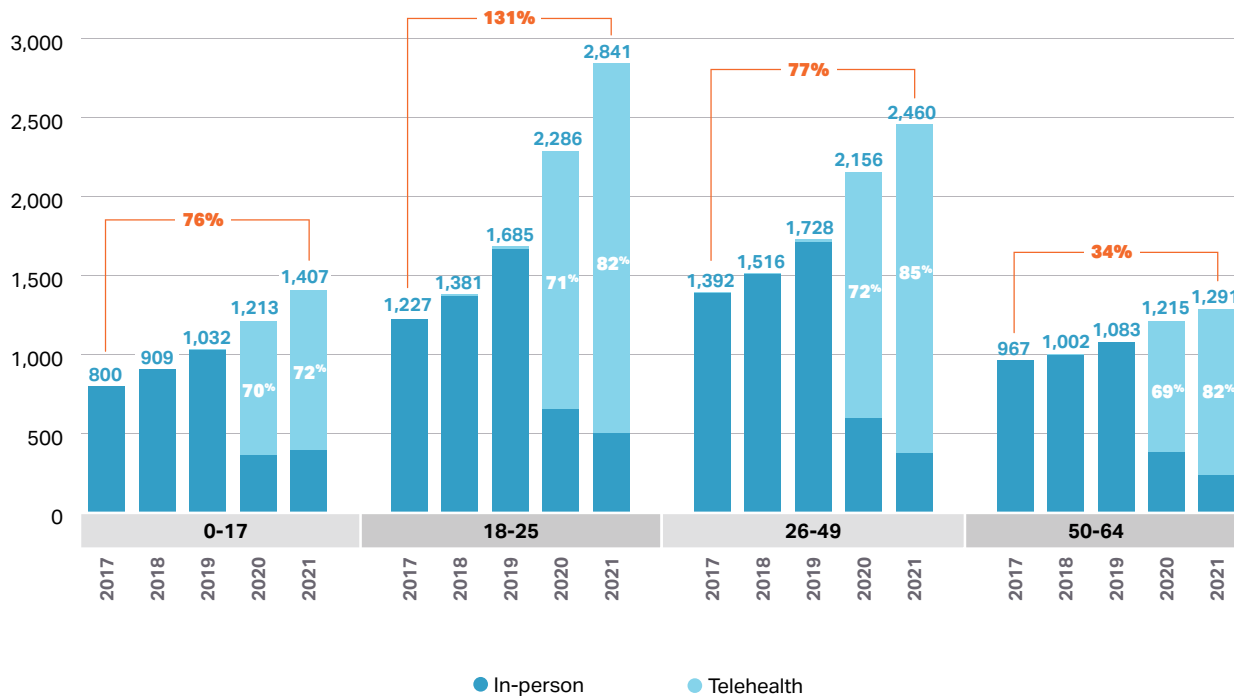
NOTES: "1-Lowest" indicates the zip codes in Massachusetts that include the 20% of the population with the lowest median income. "3-Middle" refers to the communities between the 40th and 60th percentiles of median income, etc. Data includes psychotherapy visits for individuals ages 18-64 with 12 months of enrollment in the year (2018, 2019, or 2020). Therapy claims identified using Current Procedural Terminology codes 90832, 90833, 90834, 90836, 90837 and 90838. See technical appendix for additional details.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021

- Psychotherapy visits among commercially insured patients increased steadily from 2017 to 2021 among all income groups.
- The increase in psychotherapy use between 2017 and 2021 was greatest for members in the lowest income quintile (92%), although members in the highest income quintiles had the highest overall rates of psychotherapy use.
- By 2021, more than 80% of psychotherapy visits were conducted via telehealth for members in all income quintiles.

# PSYCHOTHERAPY UTILIZATION BY COMMERCIAL MEMBERS, BY AGE, 2017–2021

Number of psychotherapy visits per 1,000 commercial members by type of visit and age group, 2017 to 2021



- Young adults aged 18 to 25 experienced the fastest growth in psychotherapy visits (and the highest rate in 2021), with the rate more than doubling between 2017 and 2021.
- An increasing share of members aged 18 to 25 had at least one psychotherapy visit, growing from 11% in 2017 to 18% in 2021.
- The rate of telehealth use for psychotherapy visits was above 70% for each age group by 2021; members aged 26 to 49 had the highest rate of telehealth use, accounting for 85% of psychotherapy visits.

NOTES: Includes psychotherapy visits for individuals ages 0-64 with 12 months of enrollment in the year (2018, 2019, or 2020). Therapy claims identified using Current Procedural Terminology codes 90832, 90833, 90834, 90836, 90837 and 90838. See technical appendix for additional details.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021

# PSYCHOTHERAPY PROVIDER TYPES IN COMMERCIAL CLAIMS DATA, 2021

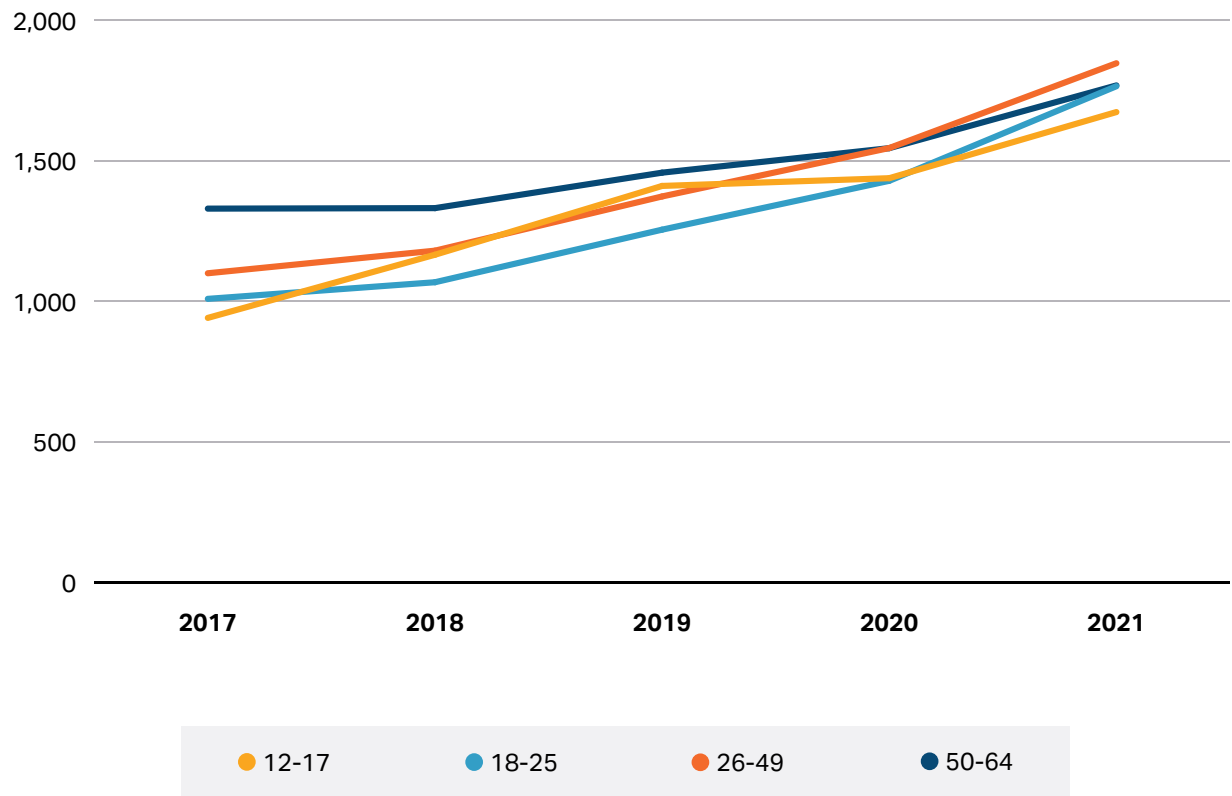
PROVIDER TYPE	SHARE OF PSYCHOTHERAPY VISITS, 2021	EXAMPLES
<b>SOCIAL WORKER</b>	34%	Clinical Social Worker, Social Worker, etc.
<b>COUNSELOR</b>	32%	Mental Health Counselor, Counselor, Addiction (Substance Use Disorder) Counselor, Professional Counselor, etc.
<b>PSYCHOLOGIST</b>	18%	Clinical Psychologist, Psychologist, Counseling Psychologist, Clinical Child & Adolescent Psychologist, etc.
<b>OTHER BH PROFESSIONAL</b>	5%	Marriage & Family Therapist, Psychiatric/Mental Health Nurse Practitioner (Adult and Child/Adolescent), Psychiatric/Mental Health Registered Nurse (Adult and Child/Adolescent), Psychiatric/Mental Health Clinical Nurse (Adult and Child/Adolescent), Clinical Neuropsychologist, etc.
<b>NON-PCP PHYSICIAN</b>	4%	Psychiatrist, etc.
<b>FACILITY</b>	4%	Mental Health Clinic/Center, Community/Behavioral Health Agency, Child & Adolescent Psychiatry Physician, Psychiatric Hospital, Adolescent and Children Mental Health Clinic/Center, Adult Mental Health Clinic/Center, etc.
<b>PCP</b>	1%	Primary care physician, nurse practitioner, etc.

NOTES: Includes psychotherapy visits for individuals under 65 years of age with 12 months of enrollment in the year (2017, 2018, 2019, 2020, or 2021). Therapy claims identified using Current Procedural Terminology codes 90832, 90833, 90834, 90836, 90837 and 90838. Providers identified using specific taxonomy codes, and categories may include different provider levels (e.g., "Social Worker" includes Clinical Social Worker and Social Worker). See technical appendix for additional details. Visits not associated with a specified provider were excluded.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021

- Most psychotherapy visits (85%) were provided by social workers, counselors, and psychologists.
- The percent of psychotherapy visits provided by counselors increased between 2017 and 2021, from 24% to 32% of psychotherapy visits.
- Most psychotherapy visits (93%) were either 45 minutes or 60 minutes in duration. Social workers provided the greatest share of 45-minute visits (35%), while counselors provided the greatest share of 60-minute visits (40%).

# ANNUAL NUMBER OF MENTAL HEALTH PRESCRIPTIONS (30 DAY EQUIVALENT) PER 1,000 MEMBERS BY AGE, 2017–2021



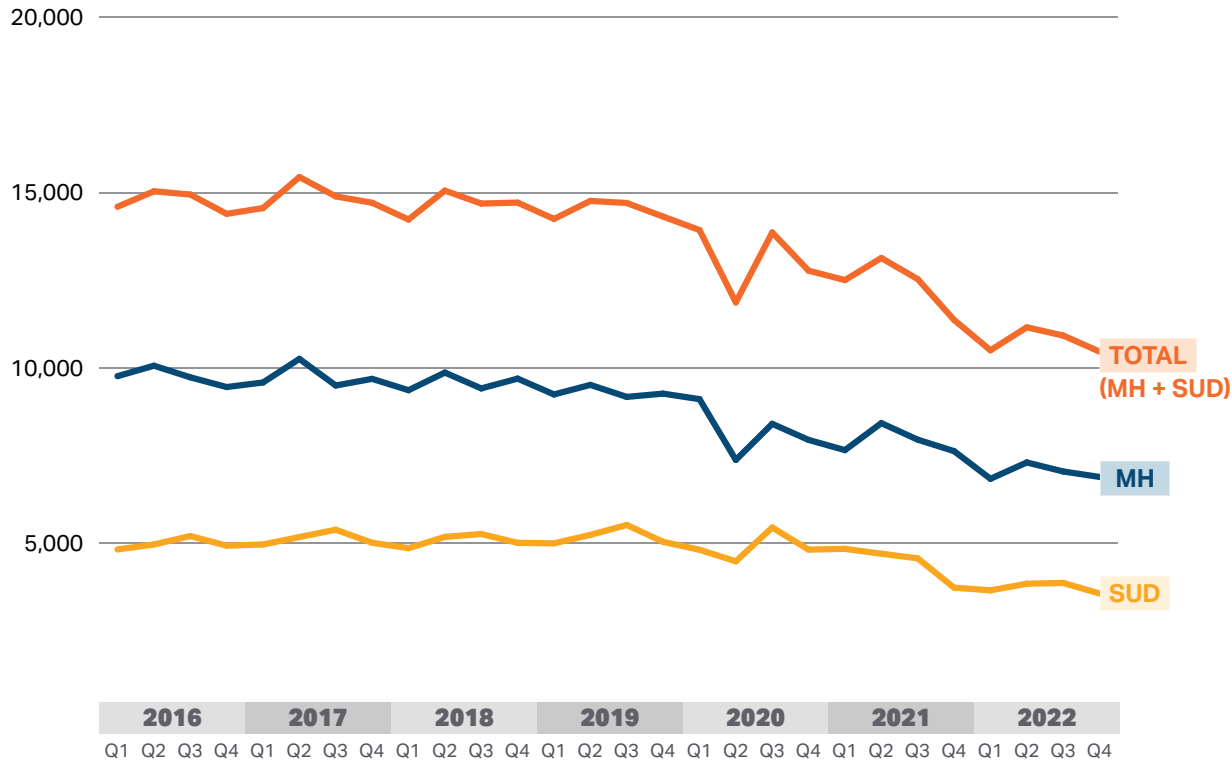
- The increase in mental health prescriptions was largest for those aged 12-17 (77.8% from 2017 to 2021) and smallest for those aged 50-64 (33.0%).
- Despite an increase in prescriptions, spending on these drugs has remained relatively stable during the same time period, largely resulting from a drop in average price for a generic prescription. Also, from 2017 to 2021, the share of prescriptions that were for generic mental health drugs grew from 93.1% to 95.7%. See technical appendix.

PCBH

NOTES: Prescriptions were identified using CHIA’s primary care and behavioral health data code list. CHIA Payer Data Reporting: Primary and Behavioral Health Care Expenditures: <https://www.chiamass.gov/payer-data-reporting-primary-and-behavioral-health-care-expenditures/>

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021

# BEHAVIORAL HEALTH STAYS AT ACUTE CARE HOSPITALS BY TYPE, 2016–2022

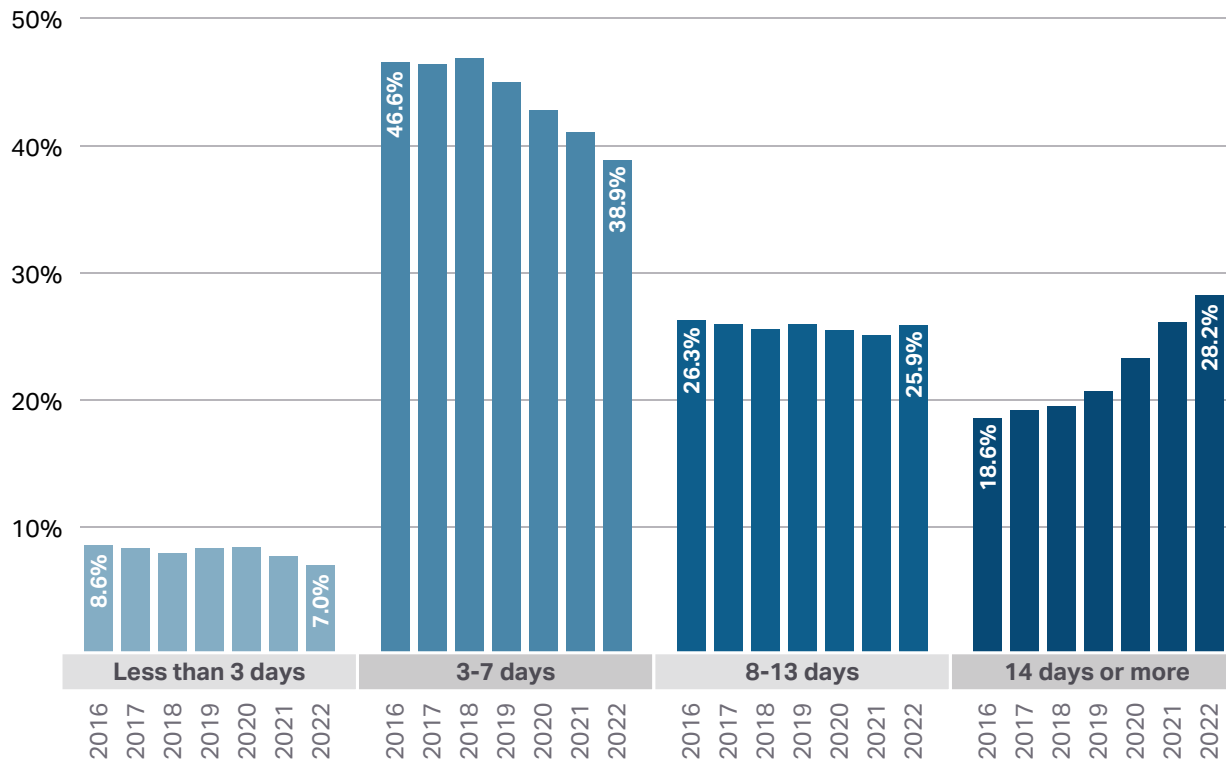


- The overall volume of behavioral health inpatient stays at acute care hospitals continued to decline in 2022. The decline for mental health stays and substance-use disorder stays was 24.5% and 28.1%, respectively, from 2019 to 2022.
- This decline may not reflect a decrease in need for BH inpatient services, but rather a lack of staffed beds due to workforce challenges as well as unit closures at acute care hospitals such as the loss of beds at Norwood due to flooding in 2020. Further research is needed to see trends in behavioral health stays at free-standing (non-acute care) psychiatric hospitals.

NOTES: Behavioral health stays were defined as any stay with an APR-DRG Major Diagnostic Category Mental Diseases and Disorders or Substance Use Disorders. Mental health stays were defined as stays with a major diagnosis category of "Mental Disease and Disorders". Substance use disorder stays were any stays with a major diagnosis category of "Alcohol/Drug Use or Induced Mental Disorders".

SOURCES: HPC analysis of Massachusetts Acute Hospital Case-Mix Inpatient Discharge Database, FY2016-2023, preliminary FY2023 Q2

# MENTAL HEALTH STAYS AT ACUTE CARE HOSPITALS BY LENGTH OF STAY, 2016–2022

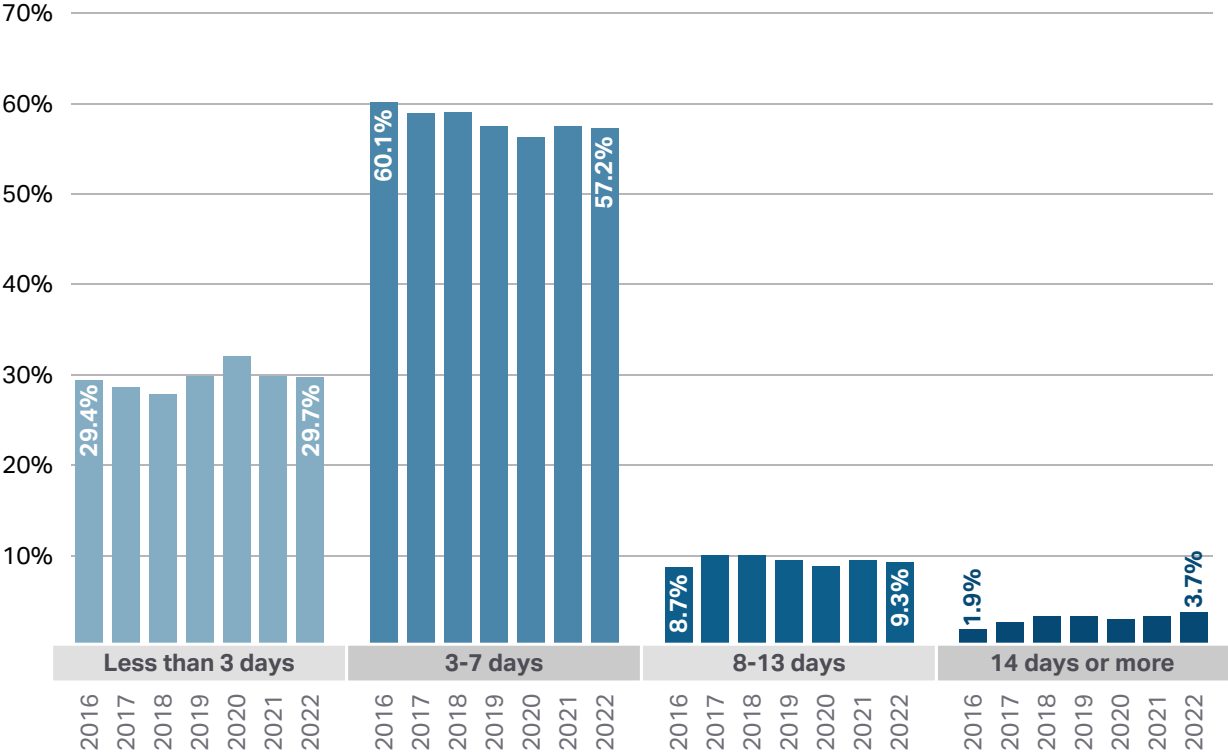


- Among patients admitted to acute care settings for mental health conditions, the share who stayed 14 days or more grew from 19% to 28% from 2016 to 2022.
- The most common stays lasting 14 days or more were for schizophrenia, major depressive disorder and other/unspecified psychoses, and bipolar disorders.

NOTES: Mental health stays were defined as any stay with an APR-DRG Major Diagnostic Category "Mental Diseases and Disorders". Data reported by calendar year.

SOURCES: HPC analysis of Massachusetts Acute Hospital Case-Mix Inpatient Discharge Database, FY2016-2023, preliminary FY2023 Q2

# SUBSTANCE USE DISORDER STAYS AT ACUTE CARE HOSPITALS BY LENGTH OF STAY, 2016-2022



- Length of stay for patients admitted for substance use disorders (SUD) remained similar from 2016 through 2022 with a small increase in stays over 14 days (2% to 4%).
- About half of the stays (50.2%) that lasted for two weeks or more were for alcohol abuse and dependence.
- In 2022, 54.5% of SUD-related stays were for alcohol abuse and dependence while 13.4% of stays were for opioid-related abuse and dependence.

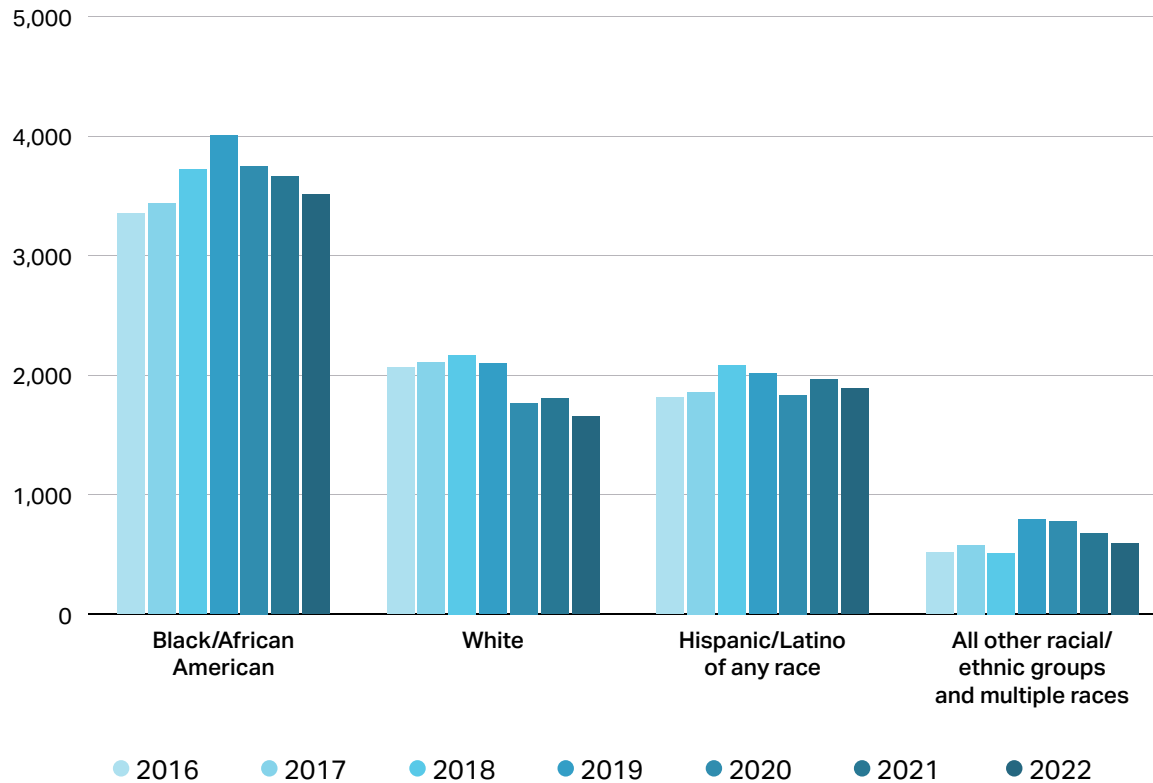
PCRBH

NOTES: Substance use disorder stays were defined as any stay with an APR-DRG Major Diagnostic Category of “Alcohol/Drug Use or Induced Mental Disorders”. Data reported by calendar year.

SOURCES: HPC analysis of Massachusetts Acute Hospital Case-Mix Inpatient Discharge Database, FY2016-2023, preliminary FY2023 Q1



# BEHAVIORAL HEALTH ED VISITS AT ACUTE CARE HOSPITALS BY RACE/ETHNICITY PER 100,000 POPULATION, 2016–2022



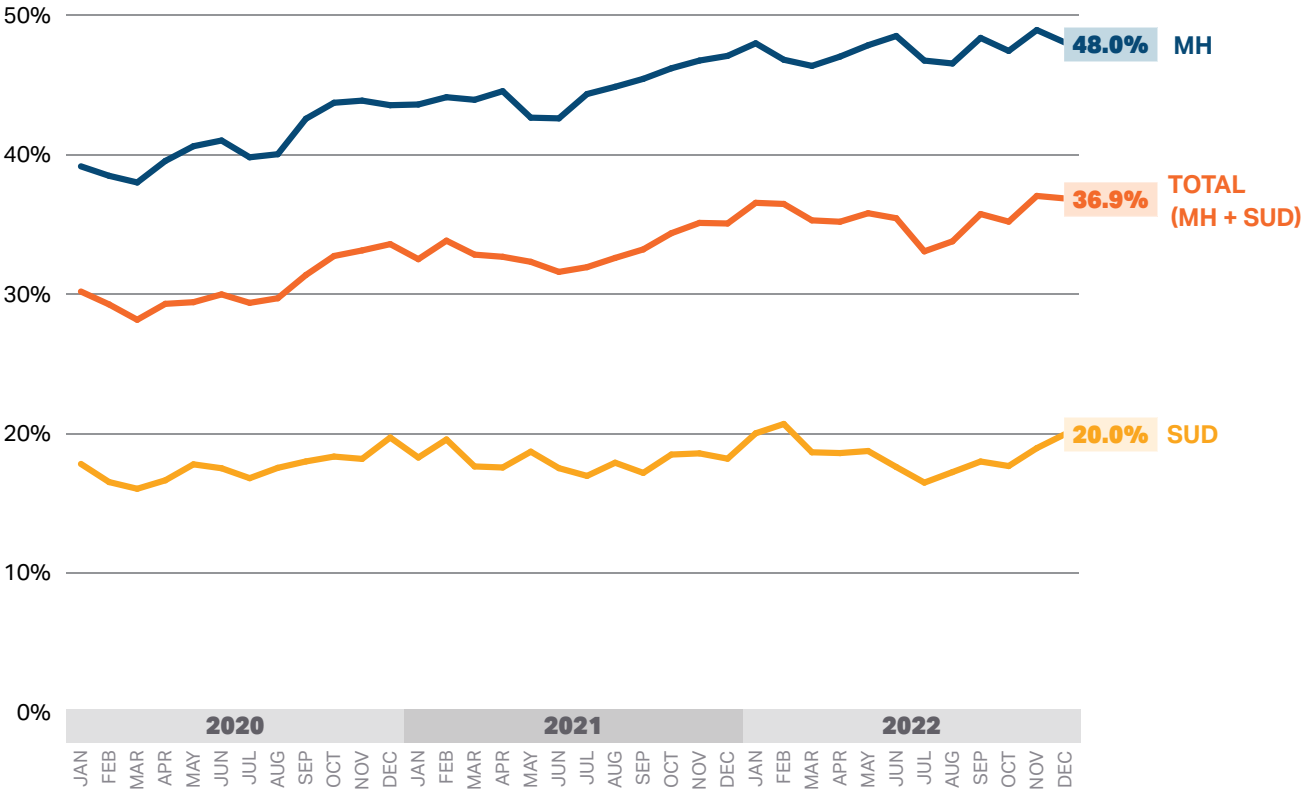
- After a period of growth from 2016 through 2019, BH ED visits declined during 2020 and remained below pre-pandemic levels for all groups through 2022.
- Black, non-Hispanic residents continued to have the highest rate of BH ED visits from 2016 through 2022 and the second highest growth rate from 2016-2019 (20%).
- While Hispanic residents had a lower BH ED visit rate than White residents before 2020, Hispanic residents surpassed White residents in BH ED visits 2020-2022. See technical appendix for data.

NOTES: Behavioral health visits were defined as any ED visit with a primary diagnosis that was classified as 'mental, behavioral, or neurodevelopmental disorders' from AHRQ CCSR (MBD001-MBD034). The Hispanic/Latino of any race category also included those of Spanish culture or origin regardless of race. The "All other racial/ethnic groups and multiple races" category includes persons who were Asian, American Indian/Alaska Native, Native Hawaiian/other Pacific Islander, and other races or multiple races as reported by the facility. Analysis was restricted to MA residents. Approximately 1.7% of behavioral health discharges did not have recorded race/ethnicity in 2022.

SOURCES: HPC analysis of Massachusetts Acute Hospital Case-Mix Emergency Department Discharge Database, FY2016-2023, preliminary FY2023 Q2. Population denominators from HPC analysis of the American Community Survey 2020 5-year data tables accessed: <https://www.census.gov/programs-surveys/acs/data/data-tables.html>



# PERCENT OF BEHAVIORAL HEALTH-RELATED ED VISITS THAT RESULTED IN BOARDING (>12 HOURS) BY TYPE, 2020–2022



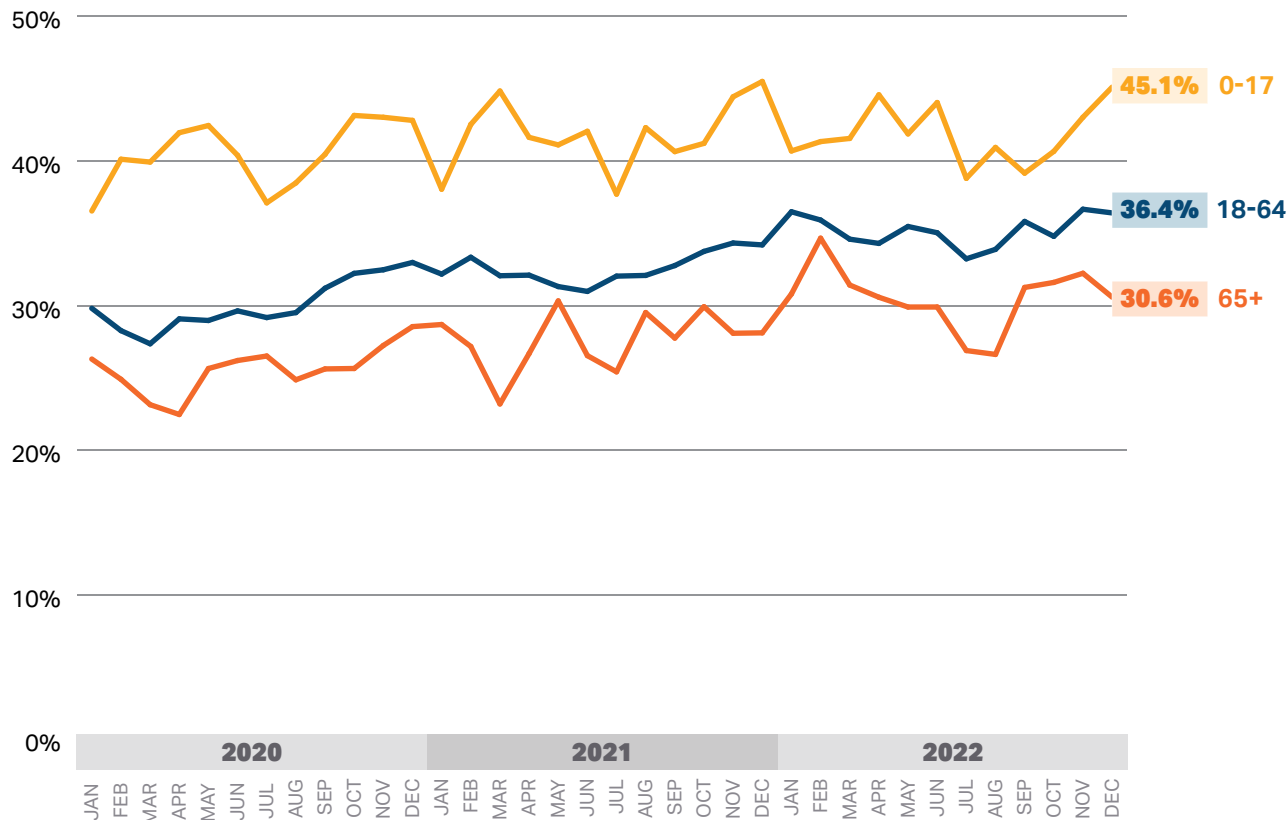
- While the number of behavioral health ED visits declined from 2019 to 2022 by 20%, the share resulting in ED boarding grew in that time, driven by an 8.6 percentage point increase in boarding for mental health-related stays. More detail on behavioral health ED visits can be seen in the Hospital Chartpack.
- An increase in ED boarding may be driven by workforce challenges and reductions in staffed beds.

PCBH

NOTES: Excludes two ED sites due to missing data. MH = mental health; BH = behavioral health; SUD = substance use disorder. Excludes an additional three ED sites due to incomplete or irregular length of stay data. The HPC defines ED boarding as greater than or equal to 12 hours in the hospital ED. ED visits where patients were admitted to the same hospital are not included in the dataset. Behavioral health visits were identified using AHRQ’s CCSR for the primary diagnosis (BH: MBD001-MBD034, Mental Health: MBD001-MBD013, Substance Use: MBD017-MBD034). See technical appendix.

SOURCES: HPC analysis of Center for Health Information and Analysis Emergency Department Database, CY2019-2022

# PERCENT OF BEHAVIORAL HEALTH-RELATED ED VISITS THAT RESULTED IN BOARDING (>12 HOURS) BY AGE, 2020–2022

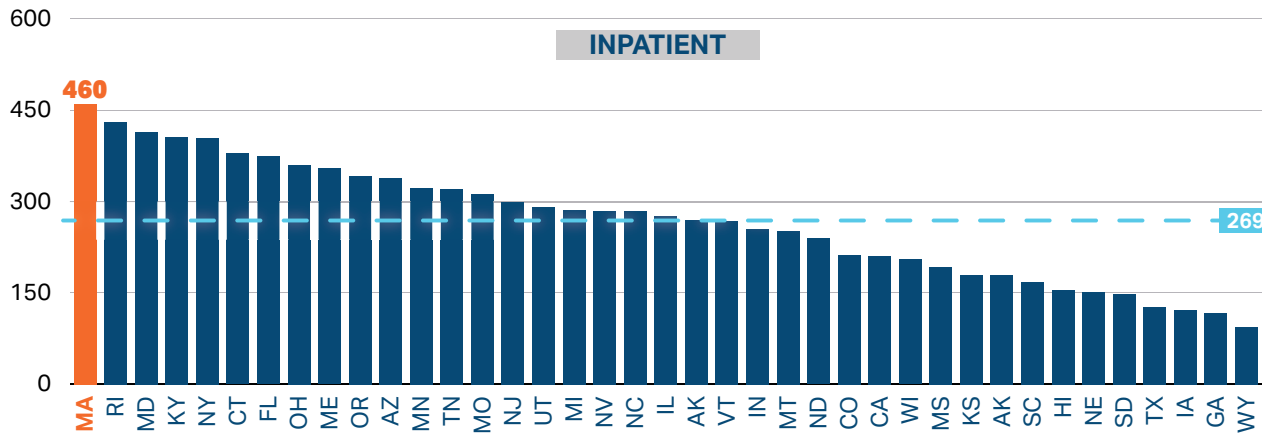
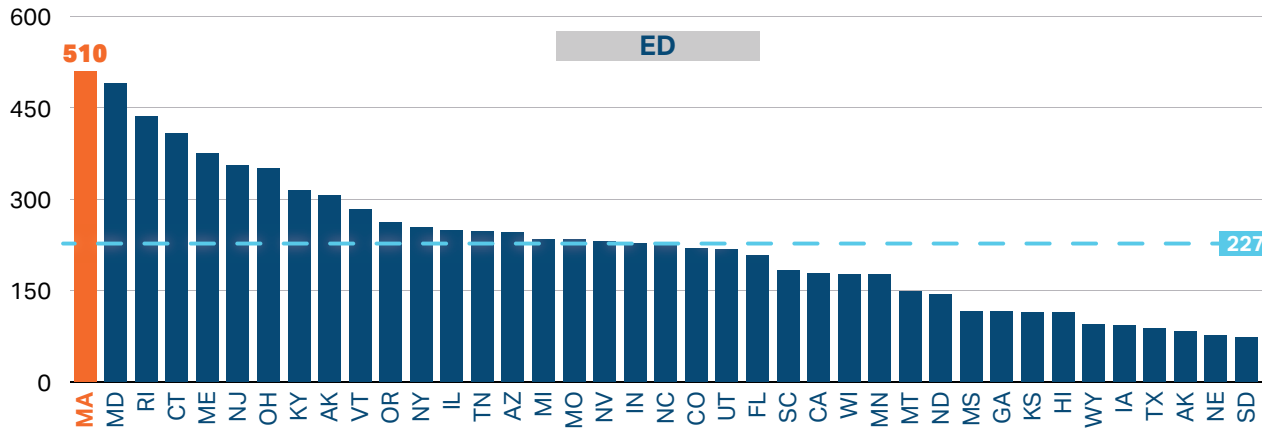


- Rates of ED boarding differed by age group, with the highest rates among children (aged 0-17). By December 2022, 45.1% of behavioral health-related ED visits among children resulted in boarding, compared to 36.4% of visits among adults aged 18-64 and 30.6% of visits among adults aged 65+.
- Rates of behavioral-health related ED visits that result in boarding have been growing over time for all age groups. However, the largest growth has been among children, with an 8.6 percentage point increase between January 2020 and December 2022. Over this time period, the rate grew 6.6 percentage points among adults aged 18-64 and 4.3 percentage points among adults aged 65+.

NOTES: Excludes an additional three ED sites due to incomplete or irregular length of stay data. The HPC defines ED boarding as greater than or equal to 12 hours in the hospital ED. ED visits where patients were admitted to the same hospital are not included in the dataset. Behavioral health visits were identified using AHRQ's CCSR for the primary diagnosis (BH: MBD001-MBD034, Mental Health: MBD001-MBD013, Substance Use: MBD17-MBD34). See technical appendix.

SOURCES: HPC analysis of Center for Health Information and Analysis Emergency Department Database, CY2019-2022

# OPIOID-RELATED ACUTE CARE HOSPITAL UTILIZATION PER 100,000 POPULATION, 2019



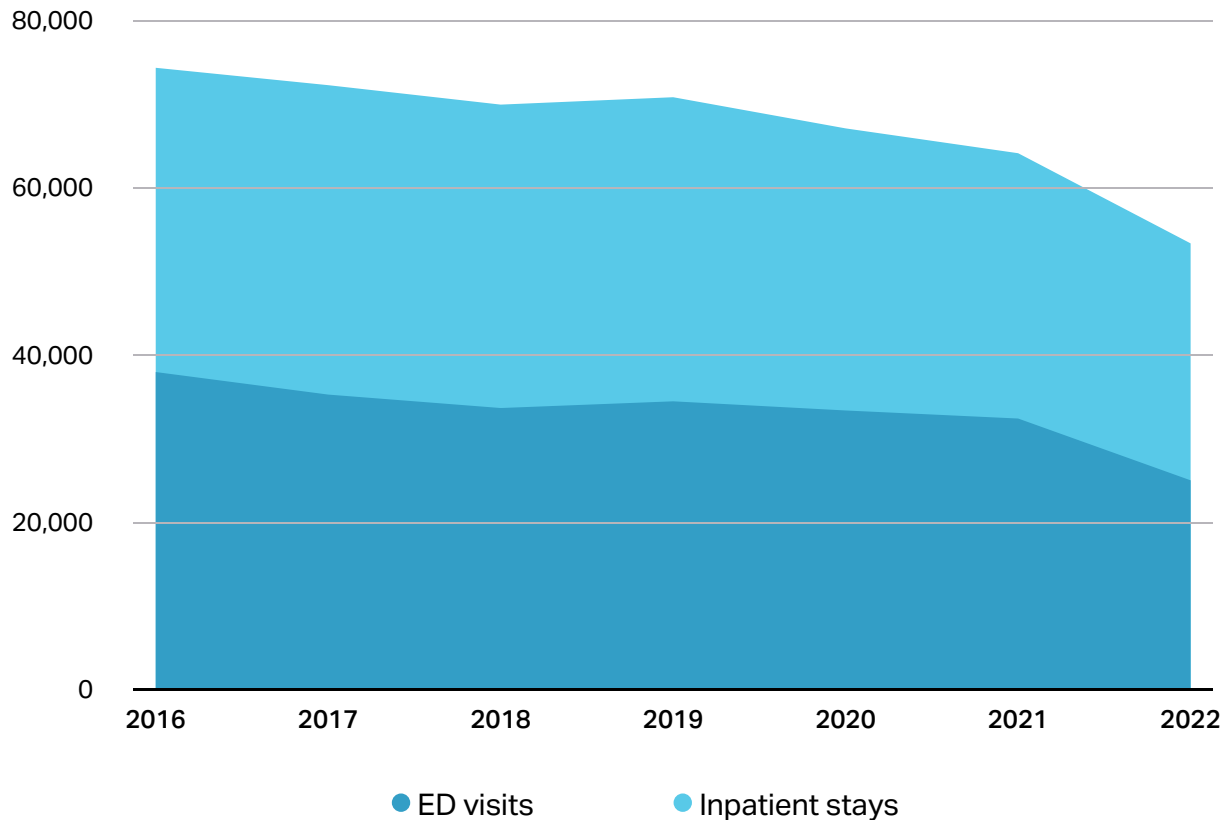
- Massachusetts had the highest rate of opioid-related hospital utilization for both ED and inpatient stays in 2019 among states that report these data.

PCBH

NOTES: Only states reporting both inpatient and emergency department data were included. Average was calculated from states included in graphic. Washington DC was excluded.

SOURCES: AHRQ FastStats <https://datatools.ahrq.gov/hcup-fast-stats?tab=hcupfsse&type=tab>

# NUMBER OF OPIOID-RELATED ED VISITS AND INPATIENT STAYS (COMBINED) AT ACUTE CARE HOSPITALS, 2016–2022



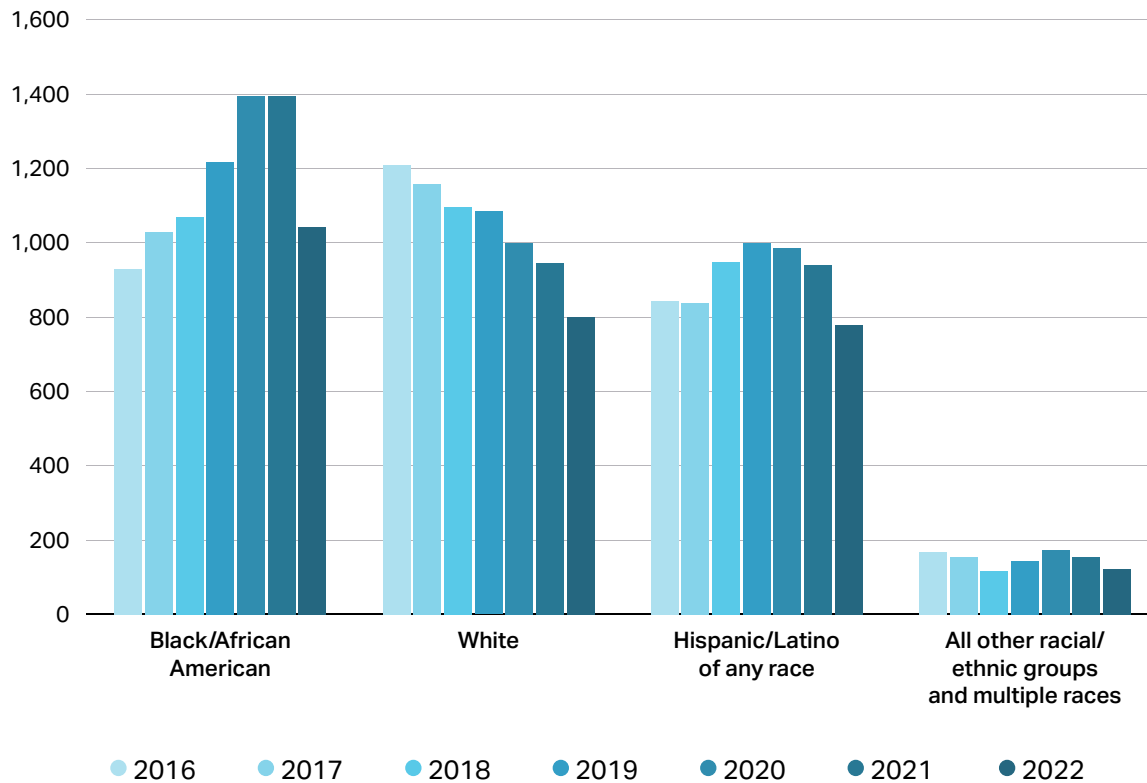
NOTES: Opioid-related hospitalizations included any inpatient stay or emergency department visit with at least one opioid-related code (either primary or secondary diagnoses). Please see technical appendix for a complete list of codes.

SOURCES: HPC analysis of Massachusetts Acute Hospital Case-Mix Inpatient and Emergency Department Discharge Databases, FY2016-2023, preliminary FY2023 Q2.

1. The Massachusetts Prescription Monitoring Program changed their reporting requirements 10/05/2022 to require daily reporting of naloxone fills. Naloxone has a statewide standing order that allows pharmacists to dispense this life-saving medication without a prescription. <https://www.mass.gov/service-details/pharmacy-reporting-and-data-submission>

- Opioid-related ED visits and inpatient stays reflect only one view of the ongoing opioid crisis in Massachusetts as not all opioid-related medical events may result in an ED visit or stay at an acute-care hospital. The MA Department of Public Health routinely reports opioid-related deaths and EMS visits, and are collecting data on naloxone dispenses (opioid overdose reversal medication).<sup>1</sup> For more information on how Massachusetts is responding to the opioid epidemic including additional data, please visit: <https://www.mass.gov/massachusetts-responds-to-the-opioid-epidemic>
- Both ED visits and inpatient stays with opioid-related diagnoses decreased from 2019 to 2020 and remained below pre-pandemic levels through 2022.
- As opioid-related inpatient stays decreased from 2019 to 2022, the percent of opioid-related inpatient stays where opioids was a secondary diagnosis increased (from 83.1% to 90.0% of stays). For opioid-related ED visits, the percent of visits where opioids were not the primary diagnosis ranged from 52.2% in 2019 to 49.9% in 2022.

# MASSACHUSETTS OPIOID-RELATED ED VISITS AND INPATIENT STAYS (COMBINED) BY RACE/ETHNICITY PER 100,000 RESIDENTS, 2016–2022



- Overall, opioid-related hospitalizations dipped in the Commonwealth from 2016 to 2022 from 1018.6 to 736.5 opioid-related visits and stays per 100,000 residents. However, trends differed starkly between groups by race/ethnicity.
- Black, non-Hispanic residents experienced a continued increase in these hospitalizations from 2016 to 2020. In contrast, rates among White, non-Hispanic residents decreased steadily between 2016 and 2021.

PCBH

NOTES: Opioid-related hospitalizations included any inpatient stay or emergency department visit with at least one opioid-related code (either primary or secondary diagnoses). Please see technical appendix for a complete list of codes. The Hispanic/Latino of any race category also included those of Spanish culture or origin regardless of race. The “All other racial/ethnic groups and multiple races” category includes persons who were Asian, American Indian/Alaska Native, Native Hawaiian/other Pacific Islander, and other races or multiple races as reported by the facility. Analysis was restricted to MA residents. Approximately 1.7% of behavioral health discharges did not have recorded race/ethnicity in 2022.

SOURCES: HPC analysis of Massachusetts Acute Hospital Case-Mix Inpatient and Emergency Department Discharge Databases, FY2016-2023, preliminary FY2023 Q2. Population denominators from HPC analysis of the American Community Survey 2020 5-year data tables accessed: <https://www.census.gov/programs-surveys/acs/data/data-tables.html>

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# COMMERCIAL PRICE TRENDS

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# INTRODUCTION

## COMMERCIAL PRICE TRENDS

While prices paid to health care providers by public payers (e.g., Medicare, Medicaid) are set by government bodies, prices paid to providers by commercial insurers are negotiated. Commercial prices are significantly higher than Medicare and Medicaid prices - often by a factor of two or more - and are also often twice as high or more than the estimated costs of providing such care for an efficient provider.<sup>1</sup>

Commercial prices also vary considerably between providers, with some providers being paid two or three times the price paid to other providers for the same sets of services.<sup>2</sup> Researchers have found little, if any, relationship between commercial prices and quality of care; rather, prices appear to reflect the relative bargaining leverage of the provider and payer.<sup>3</sup> Furthermore, higher prices often result in higher out of pocket spending for patients through cost-sharing.

This Chartpack focuses on commercial price trends in Massachusetts through 2021 for roughly 1.5 million commercially-insured members with medical claims in the Massachusetts All-Payer Claims Database

(APCD) covered by major health plans in the state: BlueCross Blue Shield of Massachusetts (BCBSMA), Tufts Health Plan (THP), Harvard Pilgrim Health Care (HPHC), Health New England (HNE), MGB Health Plan and Anthem. See technical appendix for more details.

**Terminology note:** For purposes of this analysis, the HPC uses “price” to refer to the total amount of money due to be received by a provider (from the insurer and any patient cost-sharing) for a specific service in an office, hospital outpatient department (HOPD), or emergency department (ED), or a specific diagnostic related group (DRG) for an inpatient stay, including both facility and professional components. The HPC uses “payment” to refer more broadly to money received for a more heterogenous set of services, e.g. where amounts can be impacted by differences in recorded acuity, such as all hospital stays. All amounts included in this Chartpack represent estimates based on observed payments to providers across payers within the MA APCD and do not necessarily represent negotiated prices in contract between a specific payer and provider.

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1 Kaiser Family Foundation, Lopez, Eric, Tricia Neuman, Gretchen Jacobson, and Larry Levitt. "How much more than Medicare do private insurers pay? A review of the literature." (2020).

2 Chernew ME, Hicks AL, Shah SA. Wide State-Level Variation In Commercial Health Care Prices Suggests Uneven Impact Of Price Regulation: An examination of state-level price variation in the commercial market, relative to Medicare, for a broader set of states and a wider set of services than had been previously examined. Health Aff (Millwood). 2020 May 1;39(5):791–9.

3 Roberts ET, Mehrotra A, McWilliams JM. High-Price And Low-Price Physician Practices Do Not Differ Significantly On Care Quality Or Efficiency. Health Aff (Millwood). 2017 May;36(5):855–64.

Note: AllWays changed its name to MGB Health Plan in 2022.

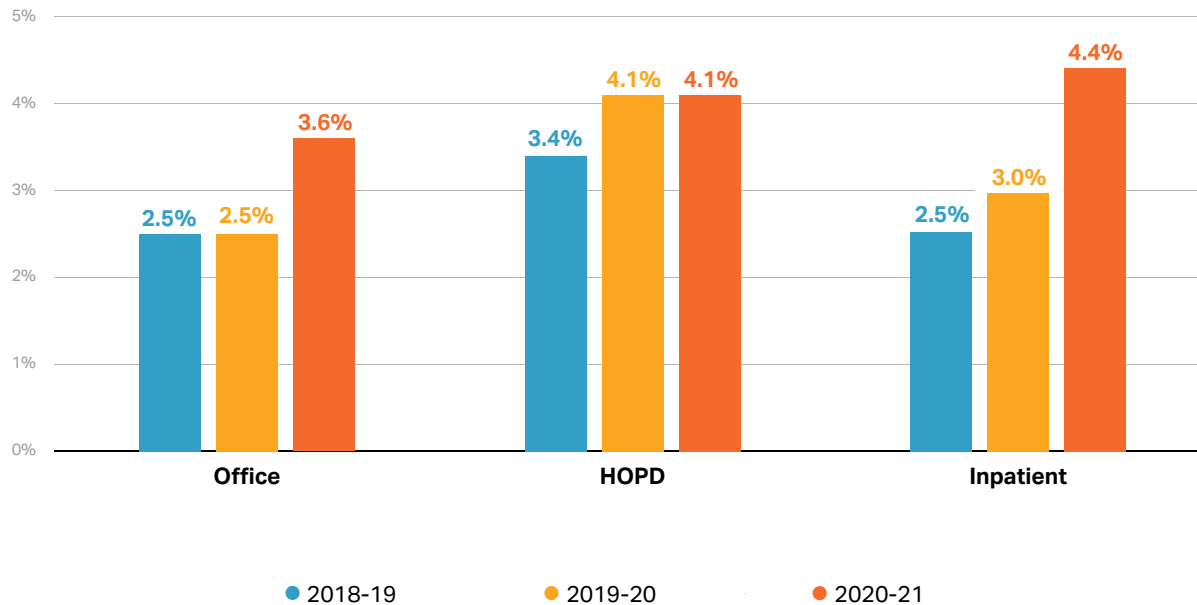
# KEY FINDINGS

## COMMERCIAL PRICE TRENDS

- Commercial health care prices have continued to grow substantially in recent years, with variation by setting of care. Overall office and hospital outpatient department (HOPD) price growth from 2018-2021 was 8.8% and 12.1%, respectively. Inpatient total prices increased by 10.2%.
- Inpatient payment per discharge has been growing consistently, increasing 23% between 2017 to 2021, and 10% between 2019 to 2021. This increase in payment per discharge was concentrated in non-maternity discharges, where it increased 34% between 2017 and 2021, while payment per maternity discharge grew only 12% during the same period. Spending growth has been driven by price increases, as well as increases in the recorded complexity of non-maternity discharges.
- The number of non-maternity inpatient discharges dropped 15% in 2020 and rebounded only slightly (1%) in 2021. This decline in volume was driven by a reduction in elective surgeries due to the COVID-19 pandemic, with some shifting to outpatient settings. Yet given the large increases in spending per inpatient stay, total non-maternity hospital inpatient spending was similar in 2021 and 2019.
- The average hospital payment for uncomplicated vaginal delivery ranged from \$9,800 at the least expensive hospital (Berkshire Medical Center) to \$18,000 at the most expensive (Massachusetts General Hospital).
- Among HOPDs that provide a high volume of mammography screenings, the price for a mammography at the most expensive provider (Falmouth, \$434) was more than three times as expensive as the price at the lowest-priced provider (Baystate Noble, \$142).
- The cost for a fixed basket of 50 common HOPD services ranged from \$21,693 at Holyoke Medical Center to \$53,132 at Boston Children's Hospital.
- The price for a fixed basket of 50 common laboratory services ranged from \$3,279 at BioReference Labs to \$24,397 at Martha's Vineyard Hospital. The cost for this basket of services was \$3,559 for Medicare, which pays the same price for lab tests regardless of care location. The price was over \$20,000 at Dana Farber Cancer Institute and Boston Children's Hospital.



# ANNUAL PERCENTAGE INCREASE IN AGGREGATE COMMERCIAL PRICES BY SETTING, 2018–2021



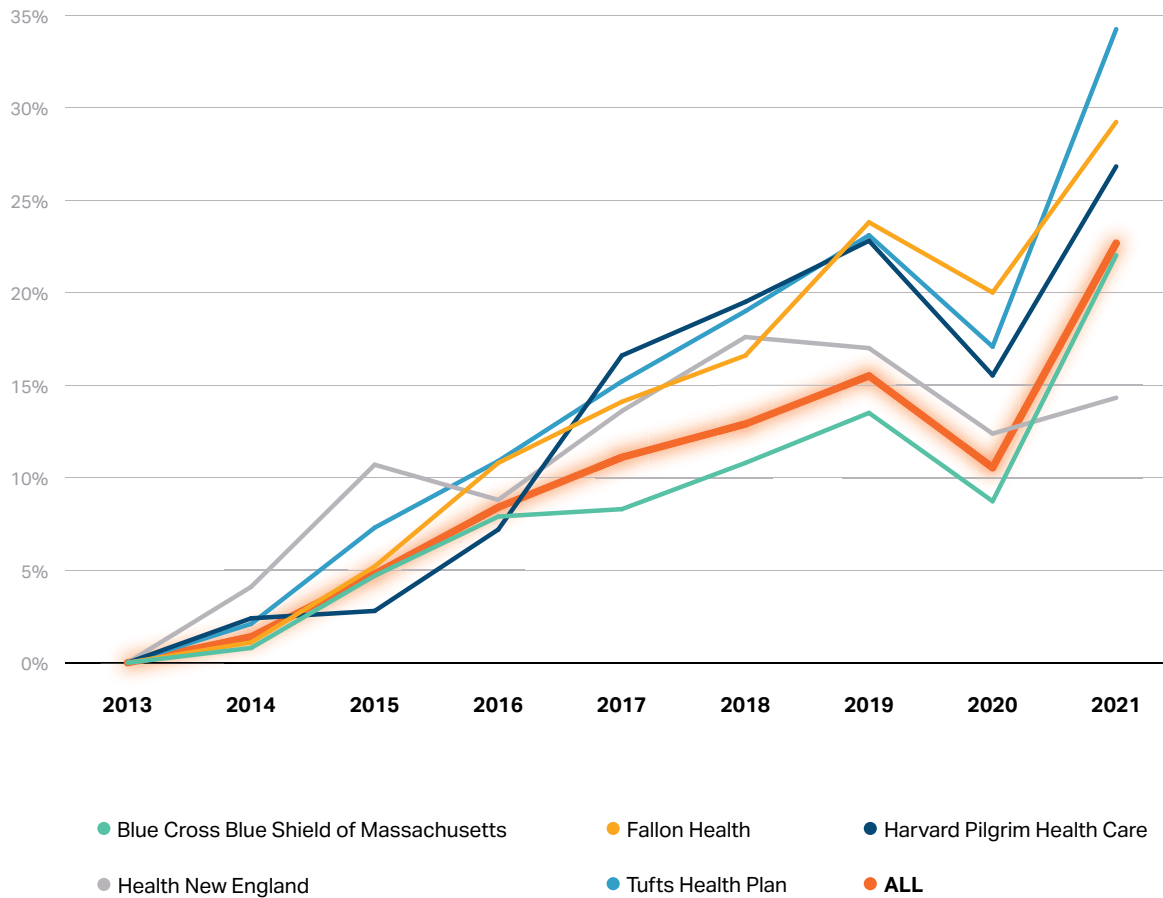
- This figure shows annual commercial price growth per encounter by setting, including both facility and professional spending, where applicable. Inpatient payment growth includes all services provided during an inpatient stay.
- Cumulative office and HOPD price growth from 2018-2021 was 8.8% and 12.1%, respectively. Inpatient total prices increased by 10.2%.

PRICE

NOTES: HOPD refers to hospital outpatient department. Price growth includes both facility and professional spending. Price growth is computed at the level of a procedure code encounter. Procedure code encounters are defined as the same person, same date of service, and the same procedure code to capture the potential for both facility and professional claims billed on the same day for the same service based on the setting. The inpatient stay price growth reflects change in payment per inpatient stay divided by APR-DRG weight (case-mix adjusted). Payment growth for inpatient stays include all services provided during the hospital stay. Only procedure codes that were billed from 2018 through 2021 were included. Procedures codes with fewer than 20 services or \$1,000 in aggregate spending during the period were excluded. Percent changes were weighted by the most contemporary aggregate spending for each procedure code (e.g., 2019 for the 2018-19 period). HOPD spending increase does not match HOPD index due to differences in methodology.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2018-2021

# ANNUAL CHANGE IN RISK SCORE FOR 5 LARGE COMMERCIAL PAYERS, 2013–2021



- The HPC has previously shown data suggesting that the growth in risk scores represents payer and provider efforts to code more intensively in response to financial incentives to do so, rather than worsening health of the population.
- Risk scores declined in 2020 reflecting reduced use of services during the pandemic and fewer opportunities for providers to record patient diagnoses.
- Risk scores rebounded sharply in 2021, such that average annual growth in risk scores over the period 2019-2021 was 3.6%, even faster than average annual growth from 2013-2019 (2.6%).

PRICE

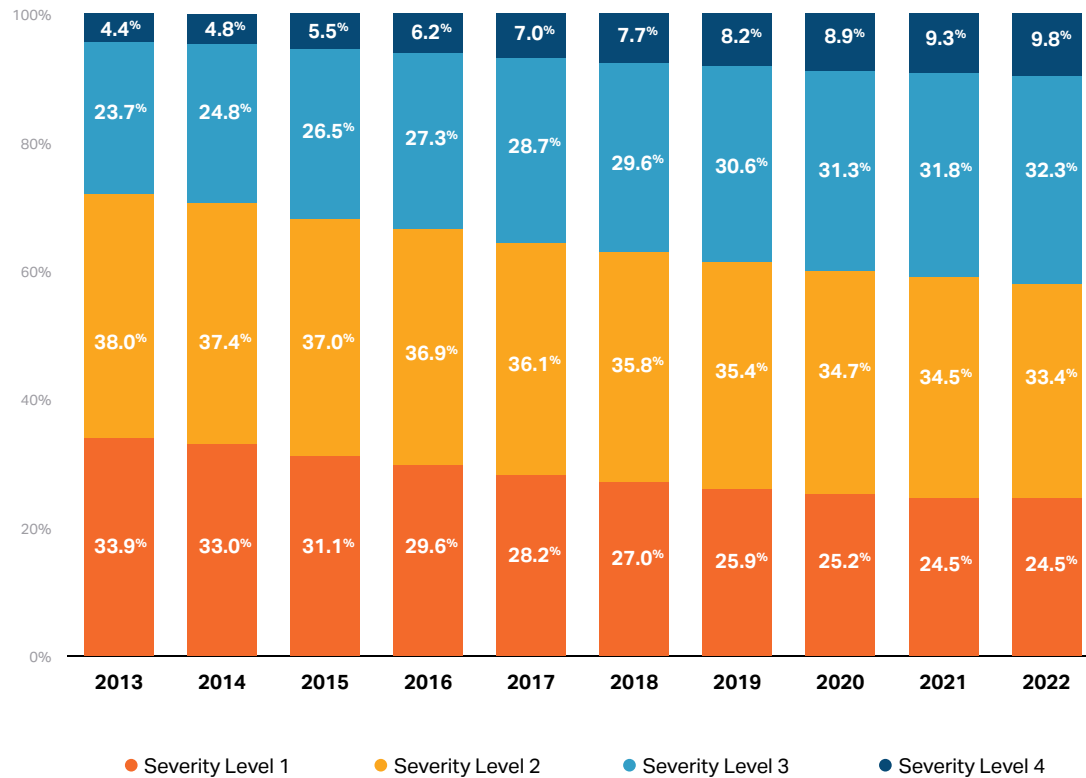
NOTES: All includes the member-weighted average of the five payers shown.

SOURCE: HPC analysis of Center for Health Information and Analysis 2016, 2017, 2018, 2019, 2021, 2022, and 2023 Annual Report TME Databooks. See HPC Annual Cost Trends report, 2019, for additional information on risk scores and coding intensity

# INPATIENT PAYMENT TRENDS

## COMMERCIAL PRICE TRENDS

# PROPORTIONAL COMPOSITION OF ALL PAYER INPATIENT STAYS BY PATIENT SEVERITY OF ILLNESS, COVID-19 EXCLUDED, 2013–2022



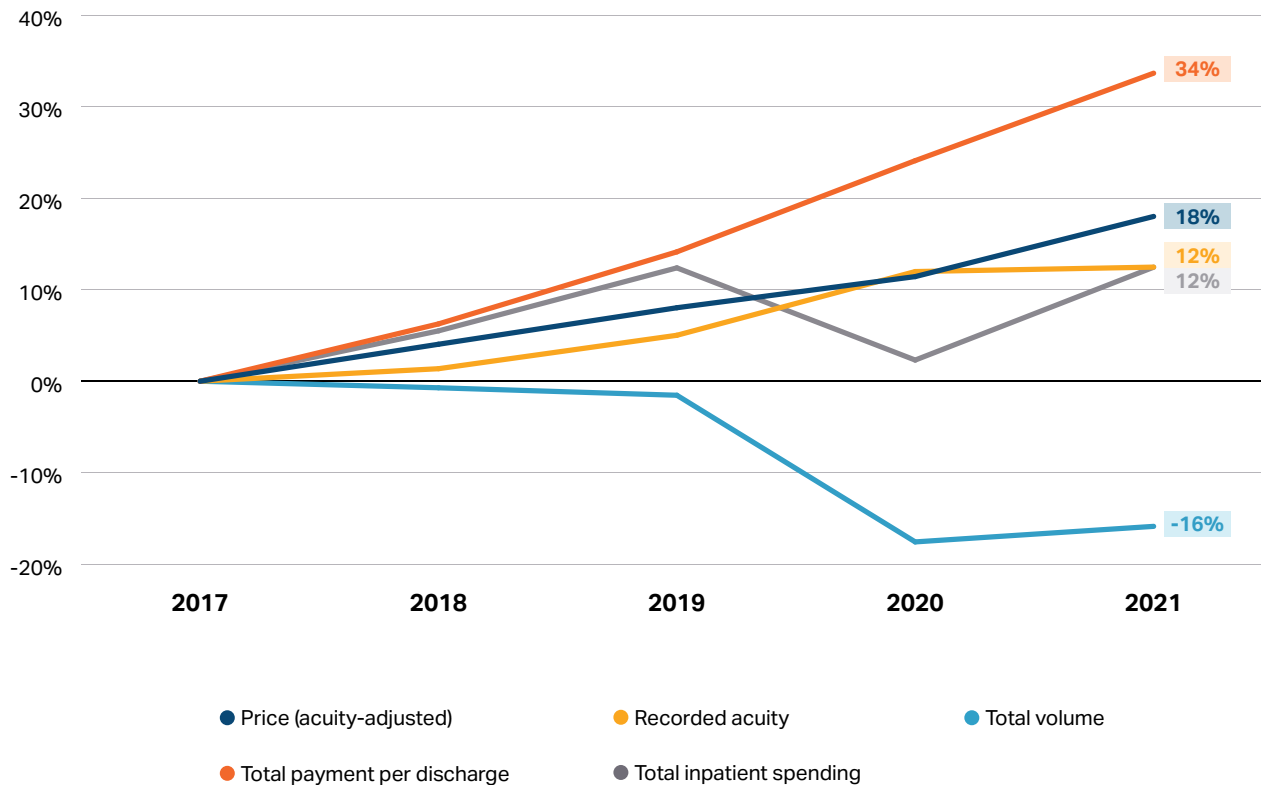
- The coded severity of inpatient stays continued to increase in 2022, with a 5.4 percentage point growth in the share of highest-level severity cases since 2013 and a 14 percentage point increase in stays coded as severity level 3 or 4 (from 28.1% to 42.1%) from 2013 to 2022.

PRICE

NOTES: Data from the Massachusetts Hospital Inpatient Discharge Database (HIDD) from 2013-2022. Severity groups and typical payment amounts were defined using MassHealth (Medicaid) all-payer refined diagnosis related groups (APR-DRG) and patient severity of illness (SOI) on a four-level severity scale, with 4 being the highest acuity. The data is comprised of all medical inpatient stays at acute care hospitals for Massachusetts residents, excluding behavioral health stays and extremely long length of stay because these cases are usually not paid on a DRG basis. Other exclusions include transfers, patients who died, patients who went to Shriners Hospital for Children (Springfield and Boston), and discharges with some APR coding restrictions based on discrepancies with CMS major diagnostic categories. COVID-19 cases were defined as any inpatient stay with U071 for the primary or secondary diagnosis code.

SOURCES: HPC analysis of Center for Health Information and Analysis Hospitals Inpatient Discharge Database, FY2013-2022

# CUMULATIVE CHANGE IN PRICES, SPENDING, ACUITY, VOLUME AND PAYMENTS PER DISCHARGE FOR NON-MATERNITY AND NON-COVID-19 COMMERCIAL STAYS, 2017-2021



- The average commercial payment per hospital stay for non-maternity, non-COVID-19 cases grew 34% from 2017-2021, driven mostly by price increases (18%, controlling for acuity), but also by an increase in recorded acuity (12%).
- When including maternity stays (not shown), commercial payment per discharge grew 23% over this period.

PRICE

NOTES: Inpatient stays in maternity and newborn major diagnostic categories are excluded, as well as stays with primary or admitting COVID-19 diagnoses. Average payment shown includes both facility and professional claims. Stays that are outliers in length of stay and transfers are not excluded in order to correctly represent changes in total spending and volume. Adjusted payment is calculated as average of payment divided by APR-DRG weight for each stay.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database, V2021, 2017-2021; MassHealth APR-DRG weights, 2023

# CHANGE IN AVERAGE COMMERCIAL PAYMENT AND TOTAL VOLUME FOR MAJOR CATEGORIES OF HOSPITAL INPATIENT ADMISSION, 2019–2021



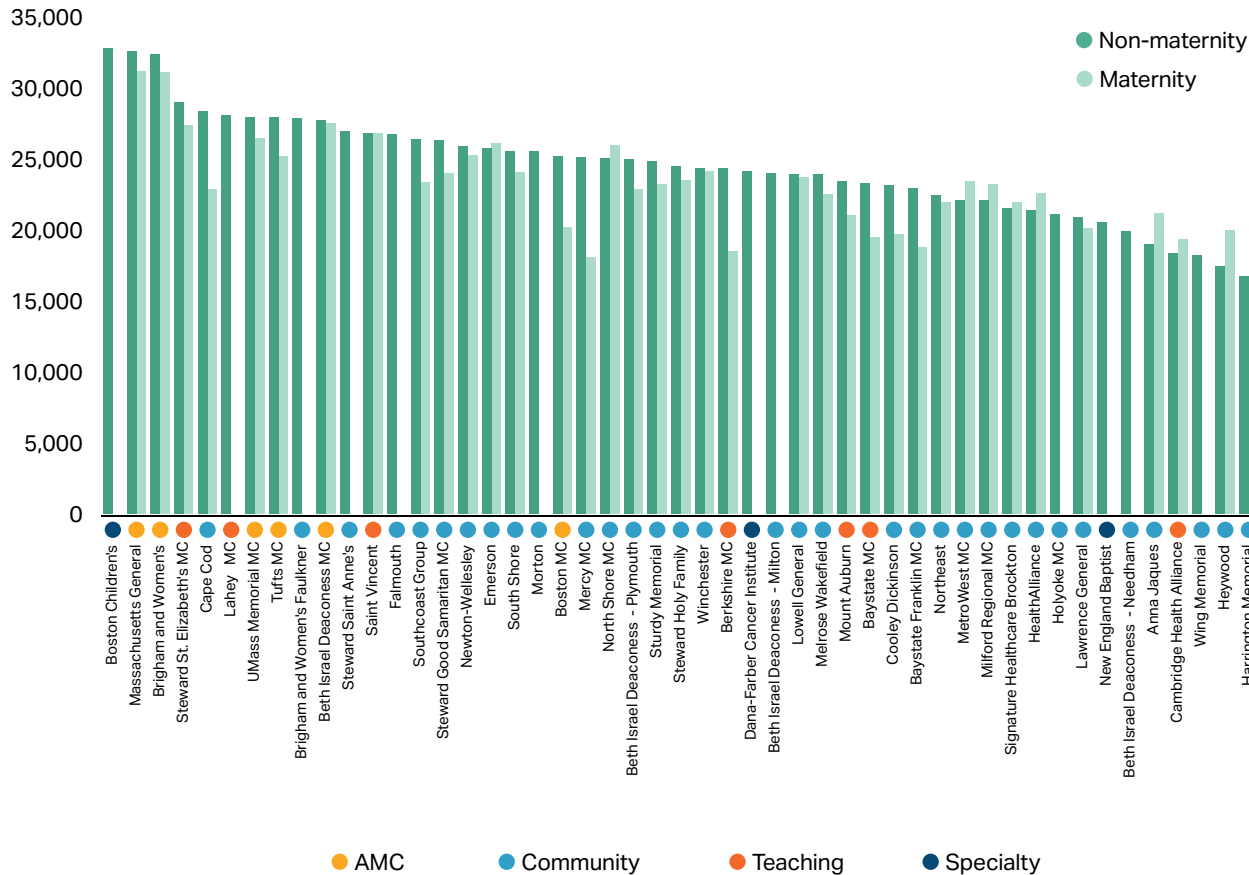
- While volume for many services dropped between 2019 and 2021, payment per stay increased, impacted by increases in prices for a specific APR-DRG and shifts to higher recorded acuity APR-DRGs within a category.
- The largest drops in volume between 2019 and 2021 were for elective conditions (hip and knee replacements); these drops are explained partly by a shift to outpatient settings.
- Payment per stay increased at least 10% for half of all categories from 2019 to 2021.
- Septicemia had the highest growth in payment per stay though both recorded acuity level and length of stay increased more than other categories.

PRICE

NOTES: Change in average payment and total volume reflects the average payment and total volume in 2019 versus 2021. Graph displays the top 13 APR-DRG conditions by volume. Average payment is calculated for each APR-DRG group of inpatient commercial stays regardless of the severity level.

SOURCES: HPC analysis of the Center for Health Information and Analysis (CHIA) All-Payer Claims Database V2021; 2019 and 2021; MassHealth APR-DRG weights 2023

# ACUITY-ADJUSTED AVERAGE COMMERCIAL PRICES FOR MATERNITY AND NON-MATERNITY INPATIENT STAYS, 2021



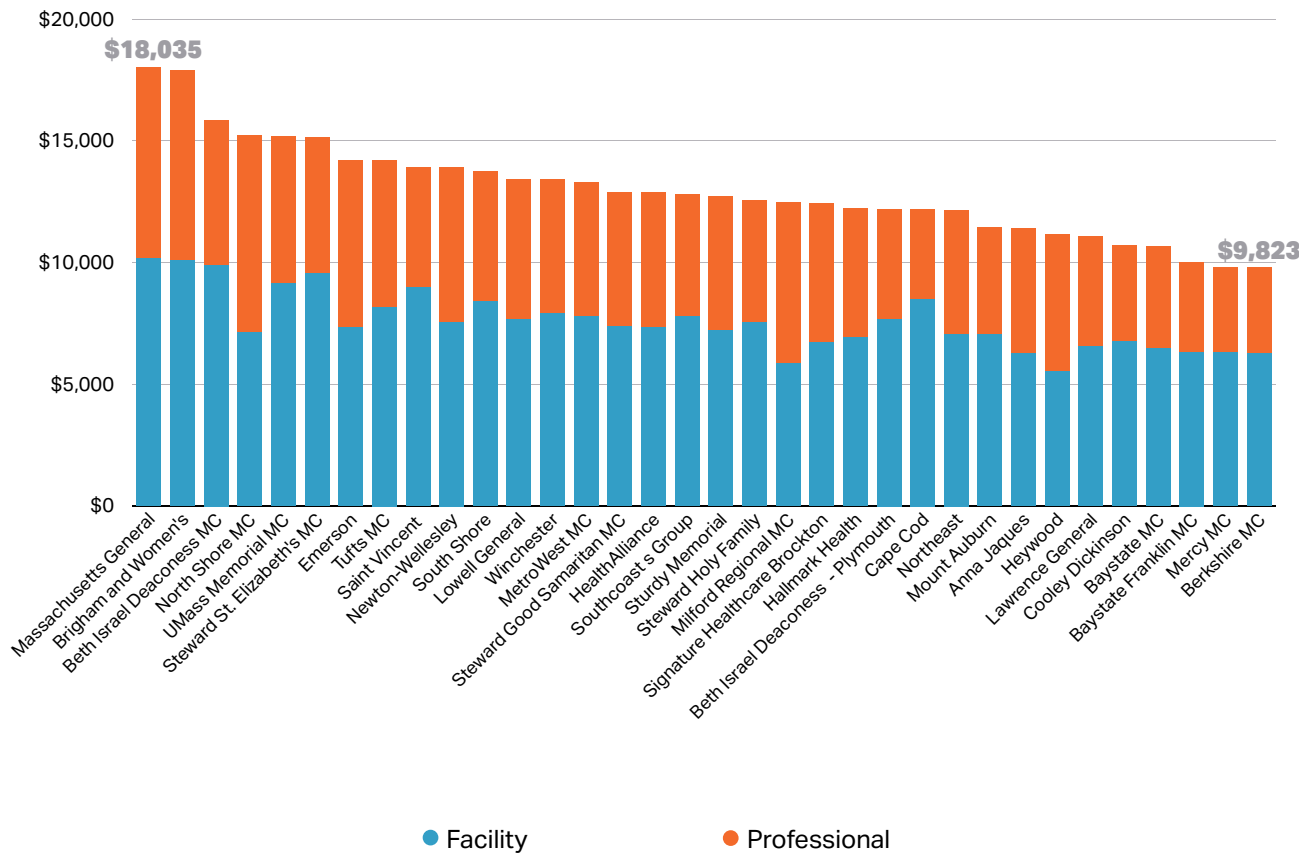
- Acuity-adjusted prices for non-maternity inpatient stays (including professional and facility payments) vary approximately two-fold across hospitals in Massachusetts; prices for maternity services vary slightly less. The hospitals with the highest prices are generally AMCs and teaching hospitals affiliated with certain large systems, and/or geographically isolated hospitals.
- Among the three hospitals with the highest total price, the relative share of professional versus facility payment differed. For Massachusetts General and Brigham and Women's, the facility payment represented 85% with the professional representing 15%. At Boston Children's, the facility payment represented 75% and the professional represented 25%.

PRICE

NOTES: Graph includes 49 acute care hospitals with at least 90 observations in HPC's APCD extract in 2021. The newborn major diagnostic category is excluded, as well as stays with primary or admitting Covid-19 diagnoses. Stays that are outliers in payment and length of stay within their APR-DRG as well as transfers are excluded to ensure comparable prices.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database, V2021, 2021; MassHealth APR-DRG weights, 2023. Prices are adjusted for the APR-DRG weight of each admission and include both facility and professional payments.

# AVERAGE HOSPITAL FACILITY AND PROFESSIONAL COMMERCIAL PAYMENT FOR LOW-COMPLEXITY VAGINAL DELIVERIES, 2021



- The average price (including facility and professional components) for low-complexity vaginal delivery ranged from \$9,823 to \$18,035 (84% higher).
- The professional component comprised between 30% (Cape Cod) and 53% (North Shore MC and Milford Regional MC) of the total price. Prices for the professional component varied 130% across hospitals, more than for the facility component (85%).
- Prices also varied by payer. On average, prices were 47% higher for the highest versus lowest paying payers within the same hospital, while in some case the difference exceeded 100%.

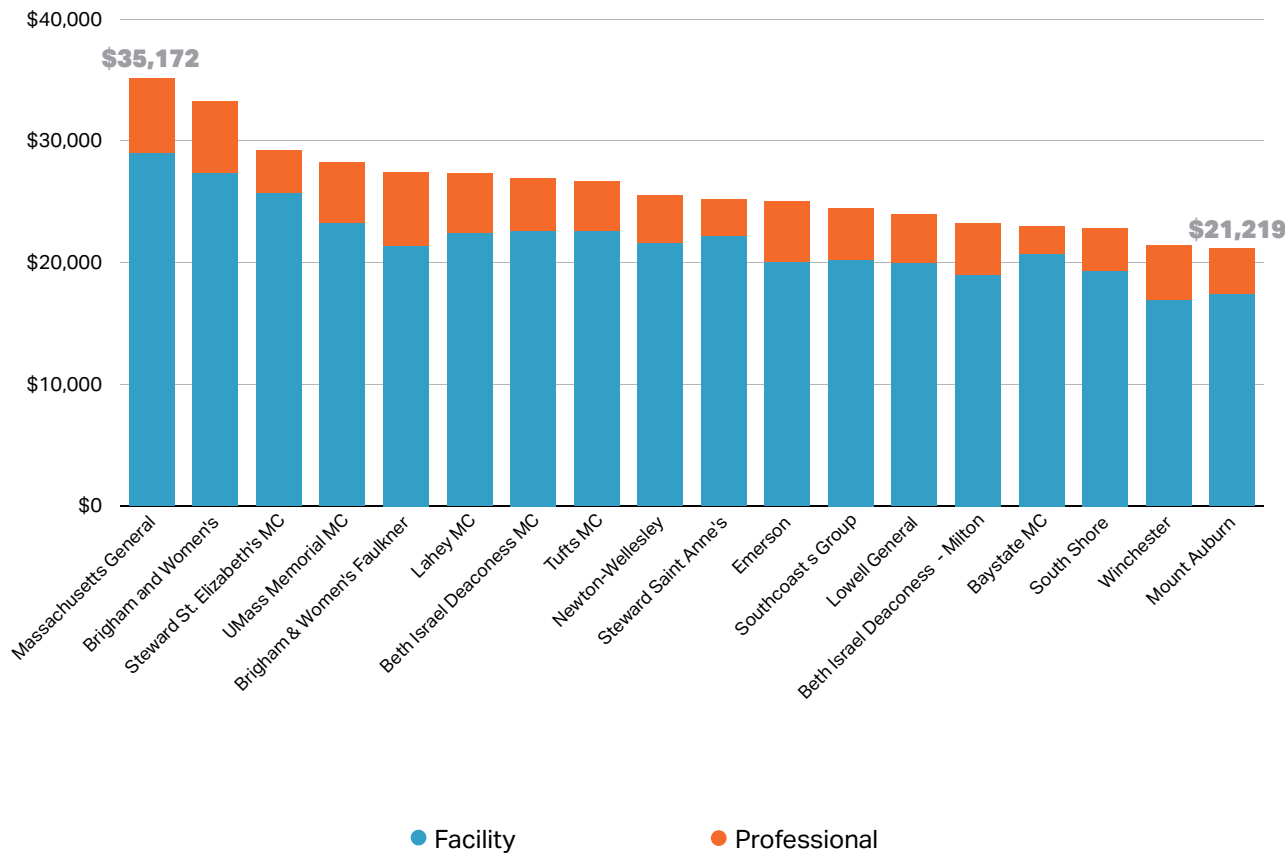
PRICE

NOTES: Included stays for uncomplicated vaginal delivery in hospitals with at least 20 observations. Stays that are outliers in payment or length of stay, as well as transfers, are excluded from the estimation of comparable prices.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database, V2021, 2021



# AVERAGE HOSPITAL FACILITY AND PROFESSIONAL COMMERCIAL PAYMENT FOR LOW-COMPLEXITY GASTRIC BYPASS SURGERY, 2021



- The average price (including facility and professional payments) for gastric bypass surgery of the lowest complexity level ranged from \$21,219 to \$35,172 (66% higher) between hospitals.
- The professional component comprised between 10% (Baystate) and 22% (Faulkner) of the total price. Prices for the professional component varied 178% across hospitals, more than for the facility component (71%).

PRICE

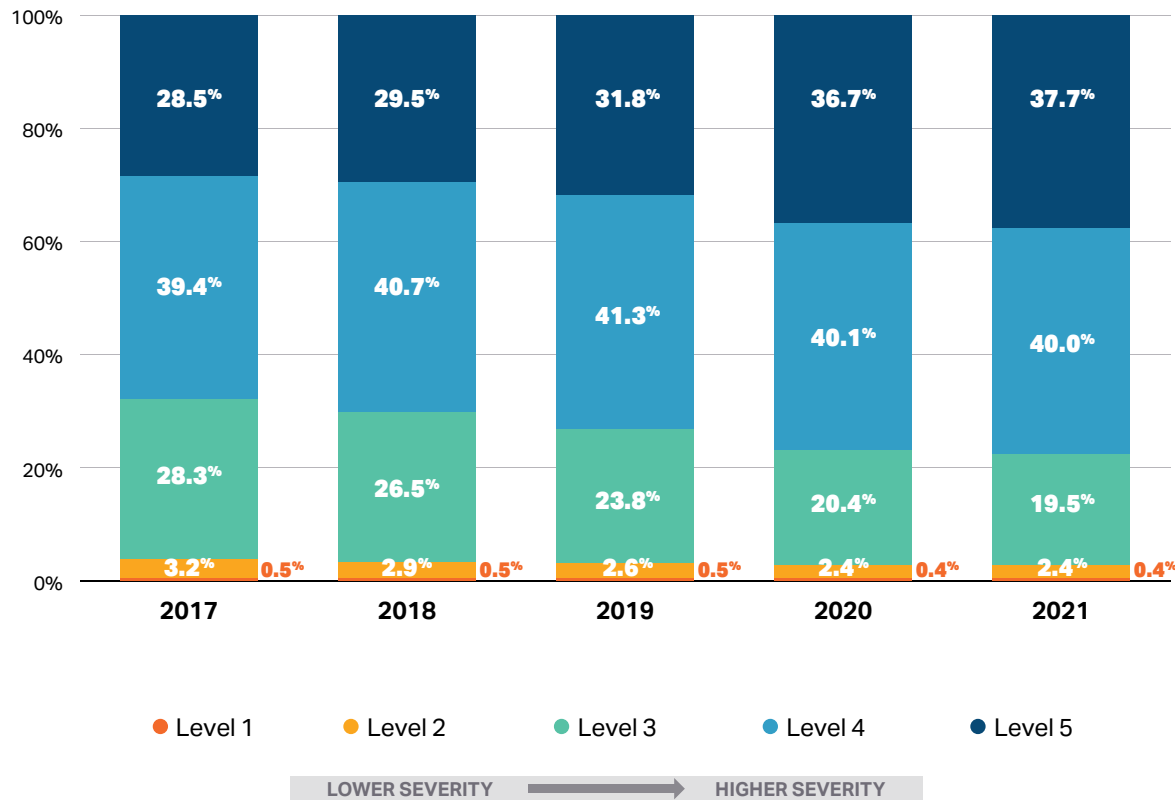
NOTES: Analysis included stays for APR-DRG "procedures for obesity" of severity level 1; gastric bypass surgery is the main procedure for this DRG. Outliers by length of stay (3 times the median) and outliers by payment (greater than 3 times the median or lower than 25% of the median) are excluded. Prices are shown for the hospitals with at least 20 stays (after price exclusions).

SOURCES: HPC analysis of the Center for Health Information and Analysis (CHIA) All-Payer Claims Database, 2021, V 2021

# EMERGENCY DEPARTMENT (ED), OFFICE, AND HOSPITAL OUTPATIENT DEPARTMENT (HOPD) PRICE TRENDS

## COMMERCIAL PRICE TRENDS

# DISTRIBUTION OF EMERGENCY DEPARTMENT VISITS FOR COMMERCIALY-INSURED PATIENTS BY COMPLEXITY LEVEL, 2017–2021



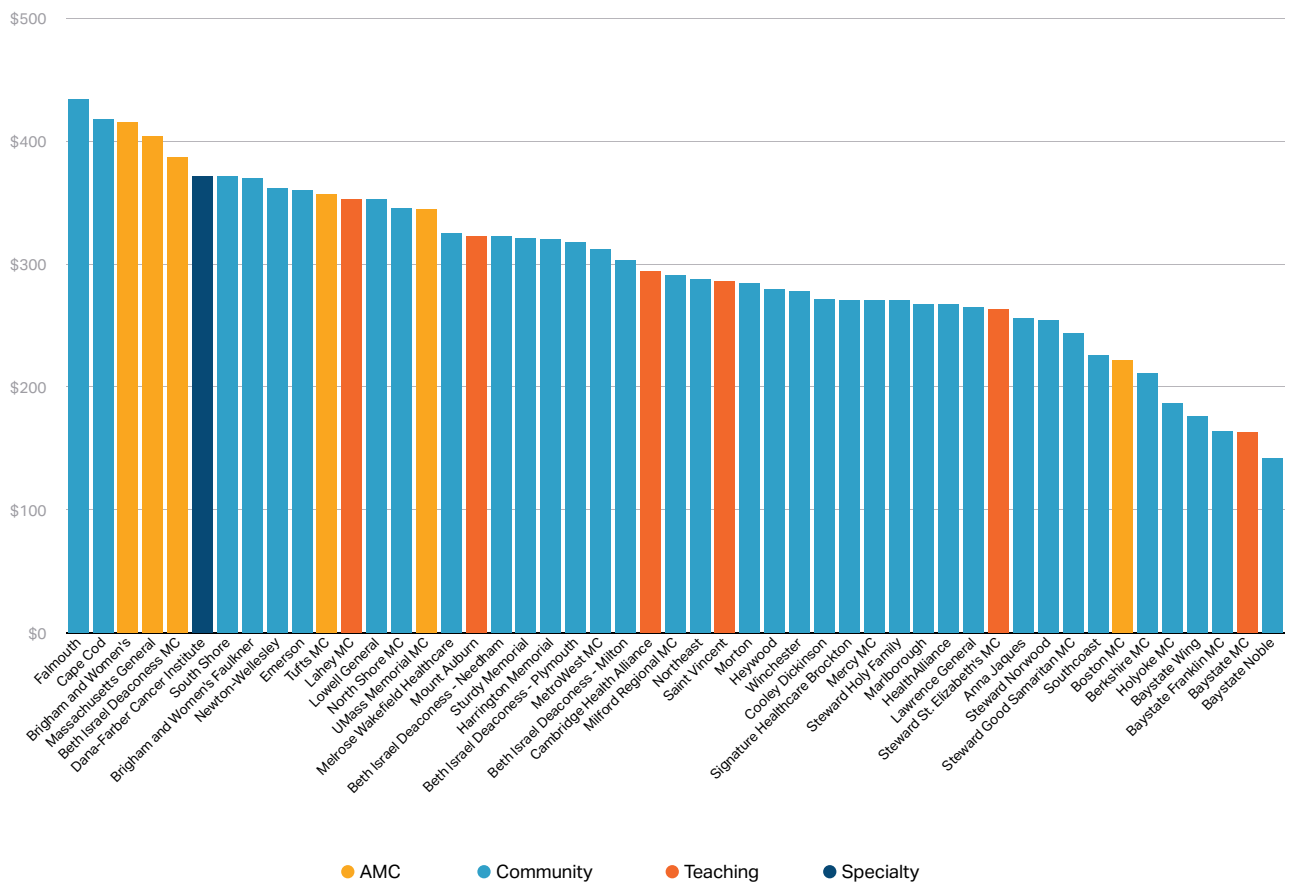
- Emergency department (ED) visits coded at level 5 (highest complexity) have increased as a share of overall visit volume by 9.2 percentage points between 2017 and 2021.
- The average commercial price for a level 5 (highest complexity) evaluation & management (E&M) visit in the ED in 2021 was \$1,188; almost twice as high as a level 3 (moderate complexity) ED E&M visit (\$618).
- The two highest levels of complexity (levels 4 and 5) accounted for 77.7% of overall commercial ED visit volume in 2021, compared to 67.9% in 2017.
- Research from the HPC and others suggests that the shift to higher acuity codes reflects coding practices more than health status changes in the population. Though urgent care and telehealth visits increased in 2021, the shift affected a relatively small number of visits and is unlikely to drive the trends shown here.

PRICE

NOTES: ED severity was assigned based on the ED evaluation & management visit procedure code (99281-99285) for the patient encounter (both professional and facility components). If a member had more than one ED evaluation and management code (99281-99285) on the same day, the highest intensity code was assigned as the visit intensity and counted as a single visit. These codes do not include additional services received during an ED visit (eg, lab testing or imaging).

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2017-2021

# AVERAGE COMMERCIAL PRICE OF A MAMMOGRAPHY PERFORMED IN A HOPD, BY HOSPITAL, 2021



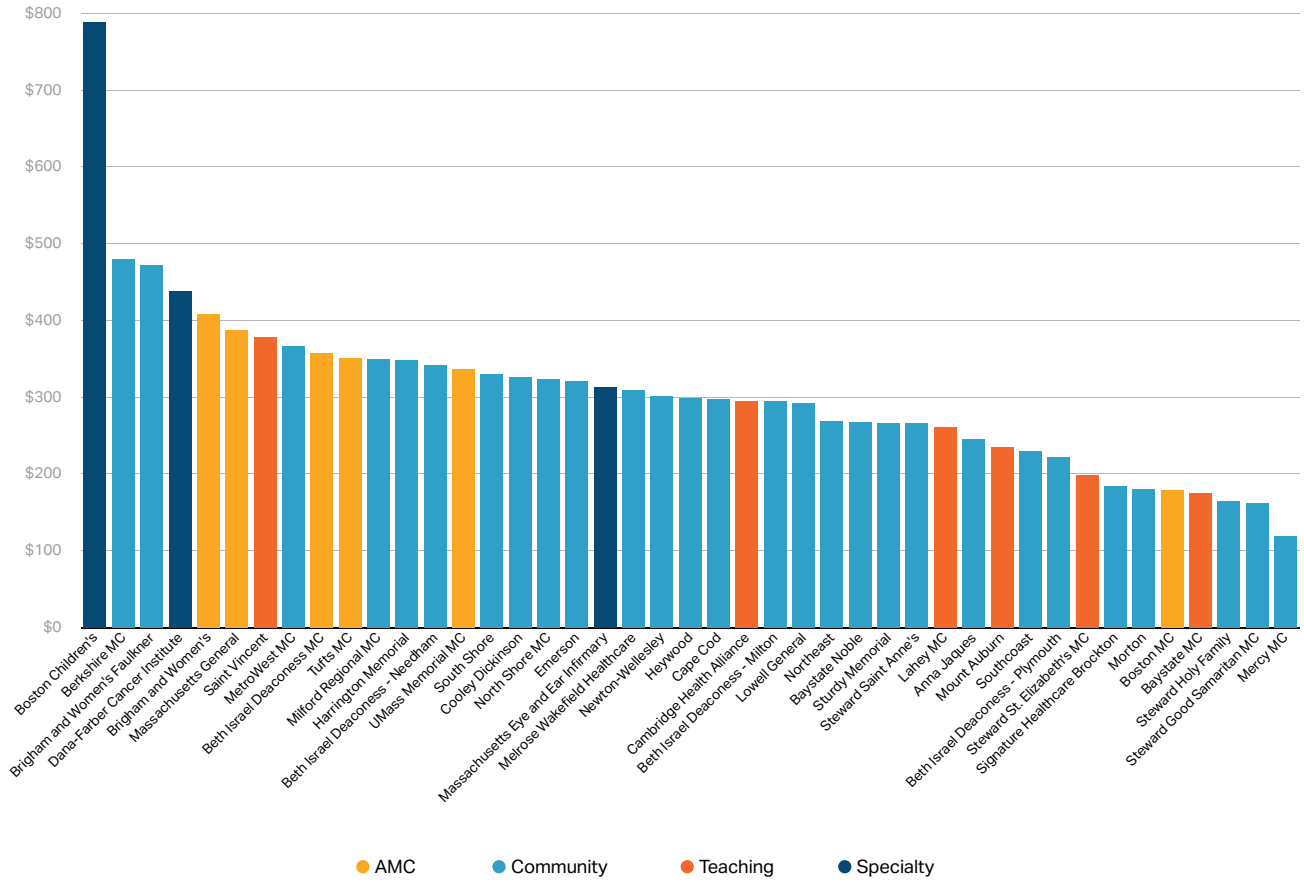
- Mammography screenings are the most common imaging service, and one of the most common ambulatory services for the commercial population overall.
- Among HOPDs that provide a high volume of mammography screenings, the price for a mammography at the most expensive provider (Falmouth, \$434) was more than three times as expensive as the lowest-priced provider (Baystate Noble, \$142).
- The HOPDs with the highest payment levels are generally AMCs and teaching hospitals affiliated with certain large systems, and/or those that are geographically isolated.

PRICE

NOTES: Facilities listed are limited to those with at least 700 commercial encounters for the service in 2021. Prices reflect encounters (same person, same date of service, same procedure code) to capture the potential for both facility and professional claims billed on the same day. Mammography (CPT 77067, 'Screening mammography, bilateral, including computer-aided detection (CAD) when performed').

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database v2021, 2021

# AVERAGE COMMERCIAL PRICE OF A SURGICAL PATHOLOGY SERVICE PERFORMED IN A HOPD, BY HOSPITAL, 2021



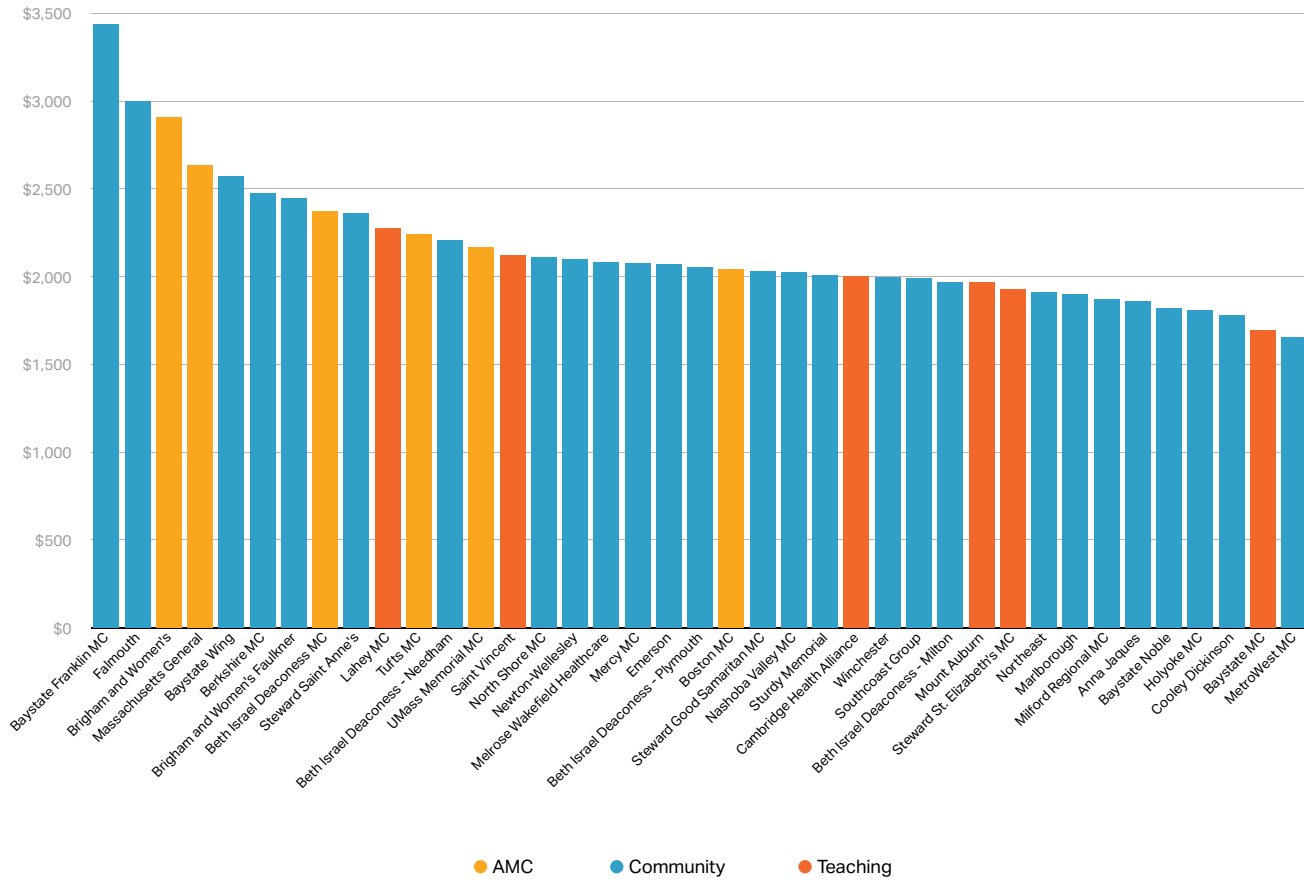
- Among HOPDs that provide a high volume of surgical pathology examinations, the price for this service in 2021 at the most expensive non-specialty HOPD (Berkshire Medical Center, \$481) was more than four times the price for the least expensive HOPD provider (Mercy Medical Center, \$119).
- HPC analyses showed that patient age, health status, and commercial payer were not drivers of the variation in hospital prices for this service.
- In 2021, the average HOPD price for this service was \$321, 47% more expensive than the average office-based price (\$218).

PRICE

NOTES: Facilities listed are limited to those with at least 400 commercial encounters delivered in 2021. Prices reflect encounters (same person, same date of service, same procedure code) to capture the potential for both facility and professional claims billed on the same day. Data are for surgical pathology (CPT 88305, 'Level IV Surgical pathology, gross and microscopic examination').

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database v2021, 2021

# AVERAGE COMMERCIAL PRICE FOR A COMMON COLONOSCOPY PROCEDURE (CPT CODE 45380) PERFORMED IN A HOPD BY HOSPITAL, 2021



- Endoscopies, which include upper endoscopies and colonoscopies, are commonly performed in HOPDs, ASCs, and offices.
- In 2021, 66% of endoscopies among commercially-insured patients took place in HOPDs, 29% took place in ASCs, and 5% took place in offices.
- Among HOPDs that provided a minimum volume of a common colonoscopy procedure, the price for the procedure varied 2.1 times between the highest-priced setting (Baystate Franklin Medical Center; \$3,442) and the lowest-priced setting (MetroWest Medical Center; \$1,657).

PRICE

NOTES: Facilities listed are limited to those with at least 70 commercial encounters delivered in 2021. Includes all encounters where at least one endoscopy was performed, as defined by CCS and/or BETOS, with matching procedure codes on the highest-priced professional and the highest-priced facility claims. CPT code 45380 is defined as: "Colonoscopy, flexible; with biopsy, single or multiple".

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2021

# HOSPITAL OUTPATIENT DEPARTMENT (HOPD) COMMERCIAL PRICE INDEX

## COMMERCIAL PRICE TRENDS

# SUMMARY OF THE HOPD COMMERCIAL PRICE INDEX

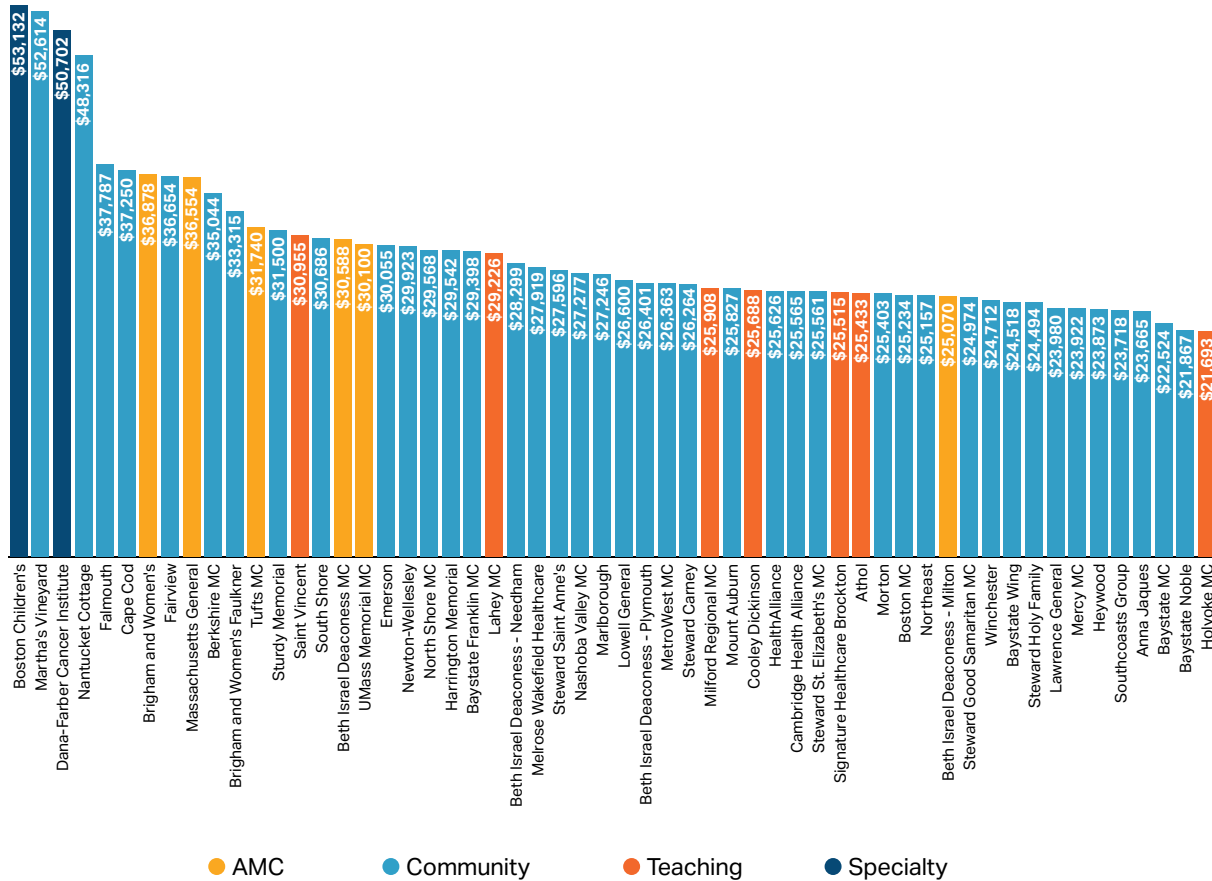
- HOPD spending represents a large and growing proportion of commercial health care spending in Massachusetts and is currently the largest single spending category. The heterogeneous service mix in this setting can pose challenges in analyses of price levels and growth over time.
- To better understand HOPD prices, the HPC developed a fixed-quantity market basket<sup>1</sup> ("index") to allow for comparisons of prices over time and across payers and providers. The service mix (both in terms of types of services and quantities) is held constant over the study period and across entities to isolate changes in price as a driver of spending and growth.
- The market basket contains the 50 highest-cost HOPD services in terms of aggregate statewide spending in 2019 that also meet a minimum volume threshold (using 2019 volume data). The services are defined by procedure code encounters, and the prices include spending from both associated professional and facility claims (using 2021 prices). The HPC analyzed the cost of the market basket per 100 patients.
- All prices and payments included in this index represent estimates based on observed payments to providers across payers within the MA APCD and do not necessarily represent contractually negotiated prices between a specific payer and provider.

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<sup>1</sup> A fixed-quantity market basket is also referred to as a Laspeyres price index, a commonly used index in economics. The Consumer Price Index (CPI) is an example of a commonly used Laspeyres index. See the Technical Appendix for information on the methodology in greater detail and James, Hannah O., et al. "Assessment of a Price Index for Hospital Outpatient Department Services Using Commercial Claims Data in Massachusetts." JAMA Health Forum. Vol. 4. No. 4. American Medical Association, 2023.



# COST OF THE HOPD MARKET BASKET BY HOSPITAL, 2021



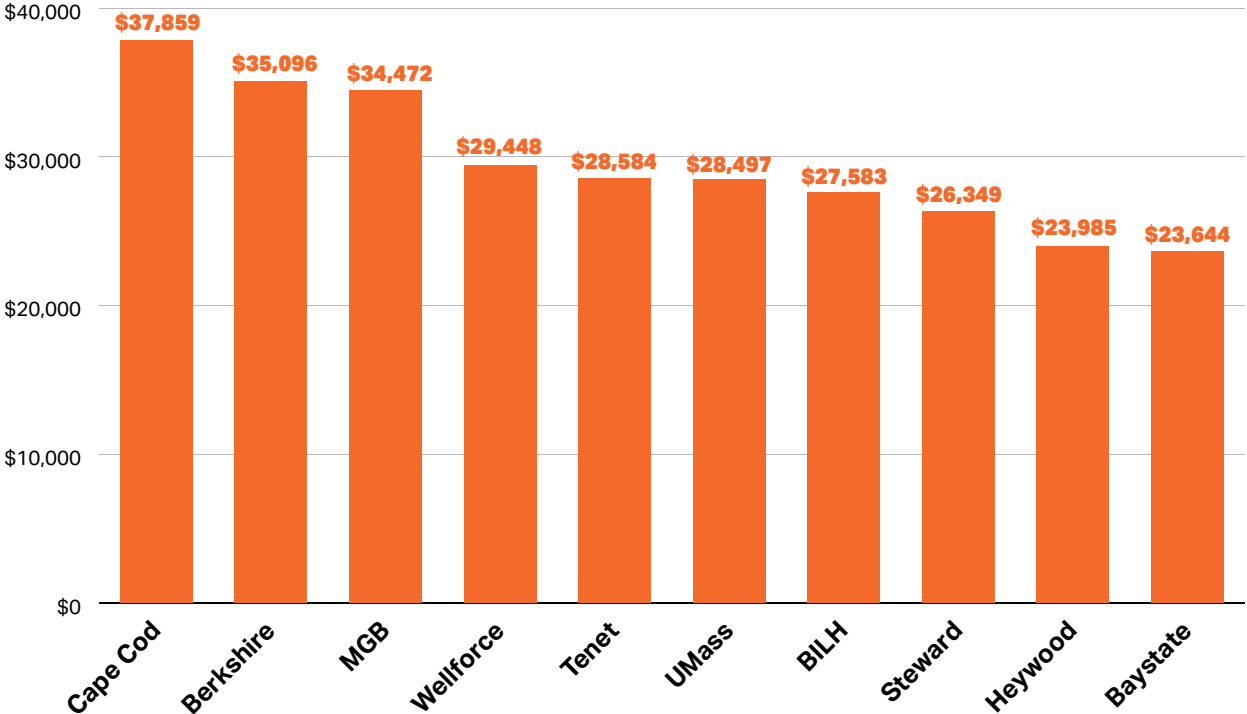
- The cost of the HOPD market basket in 2021 varied by a factor of 2.4 across hospitals throughout the state, with higher price levels identified among AMCs and teaching hospitals affiliated with certain large systems, specialty hospitals, and / or those that are geographically isolated.
- The cost to provide this set of services per 100 members per year ranged from \$21,693 at Holyoke Medical Center to \$53,132 at Boston Children's.

PRICE

NOTES: Academic medical center (AMC). For each hospital, the same 50 procedure codes are evaluated using a fixed statewide volume (computed using 2019 data) and hospital-specific average service prices in 2021 for each procedure code. Hospitals with fewer than 20 service encounters for any individual procedure code have imputed values for that procedure code and are not included if more than 25 procedure codes would have to be imputed. See technical appendix for more details on methodology and included services

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2021

# COST OF THE HOPD MARKET BASKET BY HOSPITAL SYSTEM, 2021



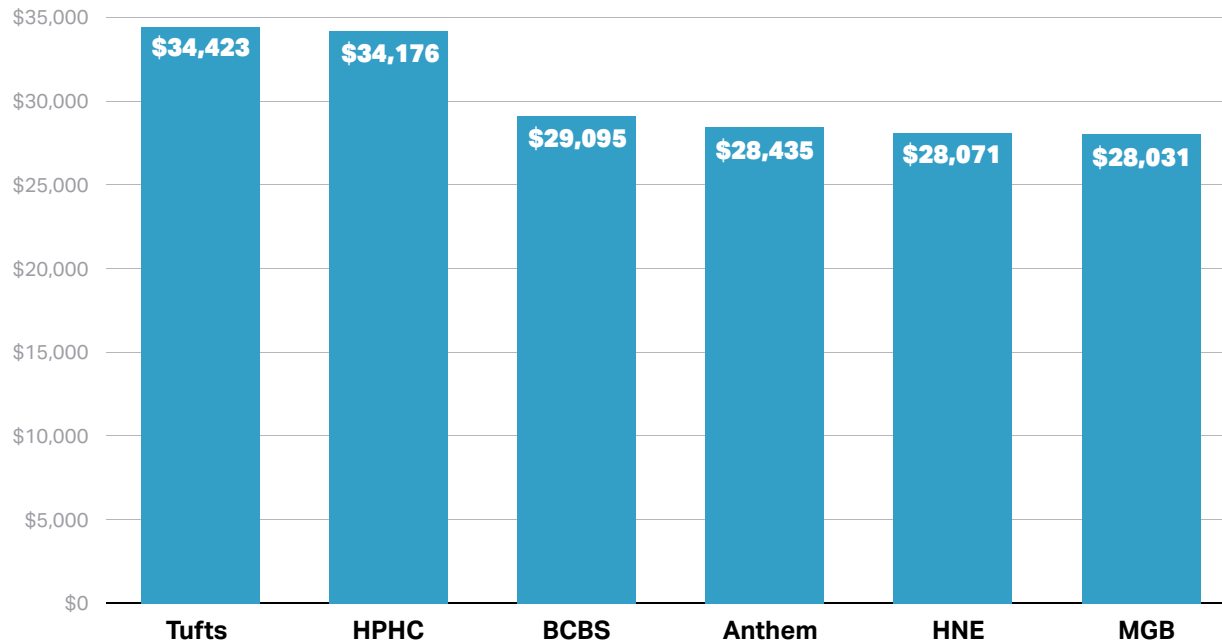
- The cost of the HOPD index by hospital system varied by 60% between the highest and lowest cost system (Cape Cod, \$37,859 vs Baystate, \$23,644) in 2021.
- The difference between the lowest and highest cost system increased by 9.6% between 2019 and 2021.

PRICE

NOTES: Hospital systems are sourced from CHIA’s latest hospital profiles; only systems with multiple acute care hospitals were included in this graphic. Approximately 20% of index service volume for the 50 CPT codes takes place at hospitals not represented by the systems on this graph.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, 2019-2021, V2021

# COST OF THE HOPD MARKET BASKET BY PAYER, 2021



- Tufts Health Plan paid the most for the HOPD market basket (\$34,432 in 2021),<sup>1</sup> while the cost of the HOPD market basket grew most for Health New England (11.1% between 2019 and 2021). See technical appendix for 2019 data.
- In 2021, Tufts (\$34,423) paid 22.8% more for the market basket than MGB Health Plan (\$28,031), the lowest priced payer.

PRICE

NOTES: The HPC's version of the APCD includes claims for members enrolled in commercial insurance products from the five payers shown. These claims include most GIC members but otherwise are more heavily representative of members with fully-insured products and overall represent approximately 30% of the commercial market in Massachusetts. For more information on what data can be found in the APCD please see: [www.chiamass.gov/ma-apcd](http://www.chiamass.gov/ma-apcd)

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2021

<sup>1</sup> HPHC and Tufts merged in January 2021 to form Point32Health. AllWays changed its name to MGB Health Plan in 2022.

# LABORATORY SERVICES COMMERCIAL PRICE INDEX

## COMMERCIAL PRICE TRENDS

# SUMMARY OF THE LABORATORY SERVICES COMMERCIAL PRICE INDEX

- Most clinical laboratory services are standardized, routine, and do not vary in quality across providers, with identical tests performed across multiple settings of care (e.g., cholesterol testing, which can be done in a HOPD, physician's office, or independent lab). Lab services currently account for \$1 billion (3.9%) of total commercial expenditures in Massachusetts.
- Medicare pays the same price for lab tests regardless of care setting, though most commercial payers pay more when lab tests are performed in HOPDs compared to a physician office or independent lab.
- The HPC developed a fixed-quantity market basket<sup>1</sup> ("index") to allow for comparisons of lab prices over time and across payers and providers. The market basket contains the 50 highest-cost lab services in terms of aggregate statewide spending in 2019 that were common across HOPDs, provider offices, and independent labs. The services are defined by procedure code encounters and the prices include spending from both associated professional and facility claims (using 2021 prices). The HPC analyzed the cost of the market basket per 100 patients. See technical appendix for details.
- All prices included in this index represent estimates based on observed payments to providers across payers within the MA APCD and do not necessarily represent contractually negotiated prices between a specific payer and provider.

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<sup>1</sup> A fixed-quantity market basket is also referred to as a Laspeyres price index, a commonly used index in economics. The Consumer Price Index (CPI) is an example of a commonly used Laspeyres index. See the Technical Appendix for information on the methodology in greater detail.

# COST OF THE LAB MARKET BASKET, INCLUDING COST SHARING, BY MASSACHUSETTS PROVIDER, 2021



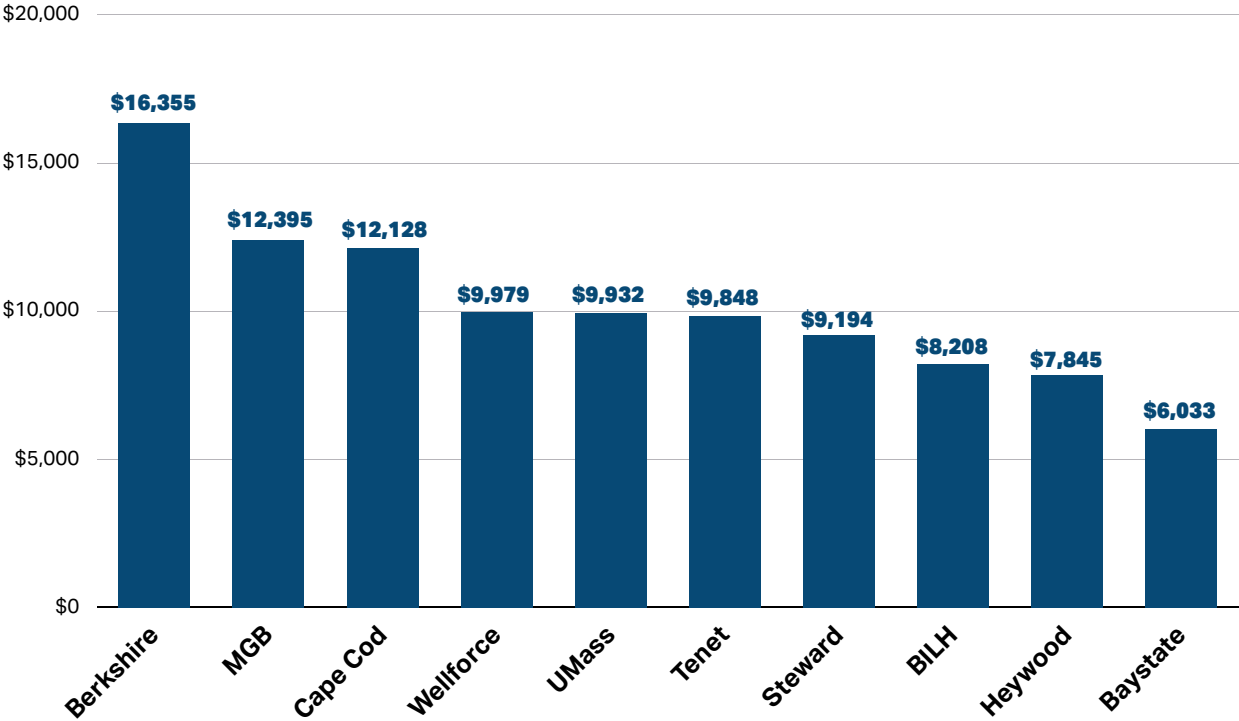
- The cost of the lab market basket in 2021 varied by a factor of 4.3 across hospitals throughout the state and varied by a factor of 7.4 across all providers, with higher price levels identified among HOPDs.
- The cost to purchase this market basket of lab services per 100 members per year ranged from \$24,397 at Martha's Vineyard Hospital to \$3,279 at BioReference Labs. Medicare would pay \$3,559 for this same set of labs.
- Higher costs for the service basket also translated to higher patient cost sharing. Overall, cost sharing varied by a factor of 7.4 across all providers.

PRICE

NOTES: For each provider, the same 50 procedure codes are evaluated using a fixed statewide volume (computed using 2019 data) and provider-specific mean service prices in 2021 for each procedure code. Providers with fewer than 20 service encounters for any individual procedure code have imputed values for that procedure code and are not included if more than 25 procedure codes would have to be imputed. See technical appendix for more details on methodology.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2021

# COST OF THE LAB MARKET BASKET BY HOSPITAL SYSTEM, 2021



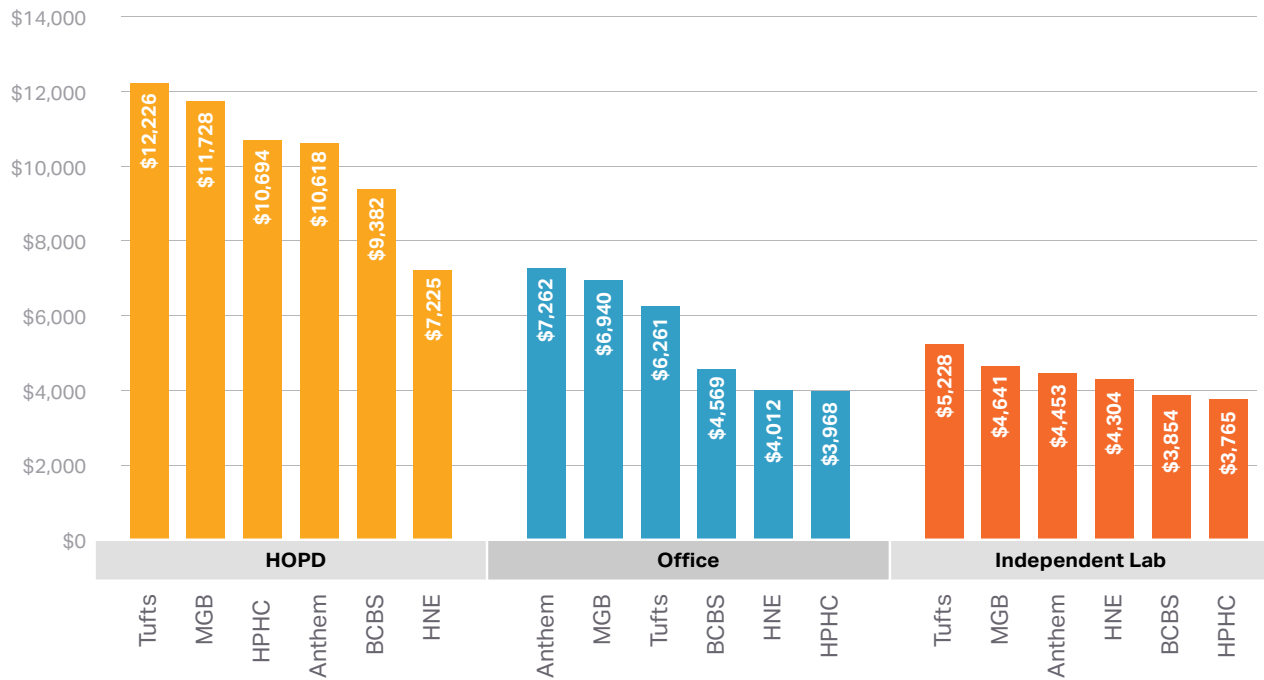
- The cost of the lab market basket by hospital system varied by 171% between the highest and lowest cost system in 2021 (Berkshire, \$16,355 vs Baystate, \$6,033).
- The difference between the lowest and highest cost system has increased by 13% between 2019 and 2021.

PRICE

NOTES: Hospital systems are sourced from CHIA’s latest hospital profiles; only systems with multiple acute care hospitals were included in this graphic. Approximately 21% of index service volume for the 50 CPT codes takes place at hospitals not represented by the systems in this graph.

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2021

# COST OF THE LAB MARKET BASKET BY SETTING OF CARE AND PAYER, 2021



NOTES: When controlling for each payer’s provider mix, HNE’s HOPD prices increase by roughly 10% but other payers’ prices change more modestly (generally less than 5%) and the overall order remains the same. The HPC’s version of the APCD includes claims for members enrolled in commercial insurance products from the five payers shown. These claims include most GIC members but otherwise are more heavily representative of members with fully-insured products and overall represent approximately 37% of the commercial market in Massachusetts. For more information on what data can be found in the APCD please see: [www.chiamass.gov/ma-apcd](http://www.chiamass.gov/ma-apcd)

SOURCES: HPC analysis of Center for Health Information and Analysis All-Payer Claims Database, V2021, 2021

- Among lab services delivered in HOPDs and independent labs, Tufts Health Plan paid the most for the market basket (\$12,226 and \$5,228 in 2021, respectively).<sup>1</sup>
- Among lab services delivered in provider offices and independent labs, Harvard Pilgrim Health Care paid the least for the market basket (\$3,968 and \$3,765 in 2021, respectively).
- The amount paid by payers for the market basket decreased in all settings between 2019 and 2021. Commercial price trends may be impacted by statutory reductions in Medicare’s lab fee schedule. The prices decreased most among independent labs (3.5%), compared to a decrease of 3.2% in physician offices and 1.7% in HOPDs.

<sup>1</sup> HPHC and Tufts merged in January 2021 to form Point32Health. AllWays changed its name to MGB Health Plan in 2022



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# HOSPITAL UTILIZATION

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# INTRODUCTION

## HOSPITAL UTILIZATION

While Massachusetts has consistently ranked well compared to other states on metrics such as health status and health care access, the Commonwealth ranked 44th in the nation in the area of "cost and potentially avoidable hospital use," according to the 2023 Commonwealth Fund's Scorecard on State Health System Performance, a drop of 9 places from the prior rank of 35th.<sup>1,2</sup> In prior work, the Massachusetts Health Policy Commission (HPC) has shown that rates of hospital use in Massachusetts are higher than the national average, and a larger share of inpatient care is delivered by higher-cost academic medical centers. The HPC has recommended action to reduce unnecessary hospital use and to shift appropriate care to community hospitals.

This chartpack reviews recent trends in hospital use in the Commonwealth, largely through 2022, and examines several measures of avoidable hospital utilization, including avoidable emergency department (ED) use, and readmissions. It also examines trends in community-appropriate inpatient care occurring in community hospitals versus teaching hospitals and academic medical centers. Additional utilization by race/ethnicity on many of the measures included in this chartpack can be found in CHIA's Hospital Utilization in Massachusetts: An Assessment by Race & Ethnicity.<sup>3</sup>

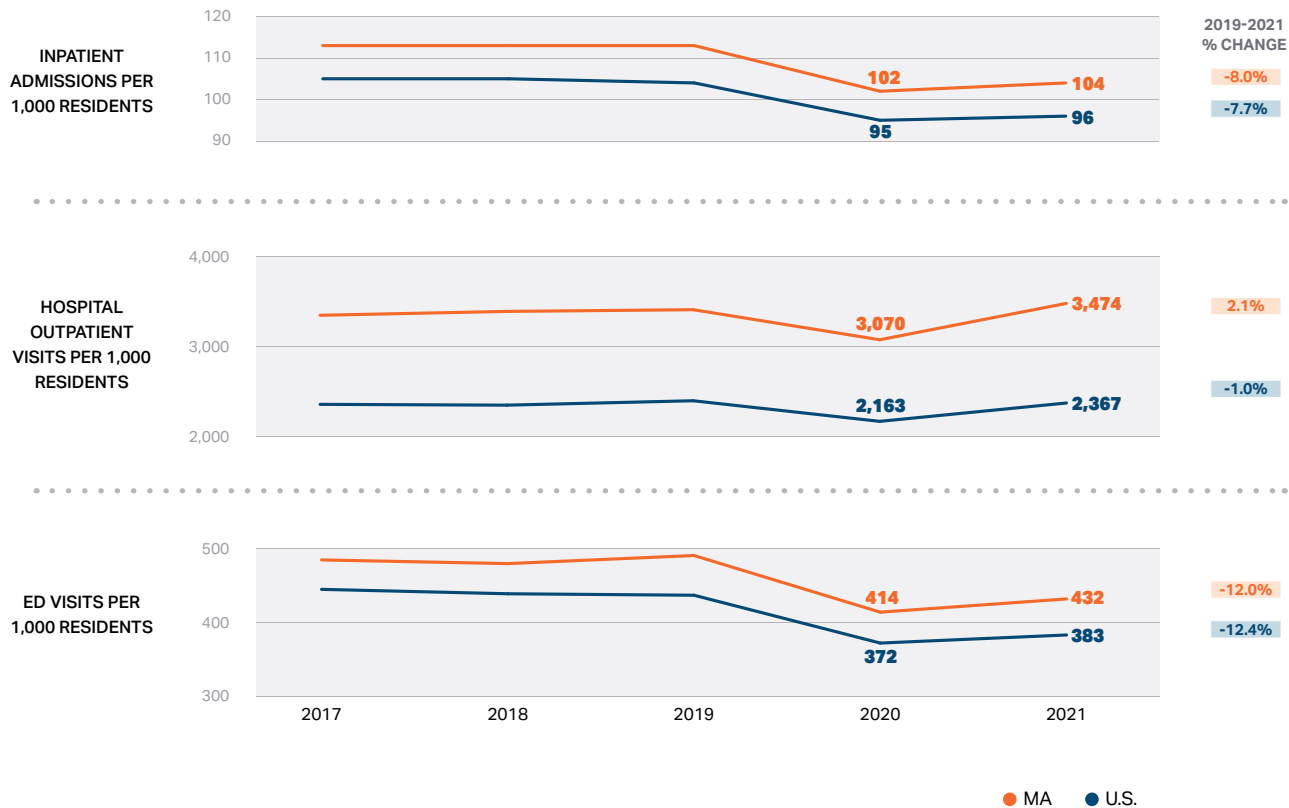
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- 1 Commonwealth Fund. 2023 Scorecard on State Health System Performance. Available at: <https://scorecard.commonwealthfund.org/>. Accessed July 2023.
  - 2 Commonwealth Fund. 2022 Scorecard on State Health System Performance: How Did States Do During the COVID-19 Pandemic? Appendices. Available at: [https://www.commonwealthfund.org/sites/default/files/2022-06/Radley\\_2022\\_State\\_Scorecard\\_Appendices.pdf](https://www.commonwealthfund.org/sites/default/files/2022-06/Radley_2022_State_Scorecard_Appendices.pdf)
  - 3 Center for Health Information and Analysis. Hospital Utilization in Massachusetts: An Assessment by Race & Ethnicity. Available at: <https://www.chiamass.gov/health-care-equity-in-massachusetts/>

# KEY FINDINGS

## HOSPITAL UTILIZATION

- Although Massachusetts residents are, on average, in better health than residents of most other states, Massachusetts has higher rates of hospital utilization, including avoidable inpatient care.
- Massachusetts continues to have higher rates of hospital utilization than the U.S. overall, including inpatient stays (8% higher), outpatient visits (47% higher), and ED visits (13% higher). The gap has expanded slightly in recent years.
- Per-capita total ED visits and potentially avoidable ED visits have grown substantially from 2020 to 2022 but remain below pre-pandemic levels. Behavioral health-related ED visits continued to decline in 2022.
- All-payer readmission rates in Massachusetts remained constant between 2020 and 2021 (16%). While the Medicare readmission rate remains higher than the national rate, the gap is narrowing slightly.
- In 2021, Massachusetts had the fourth-highest rate of preventable hospitalizations among Medicare beneficiaries in the U.S.
- Between 2019 and 2022, the share of newborn deliveries that took place at community hospitals continued to decline. In 2022 community hospitals accounted for 52.5% of all hospital stays and 48.5% of newborn stays.
- Total inpatient discharges fell 9% between 2019-2022 in Massachusetts.

# HOSPITAL USE IN MASSACHUSETTS AND THE U.S., 2017–2021



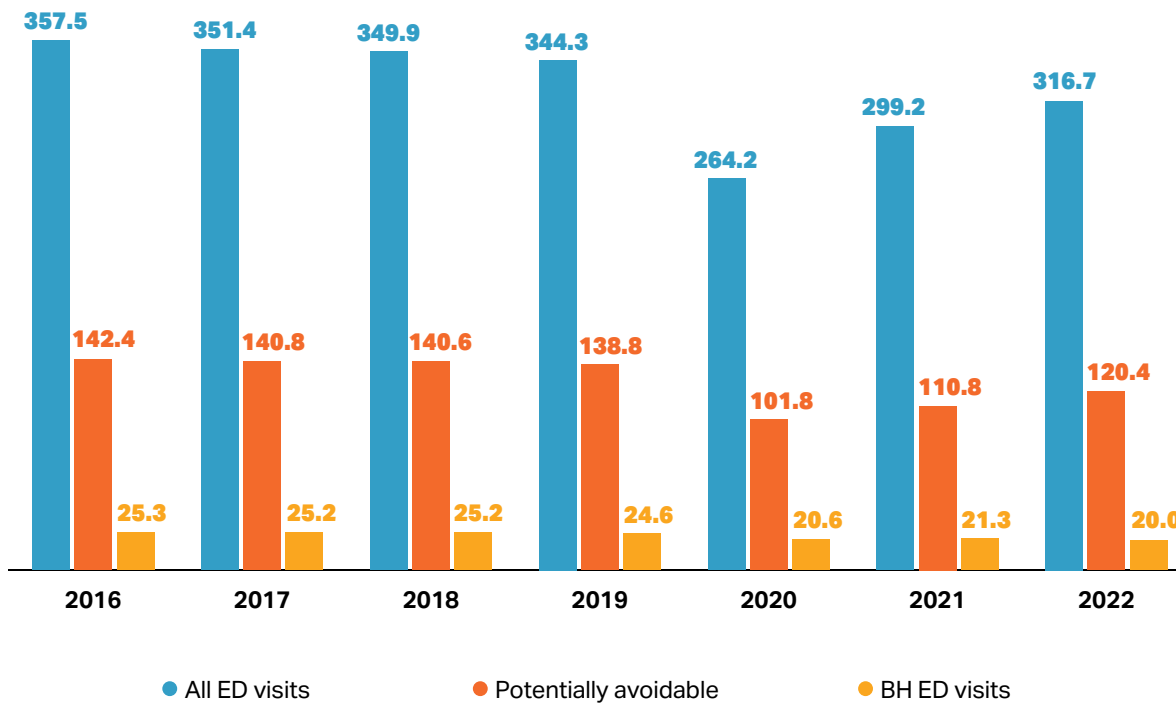
- After declining in 2020, the rate of hospital outpatient visits in Massachusetts grew in 2021, slightly exceeding the pre-pandemic level (2.1% higher). In contrast, rates of inpatient and emergency department visits have remained far below their pre-2020 levels (-8.0% and -12%, respectively).
- Massachusetts continued to have higher rates of hospital outpatient visits, inpatient admissions, and ED visits than the national average through 2021.

HOSPITAL

NOTES: Data are for community hospitals as defined by Kaiser Family Foundation, which represent 85% of all hospitals. Federal hospitals, long term care hospitals, psychiatric hospitals, institutions for people with intellectual disabilities, and hospitals treating alcoholism and other chemical dependency are not included. The United States category includes Massachusetts.

SOURCES: Kaiser Family Foundation State Health Facts (2021). "Hospital Admissions per 1,000 Population by Ownership Type" (2017-2021); "Hospital Emergency Room Visits per 1,000 Population by Ownership Type" (2017-2021); "Hospital Outpatient Visits per 1,000 Population by Ownership Type" (2017-2021). <http://www.kff.org/state-category/providers-service-use/hospital-utilization/>

# ALL ED VISITS, POTENTIALLY AVOIDABLE ED VISITS, AND BEHAVIORAL HEALTH ED VISITS PER 1,000 RESIDENTS, 2016–2022

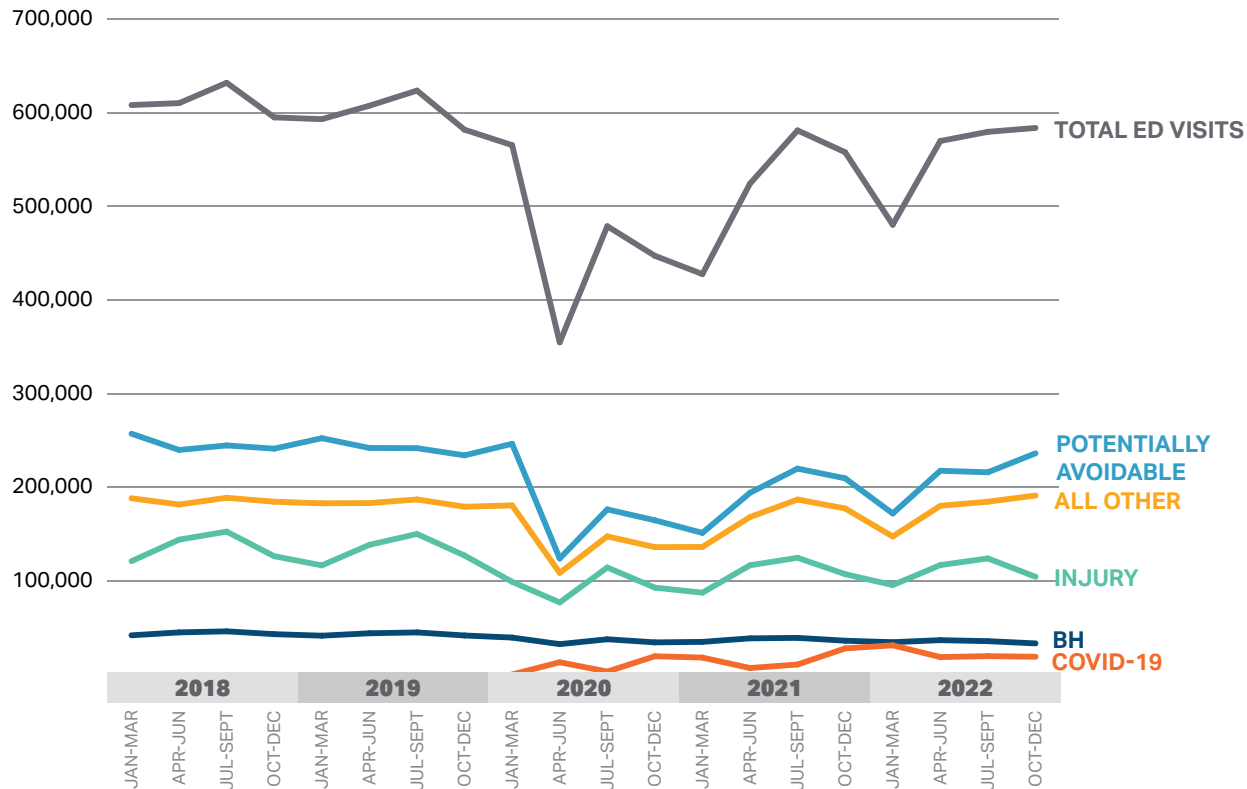


- Overall, ED visit rates increased 5.9% between 2021 and 2022, but remain below pre-pandemic levels.
- Between 2021 and 2022, the rate of potentially avoidable ED visits grew 8.6%, while behavioral health ED visit rates declined 5.8%.
- Rates for these two types of ED visits remain below pre-pandemic levels.

NOTES: Avoidable ED visits are based on the Billings algorithm, which classifies an ED visit into the following categories: Emergent - ED care needed and not avoidable; Emergent - ED care needed but avoidable; Emergent - primary care treatable; and Non-emergent - primary care treatable. "Avoidable" is defined here as ED visits that were emergent - primary care treatable or non-emergent - primary care treatable. Behavioral health ED visits were identified based on a principal diagnosis related to mental health and/or substance use disorder using the Clinical Classifications Revised Software (CCSR) diagnostic classifications. To improve classification rate, diagnosis codes unclassified by the Billings algorithm were truncated and shortened codes were re-classified. Please see the technical appendix for additional details.

SOURCES: HPC analysis of Center for Health Information and Analysis Emergency Department Database, CY2016 - 2022

# ED VISITS BY VISIT CATEGORY AND QUARTER, 2018–2022

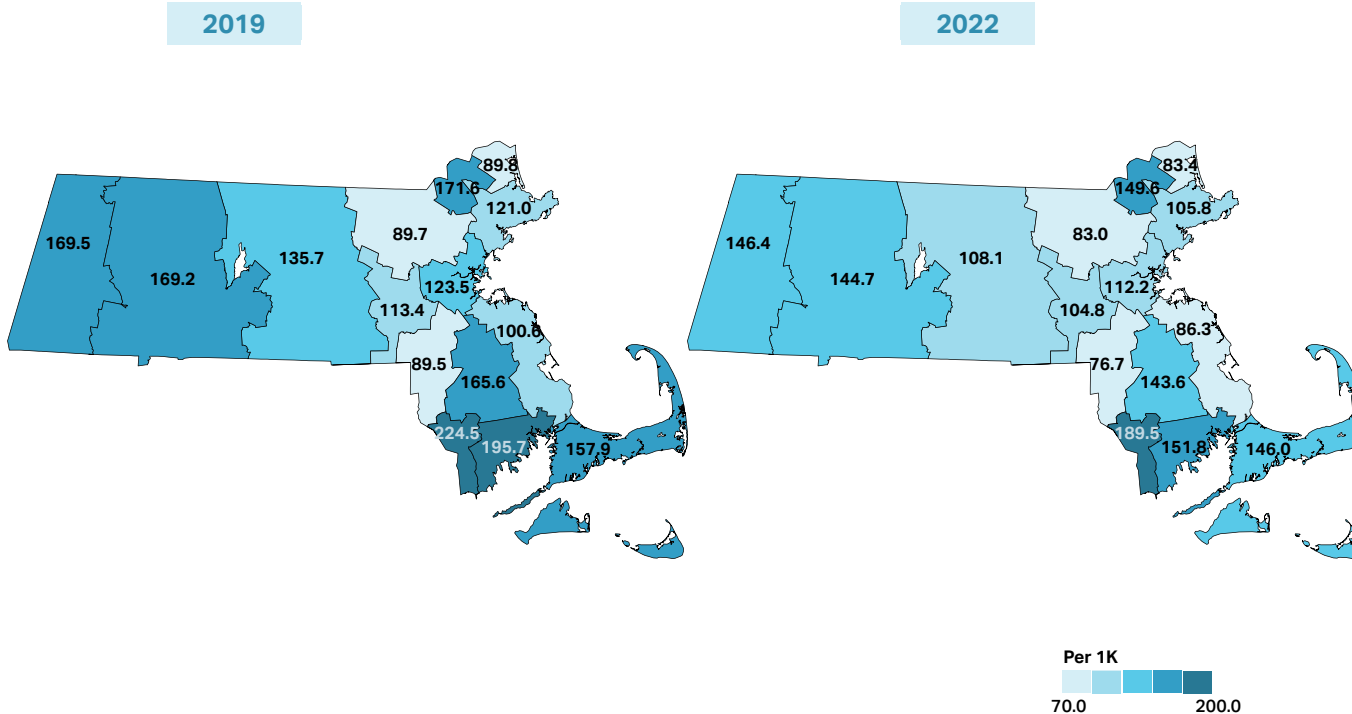


- Potentially avoidable ED visits remained below pre-pandemic levels (4.1% lower in Q4 2022 compared to Q1 2020). ED visits for injuries and all other types of ED visits grew during the same period (5.4% and 5.8% respectively).
- Behavioral health visits in the ED continued a pre-pandemic trend of declining volume. The number of BH-related ED visits decreased 20.3% between Q4 2019 – Q4 2022. More detail on behavioral health ED visits can be seen in the Primary Care & Behavioral Health Chartpack.
- Throughout 2021 and 2022, rises in COVID-19-related ED volume generally coincided with declines in other types of ED visits.

NOTES: Avoidable ED visits are based on the Billings algorithm, which classifies an ED visit into the following categories: Emergent - ED care needed and not avoidable; Emergent - ED care needed but avoidable; Emergent - primary care treatable; and Non-emergent - primary care treatable. "Avoidable" is defined here as ED visits that were emergent - primary care treatable or non-emergent - primary care treatable. Behavioral health ED visits were identified based on a principal diagnosis related to mental health and/or substance use disorder using the Clinical Classifications Revised Software (CCSR) diagnostic classifications. To improve classification rate, diagnosis codes unclassified by the Billings algorithm were truncated and shortened codes were re-classified. Please see the technical appendix for additional details.

SOURCES: HPC analysis of Center for Health Information and Analysis Emergency Department Database, CY2018 – 2022

# POTENTIALLY AVOIDABLE EMERGENCY DEPARTMENT UTILIZATION BY HPC REGION, 2019 AND 2022



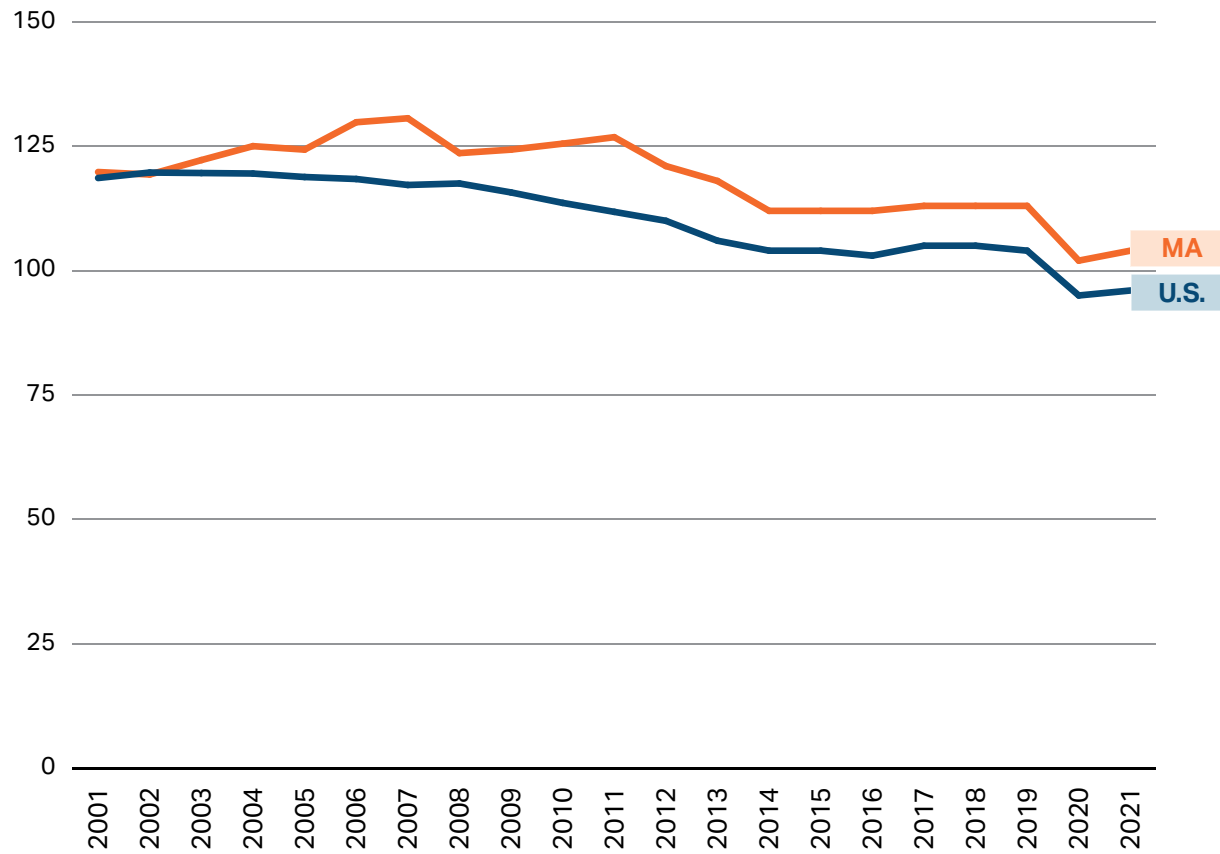
- The rate of potentially avoidable ED visits is a key metric of health system efficiency and quality. An avoidable visit suggests care that could have been treated by a primary care provider, either at the time of the visit or through prevention.
- The statewide rate of avoidable ED visits was 120.4 visits per 1,000 residents in 2022, representing a 13% decrease in avoidable ED utilization compared to 2019.
- Rates continue to vary substantially between regions of the Commonwealth. Rates varied nearly three-fold in 2022, from 189.5 avoidable ED visits per 1,000 residents in Fall River to 76.7 per 1,000 residents in Norwood / Attleboro.

HOSPITAL

NOTES: Avoidable ED visits are based on the Billings algorithm, which classifies an ED visit into the following categories: Emergent - ED care needed and not avoidable; Emergent - ED care needed but avoidable; Emergent - primary care treatable; and Non-emergent - primary care treatable. "Avoidable" is defined here as ED visits that were emergent - primary care treatable or non-emergent - primary care treatable. To improve classification rate, diagnosis codes unclassified by the Billings algorithm were truncated and shortened codes were re-classified. Please see the technical appendix for additional details.

SOURCES: HPC analysis of Center for Health Information and Analysis Emergency Department Database, CY2019-2022

# INPATIENT HOSPITAL DISCHARGES PER 1,000 RESIDENTS IN MASSACHUSETTS AND THE U.S., 2001–2021



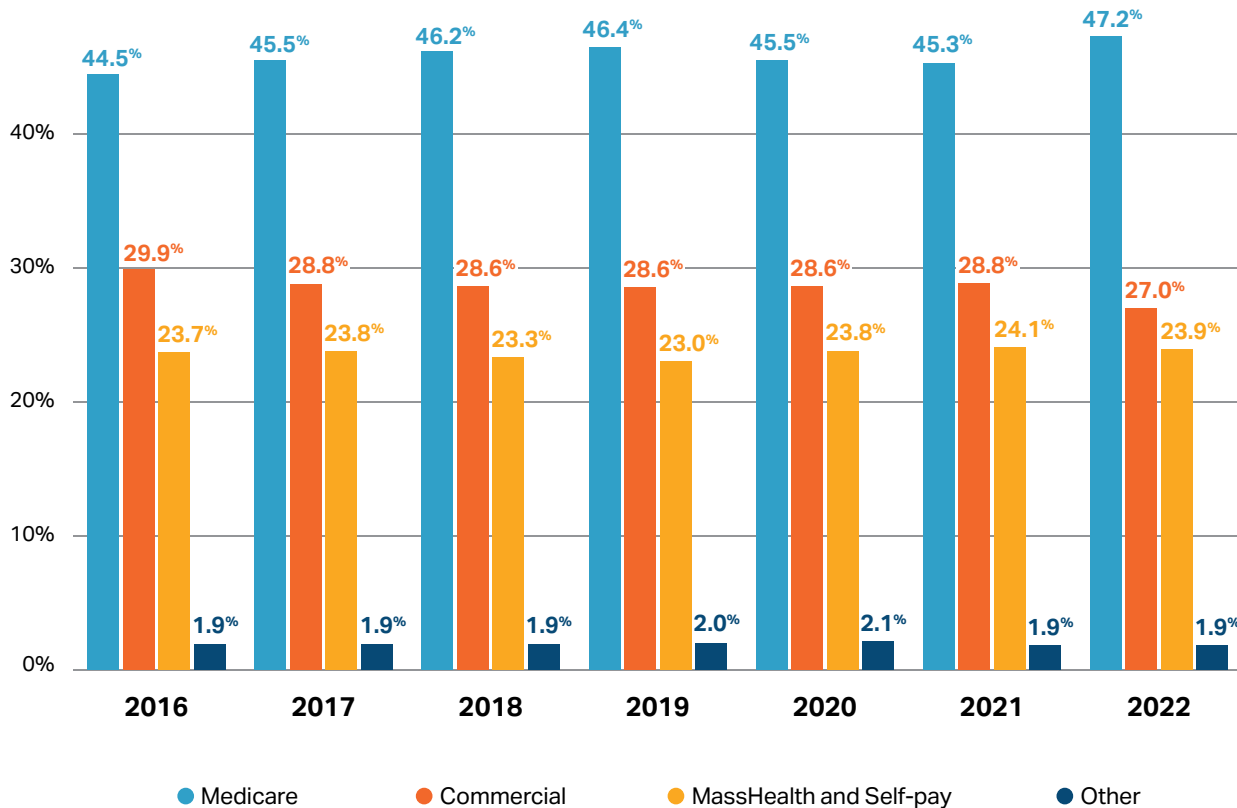
- After declines in earlier years, Massachusetts residents' inpatient hospital use remained relatively constant from 2014 through 2019. Inpatient use declined sharply in both Massachusetts and the U.S. with the onset of the COVID-19 pandemic in 2020. The overall decline in inpatient discharges between 2007 and 2021 was 20.4%.
- The number of inpatient discharges per 1,000 Massachusetts residents increased by 2% from 2020 to 2021, compared to 1% growth in the U.S.

NOTES: U.S. data includes Massachusetts. Data are for community hospitals as defined by Kaiser Family Foundation, which represent 85% of all hospitals.

SOURCES: Kaiser Family Foundation analysis of American Hospital Association data (U.S., 2001-2021)



# TOTAL INPATIENT HOSPITAL DISCHARGES BY PAYER, 2016–2022

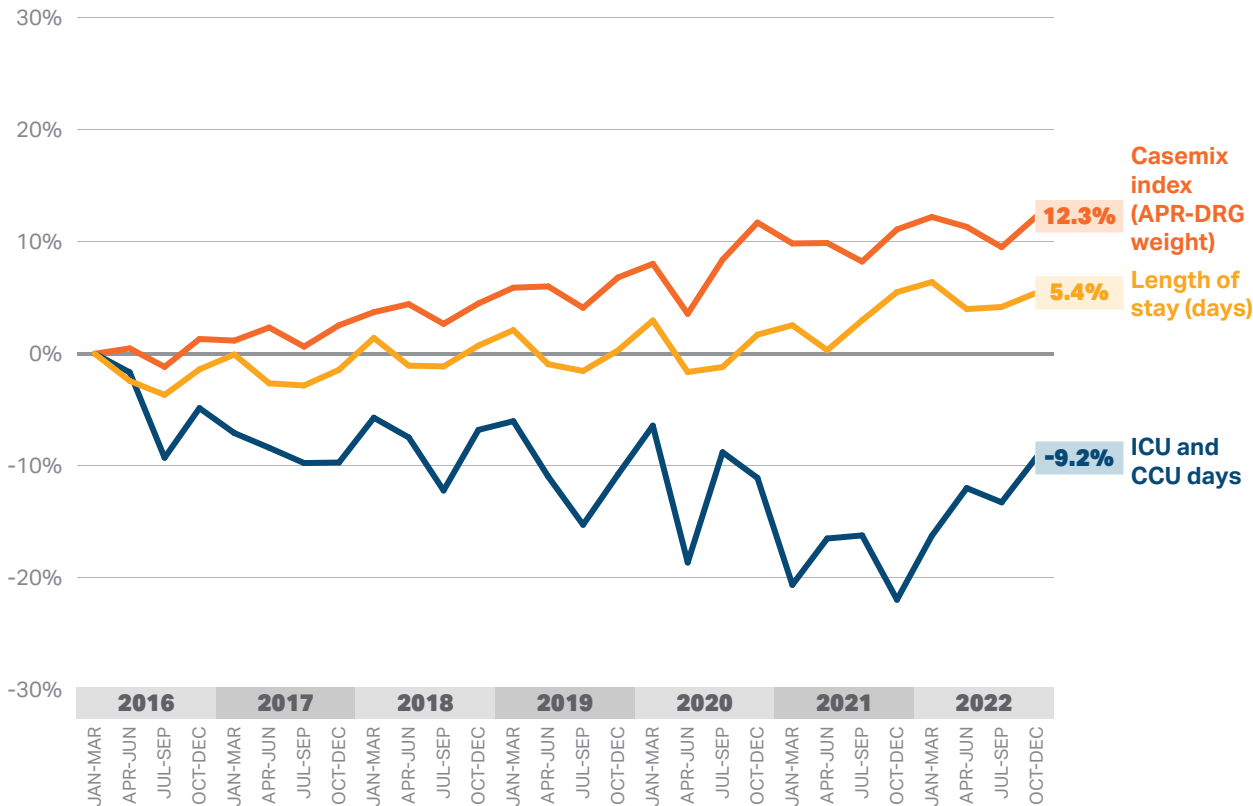


- Medicare patients have accounted for an increasing share of inpatient hospital discharges in Massachusetts, growing from 44.5% in 2016 to 47.2% in 2022. This trend partly reflects the growing share of residents enrolled in Medicare as the population ages.
- The share of discharges from commercially insured patients decreased from 29.9% in 2016 to 27% in 2022. Since commercial payment rates are higher than public payer rates for most hospitals, this shift in the composition of inpatient volume has financial implications for hospitals.
- The total number of discharges declined from 751,394 in 2016 to 687,245 in 2022.

NOTES: Categorization changes between years may influence results. MassHealth and self pay category includes free care, health safety net, and CommonwealthCare/ConnectorCare plans. The number of inpatient hospital discharges coded with self pay as the primary payer has increased nearly three-fold between 2015 and 2019, from 0.6% to 2.2%. Based on provider input, the HPC and CHIA believe that many MassHealth discharges were incorrectly coded as self pay. To address this inconsistency, the HPC grouped self pay with MassHealth for this analysis. Out-of-state residents (~5% of discharges) are excluded from this analysis.

SOURCES: HPC analysis of Center for Health Information and Analysis Inpatient Discharge Database, CY2016-2022

# CHANGE IN AVERAGE LENGTH OF STAY, ICU/CCU DAYS PER DISCHARGE, AND "CASEMIX INDEX" (APR-DRG WEIGHT) FOR NON-COVID-19 PATIENTS BY QUARTER, 2016–2022

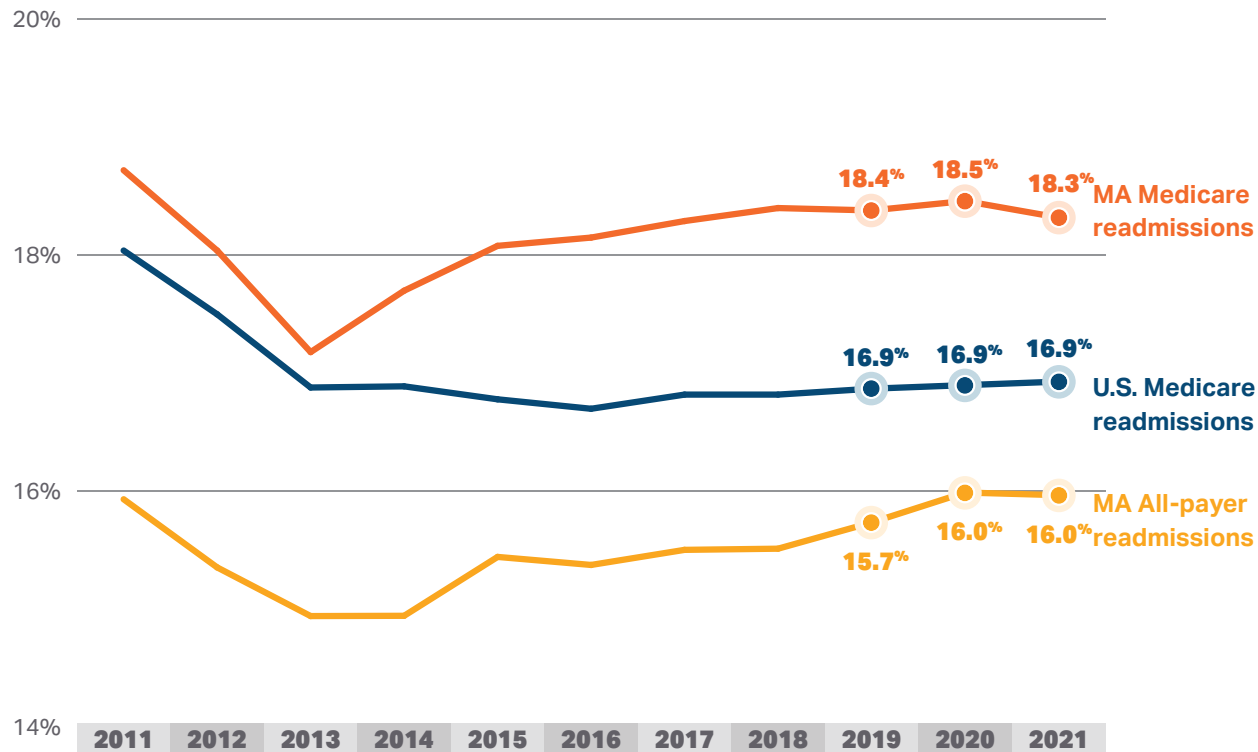


- APR-DRG weights, length of stay (LOS) and time patients spend in intensive care and cardiac care units (ICU, CCUs) are all potential indicators of the level of complexity or acuity of hospitalized patients.
- Hospital revenues per inpatient stay are proportional to APR-DRG weights and thus, the weights are also affected by hospital efforts to code patients into higher-complexity categories. LOS is also affected by the ease with which patients can be discharged to other settings of care – which has been disrupted recently due to staffing shortages.

NOTES: Based on patient discharge date. Excludes behavioral health stays and extremely long length of stay because these cases are usually not paid based on DRGs. Other exclusions include COVID-19 related discharges, rehabilitation, transfers, patients that died, patients who went to Shriners Hospital for Children (Springfield and Boston), and discharges with some APR coding restrictions based on discrepancies with CMS major diagnostic categories. See technical appendix.

SOURCES: HPC analysis of the Center for Health Information and Analysis (CHIA) Hospital Inpatient Discharge Database, CY2016 to CY2022

# THIRTY-DAY READMISSION RATES, MASSACHUSETTS AND THE U.S., 2011–2021



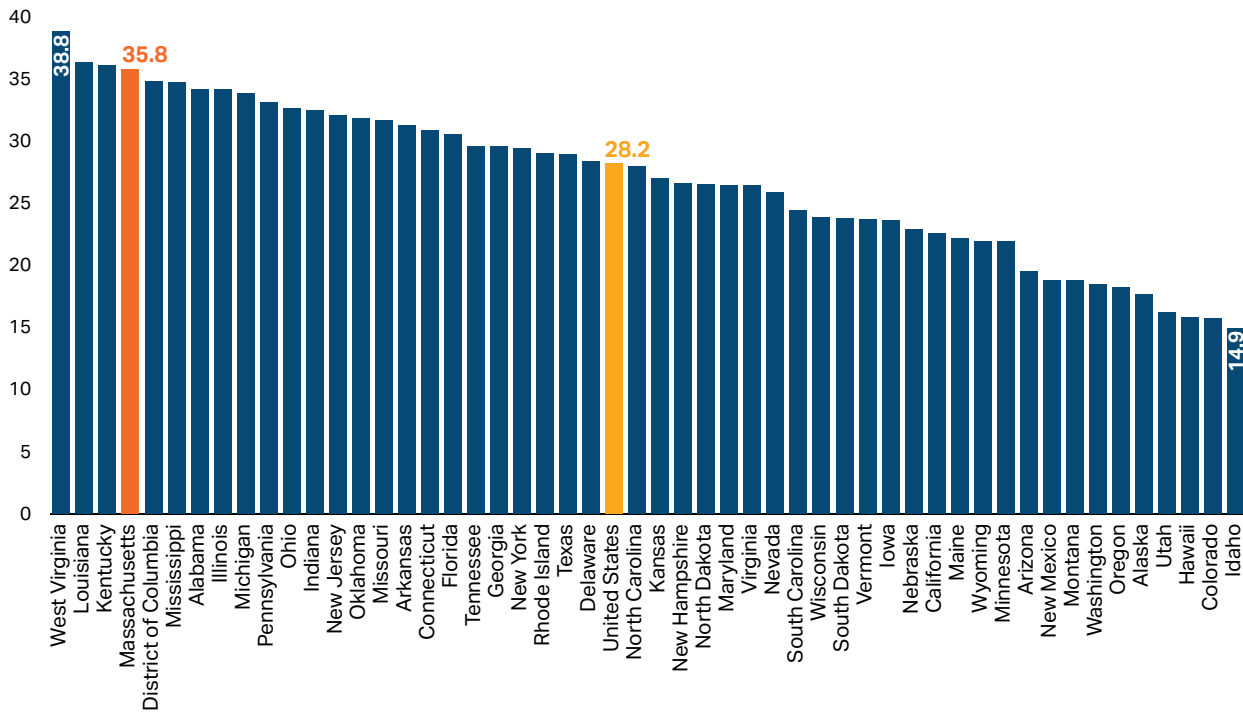
NOTES: MA and U.S. Medicare readmission rates are all-cause hospital 30-day readmission rates among fee-for-service Medicare beneficiaries (i.e., the number of readmissions divided by the total number of admissions where the beneficiary was discharged alive). MA All-payer readmission rate is the rate of unplanned hospitalizations for any reason within 30 days of eligible discharges, excluding obstetric, psychiatric, cancer treatment, and rehabilitation admissions as well as against medical advice discharges.

SOURCES: Centers for Medicare and Medicaid Services (U.S. and MA Medicare), CY2011–2021; Center for Health Information and Analysis Hospital-Wide Adult All-Payer Readmissions Databook, February 2023 (all-payer MA), FY2011–2021

- Hospital readmissions represent potentially avoidable hospital use and are a measure of health system performance.
- After near convergence with the U.S. rate in 2013, Massachusetts' Medicare readmission rate trended upward, although rates have plateaued in recent years.
- Massachusetts' all-payer readmission rate increased between 2019 and 2020 but remained constant in 2021. The commercial readmission rate slightly increased between 2019 and 2021 (10.1% to 10.3%), while the MassHealth readmission rate slightly decreased (17.2% to 17.0%).
- CHIA has found variation in rates of readmission by hospital.<sup>1</sup>

<sup>1</sup> Center for Health Information and Analysis. Hospital-Wide Adult All-Payer Readmissions and Revisits in Massachusetts. Available at <https://www.chiamass.gov/hospital-wide-adult-all-payer-readmissions-and-revisits-in-massachusetts/>

# ANNUAL PREVENTABLE HOSPITAL ADMISSIONS PER 1,000 ORIGINAL MEDICARE BENEFICIARIES AGED 65+ IN 2021, BY STATE



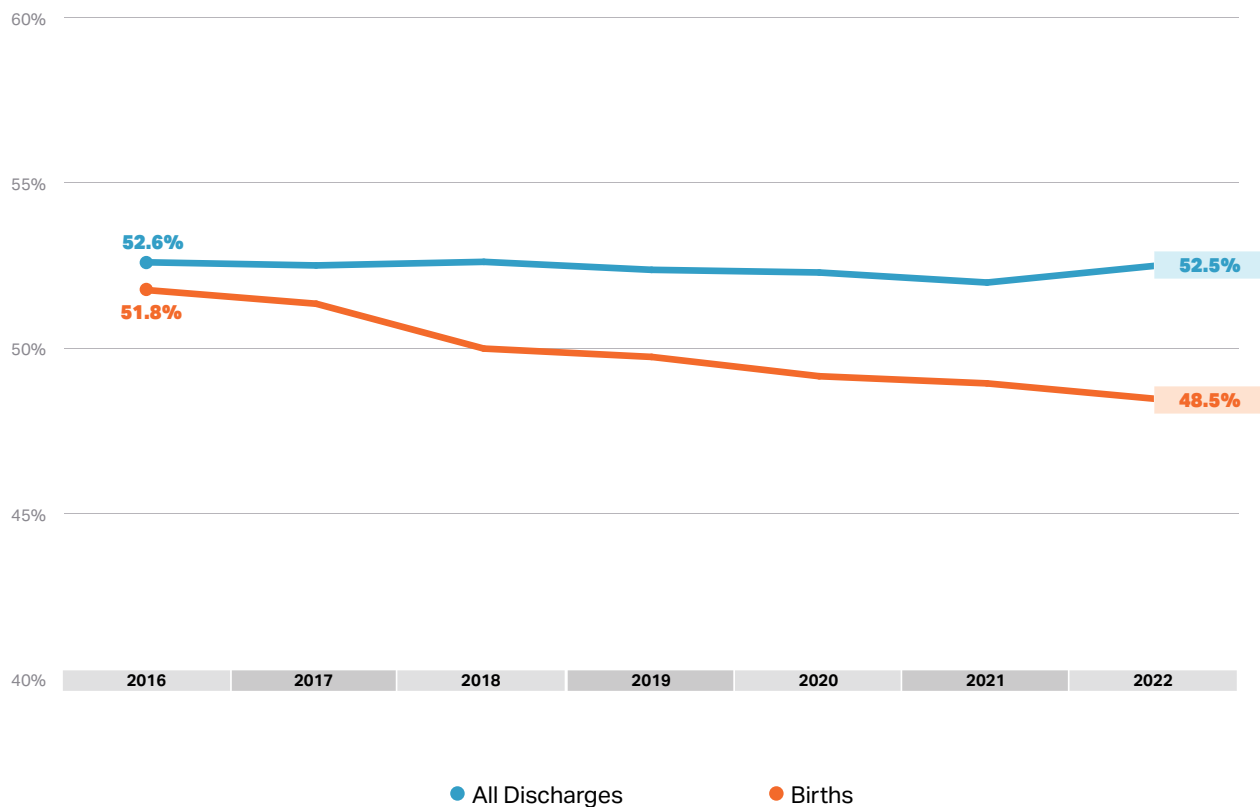
- Preventable hospitalizations are hospitalizations that could potentially have been treated in ambulatory care settings if they had been seen earlier (e.g., earlier visit to a PCP for UTI symptoms). They are considered an indicator for both quality of care and health care access.<sup>1</sup>
- In 2021, Massachusetts had the fourth-highest rate of preventable hospitalizations among Medicare beneficiaries in the U.S., at 35.8 visits per 1,000 beneficiaries.
- This rate was 27% higher than the national average.

NOTES: Data includes only beneficiaries enrolled in Original Medicare aged 65+ and combines admissions for the following ambulatory care-sensitive conditions: diabetes, COPD, asthma, hypertension, CHF, dehydration, bacterial pneumonia, UTI and lower extremity amputation. See technical appendix for additional details.

SOURCES: HPC analysis of the Center for Medicare and Medicaid Services Geographic Variation Public Use file, 2021

<sup>1</sup> County Health Rankings & Roadmap: Preventable Hospital Stays. Available at: <https://www.county-healthrankings.org/explore-health-rankings/county-health-rankings-model/health-factors/clinical-care/quality-of-care/preventable-hospital-stays?-year=2023>. Accessed on August 7, 2023.

# PERCENTAGE OF INPATIENT CARE OCCURRING IN COMMUNITY HOSPITALS, BY DISCHARGE TYPE, 2016–2022



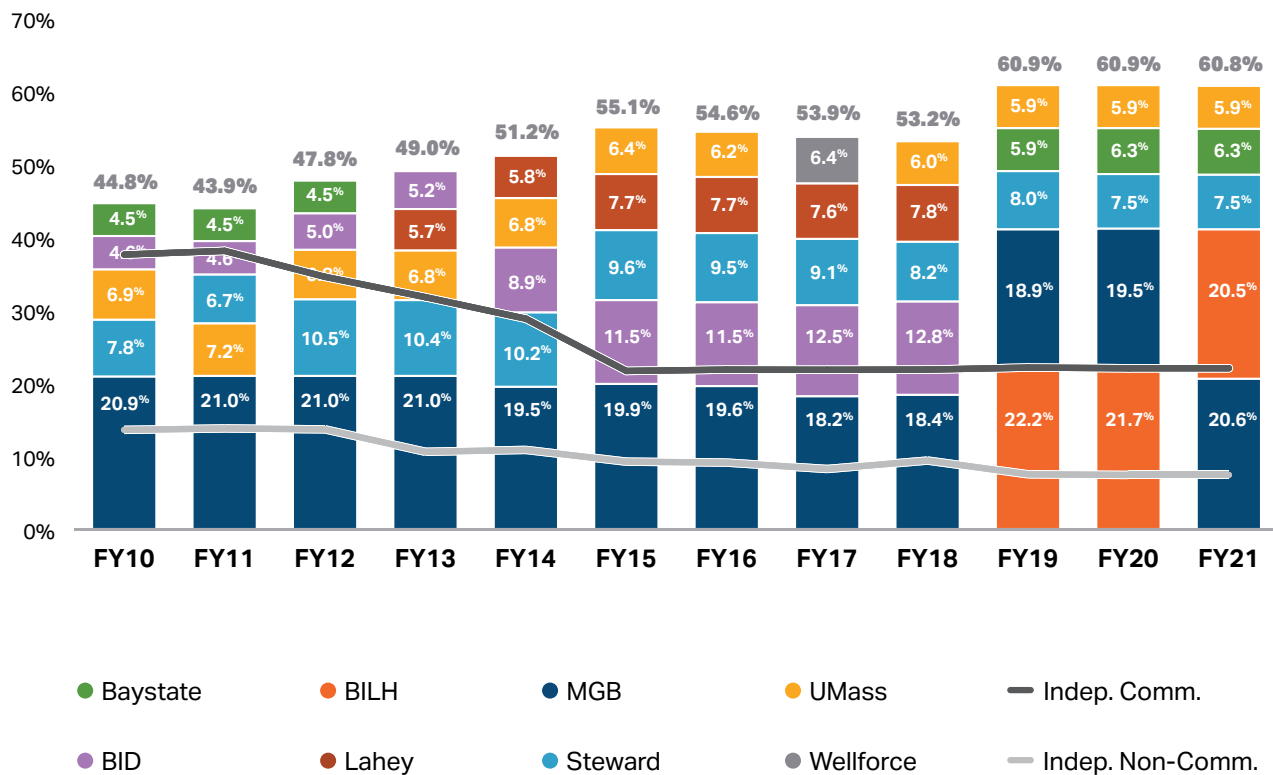
- The share of inpatient care occurring at community hospitals was roughly the same in 2022 as it was in 2016.
- In contrast, the share of births taking place at community hospitals declined steadily between 2016 and 2022, with a total drop of 3.3 percentage points from 51.8% to 48.5%. This means that births are more concentrated in AMCs and teaching hospitals than other types of inpatient discharges.
- Massachusetts is steadily losing community hospitals as providers of birth care: five community hospitals have closed their obstetric units since 2017.

HOSPITAL

NOTES: The Center for Health Information and Analysis defines community hospitals as general acute care hospitals that do not support large teaching and research programs.

SOURCES: HPC analysis of Center for Health Information and Analysis Hospitals Inpatient Discharge Database, CY2010-2022

# SHARE OF INPATIENT AND OUTPATIENT CARE IN THE FIVE LARGEST HOSPITAL SYSTEMS AND INDEPENDENT HOSPITALS, FY2010 – FY2021



- In Massachusetts, hospital care is increasingly provided by a small number of large provider systems. In FY2021, 61% of inpatient and outpatient care combined was provided at one of the five largest hospital systems. This share increased significantly in 2019 following the formation of Beth Israel Lahey Health (BILH), but has remained stable since then.
- BILH and Mass General Brigham (MGB) together provide 41% of the state's hospital-based care. Since 2019, the share provided by BILH has declined slightly, while the share provided by MGB has continued to increase slightly.

HOSPITAL

NOTES: Partners HealthCare changed its name to Mass General Brigham (MGB) in 2019. Inpatient care is measured in hospital discharges for general acute care services. Hospital outpatient care is measured in outpatient discharge equivalents, the quantity of outpatient services expressed in inpatient stay equivalents. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Hospital Cost Reports, FY2010-2021

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# POST-ACUTE CARE

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# INTRODUCTION

## POST-ACUTE CARE

Post-acute care (PAC) refers to a range of medical services that support a patient's rehabilitation and nursing care needs following a hospitalization. Depending on patient needs, these services may be delivered at home (through a home health agency) or in an institutional setting such as a skilled nursing facility (SNF), inpatient rehabilitation facility (IRF), or long-term care hospital (LTCH). Patients with a "routine" discharge are discharged to home with no formal post-acute care, but they may receive some services, such as physical therapy, on an outpatient basis.

PAC is a large category of health care spending, representing nearly \$51 billion and 14% of total Original Medicare (fee-for-service) spending nationwide. The HPC previously found that Massachusetts has higher rates of discharge to both institutional PAC and home health than the U.S. average, across all payers, contributing to higher PAC spending. In 2021, Massachusetts Medicare spending on PAC totaled nearly \$1.6 billion, and annual PAC spending per beneficiary in Massachusetts was 14.0% higher (\$230 more) than the U.S. average.<sup>1</sup>

Institutional PAC is considerably more expensive than home health, and the cost differential has grown recently. In 2021, Medicare spending in Massachusetts for a SNF stay was \$12,600 on average, representing an increase of more than \$2,100 from 2019. In contrast, the cost of a home health episode dropped by a third from 2019 to roughly \$2,100 in 2021.<sup>1</sup> The growing cost differential may be due to a variety of factors, such as payment increases during the COVID-19 pandemic or changes in patient acuity from previous years. For example, some lower acuity patients who may otherwise have used a SNF used home health instead, raising the average acuity of the remaining SNF patients, while home health patients may have used fewer services on average to reduce exposure to COVID-19.

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<sup>1</sup> HPC analysis of 2021 CMS Medicare Geographic Variation Public Use File.

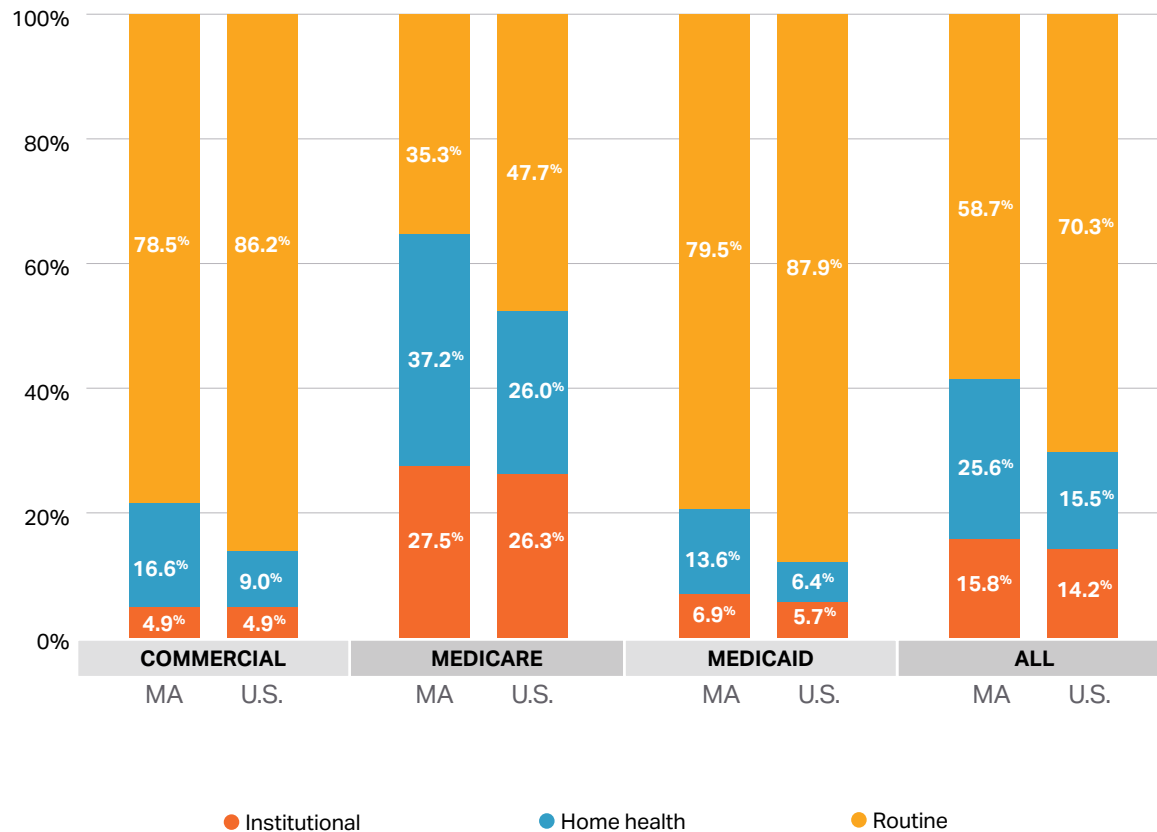


# KEY FINDINGS

## POST-ACUTE CARE

- Following a hospitalization, Massachusetts patients have a higher rate of discharge to institutional PAC and home health than the national average. The difference in home health discharge rates between Massachusetts and the U.S. has widened over time, with Massachusetts discharging to home health at a higher rate in comparison to other states.
- The percentage of Massachusetts hospital discharges to institutional PAC dropped by 3.4 percentage points from 2019 to 2022. After consistently increasing for a decade, rates of discharge to home health care also saw a small decline from 29.1% in 2020 to 27.4% in 2022. Meanwhile, routine discharges increased slightly from 56.1% in 2020 to 57.9% in 2022.
- The HPC also examined inpatient hip and knee replacement surgeries, which had been a major driver of the shift from institutional discharges to home health care in prior years. The total volume of inpatient hip and knee replacements fell dramatically in 2020 and continued to decline in 2021 and 2022. This decline was in large part due to the procedures being shifted to outpatient sites.

# USE OF POST-ACUTE CARE IN MASSACHUSETTS AND THE U.S., ALL DRGS, 2020

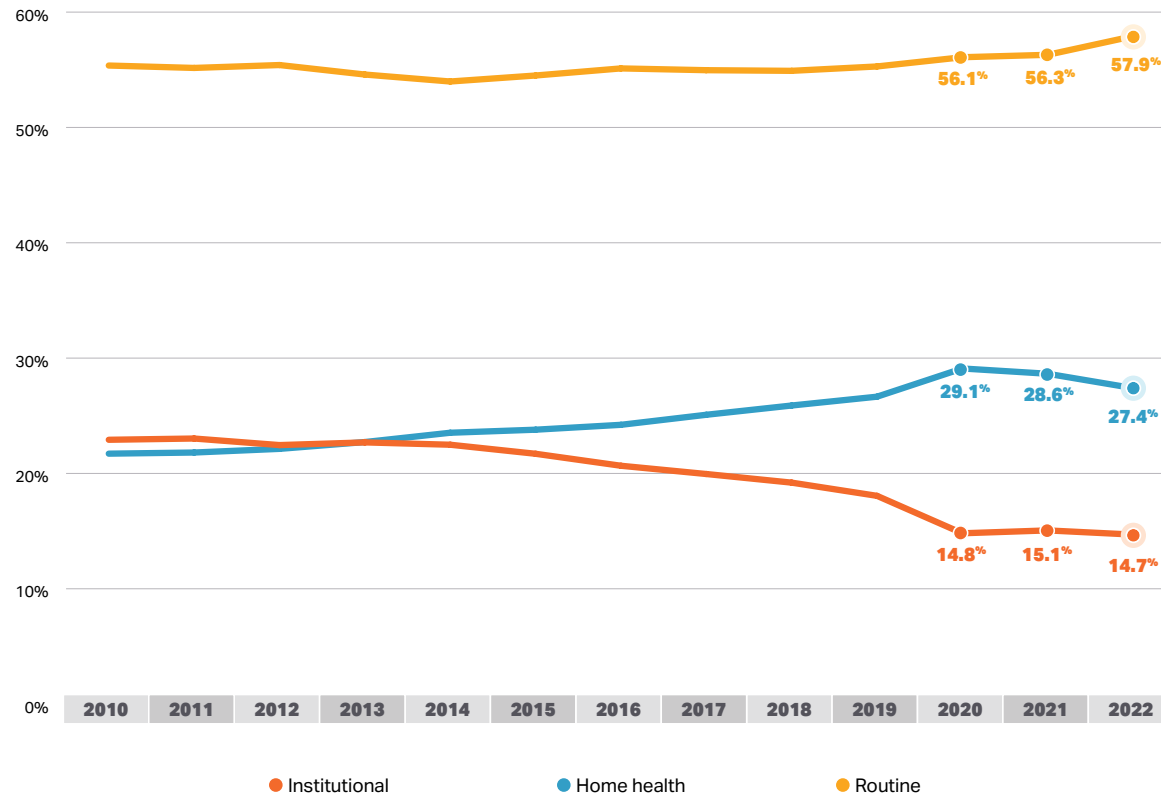


- Across all payers in 2020, Massachusetts had an institutional discharge rate that was 1.6 percentage points higher than the U.S. average and a discharge rate to home health that was 10.0 percentage points higher than the U.S. average (widening from 8.8 percentage points higher than the U.S. average in 2016).
- Patients covered by commercial insurance were nearly twice as likely to be discharged to home health care if they lived in Massachusetts compared to the rest of the nation.

NOTES: Institutional settings include skilled nursing facilities, inpatient rehabilitation facilities, and long-term care hospitals. Routine = discharge to home with no formal post-acute care. See technical appendix for details.

SOURCES: HPC analysis of Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample Survey and State Inpatient Sample, 2020

# POST-ACUTE CARE IN MASSACHUSETTS FOLLOWING HOSPITAL DISCHARGE, ALL DRGS, 2010–2022

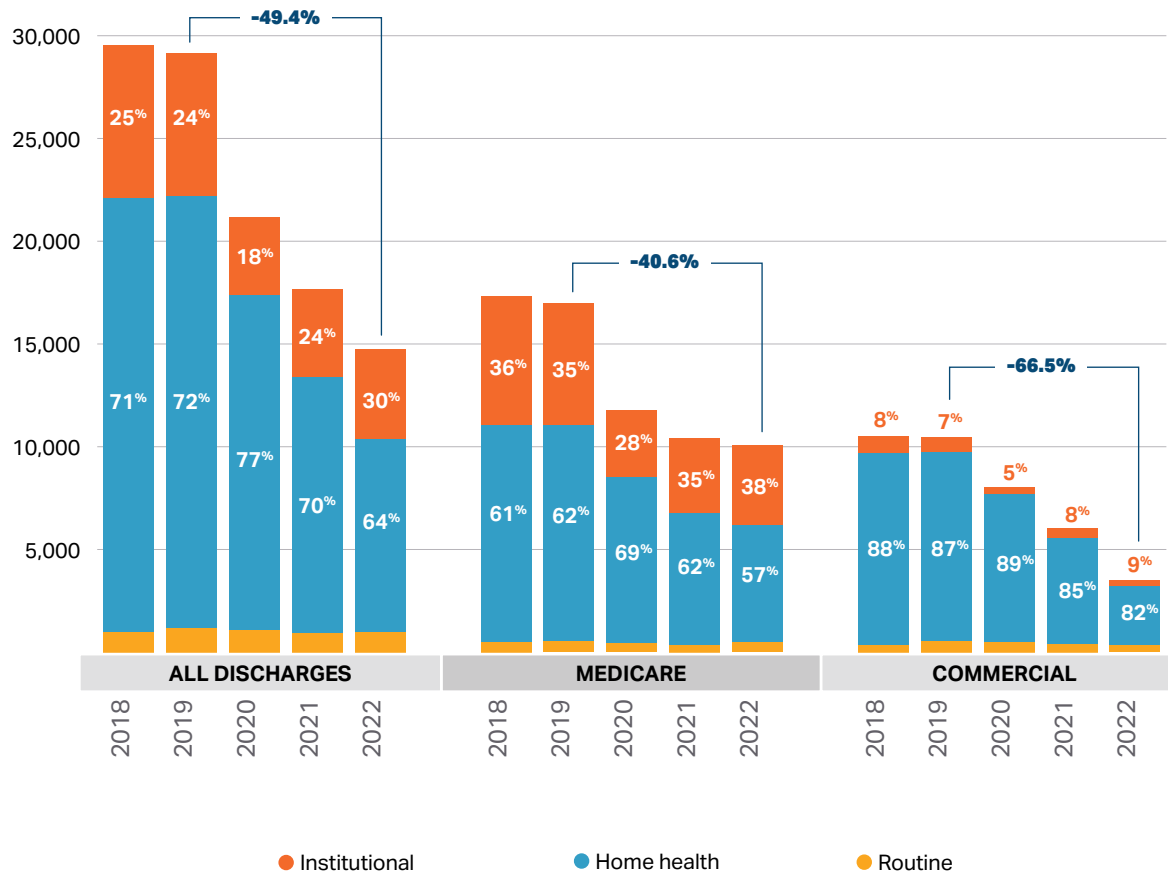


- The share of hospital stays after which a patient was discharged to institutional post-acute care settings dropped by 3.4 percentage points from 2019 to 2022 (from 18.1% to 14.7%), continuing a trend from prior years.
- Since 2010, the rate of discharge to institutional PAC has dropped steadily (8.2 percentage points in total); over 80% of the reduction occurred after 2015.
- After consistently increasing for a decade, rates of home health use saw a small decline from 29.1% in 2020 to 27.4% in 2022. Meanwhile, routine discharges increased slightly from 56.1% in 2020 to 57.9% in 2022.
- Rates are adjusted to control for changes in patient characteristics over time.

NOTES: Out of state residents and those under 18 are excluded. Institutional post-acute care settings include skilled nursing facilities, inpatient rehabilitation facilities, and long-term care hospitals. Rates adjusted using ordinary least squares (OLS) regression to control for age, sex, and changes in the mix of diagnosis-related groups (DRGs) over time. Specialty hospitals, except New England Baptist, were excluded. Several hospitals (UMass Memorial Medical Center, Clinton Hospital, Cape Cod Hospital, Falmouth Hospital, Marlborough Hospital) were excluded due to coding irregularities in the database. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, CY2010 – 2022

# POST-ACUTE CARE FOLLOWING HIP AND KNEE REPLACEMENTS BY PAYER, 2018–2022



- Changes in discharge patterns for hip and knee replacement surgeries have been a main driver of the overall shift to home health from institutional PAC in Massachusetts. Volume for these procedures declined dramatically in 2020, impacted by both the COVID-19 pandemic and a change in Medicare policy to allow coverage for these surgeries in an outpatient setting.
- The total volume of inpatient hip and knee replacements fell dramatically in 2020 and continued to decline in 2021 and 2022. This decline was in part due to patients deferring elective surgeries at the onset of the COVID-19 pandemic, and in part due to the procedures being shifted to outpatient sites. The reduction in inpatient procedures was more pronounced in the commercial sector.

PAC

NOTES: DRGs included 466, 467, 468, 469, 470, 521, 522. Out of state residents and those under 18 are excluded. Specialty hospitals, except New England Baptist, were excluded. Several hospitals (UMass Memorial Medical Center, Clinton Hospital, Cape Cod Hospital, Falmouth Hospital, Marlborough Hospital) were excluded due to coding irregularities in the database. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database CY 2018-2022

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# **PROVIDER ORGANIZATION PERFORMANCE VARIATION**

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# INTRODUCTION

## PROVIDER ORGANIZATION PERFORMANCE VARIATION

- This section of the Chartpack analyzes the performance of provider organizations in the Commonwealth and includes measures of medical spending, inpatient and emergency department (ED) utilization, and low value care. Analyzing variation in performance among provider organizations across a range of spending and utilization measures allows for identification of areas for improvement in efficiency and care delivery across the Commonwealth.
- Many of the analyses in this Chartpack rely on attribution of patients to a primary care provider (PCP) (referred to in this Chartpack as PCP-attributed patients) based on data in the Massachusetts All-Payer Claims Database (APCD), and attribution of PCPs to their affiliated provider organizations based on data from the 2021 Registration of Provider Organizations (RPO). The RPO data were supplemented with a 2021 commercial database obtained from IQVIA, which has information on additional Massachusetts providers including nurse practitioners. Details of the attribution methodology have been previously published<sup>1</sup> and can also be found in the technical appendix.
- Using the attribution methodology, we report on a cohort of patients with commercial insurance through Blue Cross Blue Shield of Massachusetts, Tufts Health Plan, Harvard Pilgrim Health Plan, Health New England, Anthem, and MGB Health Plan who were attributed to PCPs affiliated with one of the fourteen largest provider organizations in the state. The 2021 cohort was approximately 800,000 patients.
- Results in this section (with the exception of total medical spending, categorical spending, and low value care measures) have been statistically adjusted for differences in age, sex, health status, insurer and product type, and community-level variables related to education and socioeconomic status.

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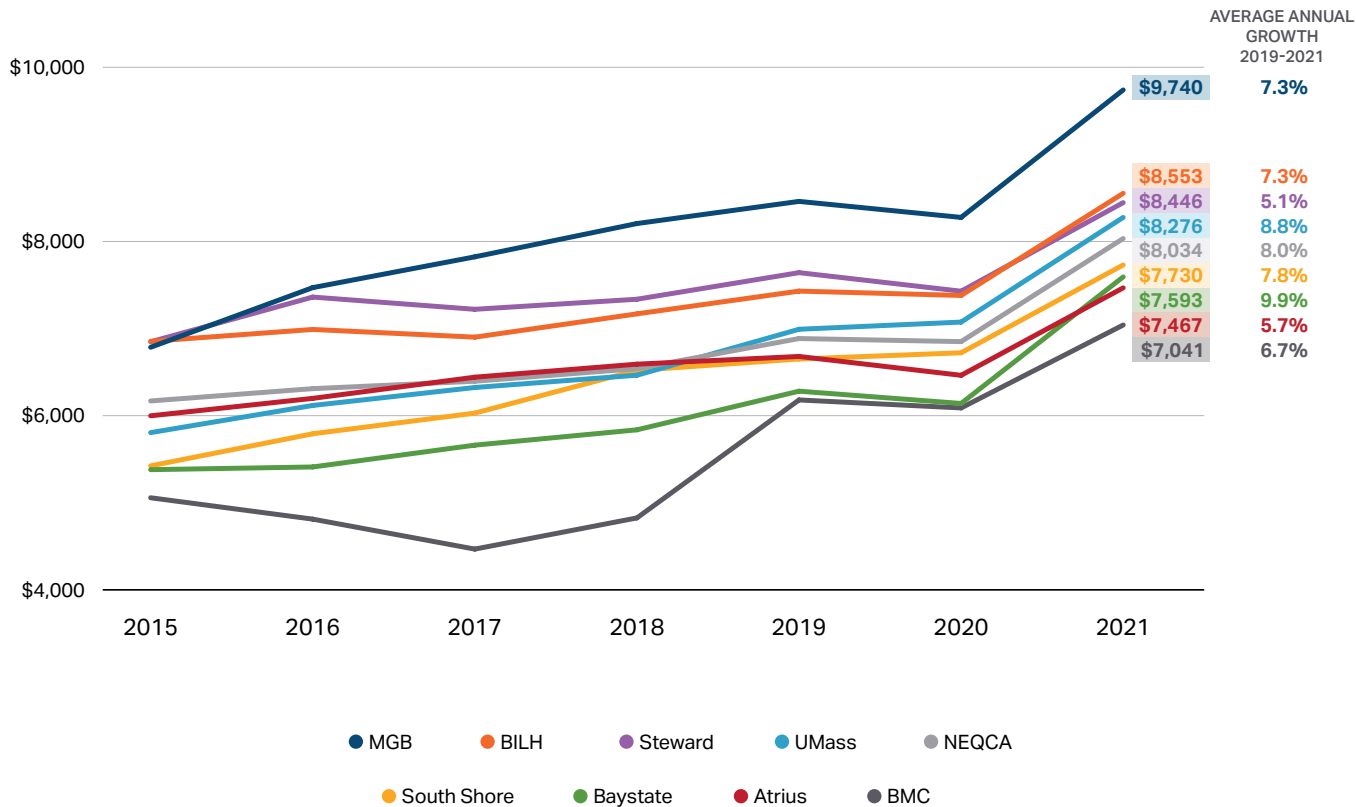
<sup>1</sup> Massachusetts Health Policy Commission. 2017 Cost Trends Report. March 2018.

# KEY FINDINGS

## PROVIDER ORGANIZATION PERFORMANCE VARIATION

- Overall medical spending grew 15.3% from 2019-2021 for the nine largest provider groups in Massachusetts. Steward had the smallest annual growth in medical spending over this time period (5.1%) while Baystate had the largest annual increase (9.9%).
- Medical spending associated with individuals attributed to MGB primary care providers is higher than other provider organizations, having grown 6.2% annually between 2015 and 2021 versus 4.8% annually for all other provider groups. In 2021, MGB-attributed patients had unadjusted total medical spending (\$9,740) that was 13.9% higher than the next highest-spending group (BILH; \$8,553).
- MGB primary care patients also had the highest medical claims spending in 2021 after adjusting for patient age, sex, health status, payer, product, and community-level variables related to socio-economic status. This adjusted spending averaged \$7,119, 32% higher than the lowest spending group, Southcoast-attributed patients (\$5,413).
- Provider group spending on hospital outpatient care varied more than other categories of care, with spending of \$2,869 for MGB-attributed patients compared to \$1,412 for Reliant-attributed patients.
- The average rate of potentially avoidable visits was 37 per 1,000 patients, with rates by provider organization ranging from 28 (Atrius-attributed patients) to 63 (Boston Medical Center-attributed patients).
- Imaging rates varied substantially by provider group. CT utilization per 1,000 ranged from 168 for Wellforce-attributed patients to 210 (25% higher) for Signature Brockton attributed patients. MRI utilization per 1,000 ranged from 119 for Reliant patients to 164 (38% higher) for UMass patients.
- Signature-attributed patients had the highest proportion of certain services treated in HOPD settings that can be safely provided in either HOPD or office settings (85%), over four times the proportion of Atrius-attributed patients (19%).
- Use of seventeen low value screening, testing, imaging, and prescription services was relatively common in 2021 with more than 100,000 (of 1,417,678) patients receiving at least one such service. Provision of low value care varied across provider organizations often by a factor of two.

# UNADJUSTED TOTAL MEDICAL SPENDING PER MEMBER PER YEAR BY PROVIDER ORGANIZATION FOR THE NINE LARGEST PROVIDER GROUPS, 2015–2021



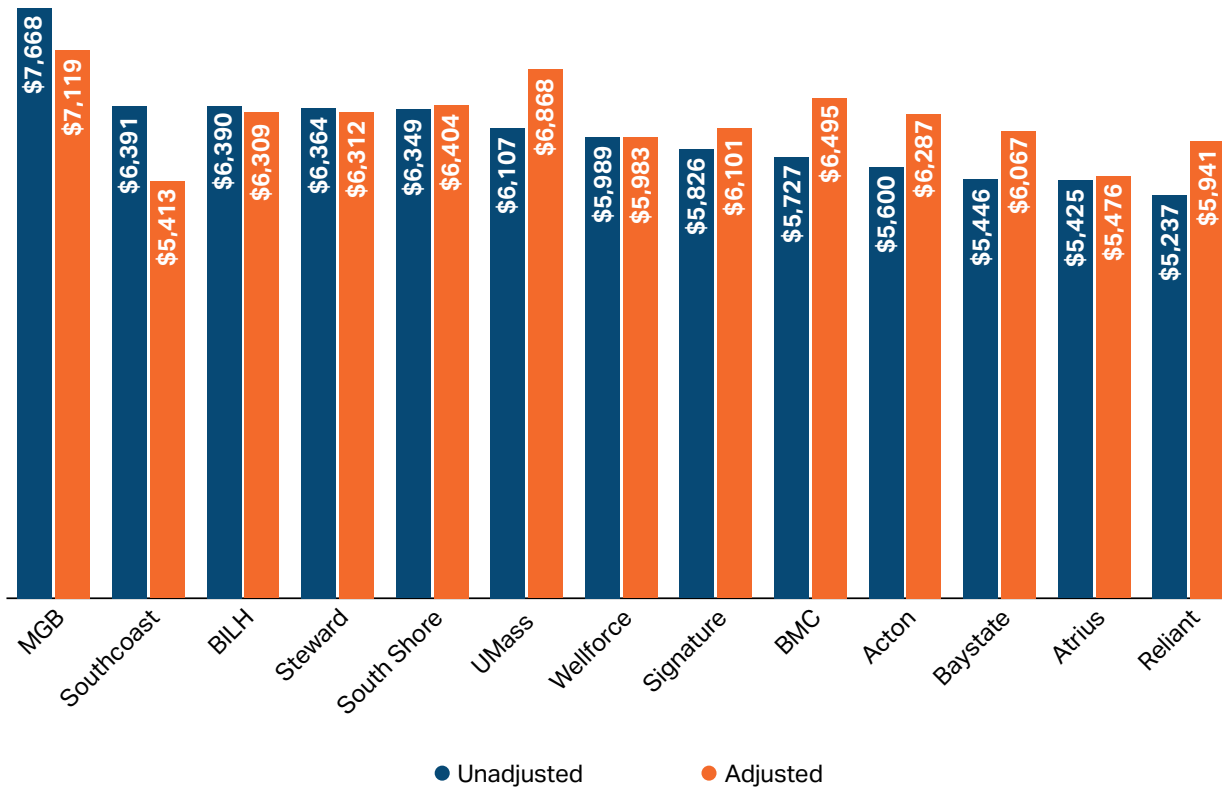
- Average annual spending grew between 5.1% and 9.9% from 2019 and 2021 across provider groups, all exceeding the benchmark growth rate.
- MGB-attributed patients had the highest unadjusted total medical spending in 2021 (\$9,740), 13.9% higher than the next highest-spending group (BILH; \$8,553). Their spending has grown 6.2% annually from 2015 to 2021 on average, compared to an average of 4.8% for all other groups.

NOTES: TME = total medical expenses. Analysis includes full commercial claims only and includes all payers except BMCHP and THPP. Partners HealthCare changed its name to Mass General Brigham (MGB) in 2019. Beth Israel Deaconess Care Organization (BIDCO) and Lahey Hospital and Medical Center merged in 2019 and became Beth Israel Lahey (BILH). BIDCO and Lahey data were reported separately by CHIA until 2021.

SOURCES: HPC analysis of Center for Health Information and Analysis 2018, 2019, 2021, 2022, and 2023 Annual Report TME Databooks



# UNADJUSTED AND ADJUSTED MEDICAL CLAIMS SPENDING PER MEMBER PER YEAR (EXCLUDING PRESCRIPTION DRUG SPENDING) BY PROVIDER ORGANIZATION, 2021

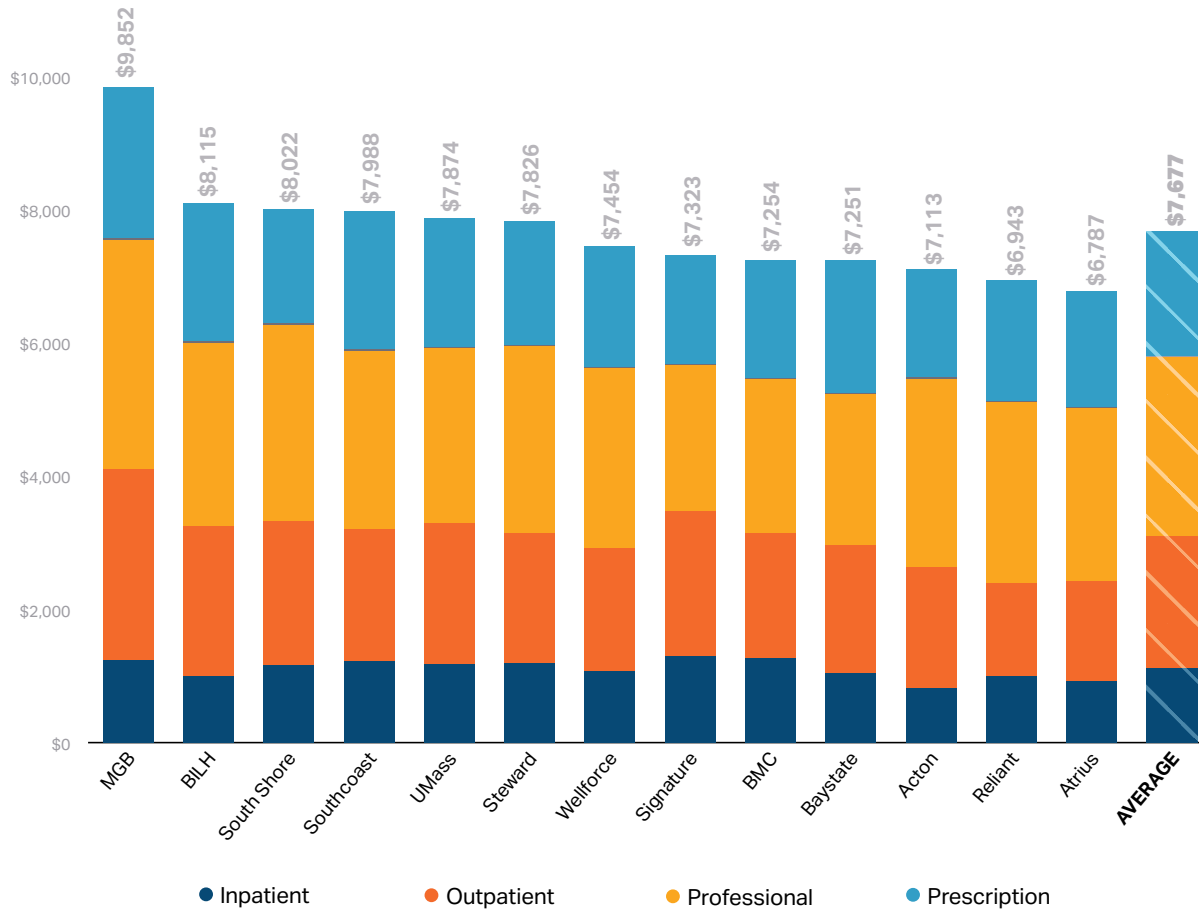


- The HPC calculated unadjusted medical spending and spending adjusted for the following factors: age, sex, risk score, payer, product, and community-level variables related to socioeconomic status. Differences in risk score by organization may be affected by differences in coding behavior.
- MGB-attributed patients had the highest unadjusted and adjusted total medical spending in 2021. At \$7,119 per member per year (PMPY), MGB-attributed adjusted spending was 4% higher than the next highest group (UMass-attributed patients), 15% higher than the average of the groups shown here (\$6,213), and 32% higher than the lowest spending group (Southcoast-attributed patients).
- Differences in unadjusted spending were greater than differences in adjusted spending. MGB-attributed patients had unadjusted spending 46% higher than spending for Reliant-attributed patients.

NOTES: PMPY: Per member per year. Prescription drug spending and non-claims-based spending excluded. Spending results are for commercial attributed adults with 12 months of continual medical insurance coverage (N=786,327). BILH is the consolidated previous organizations of BIDCO and Lahey. Prescription drug spending is excluded from this analysis to increase the size of the population included in the analysis, as not all patients with 12 months of continual medical coverage had 12 months of continual prescription drug insurance coverage. Health status adjustment has been processed by software called The Johns Hopkins ACG® System © 1990, 2017, Johns Hopkins University. All Rights Reserved. Average is calculated across provider organizations. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

# UNADJUSTED TOTAL SPENDING PER MEMBER PER YEAR BY CATEGORY OF SPENDING AND PROVIDER ORGANIZATION, 2021

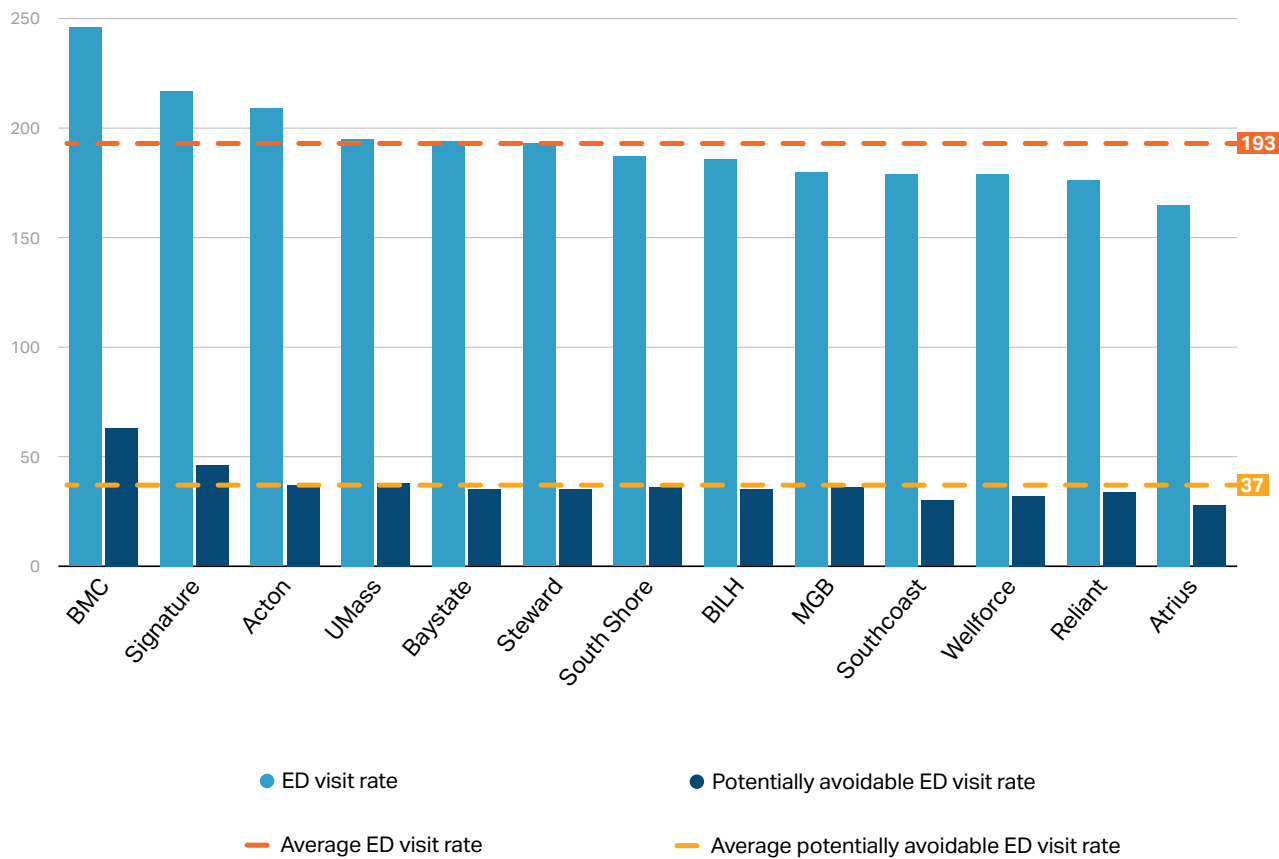


- Average unadjusted per member per year (PMPY) spending was \$7,677. MGB-attributed patients had the highest PMPY spending at \$9,852 and Atrius-attributed patients had the lowest at \$6,787.
- MGB-attributed patients had the highest spending in every category of care except inpatient spending: hospital outpatient spending was \$2,869 (44% above the average); professional spending was \$3,438 (28% above the average); prescription drug spending was \$2,275 (21% above the average). Signature-attributed patients had the highest inpatient spending, \$1,301 (17% above the average).
- Hospital outpatient spending varied the most among provider groups by dollar amount (\$1,457 difference per member per year between MGB-attributed patients and Reliant-attributed patients).

NOTES: Spending in other categories comprised less than 1% for all organizations. Individuals without 12 months of prescription drug insurance coverage were excluded. Spending results are for commercial attributed adults with 12 months of continual medical insurance coverage (N=568,849). BILH is the consolidated previous organizations of BIDCO and Lahey. Average is calculated across provider organizations. Hospital inpatient and outpatient spending include facility spending only. Professional spending associated with these sites of care is included in "Professional". See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

# TOTAL AND POTENTIALLY AVOIDABLE EMERGENCY DEPARTMENT UTILIZATION PER 1,000 ATTRIBUTED PATIENTS, 2021

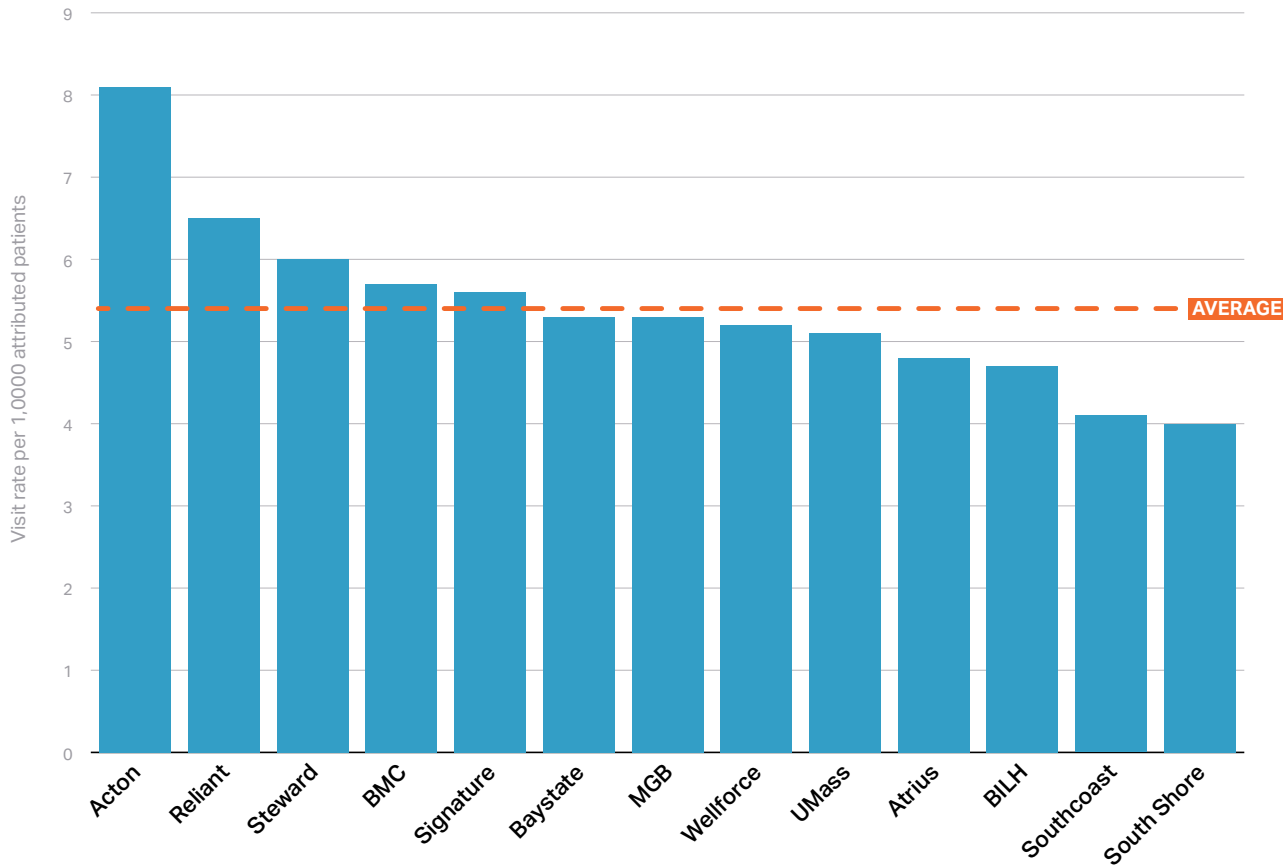


NOTES: Potentially avoidable ED visits are based on the Billings algorithm. Results reflect commercial attributed adults, at least 18 years of age with 12 months of continual medical insurance coverage (N=786,327). Results are adjusted for differences in age, sex, health status, and community-level variables related to education and socioeconomic status. Average is calculated across provider organizations. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

- Overall ED utilization and potentially avoidable ED utilization may indicate inefficient use of acute care resources, as well as opportunities to improve access to primary care, urgent care, and other community-based social and behavioral health services.
- The adjusted average commercial ED utilization rate across providers was 193 ED visits per 1,000 attributed commercial patients. ED utilization varied by 49% among provider organizations, from 246 per 1,000 among patients attributed to Boston Medical Center (BMC)-affiliated PCPs to 165 per 1,000 among patients attributed to Atrius-affiliated PCPs.
- The percentage of ED visits classified as potentially avoidable varied from 17% to 25% across organizations (not shown). The average rate of potentially avoidable visits was 37 per 1,000 patients, with rates ranging from 28 (Atrius-attributed patients) to 63 (BMC-attributed patients).

# MENTAL HEALTH-RELATED EMERGENCY DEPARTMENT UTILIZATION PER 1,000 ATTRIBUTED PATIENTS, 2021

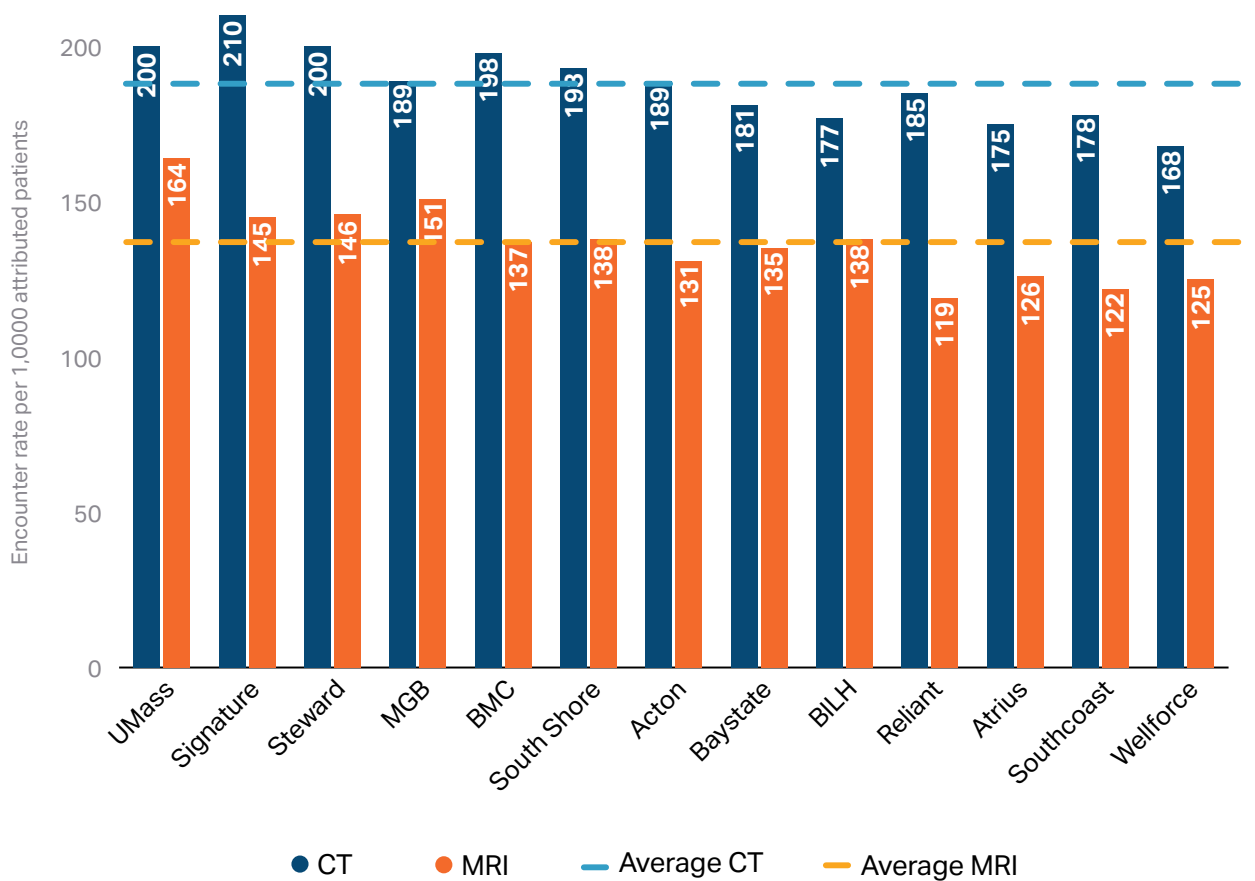


- Mental health-related ED utilization may indicate poor access to outpatient behavioral health care, as some patients may seek care in the ED if care in other settings is not available to address or manage their behavioral health needs.
- In 2021, Acton-attributed patients had the highest rate of mental health-related ED visits at 8.1 per 1,000. This was 102% higher than for South Shore-attributed patients, which had the lowest rate of mental-health related ED visits at 4.0 per 1,000.

NOTES: MH visits were defined using AHRQ CCSR MBD001-MDB034. Results reflect commercial attributed adults, at least 18 years of age with 12 months of continual medical insurance coverage (N= 786,327). Results are adjusted for differences in age, sex, health status, and community-level variables related to education and socioeconomic status. Average is calculated across provider organizations. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

# CT AND MRI ENCOUNTERS PER 1,000 PATIENTS, 2021



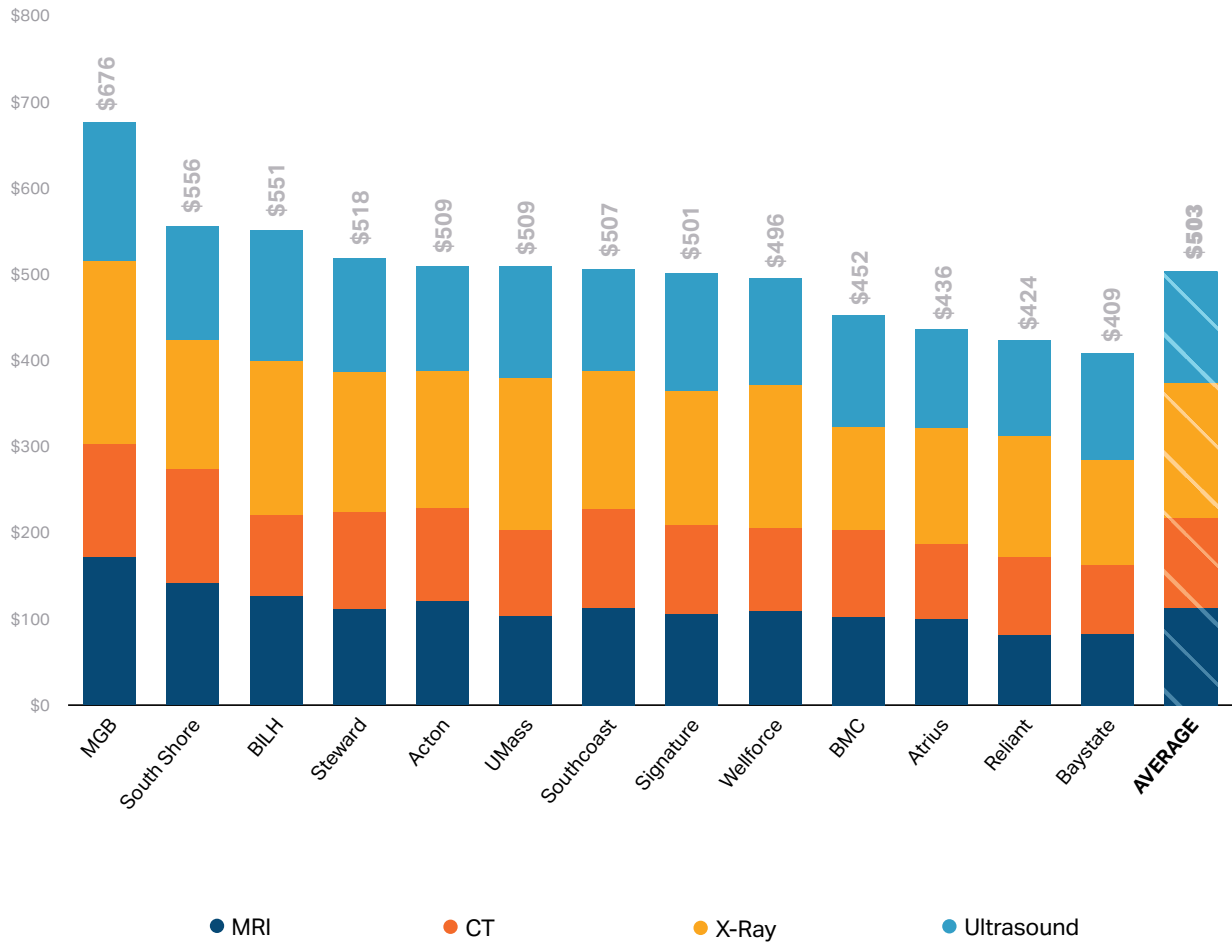
- CT and MRI imaging are high-cost services. Research has shown that imaging is also frequently an overused service.<sup>1</sup> Variation in utilization rates, adjusted for patient characteristics, suggests opportunities for more appropriate use of imaging services.
- Patients attributed to UMass had the highest total rate of imaging, with 364 combined CT and MRI encounters per 1,000 patients.
- For CT encounters, Signature-attributed patients had the highest utilization rate of 210 encounters per 1,000 patients, which was 12% above the average of 188 encounters per 1,000 attributed patients and 25% above the lowest rate, which was among patients attributed to Wellforce (168 encounters per 1,000).
- UMass-attributed patients had the highest MRI utilization with 164 encounters per 1,000 attributed patients, 20% above the average of 137 and 38% above the lowest rate, which was among patients attributed to Reliant (119 encounters per 1,000).

NOTES: Results reflect commercial attributed adults, at least 18 years of age with 12 months of continual medical insurance coverage (N= 786,327). Results are adjusted for differences in age, sex, health status, and community-level variables related to education and socioeconomic status. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

(1) Mafi et al. (2021). Trends in low-value health service use and spending in the US Medicare fee-for-service program, 2014-2018. JAMA, 4(2).

# AVERAGE IMAGING SPENDING PER ATTRIBUTED MEMBER PER YEAR BY PROVIDER ORGANIZATION, 2021

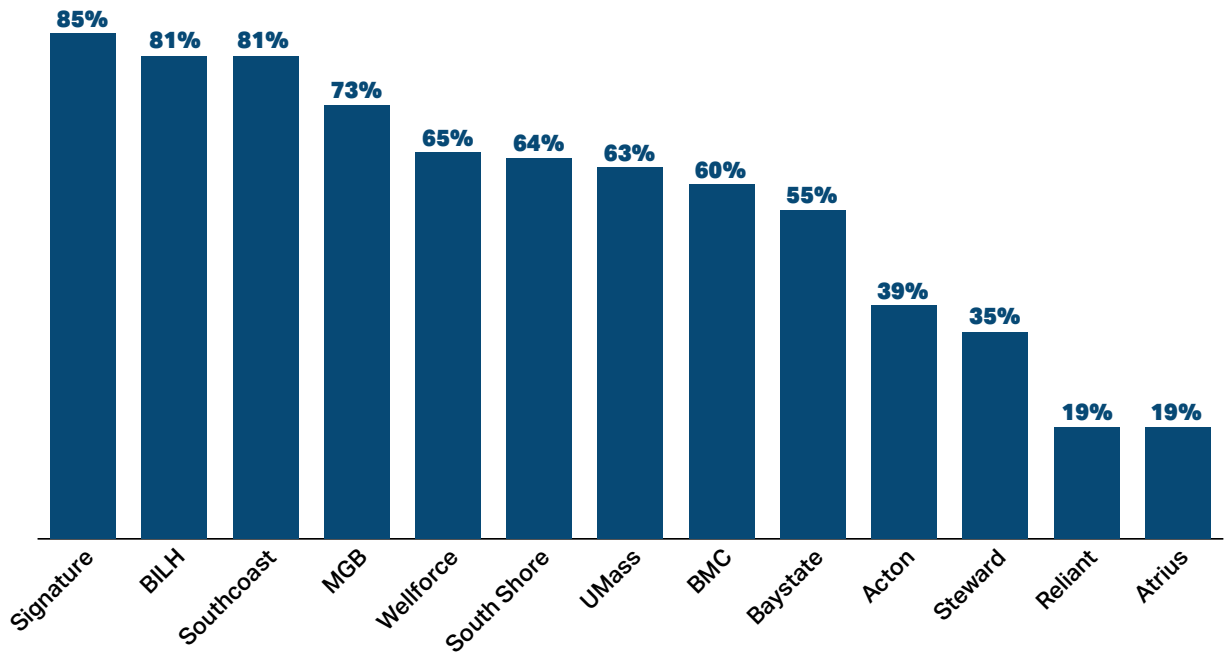


- Unadjusted imaging spending per member per year (PMPY) averaged \$503 in 2021 and reflects variation in both utilization and prices. MGB-attributed patients had the highest PMPY imaging spending at \$676 and Baystate-attributed patients had the lowest at \$409.
- MGB-attributed patients had the highest spending for every service except CT scans: MRI spending was \$171 (52% above the average); X-Ray spending was \$212 (36% above the average); ultrasound spending was \$160 (23% above the average).
- South Shore-attributed patients had the highest spending for CT scans per patient, at \$133, or 28% above the average.
- MRI spending varied the most among providers by percentage difference: spending for MGB-attributed patients was \$171 PMPY, 113% higher than spending for Reliant-attributed patients (\$81).

NOTES: Data include commercial attributed adults at least 18 years of age with 12 months of continual medical insurance coverage (N=786,327). Average is calculated across provider organizations. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

# PERCENT OF SELECT ENCOUNTERS AT A HOPD, ADJUSTED 2021



- The HPC analyzed the percentage of certain service encounters that took place at a hospital outpatient department (HOPD) which could have taken place at either an office or HOPD. Most payers pay more for the same services when provided in a HOPD than in an office setting.
- Across provider groups, after adjusting for differences in age, sex, health status, and community-level variables related to education and socioeconomic status, the average percentage of these service encounters that took place in a HOPD was 57%.
- Signature-attributed patients had the highest rate of these service encounters occurring at HOPDs. At 85%, this rate was 66 percentage points above that of Atrius-attributed patients. Atrius and Reliant are the only provider systems that do not include a hospital.

NOTES: Results reflect commercial attributed adults, at least 18 years of age that received at least one of 458 procedure codes with the potential for service at a HOPD location, either in professional claims or potentially HOPD lab services. The parameters for these codes was between 20% and 80% of possible service locations being HOPD locations and with at least 100 encounters by volume for each procedure code. Results reflect commercial attributed adults, at least 18 years of age with 12 months of continual medical insurance coverage (N= 786,327). Results are adjusted for differences in age, sex, health status, and community-level variables related to education and socioeconomic status. Average is calculated across provider organizations. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

# LOW VALUE CARE

## PROVIDER ORGANIZATION PERFORMANCE VARIATION



# INTRODUCTION

## LOW VALUE CARE

Low value care (LVC) in this section refers to medical services recognized by clinicians as not based on evidence and typically unnecessary for any patient, based on research compiled in the Choosing Wisely® recommendations.<sup>1</sup> Provision of these services to patients often involves additional unnecessary follow-up care (“cost cascades”),<sup>2</sup> financial cost to both the patient and health care system, medical risk (in some cases), and time and physical or emotional distress with little or no clinical benefit. Over the years, researchers have established algorithms to identify some of these services in claims databases such as the APCD<sup>3</sup>, though many other low-value care services are best identified using electronic health records that includes information such as lab values and family medical history. While LVC services identified in this manner may not represent a large portion of overall medical spending, or even necessarily a large portion of all LVC services, the services highlighted in this section can serve as a focal point for sharing best evidence-based practices and orienting health systems toward patient well-being.<sup>4</sup>

In its previous Cost Trends Reports, the HPC focused on nine LVC measures across four domains (screening, pre-operative tests, procedures, imaging).<sup>5</sup> The following charts report on these same measures using claims data from 2020 and 2021. In addition, this year’s section adds a new LVC domain, prescriptions, and eight new LVC measures: unnecessary preoperative testing (preoperative EKG, Chest X-ray, and pulmonary function testing) which replaces

the previous chest radiograph measure, unnecessary imaging for heel pain, unnecessary imaging for low-back pain, unnecessary antibiotics, concurrent antipsychotics, concurrent anticholinergics, chronic benzodiazepines, and gabapentinoids for non-neuropathic pain. Generally, the HPC identified cases where a patient received a low value service, excluding cases when their medical claims history indicates that the procedure may be warranted, such as individuals with imaging for heel pain who had a recent prior surgery.

This year, to improve comparability across metrics, the HPC reports LVC utilization rates per 1,000 members attributed to the provider organization (rather than per 100 members whose diagnosis and utilization history exposed them to the potential for an LVC service). Therefore, this year’s results are not directly comparable to the results of previous chartpacks.

The HPC selected these measures based on published literature, relatively high prevalence and spending in commercial populations, ability to be identified using APCD claims data, and availability of specifications using ICD-10 codes. Specific codes and sources for all measures can be found in the technical appendix of this report. While the measures presented do not capture the full extent of LVC in the Commonwealth, they are illustrative of the prevalence of such care, the variation in care, and the associated spending in the Massachusetts commercial population.

1 Choosing Wisely®. ABIM Foundation; 2022. <https://abimfoundation.org/what-we-do/choosing-wisely>.

2 Ganguli, I., Lupo, C., Mainor, A. J., et al (2019). Prevalence and cost of care cascades after low-value preoperative electrocardiogram for cataract surgery in fee-for-service Medicare beneficiaries. *JAMA internal medicine*, 179(9), 1211-1219.

3 Schwartz, A. L., Jena, A. B., Zaslavsky, A. M., & McWilliams, J. M. (2019). Analysis of physician variation in provision of low-value services. *JAMA internal medicine*, 179(1), 16-25.

4 Beckman, H., Mafi J., and Bortz B. "A 10-step program to successfully reduce low-value care." *The American Journal of Managed Care* 27.6 (2021): e208-e213.

5 Massachusetts Health Policy Commission. 2022 Cost Trends Report. September 2022.

# 2021 LOW VALUE CARE SUMMARY (AMONG 1,417,678 COMMERCIALY-INSURED PATIENTS)

## NON-PRESCRIPTION DRUG LOW VALUE CARE MEASURES

### Screening

- T3 (Thyroid) screening for patients with hypothyroidism
- Cardiac stress testing for patients with an established diagnosis of ischemic heart disease or angina
- Vitamin D screening for patients without chronic conditions

### Testing

- Baseline labs in patients without significant systemic disease undergoing low risk surgery
- Pre-operative EKG, chest X-ray, and pulmonary function Testing

### Procedures

- Spinal injections for lower back pain

### Imaging

- Low value DEXA bone density scans
- Brain imaging for simple syncope
- Imaging for low back pain
- Imaging for heel pain

## LOW VALUE CARE PRESCRIPTION DRUG MEASURES

- Antibiotics for acute upper respiratory and ear infections
- Concurrent use of two or more antipsychotic drugs
- Chronic use of benzodiazepines for more than 180 days
- Gabapentinoids for non-neuropathic pain
- Concurrent use of two or more anticholinergic drugs



**100,691**

Total # of patients with at least 1 LVC service



**156,042**

Total # of LVC services identified



**\$12,255,356**

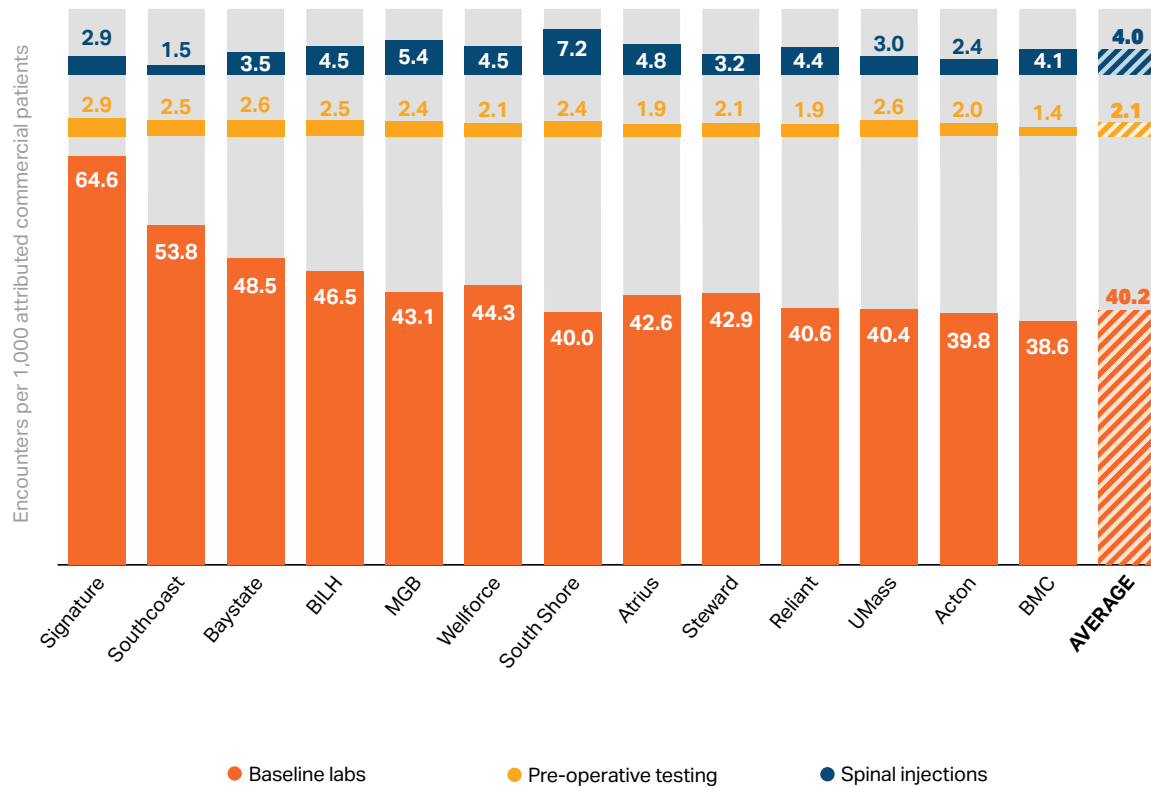
Total spending for LVC services



**1.8:1**

Spending variation across provider organizations

# LOW VALUE PREOPERATIVE TESTS AND PROCEDURES PER 1,000 ATTRIBUTED COMMERCIAL PATIENTS, 2021

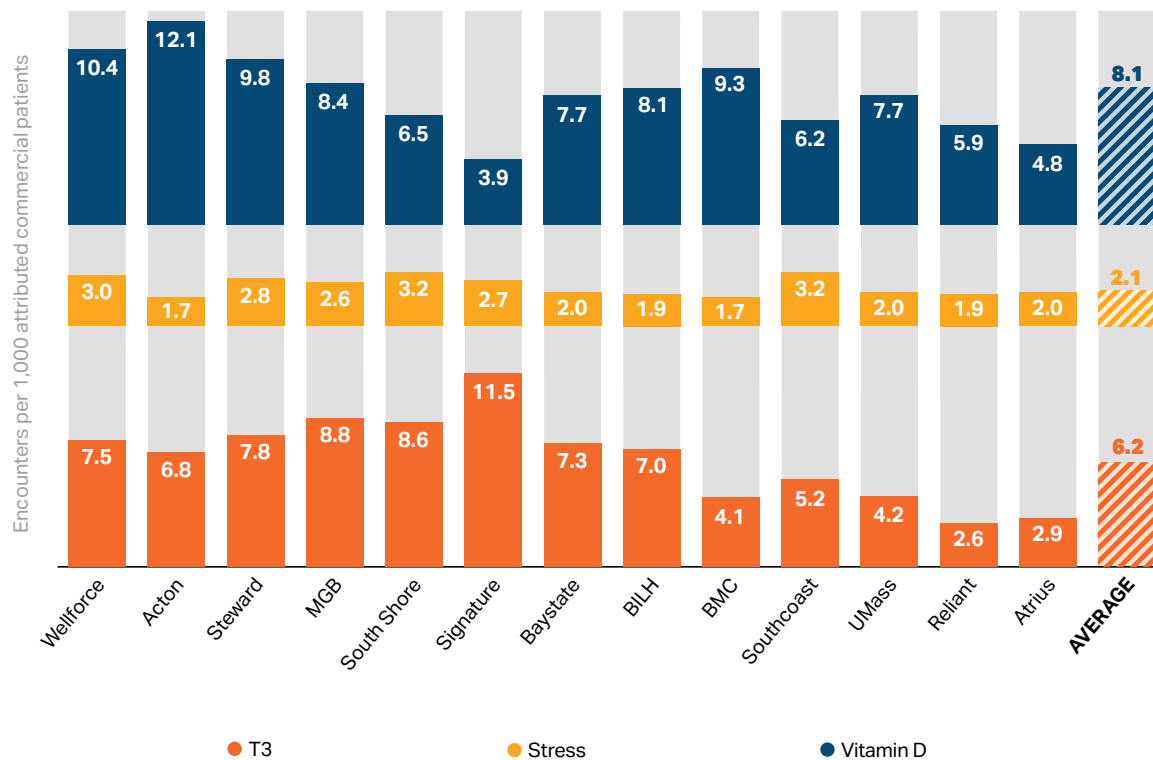


- Signature had the highest rate of baseline labs (64.6) for attributed patients, 67% higher than the baseline labs rate for BMC-attributed patients (38.6).
- Signature had the highest rate of pre-operative testing for attributed patients (2.9), which was 107% higher than the rate for BMC-attributed patients (1.4).
- South Shore had the highest rate of spinal injections at 7.2 per 1,000 attributed members, which was 369% greater than the rate for Southcoast, which had the lowest rate (1.5) for attributed members.

NOTES: Baseline labs = Baseline labs in patients without significant systemic disease undergoing low risk surgery; Preoperative testing: chest radiographs, pulmonary function testing, and EKG occurring less than 30 days before a low or intermediate risk surgical procedure (not associated with inpatient or emergency care). Based on a patient's medical history and inclusion criteria for each low value measure, a patient could be counted in multiple measures. Average reflects rate for all commercial patients, including patients not attributed to a listed provider organization, total services divided by total eligible members. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

# LOW VALUE SCREENINGS PER 1,000 ATTRIBUTED COMMERCIAL PATIENTS, 2021

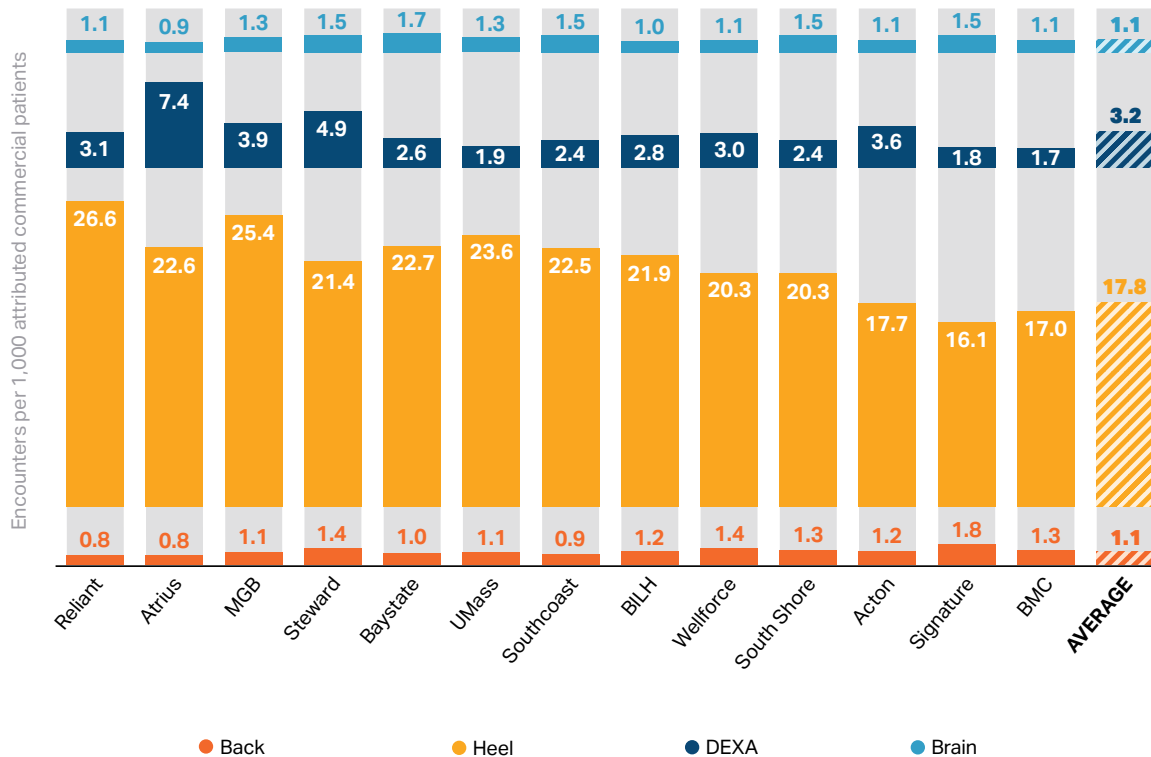


- Wellforce had the highest total rate of low value screenings (20.8 per 1,000 attributed members), 113% higher than for Atrius-attributed patients, which had the lowest (9.8).
- Signature had the highest rate of T3 testing (11.5) for attributed patients, 346% higher than for Reliant-attributed members (2.6).
- Southcoast had the highest rate of stress testing (3.2) for attributed patients, 94% higher than for BMC-attributed members (1.7).
- Acton had the highest rate of Vitamin D testing (12.1) for attributed patients, 210% higher than for Signature-attributed patients (3.9).

NOTES: T3 = Total or free T3 level measurement in a patient with a hypothyroidism diagnosis during the year; Stress = Stress testing for patients with an established diagnosis of ischemic heart disease or angina at least 6 month before the stress test, and thus not done for screening purposes; Vitamin D = Population based screening for 25-OH-Vitamin D deficiency. Based on a patient's medical history and inclusion criteria for each low value measure, a patient could be counted in multiple measures. Average reflects rate for all commercial patients, including patients not attributed to a listed provider organization, total services divided by total eligible members. Provider groups sorted left to right based on the sum of all 3 measures. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

# LOW VALUE IMAGING SERVICES PER 1,000 ATTRIBUTED COMMERCIAL PATIENTS, 2021



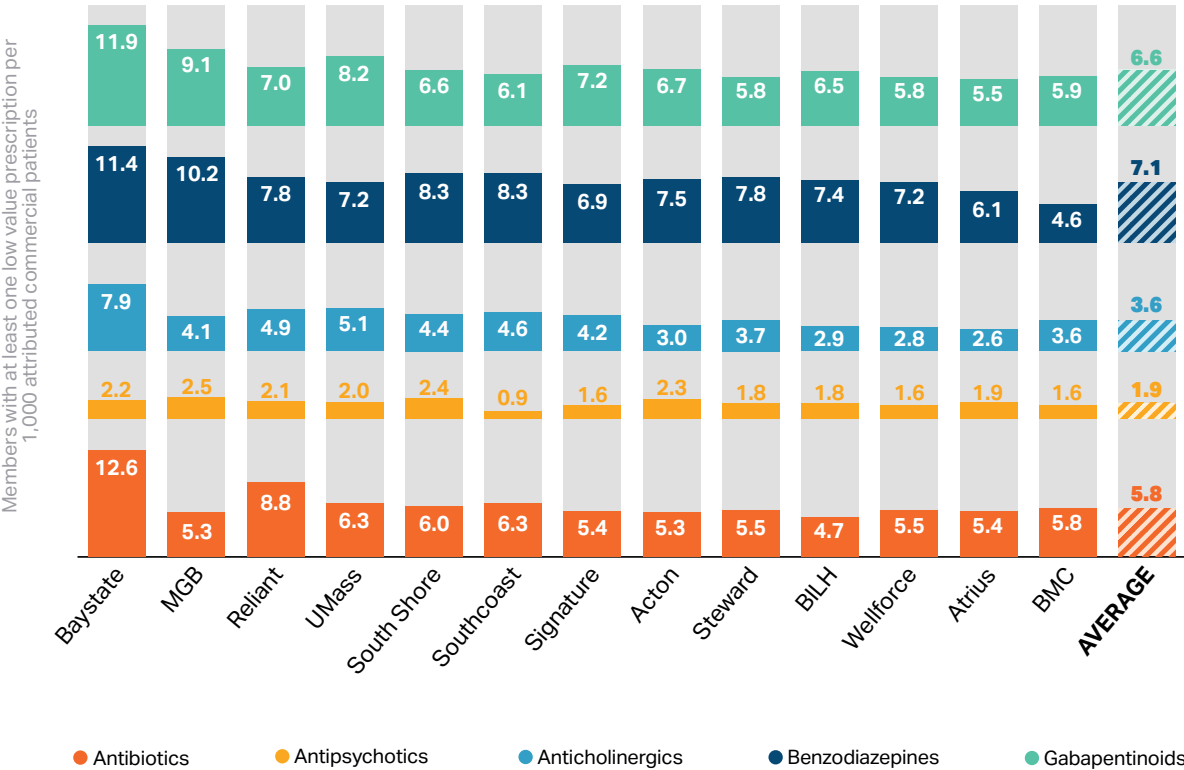
- Signature had the highest rate of low-value back imaging (1.8) for attributed members, 131% higher than for Atrius-attributed patients (0.8). Massachusetts had the 7th highest rate among states on a similar measure in 2021.<sup>1</sup>
- Reliant had the highest rate of heel imaging (26.6) for attributed members, 65% higher than for Signature-attributed patients (16.1).
- Atrius had the highest rate of DEXA scans (7.4) for attributed patients, 327% higher than for BMC-attributed patients (1.7).
- Baystate had the highest rate of brain imaging (1.7) for attributed patients, which was 90% higher than for Atrius-attributed patients (0.9).

NOTES: DEXA scans = low value DEXA scans (bone density scan). Brain imaging for simple syncope = low value MRI and CT scans for simple syncope. Heel pain = imaging services for heel pain. Back pain = imaging for back pain. Average reflects rate for all commercial patients, including patients not attributed to a listed provider organization, total services divided by total eligible members. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

<sup>1</sup> See the Commonwealth Fund 2023 State Scorecard, Appendix E1.

# LOW VALUE PRESCRIPTIONS PER 1,000 ATTRIBUTED COMMERCIAL PATIENTS, 2021

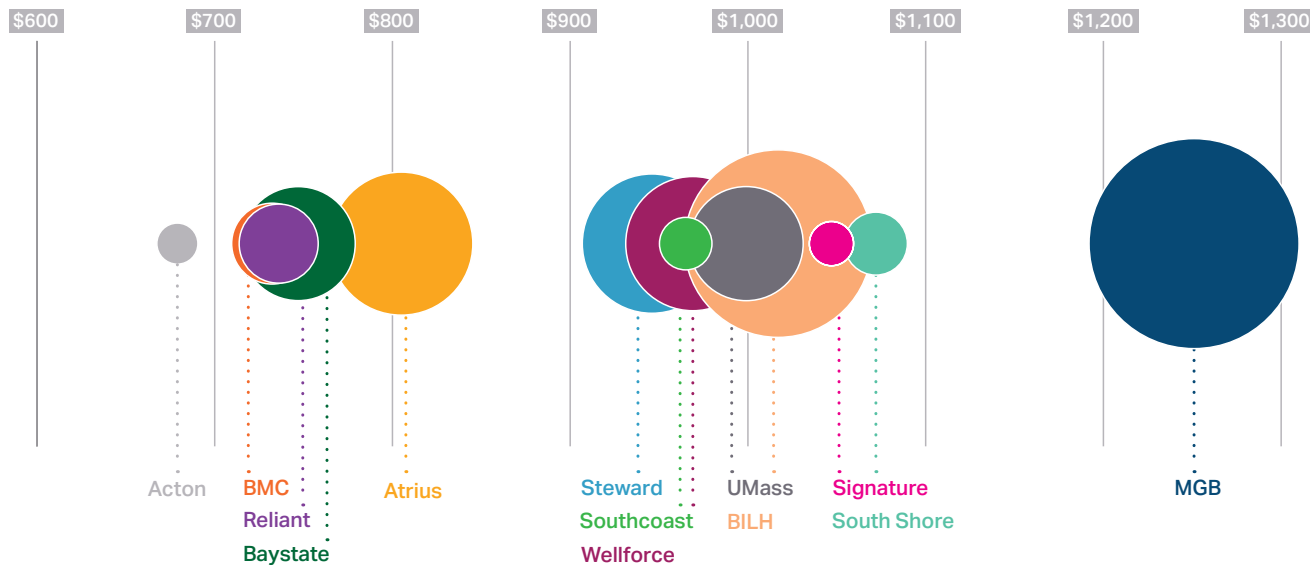


- Baystate had the highest overall rate of low value prescriptions with 46.0 members with at least one low value care prescription per 1,000 attributed commercial patients. This was 114% higher than for BMC-attributed patients (21.5).
- Concurrent anticholinergics had the largest variation among the provider groups, with the highest low value care rate for Baystate-attributed patients (7.9), three times the rate for Atrius-attributed patients (2.6).
- Concurrent antipsychotics also had high variation among the provider groups, with the highest low value care rate for MGB-attributed patients (2.5) close to three times the rate for Southcoast-attributed patients (0.9).

NOTES: Antibiotics = low value antibiotics for upper respiratory and ear infections. Antipsychotics = concurrent prescription of multiple antipsychotic drugs for a greater than 30 day interval. Anticholinergics = concurrent prescription of multiple anticholinergic drugs for a greater than 30 day interval. Benzodiazepines = chronic benzodiazepines users with a 180 or greater day supply in a year. Gabapentinoids = gabapentinoid prescriptions for non-neuropathic pain. Average reflects rate for all commercial patients, including patients not attributed to a listed provider organization, total services divided by total eligible members. See technical appendix for details.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021

# LOW VALUE SPENDING PER 100 ATTRIBUTED COMMERCIAL PATIENTS, 2021



- MGB had the highest annual LVC spending per 100 attributed patients at \$1,251, 84% higher than that of Acton, which had the lowest spending (\$679).
- Average spending across all provider groups was \$995 per 100 attributed members in 2021, an increase of 22% from 2020, where the rate was \$817 per 100 attributed members.

NOTES: Bubble size is proportional to the number of attributed members per organization. Low value spending across all measures was summed by provider organization and then divided by the total number of commercial adult attributed patients and reported as a rate per 100 patients. The average is calculated as total LVC spending divided by total attributed members. N = 1,019,157 for 2021 and N = 1,149,425 for 2020. See technical appendix.

SOURCES: HPC analysis of Center for Health Information and Analysis Massachusetts All-Payer Claims Database V2021, 2021



**MASSACHUSETTS HEALTH POLICY COMMISSION**

50 MILK STREET, 8TH FLOOR, BOSTON, MA 02109

[WWW.MASS.GOV/HPC](http://WWW.MASS.GOV/HPC)