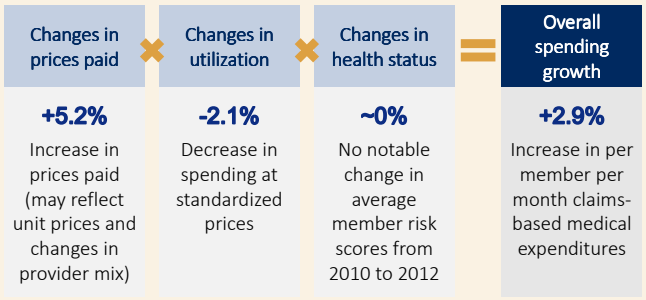
## A. Spending Levels and Trends

# A.1 Trends in Commercial Insurance Spending, 2010-2012

In its 2013 report, the Commission described trends in commercial health insurance expenditures in the 2000s, noting evidence that indicated that growth in expenditures over that decade was driven primarily by increases in prices paid. In this section, we analyze trends in claims-based health care expenditures from the All-Payer Claims Database (APCD) for the three largest commercial payers in Massachusetts from 2010 to 2012.[i] While the growth of alternative payment methods (APMs) has made payments outside the claims system more important, measures of claims-based expenditures offer useful insights into utilization trends and can help to deconstruct drivers of cost growth.[ii]

**Figure A.1:** Drivers of growth in claims-based medical expenditures*

Percent annual growth in claims-based medical expenditures, 2010-2012




* Claims-based medical expenditure measure excludes pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments).

SOURCE: All-Payer Claims Database; HPC and CHIA analysis

Membership in commercial insurance among the three largest commercial payers in Massachusetts is decreasing at a slow but steady pace, with commercial member months declining at an annual rate of 2.8 percent from 2010 to 2012. Per member claims expenditures grew at an annual rate of 2.9 percent, in line with the aggregate growth rates reported by CHIA over the same time period.[1] Spending growth was driven primarily by growth in the prices paid for care. Over this time period, the measured health status of the commercially insured population did not change notably, and while per member utilization declined by 2.1 percent per year, the prices paid for care increased by 5.2 percent per year (**Figure A1**). Our index measure of price growth captures the impact of growth in unit prices as well as shifts in the relative mix of higher- and lower-priced providers. Consistent with the Commission's previous findings, prices paid to providers continue to be the most important factor driving commercial insurance spending.

Spending growth was concentrated in several categories of service. Outpatient services made up approximately 45 percent of total growth in spending between 2010 and 2012, while inpatient and professional services each comprised approximately 27 percent and 31 percent respectively of total growth in that same period (**Figure A2**).

Moreover, certain conditions accounted for a large proportion of growth. Twenty types of episodes of care accounted for over 60 percent of total growth in commercial spending between 2010 and 2012 (see **Table A1**).[iii]

As commercial spending grew from 2010 to 2012, the

[i] For this analysis of the commercial insurance market, we use a sample that consists of claims submitted by the three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP). This sample represents 66 percent of commercially insured lives and 36 percent of Massachusetts residents. For members of that sample, we analyze claims-based medical spending but not pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments) and estimate that we include approximately 80 percent of claims-based spending. The APCD contains claims for the majority, but not all, self-insured plans. Self-insured plans are encouraged, but not required, to submit this data, and certain employers instruct their plans to opt out.

[ii] The Commission and CHIA collaborated to analyze cost trends using the APCD and prepare these results for public presentation.

[iii] This growth rate may stem from changes in the prevalence of the condition, changes in the approach to treatment, or changes in provider coding.

proportion of costs contributed by consumers out-of-pocket increased. Previous reports have described the growth in high-deductible health plans and other commercial insurance products with increased cost-sharing levels.[1,2,3] Claims data demonstrate this trend has had an impact in recent years. The proportion of members with higher levels of cost sharing has increased over time, as have out-of-pocket expenditures as a percentage of claims-based medical expenditures (**Figures A3 and A4**).[iv] Insurance plans with higher levels of cost sharing may increase incentives for consumers to make value-based decisions in their use of care and their choice of providers, but they may also increase financial barriers to accessing high-value care.[4] The Commission is interested in monitoring these changes in insurance product design and examining their effects on consumers' decision-making and on access to care.

**Figure A.2:** Growth in claims-based medical expenditures by category of service*

Percent annual growth rate and percent of total growth in claims-based medical expenditures, 2010-2012

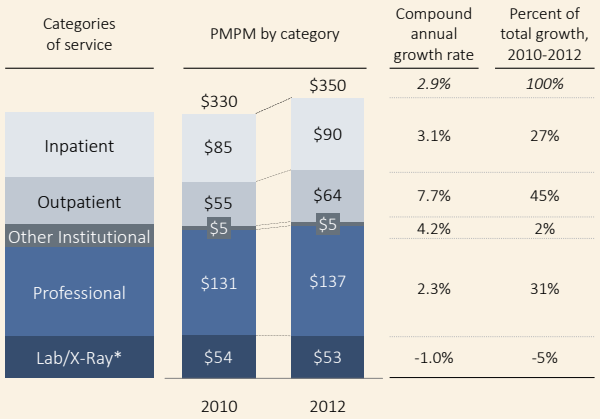



**Figure A.3:** Member cost sharing, 2010 - 2012

Out-of-pocket spending on cost sharing† as percent of total claims-based medical expenditures

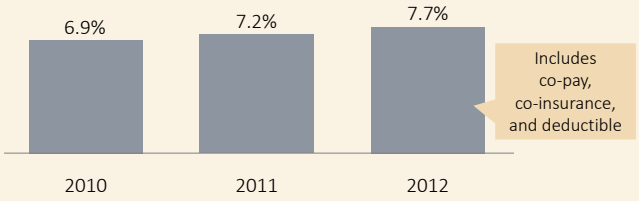
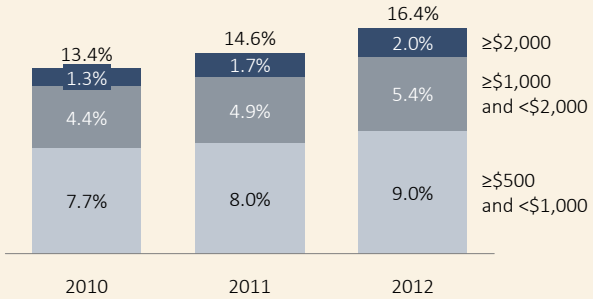



**Figure A.4:** Members with cost sharing above $500, 2010-2012

Percent of total members with cost sharing above $500, $1000, and $2000 thresholds†




* For detailed definitions of categories of service, see CHIA and HPC publication, "Massachusetts Commercial Medical Care Spending: Findings from the All-Payer Claims Database." Lab/x-ray category includes professional services associated with laboratory and imaging.

† Out-of-pocket spending includes cost-sharing (co-payments, co-insurance, and deductibles) for medical services covered by commercial insurance. Pharmacy spending and services paid for outside of the insurance claims system are not included.

SOURCE: All-Payer Claims Database; HPC and CHIA analysis

**Table A.1:** Top 20 episodes by contribution to growth in commercial spending from 2010-2012

Percent annual growth rate and percent of total growth in claims-based medical expenditures by ETG, 2010-2012

| | PMPM, 2010 | PMPM, 2012 | CAGR* | % of total growth |
|---|---|---|---|---|
| *Top 20 episodes by contribution to growth* | | | | |
| Localized joint degeneration | $18.23 | $20.09 | 5% | 9% |
| Routine exam | $11.07 | $12.51 | 6% | 7% |
| Pregnancy, with delivery | $14.20 | $15.29 | 4% | 6% |
| Autism & child psychoses | $0.48 | $1.18 | 57% | 4% |
| Depression | $7.31 | $8.00 | 5% | 4% |
| Routine inoculation | $1.15 | $1.83 | 27% | 4% |
| Non-malignant neoplasm of intestines & abdomen | $3.37 | $3.98 | 9% | 3% |
| Septicemia | $1.63 | $2.21 | 17% | 3% |
| Opioid or barbiturate dependence | $0.63 | $1.15 | 35% | 3% |
| Anxiety disorder or phobias | $1.49 | $1.89 | 13% | 2% |
| Major malignant neoplasm of skin | $2.03 | $2.42 | 9% | 2% |
| Joint derangement | $5.29 | $5.68 | 4% | 2% |
| Other neonatal disorders, perinatal origin | $5.01 | $5.39 | 4% | 2% |
| Other metabolic disorders | $1.59 | $1.95 | 11% | 2% |
| Inflammatory bowel disease | $2.73 | $3.09 | 6% | 2% |
| Multiple myeloma | $0.79 | $1.15 | 20% | 2% |
| Leukemia | $2.72 | $3.05 | 6% | 2% |
| Other neuropsychological or behavioral disorders | $2.59 | $2.92 | 6% | 2% |
| Other drug dependence | $0.92 | $1.24 | 16% | 2% |
| Non-routine inoculation | $0.51 | $0.81 | 26% | 1% |
| *Subtotal for top 20 episodes* | $83.73 | $95.81 | 7% | 61% |
| **Total** | **$329.96** | **$349.62** | **2.9%** | **100%** |

*Compound annual growth rate

SOURCE: All-Payer Claims Database; HPC and CHIA analysis

[iv] Our analysis of out-of-pocket spending is based on cost-sharing for services covered by insurance benefits, including co-payments, co-insurance, and deductibles. Payments by consumers for self-pay services not covered by insurance benefits are not included in these figures.

# A.2 MassHealth Spending Levels

## Introduction

MassHealth is Massachusetts' Medicaid and State Children's Health Insurance Program (SCHIP). A state-administered health care coverage program funded jointly by the state and federal governments, it provides health insurance coverage for many of Massachusetts' low- and medium-income residents, as well as many people with disabilities and complex, long-term needs. MassHealth covers more than 20 percent of Massachusetts residents, including more than half of children of low-income families, more than half of people with disabilities, and two-thirds of residents of nursing facilities.

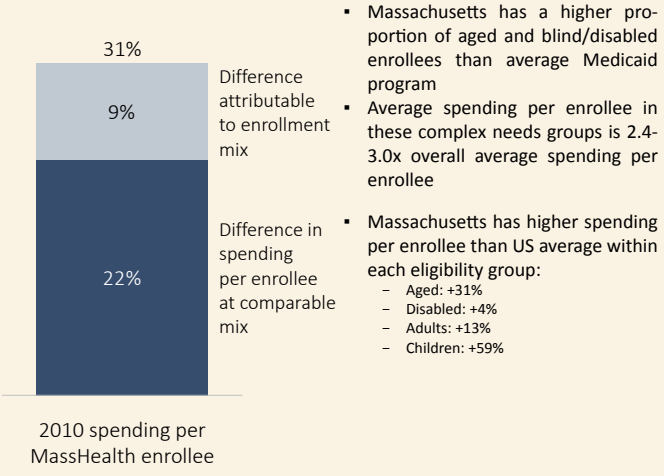
In the Commission's 2013 report, we identified that MassHealth had higher levels of spending per enrollee than the national average for Medicaid programs, ranking as the 5th highest state in this measure.[3,5] National comparisons for Medicaid programs should be interpreted cautiously, as programs differ greatly from state to state and have heterogeneous populations of beneficiaries within each state. In this section, we provide more context for understanding the higher spending levels.

## Spending levels

MassHealth's higher spending per enrollee is particularly important to examine by eligibility group, because the needs of each group differ considerably. The concentration of MassHealth spending within particular populations has been well-documented. In FY2010, aged and blind/disabled enrollees constituted less than one-fourth of enrollees for each of the U.S. and Massachusetts, but 66 percent of national Medicaid spending and 79 percent of MassHealth spending.[6]

In 2010, Massachusetts' Medicaid spending per beneficiary was 31 percent higher than the national average.[v] Of this difference, nine percentage points are explained by the enrollee composition of MassHealth, which has a higher proportion of aged and of blind/disabled enrollees than the national average. The remaining 22 percentage points are attributable to differences in spending per enrollee within each eligibility group (**Figure A5**). Differences in spending per enrollee could be due to a number of factors, such as the comprehensiveness of benefits, accessibility of services, service utilization, and rates of provider payment. Differences between states in the quality of care or health outcomes for Medicaid populations are not assessed here.

**Figure A.5:** Percent difference between Massachusetts and U.S. spending per enrollee, 2010




SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

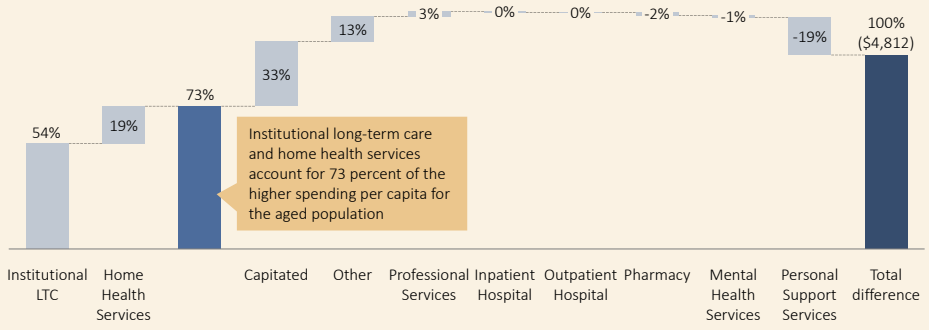
[v] The figure discussed in the Commission's 2013 report, a 2009 estimate of 21 percent obtained from the National Health Expenditure Accounts, is not directly comparable to the figure presented here, a 2010 estimate of 31 percent calculated based on CMS's Medicaid Statistical Information System (MSIS). The latter figure was calculated relative to enrollees who were enrolled at any point during the year, while the former figure used average enrollment over the 12 months. Notably, the 2010 estimate may overstate the spending difference if MassHealth has a lower rate of turnover than the national average. 2010 MSIS data does not include all data for all MassHealth covered populations.

Nationally and within Massachusetts, spending per enrollee for children and for non-disabled adults in 2010 was substantially lower than spending for the elderly and disabled. Within each of these segments, compared to national averages, MassHealth had higher spending per enrollee, with the largest differences for the aged and child populations (see **Figure A6**).

Within the aged and children eligibility groups, differences in spending are not driven primarily by a different mix of ages within each eligibility group, but by higher spending levels at each age segment. Aged enrollees in MassHealth are younger, overall, than aged Medicaid enrollees nationally (**Table A2**).

**Figure A.7:** Breakdown of difference between Massachusetts and U.S. spending per aged enrollee

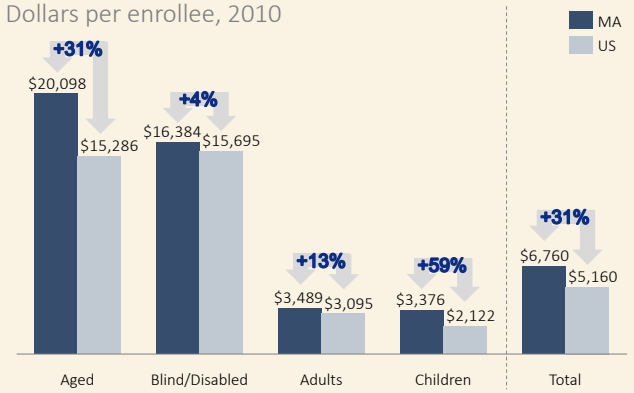
Dollars per enrollee, FFY2010




SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

**Figure A.6:** Difference in spending per enrollee by eligibility group

Dollars per enrollee, 2010




SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

**Table A.2:** Breakdown of aged and children eligibility groups by age segment

Percent of enrollees and average dollars spent per enrollee by age segment, FY 2010

| | Percent of enrollees | | Spend per enrollee | | |
|---|---|---|---|---|---|
| | U.S. | MA | U.S. | MA | Difference |
| *Aged* | | | | | |
| 65- 74 | 39% | 42% | $9,549 | $12,216 | 28% |
| 75- 84 | 35% | 32% | $14,634 | $19,457 | 33% |
| 85+ | 26% | 26% | $24,676 | $33,526 | 36% |
| *Children* | | | | | |
| Under 1 | 6% | 7% | $3,935 | $4,630 | 18% |
| 1- 5 | 35% | 33% | $2,002 | $3,260 | 63% |
| 6- 12 | 35% | 33% | $1,723 | $3,137 | 82% |
| 13- 14 | 8% | 9% | $2,072 | $3,326 | 61% |
| 15- 18 | 16% | 18% | $2,507 | $3,678 | 47% |

SOURCE: Medicaid Statistical Information System; HPC analysis

Higher spending on children may reflect several Massachusetts rulings and policies over the last years intended to ensure a robust continuum of care.[vi] While MassHealth spends significantly more per child enrollee than the nation as a whole, the impact of the proportionally higher spending on children contributes relatively little to overall spending differences, because the overall spending levels for children are low.

The aged segment of the MassHealth population is of particular interest because spending per enrollee is $4,812, or 31 percent, higher than the national average. This difference is concentrated in two categories of service -- institutional long-term care and home health care -- which together account for nearly three-fourths of Massachusetts' higher spending on aged enrollees. Institutional long-term care alone explains more than half of the higher spending level for this category of enrollees (**Figure A7**).

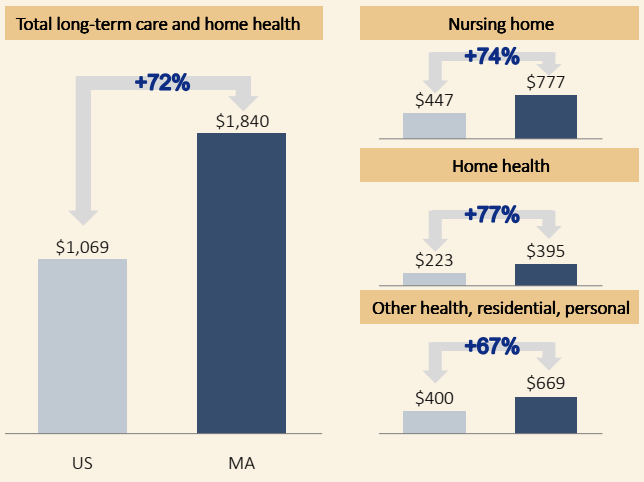
Given these findings, we focus our initial exploration of opportunities to improve care quality and efficiency on the long-term care spending segment, described next.

[vi] The 2006 ruling in Rosie D. v. Patrick compelled MassHealth to redesign its approach to providing mental health care to children in Massachusetts, leading to the creation of the Children's Behavioral Health Initiative (CBHI). Through CBHI, MassHealth requires primary care providers to offer improved and more standardized mental health screening procedures and assessments at all well-child visits, and puts an emphasis on providing home-based mental health services for children in order to enable them to receive mental health treatment and support in their homes and communities. In addition, a 2005 ruling related to dental care led to greater spending on oral health care for children.

# A.3 Long-Term Care and Home Health

In its 2013 report, the Commission noted that Massachusetts spent $771, or 72 percent, more per resident than the U.S. average on long-term care and home health in 2009 (**Figure A8**).[vii] Here, we analyze drivers of higher expenditure levels and potential areas for improved efficiency, focusing primarily on care provided in nursing facilities and by home health agencies. In this section, we refer to nursing facilities to describe both include both skilled nursing facilities providing short-term post-acute care and nursing homes providing long-term supports and services, as 98 percent of nursing facility beds in Massachusetts are dually certified for both of these purposes.[7]

**Figure A.8:** Total spending per capita on long-term care and home health
Dollars per capita, 2009




SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

## Drivers of higher expenditures

Drivers of Massachusetts' higher level of spending on long-term care include significant differences in demographics and input costs, but there are also large utilization differences not accounted for by demographics. For nursing facilities, Massachusetts spent 74 percent more per capita than the national average in 2009. The state's older age profile explains 13 percentage points of this difference and its higher prices paid to nursing facilities (driven by wage levels) explain 23 percentage points of the difference. These two factors account for less than half of the 74 percentage points of higher spending on nursing facilities, suggesting a large utilization difference that is not driven by demographics. Similarly, for home health services, demographics and prices paid account for less than half of the higher levels of spending in Massachusetts relative to the national average.[viii]

Both nursing facilities and home health care agencies provide two types of care: post-acute care and long-term services and supports (LTSS). Post-acute care is delivered to support recovery after an acute hospitalization, while LTSS care supports those with significant cognitive or physical impairment in their activities of daily living (ADLs).[ix] Massachusetts' higher use of nursing facilities and home health care agencies spans both post-acute care and LTSS uses. This is evident in higher spending both for Medicare, which pays for post-acute care services but not LTSS, and for MassHealth, which is the primary payer for LTSS (**Figures A9 and A10**). (Like Medicare, commercial payers typically pay for post-acute care, but not LTSS. As a result, most LTSS services provided for populations not covered by MassHealth are paid out-of-pocket. Long-term care insurance covers those long-term care needs, but has

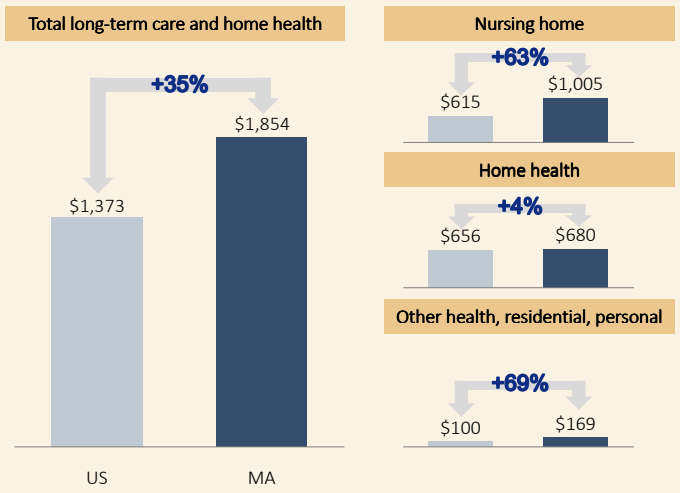
[vii] For the purposes of this report, long-term care is defined through the National Health Expenditure Accounts (NHE) components of nursing home; home health; and other health, residential, and personal care. This definition excludes post-acute care provided within rehabilitation hospitals, which are captured in the hospital component of NHE estimates.

[viii] Additional detail on the contribution of demographics and price levels to spending differences are provided in a technical appendix.

[ix] Post-acute care is provided not only by nursing facilities and home health agencies, but also by long-term acute care hospitals and inpatient rehabilitation facilities. In this section, we focus on post-acute care delivered by nursing facilities and home health agencies.

**Figure A.9:** Medicare spending per beneficiary on long-term care and home health

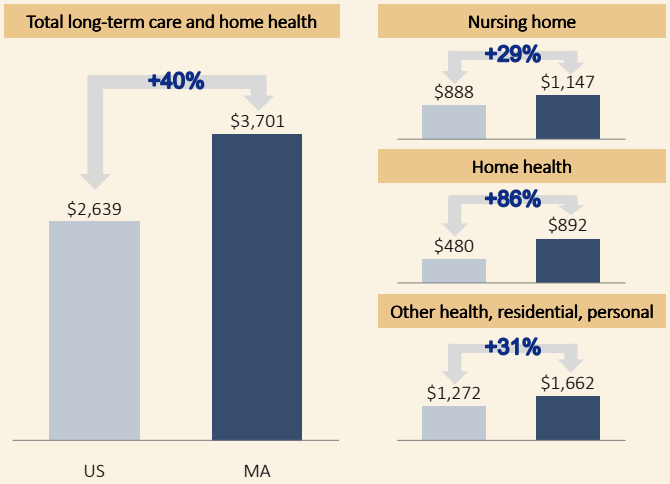
Dollars per beneficiary, 2009




SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

**Figure A.10:** Medicaid spending per beneficiary on long-term care and home health

Dollars per beneficiary, 2009




SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

a low adoption rate and represents a small percentage of the LTC market).[8]

For post-acute care, Massachusetts has a higher rate of discharge from hospitals to nursing facilities relative to the national average, suggesting an opportunity to manage post-acute care more efficiently. For LTSS, there are opportunities to deliver more supports in home- and community-based settings, expanding options for patients to receive care in their preferred setting while potentially achieving savings over time.

## Opportunities in post-acute care

Utilization of nursing facilities for post-acute care occurs after a hospital stay and discharge. As a result, utilization is driven by the frequency of hospital admission and by the proportion of people hospitalized who are discharged to nursing facilities. The 2013 report highlighted the fact that Massachusetts residents utilize 10 percent more hospital services than the average U.S. resident.[3] In addition, Massachusetts' rate of discharge to nursing facilities and home health care agencies is higher than the national average rate (**Table A3**). Adjusted for patients' demographic and clinical characteristics and for the type and intensity of inpatient care delivered, we estimate that Massachusetts hospitals are 2.1 times as likely as the national average to discharge patients to either nursing facilities or home health agencies. We did not find a large difference in the use of nursing facilities relative to home health agencies between Massachusetts and the rest of the country.[x]

National studies have found that the majority of geographic variation in spending for public payers is in post-

**Table A.3:** Massachusetts acute hospital discharge dispositions relative to U.S. average

Hospital discharges by discharge disposition, 2011

| | Rate per 10,000 discharges | | |
|---|---|---|---|
| | MA | U.S. | Difference |
| *Discharge disposition* | | | |
| Routine | 5,844 | 7,022 | -17% |
| Transfer Other: includes Skilled Nursing Facility (SNF), Intermediate Care Facility (ICF), Another Type of Facility | 1,506 | 1,389 | 8% |
| Home Health Care (HHC) | 1,888 | 1,088 | 74% |
| Transfer to short-term hospital | 457 | 213 | 115% |
| Died | 186 | 191 | -3% |
| Against Medical Advice (AMA) | 119 | 97 | 23% |

SOURCE: Healthcare Cost and Utilization Project; Census Bureau; HPC Analysis

[x] Relative probabilities of discharge to post-acute care and of choice of post-acute care setting were estimated using a logistic regression model that adjusted for the following: age, sex, payer, income, length of stay, DRG, patient comorbidities, APR-DRG illness severity score, and APR-DRG risk of mortality score using a national inpatient sample from the Healthcare Cost and Utilization Project. Detailed results and methods are available in a technical appendix.

acute care, suggesting that this is an important area to examine to identify opportunities to improve efficiency.[9] Within Massachusetts, discharge rates to nursing facilities and home health agencies vary greatly across hospitals. This variation suggests a significant opportunity for Massachusetts providers to deliver episodes of care more efficiently by improving management of post-acute care (see **Figures A11 and A12**).

Payment policies have been a significant driver of post-acute care utilization. The creation of the Medicare Inpatient Prospective Payment System in the 1980s encouraged hospitals to reduce length-of-stay in hospitals, leading to a shift in care from the inpatient setting to various post-acute care settings.[10] The construction of Medicare prospective payment systems for post-acute care providers encouraged changes in length-of-stay and intensity of care in post-acute care settings.[11] More recently, policies penalizing hospitals with high readmission rates may have encouraged greater use of post-acute care intended to provide patients better support after a hospitalization in order to avoid readmissions.[12] Greater use of post-acute care may generate net savings for the health care system if it can reduce the use of higher-intensity hospital settings.

In Massachusetts, average length-of-stay in acute hospitals was seven percent below the national average in 2011, while readmission rates were above national averages.[3] Hospital practice patterns in use of nursing facilities do not correlate with hospitals' average length-of-stay or with hospital performance on risk-adjusted readmission rates (**Figures A13 and A14**).

With the increasing adoption of global budget payment methods, provider organizations are putting greater focus on management of post-acute care utilization, particularly for Medicare Accountable Care Organizations (ACOs), as use of post-acute care is a particular driver of Medicare spending variation.[9] Initial evaluation results from the first year of the Pioneer ACO program do not show significant savings in spending on post-acute care, although several Massachusetts Pioneer ACOs have described coordination and management of nursing facility care as an area of focus, with potential for savings in later performance years.[13] To monitor whether post-acute care is being used effectively and appropriately, provider organizations and state agencies should observe whether post-acute care use is improving outcomes, readmission rates, and efficiency across full episodes of care.

## Opportunities in long-term supports and services

LTSS clients typically have disabilities that require custodial support, but there are often opportunities to make use of lower-intensity care settings, providing supports in home- and community-based settings rather than admitting clients into nursing facilities. With its larger elderly population, Massachusetts would have a 13 percent higher rate of nursing facility residency than the U.S. average if Massachusetts residents used nursing facilities at the same rates by age as the rest of the country. Instead, Massachusetts has a 46 percent higher nursing facility residency rate than the U.S. average.[14]

Ongoing policy efforts have promoted the delivery of LTSS in the least restrictive setting for each client.[15] In particular, enhancing the availability and use of home- and

**Figure A.11:** Relative likelihood of discharge to post-acute care by hospital

Adjusted rate of discharge to nursing facilities and home health*, 2012

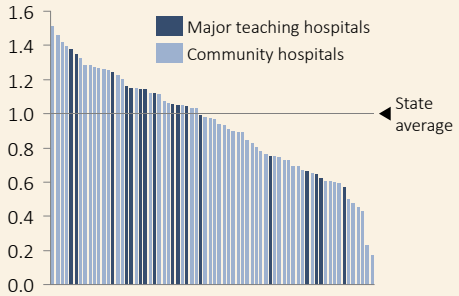
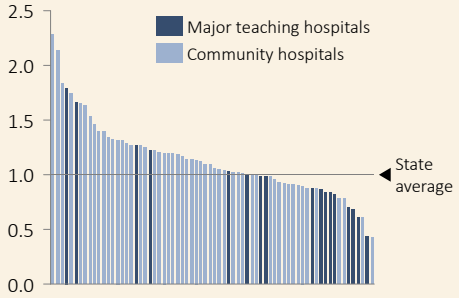



**Figure A.12:** Relative likelihood of discharge to a nursing facility for post-acute care by hospital

Adjusted rate of selecting nursing facility as setting for post-acute care*,†, 2012




* Rates for each hospital were estimated using a logistic regression model that adjusted for the following: age, sex, payer group, income, admit SOURCE of the patient, length of stay, and DRG. Our sample included patients who were at least 18 years of age and had a routine discharge, a discharge to a skilled nursing facility, or a discharge to a home healthcare provider. Specialty hospitals are excluded from figure and from displayed state average. Rates are normalized with the state average rate equal to 1.0.

† Discharge to nursing facility as a proportion of total discharges to either nursing facility or home health.

SOURCE: Center for Health Information and Analysis; HPC analysis

**Figure A.13:** Adjusted rates of discharge* to post-acute care and excess readmission ratios† by hospital

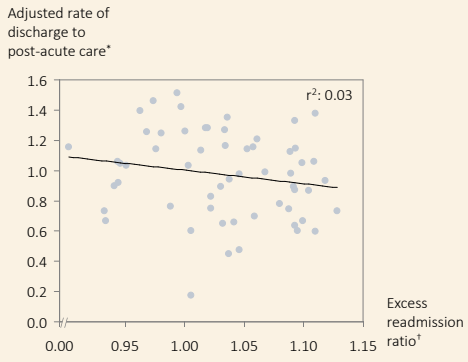
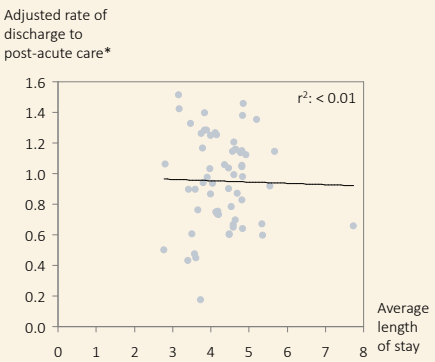



**Figure A.14:** Adjusted rates of discharge* to post-acute care and average length-of-stay by hospital




* Rates for each hospital were estimated using a logistic regression model that adjusted for the following: age, sex, payer group, income, admit SOURCE of the patient, length of stay, and DRG. Our sample included patients who were at least 18 years of age and had a routine discharge, a discharge to a skilled nursing facility, or a discharge to a home healthcare provider. Specialty hospitals are excluded from figure and from displayed state average. Rates are normalized with the statewide average equal to 1.0.

† Composite of risk-standardized 30-day Medicare excess readmission ratios for acute myocardial infarction, heart failure, and pneumonia (2009-2011). The composite rate is a weighted average of the three condition-specific rates. 1.0 represents national average.

SOURCE: Center for Health Information and Analysis; Centers for Medicare & Medicaid Services; HPC analysis

While utilization of services for both nursing facilities and home health care providers is above national averages, shifting care from institutional settings to home and community-based settings may further increase home health utilization while decreasing total health care expenditures over time, since nursing facilities have significantly higher per diem costs than care provided in home- and community-based settings.

community-based services has been a focus for MassHealth, which has pursued opportunities to expand these services through its waivers.[16] Intended to provide supports that enable individuals to live at home rather than in an institution, these services range from limited supports for those living independently to intensive supports for those requiring around-the-clock care. A growing proportion of MassHealth enrollees have used community-based services: between 1999 and 2009, the Personal Care Attendant (PCA) program doubled its participation rate, and between 2004 and 2009, participation in Group and Adult Foster Care and Adult Day Health programs grew by more than a third.[17]

Still, there may be continued opportunities to increase the use of these settings, as MassHealth patients in nursing facilities have a lower average acuity than the U.S. average for Medicaid programs (**Table A4**).

**Table A.4:** Acuity of Massachusetts nursing home residents compared to U.S.

RUG-IV nursing component index values, 2011

| | MA | US | Difference |
|---|---|---|---|
| *Payer type* | | | |
| Medicare | 1.31 | 1.30 | 0.3% |
| Medicaid | 0.89 | 0.92 | -4.1% |
| Other | 0.96 | 0.96 | 0.4% |

SOURCE: MDS MARET data analyzed by Abt Associates for MedPAC

## Conclusion

Massachusetts's higher levels of spending on long-term care compared to the national average is driven in part by the state's demographics and by higher prices driven by wages, but significant utilization differences suggest potential opportunities for improved efficiency. In post-acute care in particular, large differences between discharge patterns across Massachusetts hospitals suggest an opportunity for a discussion and review of practices for management of patients after discharge. Opportunities also exist to continue to provide community-based LTSS rather than institutional services, enabling residents to live in less restrictive and potentially more cost-effective settings. This continued transition is especially important for MassHealth, which is the predominant payer for LTSS in Massachusetts.

Long-term care will continue to be an area of active interest for the Commission. The aging of the population will put upward pressure on utilization of these services, making them increasingly important to manage to meet the health care cost growth benchmark. As provider organizations under global budgets seek to manage post-acute care more efficiently, trends in rates of discharge to nursing facilities and home health agencies, the choice of post-acute providers, and the average length-of-stay in post-acute care facilities will be important dimensions to observe. Affiliations and contracting structures in post-acute care will be increasingly important to observe to understand market trends and referral patterns.

# A.4 Behavioral Health

## Introduction

Treatment for behavioral health conditions, encompassing mental illness and substance abuse and/or dependence, is a major factor in the health of the population and a significant driver of health care costs. Massachusetts' recently declared public health emergency related to opioid abuse brings to the foreground the importance of behavioral health care. Moreover, behavioral health is an important area of focus for the state's ability to meet its health care cost growth benchmark. Direct spending on behavioral health has been growing, though more slowly than overall health care spending. Beyond direct spending on behavioral health, the Commission's 2013 report found that patients with comorbid behavioral health and chronic medical conditions incurred total medical expenditures at levels 2.0 to 2.5 times as high as those for patients with a chronic medical condition but no behavioral health condition.[3] These increased health expenditures are observed not only in direct spending on the behavioral health conditions, but also in spending on other medical conditions, illustrating the known interrelationship between behavioral health conditions and other health care needs.[18] Improved coordination of total patient care which includes behavioral health care is a key strategy to help reduce total medical expenditures.[19] In this report, the Commission is focused primarily on implications of behavioral health care delivery, payment, and spending for the health care cost growth benchmark; in a separate report, the Massachusetts Health Planning Council is planning to address the significant issues related to behavioral health capacity and need.

## Spending on behavioral health services

We estimate that total direct spending on services and prescription drugs associated with behavioral health conditions in Massachusetts was between $6 billion and $7 billion in 2012, representing 9 to 11 percent of total health care spending in the state. In addition, behavioral health care makes up a significant portion of state government spending on health care. While direct state appropriations constitute three percent of all health spending, such funds represent 12 to 16 percent of behavioral health spending, figures consistent with national proportions. [xi,20]

These figures likely underestimate the impact of behavioral health conditions on overall health care expenditures.[xii] Patients often receive care for behavioral health conditions from providers who are not primarily behavioral health care practitioners in the course of receiving treatment for a physical health condition.[21] For people who have co-occurring behavioral health and chronic medical conditions, the presence of each condition can make the management of the other condition more challenging, which contributes to a higher spending on medical conditions that has not been included in this spending figure.

The Commission previously found that among the five percent of patients with the highest levels of health care expenditures, total health care spending for people with at least one chronic medical condition and at least one behavioral health condition was 2.0 to 2.5 times higher than for people with a chronic medical condition but no behavioral health conditions.[3] Our further analysis shows that this higher level of spending holds among not only very high-need patients, but also the population as a whole.[xiii] We also find that increased spending for patients with behavioral health conditions is concentrated in emergency department (ED) and inpatient care (**Figure A16**).

[xi] Direct spending by state programs on health. Includes public health appropriations but does not include state funding for insurance coverage, such as MassHealth and the Group Insurance Coverage.
[xii] The figures do not account for the impact of the impact of behavioral health conditions on other state expenditures, including corrections, social services and education.
[xiii] Analysis is based on a sample of the All-Payer Claims Database that includes claims for Medicare fee-for-service beneficiaries and claims submitted by the three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP) – representing 66 percent of commercially insured lives. Claims-based medical expenditure measure excludes pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments).

## What is behavioral health?

Behavioral health conditions are defined as a range of mental, behavioral or substance use and dependence disorders, which are mediated by the brain and which cause impairment or distress to an individual. Behavioral health treatment encompasses the continuum of treatment interventions and services available for individuals with these conditions. The conditions included under the definition of behavioral health can further be classified as mental disorders and substance use disorders.

### *Mental Disorders*

Mental disorders are health conditions characterized as alterations in mood, thinking or behavior, or a combination of these. Mental disorders are currently diagnosed using the criteria of the Diagnostic and Statistical Manual of Mental Disorders, version five (DSM-V). Commonly recognized classes of mental disorders include mood disorders, anxiety disorders, personality disorders, psychosis (including schizophrenia), eating disorders, conduct disorders (including oppositional defiant disorder), and attention deficit hyperactivity disorder (ADHD).

Mental disorders are categorized into levels of severity based on level of functional impairment. Serious and persistent mental illness is a special category within mental disorders that refers to disorders which severely impair judgment and behavior, substantially limit role functioning in major life activities, and are expected to continue in the succeeding year.[22]

### *Substance use disorders*

Substance use disorders or substance dependence disorders are also defined in the DSM-V. Alcohol dependence or abuse is diagnosed based on certain criteria regarding the frequency, duration, and potential harm caused by alcohol use or behaviors of seeking alcohol. Illicit drug use disorder is defined as any use of illicit substances or non-medical use of prescription drugs. These disorders are commonly classified by the substance of use, such as opioid, cocaine, and other illicit drugs.

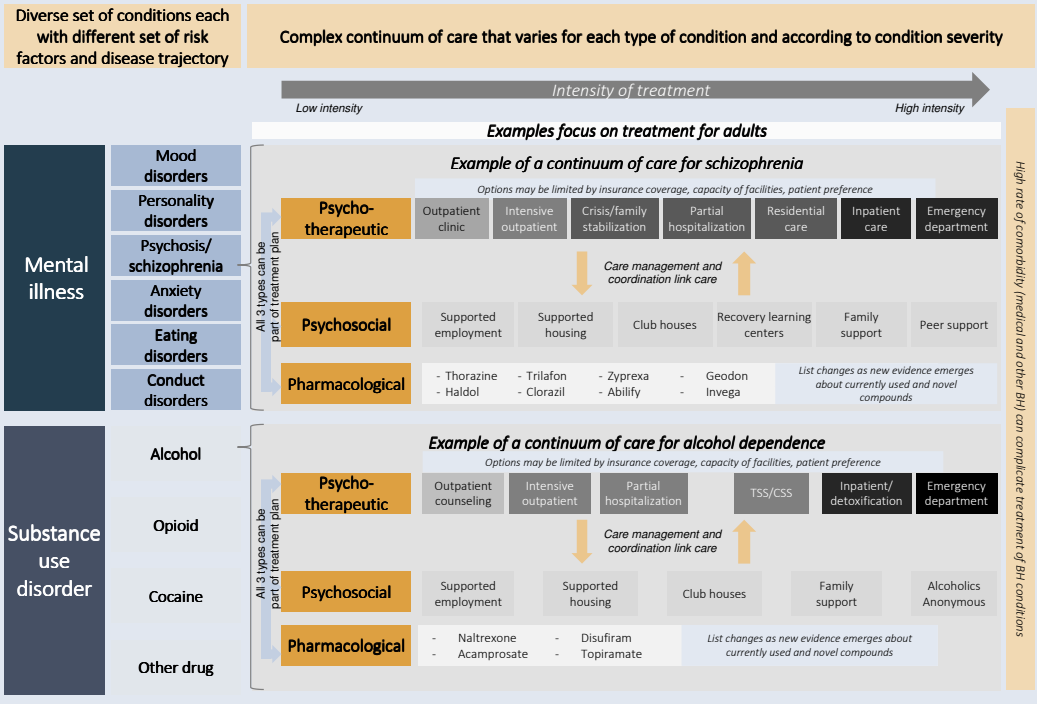
### *Treatment*

Effective treatments exist for many behavioral health disorders, and recovery is often possible.[23]

Three main types of clinical interventions exist for behavioral health disorders: psychotherapeutic (e.g. outpatient counseling, inpatient hospitalization), psychosocial, and pharmacological.[24] Patients with behavioral health conditions often use a combination of these treatments, and treatment options can vary by type of condition and severity (**Figure A15**).

Treating behavioral health conditions can be complex because an effective course of treatment depends on the individual's own biochemistry, preferences, current level of functioning, home/family and social environment, comorbidities (medical and other behavioral health), stage of recovery/stage of change, and insurance benefit. Moreover, the delivery of psychotherapeutic interventions in particular is highly dependent on the relationship between the provider(s) and the individual. For pharmacological interventions especially, response rates to evidence-based treatments vary widely. This increases the challenge of both developing and implementing effective treatments for behavioral health conditions.

**Figure A.15:** Complexity of behavioral health conditions and treatment options



### How prevalent are behavioral health disorders?

The National Survey on Drug Use and Health estimates that 17.1 percent of Massachusetts adults had a mental illness and 10.1 percent had a substance abuse disorder in 2011, although prevalence varies by demographic factors. Overall prevalence and demographic differences in Massachusetts exhibit similar patterns to those observed nationally.[25,25,26,27,28] Higher rates of mental illness were reported for people with more chronic physical health conditions, people with Medicaid coverage or no insurance, and females. For substance use disorders, higher rates were reported for people with Medicaid or no insurance, males, and the 18-25 age group (**Table A6**).

**Table A.5:** Past year mental illness and substance use disorders among adults, by selected characteristics

Percentages, Massachusetts, 2008 – 2012 combined

| | Mental Illness | | Substance abuse | | |
|---|---|---|---|---|---|
| Characteristics | Any | Serious | Any | Alcohol Use Disorder | Illicit Drug Use Disorder |
| *All adults* | 17% | 4% | 10% | 8% | 3% |
| *Age* | | | | | |
| 18-25 | 19% | 3% | 24% | 19% | 8% |
| 26-34 | 22% | 6% | 15% | 12% | 5% |
| 35-49 | 20% | 6% | 9% | 7% | 2% |
| 50-64 | 13% | 4% | 5% | 4% | 2% |
| 65 or older | 14% | - | 3% | 3% | - |
| *Sex* | | | | | |
| Male | 13% | 2% | 12% | 9% | 4% |
| Female | 21% | 5% | 8% | 7% | 2% |
| *Race/Hispanic Origin* | | | | | |
| *Not Hispanic or Latino* | 17% | 4% | 10% | 8% | 3% |
| White | 17% | 4% | 10% | 8% | 3% |
| Black or African American | 15% | 7% | 6% | 5% | 2% |
| American Indian or Alaska Native | - | - | - | - | - |
| Native Hawaiian or Other Pacific Islander | - | - | - | - | - |
| Asian | 10% | - | 6% | 6% | 0% |
| Two or more Races | - | - | - | - | - |
| *Hispanic or Latino* | 21% | 6% | 15% | 10% | 6% |
| *Income (Poverty Status)* | | | | | |
| <100% of Federal Poverty Level | 27% | 7% | 16% | 12% | 6% |
| 100%-199% of Federal Poverty Level | 23% | 6% | 12% | 8% | 5% |
| ≥200% of Federal Poverty Level | 15% | 3% | 9% | 8% | 2% |
| *Health Insurance Status* | | | | | |
| Private coverage | 15% | 3% | 9% | 7% | 2% |
| MassHealth | 28% | 8% | 17% | 11% | 8% |
| Other coverage | 19% | 3% | 7% | 6% | 2% |
| Uninsured | - | - | 21% | 11% | - |
| *Chronic Health Condition* | | | | | |
| Any | 27% | 7% | 10% | 8% | 3% |
| 1 | 20% | 4% | 8% | 6% | 3% |
| 2 | 34% | 9% | 13% | 11% | 4% |
| 3+ | - | - | 14% | 12% | 2% |

NOTES: The prevalence data displayed above is imputed from survey data collected as part of the National Survey on Drug Use and Health, and thus does not reflect specific diagnoses, but rather high likelihood of having at least one diagnosable mental illness or substance use disorder. Details on definitions of terms found in this table are availabe in the technical appendix of this report.

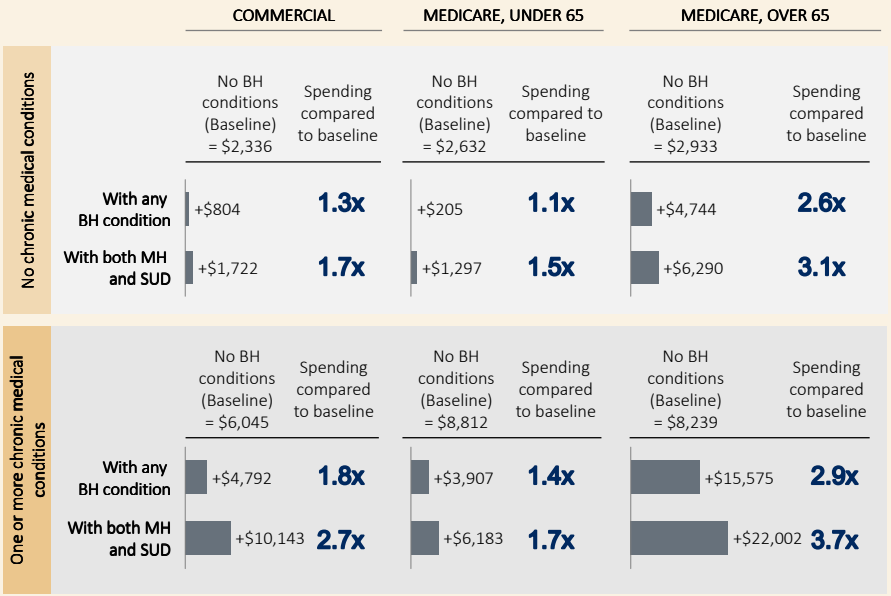
SOURCE: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2008-2011 (revised 10/13), and 2012.

Reducing the rate of hospitalizations and ED visits by providing care in lower-intensity settings may represent a significant opportunity to improve care while reducing costs for this population and would help to address the estimated $550 million associated with unnecessary ED visits and $700 million associated with preventable hospitalizations highlighted by the Commission in its 2013 report.[3]

The higher level of spending for people with behavioral conditions is observed not only in spending on services for behavioral health care, but also in increased spending to manage their other, non-behavioral health conditions. Higher spending on non-behavioral health conditions was observed for patients with any behavioral health condition, but was even higher for those with multiple behavioral health conditions and for those with a chronic medical condition (**Figure A17**).

**Figure A.17:** Impact of behavioral health comorbidity on expenditures for non-behavioral health conditions

Per person claims-based medical expenditures on non-behavioral health conditions based on presence of behavioral health (BH) comorbidity*, 2012 (Commercial) and 2011 (Medicare)

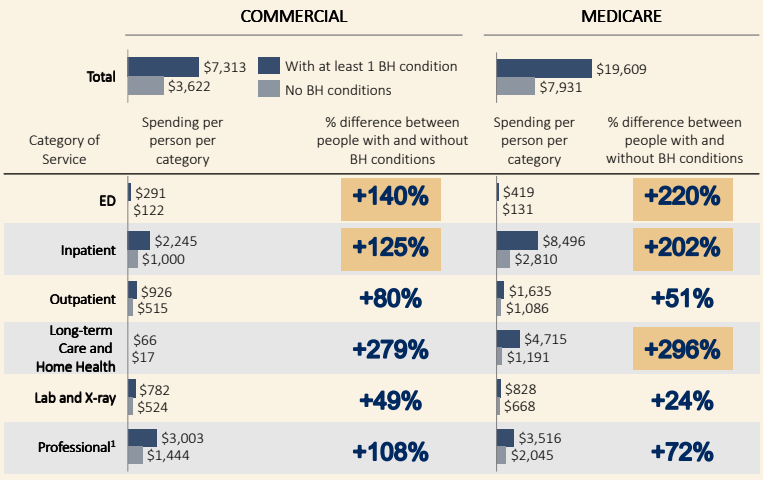



*Presence of behavioral health condition identified based on diagnostic codes in claims using Optum ERG software. Expenditures for non-behavioral health conditions were identified using Optum ETG episode grouper. Additional detail is available in a technical appendix.

SOURCE: All-Payer Claims Database; HPC analysis

**Figure A.16:** Spending by category of service for people with and without behavioral health conditions

Claims-based medical expenditures by category of service*, for people with and without behavioral health (BH) conditions†, 2011




*For detailed definitions of categories of service, see CHIA and HPC publication, "Massachusetts Commercial Medical Care Spending: Findings from the All-Payer Claims Database." Lab/x-ray category includes professional services associated with laboratory and imaging.

†Presence of behavioral health condition identified based on diagnostic codes in claims using Optum ERG software

SOURCE: All-Payer Claims Database; HPC analysis

Rates of comorbidity are high for patients with behavioral health conditions. Approximately half of people with active substance use disorders also have a mental health condition, and one-fifth of people with an active mental health diagnosis also have a substance use disorder. Behavioral components of psychiatric conditions and even certain pharmacological treatments for them increase the risk of cardiovascular disease, obesity, diabetes, and high cholesterol.[29,30,31] Based on Massachusetts claims data, 34 percent of commercial insurance members with a behavioral health condition also had a chronic medical condition, and 81 percent of Medicare beneficiaries with a behavioral health condition also had at least 1 chronic medical condition.[xiv] The broad prevalence of comorbid behavioral health and other medical conditions underscores the need to improve care and reduce spending through the integration and coordination of behavioral and physical health care delivery.

[xiv] Currently, pharmacy data is not available for this population, but based on non-Massachusetts specific research, the true percent of comorbidity will likely be higher when pharmacy information is available, due to the high proportion of people whose conditions are managed solely by pharmacological intervention.

**How are behavioral health services paid for?**

Public funding sources, comprised of Medicare, Medicaid, and other federal, state and local funding, pay for a larger percentage of behavioral health services than medical health care services.[19] In Massachusetts and nationally, In Massachusetts, MassHealth, the Medicaid program, and other state and local funds are major payers for behavioral health.

Within MassHealth, behavioral health services may be paid for through different mechanisms depending on the type of coverage that a member is enrolled in. For example, in the Primary Care Clinician Plan (PCC), the state contracts with Massachusetts Behavioral Health Partnership (MBHP) to manage behavioral health services. Members enrolled with Managed Care Organizations (MCOs) may have their behavioral health services managed by the MCO or by a managed behavioral health organization (MBHO). Other coverage programs include One Care for enrollees dually-eligible for MassHealth and Medicare; the Senior Care Organizations (SCOs) managed-care option for MassHealth Standard Members aged 65 or over, and the Program for All-Inclusive Care for the Elderly. MassHealth also pays fee-for-service claims for certain special-needs populations and for beneficiaries who have primary insurance coverage through another payer.

The Department of Mental Health (DMH) and the Department of Public Health (DPH) provide services directly or through contracts with providers for a range of behavioral health services. DMH has a primary responsibility to serve individuals with serious and persistent mental illness and children with serious emotional disturbance. The Bureau of Substance Abuse Services (BSAS), a part of the Department of Public Health, serves as a point of entry into the MassHealth system for many uninsured people with substance use disorders.

Private insurance covers many behavioral health services, although a substantial portion of care is not covered by insurance benefits and is paid for directly by individuals. Behavioral health benefits covered by private insurance are sometimes subcontracted to MBHOs. Over time, financing for behavioral health treatment has come increasingly from private insurers and Medicaid programs.[19]

## Integration of behavioral and physical health

Delivering high-quality, patient-centered care for people with behavioral health conditions, especially those with multiple comorbid conditions, will require improvements to access and availability of timely and appropriate treatment and increased coordination of care.

Limitations in access to behavioral health care are multifactorial and have been well-documented.[32,33] Low levels of payment for behavioral health care relative to other specialties have limited the availability of behavioral health services and constrained timely access to care.[34,35] As a result of access barriers and capacity limitations, patients sometimes receive care only when their conditions deteriorate and require emergency care.[36] The Massachusetts Health Planning Council is investigating capacity and access in behavioral health care and will release its findings in the summer of 2014.

Effective approaches to care delivery for behavioral health may improve health outcomes without increasing spending.[37] Currently, a significant portion of the higher spending for people with behavioral health conditions occurs in high intensity settings of care, including inpatient care and emergency room admissions. Research shows that some of the utilization of these high intensity services may be avoidable by altering the current "fail up" dynamic of the system, in which people only receive treatment when their condition is sufficiently impaired that they need intensive services, rather than receiving more timely intervention.[38] This suggests an opportunity for improved care at lower cost through access to appropriate treatment earlier in less intensive settings.

Integrated care delivery models can span a spectrum of levels of integration, depending on the provider's practice context and available resources for an integration initiative. Coordination, at the most basic level of integration, describes a model in which formalized channels of communication exist for referrals and updates between the behavioral health professionals and other health professionals involved in a person's care. Co-location, at the next level of integration, has behavioral health professionals at the same site as other health professionals. Finally, a fully integrated model aims to treat patients with one multidisciplinary care team comprised of members who bring both behavioral health and physical health expertise.[39]

Choosing the appropriate level of integration depends on the provider's resources, training, willingness to change, and structural preferences, but also on the behavioral health and physical health needs of the patient population that the provider aims to serve. For patients with limited behavioral needs, the accountable provider

managing the patient's overall care may practice in a primary care setting with behavioral health support, while a specialty behavioral health setting with medical support is likely more appropriate for a population with more intensive behavioral health needs.

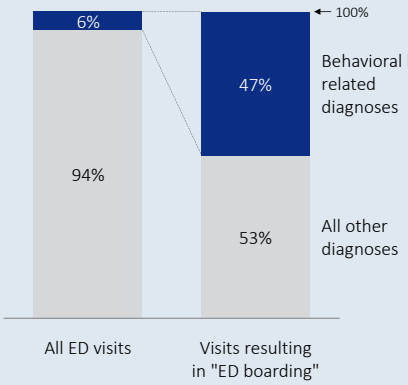
Specific opportunities for care delivery integration are described in greater detail in the July 2013 report of the Massachusetts Behavioral Health Integration Task Force, which was established by Chapter 224 to make specific recommendations to the Legislature and to the Commission for integration in behavioral health.[40] The task force also highlighted a number of barriers to integration and noted important enablers of integrated care delivery models, such as changes to payment practices and reforms to improve access to data to support care delivery (see **Sidebar: Barriers to Integration**).

The evidence to-date for a variety of interventions under these models shows the potential for both cost savings and outcome improvement, although continued evaluation of their economic and health outcome impact will be critical to surface best practices.[41,42,43,44,45]

### Emergency Department boarding for patients with behavioral health conditions

Access limitations in behavioral health care are evident in emergency departments across Massachusetts. ED boarding – defined as any individual in an ED for 12 or more hours after a decision is made to admit or transfer the patient – is far more prevalent for patients with behavioral health diagnoses than for those with other conditions.[46] In 2012, 47 percent of patients boarding for 12 or more hours in EDs had a primary behavioral health diagnosis despite the fact that only six percent of all ED visits were by patients with behavioral health diagnoses (**Figure A18**).

**Figure A.18:** ED visits and boarding by diagnosis type
Percent of visits, 2012




SOURCE: Center for Health Information and Analysis; Department of Public Health; HPC Analysis

### Barriers to integration

Attempts to integrate behavioral health and physical health services must overcome significant challenges. Barriers to integration today include: historically segregated treatment systems; payment levels that often render behavioral health services unprofitable and payment policies that restrict the ability of providers to be compensated for both physical health and behavioral health care on the same day; privacy concerns that limit data sharing between behavioral health providers and primary care providers; current workforce capacity issues; and limited measures to rigorously track behavioral health outcomes. These barriers and others are described in detail in the report of the Behavioral Health Integration Task Force.[40]

## Conclusion

We find that there are high rates of comorbidity between behavioral health conditions and chronic medical conditions, and that patients with these conditions often have high rates of inpatient hospitalizations and ED use. Integration of behavioral and physical health care delivery is an opportunity to improve coordination of care for patients with multiple conditions. Payers and providers should increase integration of behavioral health and primary care through new incentives and delivery models, supported by enabling payment reforms.

The Commission is working to support provision of behavioral health services in primary care settings through its patient-centered medical home (PCMH) and ACO certification programs. Moreover, the second phase of the Community Hospital Acceleration, Revitalization, and Transformation (CHART) investment program seeks to support community hospital efforts to provide community-based care for patients with complex behavioral health needs.

Continued analysis to study the effectiveness of integration models will be critical and will require improvements to behavioral health data in state data sets. Integrating encounter data into the APCD, for example, would facilitate detailed analysis of behavioral health service delivery across payers. Moreover, few behavioral health quality indicators are measured statewide. CHIA should prioritize compiling more complete data on behavioral health and convene key stakeholders, including state agencies, to increase transparency in behavioral health spending, quality of care, and the market for behavioral health services.

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