2013

COST TRENDS REPORT

JULY 2014 SUPPLEMENT

HEALTH POLICY COMMISSION

2013 COST TRENDS REPORT

PURSUANT TO M.G.L. C. 6D, § 8(g)

JULY 2014 SUPPLEMENT

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Index of Acronyms

Acronym	Full Name
ACO	Accountable Care Organization
ADHD	Attention Deficit Hyperactivity Disorder
ADL	Activities of Daily Living
AGO	Office of the Attorney General
APCD	All-Payer Claims Database
APM	Alternative Payment Method
BCBS	Blue Cross Blue Shield of Massachusetts
BPCI	Bundled Payments for Care Improvement
BSAS	Bureau of Substance Abuse Services
CBHI	Children's Behavioral Health Initiative
CHART	Community Hospital Acceleration, Revitalization, and Transformation Grant
CHIA	Center for Health Information and Analysis
CMIR	Cost and Market Impact Review
DMH	Department of Mental Health
DPH	Massachusetts Department of Public Health
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, version Five
ED	Emergency Department
ERG	Episode Risk Group
ETG	Episode Treatment Group
GIC	Group Insurance Commission
HMO	Health Maintenance Organization
HPHC	Harvard Pilgrim Health Care
LTSS	Long-Term Services and Supports

Acronym	Full Name
MBHO	Managed Behavioral Health Organization
MBHP	Massachusetts Behavioral Health Partnership
MCO	Managed Care Organization
MedPAC	Medicare Payment Advisory Commission
MSIS	Medicaid Statistical Information System
MSSP	Medicare Shared Savings Program
NHE	National Health Expenditure
PACE	Programs of All-Inclusive Care for the Elderly
PAP	Principal Accountable Provider
PCA	Personal Care Attendant
PCC	Primary Care Clinician Plan
POS	Point-of-Service
PCMH	Patient Centered Medical Home
PCMHi	Patient-Centered Medical Home Initiative
PCP	Primary Care Provider
PCPR	Primary Care Payment Reform
PPO	Preferred Provider Organization
PQI	Prevention Quality Indicator
RPO	Registration of Provider Organizations
SCHIP	State Children's Health Insurance Program
SCO	Senior Care Options
THP	Tufts Health Plan
TME	Total Medical Expense
TPR	Total Patient Revenue

Introduction

Massachusetts is a national leader in innovative and high-quality health care, but the rising costs of the current system pose an increasing burden for households, businesses, and the state economy. In its inaugural 2013 cost trends report (2013 report), the Health Policy Commission (Commission) provided a profile of health care in the Commonwealth and analyzed significant drivers of cost growth.

The Commission's cost trends reports are intended to support and monitor efforts to meet the statewide benchmark for the rate of growth of total health care expenditures. This benchmark was established in Chapter 224 of the Acts of 2012, Massachusetts' landmark health care cost-containment law and aims for a sustainable rate of growth, set at the growth rate of potential gross state product for a five-year period from 2013 to 2017 and then to 0.5 percentage points below that figure for the following five years. The Commission's reports are informed by the annual reports of the Office of the Attorney General (AGO) and the Center for Health Information and Analysis (CHIA) as well as by testimony and reports submitted at the Commission's Annual Cost Trends Hearings. These cost trends reports serve to inform the activities of the Commission, as well as other policy development in Massachusetts.

The 2013 report recommended four areas of opportunity for the health system:

- **Fostering a value-based market** in which payers and providers openly compete to provide services and in which consumers and employers have the appropriate information and incentives to make high-value choices for their care and coverage options,
- **Promoting an efficient, high-quality health care delivery system** in which providers efficiently deliver coordinated, patient-centered, high-quality health care that integrates behavioral and physical health and produces better outcomes and improved health status,
- **Advancing alternative payment methods** that support and equitably reward providers for delivering high-quality care while holding them accountable for slowing future health care spending increases, and
- **Enhancing transparency and data availability** necessary for providers, payers, purchasers, and policymakers to successfully implement reforms and evaluate performance over time.

This report is issued as a supplement to the 2013 report, as it provides further analysis related to the prior report's findings. These topics will likely remain key areas of interest for the Commission in its October 2014 cost trends hearing and the 2014 annual cost trends report to be released in December.

Section A focuses on spending levels and trends, with a particular focus on spending in post-acute care, long-term services and supports, and behavioral health.

Section B discusses trends in the Massachusetts delivery system, profiling the mix of providers of inpatient care, levels of concentration of inpatient care, and the status of the implementation of alternative payment methods in the Commonwealth.

Section C analyzes disparities in quality and access through analysis of differences in preventable hospitalization rates based on income.

Section D describes limitations of current approaches for measuring contributions to growth in health care expenditures and identifies areas where additional methods may be needed.

Summary of Key Findings

Fostering a value-based market

- Changes in prices paid to providers continued to be the primary driver of growth in commercial payer spending between 2010 and 2012.
- Out-of-pocket spending as a proportion of total health care spending grew from 6.9% to 7.7% of total expenditures between 2010 and 2012, highlighting the growing incentives for consumers to engage in more value-based decision-making supported by information, but also the potential for consumers to face financial barriers to accessing care.
- A significant proportion of Massachusetts residents leave their home region to receive care at hospitals in other regions, with a significant net flow of inpatient care into Metro Boston, especially for patients with commercial insurance and for patients who reside in higher-income communities.
- Concentration of inpatient care in Massachusetts is increasing -- five systems accounted for 48% of commercial inpatient discharges in 2009; in 2014, we estimate that five systems will account for 56% of these discharges.

Promoting an efficient, high-quality health care delivery system

- While the Massachusetts health system achieves high quality performance in many domains, the state lags the national average on quality indicators related to preventable hospitalizations. There is a high rate of preventable hospital admissions among residents of lower income communities, suggesting an opportunity to improve outcomes and reduce cost through targeted community supports and improved ambulatory care.
- For patients with chronic medical conditions, the presence of a behavioral health condition is associated with higher spending on non-behavioral health care, suggesting interactions between behavioral and physical health conditions and potential savings from more integrated care.
- Higher spending for patients with behavioral health conditions is concentrated in ED and inpatient care, suggesting opportunities to improve care management and provide care in lower-intensity settings.
- Massachusetts residents use post-acute care more frequently than the national average, and there is wide variation among hospitals in the rate of hospital discharge to nursing facilities and home health agencies.

Advancing alternative payment methods

- Alternative payment methods can offer aligned financial support for more patient-centered, integrated care delivery models coordinating across behavioral and physical health conditions.
- At the end of 2012, alternative payment methods covered 29 percent of insured Massachusetts residents across commercial, Medicare, and Medicaid covered lives.
- Continued efforts to expand and improve the use of APMs include four areas:
  - Expanding APM contracts into new provider practices,
  - Extending APM models to include PPO membership,
  - Evaluating the implementation and improving the design of global budget models, and
  - Exploring newer APM concepts like episode-based bundled payments.

Enhancing transparency and data availability

- Centralized collection of standardized data on treatment utilization, spending and outcomes is especially important for behavioral health given the diversity of providers and services involved in the care continuum.
- Current measures of total medical expenditures examine the growth in spending for populations managed by provider organizations that provide primary care, but do not specifically measure the contributions to health care spending growth of other provider types, such as specialist physician groups, hospitals, and post-acute care providers.

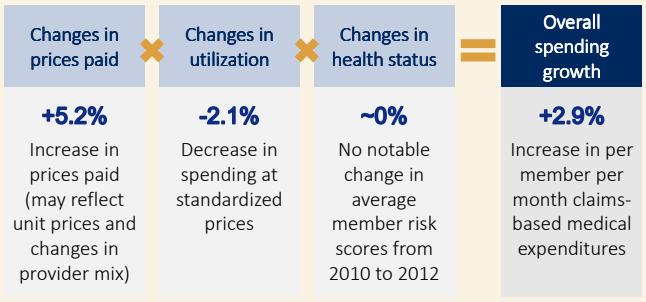
A. Spending Levels and Trends

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

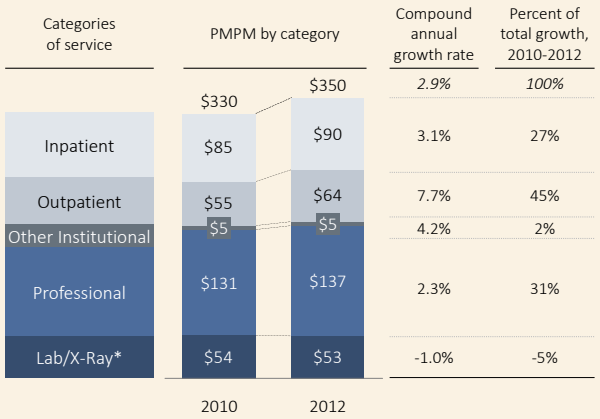


Figure A.3: Member cost sharing, 2010 - 2012

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

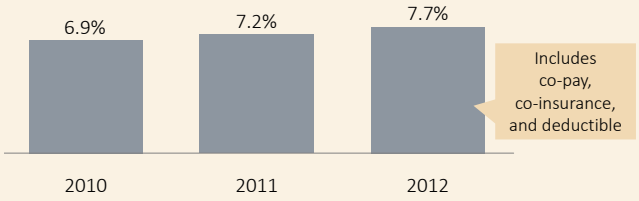
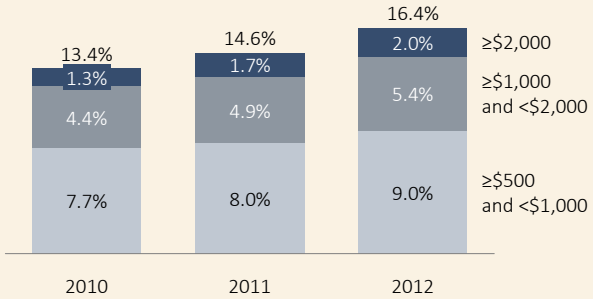


Figure A.4: Members with cost sharing above $500, 2010-2012

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.

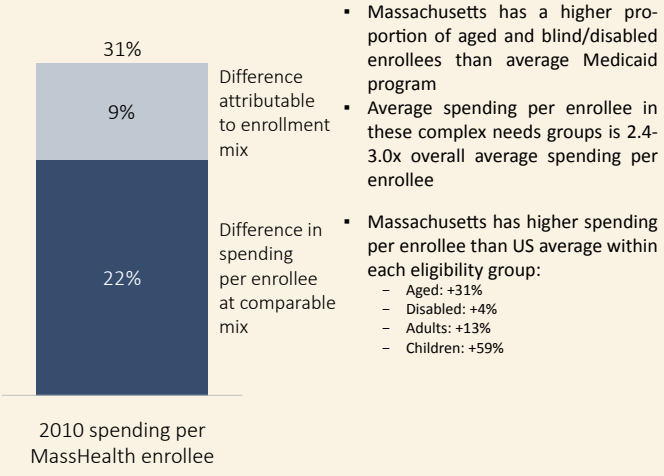
In the Commission's 2013 report, we identified that MassHealth had higher levels of spending per enrollee than the national average for Medicaid programs, ranking as the 5th highest state in this measure.[3,5] National comparisons for Medicaid programs should be interpreted cautiously, as programs differ 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

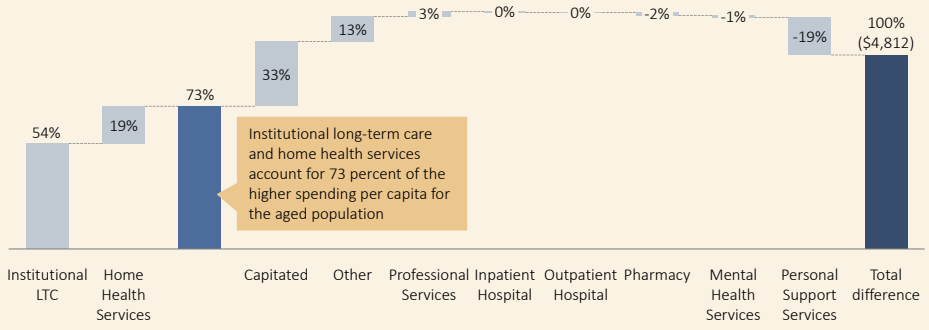
[v] The figure discussed in the Commission's 2013 report, a 2009 estimate of 21 percent obtained from the National Health Expenditure Accounts, is not directly comparable to the figure presented here, a 2010 estimate of 31 percent calculated based on CMS's Medicaid Statistical Information System (MSIS). 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

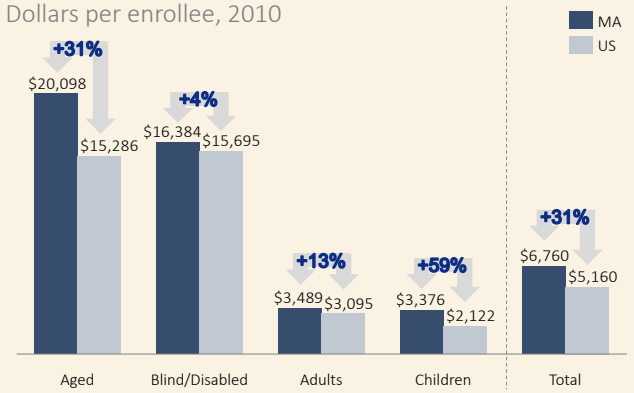
Dollars per enrollee, FFY2010



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**).

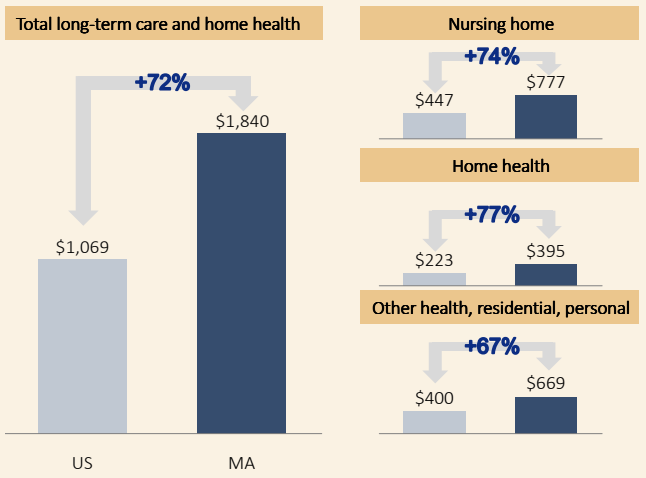
Given these findings, we focus our initial exploration of opportunities to improve care quality and efficiency on the long-term care spending segment, described next.

[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

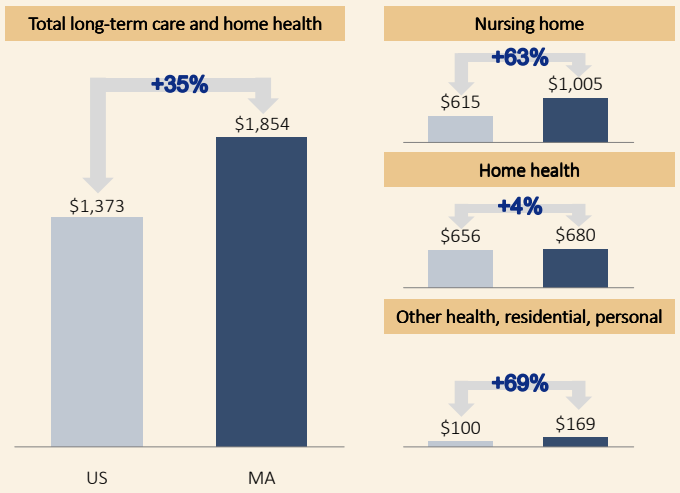
[vii] For the purposes of this report, long-term care is defined through the National Health Expenditure Accounts (NHE) components of nursing home; home health; and other health, residential, and personal care. This definition excludes post-acute care provided within rehabilitation hospitals, which are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

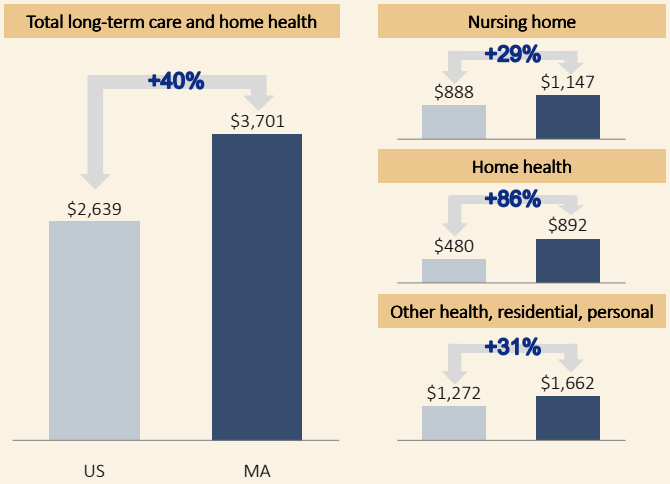
Dollars per beneficiary, 2009



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

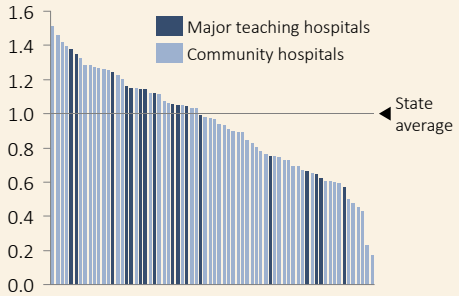
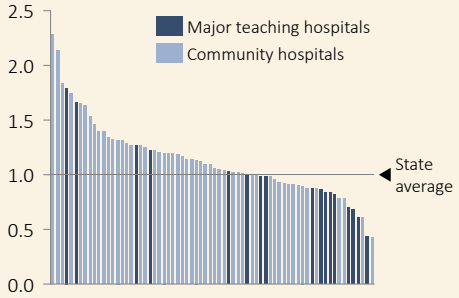


Figure A.12: Relative likelihood of discharge to a nursing facility for post-acute care by hospital

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

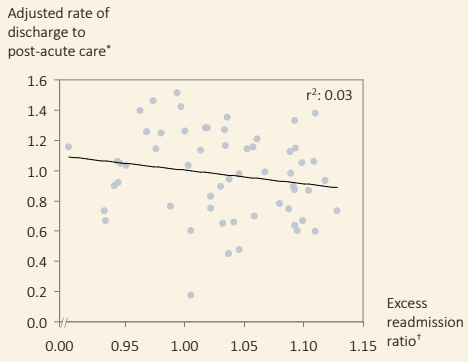
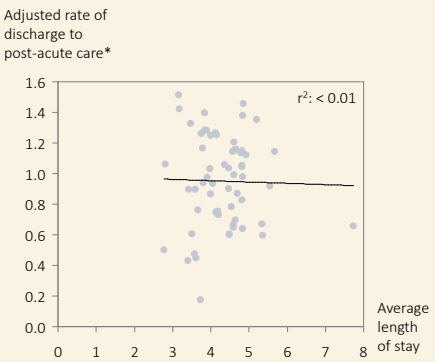


Figure A.14: Adjusted rates of discharge* to post-acute care and average length-of-stay by hospital



* 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.

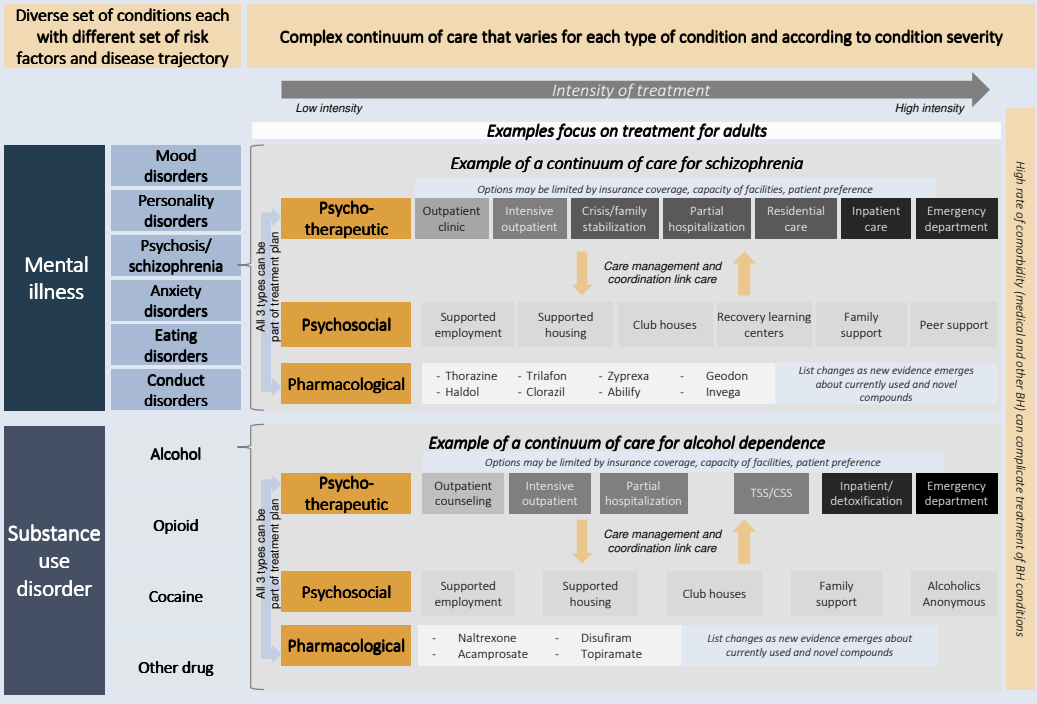
Treatment

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.

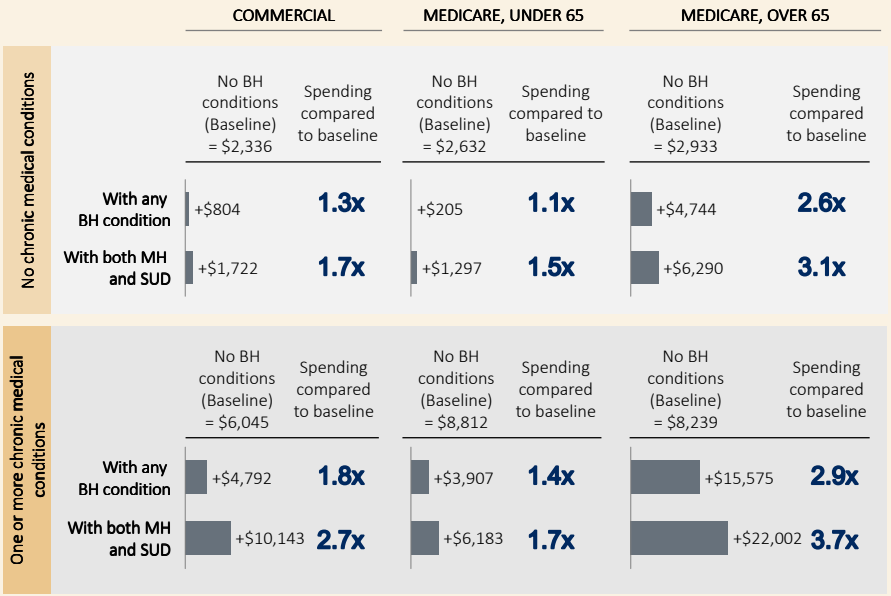
SOURCE: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2008-2011 (revised 10/13), and 2012.

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)

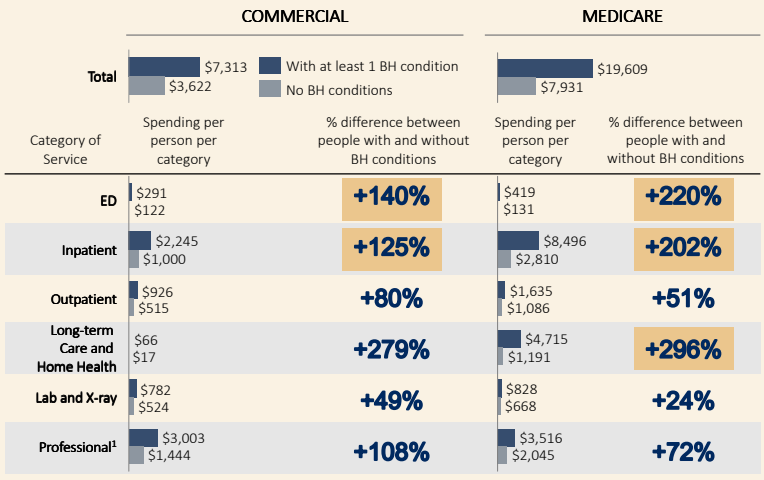


*Presence of behavioral health condition identified based on diagnostic codes in claims using Optum ERG software. Expenditures for non-behavioral health conditions were identified using Optum ETG episode grouper. Additional detail is available in a technical appendix.

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.

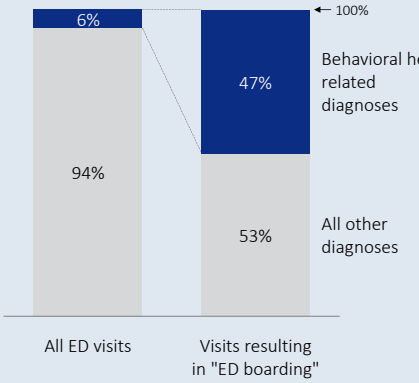
Specific opportunities for care delivery integration are described in greater detail in the July 2013 report of the Massachusetts Behavioral Health Integration Task Force, which was established by Chapter 224 to make specific recommendations to the Legislature and to the Commission for integration in 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.

References

1 Center for Health Information and Analysis. Annual Report on Massachusetts Health Care Market. Boston (MA): Center for Health Information and Analysis; 2013 Jul 24.

2 Office of the Attorney General. Examination of Health Care Cost Trends and Cost Drivers – Report for Annual Public Hearing. Boston (MA): Office of the Attorney General; 2013 Apr 24.

3 Health Policy Commission. 2013 Cost Trends Report [Internet]. Boston (MA): Health Policy Commission; [cited 2014 May 1]. Available at http://www.mass.gov/anf/docs/hpc/2013-cost-trends-report-final.pdf.

4 Health Policy Commission. A Report on Consumer-Driven Health Plans: A Review of the National and Massachusetts Literature [Internet]. Boston (MA): Health Policy Commission; [cited 2014 May 1]. Available at http://www.mass.gov/anf/docs/hpc/health-policy-commission-section-263-report-vfinal.pdf.

5 Medicaid and CHIP Payment and Access Commission. MACStats: Medicaid and CHIP Program Statistics, June 2014. Washington (DC): Medicaid and CHIP Payment and Access Commission; 2012 Jun 19.

6 Centers for Medicare & Medicaid Services. Medicaid Statistical Information System State Summary. Washington (DC): Centers for Medicare & Medicaid Services.

7 The Henry J. Kaiser Family Foundation. Distribution of Nursing Facility Beds by Certification Category [Internet]. Menlo Park (CA): The Henry J. Kaiser Family Foundation; [cited 2014 Jun 30]. Available from: http:// http://kff.org/other/state-indicator/beds-by-certification-category/.

8 Brown JR, Finkelstein A. The Interaction of Public and Private Insurance: Medicaid and the Long-Term Care Insurance Market [Internet]. Cambridge (MA): NBER; 2004 [cited 2014 Jun 27]. Available from: http://www.nber.org/papers/w10989.pdf

9 Institute of Medicine. Variation in Health Care Spending: Target Decision Making, Not Geography. Washington (DC): The National Academies Press; 2013.

10 Chulis GS. Assessing Medicare's Prospective Payment System for Hospitals. 1991; 48(2):167-206.

11 Grabowski DC, Huckfeldt PJ, Escarace JJ, Newhouse JP. Medicare Postacute Care Payment Reforms Have Potential to Improve Efficiency, but May Need Changes to Cut Costs. Health Affairs. 2012; 31(9):1941-1950.

12 Congressional Research Service. Addressing Medicare Hospital Readmissions. Washington (DC): Congressional Research Service; 2012 May 25.

13 L&M Policy Research, LLC. Evaluation of CMMI Accountable Care Organization Initiatives: Effect of Pioneer ACOs on Medicare Spending in the First Year. Washington (DC): L&M Policy Research, LLC.; 2013 Nov.

14 The Henry J. Kaiser Family Foundation. Total Number of Residents in Certified Nursing Facilities [Internet]. Menlo Park (CA): The Henry J. Kaiser Family Foundation; [cited 2014 Jun 20]. Available from: http://kff.org/other/state-indicator/number-of-nursing-facility-residents/.

15 Massachusetts Executive Office of Health and Human Services. The Community First Olmstead Plan [internet]. Boston (MA): Executive Office of Health and Human Services; [cited 2014 Jun 27]. Available at http://www.mass.gov/eohhs/docs/eohhs/olmstead/olmstead-plan.pdf.

16 Massachusetts Executive Office of Health and Human Services. Department of Developmental Services (DDS) Home and Community-Based Services Waivers [Internet]. Boston (MA): Massachusetts Executive Office of Health and Human Services; [cited 2014 Jun 26]. Available at http://www.mass.gov/eohhs/docs/dmr/hcsis/hcbs-brief.pdf.

17 Executive Office of Elder Affairs. Long-Term Care in Massachusetts: Facts at a Glance. Boston (MA): Executive Office of Health and Human Services; [cited 2014 Jun 26]. Available at http://bluecrossmafoundation.org/sites/default/files/Long%20Term%20Care%20in%20MA%20Facts%20At%20a%20Glance.pdf.

18 Milliman, Inc. Economic Impact of Integrated Medical-Behavioral Healthcare: Implications for Psychiatry. Denver (CO): Milliman, Inc.; 2014 Apr.

19 Substance Abuse and Mental Health Services Administration. National Expenditures for Mental Health Services & Substance Abuse Treatment, 1986-2009 [Internet]. Washington (DC): U.S. Department of Health and Human Services; [cited 2014 May 1]. Available at http://store.samhsa.gov/shin/content/SMA13-4740/SMA13-4740.pdf.

20 Substance Abuse & Mental Health Services Administration. 2009 National Survey on Drug Use and Health. Washington (DC): U.S. Department of Health and Human Services; 2010.

21 Blount A, Kathol R, Thomas M, Schoenbaum M, Rollman BL, O'Donohue W, Peek CJ. The Economics of Behavioral Health Services in Medical Settings: A Summary of the Evidence. American Psychological Association. 2007; 38(3):290-297.

22 State Mental Health Planning Council meeting. Boston (MA): State Mental Health Planning Council; 2014 Apr 10.

23 Substance Abuse & Mental Health Services Administration. Transforming Mental Health Care in America: The Federal Action Agenda: First Steps [Internet]. Washington (DC): U.S. Department of Health and Human Services; [cited 2014 Jun 26]. Available at http://www.samhsa.gov/federalactionagenda/NFC_FMHAA.aspx.

24 Center for Health Care Strategies, Inc. The Faces of Medicaid III: Refining the Portrait of People with Multiple Chronic Conditions. Hamilton (NJ): Center for Health Care Strategies, Inc.; 2009 Oct.

25 Substance Abuse & Mental Health Services Administration. National Survey on Drug Use and Health: 2-Year R-DAS (2002 to 2003, 2004 to 2005, 2006 to 2007, 2008 to 2009, and 2010 to 2011). Washington (DC): U.S. Department of Health and Human Services; 2012.

26 Reeves WC, Strine TW, Pratt LA, Thompson W, Ahluwalia I, Dhingra SS, McKnight-Eily LR, Harrison L, D'Angelo DV, Williams L, Morrow B, Gould D, Safran MA. Mental Illness Surveillance Among Adults in the United States [Internet]. Washington (DC): Centers for Disease Control and Prevention; 2011 Sep 2 [cited 2014 Jun 26]. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/su6003a1.htm.

27 The NSDUH Report. State Estimates of Adult Mental Illness from the 2011 and 2012 National Surveys on Drug Use and Health. Washington (DC): U.S. Department of Health and Human Services; 2014 Feb 28.

28 National Alliance on Mental Illness. State Legislation Report 2013: Trends, Themes & Best Practices in State Mental Health Legislation [Internet]. Washington (DC): National Alliance on Mental Illness; 2013 Oct 28 [cited 2014 Jun 26]. Available at http://www.nami.org/Content/NavigationMenu/State_Advocacy/Tools_for_Leaders/2013StateLegislationReportFinal.pdf.

29 Goldsmith RJ, Garlapati V. Behavioral interventions for dual-diagnosis patients. The Psychiatric Clinics of North America. 2004; 27(4):709–725.

30 Sokal J, Messias E, Dickerson FB, Kreyenbuhl J, Brown CH, Goldberg RW, Dixon LB. Comorbidity of Medical Illnesses Among Adults with Serious Mental Illness Who Are Receiving Community Psychiatric Services. Journal of Nervous and Mental Disease. 2004; 192(6):421-427.

31 Parks J, Svendsen D, Singer P, Foti ME. Morbidity and Mortality in People with Serious Mental Illness. Alexandria (VA): National Association of State Mental Health Program Directors; 2006 Oct.

32 Appelbaum PS. The 'Quiet' Crisis in Mental Health Services. Health Affairs. 2003; 22(5):110-116.

33 Sarvet B, Gold J, Bostic JQ, Masek BJ, Prince JB, Jeffers-Terry M, Moore CF, Molbert B, Straus JH. Improving Access to Mental Health Care for Children: The Massachusetts Child Psychiatry Access Project. Journal of the American Academy of Pediatrics. 2010; 126(6):1191-1200.

34 Health Policy Commission. Pre-filed Testimony from Witnesses, Pre-Filed Testimony of UMMHC, Response to Exhibit B [Internet]. Boston (MA): Health Policy Commission; [cited 2014 Jun 26]. Available at http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/health-policy-commission/annual-cost-trends-hearing/testimony-and-presentations/pre-filed-testimony-from-witnesses.html.

35 The NSDUH Report. Sources of Payment for Mental Health Treatment for Adults. Washington (DC): U.S. Department of Health and Human Services; 2011 Jul 7.

36 Dolan MA. Pediatric and Adolescent Mental Health Emergencies in the Emergency Medical Services System. Journal of the American Academy of Pediatrics. 2011; 127(5):1356-1366.

37 American Hospital Association. Bringing Behavioral Health into the Care Continuum: Opportunities to Improve Quality, Costs and Outcomes. 2012 Jan.

38 Butcher L. The Mental Health Crisis. Hospitals & Health Networks. 2012 May.

39 Substance Abuse & Mental Health Services Administration, Center for Integrated Health Solutions. A Standard Framework for Levels of Integrated Healthcare. Washington (DC): U.S. Department of Health and Human Services; 2013 Apr.

40 Behavioral Health Integration Task Force. Report to the Legislature and the Health Policy Commission. Boston (MA): Behavioral Health Integration Task Force. 2013 Jul.

41 Collins C, Hewson DL, Munger R, Wade T. Evolving Models of Behavioral Health Integration in Primary Care. Milbank Memorial Fund. New York (NY): Milbank Memorial Fund; 2010.

42 Druss BG, Mauer BJ. Health Care Reform and Care at the Behavioral Health-Primary Care Interface. Psychiatric Services. 2010; 61(11):1087-1092.

43 Katon WJ, Unützer J. Health Reform and the Affordable Care Act: The Importance of Mental Health Treatment to Achieving the Triple Aim. Journal of Psychosomatic Research. 2013; 74(6):533-537.

44 Druss BG, von Esenwein SA. Improving General Medical Care for Persons with Mental and Addictive Disorders: Systematic Review. General Hospital Psychiatry. 2006; 28(2):145-153.

45 Butler M, Kane RL, McAlpin D, Kathol RG, Fu SS, Hagedorn H,Wilt TJ. Integration of Mental Health/Substance Abuse and Primary Care. Rockville (MD): Agency for Healthcare Research and Quality; 2008 Oct.

46 Rabin E, Kocher K, McClelland M, Pines J, Hwang U, Rathlev N, Asplin B, Trueger NS, Weber E. Solutions To Emergency Department 'Boarding' And Crowding Are Underused and May Need To Be Legislated. Health Affairs. 2012; 31(8): 1757-1766.

B. Trends in the Massachusetts Delivery System

B.1 Mix of Providers for Inpatient Care

In the Commission's 2013 report, we found that the Massachusetts health care system is characterized by the use of higher-intensity care settings for both inpatient and outpatient hospital-based services.[1] In this section, we focus on inpatient care patterns. Inpatient spending accounts for nearly one-fifth of personal health care expenditures in Massachusetts, and Massachusetts uses inpatient care to a greater extent than other states, with 10 percent more discharges per capita after adjusting for the age of the population.[1] Because data and methods for examining this category of spending are well-established, we are able to use it to begin an analysis of care delivery flows and patterns.

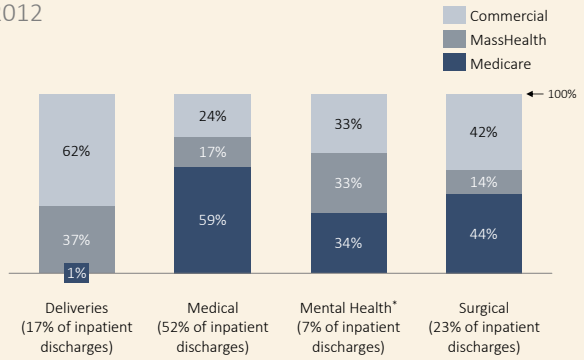
Inpatient hospitalizations cover a variety of types of patient needs across service categories including medical, surgical, delivery, and mental health service categories. Medical discharges comprise over 50 percent of all inpatient discharges in the state, surgical discharges 23 percent, deliveries 17 percent, and mental health discharges represent seven percent.[i] This breakdown varies by payer type (**Figure B1**).

Massachusetts's higher rate of hospitalization is concentrated among medical discharges. The state's higher hospitalization rate represents an additional 15 discharges per 1,000 persons annually, and nearly two-thirds of these additional discharges are in the medical service category (**Figure B2**).

In aggregate, Massachusetts hospitals handle inpatient cases that are of comparable complexity to the national average, with the average case mix index in the state one percent lower than the U.S. average.[2] Data suggest opportunities to handle some of these cases in outpatient settings and avoid hospitalizations. For Medicare beneficiaries age 65-74, Massachusetts' admissions for ambulatory care-sensitive conditions – admissions that may be indicative of insufficient outpatient management – are 9 percent greater than the national average.[3] Massachusetts has made progress in this area over the last few years, but still lags the median state (**Figure B3**).

Figure B.1: Discharges by payer type† for inpatient service categories

Percent of inpatient discharges* in each service category, 2012

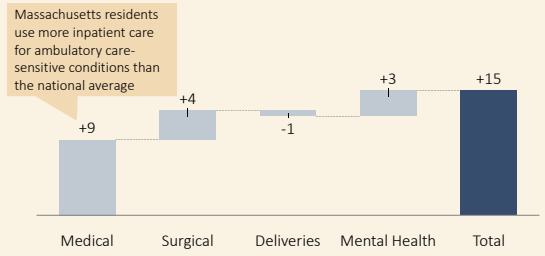


* Discharges in general acute care hospitals. Excludes discharges in psychiatric, specialty non-acute, and chronic care hospitals.

† Payer mix for discharges in general acute hospitals. Psychiatric hospitals do not report number of discharges by payer type.

SOURCE: Massachusetts Health Data Consortium; HPC analysis

Figure B.2: Breakdown of difference in discharges between Massachusetts and U.S. by inpatient service category



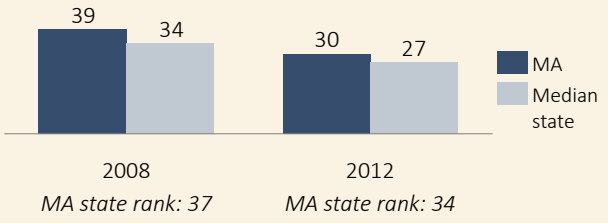
* Discharges in general acute care hospitals. Excludes discharges in psychiatric, specialty non-acute, and chronic care hospitals.

SOURCE: Healthcare Cost and Utilization Project, Kaiser Family Foundation, HPC analysis

[i] This figure only includes mental health discharges in general acute care hospitals; this excludes psychiatric, specialty non-acute, and chronic care hospitals.

Figure B.3: Hospital admissions for ambulatory care-sensitive conditions among Medicare beneficiaries

Inpatient admissions per 1,000 persons



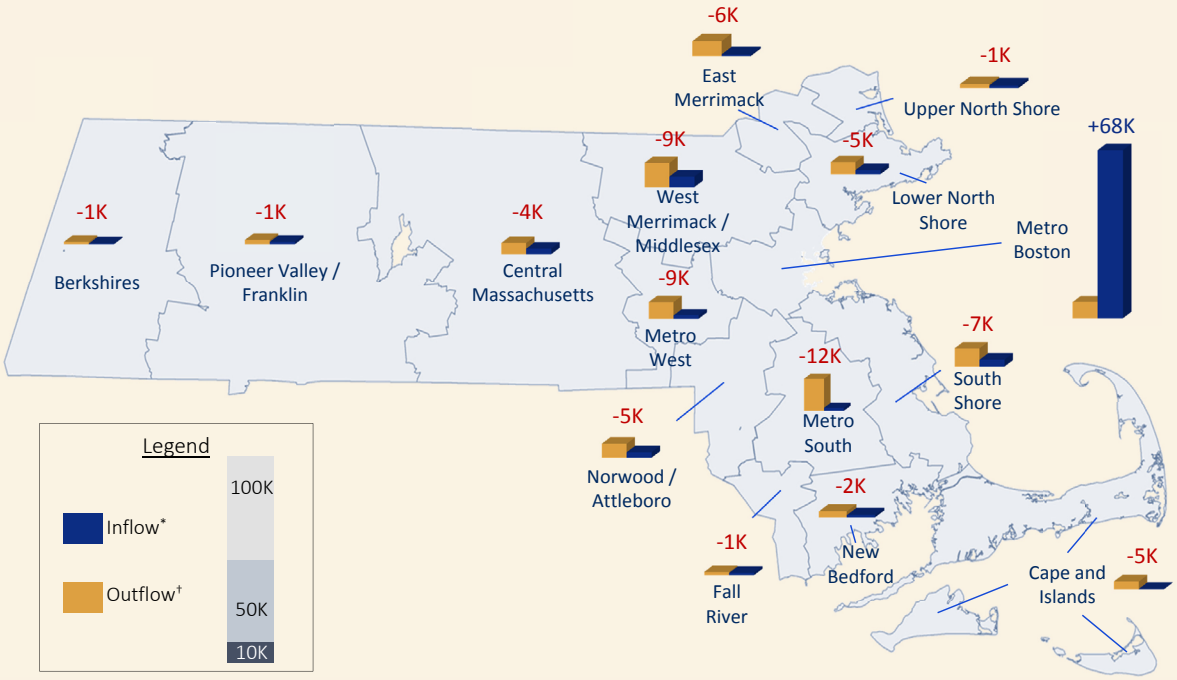
SOURCE: Commonwealth Fund Health System Data Center

In addition to using inpatient settings more often for care, Massachusetts residents receive a higher proportion of their inpatient care at major teaching hospitals than do people elsewhere in the U.S.[ii] The Commission's 2013 report noted that Massachusetts Medicare patients used major teaching hospitals for 40 percent of their inpatient discharges, compared with a 16 percent nationally.[1] These hospitals receive higher rates of payment, on average, than community hospitals.[4]

While patients and referring providers are able to choose among a variety of hospitals for certain types of care, for other types of care choice may be more limited, such as when patients seek emergency care or when they are transferred to another acute hospital. Still, 40 percent of all discharges and 46 percent of discharges from major teaching hospitals are both non-emergency[iii] and non-transfer hospitalizations. This suggests a considerable scope of inpatient care for which there may be a choice of providers. Choice may be influenced by the preferences of the patient and of the referring provider, making it important to facilitate value-based decision making for both parties. Consistent with the aims of Chapter 224, Massachusetts payers are working to provide greater information and incentives for consumers to make value-based choices through price and quality transparency and through tiered network insurance products. Chapter 224 also encourages payers to adopt APMs that can provide financial incentives for primary care providers to make more value-based referrals. Payers should continue to advance these aims.

Figure B.4: Inflow and outflow of inpatient discharges across regions in Massachusetts

Number of inpatient discharges for non-transfer, non-emergency volume, 2012



* Discharges at hospitals in region for patients who reside outside of region

† Discharges at hospitals outside of region for patients who reside in region

SOURCE: Center for Health Information and Analysis; HPC analysis

[ii] We use the Medicare Payment Advisory Commission (MedPAC) definition of major teaching hospital. Major teaching hospitals are those that train at least 25 residents per 100 hospital beds. The Commission's 2013 report noted that 23 percent of acute hospitals in Massachusetts were in major teaching hospitals, compared with 5 percent nationally.

[iii] Defined as discharges that were not admitted from the ED and without an ED visit in their record.

Choice of hospital is often influenced by geographic proximity. In some cases, a major teaching hospital may be the nearest hospital for patients and may therefore provide local care, such as in the Metro Boston region, in which 11 of the 16 general acute hospitals are major teaching hospitals. However, in a large number of cases, patients leave their home region to receive care at a hospital in another region. These flows of patients outside their home region result in a net outflow of patients from most regions and a net inflow of patients to Metro Boston (**Figure B4**). Similar patterns are observed for each inpatient service category (medical, surgical, deliveries, and mental health discharges) and for DRGs representing both secondary and tertiary levels of care.

However, these patterns vary based on patient characteristics. Patients with commercial insurance are more likely to leave their home region for care than patients with Medicare or MassHealth coverage (**Figure B5**). Moreover, the likelihood of obtaining care outside of a patient's home region varies with the median income of the patient's community; residents of communities where the median income is over $100,000 per year are more than twice as likely to leave their region for care as residents of communities where median income is below $35,000 per year (**Figure B6**).

Figure B.5: Inpatient care received outside of home region by payer type

Percent of non-emergency, non-transfer inpatient discharges for payer type, 2012

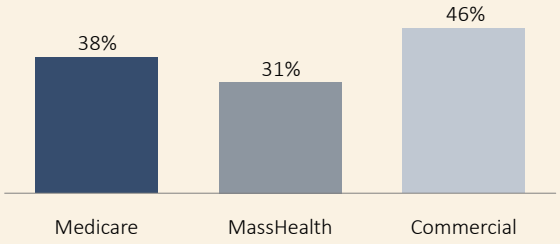
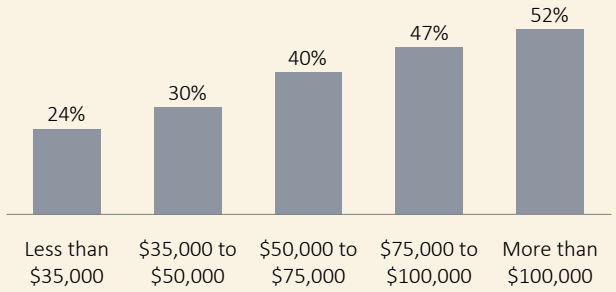


Figure B.6: Breakdown of difference in discharges between Massachusetts and U.S. by inpatient service category

Percent of inpatient discharges for community income group*, 2012



* Community income is estimated as the median household income for the patient's zip code

NOTE: Rates are adjusted for age, sex, payer group, distance from hospitals, distance from Metro Boston, and major diagnostic category. Analysis excluded individuals below 18 years of age, residents of Metro Boston, discharges with an ED visit in their record, and transfers from other acute hospitals.

SOURCE: Center for Health Information and Analysis; Census Bureau; HPC analysis

B.2 Concentration of Inpatient Care

Levels of concentration

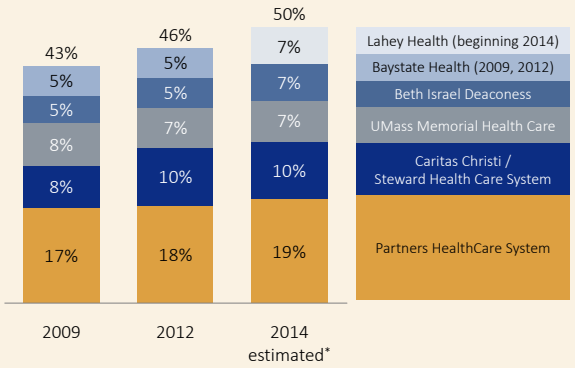
The increasing concentration of care in Massachusetts has been well-documented. In 2009, the five health systems with the greatest share of inpatient care comprised 43 percent of all inpatient discharges; based on the care hospitals delivered in 2012, acquisitions closed in 2013 and 2014 would increase the share held by the five largest systems to 50 percent of all inpatient care in the state (**Figure B7**). Concentration of commercial inpatient care among large systems was even higher in each year (**Figure B8**). Moreover, these systems often also command higher commercial payment rates. Approximately 80 percent of health care spending for acute hospitals and physicians was paid to providers with relative prices above the state median relative price in 2011 and 2012.[5]

Analysis of concentration at the level of specific service lines can be informative, alongside measures of concentration of broader service categories. Markets can vary by service line. For some types of specialized tertiary or quaternary care, relatively few hospitals offer services. For example, inpatient care for burns is highly concentrated, as few hospitals have burn units. Service lines also differ in the degree to which care is planned or delivered in emergency situations and by the level of payment for care in the service line. Characteristics of different service lines may be associated with higher or lower levels of concentration. For example, in 2012, 57 percent of commercial deliveries were concentrated in five systems, with Partners HealthCare System accounting for more deliveries than the next four systems with highest delivery volume combined (**Figure B9**).

In addition to differences by service line, patterns of concentration vary by region. Different systems have lead-

Figure B.7: Concentration of inpatient care in Massachusetts

Share of total inpatient discharges held by five highest volume systems, 2009-2012

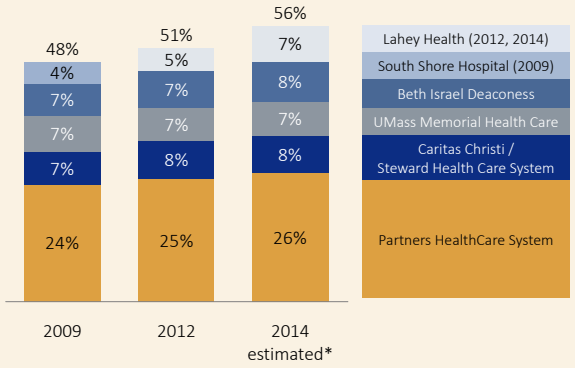


* 2014 data not yet available. Based on applying systems established by 2014 (including 2013 Partners HealthCare acquisition of Cooley Dickinson and 2014 Lahey Health acquisition of Winchester hospital) to 2012 inpatient discharge data

SOURCE: Center for Health Information and Analysis; HPC analysis

Figure B.8: Concentration of commercial inpatient care in Massachusetts

Share of commercial inpatient discharges held by five highest volume systems, 2009-2012

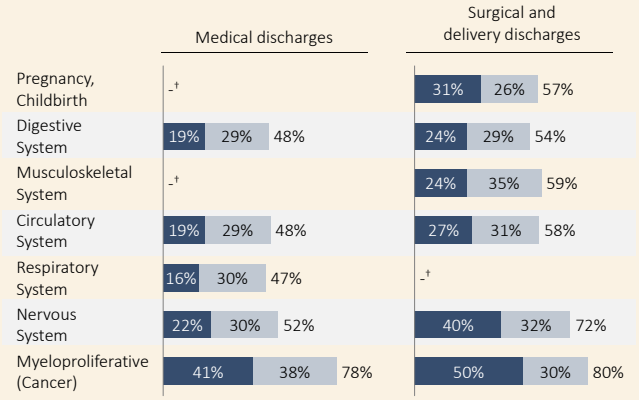


* 2014 data not yet available. Based on applying systems established by 2014 (including 2013 Partners HealthCare acquisition of Cooley Dickinson and 2014 Lahey Health acquisition of Winchester hospital) to 2012 inpatient discharge data

SOURCE: Center for Health Information and Analysis; HPC analysis

Figure B.9: Concentration of commercial inpatient discharges by diagnostic area

Percent of commercial inpatient discharges at 5 highest-volume hospital systems in each diagnostic area*, 2012



* Diagnostic areas shown were selected as high-volume and/or high-expenditure service lines

† Not shown because of low volume of discharges of this type

SOURCE: Center for Health Information and Analysis; HPC analysis

ing share in different parts of the state. For example, Partners has the leading commercial share in the Boston region and neighboring areas, while the Southcoast Health System and UMass Memorial Health Care system receive the majority of commercial discharges in Fall River and Central Massachusetts, respectively (**Table B1**).

Concentration of hospital services is well-known, but fewer data have been available on the extent of concentration of physician services. CHIA found that aggregate payments for physician care exhibited levels of concentration similar to those for hospital care.[5] More detailed analyses of the extent of concentration of physician services is an area of interest for the Commission; transparency in this area will be improved by use of new data sets, such as the APCD and the Registration of Provider Organizations (RPO) database.[iv]

Provider consolidation has been ongoing for the past two decades in Massachusetts and has continued in recent years. In Massachusetts, between 1990 and today, 80 percent of current acute hospitals were involved in some form of consolidation.[1] Beyond hospitals, other types of provider organizations are also exploring a variety of new corporate, contracting, and clinical arrangements, documented in notices of material change submitted to the Commission.[v] Between April 2013 and June 2014, the Commission received 25 notices from provider organizations pursuing material changes to their operations or governance, including six acute hospital acquisitions (**Table B2**).

Table B.1: Systems with leading share of commercial inpatient discharges by region, 2012

	System with leading share	Share of commercial discharges	Share for system with second-highest share
Region			
Berkshires	Berkshire Health System	69%	11%
Cape and Islands	Cape Cod Health Care	58%	19%
Central Massachusetts	UMass Memorial Health Care	52%	19%
East Merrimack	Steward Health Care System	26%	24%
Fall River	Southcoast Health System	66%	18%
Lower North Shore	Partners HealthCare	46%	38%
Metro Boston	Partners HealthCare	46%	16%
Metro South	Steward Health Care System	27%	16%
Metro West	Partners HealthCare	36%	21%
New Bedford	Southcoast Health System	71%	11%
Norwood/ Attleboro	Partners HealthCare	33%	27%
Pioneer Valley/ Franklin	Baystate Health	49%	19%
South Shore	South Shore Hospital	39%	20%
Upper North Shore	Anna Jaques Hospital	41%	18%
West Merrimack/ Middlesex	Circle Health	20%	18%

SOURCE: Center for Health Information and Analysis; HPC analysis

[iv] The Commission is tasked with developing a comprehensive database of provider organization structure, composition, and size through the registration of provider organizations (RPO). RPO will provide an informational foundation to support monitoring of the health care system, like assessing health care capacity and needs, evaluating the performance of different organizational models in the state, and providing a map of relationships among providers. The program is expected to launch in the fall of 2014.

[v] Chapter 224 establishes a process under which the Commission reviews material changes in the provider marketplace. Provider organizations proposing material changes to their operations or governance structure are required to submit a notice of material change (MCN) to the Commission. The Commission reviews the MCN and determines whether to initiate a cost and market impact review (CMIR) on the transaction. The CMIR is a multi-factor review that examines the likely impact of the transaction on cost, quality, and access to care. Based on the findings of the CMIR which are presented in preliminary and then final reports, the Commission may refer the transaction to the attorney general's office for further investigation or action.

The Commission's Cost and Market Impact Reviews (CMIRs) are comprehensive evaluations of material changes for their cost, quality, and access impacts. Past CMIRs have highlighted both potential harms and potential benefits of provider changes for cost trends. These reviews have found cost impacts that range from cost-increasing, through increased physician prices and greater rates of referral to higher-priced academic medical centers, to cost-saving, through projected re-direction of referrals from higher-priced academic medical centers to lower-priced hospital settings.[6,7] The notices of material changes reported to the Commission highlight a variety of models for corporate, contracting, and clinical affiliations, and the Commission will continue to study their impact on cost, quality, and access.

Table B.2: Types of transactions in notices of material change received Apr 2013 - June 2014

Type of transaction	Number	Percent of total
Physician group affiliation or acquisition	8	32%
Acute hospital acquisition	6	24%
Clinical affiliation	4	16%
Change in ownership or merger of owned entities	3	12%
Acquisition of post-acute provider	2	8%
Formation of contracting entity	2	8%

SOURCE: HPC analysis

B.3 Alternative Payment Methods

In the 2013 report, we described the growth of new models for accountable care delivery supported by alternative payment methods (APMs) that established new incentives in place of the fee-for-service payment system. While various approaches to APMs exist, in Massachusetts, the predominant method is to set a global budget for a provider organization, with savings below the budget and costs in excess of the budget shared between the payer and the provider organization.[1]

Chapter 224 established goals for both public and private payers to reduce the use of fee-for-service payments and implement APMs to the maximum extent feasible.[8] When the legislation was passed in 2012, payers and providers had already begun to make some progress to implement these payment methods. Massachusetts' State Innovation Model grant, awarded in 2013, is also designed to further the adoption of APMs. Among commercial payers, penetration of APMs has expanded, although payment methods vary significantly in their structure and level of risk sharing. Continued progress in developing methods that align incentives and improve outcomes will require sustained effort by public and private payers, providers, and other stakeholders.

2012 baseline: coverage of alternative payment methods

In 2012, 29 percent of members and beneficiaries across public and private payers in Massachusetts were covered under APMs (**Figure B10**).[vi]

For Medicare, global budget models gained significant penetration in both the Original Medicare and Medicare Advantage segments, with 18 percent of Original Medicare beneficiaries aligned with a Medicare ACO and with 45 percent of Medicare Advantage beneficiaries covered by a plan using APMs. Massachusetts provider organizations have been leaders in participating in the two Medicare ACO programs – the Medicare Shared Savings Program (MSSP) and the Pioneer ACO Model – with five MSSP ACOs and five Pioneer ACOs in 2012. By the end of 2013, an additional eight Massachusetts provider organizations had signed up as MSSP ACOs, and APMs covered approx-

Table B.3: Provider organizations participating in Medicare ACO programs

Pioneer ACOs
Atrius Health
Beth Israel Deaconess Care Organization (BIDCO)
Mount Auburn Cambridge Independent Practice Association (MACIPA)
Partners HealthCare
Steward Integrated Care Network
Medicare Shared Savings Program ACOs - 2012 cohorts
Physicians of Cape Cod ACO, Inc.
Jordan Community ACO (DBA Beth Israel Deaconess Hospital - Plymouth)
Harbor Medical Associates, PC (participating in Advance Payment Model)
Circle Health Alliance, LLC
Coastal Medical, Inc.
Medicare Shared Savings Program ACOs - 2013 cohort
Total Accountable Care Organization (DBA Collaborative Health ACO)
Accountable Care Organization of New England, LLC
Pioneer Valley Accountable Care, LLC
Lahey Clinical Performance Accountable Care Organization, LLC
Southcoast Accountable Care Organization, LLC
Cape Cod Health Network ACO
Winchester Community ACO
Accountable Care Clinical Services PC

SOURCE: Centers for Medicare & Medicaid Services

[vi] For the purpose of these estimates, we consider APMs based on the definition used in CHIA's 2013 report on Alternative Payment Methods in the Massachusetts Commercial Market. This definition includes global budget, limited budget, bundled payment, and other non-fee-for-service models. Pay-for-performance incentives accompanying fee-for-service payments are not included in these estimates.

imately 40 percent of Original Medicare beneficiaries (see **Table B3 and B4**).[9]

In 2012, MassHealth members were covered under a number of different types of APMs. Medicaid MCOs reported that nearly one-fourth of members are covered under some type of APM.[10] The Patient-Centered Medical Home Initiative (PCMHi) included infrastructure payments, a per member per month payment for medical home activities, and a shared savings arrangement for participating primary care practices for patients covered by MCOs or the PCC program.

In the commercial insurance population, CHIA found that APMs covered approximately one-third of members.[5] The commercial risk contracts included in this estimate vary widely, as has been described in prior Massachusetts reports. Structural differences in these contracts include level of risk sharing, quality measures and incentives, the services covered under the contract, whether the risk extends to fully-insured and self-insured members, and requirements for stop-loss insurance. For example, levels of risk sharing range from shared savings to full risk structures. In shared savings (upside-only) arrangements, providers may earn a portion of a budget surplus, but are not at financial risk for any budget deficit. Under partial risk models, providers are responsible for a portion of budget surplus or deficit, which varies by contract. Under full risk arrangements, providers collect or pay 100 percent of any budget surplus or deficit.[11] Limited public data are available on the proportion of risk contracts at each level of risk.

In addition to structural differences, contracts vary significantly by provider in budget levels, often reflecting the provider's historic market position.[11] Some differences in risk contracts may appropriately reflect different provider organization and patient population profiles, while other differences are based on market factors not linked to value. Because these contracts are typically confidential and may be considered proprietary, there is limited transparency of or ability to analyze their differences.

Table B.4: Summary of APM penetration by payer

Beneficiaries/members covered by APMs*, 2012

Commercial	Percent of HMO members covered by APM	HMO members as percent of total members	Percent of members covered by APMs
BCBS	80%	56%	45%
HPHC	38%	80%	30%
THP	54%	67%	36%
All other	29%	63%	18%
Total	*54%*	*63%*	*34%*

Medicare	Percent of total lives covered by APMs
Original Medicare	18%
Medicare Advantage	45%
Total	*24%*

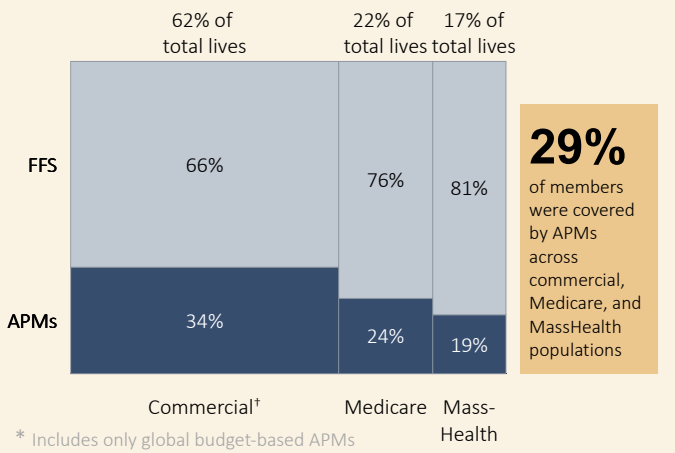
Medicaid	Percent of total lives covered by APMs
PCC	12%
MCO	24%
Total (PCC and MCO)	*19%*

* Includes only global budget-based APMs

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

Figure B.10: APM coverage by payer type

Percent of members/beneficiaries covered by APMs*, 2012



* Includes only global budget-based APMs

† Includes Commonwealth Care

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

APM trends

Continued progress in the transition away from fee-for-service payment requires expansion in the breadth of coverage of APMs and improvements in their implementation.

Expansion in APM coverage

For MassHealth, expanded adoption of APMs is required under targets established by Chapter 224.[vii] While PCMHi ended in 2014, MassHealth launched the Primary Care Payment Reform (PCPR) initiative in January 2014.[1] The PCPR payment model consists of a monthly capitated payment to cover a defined bundle of primary care and some behavioral health services (if selected by participants), quality incentive payments, and a shared savings/shared risk arrangement. MassHealth is also developing a Health Homes demonstration and a pediatric asthma bundled payment pilot, continuing its PACE, SCO, and One Care programs, and engaging stakeholders as it looks to implement an ACO program. MCOs have outlined plans to continue expanding their global budget models to additional providers, and to move providers from shared savings models to shared risk or full risk models. Specific to the integration of mental health services into an APM model, MassHealth's behavioral health vendor – MBHP – is working to develop a bundled payment model for inpatient behavioral health care.[12]

The Group Insurance Commission (GIC) is also required by Chapter 224 to move toward APMs. The GIC has initiated a program requiring plans to contract with Integrated Risk Bearing Organizations.

For the commercially insured population, expansion of APMs has faced countervailing trends. While payers have been expanding risk contracts into relationships with additional provider practices, these contracts have been limited to covering members in HMO plans, which have become less prevalent as the commercial insurance market has shifted toward greater use of PPO plans.[13,viii] Nonetheless, between 2009 and 2012, the rate of growth to additional provider practices exceeded the rate of decline in HMO volume, and there was net expansion of the number of consumers whose providers are paid through APMs. Data on trends through 2013 will be available later this year and will reveal whether commercial risk contracts continued to expand in the number of lives covered.

The major commercial payers continue to transition many of their mid-sized to large provider organizations away from fee-for-service arrangements to either shared savings or risk-based global agreements. By the end of 2012, Blue Cross Blue Shield of Massachusetts had established APM contracts with providers covering 80 percent of its HMO members.[10] While other commercial payers had a smaller proportion of their HMO members under APMs in 2012, they have signed contracts with additional providers over the past year and a half and continue to implement these methods.

For Massachusetts to fully transition away from fee-for-service payments, APMs will need to extend to PPO populations. Provider organizations have called for payers to apply global budget APMs to PPO members. Several commercial payers have testified that they intend to expand their models to PPO members, using an attribution algorithm to identify a primary care provider for those members who have not designated one.[14,15,16] Since some members make limited use of primary care and other members may receive their primary care from multiple providers in a given year, such attribution methods typically do not assign all members to providers, and global budget models may not reach the same coverage for PPO members as is possible for HMO members. Published results estimate that 70 to 90 percent of PPO populations with claims experience can be attributed using these algorithms.[14,15] Still, expansion of these models to members of PPO insurance plans will enable much broader coverage of APMs.

Given the variety of design choices in attribution methods and the importance to provider organizations of information on the patient populations for which they are accountable, payers should engage in a transparent process to review and improve their attribution methods and should align their methods to the maximum extent feasible. The Commission will work with CHIA, payers, and providers in the fall of 2014 to understand the current state of development of attribution methods and explore opportunities to accelerate the development of aligned methods.

Improvements in APM implementation

While progress in expanding APMs is critical, broad coverage of APMs is insufficient on its own. Improvement in the implementation of these models will be an important factor for the success of payment reform. Technical advances in implementation may include evaluation and innovation to improve models over time, alignment of models to reduce administrative complexity, and consideration of additional models beyond global budget-based models.

[vii] Chapter 224 requires 80 percent of MassHealth enrollees to be covered under APMs by July 2015.

[viii] In our analysis, we primarily distinguish between insurance products based on whether they require identification of a primary care provider. HMO (Health Maintenance Organization) and point-of-service (POS) product types require designation of a PCP, while preferred provider organization (PPO) and indemnity product types do not. In this section, our discussion of HMO products also applies to POS products, and our discussion of PPO products also applies to indemnity products.

What types of APMs have been adopted in other states?

In Massachusetts, the most common APM is a global budget-based contract that offers a shared savings, shared risk, or full risk incentive to provider organizations based on the total medical expenses of the populations they manage. While this is the most prevalent model in Massachusetts, other models have been implemented at scale in other parts of the country. Arkansas and Maryland are two other states that have pursued innovative payment and care delivery reforms.

The Arkansas Health Care Payment Improvement Initiative -- a collaborative effort between Arkansas Medicaid, Arkansas Blue Cross Blue Shield, and QualChoice -- has introduced a multi-payer, episode-based payment model that sets a bundled budget for services associated with specific episodes of care. Episodes launched to date include hip and knee replacements, pregnancy and delivery, congestive heart failure, and attention deficit hyperactivity disorder. For each episode, a Principal Accountable Provider (PAP) is attributed through claims and held responsible for the total cost of the episode, with shared savings for costs below the budget and shared risk for excess costs.

Maryland has pursued an all-payer effort -- spanning Medicaid, Medicare, and commercial payers -- to reform payment to hospitals to encourage reductions in volume and increased investment in prevention and disease management. The Total Patient Revenue (TPR) system assures hospitals a fixed amount of revenue, independent of the number of patients treated or the volume of services provided to these patients. Ten participating hospitals have received a fixed annual revenue budget; those that are able to improve their operational efficiency and/or avoid wasteful utilization can earn significant savings, while those that fail to constrain costs bear the financial risk.

In addition to these models, other public and private payers have pursued a variety of more incremental payment changes intended to tie payment to value, ranging from quality bonuses to non-payment for high-risk and low-value procedures like early elective deliveries.

As noted above, there is significant variation in the design of efficiency and quality incentives in different payer APM contracts. The effectiveness of the various risk contract structures in driving care delivery changes and the performance of different providers under these contracts has been mixed.[6] Moreover, limited evidence is available on the impact of various risk contract design choices on APM performance. Identifying and disseminating best practices for payment model design is an important area of work for payers, providers, and the government. The Commission will continue to review and evaluate the impact of these varied models through its annual cost trends hearings and report.

The wide range of structures illustrates the limited extent of multi-payer alignment on payment reform in Massachusetts compared to other states such as Arkansas and Maryland. There is an opportunity for increased alignment, which could reduce the administrative complexity of APMs for providers and enhance the impact of these models by creating more consistent incentives.

Opportunities to develop APMs that are not based on global budgets -- such as bundled payments -- have not gained significant traction in the commercial market, although 100 Massachusetts organizations are participating in Medicare's Bundled Payments for Care Improvement (BPCI) demonstration program.[ix] Because global budget-based models assign accountability for a person's care management to the organization providing the person's primary care, care delivery organizations that do not have aligned primary care providers have a limited ability to participate in these models. Additional payment innovations should be considered to enable these kinds of providers – such as specialist physician groups without primary care providers – to move away from fee-for-service payment. Payers should review payment methods for non-primary care providers that have been implemented in other states, such as Arkansas' episodes of care and Maryland's total patient revenue models, to expand the scope of Massachusetts providers that are able to assume accountability for outcomes (see sidebar **"What types of APMs have been adopted in other states?"**). Commercial payers have begun to test these kinds of models. For example, Harvard Pilgrim Health Care indicated that it is developing a bundled payment model that builds a case rate for total hip and knee replacements.[15]

[ix] Bundled payments are types of APMs that establish a budget for an entire episode of care. For example, a bundled payment model for hip and knee replacements might set a total budget covering physician visits prior to and after a surgery, professional fees for the surgery, hospital payments for inpatient stays, and post-acute care.

References

1 Health Policy Commission. 2013 Cost Trends Report [Internet]. Boston (MA): Health Policy Commission; [cited 2014 May 1]. Available at http://www.mass.gov/anf/docs/hpc/2013-cost-trends-report-final.pdf.

2 Health Policy Commission. Analysis of the Healthcare Cost and Utilization Project (HCUP) National Inpatient Sample. Washington (DC): Agency for Healthcare Research and Quality; 2011.

3 DC Radley, D McCarthy, JA Lippa, SL Hayes, and C Schoen. Results from a Scorecard on State Health System Performance, 2014. The Commonwealth Fund; 2014 Apr.

4 Office of the Attorney General. Annual Report on Health Care Cost Trends and Cost Drivers. Boston (MA): Office of the Attorney General; 2010 Mar 16.

5 Center for Health Information and Analysis. Annual Report on Massachusetts Health Care Market. Boston (MA): Center for Health Information and Analysis; 2013 Jul 24.

6 Health Policy Commission. Review of Partners HealthCare System's Proposed Acquisitions of South Shore Hospital and Harbor Medical Associates, Final Report [Internet]. Boston (MA): Health Policy Commission; [cited 2014 May 1]. Available at http://www.mass.gov/anf/docs/hpc/20140219-final-cmir-report-phs-ssh-hmc.pdf.

7 Health Policy Commission. Review of Lahey Health System's Proposed Acquisition of Winchester Hospital, Final Report [Internet]. Boston (MA): Health Policy Commission; [cited 2014 May 1]. Available at http://www.mass.gov/anf/docs/hpc/material-change-notices/20140522-final-cmir-report-lhs-wh.pdf.

8 Chapter 224 of the Acts of 2012, "An Act Improving the Quality of Health Care and Reducing Costs Through Increased Transparency, Efficiency and Innovation" [Internet]. Boston (MA): Massachusetts General Court; [cited 2014 May 1]. Available at https://malegislature.gov/Laws/SessionLaws/Acts/2012/Chapter224.

9 Authors' calculations using data from the Centers for Medicare and Medicaid Services. 2014 May.

10 Center for Health Information and Analysis. Alternative Payment Methods in the Massachusetts Commercial Market: Baseline Report (2012 Data). Boston (MA): Center for Health Information and Analysis; 2013 Dec.

11 Office of the Attorney General. Examination of Health Care Cost Trends and Cost Drivers – Report for Annual Public Hearing. Boston (MA): Office of the Attorney General; 2013 Apr 24.

12 Massachusetts Behavioral Health Partnership. Presentation to the Massachusetts Public Payers Commission. 2014 Apr 10.

13 Office of the Attorney General. Annual Report on Health Care Cost Trends and Cost Drivers. Boston (MA): Office of the Attorney General; 2011 Jun 22.

14 Health Policy Commission. Pre-filed Testimony from Witnesses, Pre-Filed Written Testimony of Blue Cross Blue Shield of Massachusetts, Response to Exhibit B, C and D [Internet]. Boston (MA): Health Policy Commission; [cited 2014 May 1]. Available at http://www.mass.gov/anf/docs/hpc/bcbsma.pdf.

15 Health Policy Commission. Pre-filed Testimony from Witnesses, Pre-Filed Written Testimony of Harvard Pilgrim Health Care, Response to Exhibit B, C and D [Internet]. Boston (MA): Health Policy Commission; [cited 2014 May 1]. Available at http://www.mass.gov/anf/docs/hpc/harvard-pilgrim.pdf.

16 Health Policy Commission. Pre-filed Testimony from Witnesses, Pre-Filed Written Testimony of Tufts Health Plan, Response to Exhibit B, C and D [Internet]. Boston (MA): Health Policy Commission; [cited 2014 May 1]. Available at http://www.mass.gov/anf/docs/hpc/tufts.pdf.

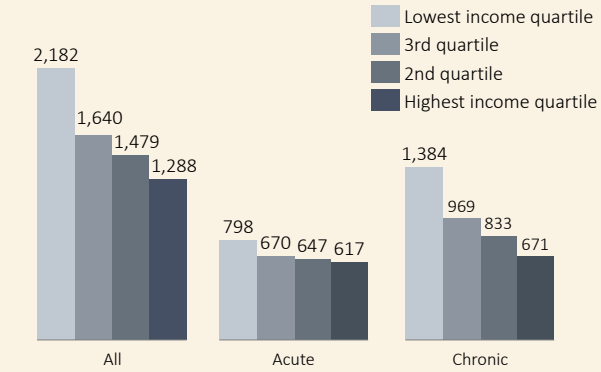
C. Quality and Access: Preventable Hospitalizations in Low-Income Communities

In its 2013 report, the Commission presented a profile of quality and access in Massachusetts based on a number of statewide measures. While Massachusetts showed high performance across a variety of domains, the state was found to lag national averages on several prevention quality indicators related to preventable hospitalizations.[i] These measures of quality are of particular relevance for cost trends, as they represent instances in which quality improvement may also lower costs through avoided hospital admissions.[1] The 2013 report estimated that $700 million in spending is associated with preventable hospitalizations in Massachusetts.[2]

To further identify specific areas of opportunity to reduce preventable hospitalizations for the Commonwealth, we examine the quality indicators for preventable hospitalizations for different income groups.[ii] National studies have established that lower-income communities often experience social and medical conditions that result in disproportionately high utilization of emergency departments and inpatient care.[3,4,5,6] Differences in the rate of preventable hospitalizations based on income are also evident in Massachusetts. In 2012, Massachusetts's all-payer rate of preventable hospital admissions was 1,647 per 100,000 adults, but these rates were significantly higher for low-income communities (see **Figure C1**).[iii,7] Higher-income communities (those in the top quartile of zip codes by median household income) had 1,288 preventable admissions per 100,000 adults, 41 percent lower than the rate for lower-income communities (those in the lowest income quartile). Similar patterns were observed for measures specific to a variety of acute and chronic conditions (**Figures C1 and C2**). Income disparities were more pronounced for chronic conditions -- for which the difference in preventable hospitalization rates between the lowest and highest income communities was 51 percent -- than for acute conditions, for which the difference was 23 percent. The greatest differences occurred for asthma and diabetes.

Figure C.1: Overall rates of preventable hospitalization by income quartile*

Preventable admissions per 100,000 residents, 2012



* Income was estimated using the median household income for the patient's zip code. Preventable hospitalizations were calculated using AHRQ's prevention quality indicator (PQI) measures. All figures are age- and sex-adjusted.

SOURCE: Center for Health Information and Analysis; HPC analysis

Reasons for preventable hospitalizations are complex and multi-faceted. Drivers include health system factors, including access to primary care and challenges in chronic disease management, and community factors, including social and environmental determinants of health.[8] Among health system factors, limited access to primary care can mean that patients receive less ambulatory care and do not receive appropriate preventive measures or early, low-acuity care.[9] Language barriers, transportation challenges, lack of physicians accepting new patients, and limited availability of services outside of work hours can re-

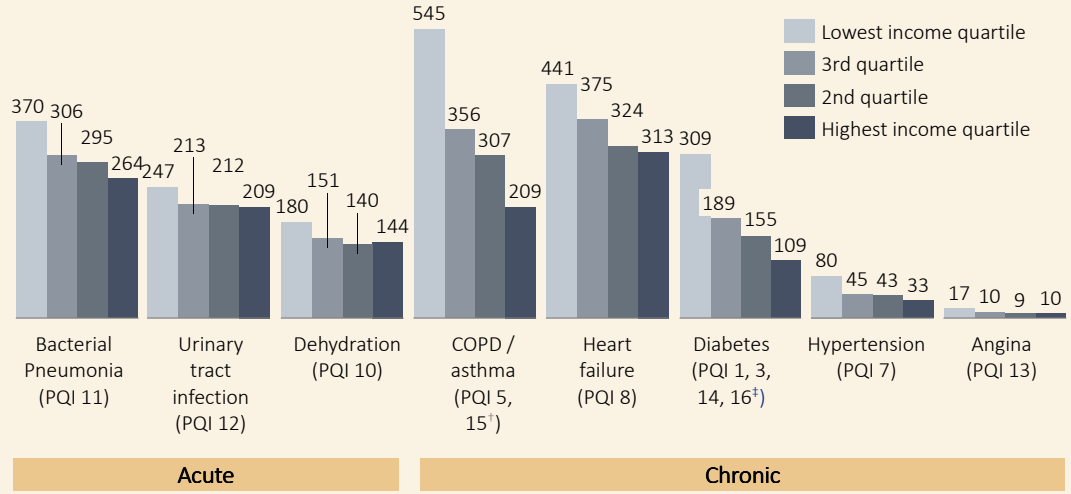
[i] Preventable hospitalizations were identified in the 2012 CHIA hospital inpatient case mix database using AHRQ's Prevention Quality Indicator (PQI) measures. All measures were adjusted to control for differences in age and sex.

[ii] In this report, we focus on income-based disparities. Disparities in outcomes based on other characteristics – such as gender and race/ethnicity – are also areas of interest for the Commission that may be examined in future analysis.

[iii] The U.S. rate of preventable hospital admissions was 1,545 per 100,000 adults in 2010.

Figure C.2: Rates of preventable hospitalization for acute and chronic conditions by income quartile*

Preventable admissions per 100,000 residents, 2012



*Income was estimated using the median household income for the patient's zip code. Preventable hospitalizations were calculated using AHRQ's prevention quality indicator (PQI) measures. All figures are age- and sex-adjusted.

†Composite of PQI 5 (COPD or asthma in older adults) and PQI 15 (asthma in younger adults).

‡ Composite of PQI 1 (short-term complications for diabetes), PQI 3 (long-term complications for diabetes), PQI 14 (uncontrolled diabetes), and PQI 16 (amputation among diabetes).

SOURCE: Center for Health Information and Analysis; HPC analysis

duce use of primary care settings.[10,11,12,13] Moreover, studies suggest that patients with low socioeconomic status may prefer hospital care over ambulatory care, perceiving it as more accessible and of higher quality.[14] Other health system factors include drivers of hospital readmissions, such as poor discharge instructions, limited provider follow-up after discharge, and ineffective patient education regarding and support for adherence to care management protocols at home.[15,16,17]

Other drivers of preventable hospitalizations are outside of the health system. The underlying prevalence of chronic illness is often higher in lower-income communities.[18] Poor access to nutrition due to a lack of grocery stores, the absence of social supports reinforcing the importance of preventive care, and environmental factors such as neighborhood walkability or the age of the housing stock have been found to drive outcomes for several of the conditions associated with preventable hospitalizations.[19] Community programs outside of the health system are needed to help address these factors.

Within the health system, there are several opportunities to reduce preventable hospitalizations. Patient-centered medical homes – for which the Commission is developing certification standards – are intended to address barriers to access in primary care.[20,21] Other interventions to reduce preventable hospitalization rates include increased staffing of care managers who provide discharge instructions ensuring that patients are aware of what type of symptoms can be treated outside of the hospital setting.[22] Alternative payment methods can be an important enabler of these care delivery changes. Provider organizations that are allocated global budgets can more flexibly deploy resources to invest in interventions that improve ongoing management of chronic disease and prevent hospitalizations.[23]

There are several ongoing efforts to invest in community care to reduce preventable hospitalizations. For example, Chapter 224 includes a nearly $60 million, four-year investment in population-based health promotion through the Prevention and Wellness Trust Fund. In addition, some hospitals have attempted to reduce preventable hospitalizations through innovative approaches to community care. The Commission's $120 million CHART investment program has supported various approaches in its first phase of grants. For example, one CHART-funded hospital is constructing a High Risk Intervention Team that provides care coordination, patient education, medication management, and discharge planning for certain high-utilizing patients.

Continued effort to improve community supports and the quality of health care for disadvantaged communities is needed. The high rate of preventable hospitalizations in low-income communities represents an opportunity to reduce low-value spending and improve the efficiency and equity of health care delivery for these groups. The Commission seeks to support efforts to optimize appropriate hospital use in its second phase of the CHART investments program. The Commission will also continue to analyze health disparities based on income and other characteristic such as race/ethnicity and sexual orientation to identify opportunities to equitably improve the quality and efficiency of care for all Massachusetts residents.

References

1 Dall TM, Roary M, Yang W, Zhang S, Chen YJ, Arday DR, Gantt CJ, Zhang Y. Health Care Use and Costs for Participants in a Diabetes Disease Management Program, United States, 2007–2008. Preventing Chronic Disease. 2011; 8(3):A53.

2 Health Policy Commission. 2013 Cost Trends Report. Boston (MA): Health Policy Commission.

3 Moy E, Chang E, Barrett M. Potentially Preventable Hospitalizations – United States, 2001-2009 [Internet]. Washington (DC): Centers for Disease Control and Prevention; 2013 Nov 22 [cited 2014 Jun 26]. Available at http://origin.glb.cdc.gov/mmWR/preview/mmwrhtml/su6203a23.htm?s_cid=su6203a23_w.

4 Bindman AB, Grumbach K, Osmond D, Komaromy M, Vranzian K, Lurie N, Billings J, Stewart A. Preventable Hospitalizations and Access to Health Care. The Journal of the American Medical Association. 1995; 274(4):305-311.

5 J Billings, L Zeitel, J Lukomnik, TS Carey, AE Blank, L Newman. Impact of Socioeconomic Status on Hospital Use in New York City. Health Affairs. 1993; 12(1):162-173.

6 Moy E, Barrett M, Ho K. Potentially Preventable Hospitalizations—United States, 2004-2007 [Internet]. Washington (DC): Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report; 2011 Jan 14 [cited 2014 May 1]. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/su6001a17.htm.

7 Torio CM, Elixhauser A, Andrews RM. Trends in Potentially Preventable Hospital Admissions Among Adults and Children, 2005-2010, Statistical Brief #151. Rockville (MD): Agency for Healthcare Research and Quality; 2013 Mar.

8 Fiscella K, Franks P, Gold MR, Clancy CM. Inequality in Quality: Addressing Socioeconomic, Racial, and Ethnic Disparities in Health Care. The Journal of the American Medical Association. 2000; 283(19):2579-2584.

9 Felland LE, Hurley RE, Kemper NM. Safety Net Hospital Emergency Departments: Creating Safety Valves for Non-Urgent Care [Internet]. Washington (DC): Center for Studying Health System Change; 2008 May [cited 2014 Jun 24]. Available at http://www.hschange.com/CONTENT/983/.

10 Flores G. Language Barriers to Health Care in the United States. New England Journal of Medicine. 2006; 355:229-231.

11 Syed ST, Gerber BS, Sharp LK. Traveling towards disease: transportation barriers to health care access. Journal of Community Health. 2013; 38(5):976-993.

12 Abrams M, Nuzum R, Mika S, Lawlor G. Realizing Health Reform's Potential: How the Affordable Care Act Will Strengthen Primary Care and Benefit Patients, Providers, and Payers [Internet]. New York (NY): The Commonwealth Fund; 2011 Jan [cited 2014 Jun 24]. Available at http://www.commonwealthfund.org/~/media/Files/Publications/Issue%20Brief/2011/Jan/1466_Abrams_how_ACA_will_strengthen_primary_care_reform_brief_v3.pdf.

13 O'Malley AS. After-Hours Access to Primary Care Practices Linked with Lower Emergency Department Use and Less Unmet Medical Need. Health Affairs. 2013; 32(1):175-183.

14 Kangovi S, Barg FK, Carter T, Long JA, Shannon R, Grande D. Understanding Why Patients of Low Socioeconomic Status Prefer Hospitals Over Ambulatory Care. Health Affairs. 2013; 32(7):1196-1203.

15 Kripalani S, Jackson AT, Schnipper JL, Coleman EA. Promoting Effective Transitions of Care at Hospital Discharge: A Review of Key Issues for Hospitals. Journal of Hospital Medicine. 2007; 2(5):314-323.

16 Perez B, Cummings L, Schrag J, Mead H, Jewers M. Facilitators and Barriers to Providing Patient-Centered Chronic Disease Care to Patient Populations at Risk for Health and Health Care Disparities in Safety Net Settings [Internet]. Washington (DC): Essential Hospitals Institute and the Patient-Centered Outcomes Research Institute; 2013 Dec 6 [cited 2014 Jun 24]. Available at http://www.pcori.org/assets/2014/01/PCORI-Facilitators-Barriers-Providing-Patient-Centered-Chronic-Disease-Care-120613.pdf.

17 Mishra SI, Gioia D, Childress S, Barnett B, Webster RL. Adherence to Medication Regiments Among Low-Income Patients with Multiple Comorbid Chronic Conditions. Health & Social Work. 2011; 36(4):249-258.

18 Massachusetts Department of Public Health. A Profile of Health Among Massachusetts Adults, 2012 [Internet]. Boston (MA): Massachusetts Department of Public Health, Division of Research and Epidemiology, Bureau of Health Information, Statistics, Research, and Evaluation; 2014 Apr [cited 2014 May 1]. Available at http://www.mass.gov/eohhs/docs/dph/behavioral-risk/report-2012.pdf

19 Health Disparities Council. Disparities in Health, 2011 [Internet]. Boston (MA): Health Disparities Council; 2012 Jan [cited 2014 Jun 24]. Available at http://www.mass.gov/hdc/docs/2012/jan/disparities-in-health-2011.pdf.

20 Gilfillan RJ, Tomcavage J, Rosenthal MB, Davis DE, Graham J, Roy JA, Pierdon SB, Bloom FJ, Graf TR, Goldman R, Weikel KM, Hamory BH, Paulus RA, Steele GD. Value and the Medical Home: Effects of Transformed Primary Care. American Journal of Managed Care. 2010; 16(8):607-614.

21 Grumbach K, Grundy P. Outcomes of Implementing Patient Centered Medical Home Interventions: A review of the evidence from prospective evaluations studies in the United States [Internet]. Washington (DC): Patient Centered Primary Care Collaborative; 2010 Nov 16 [cited 2014 May 1]. Available at http://forwww.pcpcc.net/files/evidence_outcomes_in_pcmh_2010.pdf.

22 Minot J. Reducing Hospital Admissions [Internet]. Washington (DC): AcademyHealth; 2008 Nov [cited 2014 May 1]. Available at http://academyhealth.org/files/publications/ReducingHospitalReadmissions.pdf.

23 Song Z, Safran DG, Landon BE, Landrum MB, He Y, Mechanic RE, Day MP, Chernew ME. The 'Alternative Quality Contract,' Based on a Global Budget, Lowered Medical Spending and Improved Quality. Health Affairs. 2012.

D. Measures of Spending

CHIA will release the first determination of statewide performance under the health care cost benchmark in summer 2014. To understand how different health care entities contributed to the statewide performance measure, appropriate measures of performance for various health care entities will be critical. Current reporting on total medical expenditures (TME) to CHIA measures cost trends for payers and some provider organizations. For payers, TME measures are comprehensive and cover their full books of business. For provider organizations, however, TME reports are linked to primary care providers (PCPs) for HMO populations only. At present, there is no accountability measure for provider organizations without PCPs -- such as hospitals or specialist physician groups – that assesses their impact on the state's total health care expenditures, nor are provider organizations with PCPs held accountable for the TME of members of PPO plans for whom they deliver care.

To monitor and understand cost trends in the significant and growing PPO segment, CHIA should extend its reporting to include a measure of TME that uses an attribution algorithm to identify an accountable provider organization for members with PPO plans. In addition, large components of health care expenditures are provided or influenced by providers that do not deliver primary care. Measures of growth in TME attributable to specialist groups, hospitals, and other non-primary care provider types would be a useful complement to current measures in identifying providers whose performance puts the Commonwealth's ability to meet its health care cost growth benchmark at risk. The Commission will seek to work with CHIA to design and evaluate such measures. Where feasible, these measures should be aligned with those used by other states to facilitate meaningful benchmarking.

Conclusion

This supplemental report provides additional findings related to topics discussed in the Commission's 2013 report. We continue to observe significant opportunities in Massachusetts to enhance the value of health care, addressing issues of cost and quality. Our supplemental findings continue to highlight opportunities in these four areas:

1. **Fostering a value-based market** in which payers and providers openly compete to provide services and in which consumers and employers have the appropriate information and incentives to make high-value choices for their care and coverage options,
2. **Promoting an efficient, high-quality health care delivery system** in which providers efficiently deliver coordinated, patient-centered, high-quality health care that integrates behavioral and physical health and produces better outcomes and improved health status,
3. **Advancing alternative payment methods** that support and equitably reward providers for delivering high-quality care while holding them accountable for slowing future health care spending increases, and
4. **Enhancing transparency and data availability** necessary for providers, payers, purchasers, and policymakers to successfully implement reforms and evaluate performance over time.

Fostering a value-based market

- Changes in prices paid to providers continued to be the primary driver of growth in commercial payer spending between 2010 and 2012.
- Out-of-pocket spending as a proportion of total health care spending grew from 6.9% to 7.7% of total expenditures between 2010 and 2012, highlighting the growing incentives for consumers to engage in more value-based decision-making supported by information, but also the potential for consumers to face financial barriers to accessing care.
- A significant proportion of Massachusetts residents leave their home region to receive care at hospitals in other regions, with a significant net flow of inpatient care into Metro Boston, especially for patients with commercial insurance and for patients who reside in higher-income communities .
- Concentration of inpatient care in Massachusetts is increasing -- five systems accounted for 48% of commercial inpatient discharges in 2009; in 2014, we estimate that five systems will account for 56% of these discharges.

Commission recommendations:

- The Commission will study the impact of new insurance products and increased cost-sharing in commercial insurance plans on consumers' decision-making and on access to care.
- If health care provider systems grow, they should find ways to ensure they deliver care to their patients in lower-cost, community settings for lower-complexity care.
- The Commission will continue to examine the flow of patients to academic medical centers for lower-complexity care to identify and recommend policy solutions for reducing unnecessary outmigration.

Promoting an efficient, high-quality health care delivery system

- While the Massachusetts health system achieves high quality performance in many domains, the state lags the national average on quality indicators related to preventable hospitalizations. There is a high rate of preventable hospital admissions among residents of lower-income communities, suggesting an opportunity to improve outcomes and reduce cost through targeted community supports and improved ambulatory care.
- For patients with chronic medical conditions, the presence of a behavioral health condition is associated with higher spending on non-behavioral health care, suggesting interactions between behavioral and physical health conditions and potential savings from more integrated care.
- Higher spending for patients with behavioral health conditions is concentrated in ED and inpatient care, suggesting opportunities to improve care management and provide care in lower-intensity settings.
- Massachusetts residents use post-acute care more frequently than the national average, and there is wide variation among hospitals in the rate of hospital discharge to nursing facilities and home health agencies.

Commission recommendations:

- Hospitals should work to optimize use of post-acute services, including enhancing efficacy of care coordination and transitions for behavioral health patients. Where aligned with project goals, the Commission will work with community hospitals receiving CHART investments to achieve these goals.
- Payers and providers should continue to increase integration of behavioral health and primary care through use of incentives and new delivery models.
- The Commission will support provision of behavioral health services in primary care settings through its PCMH and ACO certification programs.

Advancing alternative payment methods

- Alternative payment methods can offer aligned financial support for more patient-centered, integrated care delivery models coordinating across behavioral and physical health conditions.
- At the end of 2012, alternative payment methods covered 29 percent of insured Massachusetts residents across commercial, Medicare, and Medicaid covered lives.
- Continued efforts to expand and improve the use of APMs include four areas:
  - Expanding APM contracts into new provider practices,
  - Extending APM models to include PPO membership,
  - Evaluating the implementation and improving the design of global budget models, and
  - Exploring newer APM concepts like episode-based bundled payments.

Commission recommendations:

- The Commission will study the implementation of APMs in Massachusetts to evaluate their effectiveness in improving health and reducing costs, monitor for potential adverse impacts, and review opportunities to increase alignment around identified best practices.
- Given the variety of design choices in attribution methods and the importance to provider organizations of information on the patient populations for which they are accountable, payers should engage in a transparent process to review and improve their attribution methods and should align their methods to the maximum extent feasible.
- The Commission will work with CHIA, payers, and providers in the fall of 2014 to understand the current state of development of attribution methods and explore opportunities to accelerate the development of aligned methods.

Enhancing transparency and data availability

- Centralized collection of standardized data on treatment utilization, spending and outcomes is especially important for behavioral health given the diversity of providers and services involved in the care continuum.
- Current measures of total medical expenditures examine the growth in spending for populations managed by provider organizations that provide primary care, but do not specifically measure the contributions to health care spending growth of other provider types, such as specialist physician groups, hospi-

tals, and post-acute care providers.

Commission recommendations:

- CHIA should convene state agencies to increase transparency in behavioral health spending, quality of care, and the market for behavioral health services, including:
  - Prioritizing improvement of behavioral health information in data sets collected from payers and providers, including incorporating MBHP claims into the APCD, and
  - Enhancing availability of behavioral health quality data and promoting measure development in this area.
- To monitor and understand cost trends in the significant and growing PPO segment, CHIA should extend its reporting to include a TME measure for PPO populations that uses an agreed-upon attribution algorithm to identify accountable provider organizations.
- In 2014 and 2015, the Commission will seek to work with CHIA to design and evaluate potential measures of contributions to health care spending growth for provider types such as hospitals, specialist physician groups, and others that do not deliver primary care. Where feasible, these measures should be aligned with those used by other states to facilitate meaningful benchmarking.

The 2013 report and this supplement have established a baseline profile of spending in Massachusetts and have highlighted a number of important cost drivers. Later this year, CHIA will make the first determination of Massachusetts' growth in total health care expenditures from 2012 to 2013, which will be the measure of performance against the health care cost growth benchmark. As we review performance under the first year of the benchmark and look forward to the actions needed to meet the benchmark in future years, it will be critical to evaluate progress on these four areas of opportunity.

Glossary

Term	Definition
Accountable care organization (ACO)	A provider organization that receives reimbursements or compensation from alternative payment methodologies and provides or manages medically necessary services across the care continuum including behavioral and physical health services for a population of patients, with the aim of providing efficient, effective, and coordinated care.
Activities of Daily Living (ADL)	Basic actions that independently functioning individuals typically perform without help. These include bathing, continence, dressing, eating, toileting, and transferring.
All-Payer Claims Database (APCD)	A database maintained by the Center for Health Information and Analysis (CHIA) comprising medical, pharmacy, and dental claims, as well as information about member eligibility, benefit design, and providers for all payers covering Massachusetts residents.
Alternative Payment Methods (APMs)	Methods of payment that are not solely based on fee-for-service reimbursements, including shared savings arrangement, bundled payments and global payments.
Chapter 224	Chapter 224 of the Acts of 2012, "An Act Improving the Quality of Health Care and Reducing Costs through Increased Transparency," is a Massachusetts law that set the ambitious goal of bringing health care spending growth in line with growth in the state's overall economy. This built on previous cost containment efforts, including Chapter 305 of the Acts of 2008, "An Act to Promote Cost Containment, Transparency and Efficiency in the Delivery of Quality Health Care," and Chapter 288 of the Acts of 2010, "An Act to Promote Cost Containment, Transparency and Efficiency in the Provision of Quality Health Insurance for Individuals and Small Businesses."
Claims-based medical expenditures	Claims-based medical expenditures are a measure of spending calculated by the Commission in our analysis of the APCD. Health care claims are submitted by providers to payers in order to receive payment for services, and this transaction history represents a robust data set for analysis (for more information, including data limitations, see sidebar "What is the APCD and how do we use the data?").
Co-insurance	A percentage of the allowed charge, after a copayment, if any, that an insured will pay for covered services under a health benefit plan.
Community hospital	An acute hospital that is not designated a major teaching hospital.
Co-payment	A fixed dollar amount paid by an insured to a physician, hospital, pharmacy or other health care provider at the time the insured receives covered services.
Cost sharing	The total amount paid by an insured to a physician, hospital, pharmacy or other health care provider at the time the insured receives covered services, including co-insurance, co-pays, and deductibles.
Deductible	An annual dollar amount that must be paid by an insured for specified health care services that the insured uses before the health plan becomes obligated to pay for covered services. Some health plans may include separate prescription drug deductibles. The deductible amount does not include the premiums that the insured pays.
Fee-for-service (FFS)	A payment mechanism in which all reimbursable health care activity is described and categorized into discreet and separate units of service and each provider is separately reimbursed for each discrete service rendered to a patient.
Global payment/global budgets	A payment arrangement where spending targets are established for a comprehensive set of health care services for the care that a defined population of patients may receive in a specified period of time.
Health maintenance organizations (HMO)	A particular type of health insurance plan. In our analysis, we primarily distinguish between insurance products based on whether they require identification of a primary care provider. HMO and point-of-service (POS) product types require designation of a PCP, and our discussion of HMO products also applies to POS products.
Fee-for-service (FFS)	A payment mechanism in which all reimbursable health care activity is described and categorized into discreet and separate units of service and each provider is separately reimbursed for each discrete service rendered to a patient.
Global payment	A payment arrangement where spending targets are established for a comprehensive set of health care services for the care that a defined population of patients may receive in a specified period of time.
Health care-associated infections	Infections contracted by patients while they are in a hospital receiving health care treatment for other conditions.

Glossary (con't)

Term	Definition
Health maintenance organizations (HMO)	A particular type of health insurance plan. In our analysis, we primarily distinguish between insurance products based on whether they require identification of a primary care provider. HMO and point-of-service (POS) product types require designation of a PCP, and our discussion of HMO products also applies to POS products.
Health insurance plan	The Medicare program or an individual or group contract or other plan providing coverage of health care services and which is issued by a health insurance company, a hospital service corporation, a medical service corporation or a health maintenance organization.
High deductible health plans (HDHP)	A health plan with a lower premium due to a higher deductible, which for our analysis is at least $1,000.
Hospital readmission	An admission to an acute hospital within a defined period of time (often 30 days) of a discharge from the same or another acute hospital.
Long-term services and supports (LTSS)	Services delivered to support those with significant cognitive or physical impairment in their activities of daily living.
Major teaching hospital	The Medicare Payment Advisory Commission (MedPAC) defines a major teaching hospital as having at least 25 full-time equivalent medical school residents per one hundred inpatient beds.
Payer	An insurer or health plan that provides some form of health care coverage to patients.
Patient-centered medical home (PCMH)	A model of health care delivery designed to provide a patient with a single point of coordination for all their health care, including primary, specialty, post-acute and chronic care, which is (i) patient-centered; (ii) comprehensive, integrated and continuous; and (iii) delivered by a team of health care professionals to manage a patient's care, reduce fragmentation and improve patient outcomes.
Pioneer ACO	An initiative launched by the Center for Medicare & Medicaid Innovation (CMMI) to test a payment arrangement for ACOs that confers higher levels of shared savings and shared losses than previous Medicare ACO models. 32 provider organizations nationwide have been designated as Pioneer ACOs.
Post-acute care	Services delivered to support recovery after an acute hospitalization.
Preferred provider organizations (PPO)	A particular type of health insurance plan. In our analysis, we primarily distinguish between insurance products based on whether they require identification of a primary care provider. PPO and indemnity product types do not require designation of a PCP, and our discussion of PPO products also applies to indemnity products.
Price	A term used to refer to the 'allowed amount,' the contractually agreed upon amount paid by a payer to a health care provider for health care services provided to an insured. Price may also refer to aggregate amount paid by a population for services utilized, encompassing both unit price and provider mix.
Primary Care Provider (PCP)	A health care professional qualified to provide general medical care for common health care problems, who supervises, coordinates, prescribes or otherwise provides or proposes health care services, initiates referrals for specialist care and maintains continuity of care within the scope of practice.
Provider mix	The distribution of insurer members among the providers within an insurer's network.
Total health care expenditures (THCE)	The annual per capita sum of all health care expenditures in the Commonwealth from public and private sources, including as defined in Chapter 224: (i) all categories of medical expenses and all non-claims related payments to providers, as included in the health status adjusted total medical expenses reported by CHIA; (ii) all patient cost-sharing amounts, such as deductibles and copayments; and (iii) the net cost of private health insurance.
Total medical expenses (TME)	The total cost of care for the patient population associated with a provider group based on allowed claims for all categories of medical expenses and all non-claims related payments to providers, expressed on a per member per month basis.
Unit price	The contractually negotiated amount (or reimbursement rate) that an insurer agrees to pay a particular hospital, physician, or other health care provider for a given health care service. This is the "price tag" that the insurer agrees it will pay each time one of its members incurs a covered expense.
Utilization	The amount or number of medical services or units of service used by a given population over a period of time.

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