1. Profile of the Massachusetts Health Care System

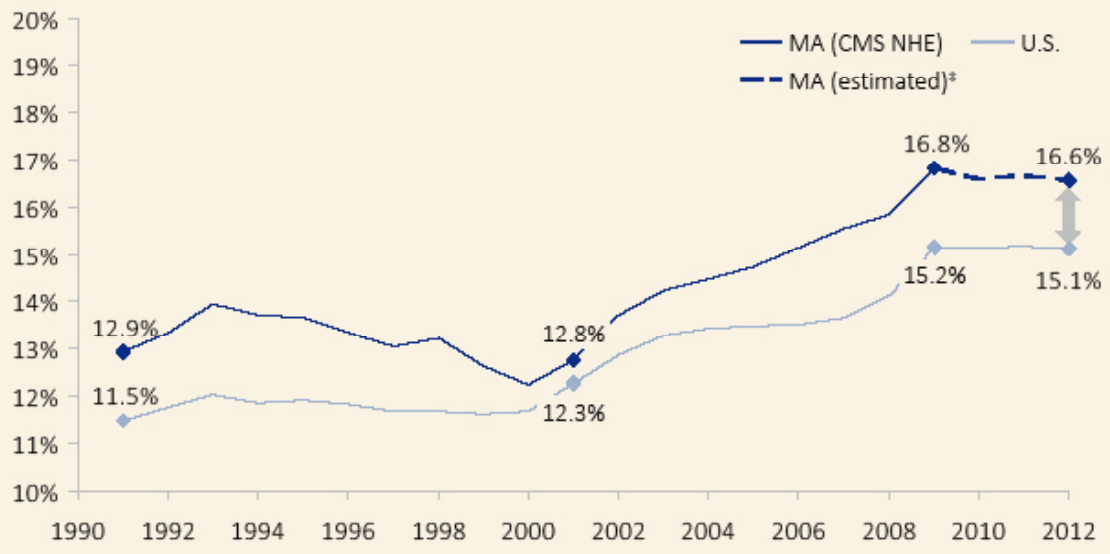
In this chapter, we present an overview of the Massachusetts health care system, examine spending levels and spending trend, and identify factors contributing to cost growth. With a focus on Chapter 224's cost containment goal, which relates the growth of health care spending to that of the state's economy, we examine how health care spending as a percent of the state economy has grown over time compared to the same measure for the United States (**Figure 1.1**).

Comparing Massachusetts with the United States and reviewing trends over time raises several important questions that we address in this chapter:

- What explains the difference in Massachusetts spending compared with the U.S. average?
- What contributed to the growth in Massachusetts health care spending over the past two decades?
- How do the characteristics of the state's health care system contribute to spending levels and trends?
- How does Massachusetts perform compared with the U.S. on measures of quality and access?

In this report, we often compare Massachusetts with the United States. In doing so, we do not suggest that the U.S. average is the appropriate benchmark for Massachu-

Figure 1.1: Personal health care expenditures* relative to size of economy
Percent of respective economy†



*Personal health care expenditures (PHC) are a subset of national health expenditures. PHC excludes administration and the net cost of private insurance, public health activity, and investment in research, structures and equipment.

†Measured as gross domestic product (GDP) for the U.S. and gross state product (GSP) for Massachusetts.

‡CMS state-level personal health care expenditure data have only been published through 2009. 2010-2012 MA figures were estimated based on 2009-2012 expenditure data provided by CMS for Medicare, ANF budget information statements and expenditure data from MassHealth, and CHIA TME reports for commercial payers.

Source: Centers for Medicare & Medicaid Services; Bureau of Economic Analysis; Center for Health Information and Analysis; MassHealth; Census Bureau; HPC analysis

setts' health care spending, nor that it is a standard for efficiency. Indeed, studies have demonstrated that U.S. per capita spending far exceeds the average spending of other nations and that a large proportion of U.S. spending on health care is unnecessary and wasteful.[1,2,3] Furthermore, there are unique benefits that Massachusetts derives from its level of health care spending that should be preserved. Rather, we make these comparisons to highlight potential areas of challenges and opportunities for reducing spending growth in Massachusetts. Although national or even state-to-state comparisons can be instructive, the goal of Chapter 224 is to keep health care spending in line with the long-term growth rate of the *state* economy.

This report relies on a number of nationally recognized data sources, including the National Health Expenditure Accounts from the Centers for Medicare & Medicaid Services (CMS), the Medical Expenditure Panel Survey (MEPS) from the Agency for Healthcare Research and Quality (AHRQ), the Behavioral Risk Factor Surveillance Survey (BRFSS) from the Centers for Disease Control and Prevention (CDC), the Annual Survey of the American Hospital Association (AHA), and the State Health Facts published by the Kaiser Family Foundation (KFF) (for more information, see **Technical Appendix B1: Data sources**). We also use data sets collected by Massachusetts state agencies, such as the Center for Health Information and Analysis (CHIA), the Office of the Attorney General (AGO), and the Department of Public Health (DPH). In addition, we use the Massachusetts All-Payer Claims Database (APCD), a detailed transaction history of all payments from major Massachusetts payers to providers (see sidebar **"What is the APCD and how do we use its data?"**). Although the scope of our APCD analyses is limited in this year's report, over time the data will enable us to examine health care spending at a granular level for particular populations of interest in future reports (for example, focused analyses of racial and socioeconomic disparities in health care).

What is the APCD and how do we use its data?

The Massachusetts All-Payer Claims Database (APCD) is an essential resource administered by CHIA with which researchers can examine health care spending and the evolution of health care and health insurance markets. The APCD contains medical, pharmacy, and dental claims from all payers that insure Massachusetts residents, as well as information about member, insurance product, and provider characteristics. It does not include payments that occur outside of the claims system, such as supplemental payments related to quality incentives or alternative payment methods, nor does it include self-pay spending that consumers incur outside of their insurance coverage.

For this report, we used a sample that consists of claims for the state's three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP) – and Medicare Fee-For-Service. Our analyses incorporated claims-based medical expenditures for Medicare and commercial payers, but not pharmacy spending, payments made outside the claims system, or MassHealth spending.[i] The Commission engaged the Lewin Group, a nationally recognized health policy research firm with Massachusetts APCD experience, to examine the APCD, assess its validity for use in cost trends analysis, validate the quality of its data, and propose methods to achieve our analytic objectives.

Analysis of the APCD has allowed us to understand medical spending as the product of two factors:

1. The **quantity** of services delivered, which may be divided into the number of units and the quantity of services per unit.
2. The **price** paid for those services, which may be divided into unit price (the price paid per unit of service by particular payers to particular providers), and provider mix (whether services are obtained in higher-priced or lower-priced settings), and payer mix.

In some analyses, we employ a third factor if useful:

3. The **medical need** or average **risk** level of the population. If this factor is included, then medical spending is the product of three factors: risk, quantity adjusted for risk, and price paid.

The APCD's rich detail enables us to deconstruct trends into its components of quantity, price paid, and risk level, and also allows for episode-level and person-level analyses such as the study of high-cost patients in Chapter 4. In future reports, refinements of our analysis may also isolate the impact of changes in benefit design, service mix, and provider mix on expenditure growth.

[i] The three commercial payers we focus on – BCBS, HPHC, and THP – represent nearly 80 percent of the commercial market. Medicare claims analyses do not include expenditures by Medicare Advantage plans. Examination of APCD data from MassHealth is ongoing, and MassHealth claims analyses will be included in future work by the Commission.

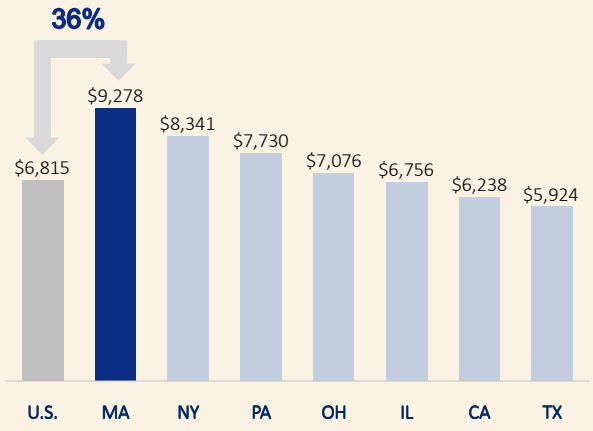
1.1 Spending Levels

In 2009, Massachusetts spent 36 percent more on health care per resident than the U.S. average, with higher spending across all payer types. This higher spending was concentrated in hospital care and long-term care and home health.

According to national data, spending per Massachusetts resident averaged $9,278 on personal health care expenditures in 2009,[ii] which was 36 percent (or $2,463) more than the U.S. average of $6,815 (**Figure 1.2**). This level of spending made Massachusetts the highest-spending U.S. state on a per capita basis (excluding the District of Columbia), although it is not the highest state when ranked by health care spending as a proportion of economic output.[iii] As a percentage of the economy, Massachusetts spent 16.8 percent on health care, compared with the U.S. average of 15.0 percent.

Massachusetts per capita spending remains higher than the U.S. average even after adjusting for certain differences in the state's profile. Research suggests that certain aspects of Massachusetts, including its older population, higher input costs,[iv] and broader insurance coverage, likely contribute to higher health care spending.[4,5] These factors account for 16 percentage points of the difference, leaving a 20 percentage point difference between Massachusetts and the U.S. average beyond these factors (see **Technical Appendix A1: Profile of Massachusetts** for more information).

Figure 1.2: Per capita personal health care expenditures* compared to U.S. and other states
Dollars, 2009



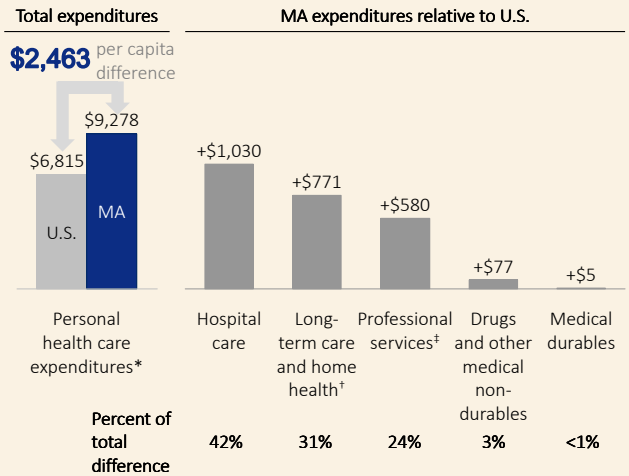
*Personal health care expenditures (PHC) are a subset of national health expenditures. PHC excludes administration and the net cost of private insurance, public health activity, and investment in research, structures and equipment.

SOURCE: Centers for Medicare & Medicaid Services; Bureau of Economic Analysis; HPC analysis

1.1.1 Spending levels by category of service

One way to analyze differences in spending levels is to break down spending into categories of service (**Figure 1.3**). In 2009, nearly three-quarters of the difference in spending between Massachusetts and the U.S. was in two categories: hospital care (which includes inpatient and outpatient care) and long-term care and home health (which includes both institutional nursing and rehabilitative services and skilled nursing services provided in the home).

Figure 1.3: Per capita personal health care expenditures* by category of service compared to U.S.
Dollars, 2009



*Personal health care expenditures (PHC) are a subset of national health expenditures. PHC excludes administration and the net cost of private insurance, public health activity, and investment in research, structures and equipment.

†Includes nursing home care, home health care, and other health, residential, and professional care.

‡Includes physician and clinical services, dental services, and other professional services.

SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

[ii] 2009 is the most recent year for which personal health care expenditures (PHC) data is available.

[iii] Massachusetts spent significantly more than other states that are relatively wealthy or other states in the Northeast. Per capita spending in Massachusetts was 11 percent higher than in New York, 49 percent higher than in California, and nine percent higher than in Maine, the highest-spending neighboring state.

[iv] By input costs we mean costs associated with providing services. Our analysis used the Medicare Geographic Adjustment Factor (GAF), which adjusts for wages, office rents, supplies, and medical malpractice insurance premiums.

What do we mean by "health care expenditures"?

The term "health care expenditures" (or health care spending) refers to the total spending of a population on those activities related to maintaining and improving both physical and behavioral health.

In this report, we use several estimates of health care dollars spent on the care of individuals. These estimates exclude spending on public health programs, administrative costs for payers, and investments in research, buildings, and equipment. The three measures we use are personal health care expenditures, total medical expenses, and claims-based medical expenditures. Differences between these measures are explained below.

1. Personal health care expenditures (PHC) are measured by the CMS based on surveys of households, payers, and health care providers. PHC covers all spending by public and commercial payers as well as consumer out-of-pocket spending. This includes spending on services that are not covered by insurance benefits.
2. Total medical expenses (TME) are measured by the CHIA based on data reported by the 10 largest commercial payers in Massachusetts.[v] TME excludes services that are not covered by commercial insurance benefits (for example, nursing-home care that is paid in full by a consumer).
3. Claims-based medical expenditures are 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 rich data set for analysis (for more information, including data limitations, see sidebar "**What is the APCD and how do we use the data?**").

Although these three measures are useful indicators of health care spending, it is important to note that the benchmark for health care cost growth in Chapter 224 is linked to another measure, Total Health Care Expenditures (THCE), which are defined and calculated by CHIA, with the first formal determination anticipated in the autumn of 2014. Under the statute, THCE includes:

- All medical expenses paid to providers by public and commercial payers,
- All patient cost-sharing amounts (for example, deductibles and co-payments), and
- The net cost of private insurance (for example, administrative expenses and operating margins for commercial payers).

[v] The 10 largest commercial health care payers represent approximately 95 percent of the commercial health care market in Massachusetts.

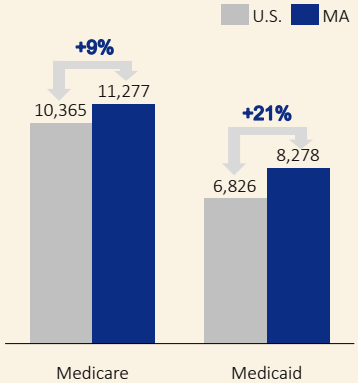
1.1.2 Spending levels by payer type

There are multiple insurers or "payers" – both public and commercial – in the U.S. health care market. In Massachusetts, approximately one-third of the population receives coverage from public payers (Medicare and MassHealth) and roughly two-thirds through commercial health insurance.[6] We examine how Massachusetts expenditures compared to U.S. levels within each of these segments.

For each type of payer, Massachusetts had a higher per member or per beneficiary spending level than the national average in 2009, with differences ranging from nine percent to 21 percent (**Figure 1.4**). In addition to having higher spending levels for each payer type, Massachusetts had a higher proportion of its population enrolled in Medicare and Medicaid.[6] Generally across the U.S., the Medicare and Medicaid populations have greater health care needs and spending levels than those in commercial insurance.[7]

As described in **Section 1.1.1,** for Massachusetts' total expenditures across public and commercial spending, hospital care along with long-term care and home health comprise three-fourths of spending above the U.S. average, with the remainder driven primarily by spending on professional services. These categories constitute an even larger proportion of spending above the U.S. average for Medicare and MassHealth (**Table 1.1**). For Medicare,

Figure 1.4: Per beneficiary personal health care expenditures* by payer type compared to U.S.
Dollars, 2009



* Personal health care expenditures (PHC) are a subset of national health expenditures. PHC excludes administration and the net cost of private insurance, public health activity, and investment in research, structures and equipment.

SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

Table 1.1: Contribution to difference from U.S. per capita average by category of service

Percent of difference in per capita spending, 2009

	All payers	Medicare	Medicaid
Total difference in per capita spending	$2,463	$1,452	$912
Hospital	42%	90%	31%
Long-term care and home health*	31%	53%	73%
Professional services†	24%	-35%	5%
Drugs and other medical non-durables	3%	-2%	-11%
Medical durables	0%	-5%	2%

* Includes nursing home care, home health care, and other health, residential, and professional care.

† Includes physician and clinical services, dental services, and other professional services.

SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

spending in Massachusetts is below the national average in every category except hospital care and long-term care and home health. For MassHealth, nearly three-fourths of the spending above national average is in long-term care and home health, with most of the remaining difference in hospital care.

While CMS does not develop national estimates for commercial spending by category of service, all-payer figures suggest that spending differences in hospital care, long-term care and home health, and professional services may account for higher spending levels for Massachusetts residents with commercial insurance as well.

1.1.3 Spending levels by quantity and price

Spending is comprised of two components: how many services are used (quantity or utilization) and how much is paid (price). We examine how each of these components contributed to the difference in spending between Massachusetts and the United States in 2009.

Utilization

Massachusetts residents utilized significantly more hospital services and long-term care, consistent with the finding that these categories of service account for a significant component of the state's spending above national average.

Compared to the U.S. average in 2011, Massachusetts residents were admitted to a hospital 10 percent more often after adjusting for age[vi], visited emergency rooms 13 percent more often, and used hospital-based outpatient services[vii] (excluding the emergency department) 72 percent more often (**Table 1.2**).[8]

Within the long-term care and home health category, in 2011, the rate of residents in nursing facilities in Massachusetts was 46 percent greater than the U.S. average, with the state's age profile accounting for only 14 percentage points of this difference.[9,10]

Table 1.2: Hospital utilization and commercial prices compared to U.S. average

Per 1,000 persons, 2011 except where noted

	MA	U.S.	Difference (%)
Hospital inpatient			
Inpatient admissions (indexed to US, age-adjusted)	1.10	1.00	10%
Inpatient average length-of-stay	5.0	5.4	-7%
Inpatient days	631	600	5%
Inpatient surgeries*	32	32	0%
Hospital outpatient			
Emergency department (ED) visits	468	415	13%
Outpatient visits, excluding ED†	2,907	1,691	72%
Outpatient surgeries*	71	56	27%
Commercial prices‡			
All services	--	--	3%
Common inpatient services§	--	--	5%

* Values for inpatient and outpatient surgeries are from 2010.

† Outpatient hospital visits include all clinic visits, referred visits, observation services, outpatient surgeries, and emergency department visits.

‡ Values for commercial prices are from 2007-09.

§ Common inpatient services are defined as those DRGs which had at least 50 occurrences in every hospital referral region.

¤ Common inpatient services are defined as those DRGs which had at least 50 occurrences in every hospital referral region.

SOURCE: Kaiser Family Foundation; American Hospital Association; Medical Expenditure Panel Survey; Analysis by Chapin White of a report from the 1995-2009 Truven Health Analytics MarketScan® Commercial Claims and Encounters Database (copyright © 2011 Truven Health Analytics, all rights reserved); Harvard University research conducted for Institute of Medicine; HPC analysis

Price

Examining price is more difficult because prices are determined differently for each payer type (see sidebar **"What do we mean by 'price'?"**). Price in the commercial

[vi] Inpatient admissions were indexed to the U.S. average and adjusted for age differences in order to allow for cross-state comparisons (for more information, see Technical Appendix A1: Profile of Massachusetts).

[vii] Outpatient hospital visits include all clinic visits, referred visits, observation services, and outpatient surgeries, but exclude emergency-room visits.

market is determined through payer-provider contract negotiations. National data sets on commercial price levels are limited, making state-by-state comparisons challenging.[viii] Available data are often limited to a subset of participating data contributors, such as large multi-state employers or individual national payers. These employers and payers may have an insurance product mix that does not necessarily reflect the mix of a particular state, so these data may not provide a complete view of price levels in local markets.

Two recent analyses based on data capturing roughly one-third of the national commercial market suggest that prices in Massachusetts are approximately three to five percent higher than the U.S. average.[11,12] In both of these studies, price differences observed included the impact of higher unit prices and of residents using higher-priced providers (also known as provider mix).

Recent reports by the AGO and CHIA have highlighted the importance of provider mix in understanding spending levels.[13,14,15] For example, there is two- to three-fold variation in the prices paid from lower-priced to higher-priced hospitals that cannot be explained by differences in the types of patients cared for or the quality of outcomes achieved.[16] Moreover, the effect of these differences is amplified by the fact that Massachusetts residents receive more of their care from these higher-cost settings; 51 percent of all commercial payments by the top 10 largest payers are made to top-quartile priced hospitals, compared with six percent to the lowest priced quartile.[13]

In Medicare, prices are set by the federal government, which establishes a standard fee schedule and makes adjustments for regional input costs, cost of graduate medical education, and the cost of treating a disproportionate share of low-income patients. A CMS analysis showed that in 2009 one percentage point of higher spending in the Medicare fee-for-service program in Massachusetts was due to utilization. This suggests that most of the nine percent difference between Massachusetts and the U.S. was due to price, both unit price and provider mix.[ix,17]

In Medicaid, prices are set by state Medicaid programs and managed care organizations, resulting in significant state-to-state variation. In 2009, spending per beneficiary was 21 percent greater in Massachusetts compared with the U.S. average. Factoring in both higher per beneficiary spending and greater enrollment, Medicaid expenditures per resident are 49 percent higher than the national average. This is likely driven by both price and utilization factors. One review of prices paid by Medicaid for physician services in 2008 showed that MassHealth paid 30 percent more than the average state Medicaid program.[x,18] Moreover, Massachusetts has had a long-standing commitment to provide broad access to coverage that includes a range of needed services. MassHealth has more inclusive eligibility criteria and higher benefit levels for enrollees compared to many states. Income thresholds for Medicaid eligibility in Massachusetts are higher than the national average, and a larger proportion of Medicaid spending in the state is devoted to benefits that extend beyond those mandated by federal law.[19] Thus, while higher Medicaid prices contribute to higher spending per beneficiary in Massachusetts, the difference in spending between Massachusetts and the U.S. is also influenced by several other policy choices.

What do we mean by "price"?

Defining "price" in health care can be complex because the total amount, or price, that is paid to a provider for health care services often derives from multiple sources, including the consumer's out-of-pocket payment to the provider and payments from the consumer's insurer. In this report, we define "price" as the total amount paid to a provider for a unit of service, including both the amount paid by the payer and the amount paid by the consumer through a co-payment or deductible.

It is worth noting that this definition of price differs from the "charges" that may appear on hospital bills. Typically, hospitals have a "charge master" that contains listed fees for each procedure. In practice, commercial and public payers do not pay the charges listed in the charge master, but rather pay a negotiated price (in the case of commercial payers) or a pre-set fee schedule (in the case of Medicare and MassHealth). Our work focuses on amounts paid rather than amounts listed in the charge master.

[viii] Although Massachusetts has taken a number of steps to increase the transparency and public availability of price information, other states have not taken similar steps.

[ix] The measure of Medicare utilization uses a composite of all paid services, including hospital and non-hospital institutional claims, professional services, pharmacy, and other categories.

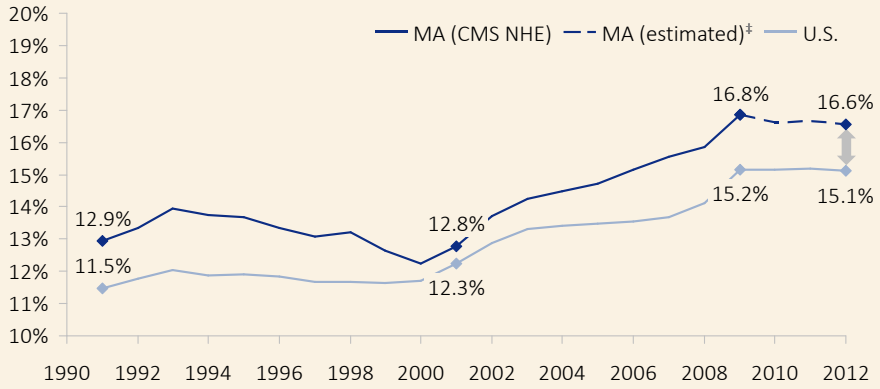
[x] In 2012, MassHealth paid 21 percent more for physician services.

1.2 Spending Trends

From 2001 to 2009, health care spending in Massachusetts grew faster than both the national average and the state's economy. Since 2009, health care spending growth has slowed in both Massachusetts and the United States.

Figure 1.5: Personal health care expenditures* relative to size of economy

Percent of respective economy†



*Personal health care expenditures (PHC) are a subset of national health expenditures. PHC excludes administration and the net cost of private insurance, public health activity, and investment in research, structures and equipment.

†Measured as gross domestic product (GDP) for the U.S. and gross state product (GSP) for Massachusetts

‡CMS state-level personal health care expenditure data have only been published through 2009. 2010-2012 MA figures were estimated based on 2009-2012 expenditure data provided by CMS for Medicare, ANF budget information statements and expenditure data from MassHealth, and CHIA TME reports for commercial payers.

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

In 1991, health care spending in Massachusetts represented 12.9 percent of the state economy, compared with 11.5 percent for the United States (**Figure 1.5**). Throughout the 1990s, personal health care expenditures in Massachusetts grew in step with the U.S. rate (**Table 1.3**) but faster economic growth in Massachusetts helped narrow the gap in the percentage of economic resources dedicated to health care.

This trend changed during the 2000s. In that decade, Massachusetts' economic growth matched that of the United States, but annual health care spending growth in Massachusetts was 1.0 percentage point higher than the U.S. average. This shift resulted in the state spending more on health care relative to the size of its economy than the U.S., eventually reaching

Table 1.3: Annual growth of health care expenditures and the economy

Per capita compound annual growth rate

	1991-2001	2001-2009	2009-2012
*Growth of health care expenditures**			
MA	5.4%	6.5%	3.1%
U.S.	5.2%	5.5%	3.1%
Growth of economy†			
MA	5.5%	2.9%	3.7%
U.S.	4.5%	2.8%	3.2%
Excess growth ‡			
MA	-0.1%	3.5%	-0.5%
U.S.	0.7%	2.7%	-0.1%

* CMS personal health care estimates are used through 2012 for US and 2009 for MA. CMS state estimates end in 2009; HPC estimates are used for 2009-2012 MA growth.

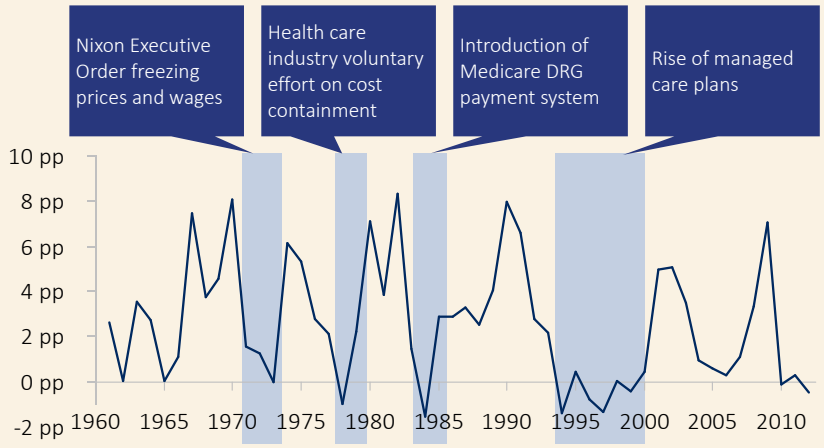
† Growth of economy defined as GDP growth for U.S. and GSP growth for MA.

‡ Excess growth defined as health care growth less economic growth. A positive value means health care grew faster than the economy.

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

Figure 1.6: U.S. growth in personal health care expenditures* in excess of economic growth

Percentage points of health care expenditure growth minus GDP growth



*Personal health care expenditures (PHC) are a subset of national health expenditures. PHC excludes administration and the net cost of private insurance, public health activity, and investment in research, structures and equipment.

SOURCE: Centers for Medicare & Medicaid Services; Bureau of Economic Analysis; HPC analysis

a high of 16.8 percent in 2009. This return to faster growth after a period of slower growth has repeatedly occurred over the past five decades at the U.S. level (**Figure 1.6**).

Since 2009 the United States has seen a slowdown in health care spending growth.[20] Massachusetts has followed a similar trend. Health care spending has grown more slowly than the state economy in two of the past three years; this occurred only six times in the 18 years before, and not at all since 2000. This recent slower health care growth coupled with faster economic growth has marginally decreased the percent of the economy that Massachusetts spends on health care from 16.8 to 16.6 percent.

1.2.1 Trend by category of service

Higher health care spending growth in the 2000s was not confined to a particular category of service (**Table 1.4**). Massachusetts spending growth was equal to or higher than that of the U.S. in all expenditure categories. In addition, expenditures in hospital care as well as in long-term care and home health – the categories that differ most from U.S. averages – also grew faster than the U.S. rate, which has the effect of expanding differences over time.

1.2.2 Trend by payer type

From 2001 to 2009, growth in Massachusetts' total per capita spending was higher than the U.S. average, but that did not hold true among public payers (**Table 1.4**). Growth in both Medicaid and Medicare has been slower in Massachusetts compared to the United States. This trend suggests that the higher growth in spending during this period was concentrated in the commercial market, although we cannot determine the magnitude of the difference because of shifts in enrollment between payers.

Reviewing spending growth rates by category of service in public payers, expenditures in hospital care grew more slowly for Massachusetts Medicare and Medicaid beneficiaries than the U.S. average. While percentage growth rates for long-term care and home health were lower than the U.S. average for both payer types, per capita dollars of growth were greater, since the growth was on a larger base spending level (**Table 1.4**).

Since 2009, we estimate that growth in health care spending in Massachusetts has been closer to U.S. rates

Table 1.4: Annual growth of health care expenditures by category of service

Per capita compound annual growth rate, 2001-2009

	Overall		Medicare		Medicaid	
	MA	U.S.	MA	U.S.	MA	U.S.
Total	6.5%	5.5%	6.4%	6.8%	0.7%	2.3%
Hospital	7.1%	5.8%	4.2%	4.2%	0.8%	3.1%
Long-term care and home health*	6.1%	5.7%	7.9%	10.4%	2.3%	2.7%
Professional services†	6.5%	5.1%	5.2%	5.5%	1.1%	4.5%
Drugs and other medical non-durables	6.0%	6.0%	46.4%	36.9%	-12.8%	-5.8%
Medical durables	4.3%	3.3%	2.1%	4.6%	6.8%	3.0%

*Includes nursing home care, home health care, and other health, residential, and professional care.

†Includes physician and clinical services, dental services, and other professional services.

SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

Table 1.5: HPC estimates of recent growth of health care expenditures by payer type

Compound annual growth rate, 2009- 2012

	Enrollment	Per capita spending
Total	0.3%	3.1%
Medicare	2.7%	1.5%
Medicaid	4.7%	0.8%
Commercial	-1.0%	2.8%

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

(**Table 1.5**). This slowdown in spending growth occurred across all payer types. The statewide per capita growth rate averaged 3.1 percent over the three-year period, a rate higher than any individual payer. This can occur because the statewide growth rate reflects the growth rates observed within each payer, as well as the effects of shifts in enrollment between payers, which the data suggest (see **Technical Appendix A1: Profile of Massachusetts** for more information).

Table 1.6: Trends in hospital utilization and commercial prices from 2001-2009

Per 1,000 persons compared to U.S. average

	2001	2009	Change
Overall per capita spending	26%	36%	+10 p.p.
Hospital inpatient			
Inpatient admissions	1%	7%	+6 p.p.
Hospital outpatient			
Emergency department (ED) visits	14%	14%	0 p.p.
Outpatient visits, excluding ED*	66%	65%	-1 p.p.
Commercial prices†			
Common inpatient services‡	-5%	5%	+10 p.p.

* Outpatient hospital visits include all clinic visits, referred visits, observation services, outpatient surgeries, and emergency department visits.

† Values for commercial prices are from 2007-09.

‡ Common inpatient services are defined as those DRGs which had at least 50 occurrences in every hospital referral region.

SOURCE: Kaiser Family Foundation; American Hospital Association; Analysis by Chapin White of a report from the 1995-2009 Truven Health Analytics MarketScan® Commercial Claims and Encounters Database (copyright © 2011 Truven Health Analytics, all rights reserved); HPC analysis

CHAPTER 58 AND ITS IMPACT ON HEALTH CARE SPENDING

In 2006, the Massachusetts state legislature enacted Chapter 58. This landmark law was designed to provide universal health insurance coverage for state residents through an expansion of Medicaid eligibility, enhanced government subsidies, and a health insurance exchange to help individuals and small businesses purchase commercial insurance.

Today, approximately 439,000 additional Massachusetts residents have health insurance coverage and Massachusetts' insurance coverage rate of 96.9 percent is the highest in the country.[21] For the state, these reforms increased government health care spending by approximately one percent of the total state budget.[22]

In terms of overall health care expenditures, the data show a slight increase in 2007 around the time of implementation of Chapter 58. This small increase in overall health care spending would be expected, resulting from the increase in the state spending on coverage and subsidies and from the higher average spending rate of insured people compared to uninsured people.

Spending levels in Massachusetts were significantly higher than the U.S. average before 2006, and the state's health care cost growth rate was faster than the nation's. These trends pre-date the implementation of Chapter 58. Expansion to near-universal coverage had other effects which impact health care expenditures. For example, recent research suggests a likely positive impact on health status and the use of preventive services in Massachusetts compared to other New England states, especially in low-income populations.[23]

1.2.3 Trend by quantity and price

From 2001 to 2009, the difference in per capita personal health care expenditures between Massachusetts and the national average increased from 26 percent to 36 percent, an increase of 10 percentage points (**Table 1.6**).

In terms of utilization, data suggest that the use of hospital services has remained steady relative to U.S. averages. Inpatient admissions per capita in Massachusetts increased six percentage points faster than the national trend. Emergency department visits per capita stayed flat relative to the U.S. average, while per capita outpatient visits excluding the emergency department grew one percentage point more slowly than the U.S. average.

Commercial price data suggest a much faster growth trend compared to the U.S. average. One data set shows that from 2001 to 2009 Massachusetts health care inpatient prices compared to the U.S. average grew 10 percentage points.[11] This increase represents both higher unit prices and changes in the site of services to higher-priced settings.

Data on utilization and price indicate that the increase in Massachusetts spending relative to the United States from 2001 to 2009 was driven by commercial prices. Our analysis of APCD data also shows that price was the main driver of growth in the commercial market from 2009 to 2011. This price growth relative to the nation is especially significant because it comes on top of already high growth across the United States – hospital prices nationally grew by 48 percent over the eight years from 2001 to 2009.[24]

1.3 Delivery System Overview

The Massachusetts provider market is growing increasingly concentrated, and provider organizations are exploring innovative care delivery models. Payers are shifting to product structures promoting value-based consumer choices and to alternative payment methods such as global budgets.

1.3.1 Provider market overview

In this section, we describe the Massachusetts provider market, with a particular focus on hospitals and physicians, recognizing the large difference in hospital care spending between Massachusetts and the U.S. and the state's higher utilization of hospital outpatient services. The Massachusetts health care delivery system is characterized by a greater proportion of hospital beds in major teaching facilities and a greater concentration of not-for-profit hospitals as compared to the nation overall (**Table 1.7**). Analyses of provider price variation in Massachusetts have shown that the average prices paid for equivalent services at teaching hospitals is higher than at community hospitals.[25]

Massachusetts also has a large health care workforce relative to its population. Although the state has fewer hospital beds per 1,000 persons than the national average, its labor workforce exceeds national averages (**Table 1.8**). From 2001 to 2009, the number of health care practitioners[xi] in the state grew at an annual rate of 2.6 percent, and their mean salary grew by 5.0 percent annually. Nationwide, the number of practitioners grew by 2.1 percent and mean salaries by 4.3 percent over the same time period.[26]

Table 1.7: Hospital composition compared to U.S.

Percent of acute hospitals, 2011

	MA	U.S.
Major teaching hospitals	23%	5%
Critical access hospitals	4%	27%
By profit status		
For-profit hospitals	17%	21%
Not-for-profit hospitals	81%	58%
Public hospitals	3%	21%

SOURCE: Medicare Payment Advisory Commission; Kaiser Family Foundation; HPC Massachusetts acute hospital list

Table 1.8: Health care system capacity compared to U.S.

Per 1,000 persons, 2011

	MA	U.S.	Difference
Number of acute hospitals	0.012	0.016	-26%
Hospital beds	2.4	2.6	-8%
Health care practitioners and technical occupations	34.6	24.1	+43%

SOURCE: Kaiser Family Foundation; American Hospital Association; Bureau of Labor Statistics Occupational Employment Statistics Survey; American Community Survey; HPC analysis

Two trends among providers have been observed in recent years. One trend is growing corporate consolidation of provider organizations, including acquisitions of community hospitals and hospital employment of independent physicians. This consolidation has increased the market share of a number of large systems, including those anchored by major teaching hospitals. At the same time, provider organizations are pursuing a variety of innovative care delivery models, such as patient-centered medical homes (PCMHs) and accountable care organizations (ACOs), with an aim towards more coordinated, higher-quality care delivery. These two trends can be related, as some provider organizations contend that scale and corporate integration are required to achieve more efficient, effective, and coordinated care delivery, while others have demonstrated success providing integrated, accountable care on a smaller scale.[27,28]

Trend number 1: Provider mix and consolidation

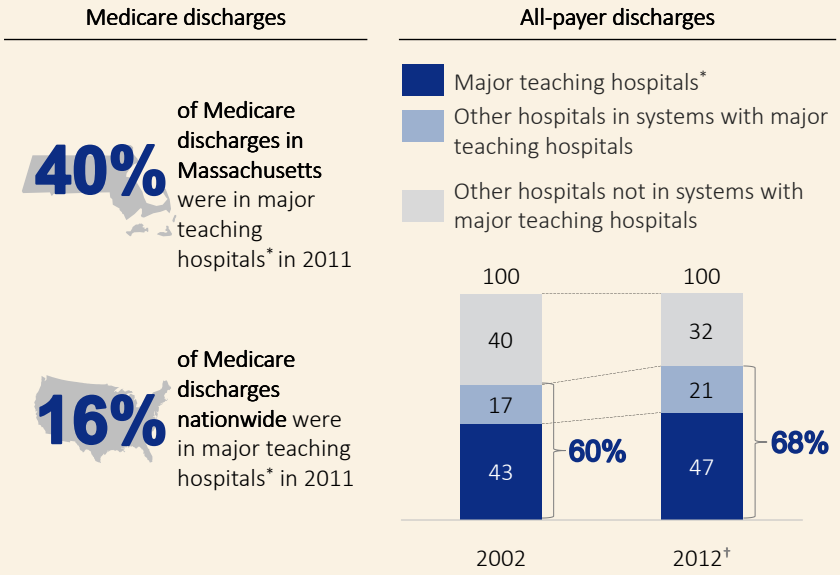
Provider consolidation is a well-documented trend in the United States and in Massachusetts. Eighty percent of current acute hospitals in Massachusetts were involved in a merger, acquisition, or other form of contractual or corporate affiliation between 1990 and today.[29] Alignments, including acquisitions and affiliations, have continued at a

varying pace concurrently with other trends in the health care market, such as the growth of health maintenance organizations (HMOs) and capitation in the 1990s, deregulation of the hospital industry after legislation in 1991, and the increased adoption of accountable care delivery models and payment methods in recent years.

Growing concentration in provider markets raises concerns, as evidence has demonstrated that such consolidation often decreases competition and increases the prices of health care services.[30,31,32,33,34] Within Massachusetts, provider organization size and market leverage are correlated with higher prices, both for fee-for-service payments and for risk contract payments. These higher prices are not explained by better quality performance.[14,16] Moreover, higher-priced provider systems have grown their market share at the expense of lower-priced systems. In the 10 years between 2002 and 2012, the proportion of the state's total inpatient discharges from major teaching hospitals and the other hospitals controlled by systems with a major teaching hospital grew from 60 percent to 68 percent (**Figure 1.7**). This trend reflects the closure or repurposing of some community hospitals, the acquisition of other community hospitals by large systems, and broader usage of teaching hospitals in Massachusetts as a setting for delivering routine care. By 2011, Massachusetts Medicare patients used major teaching hospitals for 40 percent of their hospitalizations, compared with a 16 percent rate nationally.[35] Consolidation thus raises concerns about the role of provider mix in driving cost growth.

As discussed above, previous Massachusetts analyses have shown that prices paid to major teaching hospitals are on average higher than those paid to community hospitals.[25]

Figure 1.7: Discharges in Massachusetts hospital systems, 2002-2012
Percent of discharges



*Major teaching hospitals are defined as those with at least 25 residents per 100 beds.
†Based on systems in 2012. Does not include impact of transactions of Cooley Dickinson Hospital with Partners HealthCare System and Jordan Hospital with Beth Israel Deaconess Medical Center completed in 2013.
SOURCE: Center for Health Information and Analysis; Medicare Payment Advisory Commission; HPC analysis

How does the Health Policy Commission monitor changes in the provider market?

Chapter 224 directs the Commission to enhance the transparency of provider market structure and significant changes to market composition in several ways. 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 market oversight functions, like assessing health care capacity and needs, evaluating the performance of different organizational models in in the state, and providing a map of relationships between participants in the market.

Furthermore, through notices that provider organizations file with the Commission in advance of any material change to their operations or governance, the Commission tracks the frequency, type, and nature of changes in the health care market. The Commission may also engage in a more comprehensive review of particular transactions anticipated to have a significant impact on health care costs or market functioning. The result of such "cost and market impact reviews" is a public report detailing the Commission's findings. In order to allow for public assessment of the findings, transactions may not be finalized until the Commission issues its final report. Where appropriate, such reports may identify areas for further review or monitoring, or be referred to other state agencies in support of their work on behalf of health care purchasers and consumers.

As provider organizations contend that additional scale and corporate integration are necessary to achieve more efficient, effective, and coordinated care, the potential cost and quality benefits of a transaction should be balanced against the concerns of increased market leverage and the weakening of lower-priced alternatives. For example, the growing market share of higher-priced systems can reduce the viability of lower-priced options for consumers. This can reduce the effectiveness of value-based innovations such as tiered and limited network products, which depend on the availability of lower-priced alternatives for their operation.[36]

Massachusetts providers have pursued delivery system innovation through a variety of organizational models. These approaches include relatively small, physician-based models that offer high-quality, coordinated care without ownership by a hospital or hospital system.[37] Where hospitals align with one another and with physicians, there are also alternative approaches to corporate ownership, including contractual alignments around shared population health management goals.[38,39] This spectrum of care delivery models in the state bears further examination as health care stakeholders consider the degree of corporate integration necessary and desirable to improve access to high-quality, cost-effective care.

Trend number 2: Delivery system innovation

Innovation in accountable care models is another trend in the Massachusetts delivery system in recent years. Under these models, networks of physicians and other health care providers are held accountable for cost and quality across a continuum of care for their patients. The 2008 Massachusetts Special Commission on the Health Care Payment System recommended a shift away from the fee-for-service payment system, which rewards volume rather than outcomes or efficiency, toward the increased adoption of global budget-based alternative payment methods (APMs), which have since gained momentum in Massachusetts.[40] Providers are moving to adopt care delivery models that deliver coordinated, patient-centered care, integrating physical and behavioral health care and shifting toward a focus on population health management.[41] These models are designed not only to reduce expenditures, but also to improve quality of care.

Today, all of the major payer types in Massachusetts are actively pursuing alternatives to traditional fee-for-service payments with incentives to improve coordination and quality performance in the delivery system (for more information, see **Section 1.3.2)**. Further, many provider organizations in Massachusetts have agreed to enter into these types of arrangements with payers. Of the 32 organizations nationally that participated in the Medicare Pioneer ACO model, five were based in Massachusetts: Atrius Health, Beth Israel Deaconess Care Organization, Mount Auburn Cambridge Independent Practice Association, Partners HealthCare System, and Steward Health Care System. In this financial arrangement, the savings were shared between Medicare and the ACO. First-year results show that four out of the five Massachusetts Pioneer ACOs were able to keep growth of their Medicare costs under the budgeted amount.[28] Moreover, 13 Massachusetts provider organizations have participated as Medicare Shared Savings Program ACOs.[42] Evidence from other ACO demonstrations suggest that providers who have entered risk-based contracts covering a portion of their patient panels are investing in care delivery reforms for their full patient populations in response to the new payment methods.[43]

Still, challenges remain with these models. Risk-based contracts to support accountable care have been limited in the commercial insurance market by the shift toward preferred provider organization (PPO) insurance products, whose members are not currently covered by APMs.[27] Providers have also noted that constraints on the availability of data about their patient populations, especially for care delivered in other systems, have limited their ability to effectively manage and integrate care.[27] Furthermore, certain important services such as behavioral health care continue to face challenges.[27] There are a number of persistent barriers to behavioral health integration, including numerous reimbursement issues and limited provider capacity to treat behavioral health patients.[44] While these types of challenges have led to mixed results nationwide, the early success of four of the five Massachusetts Pioneer ACOs shows potential for Massachusetts provider organizations.[45,46,47]

At the practice level, many organizations are engaging in accountable care innovation through the development of PCMH models.[xii] More recently, 30 primary care practices have elected to participate in MassHealth's Primary Care Payment Reform (PCPR), a PCMH-based program. The PCPR program is supported by funding through a State Innovation Model (SIM) Testing grant awarded to Massachusetts by CMS to support these types of transformations.

[xii] Currently, 149 practices are accredited. This figure includes accreditation by the National Committee for Quality Assurance (NCQA), the Joint Commission (JC), and/or the Accreditation Association for Ambulatory Health Care (AAAHC).

Under Chapter 224, the Commission is responsible for developing certification programs for PCMHs and ACOs. The Commission is also responsible for administering the Community Hospital Acceleration, Revitalization, and Transformation (CHART) investment initiative, which is a competitive program with nearly $120 million to be distributed to select community hospitals to promote efficient, effective, and coordinated care delivery while reducing costs. CHART investments will also work to support these hospitals in developing the capabilities needed to become ACOs, to advance the adoption of health information technology, and to increase organizations' readiness to adopt APMs that involve bearing risk for their performance.

1.3.2 Payer market overview

Nearly all of Massachusetts residents have health insurance. Residents in Massachusetts receive their health insurance from public payers – Medicare and MassHealth primarily – and from various commercial sources, including those provided by employers or purchased by individuals (**Table 1.9**). Approximately 63 percent of residents receive commercial health insurance, either through their employer or purchased through the individual market.[6] Self-insured employers make up nearly half of the commercial market.[13]

Table 1.9: Health insurance coverage by insurance type compared to U.S.

Percent of population, 2011

	MA	U.S.
Employer	58%	49%
Individual	5%	5%
Medicaid	16%	13%
Medicare	13%	13%
Dual-eligible	4%	3%
Other Public	<1%	1%
Uninsured	3%	16%

SOURCE: Kaiser Family Foundation; Center for Health Information and Analysis; HPC analysis

The Massachusetts commercial market is highly concentrated, with approximately 45 percent of members represented by one payer, BCBS. BCBS and the second- and third-largest commercial payers, HPHC and THP, represent 79 percent of the market.[13] Massachusetts plans achieve high performance by national accreditation bodies of clinical performance and member satisfaction, with the three largest payers in the state among the 10 highest ranked plans by the National Committee for Quality Assurance (NCQA).[48]

In recent years, the Massachusetts commercial health insurance market has experienced significant reform efforts to improve both demand-side and supply-side incentives. Within the demand-side reforms, purchasers and individual consumers are called upon to play a more active role in ensuring they receive high-value care through a shift in financial incentives. Within the supply-side reforms, payers contract with provider groups to manage the care of their members through APMs that aim to reward providers based on the outcomes and cost efficiency they achieve.

Demand-side trends: product design

Over the past few years, consumers have seen the growth of insurance products that encourage them to make value-based choices about their care. These include products that increase the level of cost-sharing that consumers are expected to pay out of pocket, such as high-deductible health plans (HDHP), as well as tiered or limited network products that offer reduced co-payments if a higher-quality/lower-cost provider group is chosen. Employers may offer these HDHPs and tiered or limited network plans because of the potential for lower premiums, which derive from greater use of more efficient providers.[xiii] For demand-side incentives like these to work, markets must provide consumers with information on prices and quality to empower them as informed purchasers of health care. While the availability of such information has been limited in the past, Chapter 224 institutes new requirements for payers and providers to make the prices of health care services more transparent (see sidebar **"What is Massachusetts doing on price transparency?"**).

HDHPs as well as tiered or limited network plans have grown significantly in recent years, though at varying rates. For example, BCBS reports that the share of its commercial members enrolled in HDHPs increased from 19 percent to 25 percent between 2009 and 2012.[27] Each of the three largest payers has seen an incremental 5 to 11 percent of its membership shift to tiered or limited network products over the last three years.[27] Part of this is due to Chapter 288 of the Acts of 2010 which required health

[xiii] For more information, see the Commission's report on consumer-driven health plans available at http://www.mass.gov/anf/docs/hpc/health-policy-commission-section-263-report-vfinal.pdf.

What is Massachusetts doing on price transparency?

Recent articles in the national press have called attention to the lack of transparency around prices in health care.[49] Massachusetts has been at the forefront of efforts to enhance price transparency, first in Chapter 58 of the Acts of 2006 with the establishment of a website with comparative cost and quality information (MyHealthCareOptions), and continuing in Chapter 288 of the Acts of 2010 with required annual reporting of relative prices. Chapter 224 improves on this by instituting price transparency requirements for both payers and providers. As of October 2013, insurance companies are required to provide estimates of expected costs for a given service at a particular provider to consumers requesting the information online or over the phone. These estimates must be tailored to a consumer's own insurance product, so that a consumer can understand the expected out-of-pocket cost given his or her deductible and other cost-sharing policies. Chapter 224 also requires insurance companies to offer this price information to providers who are looking to refer their patients. Beginning in 2014, providers will also be required to provide price information to consumers who request it.

or limited network health insurance products plans to offer tiered with premiums at least 12 percent lower than comparable products without a selective network of providers. Chapter 224 furthers the development of these products, increasing the required pricing differential to 14 percent. These products are generally designed to create financial incentives for consumers to make value-based health care decisions such as choosing high-quality, lower-priced providers and avoiding unnecessary services. It is important to monitor the impact of such products to ensure that specific product designs do not inhibit or otherwise discourage consumers from seeking necessary care.

Alongside the growth in plans that promote consumer engagement, there has also been a shift away from insurance product structures that require members to designate a primary care provider (PCP). Historically, Massachusetts residents have chosen HMO insurance products, which require PCP designation, at a higher rate than the national average.[xiv,50] In recent years, however, the commercial insurance market has experienced a shift away from HMOs and toward PPO products. From 2009 to 2012, the share of members in PPO products grew for the three largest commercial payers from 29 percent to 37 percent of their total membership.[27] Open questions remain as to whether this trend is driven by payer, employer, or individual preferences around premium price or breadth of choice of providers.

[xiv] 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, while preferred provider organization 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.

Supply-side trends: alternative payment methods

Commercial and public payers have also been working to support delivery system reform through APMs. In the past few years, Medicare and many of the commercial payers in Massachusetts have increasingly adopted APMs that establish a global budget for provider organizations. In these models, payers establish an expected level of spending (called the global budget) for members managed by the provider organization, typically based on spending in previous years with various adjustments. If the provider organization keeps costs below the global budget, it receives a share of the savings. If costs exceed the global budget, the provider organization may be responsible for covering a portion of the excess costs. Examples of these models include Medicare's Pioneer ACO program and BCBS's Alternative Quality Contract. Other major commercial payers, including THP, HPHC, and Fallon Community Health Plan (FCHP), also have global budget payment methods, and, as described above, MassHealth recently launched its PCPR program. These types of global budget payment methods are not unprecedented – several provider organizations in Massachusetts have had risk-based contracts with payers since the 1990s, when capitation was prevalent – but they have experienced a resurgence in recent years through efforts to shift away from traditional fee-for-service payment methods.

Although many payers have implemented some form of APMs, a number of challenges persist. Considerable variation exists among payers in terms of the proportion of their enrollees covered, as well as the financial incentives for providers. In 2012, 35 percent of members across the top 10 commercial payers had PCPs who were paid for managing their care under a global budget payment method.[51] For public payers, only a minority of Medicare beneficiaries are included in the Medicare ACO programs, and MassHealth only recently launched its PCPR program in late 2013. Even for patients whose care is managed under these payment methods, most providers are paid initially in the traditional fee-for-service method and supple-

mental payments or adjustments are made at the end of a performance period to create quality and cost incentives. Moreover, providers have testified that the design of these models varies significantly by payer, including the nature of incentives and the level of payment.[27] For a particular payer's model, the negotiated supplemental payments and incentives differ significantly between provider organizations. Payment levels are based on historic levels of payment, which can perpetuate disparities in payment levels between provider organizations.[14] Finally, some services, such as behavioral health, are often reimbursed through separate funding models leading to misaligned incentives.

Another potential obstacle to the continued adoption of APMs is the significant shift in the market from HMO products to PPO products discussed previously (see **Demand-side trends: product design**). To date, commercial payers have only structured global budget payment contracts for members under HMO products because these methods rely on members identifying a PCP who is deemed accountable for their care. Thus, global budget payment contracts cover the majority of the HMO market, but none of the PPO market.[51] The commercial payers have not established an APM that may be applied to growing PPO products, in which members are not required to identify a PCP. Medicare has implemented its Pioneer ACO program without requiring beneficiaries to identify a PCP. Instead an algorithm is used to "attribute" beneficiaries to the provider organization that was responsible for the preponderance of their primary care in a particular time period. In the commercial market, payers are investigating similar attribution models but they have not yet been implemented.

In testimony at the Commission's 2013 cost trends hearing, several provider organizations noted the challenges in investing in care delivery transformation while significant proportions of their patient panels switch to PPO products that do not have risk-based payment methods. These provider organizations highlighted the importance of APMs in supporting care delivery transformation and encouraged their faster adoption in PPO insurance products.[27]

1.4 Quality Performance and Access

The Massachusetts health care system achieves high quality performance and provides broad access to care, although there are opportunities for continued quality and access improvement.

In examining quality and access performance of the Massachusetts health care system, we look at the level of health needs of the Massachusetts population, measures of quality performance of the health care system, and the accessibility of care for Massachusetts residents.

1.4.1 Health status

Massachusetts residents have better overall health than the United States average, with an additional 1.6 years of life expectancy and 0.9 fewer physically or mentally unhealthy days per month.[52,53] Research shows that such outcomes are driven largely by social and behavioral factors, along with public health policies, while personal health care services delivered account for only 10 percent of general variation in health status.[54] Massachusetts residents engage in fewer risky behaviors (such as smoking) and have lower disease prevalence than national averages for four of five common chronic conditions (**Table 1.10**).

The APCD allows for geographic analysis of these types of conditions. For example, in 2011 the prevalence of diabetes among the commercial and Medicare populations varied greatly by region (**Figures 1.8, 1.9**). This type of analysis is useful for monitoring care for chronic and behavioral health conditions, an area of significant interest for the Commission, explored further in **Chapter 4.**

Table 1.10: Selected population risk factors and disease prevalence compared to U.S.

Percent of population, 2011

	MA	U.S.	MA rank	Best state
Population risk factors				
Adults who are current smokers	18.2%	21.2%	9	11.8% (UT)
Overweight or obese (BMI > 25.0)	59.3%	63.5%	5	55.7% (HI)
Participated in physical activity in the past month	76.5%	73.8%	15	83.5% (CO)
Disease prevalence				
Diabetes	8.0%	9.5%	6	6.7% (CO)
Angina / coronary heart disease	3.8%	4.1%	15	2.5% (CO)
Cancer	12.0%	12.4%	21	9.2% (HI)
Depression	16.7%	17.5%	22	10.6% (HI)
Asthma	15.4%	13.6%	15	10.4% (TN)

SOURCE: Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance Survey

Figure 1.8: Prevalence of diabetes by region among Medicare beneficiaries

Medicare prevalence rate

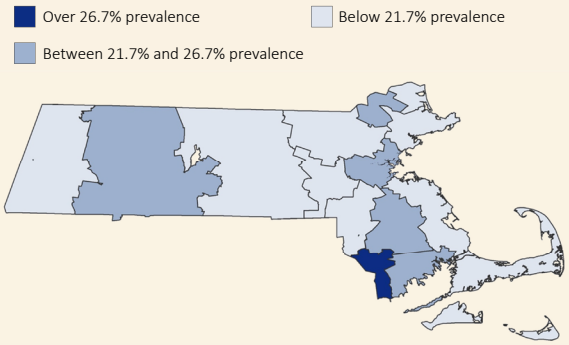
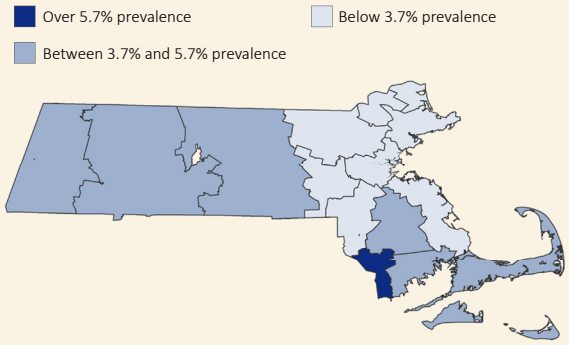


Figure 1.9: Prevalence of diabetes by region among commercial members

Commercial prevalence rate



Source: All-Payer Claims Database; HPC analysis

1.4.2 Quality performance

Evaluation of quality measures is an important element of monitoring the overall performance of Massachusetts' health care delivery system. Historically, Massachusetts has an agenda of quality improvement through a combination of public and private initiatives, with strong commitment from providers and payers. Massachusetts is and has long been a national leader in providing comprehensive access to high-quality health care services as compared with the nation. For example, Massachusetts ranked 7th in the nation according to the Commonwealth Fund's State Health System Ranking 2009 Score Card in overall quality performance.[55] Massachusetts was in the top quartile for access to services, prevention and treatment, equity, and healthy lives, although the state was in the third quartile in avoidable hospital use.[55] Continued examination of quality with a focus on continuous improvement is a key element of the Commission's work. Chapter 224 is clear that savings must be paired with quality improvements over time to enhance the overall performance of the health care system.

In reviewing quality performance, indicators are often categorized into structure, process, and outcome measures: structure measures describe attributes of an organization and its professionals related to their capacity to deliver high-quality care; process measures describe how well providers follow evidence-based guidelines; and outcome measures describe the health status of a patient resulting from the care delivered. As the field of quality measurement has progressed, there has been increased emphasis on the use of outcome measures. For most outcome measures of quality performance examined, Massachusetts ranks above average, but below the 90th percentile as compared to all states (**Table 1.11**). These measures demonstrate strong performance, but also opportunity for continued quality improvement.

How were these outcome measures selected?

CHIA and its Statewide Quality Advisory Committee (SQAC) are tasked with developing a Standard Quality Measure Set (SQMS) that can be used to reliably assess each health care facility, provider type, and medical group in the state. The SQAC and the SQMS were established through Chapter 288 of the Acts of 2010 to promote improved alignment and transparency in quality measurement. Since 2011, SQAC members, including subject-matter experts and market participants, have carefully evaluated more than 300 measures on factors such as ease of data collection, alignment with current state, federal, and private reporting efforts, and utility to providers and consumers. The SQMS, "a tool for multiple stakeholders to drive quality improvement and inform value-based decision making to promote a more efficient and effective health care system," offers an evidence-based framework from which we have selected measures for inclusion in this report. All outcome measures examined here were selected from this set. Some domains, such as behavioral health, have limited available outcome measures; efforts are underway in Massachusetts and other states to improve measurement in these domains.

Table 1.11: Condition and procedure quality measures compared to the U.S.

Units vary by measure, 2009-2011

	MA	U.S.	90th percentile	Year
Prevention and population health				
Childhood immunization status	76%	61%	72%	2010
Low birth weight rate	8%	8%	7%	2010
Rate of older adults receiving flu shots	73%	70%	75%	2010
Rate of female adolescents receiving HPV vaccine	41%	24%	42%	2010
Chronic care				
Rate of cholesterol management for patients with cardiovascular conditions	92%	89%	94%	2010
Rate of controlling high blood pressure	71%	63%	74%	2010
Rate of diabetes short-term complications admissions (adult)	48 per 100,000	58 per 100,000	39 per 100,000	2009
Number of admissions for CHF	374 per 100,000	338 per 100,000	199 per 100,000	2009
Number of adults admitted for asthma*	140 per 100,000	114 per 100,000	57 per 100,000	2009
Number of COPD admissions	247 per 100,000	199 per 100,000	112 per 100,000	2009
Hospital readmission rates†				
Acute myocardial infarction readmission rate	20%	20%	N/A	2011
Pneunmonia readmission rate	19%	18%	N/A	2011
Heart failure readmission rate	26%	25%	N/A	2011
Hospital mortality rates†				
Acute myocardial infarction mortality rate	15%	16%	N/A	2011
Pneunmonia mortality rate	11%	12%	N/A	2011
Heart failure mortality rate	10%	11%	N/A	2011
Patient safety				
Rate of iatrogenic pneumothorax (risk-adjusted)	0.41 per 1,000	0.42 per 1,000	N/A	2009-2011
Rate of postoperative respiratory failure	6.6 per 1,000	8.3 per 1,000	N/A	2009-2011
Rate of central venous catheter-related blood stream infections	0.28 per 1,000	0.39 per 1,000	N/A	2009-2011
Patient experience				
Patients at each hospital who reported that "yes" they were given information about what to do during recovery	87%	85%	88%	2011
Patients who reported that staff "always" explained about medicines before giving it to them	64%	64%	67%	2011
Patients who reported that their pain was "always" well controlled	71%	71%	73%	2011
Patients who reported that their nurses "always" communicated well	79%	78%	81%	2011

*Admissions for asthma per 100,000 population, age 18 and over. NQF measure counts all discharges of age greater than 18 and less than 40 years old.

†Readmission and mortality rates are only for Medicare population.

SOURCE: Massachusetts Health Quality Partners; Kaiser Family Foundation; Agency for Healthcare Research and Quality; Massachusetts Immunization Action Partnership; Centers for Disease Control and Prevention; Centers for Medicare & Medicaid Services; Center for Health Information and Analysis; HPC analysis

What is Massachusetts doing to assess its health care resources and ensure access?

Chapter 224 established a statewide Health Planning Council, which is charged with establishing a state health resource plan. (By statute, the Commission is represented on this council.) In developing the plan, the council will inventory "health resources," including facilities, equipment, and professionals, project five-year demand for such resources, and establish a plan that ensures adequate capacity across the state to meet the population's needs and provide meaningful access.

In the first year, the council has focused on behavioral health resources, since this service line is known to have continuing challenges in capacity and access. In its future work, the council will analyze primary care, acute care, and post-acute care.

Nonetheless, in some cases limitations in measuring outcomes make process measures useful as a proxy. Other reports have demonstrated excellent performance on process measures across the state. Massachusetts providers achieve excellent performance on primary care process measures, with the statewide average exceeding the national average on 24 of 25 process measures reported by Massachusetts Health Quality Partners (MHQP) and surpassing the national 90th percentile on 14 of 25 measures.[56] Similarly, in the hospital setting, nearly all Massachusetts provider systems performed at or above national averages on 10 CMS process-of-care measures.[13]

1.4.3 Access to care

Massachusetts has the highest rate of insurance coverage in the country, with 97 percent of residents insured.[13] Massachusetts also performs well in the use of preventive services and in access to physician care: in the last year, nearly four-fifths of residents sought preventive care and all but 12 percent of residents visited a physician (**Table 1.12**).[xv] Still, there are known gaps in access to care in particular service lines, such as behavioral health (see sidebar **"What is Massachusetts doing to assess its health care resources and ensure access?"**).[27]

Although the state enjoys near universal coverage, the costs of this coverage and the out-of-pocket costs for deductibles, co-payments, and non-covered services can represent a significant financial burden for families in accessing care. From 2009 to 2011, the average per member premiums for commercial health insurance grew 9.7 percent, while the value of the benefits declined by 5.1 percent.[13] APCD data show that out-of-pocket costs represent six to seven percent of commercial enrollees' claims-based medical expenditures.

While Massachusetts has achieved strong access overall, significant disparities in access to care remain based on income, race and ethnicity, and other socioeconomic factors.[57,58,59] These are an area of interest for the Commission in future work, and the APCD is a particularly useful dataset to conduct these types of analyses.

Table 1.12: Health care access measures in Massachusetts

Units vary by measure

	2009	2010	2011
Structural access			
Residents without a doctor's visit in last 12 months	12%	12%	12%
Residents without a preventive care visit in last 12 months	22%	21%	22%
Residents with an ED visit	26%	25%	26%
ED visits that were non-emergent	34%	34%	31%
Residents with a non-emergent visit	9%	9%	8%
Residents with difficulty in obtaining care in last 12 months	23%	22%	22%
Financial access			
Average premiums	$384	$400	$421
Avoided care due to cost in last 12 months	21%	23%	24%
Having difficulty paying medical bills in last 12 months	15%	18%	18%

SOURCE: Center for Health Information and Analysis

[xv] Chapter 224 includes a number of reforms to improve access to primary care. The law expands the definition of primary care provider to include nurse practitioners and physician assistants and broadens the scope of practice for nurse practitioners in limited service clinics. In addition, it includes 3 programs to develop a broader primary care workforce: loan forgiveness for providers who care for underserved populations; grants to promote residency programs at community health centers; and loan grants for providers serving at a community health center.

1.5 Conclusion

Per capita health care spending in Massachusetts is the highest of any state, 36 percent above the United States average in 2009. Massachusetts devoted 16.6 percent of its economy to personal health care expenditures in 2012, compared with 15.1 percent for the nation. Higher spending results from higher utilization and higher prices, and is concentrated in two categories of service: hospital care and long-term care and home health. This higher per capita spending is consistent across all payer types.

Between 2001 and 2009, per capita health care spending in Massachusetts grew at an accelerated rate, increasing the difference between Massachusetts and the U.S. average from 26 percent to 36 percent. This increased difference was driven primarily by faster growth in commercial prices, as hospital utilization levels compared to the U.S. average were relatively stable over that time period.

In recent years, spending growth in Massachusetts has slowed in line with slower national growth. This recent slower health care growth coupled with faster economic growth has marginally decreased the proportion of the economy that Massachusetts spends on health care. However, historic evidence suggests sustaining lower growth rates will require concerted effort. Past periods of slow health care growth in Massachusetts, such as the 1990s, have been followed by periods of higher growth.

Massachusetts achieves high quality performance on most measures, although opportunities for improvement remain. There is broad overall access to care, with low uninsured rates and a high proportion of residents who have visited a health care provider in the past year.

Significant trends are occurring in the provider and payer market. For providers, the delivery system is growing increasingly concentrated in several large systems, with a larger proportion of discharges occurring from major teaching hospitals and hospitals in their systems. Many provider organizations seek to re-orient care delivery around new models for patient-centered, accountable care through a variety of organizational structures. Still, misaligned payment incentives, persistent barriers to behavioral health integration, and limited data and resources are significant challenges.

In the payer market, commercial payers are pursuing demand-side innovation through products like high-deductible health plans and tiered or limited network plans intended to involve consumers in making value-based decisions. In addition, public and commercial payers are increasingly implementing provider contracts that aim to alter supply-side incentives through alternative payment methods. These methods, in contrast to fee-for-service payments, are designed to support and financially reward providers for delivering high-quality care while holding them accountable for slowing future health care spending increases. However, there are significant challenges in implementation, including a shift in the commercial market to PPO products, which currently do not feature alternative payment methods, and wide variation in contracts across payers and across providers.

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