
HEALTH CARE COSTS AND SPENDING IN MASSACHUSETTS

A Review of the Evidence

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Health Care Costs and Spending in Massachusetts: A Review of the Evidence pulls together in one chart pack the findings and analyses from numerous state and national research projects on health care costs and spending in the Commonwealth of Massachusetts. There is a surfeit of data and reports on this topic, especially in the wake of Chapter 305 of the Acts of 2008, which gave new authority and responsibilities to several Massachusetts state agencies to collect health care data and report on their findings. Chapter 224 of the Acts of 2012, the state's ambitious cost containment law, cemented and expanded much of this analytical framework and will undoubtedly augment this trend. This publication is an effort to synthesize this expansive body of research into a simple, easy-to-use resource.

Charts in this report draw heavily on analyses conducted by the Massachusetts Center for Health Information and Analysis (previously the Division of Health Care Finance and Policy), the Massachusetts Office of the Attorney General, the Office of the Actuary at the Centers for Medicare and Medicaid Services, and the Dartmouth Atlas of Health Care. The research efforts undertaken by these organizations form the analytical bedrock for informed and thoughtful policy discussions.

This report has been designed to support use of the charts in slide presentations, and we encourage readers to use them. We plan to update this chart pack regularly with the latest results from ongoing research efforts as they become available.

This publication was assembled by the Foundation in collaboration with Amitabh Chandra at the Harvard Kennedy School of Government and Josephine Fisher at Amherst College. Numerous individuals including Katherine Baicker, John Cai, Mike Caljouw, Jon Gruber, and Lois Johnson provided invaluable comments and assistance.

DESIGN: Madolyn Allison

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EXECUTIVE SUMMARY

Massachusetts spends more per capita on health care than any other state. From 2009 to 2020, health spending is projected to double, outpacing both inflation and growth in the overall economy. The rapid rate of growth squeezes out other spending, both for individual households and in the state budget.

Massachusetts residents spend more than the U.S. average on every category of health care services, though they spend less than average on health care administration. Spending on hospitals and nursing homes comprises the majority of the difference between Massachusetts and U.S. average spending. Recent increases in total health spending are dominated by disproportionate growth in physician services and hospital outpatient services for the private market. Growth in Medicare spending is driven more by hospital inpatient services, nursing home care, and prescription drugs.

Massachusetts demographic factors predict higher overall use of services — the population is older, richer, and better insured than average — but these factors do not explain all the differences.

The structure of the state's health care delivery system, which includes many specialists and teaching hospitals, also likely contributes to higher overall spending. In recent years, however, increasing prices have been the major driver of higher health spending in the private market.

Across the state there are large variations in both total spending and prices. Per person spending on health care in some towns is up to 15% higher than others, with richer towns generally spending more. Likewise, some hospitals are paid up to 10 times more than others for the same services.

High prices are likely due to the market power of large physician and hospital groups; there is no evidence that high prices are associated with higher quality of service. Greater overall use of services, likewise, is not associated with higher quality or better health outcomes.

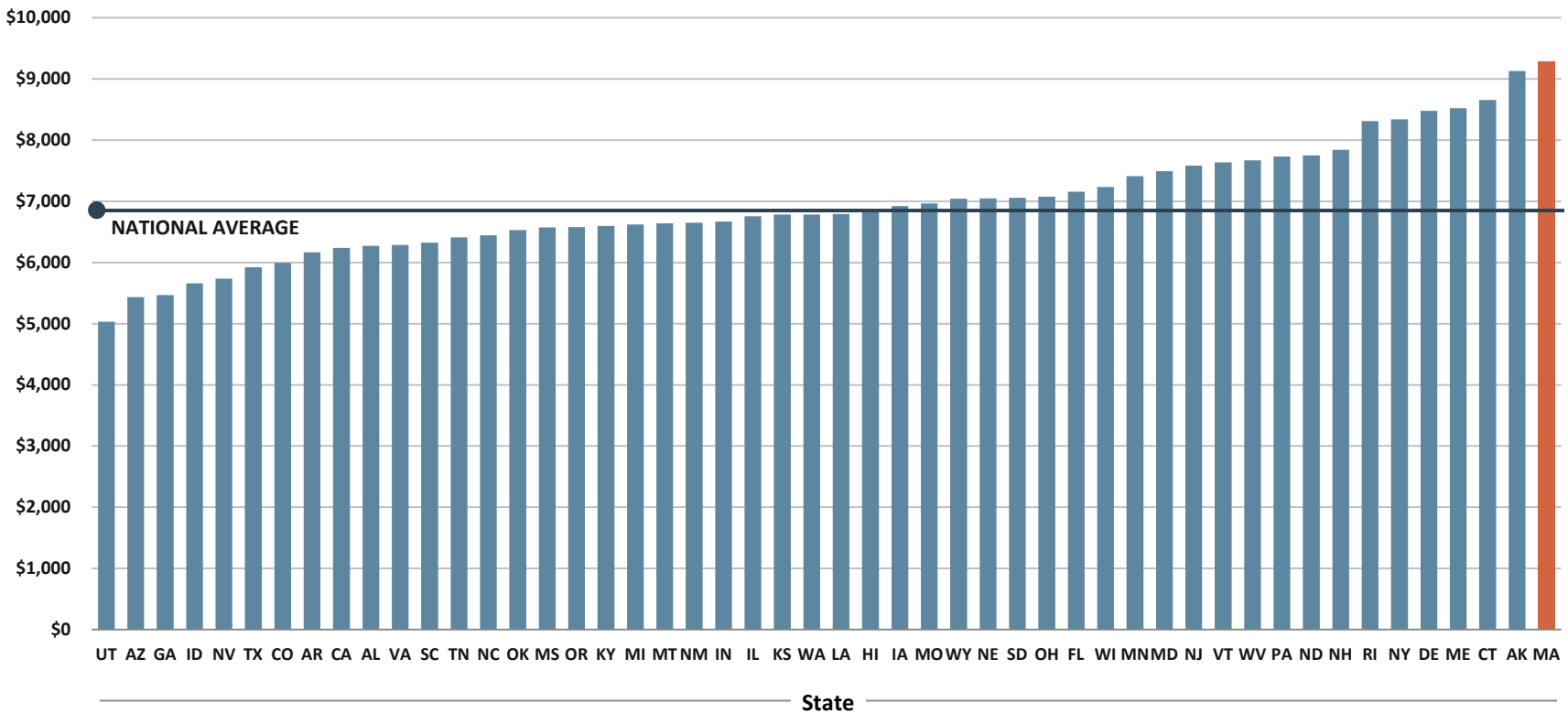
That these variations in prices and spending have no apparent association with health care value suggests that health care spending can be lowered while maintaining or improving the overall quality of care.

SECTION 1: THE COST OF RISING COSTS

- Massachusetts spends the most per capita in the country on health care. Even after taking into account that wages in the state are higher than average and that Massachusetts attracts a large amount of health care research funding, spending is still 15% above the national average.
- Massachusetts has long been a high health care spending state, and the 2006 health reform law did not significantly increase the rate of growth in the state's health insurance premiums.
- All payers — commercial insurers, Medicare, and Medicaid — have seen significant growth in spending over the past 20 years.
- Health care spending is growing much faster than household incomes or the economy, squeezing out spending on other areas — education, housing, infrastructure — both for households and in the state budget.

Massachusetts Spends More on Health Care than Any Other State

PER CAPITA PERSONAL HEALTH CARE EXPENDITURES, 2009

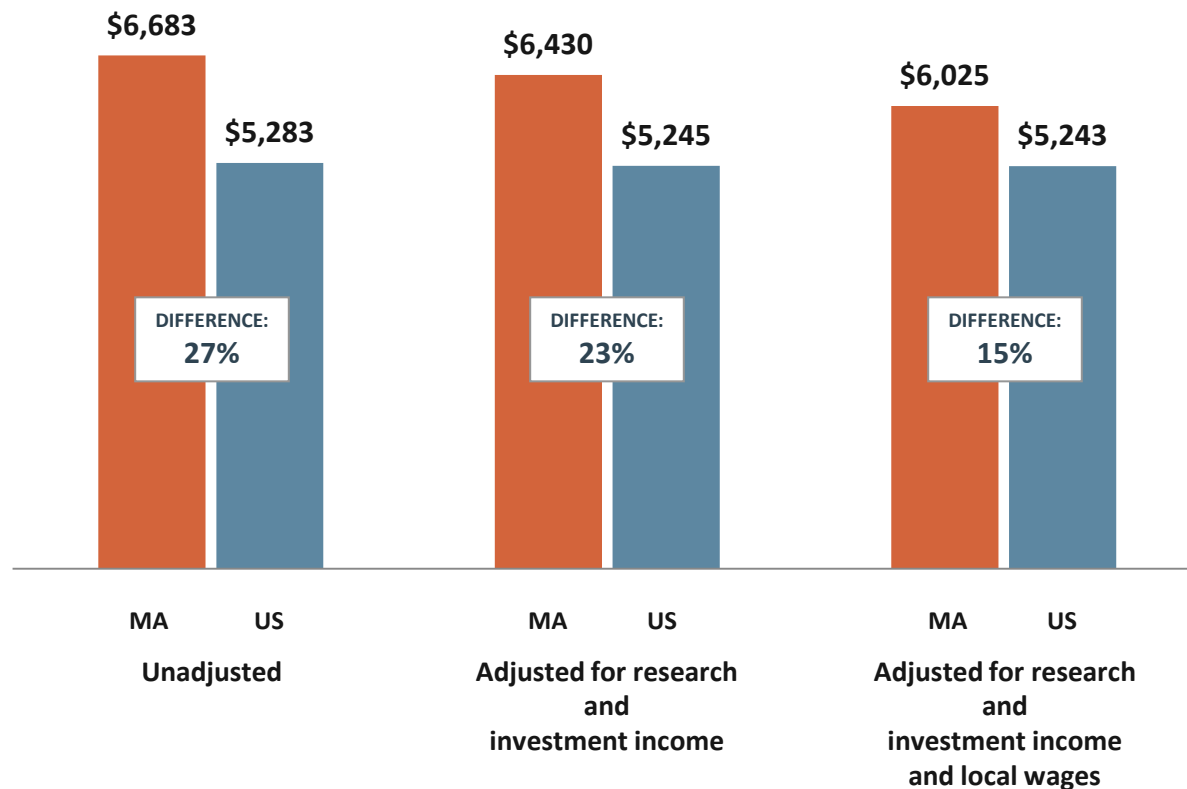


NOTE: District of Columbia is not included.

SOURCE: Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

Even After Adjusting for Higher Wages and Research Spending, Massachusetts Per Capita Spending Is Still 15% Higher than the National Average

PER CAPITA PERSONAL HEALTH SPENDING, 2004

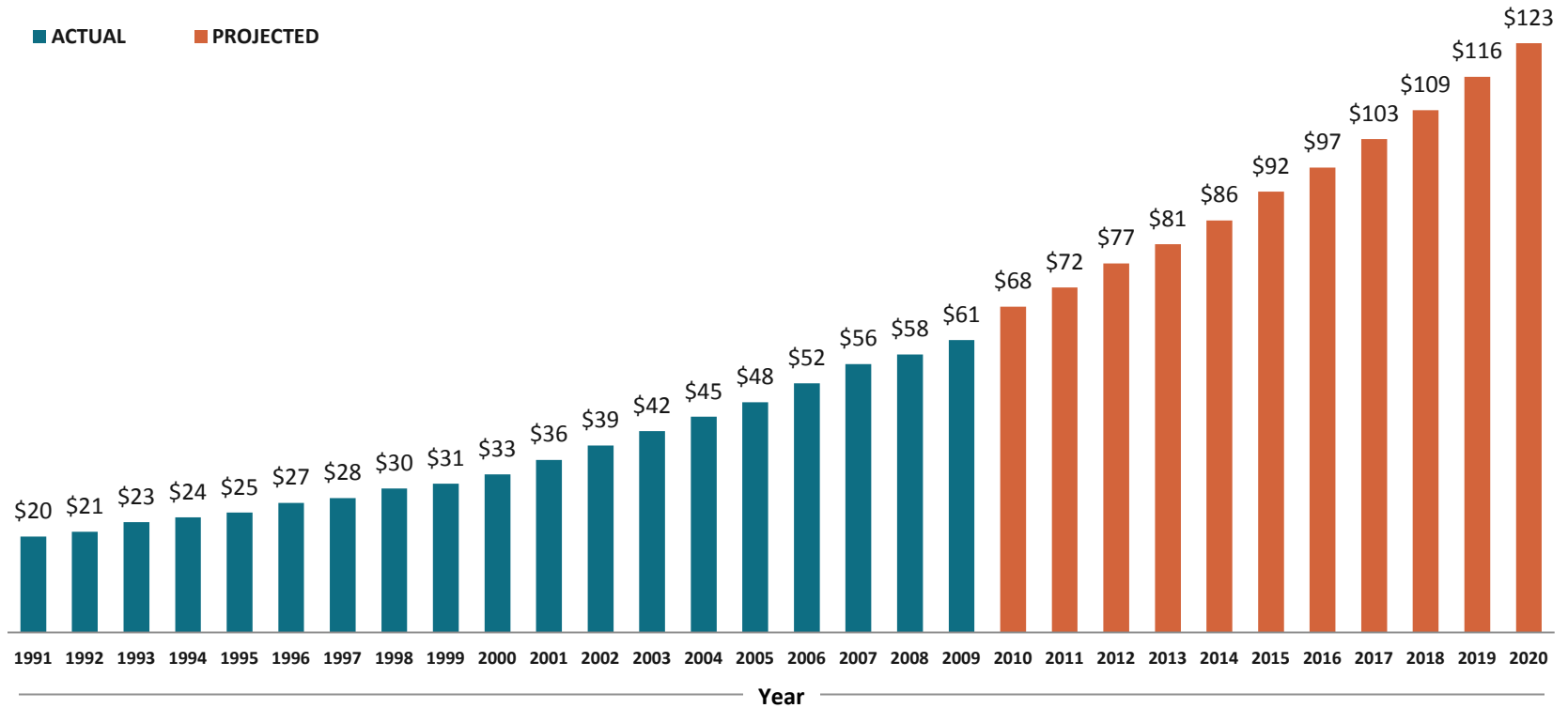


Massachusetts' higher per capita health spending is explained in part by relatively high wages and by the large amount of research funding and investment income received by the state's hospital sector. Even after adjusting for those factors, however, Massachusetts per capita health spending is still 15% higher than the national average.

source: Wallack, S.S. et. al. for Massachusetts Division of Health Care Finance and Policy, "[Massachusetts Health Care Cost Trends, Part I: The Massachusetts Health Care System in Context](#)," February 2010.

Total Health Spending Will Double from 2009 to 2020

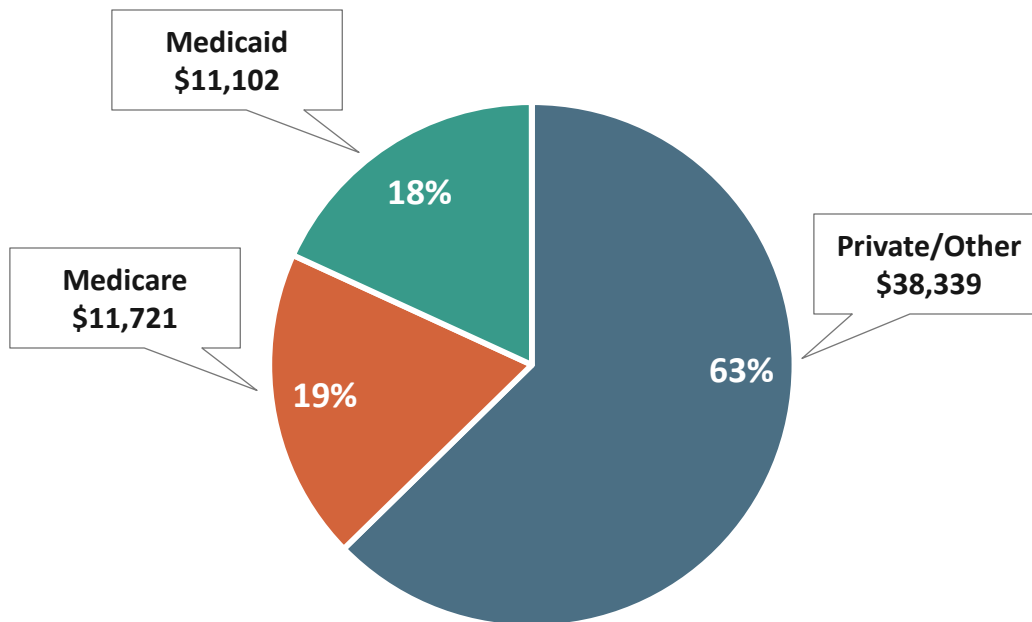
ACTUAL AND PROJECTED MASSACHUSETTS TOTAL PERSONAL HEALTH CARE EXPENDITURES, 1991-2020
(BILLIONS OF DOLLARS)



SOURCES: Centers for Medicare & Medicaid Services, *Health Expenditures by State of Residence*, CMS, 2011; Massachusetts Division of Health Care Finance and Policy, “[Massachusetts Health Care Cost Trends, Historical \(1991-2004\) and Projected \(2004-2020\)](#),” November 2009.

Medicare and Medicaid Account for Nearly 40% of Massachusetts Health Spending

TOTAL PERSONAL HEALTH EXPENDITURES BY PAYER IN MASSACHUSETTS, 2009
(MILLIONS OF DOLLARS)



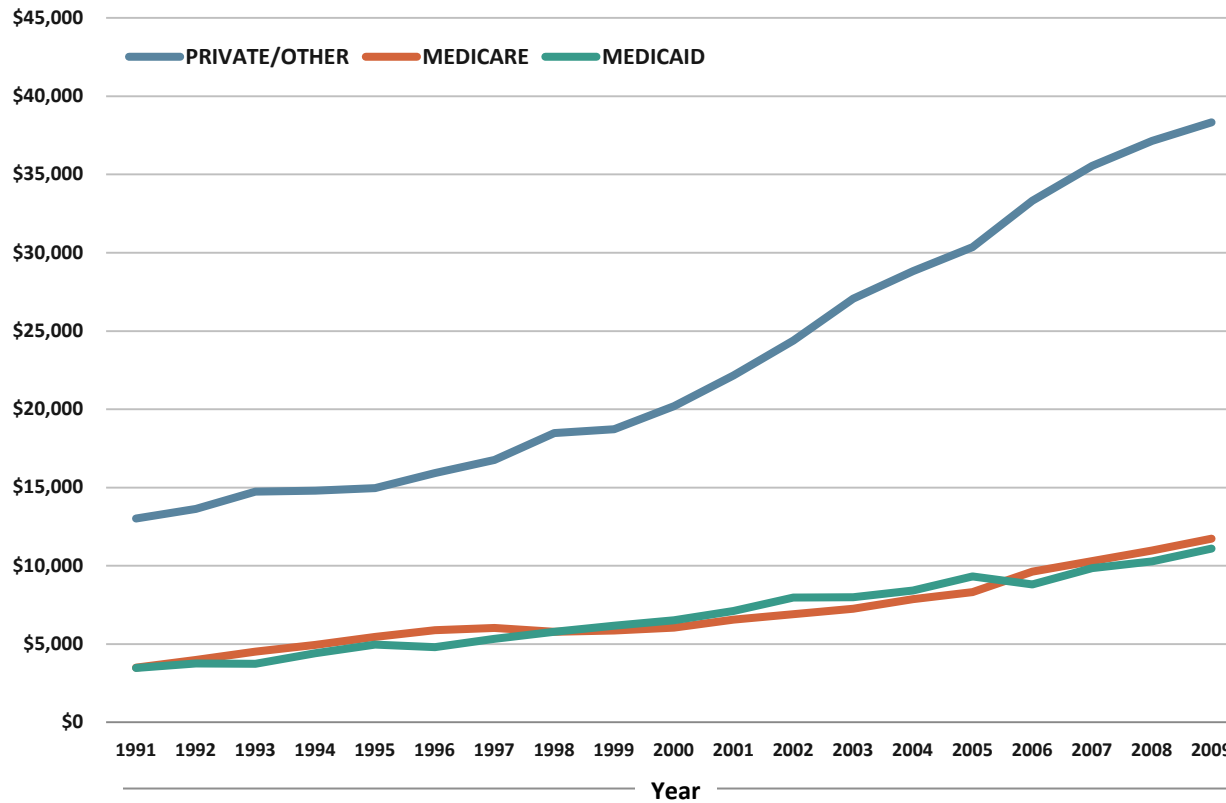
In 2009, Medicare covered just over 1 million residents in Massachusetts. Medicaid, which includes the Children’s Health Insurance Program (CHIP) and the enrollees in Commonwealth Care, the state’s subsidized insurance program, covered 1.4 million Massachusetts residents.

About half of Private/Other spending is on private insurance, and about one quarter is out-of-pocket spending. The remaining Private/Other spending comes from programs run by the Department of Defense and Department of Veterans Affairs and other third-party payers such as Workers Compensation.

SOURCE: Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

All Payers in Massachusetts Have Experienced Significant Spending Growth

TOTAL PERSONAL HEALTH EXPENDITURES BY PAYER IN MASSACHUSETTS, 1991-2009
(MILLIONS OF DOLLARS)

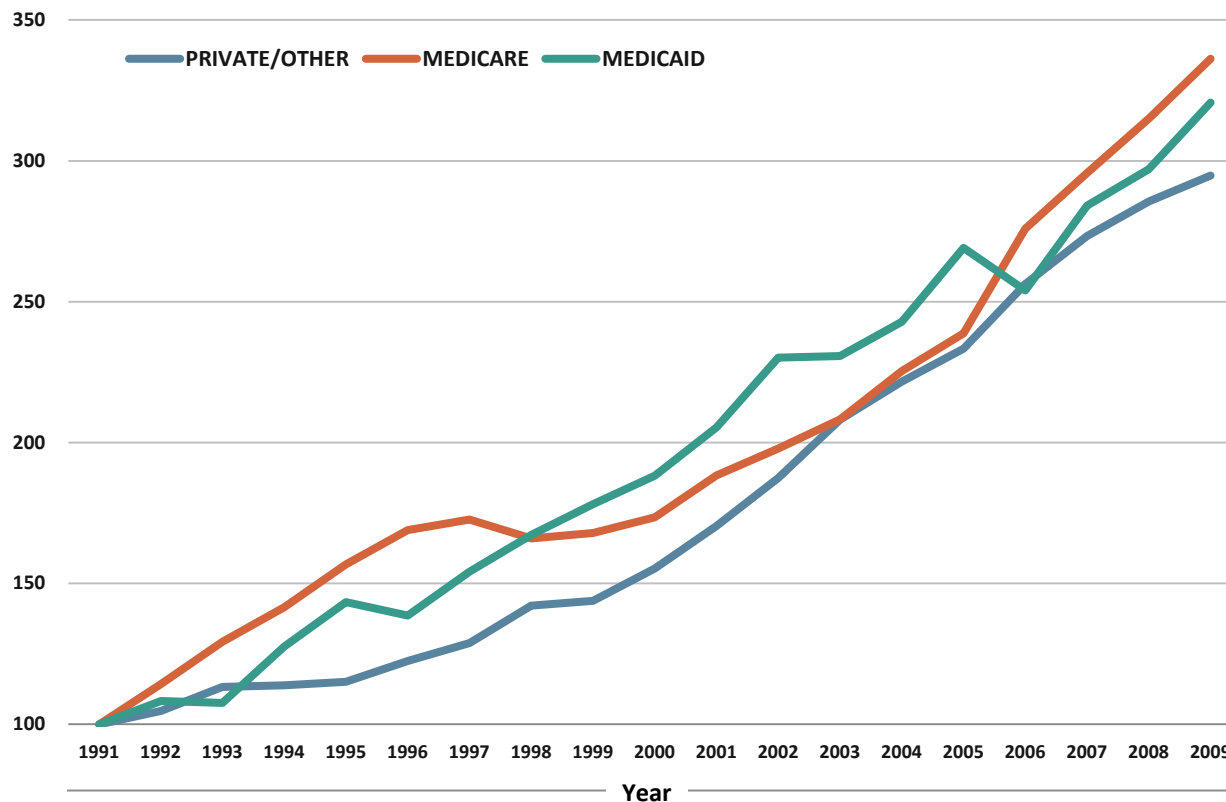


These numbers reflect total increases in spending, resulting from both increasing enrollment, especially in Medicaid, and higher per capita spending.

SOURCE: Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

Total Growth Rates by Payer Have Been Similar Since 1991

ANNUAL GROWTH INDEX BY PAYER IN MASSACHUSETTS, 1991-2009; BASE YEAR 1991 (ANNUAL GROWTH RATE)



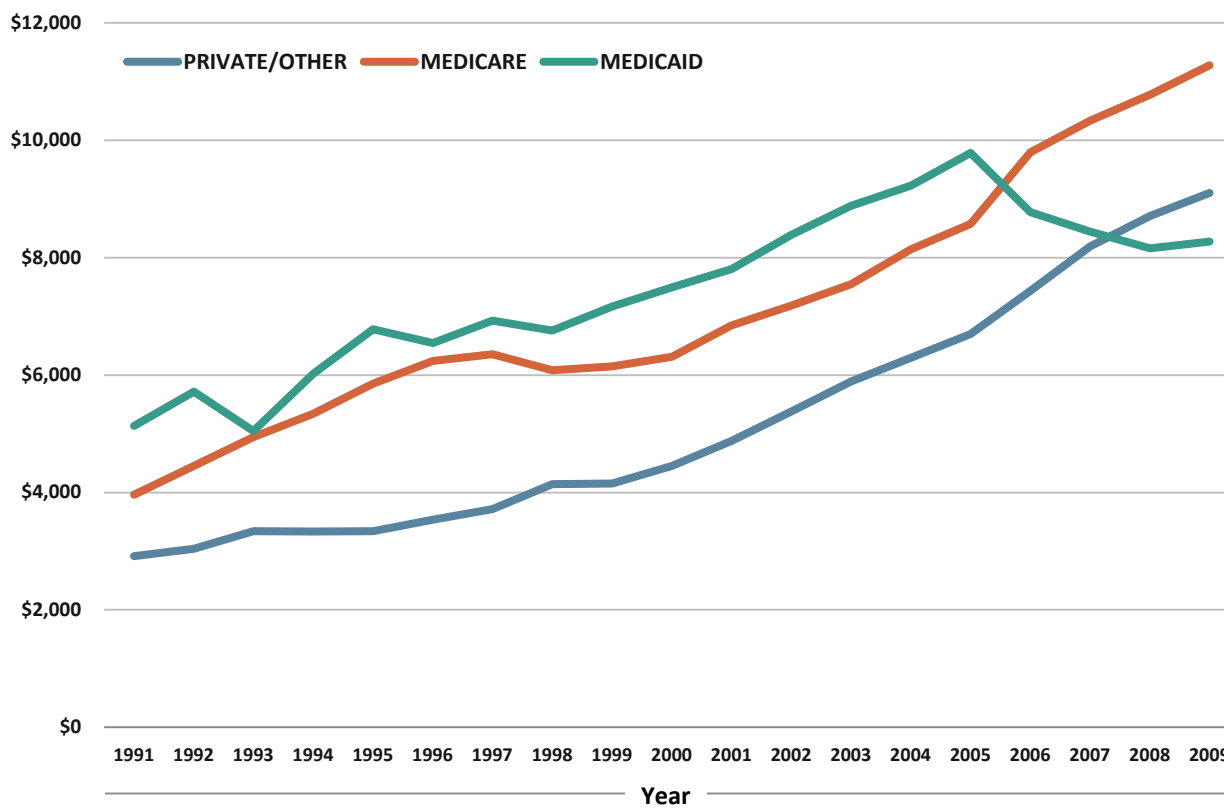
Though private spending accounts for the majority of health care costs in Massachusetts, all types of payers had similar growth rates from 1991 to 2009:

- **Private/Other** average annual growth rate, 1991-2009: **6.2%**
- **Medicare** average annual growth rate, 1991-2009: **7.1%**
- **Medicaid** average annual growth rate, 1991-2009: **6.9%**

SOURCE: Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

Private Spending Grew Faster Per Capita than Both Medicare and Medicaid

HEALTH CARE EXPENDITURES PER CAPITA BY PAYER IN MASSACHUSETTS, 1991-2009



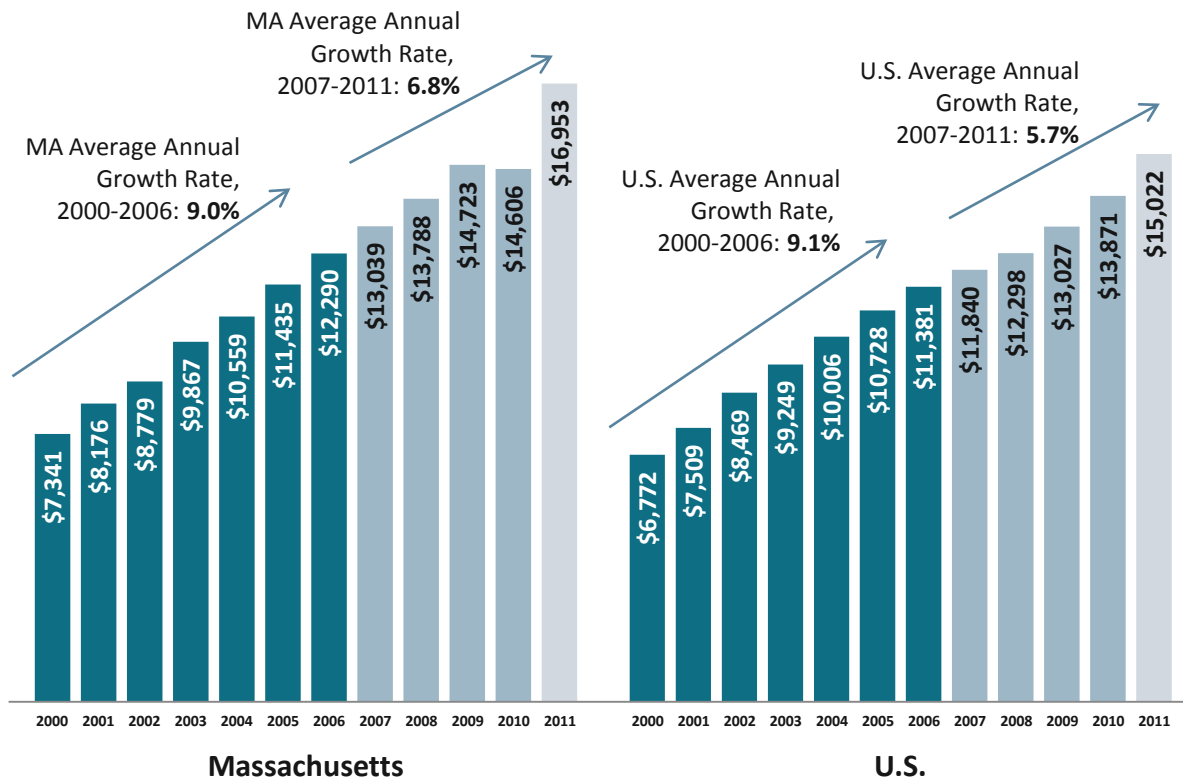
SOURCE: Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

The sharp drop in Medicaid per capita spending resulted in part from the 2006 expansion of Medicaid, in which lower-cost and less sick populations enrolled.

- **Private/Other** average annual per capita growth rate, 1991-2009: **6.6%**
- **Medicare** average annual per capita growth rate, 1991-2009: **6.1%**
- **Medicaid** average annual per capita growth rate, 1991-2009: **3.0%**

Massachusetts Health Reform Did Not Escalate the Current Trend in Health Care Cost Growth

FAMILY HEALTH INSURANCE PREMIUMS IN MA AND U.S., 2000 - 2011



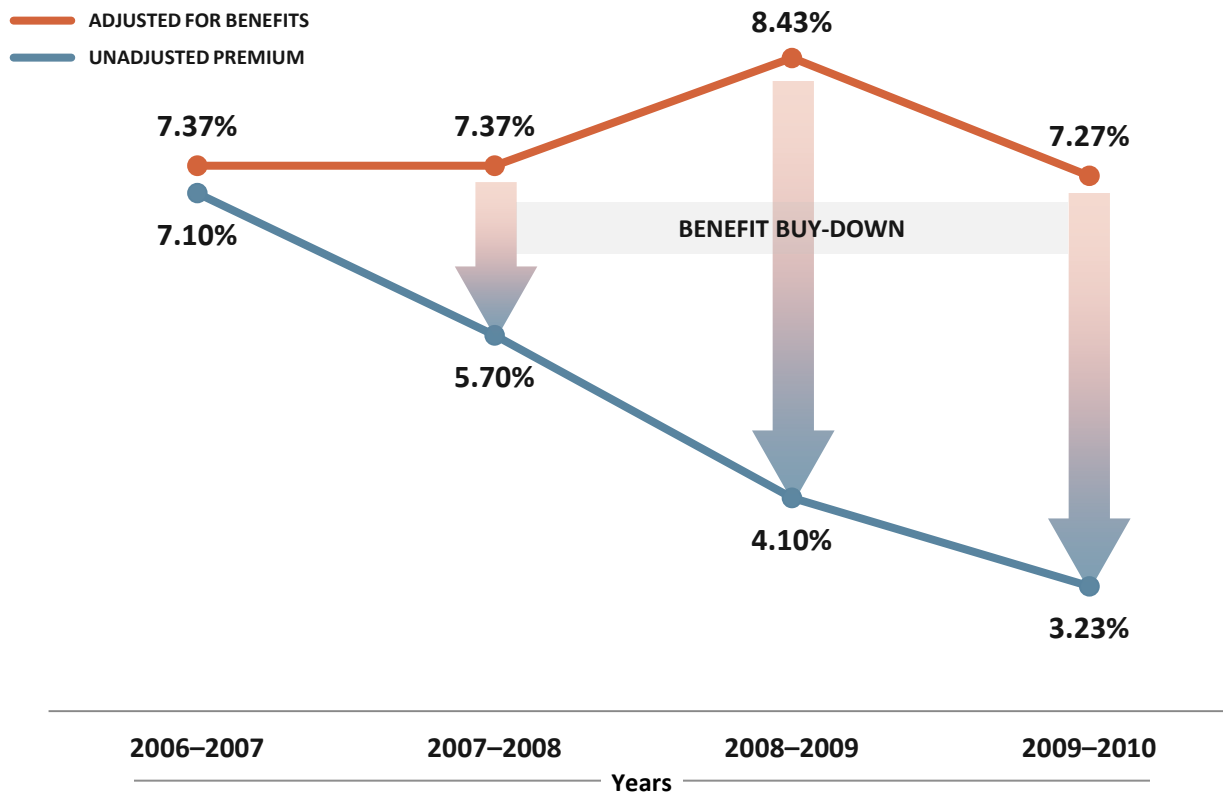
In Massachusetts, private health insurance premiums have been growing more slowly in the years since health reform passed in 2006.

Massachusetts health insurance premiums have always been higher than the national average. Before health reform, Massachusetts premiums grew at roughly the same rate as the U.S. average. In the years after health reform, premiums have grown slightly faster than the national average, largely due to a major spike in 2011 premiums reported by employers in this survey. This is likely a reflection of the small sample size in Massachusetts for this nationwide survey.

NOTE: Data for 2007 is imputed using the average of 2006 and 2008 as data for this year is unavailable.
 SOURCE: Agency for Healthcare Research and Quality, *Medical Expenditure Panel Survey — Insurance Component*.

Premium Growth Rates May Be Slowing, but Benefits Are Shrinking, Too

AVERAGE OF PERCENT CHANGE IN PREMIUMS ACROSS SMALL, MID, AND LARGE GROUP PLANS, 2006-2010



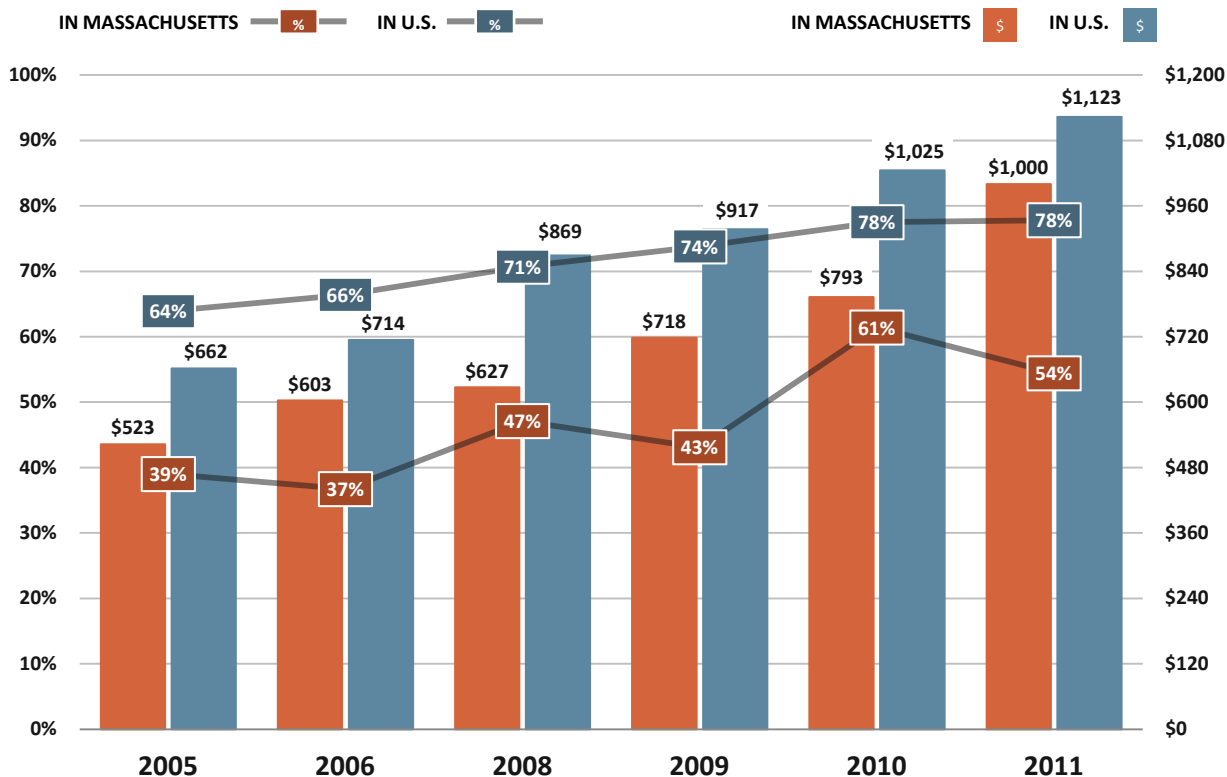
Unadjusted premiums are the actual premiums collected by insurance companies. The growth rate for unadjusted premiums in Massachusetts decreased between 2006 to 2010 from 7.1 to 3.2 percent. But after the premiums are adjusted to account for the changing value of the underlying benefits provided, the premium growth rate is much higher. This phenomenon of keeping premium growth low by reducing benefits (largely via increased cost-sharing) is known as “benefit buy-down.”

sources: Massachusetts Division of Health Care Finance and Policy, [Massachusetts Health Care Cost Trends: Premiums and Expenditures](#), May 2012; [Premium Levels and Trends in Private Health Plans: 2007-2009](#), May 2011; [Massachusetts Health Care Cost Trends: Part II: Massachusetts Private Health Insurance Premium Trends 2006-2008](#), February 2010.

More Massachusetts Employees Have Deductibles, and Deductibles Are Growing

PERCENT OF EMPLOYEES ENROLLED IN A PLAN WITH A DEDUCTIBLE:

AVERAGE SIZE OF INDIVIDUAL DEDUCTIBLE:



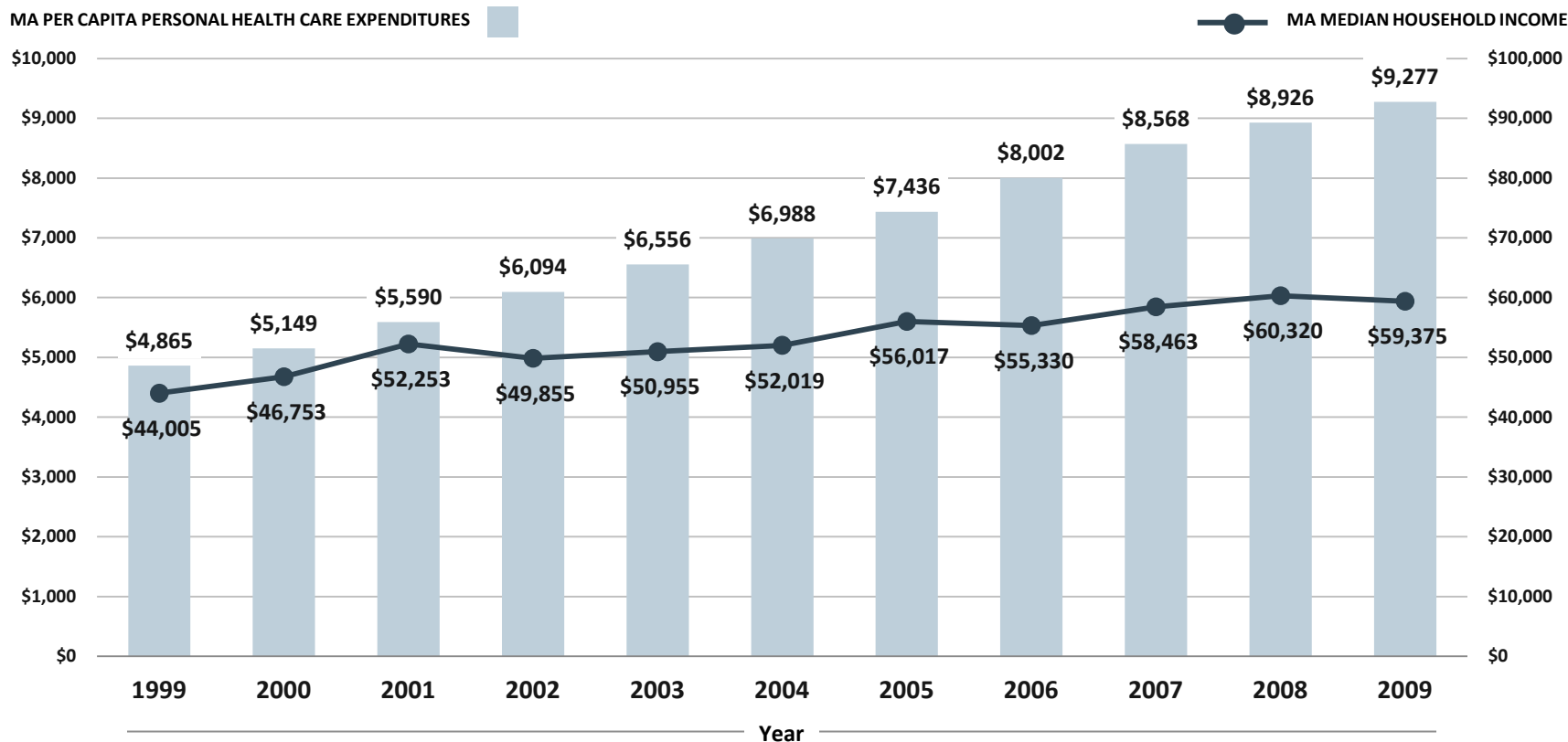
Massachusetts has long had a lower prevalence of deductibles than is average in the U.S., and the state's average deductibles are smaller than those found in national private employer health plans. But in recent years, Massachusetts has seen some large jumps in the sizes of deductibles as well as in the proportion of employees who have deductibles.

NOTE: Data for 2007 is not available.

SOURCE: Agency for Health Care Quality and Research, *Medical Expenditure Panel Survey — Insurance Component*.

With Wages Stagnant, Increasing Health Care Costs Consume a Greater Portion of Household Budgets

MASSACHUSETTS PER CAPITA PERSONAL HEALTH EXPENDITURES AND MEDIAN INCOME, 1999-2009

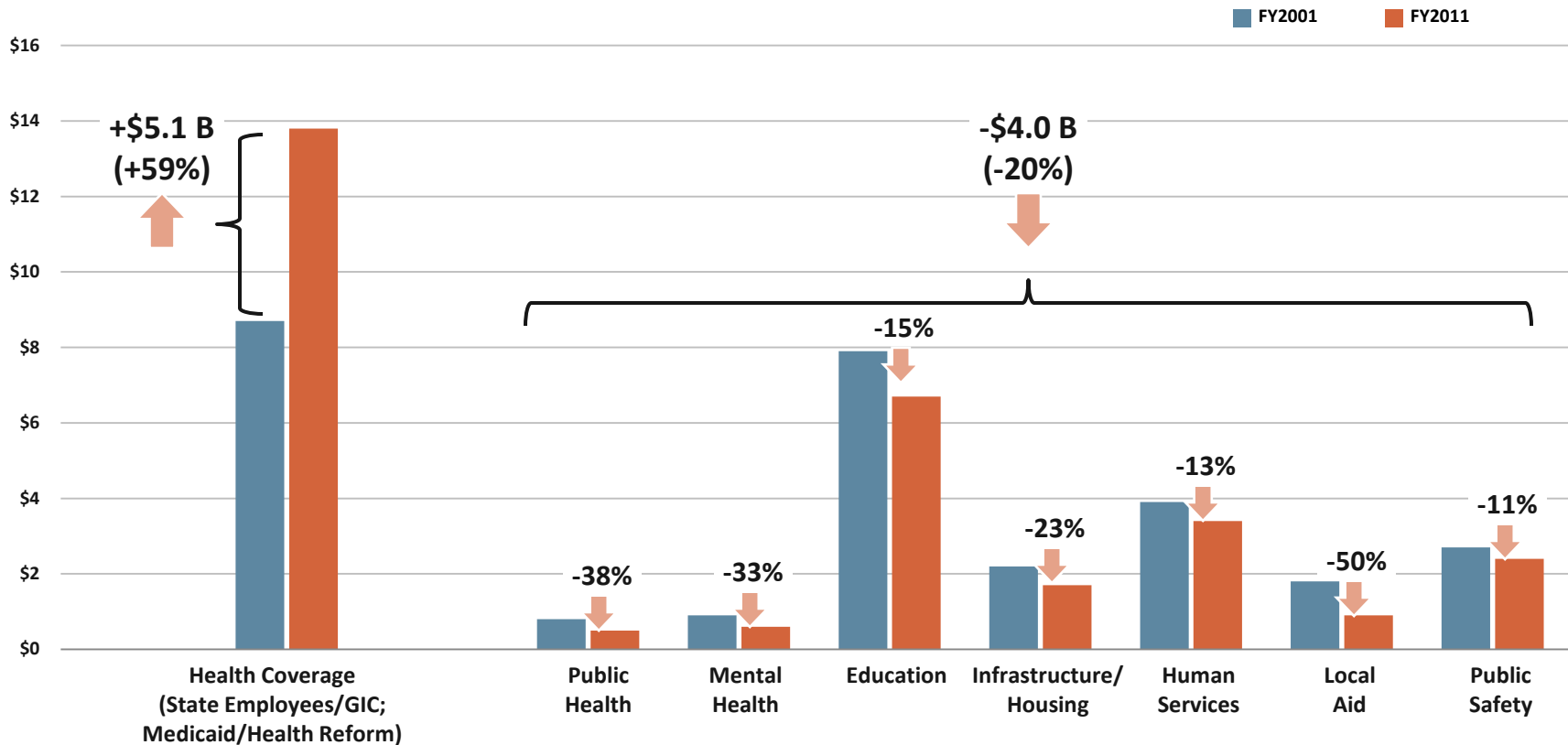


NOTE: Health care expenditures and household income reported in current year (unadjusted) dollars.

SOURCES: Data for health care expenditures from CMS, [Health Expenditures by State of Residence](#), 1991-2009. Data for median income from U.S. Census Bureau, *State Median Income*.

The Increasing Costs of Health Care Squeeze Out Other Public Spending Priorities, Too

STATE BUDGET, FY2001 VS. FY2011 (BILLIONS OF DOLLARS)



NOTE: Dollar figures are inflation adjusted using a measure specific to government spending as developed by the U.S. Bureau of Labor and Statistics.

SOURCE: Massachusetts Budget and Policy Center [Budget Browser](#).

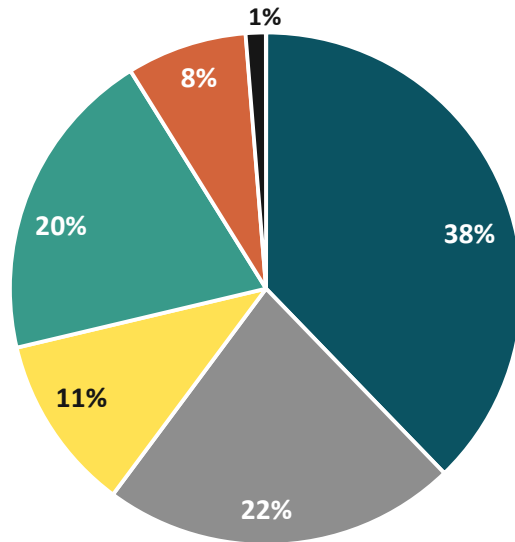
SECTION 2:

WHERE THE HEALTH CARE DOLLARS GO — SPENDING AND COST GROWTH BY TYPES OF HEALTH CARE SERVICES

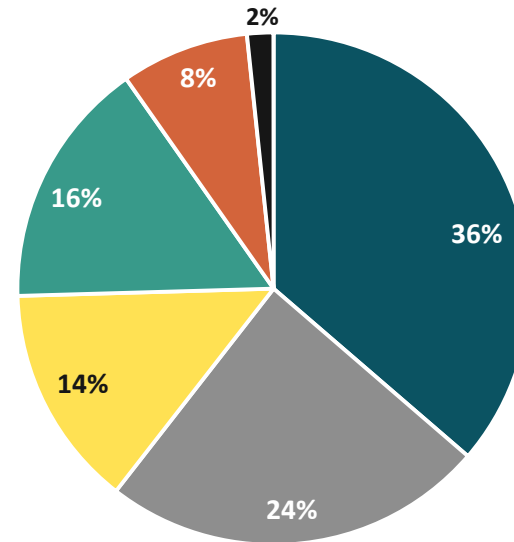
- Per capita spending in Massachusetts is higher than the national average in every major category of health care services, including physician and hospital services, prescription drugs, and nursing homes. The biggest gaps between the U.S. average and Massachusetts occur in spending on hospitals and nursing homes.
- Per capita private spending is spread evenly across hospital inpatient, outpatient, and physician care. Per capita Medicare spending is much higher overall, and a larger proportion goes to inpatient care and nursing homes.
- Recent increases in private spending on health care have been disproportionately driven by outpatient care and physician services. Medicare spending growth is dominated by inpatient care, nursing homes, and prescription drugs.
- About 11% of private spending on health care in Massachusetts goes to insurer administrative costs, well below the national average.
- Only about 2.4% of all health spending is attributable to medical malpractice costs.

The Distribution of Total Spending by Type of Service Is Similar for Massachusetts and the U.S. as a Whole

MASSACHUSETTS PER CAPITA SPENDING BY SERVICE, 2009



UNITED STATES PER CAPITA SPENDING BY SERVICE, 2009

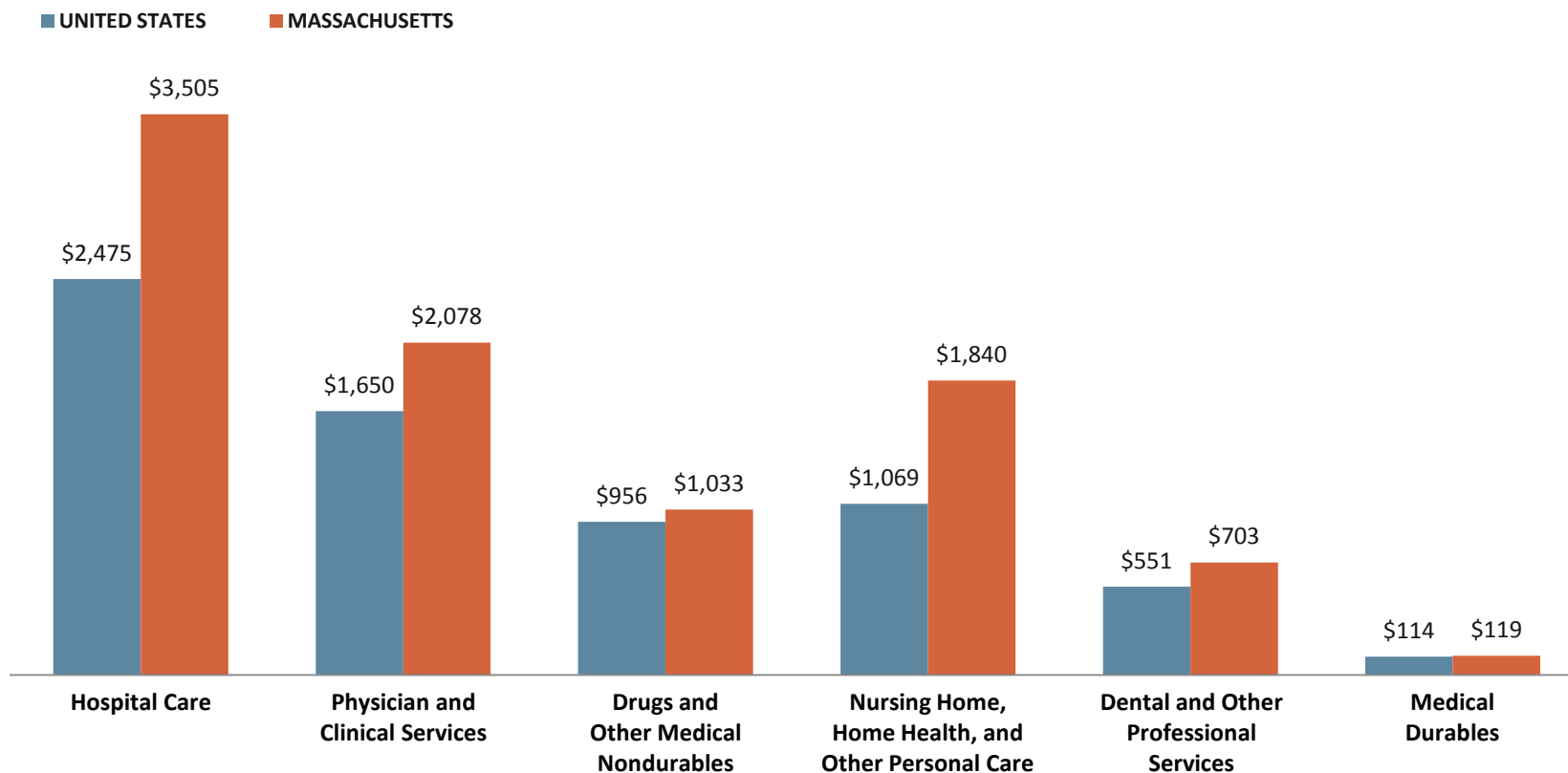


- Hospital Care
- Physician and Clinical Services
- Drugs and Other Medical Nondurables
- Nursing Home, Home Health, and Other Personal Care
- Dental and Other Professional Services
- Medical Durables

source: Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

Per Person Spending in Massachusetts Is Higher than the National Average in Every Category of Service

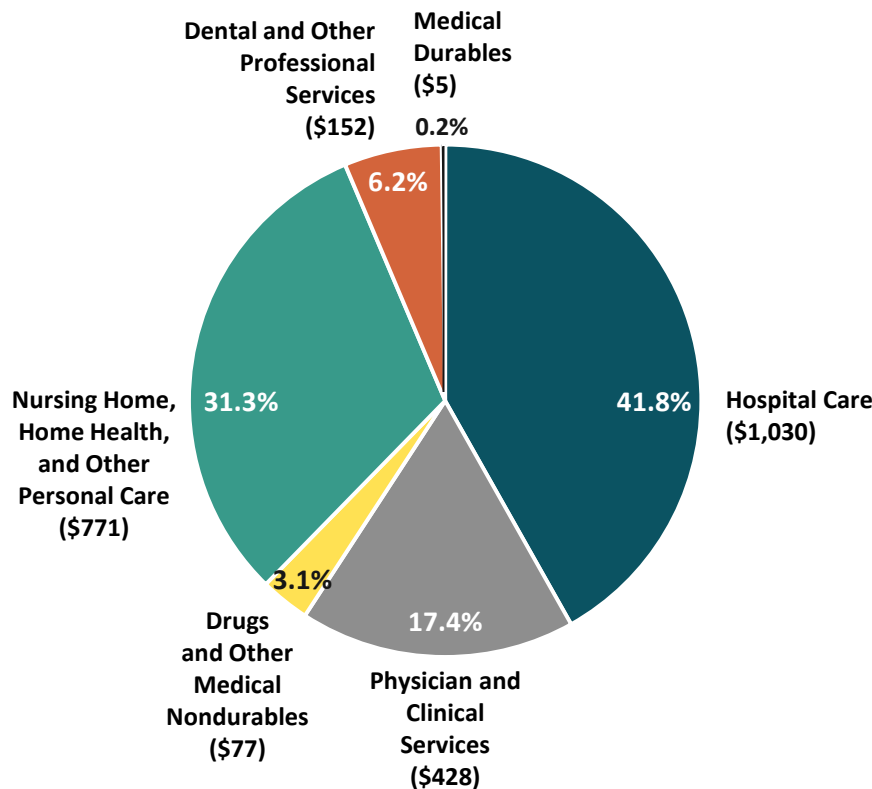
UNITED STATES AND MASSACHUSETTS PER CAPITA SPENDING BY SERVICE, 2009



SOURCE: Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

Spending on Hospitals and Nursing Homes Makes Up the Majority of the Difference Between Massachusetts and the U.S.

CONTRIBUTION TO DIFFERENCE IN MA AND U.S. SPENDING BY SERVICE, 2009

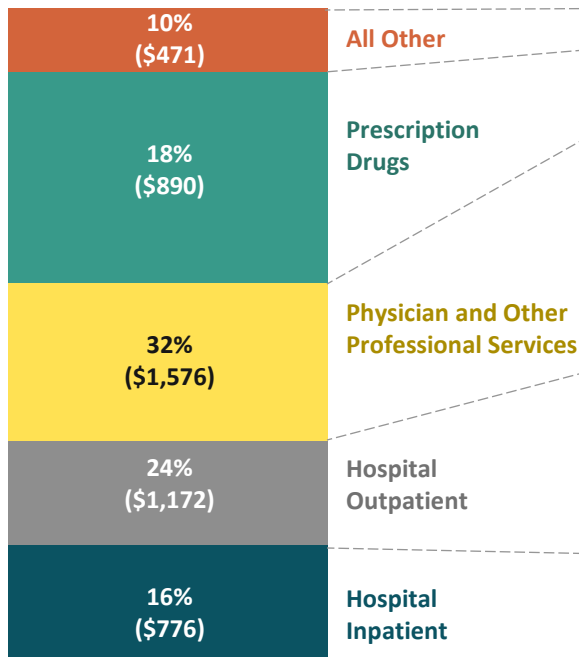


In total, per person health care spending in Massachusetts is \$2,463 more than the national average. Higher spending on hospitals and nursing homes accounts for 73% of this difference. These two categories of spending are among the largest for both MA and the U.S., and would therefore be expected to account for much of the difference. All the same, they have a disproportionate impact on the gap between the U.S. and MA.

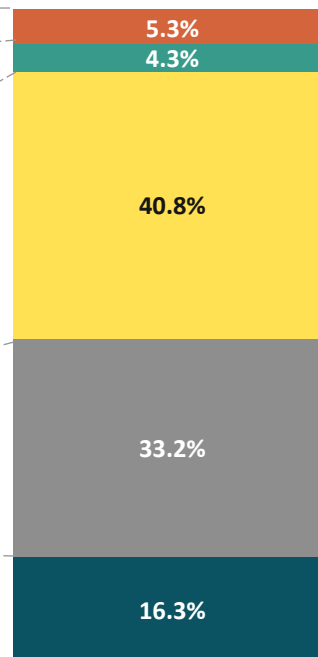
source: Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

Hospital Outpatient and Physician Services Were the Biggest Drivers of Spending Growth for Residents with Private Coverage Between 2007 and 2009

MA DISTRIBUTION OF PRIVATELY INSURED SPENDING BY TYPE OF SERVICE (\$ PER CAPITA), 2009



MA DISTRIBUTION OF GROWTH IN PRIVATELY INSURED SPENDING PER CAPITA BY TYPE OF SERVICE, 2007-2009



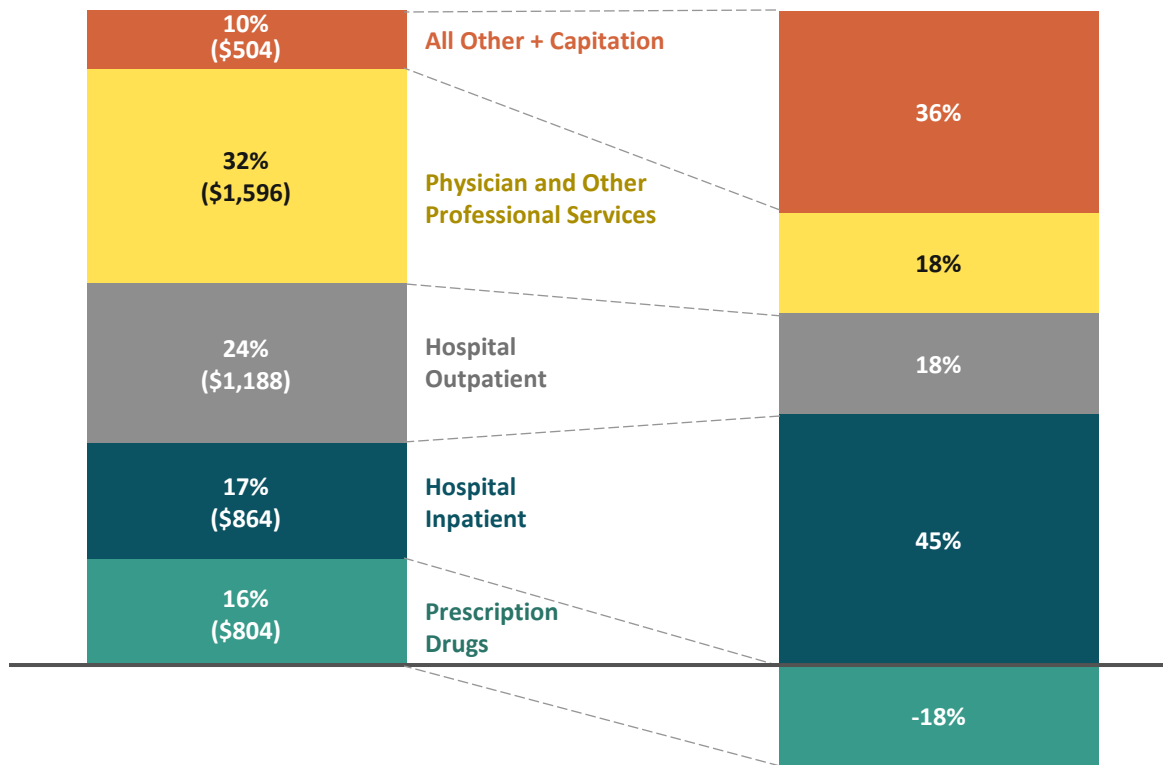
Total per person health care spending for Massachusetts residents with private coverage (including cost sharing) was, on average, \$4,885 in 2009. This was up from \$4,427 in 2007, an average annual growth rate of 8%. Hospital outpatient services consumed about a quarter of that spending but accounted for more than one-third of the growth in spending from 2007 to 2009. Physician services consumed about one-third of total spending but were responsible for 40% of the growth in costs. Prescription drugs, however, accounted for less than expected of the overall growth in spending.

SOURCE: Massachusetts Division of Health Care Finance and Policy, "Massachusetts Health Care Cost Trends: Trends in Health Expenditures," June 2011.

Hospital Inpatient Spending Growth Drove Total Increases for Residents with Commercial Coverage Between 2009 and 2010

MA DISTRIBUTION OF COMMERCIALY INSURED TOTAL MEDICAL EXPENSES (TME) BY TYPE OF SERVICE (\$ PER CAPITA), 2010

MA DISTRIBUTION OF GROWTH IN COMMERCIALY INSURED TOTAL MEDICAL EXPENSES (TME) BY TYPE OF SERVICE, 2009-2010



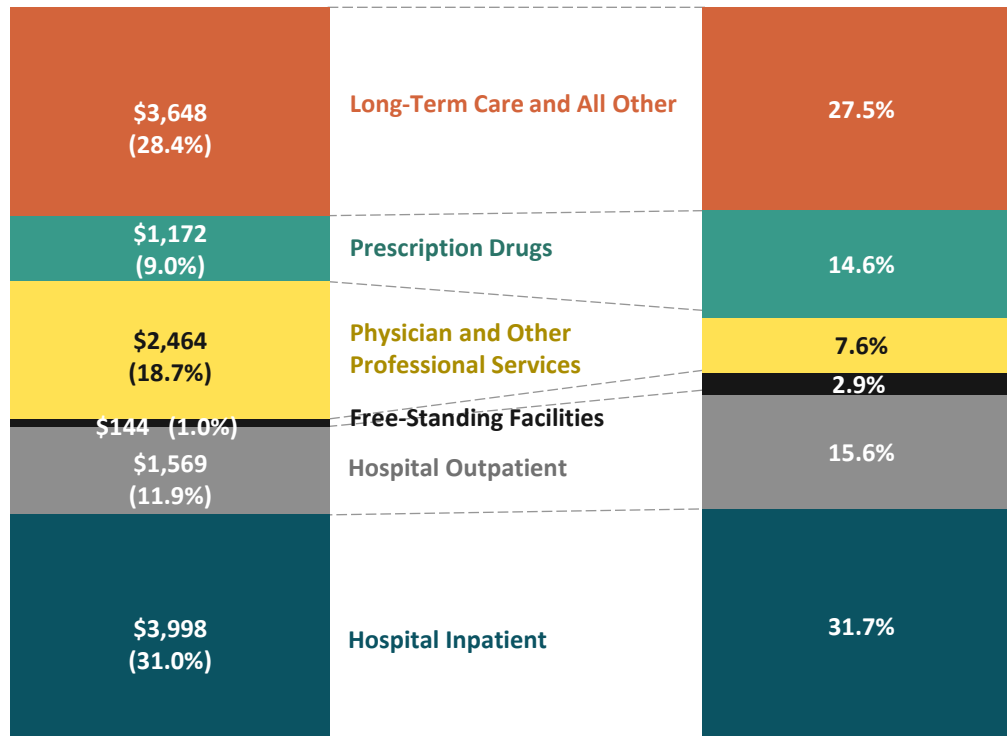
Between 2009 and 2010, total medical expenses for commercially insured Massachusetts residents increased just 2.7%, dramatically less than the average of 8% between 2007 and 2009. Some of this reduced growth may reflect different methods and payers included in this analysis compared with previous years. Between 2009 and 2010, hospital inpatient spending drove nearly half the total growth, while spending on prescription drugs actually fell, contributing a negative amount to total growth in spending.

SOURCE: Massachusetts Division of Health Care Finance and Policy, "Massachusetts Health Care Cost Trends: Premiums and Expenditures," May 2012.

The Growth in Spending for Different Categories of Services Was More Proportional for Medicare Beneficiaries

MA DISTRIBUTION OF MEDICARE SPENDING BY TYPE OF SERVICE (\$ PER CAPITA), 2008

MA DISTRIBUTION OF GROWTH IN MEDICARE PER CAPITA SPENDING BY TYPE OF SERVICE, 2007- 2008

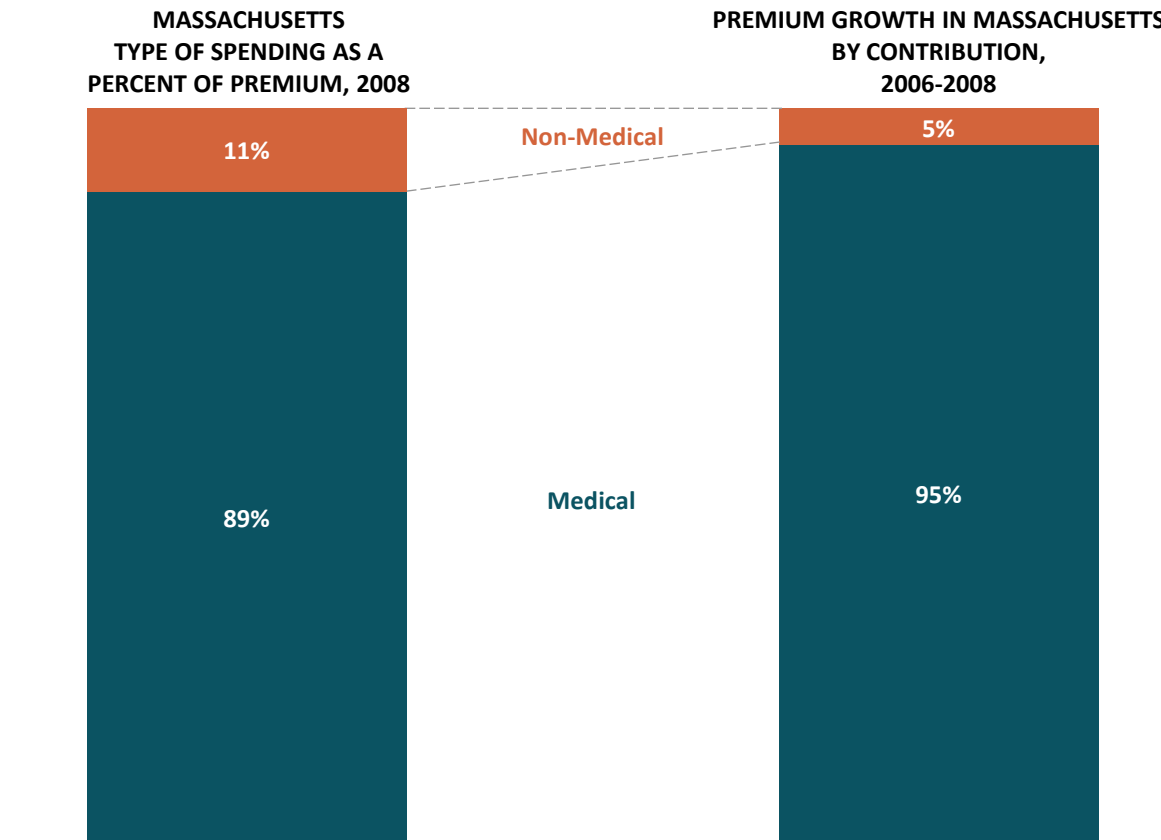


At \$12,995, spending per Medicare beneficiary is more than twice the level for the privately insured (previous slides). Much of the difference is for spending on long-term care; most services contribute an expected level to the growth in total spending, though spending on prescription drugs contribute proportionally more and physician services contribute slightly less than expected.

NOTE: Data for Medicare Fee-for-service (FFS) program only.

SOURCE: Massachusetts Division of Health Care Finance and Policy, "Massachusetts Health Care Cost Trends: Trends in Health Expenditures," June 2011.

Administrative Spending Is Low in Massachusetts and Has Been a Small Contributor Toward Growth

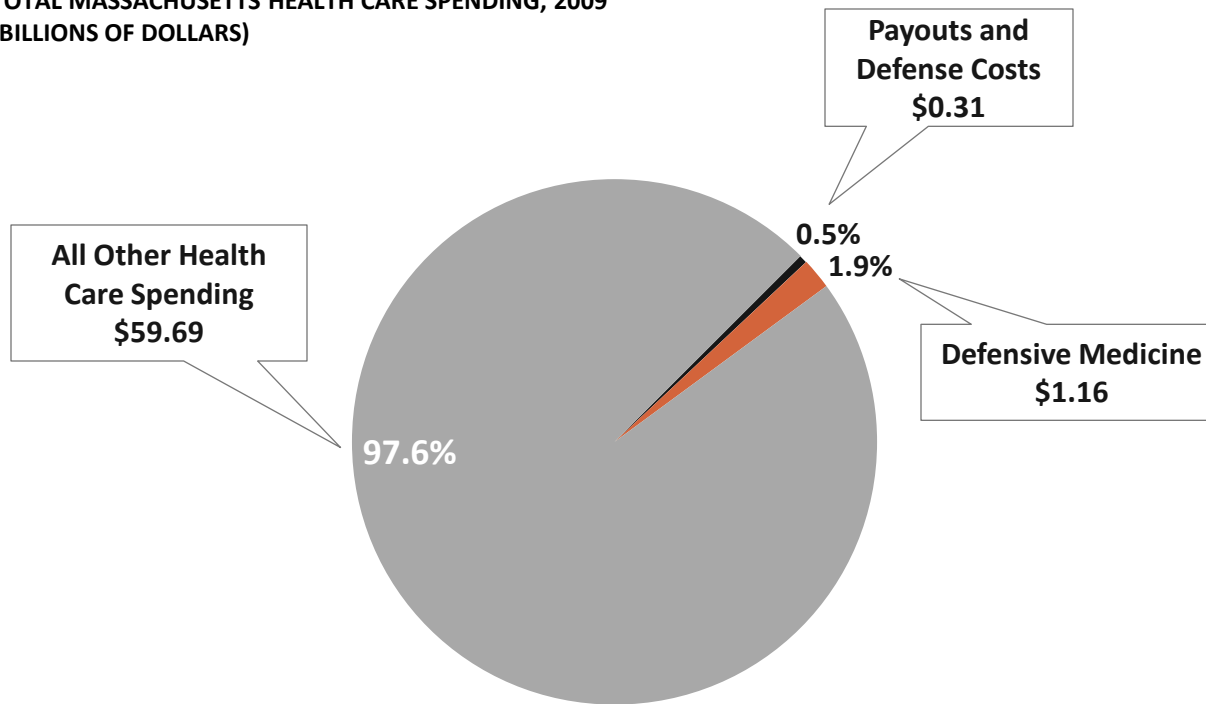


Though it's difficult to compare different measures of administrative spending, non-medical spending in Massachusetts is lower than the national average both as a percent of premiums (11% in MA vs. 16% nationally) and in real dollar terms. Non-medical expenses grew at the same rate as or faster than overall premiums from 2002 to 2006, but they were responsible for only 5% of total premium increases from 2006 to 2008.

source: Massachusetts Division of Health Care Finance and Policy, "[Massachusetts Health Care Cost Trends: Part II: Massachusetts Private Health Insurance Premium Trends 2006-2008](#)", February 2010.

Medical Malpractice Costs Account for Only a Small Portion of Total Health Spending

**TOTAL MASSACHUSETTS HEALTH CARE SPENDING, 2009
(BILLIONS OF DOLLARS)**



The best available evidence suggests that the medical malpractice system in the U.S. is responsible for 2.4% of total health spending. This includes 0.5% of total spending for lawsuit payouts and defense costs — direct expenses — and 1.9% of spending attributed to “defensive medicine” — health care services providers deliver in order to reduce the threat of lawsuits. Applied to Massachusetts total spending, that would be \$1.47 billion in 2009. Average malpractice payouts are higher in Massachusetts than they are nationally, which may increase the total spent on direct costs. However, economists find little evidence that higher payouts lead to increased practice of defensive medicine.

SOURCES: Mello, M., et. al., “National Costs of the Medical Liability System,” *Health Affairs*, 2010; Massachusetts Office of Consumer Affairs & Business Regulation, “[Medical Malpractice Insurance In The Massachusetts Market Report](#),” December 2008; Baicker, K., et al., “Malpractice Liability Costs and the Practice of Medicine in the Medicare Program,” *Health Affairs*, 2007; 2009 total personal health expenditures from Centers for Medicare & Medicaid Services, [Health Expenditures by State of Residence](#), CMS, 2011.

SECTION 3:

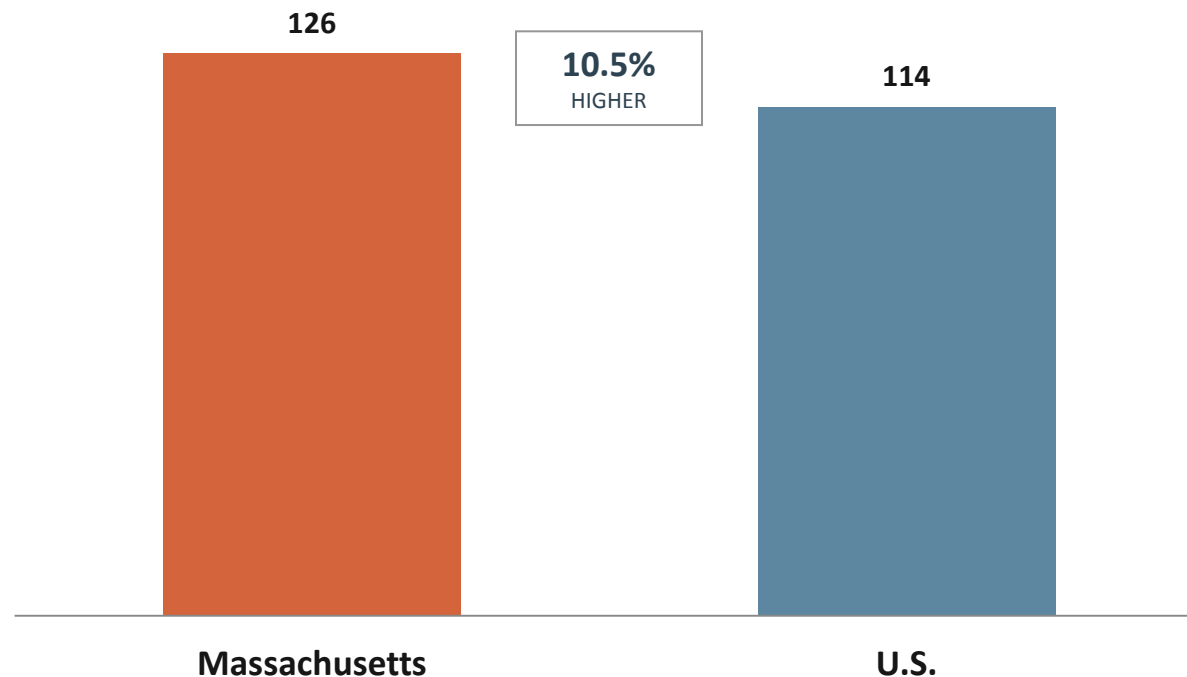
DRIVERS OF COST GROWTH IN MASSACHUSETTS

The state's high and growing spending is attributable to four factors:

- 1. Utilization.** Health care spending rises when a population uses more services overall. For example, if the average number of physician visits increased in Massachusetts, then total health spending would rise. Massachusetts has several demographic characteristics, such as an older average age, that generally increase the amount of health care a population uses. These characteristics do not, however, explain all the differences between Massachusetts and the U.S. as a whole.
- 2. Provider mix.** Health spending can also increase when a population begins to make disproportionate use of the services of higher-priced providers. For example, if in place of primary care providers, Massachusetts residents began to see specialists, who tend to charge more even for the same services, overall spending would increase.
- 3. Service mix.** Health care spending can rise if a population starts to receive more expensive services in place of cheaper ones. For example, if many residents started to receive MRI or CT scans instead of lower-priced X-rays, spending would increase.
- 4. Price.** Health care spending can also rise if the price of each service increases.

UTILIZATION: Massachusetts Residents Are Admitted to the Hospital Slightly More than U.S. Residents Overall

HOSPITAL ADMISSIONS PER CAPITA IN MASSACHUSETTS AND IN THE U.S. OVERALL, 2010
(ADMISSIONS PER 1,000 RESIDENTS)



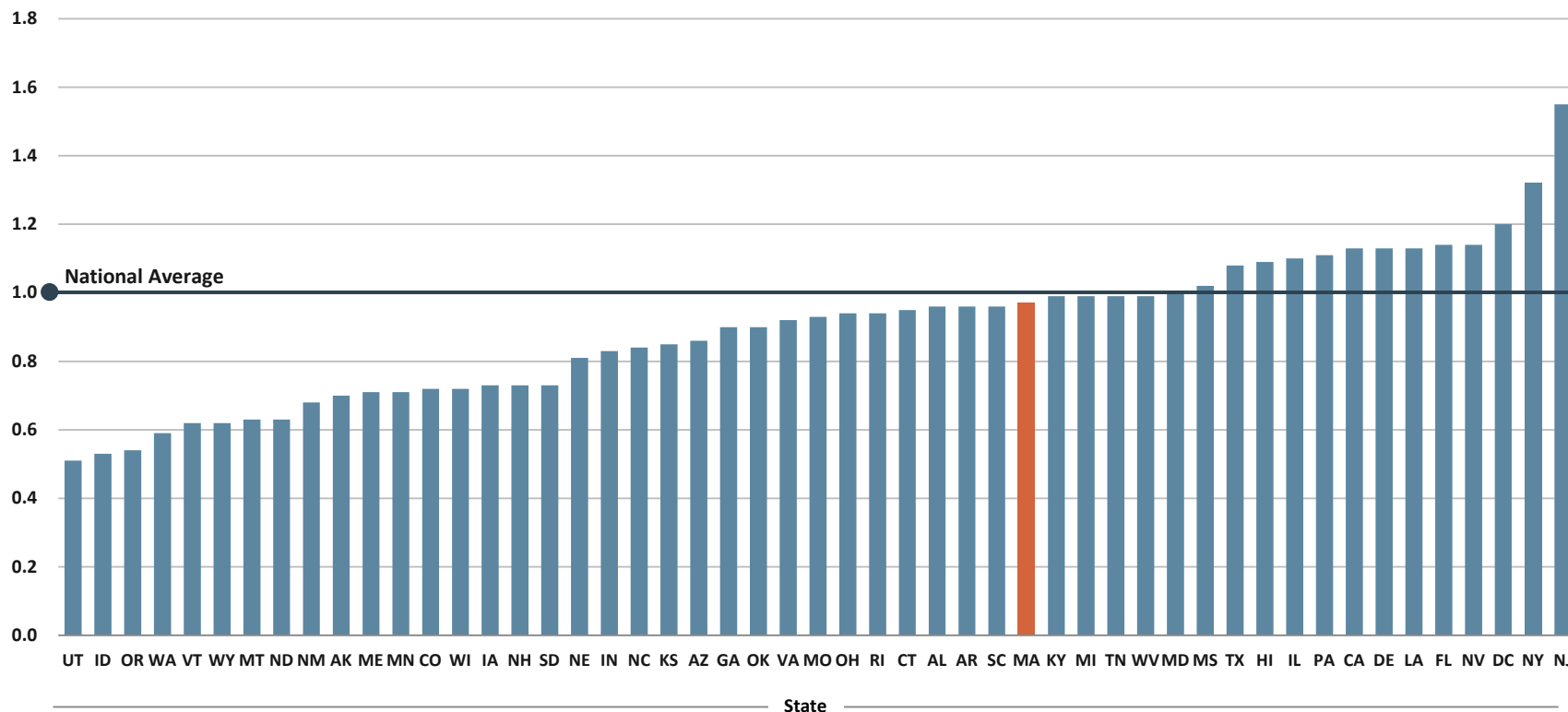
Massachusetts is slightly above the national average in hospital admissions per capita — though the state’s residents stay in the hospital for fewer days than average.

However, these data include all hospital visits, including those for patients from other states and countries. The real utilization rate for Massachusetts residents is likely 2-5% lower than shown.

SOURCES: Kaiser State Health Facts, with data from the American Hospital Association Annual Survey and U.S. Census. Wallack, S.S., et al. “[Massachusetts Health Care Cost Trends, Part I: Massachusetts Health Care System in Context: Costs, Structure, and Methods Used by Private Insurers to Pay Providers](#),” Massachusetts Division of Health Care Finance and Policy, February 2010.

UTILIZATION: Adjusting for Age, Sex, and Race, Medicare Beneficiaries in the Last Two Years of Life Are Slightly Below Average for Use of Inpatient Hospital Care

HOSPITAL CARE INDEX FOR BENEFICIARIES IN THE LAST TWO YEARS OF LIFE, BY STATE, 2003-2007

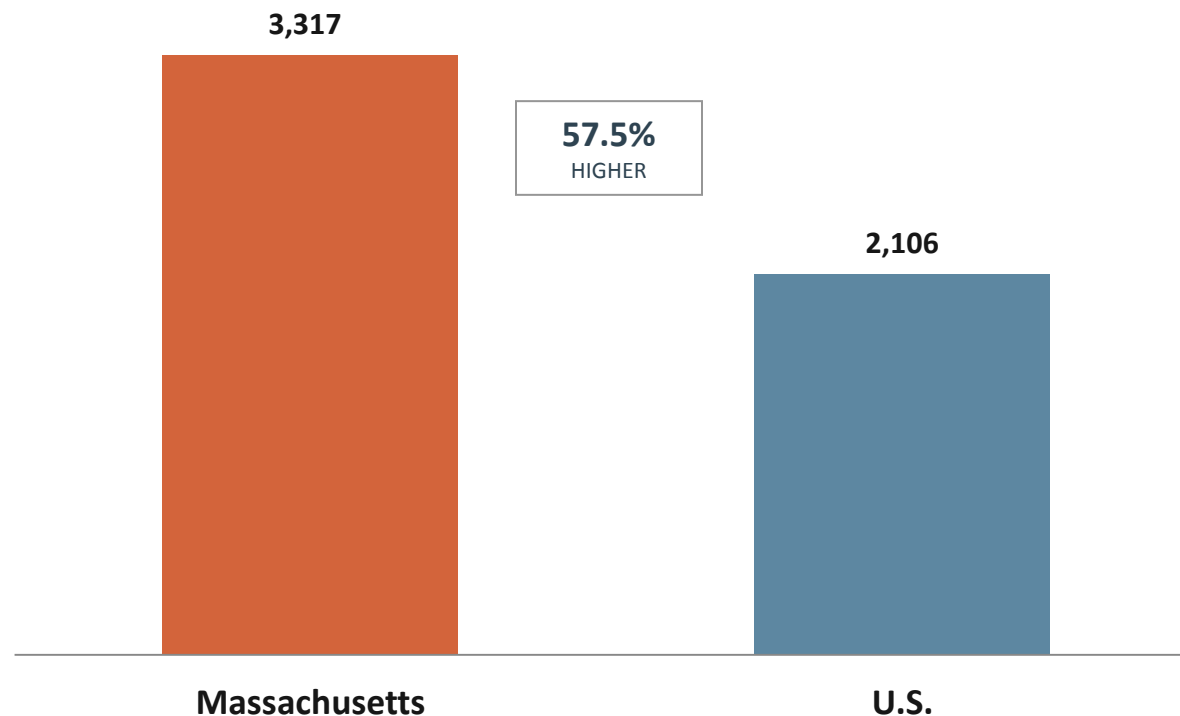


NOTE: The Hospital Care Intensity Index is computed by comparing each hospital's utilization rate, which is based on the number of days patients spend in the hospital and the number of times they visit a physician, with the national average and adjusting for age, sex, race, and severity of illness.

SOURCE: Dartmouth Atlas of Health Care.

UTILIZATION: The Rate of Hospital Outpatient Visits in Massachusetts Is Significantly Higher than the National Average

HOSPITAL OUTPATIENT VISITS PER CAPITA IN MASSACHUSETTS AND THE U.S. OVERALL, 2010
(VISITS PER 1,000 RESIDENTS)



Though residents of Massachusetts are about on par with those of other states for inpatient hospital use, they use nearly 60% more outpatient services.

This data includes all hospital visits, including those by patients from out of state. The utilization rate for Massachusetts residents, therefore, may be slightly lower than shown.

SOURCE: Kaiser State Health Facts, with data from the American Hospital Association Annual Survey and the U.S. Census.

UTILIZATION: Some of the Differences in Utilization Are Due to Demographic Characteristics and Insurance Coverage, but These Factors Don't Explain Everything

- On average, Massachusetts residents are both older and richer than the U.S. population as a whole — characteristics that are associated with higher rates of health care utilization.
 - Massachusetts has the 9th oldest median age and is the 6th richest U.S. state.
- Massachusetts has a high rate of insurance coverage with relatively low out-of-pocket costs, which also induces a higher rate of overall spending.
 - 98.1% of individuals in Massachusetts have insurance, compared with just 83.7% nationwide.
 - Only 54.4% of Massachusetts employees have a deductible, compared to 77.8% nationwide; at \$1,000 in 2011, Massachusetts has the 16th lowest average deductible for an individual health insurance plan.
- Research demonstrates, however, that these factors do not account for all of the differences in health care spending across the U.S.

SOURCES: U.S. Census; Agency for Healthcare Research and Quality, *Medical Expenditure Panel Survey — Insurance Component*, 2011; Zuckerman, S., et al., "Clarifying Sources of Geographic Differences in Medicare Spending," *New England Journal of Medicine*, 2010.

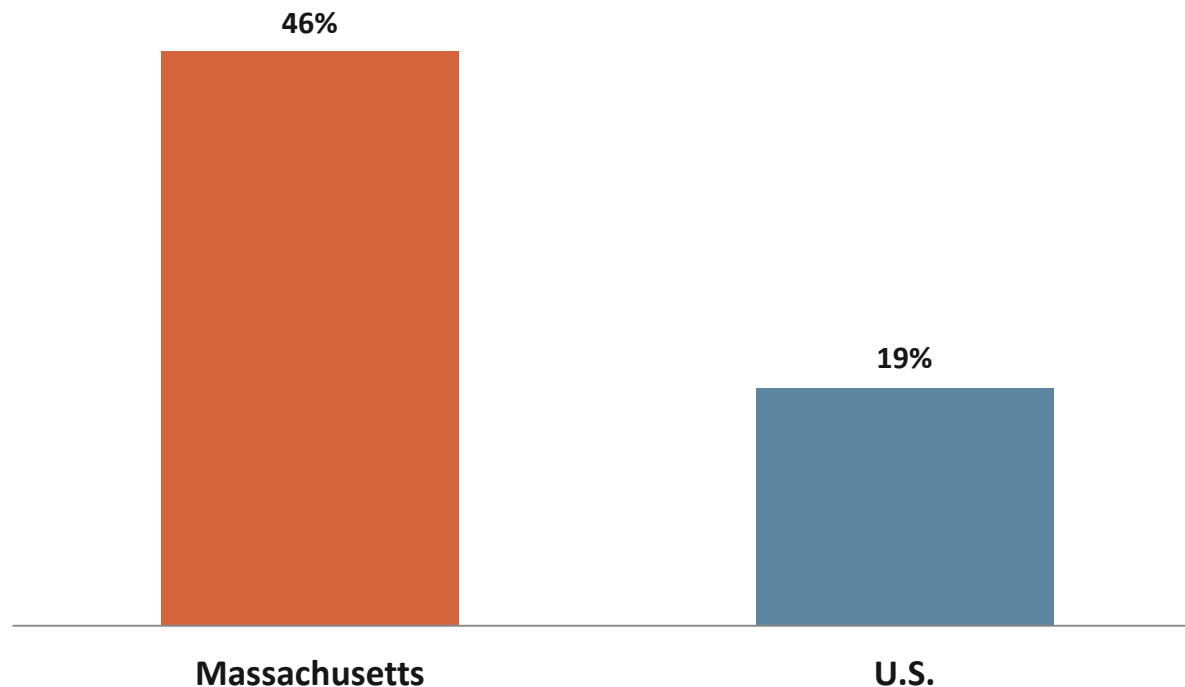
PROVIDER AND SERVICE MIX:

Academic Medical Centers and Specialists

- Massachusetts residents get more of their care at academic medical centers than people elsewhere in the U.S. do. The state also has more specialists per capita than anywhere else in the country.
- This can influence total spending in various ways:
 - Specialists tend to be more expensive, even when they provide the same services. Thus the **provider mix** in Massachusetts lends itself to higher prices per service.
 - Academic medical centers and specialists may provide higher-intensity care. For example, a specialist may order an MRI or CT instead of an X-ray. Thus the **service mix** may be important to understand the high costs in Massachusetts.

PROVIDER AND SERVICE MIX: Massachusetts Residents Rely More on Academic Medical Centers than Do Residents of Other States

PERCENT OF LICENSED HOSPITAL BEDS LOCATED IN ACADEMIC MEDICAL CENTERS, 2006



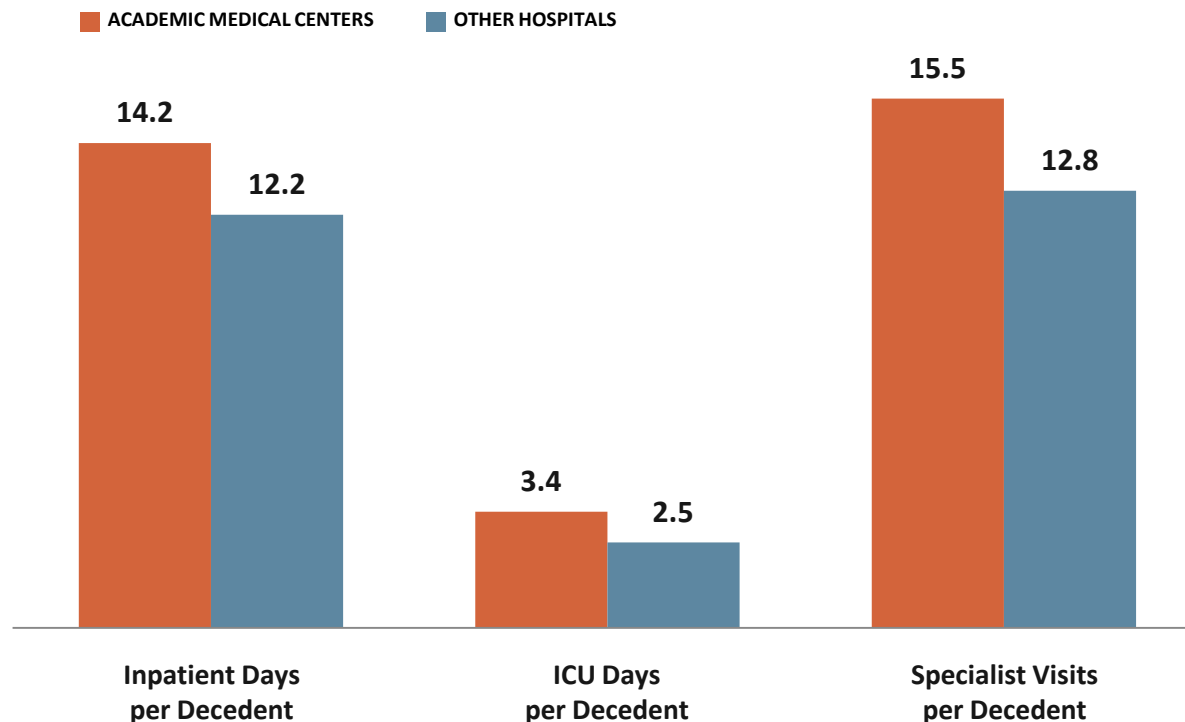
Nearly half of all hospital beds in Massachusetts are located at academic medical centers. The proportion of Massachusetts hospital admissions by academic medical centers increased from 35% to 48% from 1993 to 2003, while the national rate was 19% over this period.

source: Wallack, S.S., et. al. for Massachusetts Division of Health Care Finance and Policy, "[Massachusetts Health Care Cost Trends, Part I: The Massachusetts Health Care System in Context](#)," February 2010.

PROVIDER AND SERVICE MIX:

Academic Medical Centers Provide a Higher Intensity Set of Services than Community Hospitals

INTENSITY OF CARE IN LAST SIX MONTHS OF LIFE AT U.S. HOSPITALS

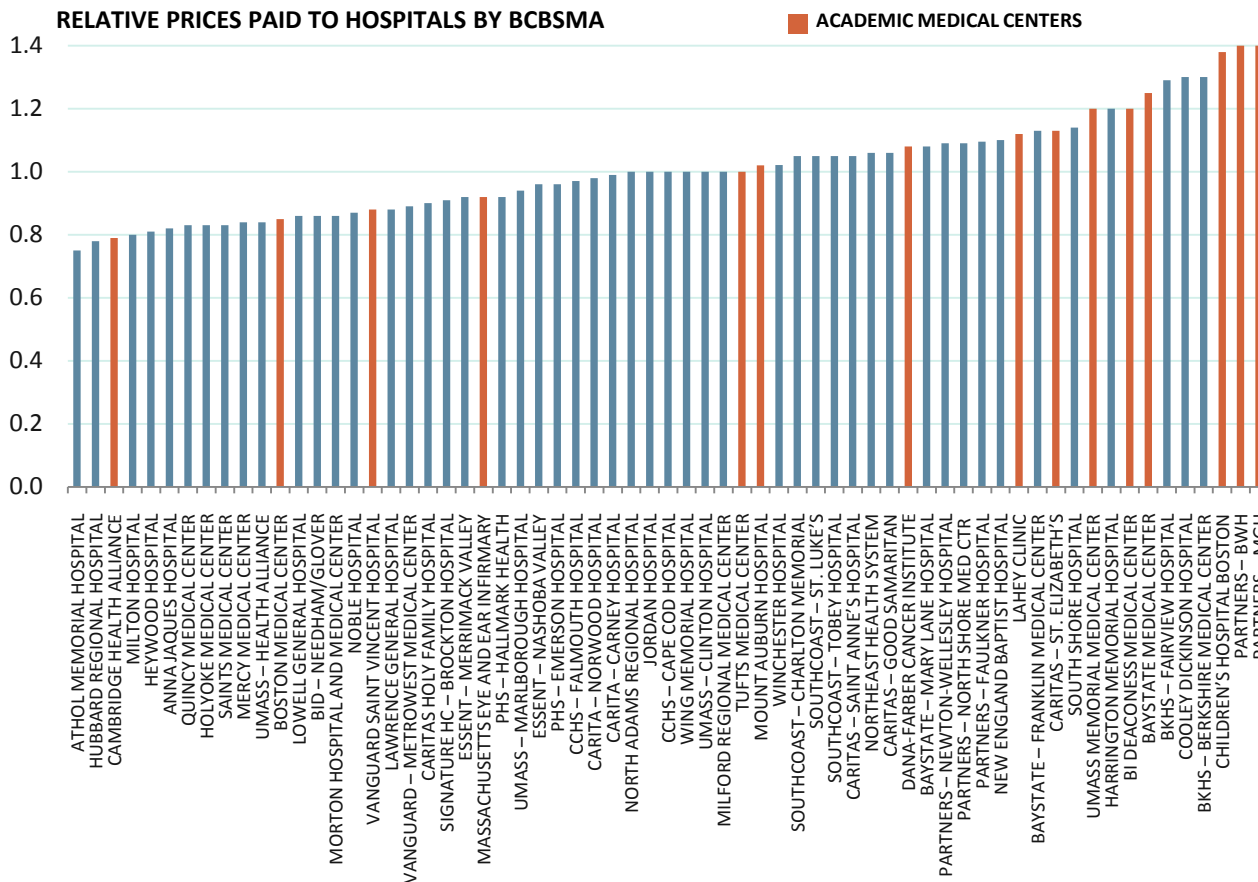


Among Medicare patients in the last six months of life, those whose main site of care was an academic medical center received much more care: more days in the hospital as a whole, more days in the intensive care unit, and more specialist visits.

NOTE: Data for the last six months of life pertains to 2003-2007.

SOURCE: Dartmouth Atlas of Health Care.

PROVIDER AND SERVICE MIX: Many of the Largest and Highest-Paid Hospitals in Massachusetts Are Academic Medical Centers

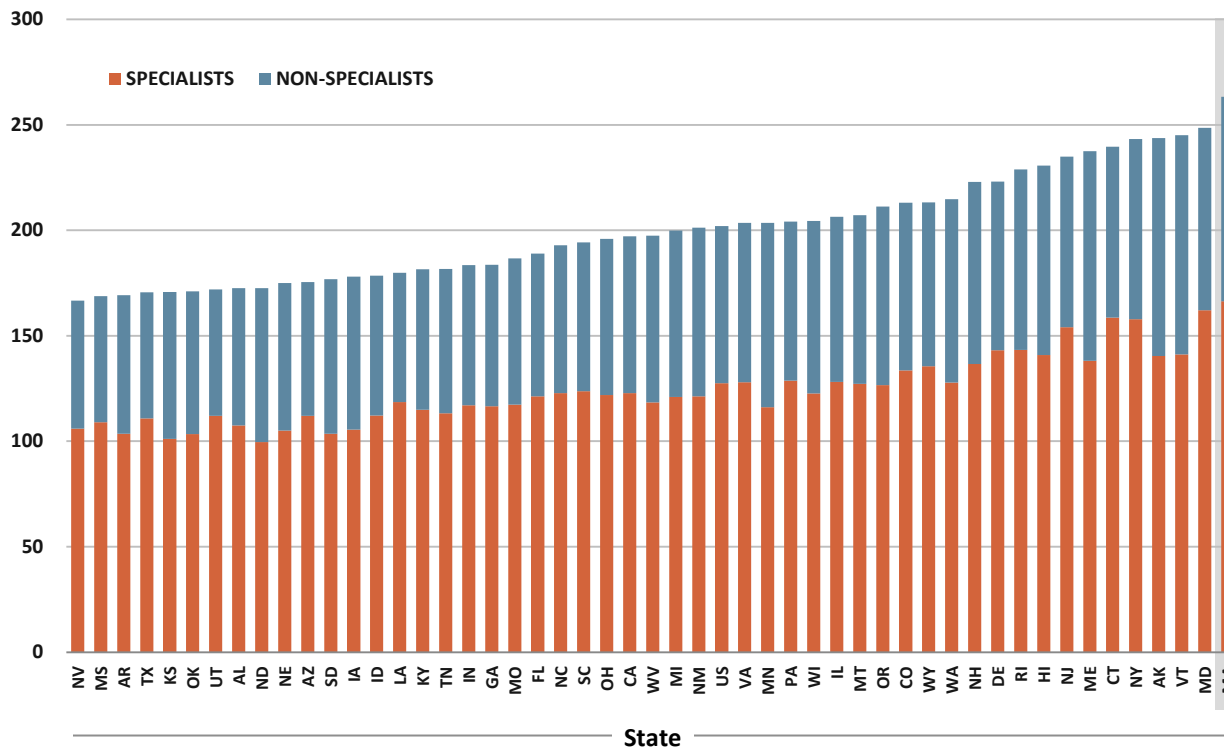


Overall, teaching status is not associated with higher prices, as several academic medical centers receive relatively average or even below-average prices from health plans. However, several of the largest and highest-priced hospitals in Massachusetts are academic medical centers.

NOTE: Relative prices paid by BCBSMA to individual hospitals for the same market basket of services.
 SOURCE: Office of Attorney General Martha Coakley, "Investigation of Health Care Cost Trends and Drivers," March 2010.

PROVIDER AND SERVICE MIX: Massachusetts Leads All States in Total Physicians and Specialists Per Capita

**SPECIALISTS AS A SHARE OF ALL PHYSICIANS BY STATE, 2006
(PHYSICIANS PER 100,000)**



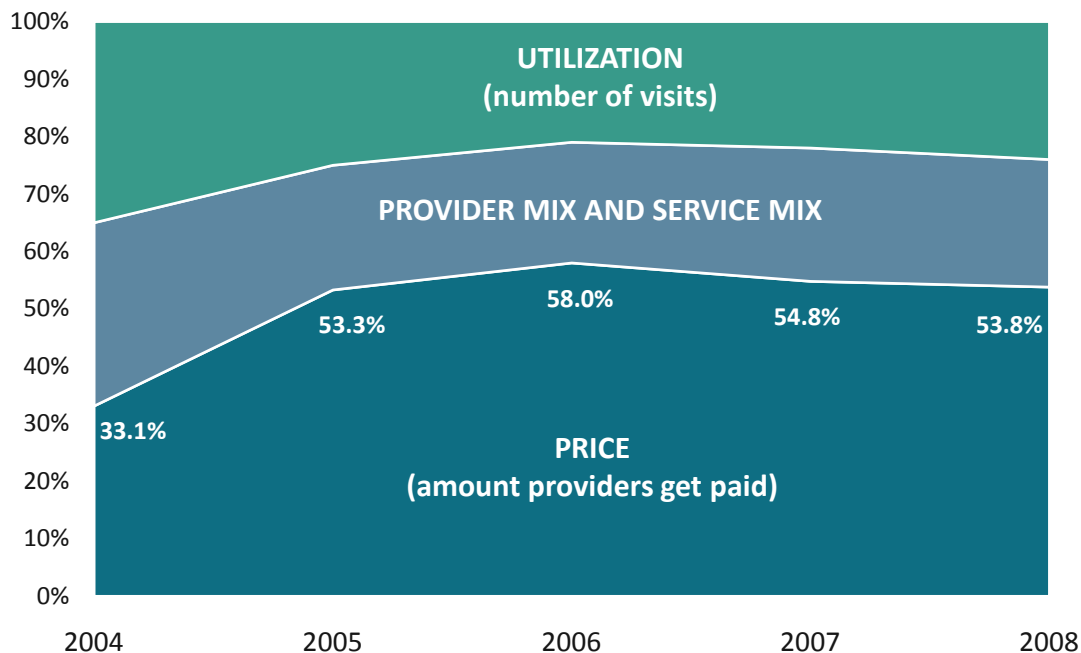
Massachusetts has more physicians per capita, and also more specialists per capita, than any other state. Research finds that regions with more total physicians tend to spend more on health care than other regions, and that states with a higher proportion of specialists also tend to spend more on health care.

NOTE: Physician counts are estimated from rates and population and are not exact. DC is excluded.

SOURCES: Physicians per capita data from Dartmouth Atlas. Evidence for relationship between more physicians and higher spending from Fisher, E.S., et. al., "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care," *Annals of Internal Medicine*, Feb. 18, 2003.

PRICE: Utilization, Provider, and Service Mix Are Important, but Increases in Price Are the Most Significant Cost Drivers

COST DRIVERS 2004-2008 FOR BCBSMA
PERCENT INCREASE IN SPENDING DUE TO CHANGES IN UTILIZATION, PROVIDER/SERVICE MIX, AND PRICE



In recent years, price increases were responsible for more than half of the total rise in spending at Blue Cross Blue Shield of Massachusetts. Prices drove an even larger share of cost increases for other large commercial health plans in Massachusetts (not shown).

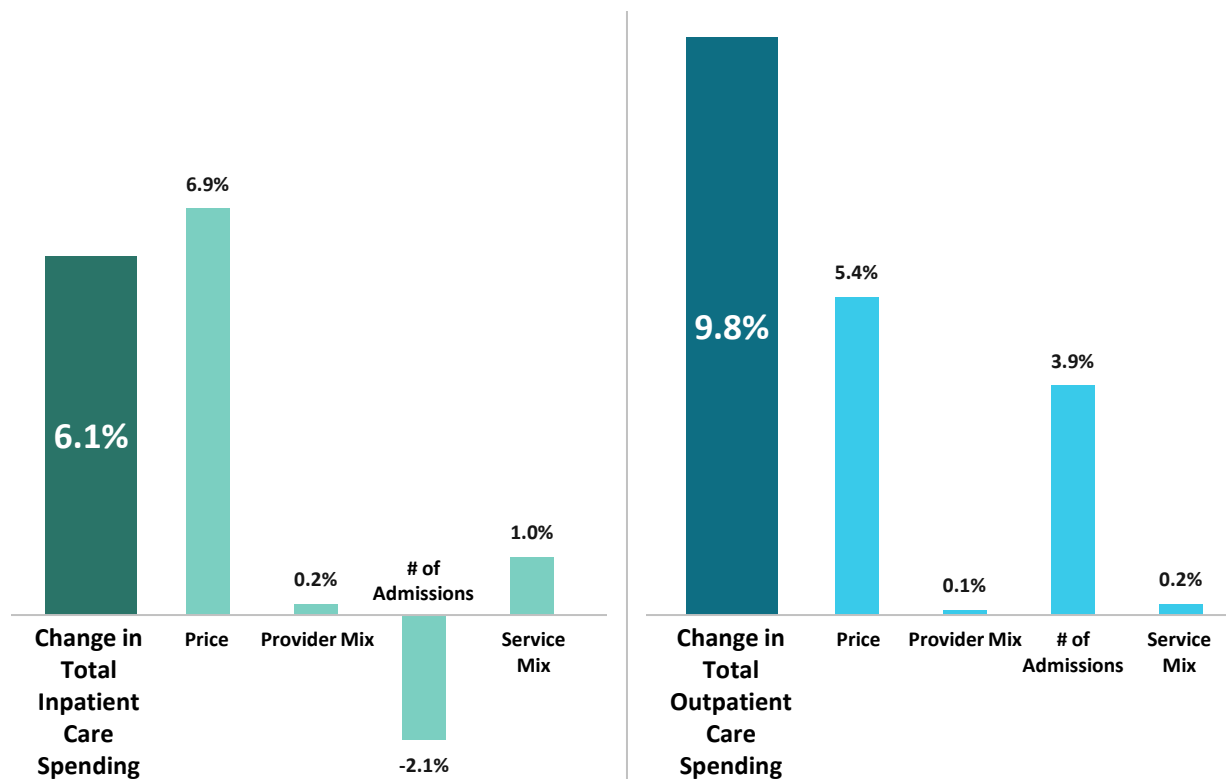
NOTES:

- 1) Reflects fully-insured commercial trend.
- 2) "Utilization" reflects the number of services provided. "Provider Mix and Service Mix" reflect changes in providers and location of care (shift to more or less expensive providers) and the intensity of services provided. "Price" reflects increases in provider rates.

SOURCE: Office of Attorney General Martha Coakley, March 2010, "[Investigation of Health Care Cost Trends and Drivers.](#)"

PRICE: Higher Prices Explain Nearly All the Increases in Private Spending on Inpatient Care and More than Half of Increases on Outpatient Care

PERCENT CHANGE IN MASSACHUSETTS PRIVATELY INSURED SPENDING, 2007-2009

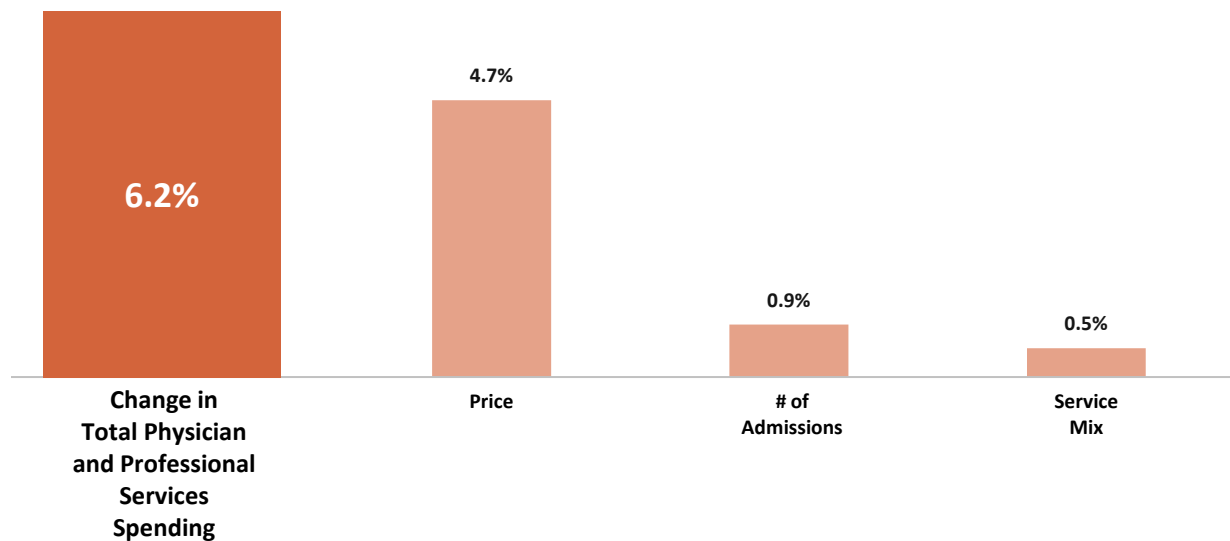


Price increases alone would have driven up hospital inpatient spending by 6.9%, but this rise was offset by lower utilization rates. Changes in the provider mix (the use of higher-priced hospitals) caused minimal increases in total spending, as did changes in the service mix (the use of higher-priced services, like CT scans, in place of lower-priced ones, like X-rays). Price increases accounted for 55% of the total change in spending on outpatient hospital care.

SOURCE: Massachusetts Division of Health Care Finance and Policy, "Massachusetts Health Care Cost Trends: Trends in Health Expenditures," June 2011.

PRICE: Price Increases Explain More than Three-Quarters of the Total Rise in Spending on Physician Services

PERCENT CHANGE IN MASSACHUSETTS PRIVATELY INSURED SPENDING, 2007-2009



Price increases accounted for 76% of the overall rise in spending on physician services.

source: Massachusetts Division of Health Care Finance and Policy, "Massachusetts Health Care Cost Trends: Trends in Health Expenditures," June 2011.

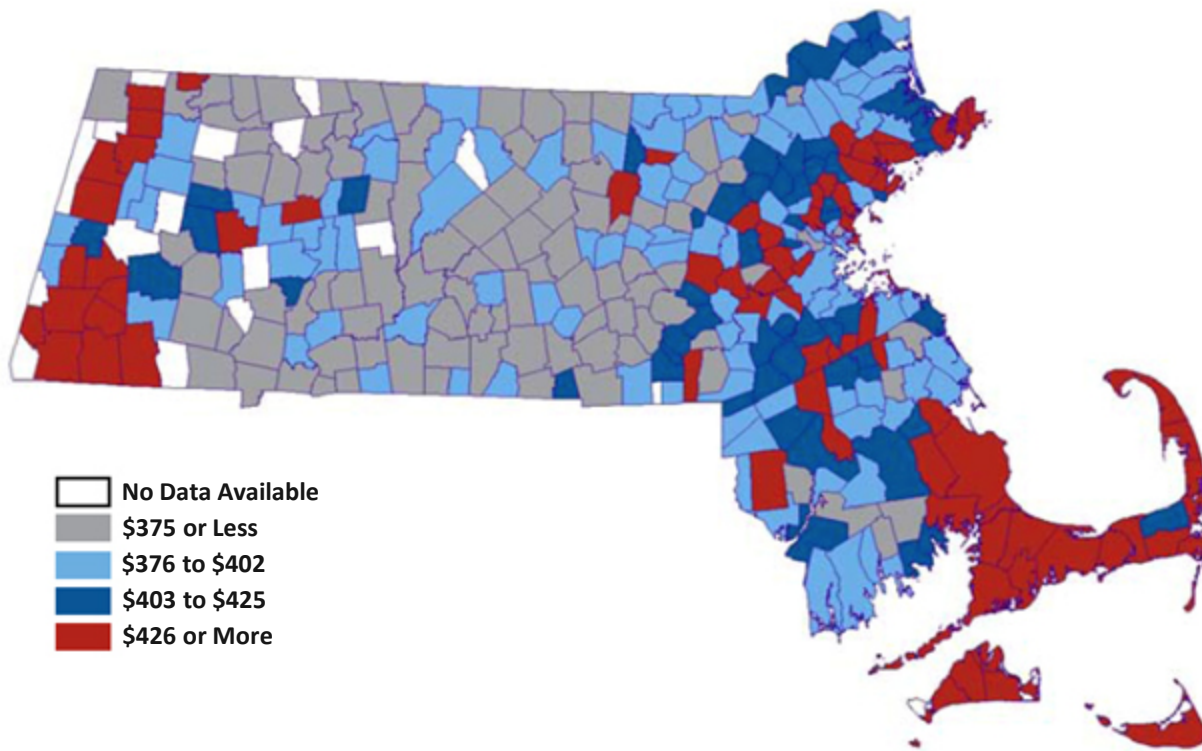
SECTION 4:

VARIATIONS IN SPENDING WITHIN MASSACHUSETTS

- Massachusetts spends more on health care than other states. But within Massachusetts, there are large variations in overall health spending. Per person spending in some towns or regions is up to 15% higher than in others. This variation is likely driven by factors including utilization of services, provider mix, and service mix, as well as the prices paid to different providers for the same services.
- Research suggests that neither higher prices nor higher use of services is associated with better quality or better health outcomes.
- Providers who receive the highest prices likely have higher market or negotiating power with insurers.
- These large variations in spending, together with their lack of connection to the actual value of care, suggest that there is considerable opportunity to reduce health care costs without reducing quality or outcomes. This becomes even more clear when looking at particularly costly — and wasted — health care services, such as avoidable hospital admissions and emergency department visits.

Spending Varies Significantly Across the State Among Privately Insured Residents

TOTAL MEDICAL EXPENSES (TME) PER PERSON PER MONTH, 2009

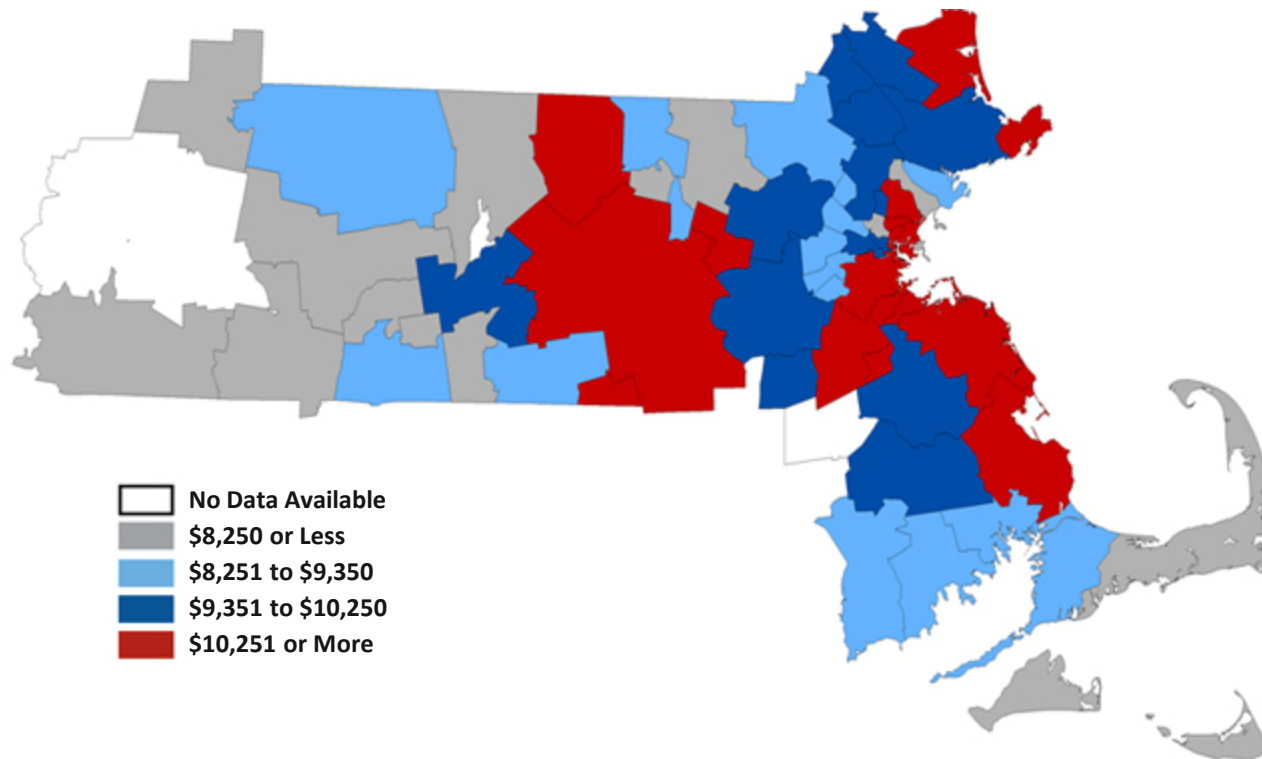


Total per capita medical expenses (TME) for the privately insured population ranges from less than \$375 per month to more than \$426 per month. People living in towns where average incomes are higher tend to spend more on health care. Similarly, those living in towns with older populations tend to spend more. Both higher age and greater income are associated with greater utilization of health care services.

source: Massachusetts Division of Health Care Finance and Policy, "[Massachusetts Total Medical Expenses: 2009 Baseline Report](#)," June 2011.

Spending for Those Covered by Medicare Also Varies Significantly

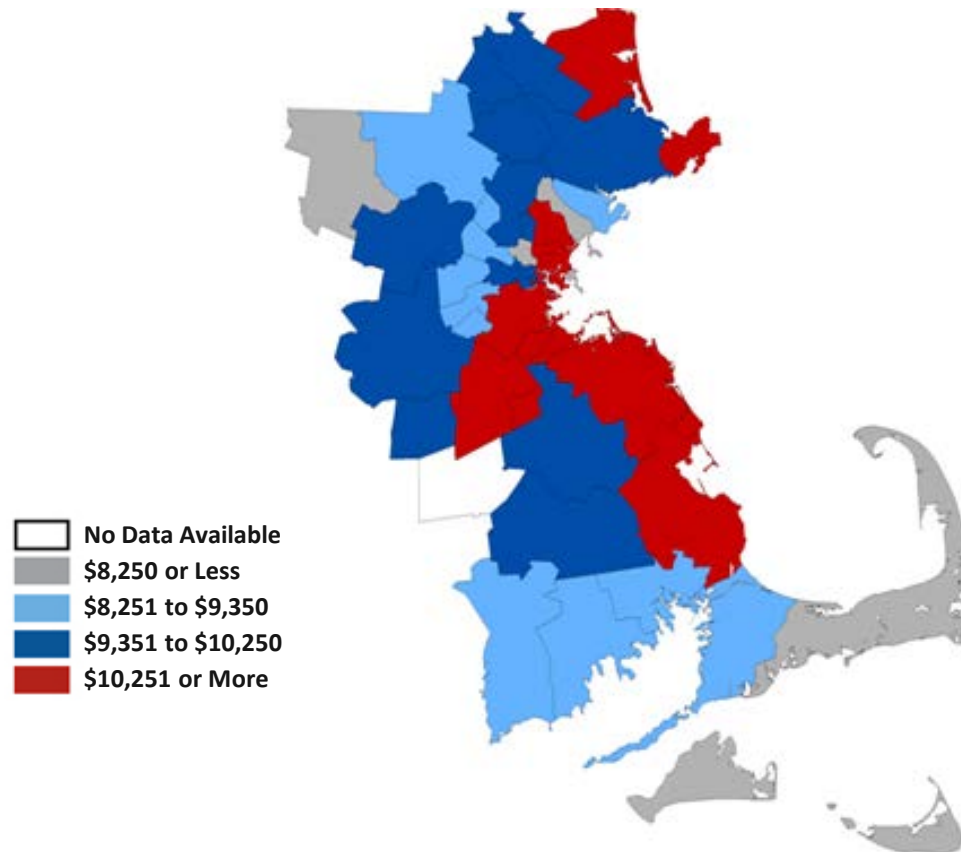
TOTAL MEDICARE REIMBURSEMENTS (PART A AND PART B) PER ENROLLEE BY HOSPITAL SERVICE AREA, 2007



source: Dartmouth Atlas of Health Care.

Even Within the Extended Boston Health Care Market, Total Spending for Medicare Beneficiaries Varies Significantly

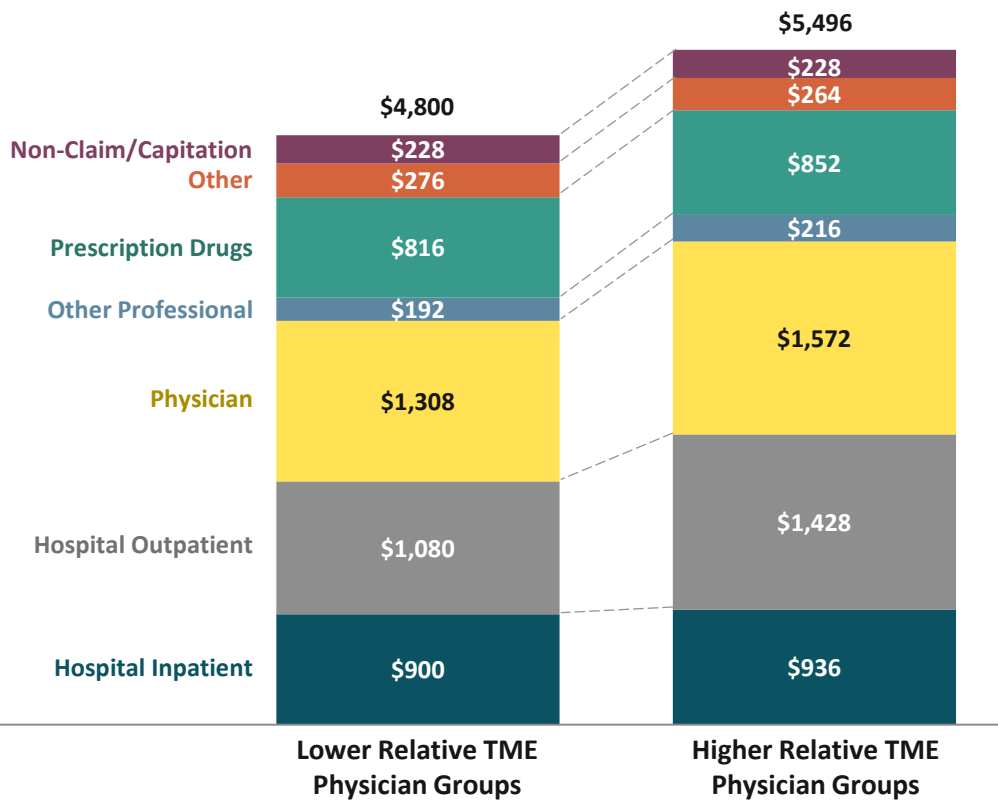
TOTAL MEDICARE REIMBURSEMENTS (EXCLUDING PRESCRIPTION DRUGS) PER ENROLLEE BY HOSPITAL SERVICE AREA, 2007



source: Dartmouth Atlas of Health Care.

Spending on Hospital Outpatient and Physician Services Explains Much of the Difference Between High and Low Spending Groups

2010 COMMERCIAL UNADJUSTED TOTAL MEDICAL EXPENSES (TME) FOR PHYSICIAN GROUPS

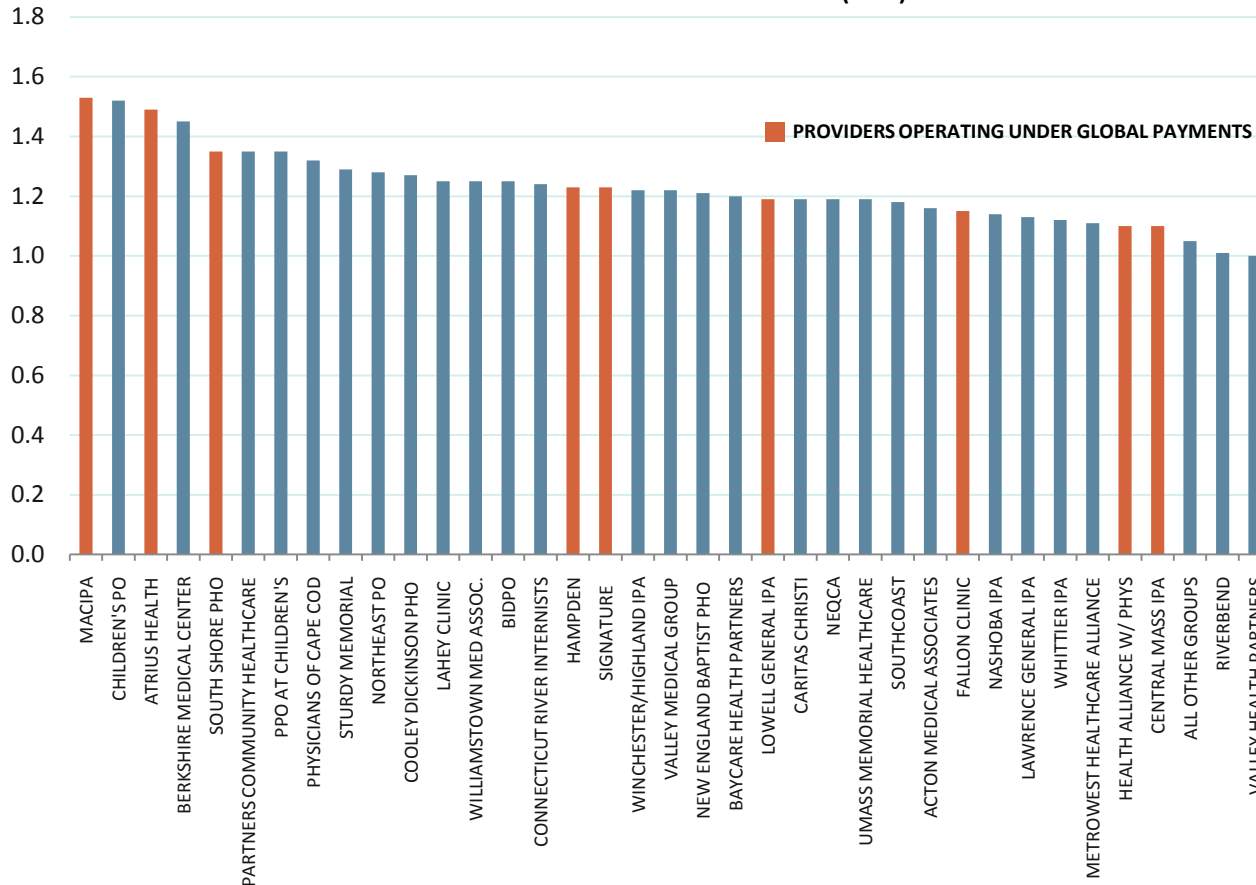


Spending also varies by physician groups. A recent study of Massachusetts private health spending compared differences in per person spending for patients cared for by relatively high- and low-spending physician groups. Outpatient spending and physicians' services made up the majority of the differences between these two groups.

sources: Division of Health Care Finance and Policy, "[Massachusetts Health Care Cost Trends: Premiums and Expenditures](#)," May 2012.

Whether Care Is Provided Under a Global Payment Contract Does Not Seem to Explain Variations in Total Medical Expenses

BCBSMA RELATIVE HEALTH STATUS-ADJUSTED TOTAL MEDICAL EXPENSES (TME)

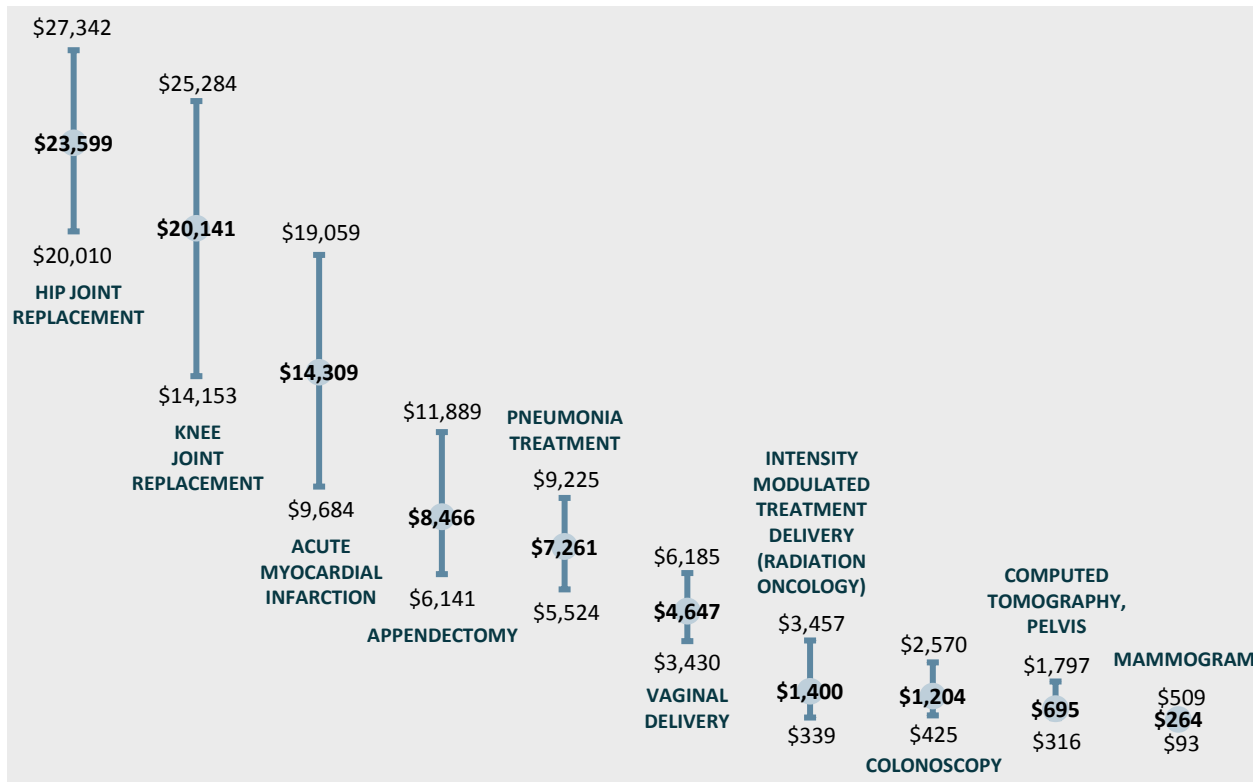


Recent research in Massachusetts suggests that spending for patients cared for under global payments (per person budgets or targets) may be growing more slowly than spending for those cared for under standard fee-for-service payments. However, when looking across all physician groups at the actual level of total spending, there is no clear relationship between global payments and lower total spending.

SOURCES: Office of Attorney General Martha Coakley, "Examination of Health Care Cost Trends and Drivers," June 2011; Song, Z. et al., "The 'Alternative Quality Contract' Based on a Global Budget, Lowered Medical Spending and Improved Quality," *Health Affairs*, August 2012.

Variations in Total Per Person Spending Also Reflect Huge Underlying Variation in Provider Prices

HOSPITAL-SPECIFIC SEVERITY-ADJUSTED PRICE VARIATION FOR SELECTED PROCEDURES IN MASSACHUSETTS

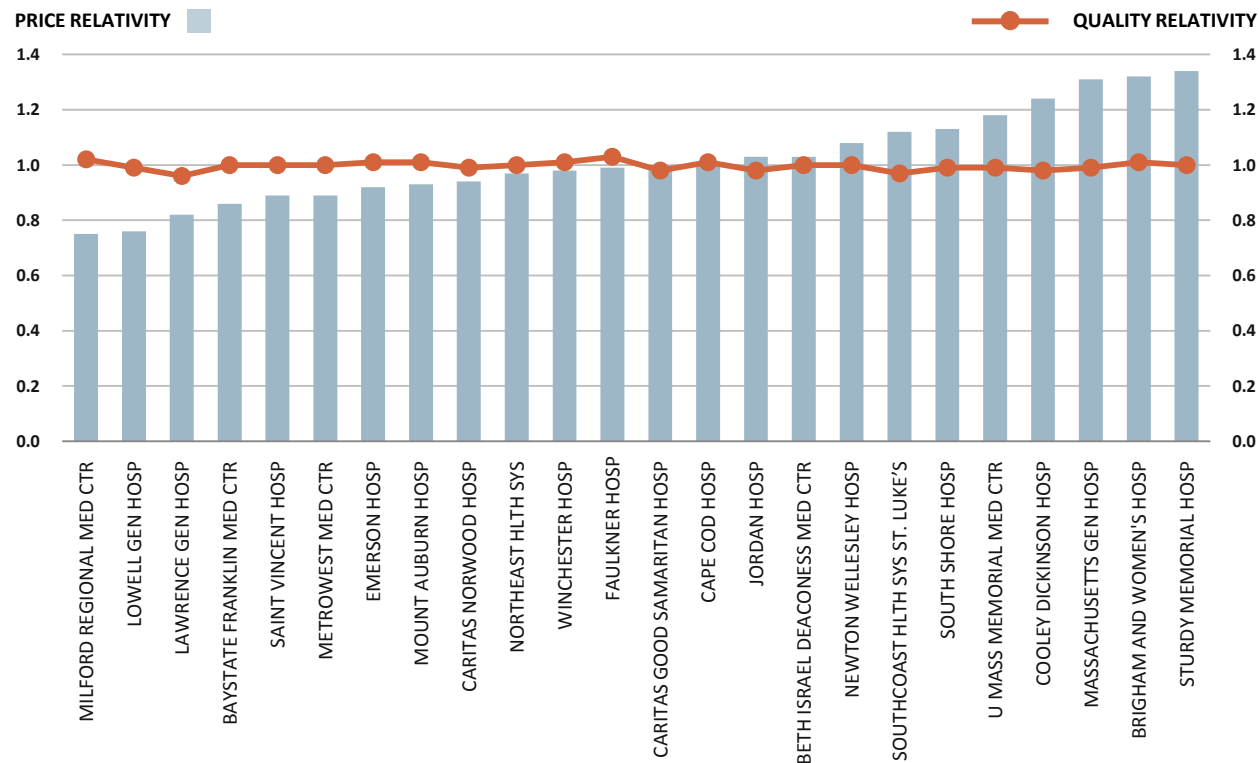


Prices can vary enormously, even for common services unlikely to be affected by patient sickness or complexity. Prices at the highest-paid providers can be more than 10 times as much as prices at the lowest-paid providers.

NOTE: Includes only hospitals with at least 30 discharges.
 SOURCE: Massachusetts Division of Health Care Finance and Policy, "Massachusetts Health Care Cost Trends: Price Variation in Health Care Services," May 2011.

Higher-Paid Providers Do Not Score Better on Quality Measures

COMPOSITE QUALITY RATIO AND PRICE RELATIVITY FOR APPENDECTOMY BY MASSACHUSETTS HOSPITAL, 2009

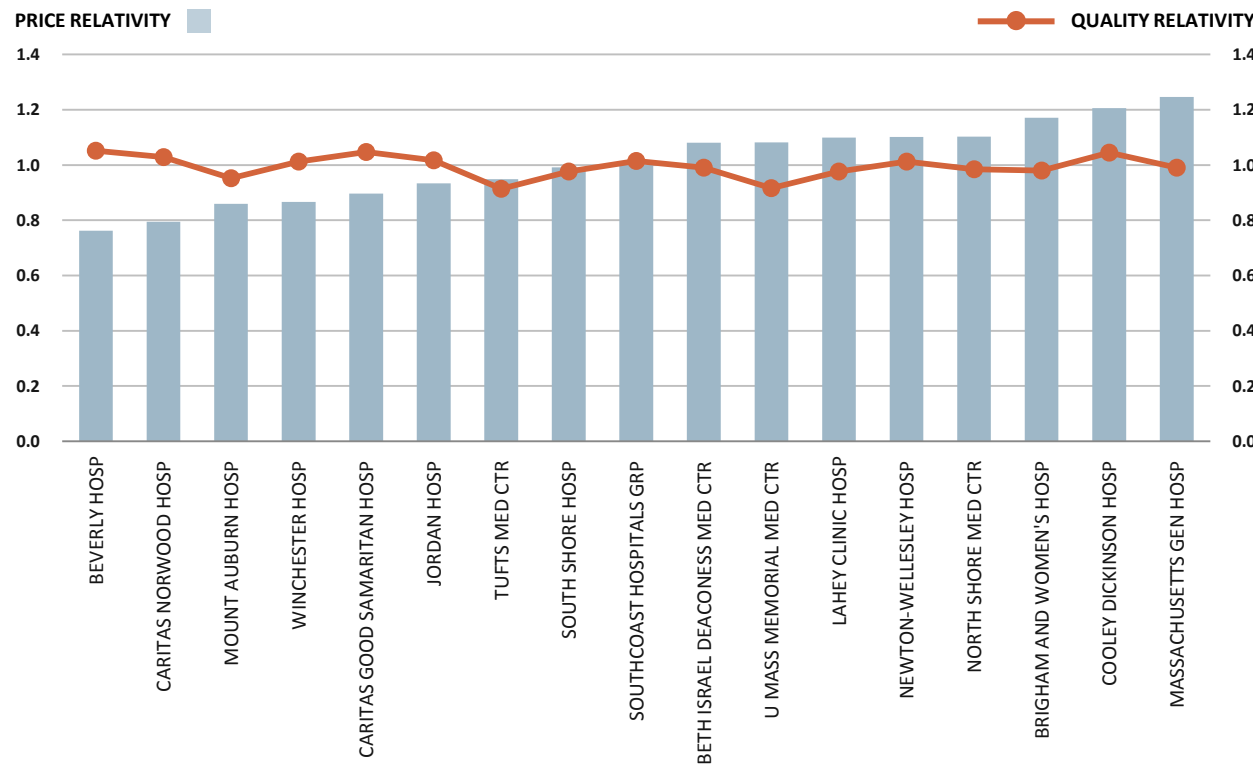


Researchers for the MA Division of Health Care Finance and Policy found no connection between prices and quality scores for any of the services they investigated, including appendectomy (shown); laparoscopic cholecystectomy; procedures for obesity; uterine and adnexa procedures for nonmalignancy except leiomyoma; knee replacement; intervertebral disc excision and decompression; knee and lower leg procedures; hip replacement; treatment for chronic obstructive pulmonary disease, pneumonia, heart attacks, and congestive heart failure; cesarean delivery; and vaginal delivery.

SOURCE: Massachusetts Division of Health Care Finance and Policy, "Massachusetts Health Care Cost Trends: Price Variation in Massachusetts Health Care Services," May 2011.

Price and Quality Remain Uncorrelated When Using a Different Quality Metric

QUALITY AND PRICE RELATIVITY FOR TREATMENT OF PNEUMONIA BY MASSACHUSETTS HOSPITAL, 2009

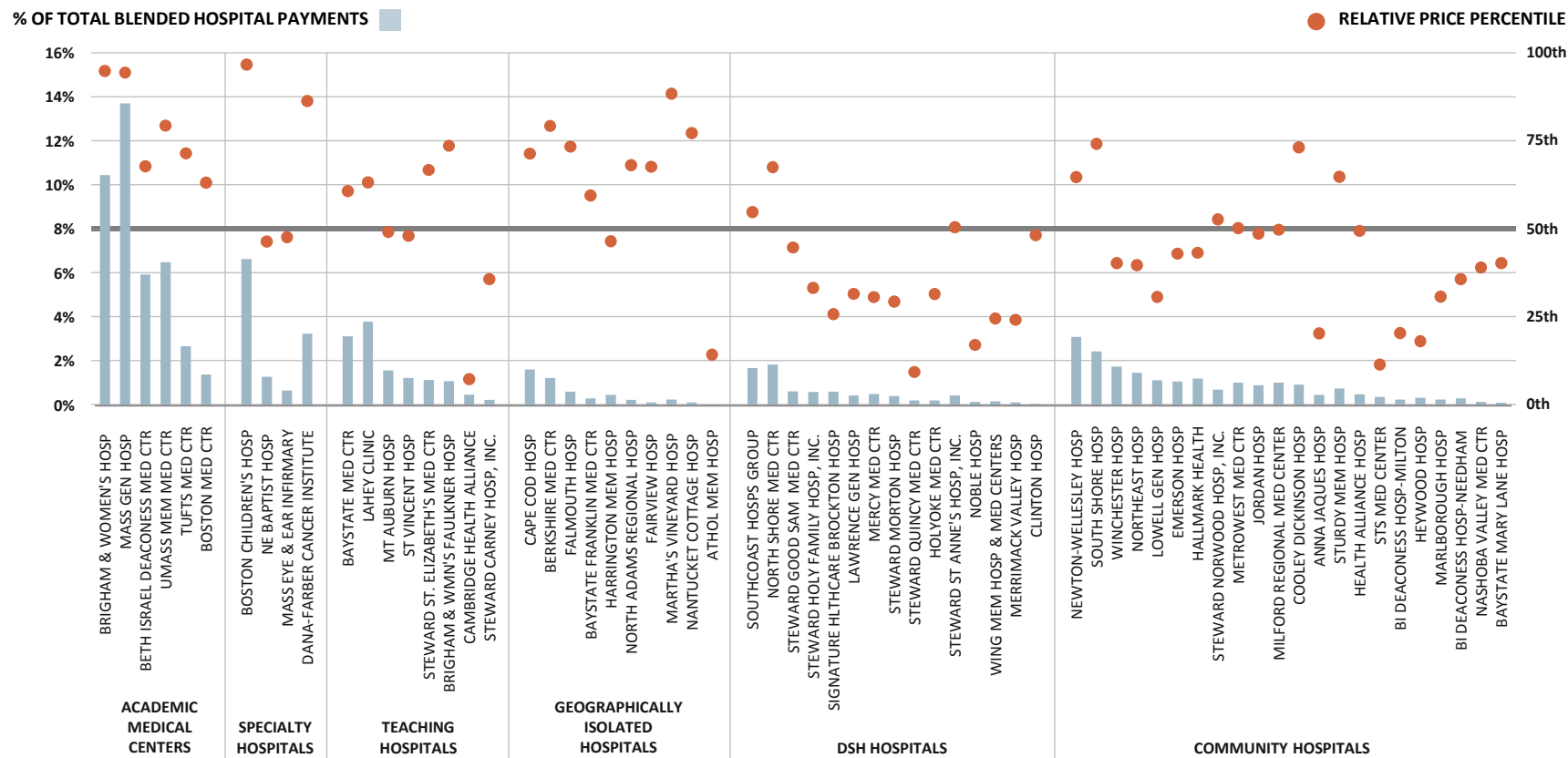


NOTE: Includes only hospitals with at least 30 discharges and those available in the CMS quality score.
 SOURCE: Massachusetts Division of Health Care Finance and Policy,
 "Massachusetts Health Care Cost Trends: Price Variation in Massachusetts Health Care Services," May 2011.

The survey "Hospital Care Quality Information from the Consumer Perspective" reflects patients' reports of the quality of care they received. It too showed no connection between price and quality.

Prices Are Likely Driven by the Different Market Power or Bargaining Power of Different Hospitals, As Hospitals With Greater Market Share Tend to Command Higher Prices

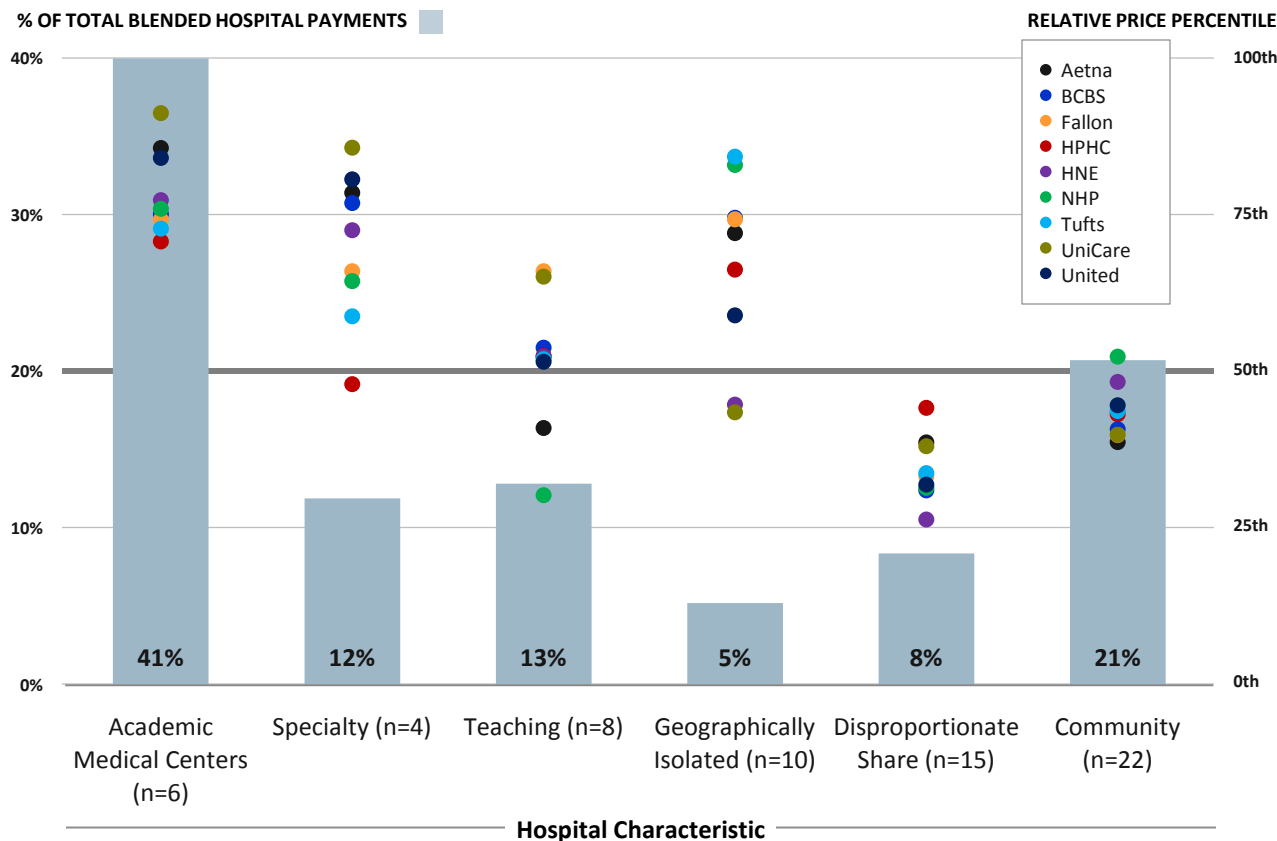
RELATIVE PRICES AND HOSPITAL MARKET SHARE OF TOTAL BLENDED HOSPITAL PAYMENTS



source: Center for Health Information and Analysis, "Health Care Provider Price Variation in the Massachusetts Commercial Market," February 2013.

Other Characteristics Associated with Market Power Are Also Associated with Relatively High Prices

RELATIVE PRICES AND HOSPITAL MARKET SHARE OF TOTAL BLENDED HOSPITAL PAYMENTS

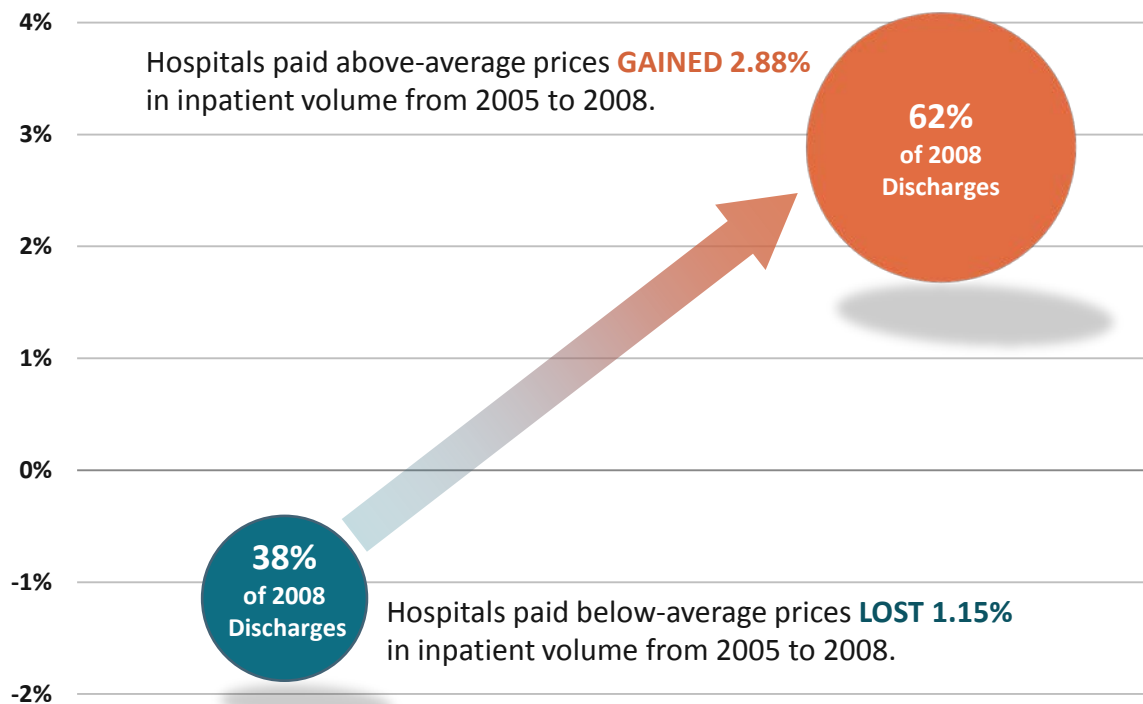


In addition to the connection between overall market share and prices (previous), researchers from the Center for Health Information and Analysis find that several other hospital characteristics are associated with relatively high and relatively low prices. Academic medical centers, specialty hospitals, teaching hospitals, and geographically isolated hospitals tend to have higher prices. On the flip side, community hospitals and disproportionate share hospitals (DSH) tend to have relatively low prices.

SOURCE: Center for Health Information and Analysis, "Health Care Provider Price Variation in the Massachusetts Commercial Market," February 2013.

Higher-Priced Hospitals Are Gaining Market Share at the Expense of Lower-Priced Hospitals

PERCENT CHANGE IN ADULT DISCHARGES 2005-2008



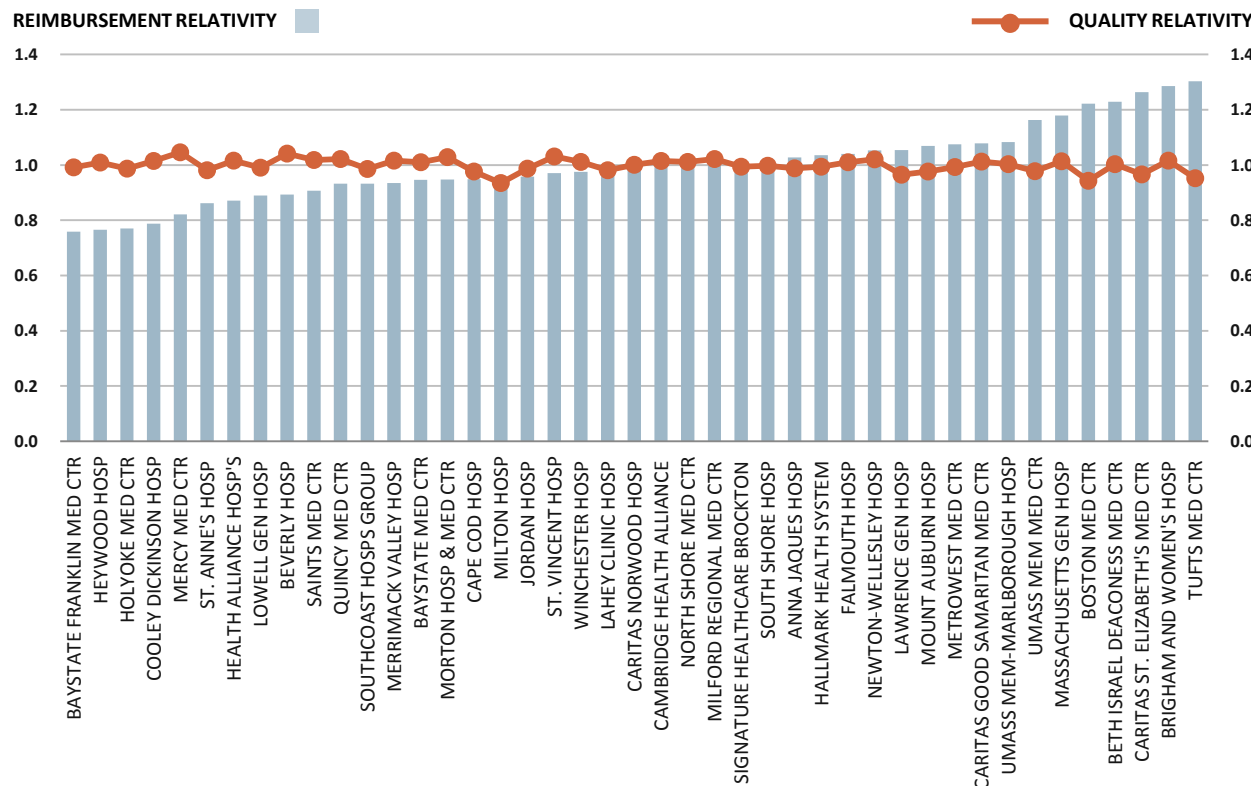
The Attorney General found that hospitals receiving above-average payments were responsible for nearly two-thirds of 2008 inpatient discharges. What's more, admissions at higher-paid hospitals grew by nearly 3% from 2005 to 2008. Over the same period, lower-paid hospitals had fewer discharges.

NOTES:

1. Data from Massachusetts Health Data Consortium; excludes normal newborn discharges (which double-count normal obstetrical deliveries since the mother is already counted in the discharge data).
 2. Statewide, total discharges for all hospitals increased by 1.3% from 2005 to 2008.
- source: Office of Attorney General Martha Coakley, [Examination of Health Care Cost Trends and Cost Drivers](#), March 2010.

Higher Overall Utilization Is Not Correlated with Better Quality

TOTAL MEDICARE REIMBURSEMENTS PER DECEDENT IN THE LAST TWO YEARS OF LIFE AND CMS HOSPITAL COMPARE QUALITY SCORE BY MASSACHUSETTS HOSPITAL

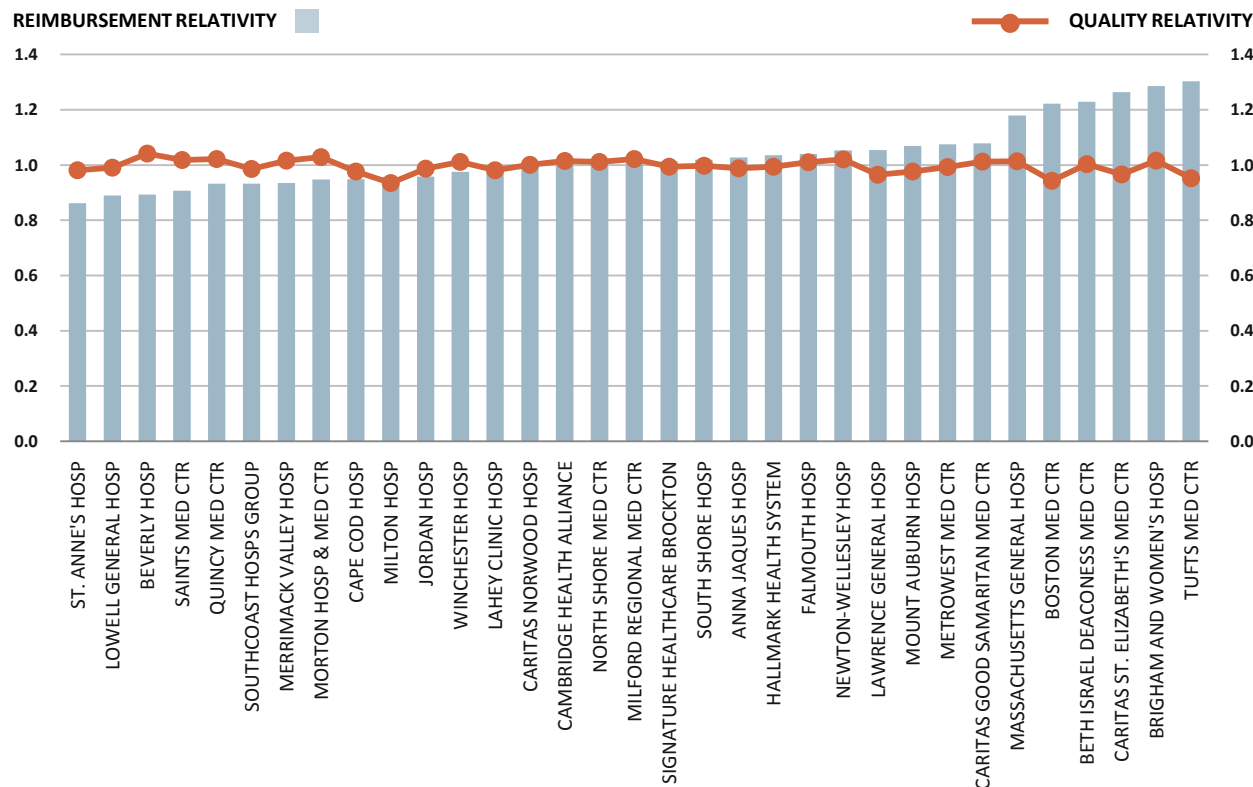


source: Dartmouth Atlas of Health Care.

Medicare pays all providers about the same prices, so total spending in this graph approximates total utilization and intensity of care. Studying spending in the last two years of life also controls for the severity of illness and outcomes. Even when prices and outcomes are controlled for, more care is not associated with higher quality.

Even Within the Extended Boston Region, There Is No Association Between More Care and Better Care

TOTAL MEDICARE REIMBURSEMENTS PER DECEDENT IN THE LAST TWO YEARS OF LIFE AND CMS HOSPITAL COMPARE QUALITY SCORE BY HOSPITAL, BOSTON HEALTH REFERRAL REGION

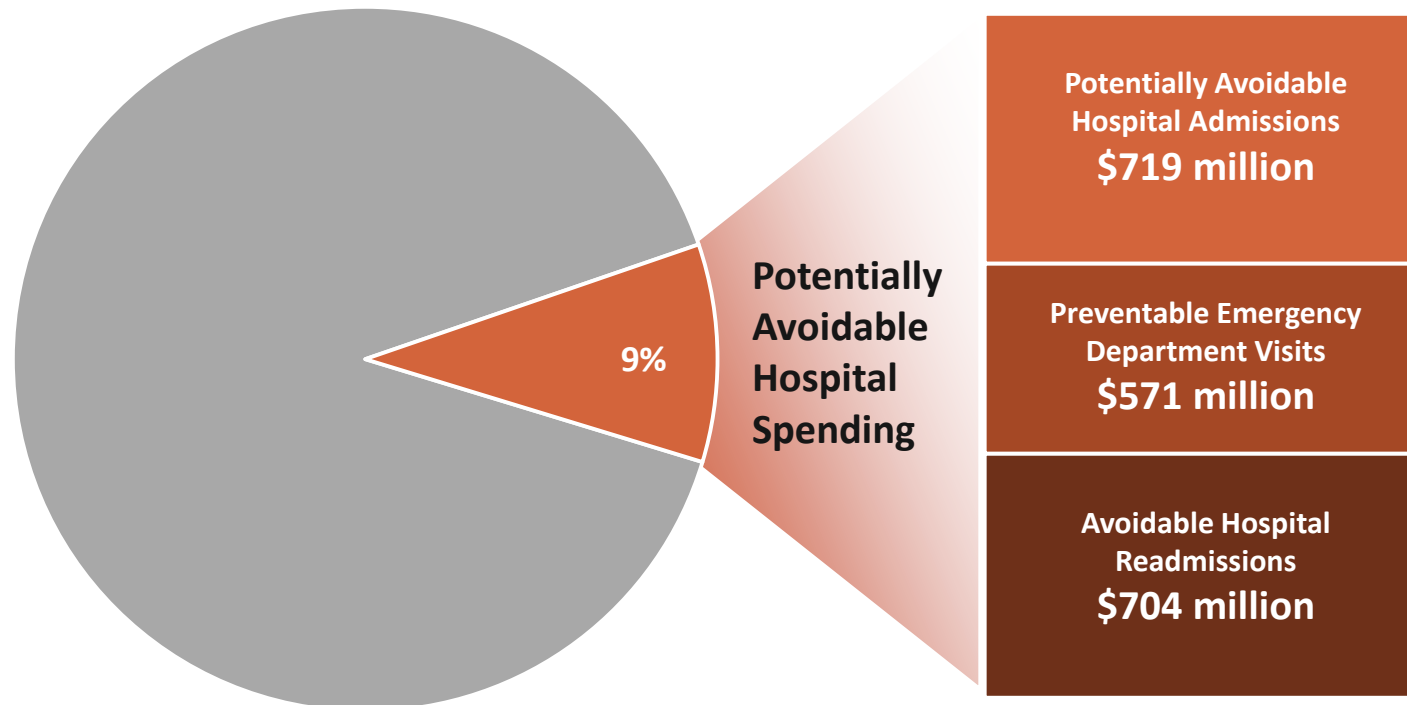


The amount of care provided could reflect regional factors, such as the malpractice environment. But even within the extended Boston hospital market, the variation in total spending and lack of relationship to quality remain.

SOURCE: Dartmouth Atlas of Health Care.

More Care May Actually Signal Poorer Quality, As Nearly 10% of Hospital Spending Is for Potentially Avoidable Services

TOTAL MA HOSPITAL SPENDING: \$21.3 BILLION IN 2009



SOURCES: 2009 total MA hospital spending from Centers for Medicare & Medicaid Services, *Health Expenditures by State of Residence*, 2011; spending on potentially avoidable hospital use from Massachusetts Division of Health Care Finance and Policy, [Health Care Cost Trends Public Hearings](#), "Challenges in Care Coordination," June 30, 2011.

CONCLUSIONS

- Massachusetts spends more on health care than any other state.
- Higher costs were not caused or markedly accelerated by health reform, as Massachusetts has been a high-spending state for years.
- The underlying difference in spending between Massachusetts and the U.S. overall is rooted in the state's demographics, insurance coverage, and health care market structure, which includes disproportionately many specialists and teaching hospitals and some very large and powerful hospital systems.
- Though the amount of most services used increases every year, the majority of the growth in health spending comes from increased prices.
- There is enormous variation in total health care spending across the state, stemming from variations in both price and utilization.
- However, neither higher prices nor higher utilization of services is associated with higher quality or better health outcomes, suggesting that there is a significant amount of waste in the Massachusetts health care system. It also suggests that costs can be lowered without decreasing overall quality or health outcomes.

REFERENCES AND RESOURCES

- The Massachusetts Center for Health Information and Analysis (formerly the Division of Health Care Finance and Policy)
<http://www.mass.gov/chia/>
- Massachusetts Office of the Attorney General
<http://www.mass.gov/ago/>
- Massachusetts Cost Trends Reports and Hearings
<http://www.mass.gov/chia/researcher/health-care-delivery/health-care-cost-trends/>
- Dartmouth Atlas of Health Care
<http://www.dartmouthatlas.org/>
- National Health Expenditure Accounts, Centers for Medicare and Medicaid Services
<http://www.cms.gov/NationalHealthExpendData/>