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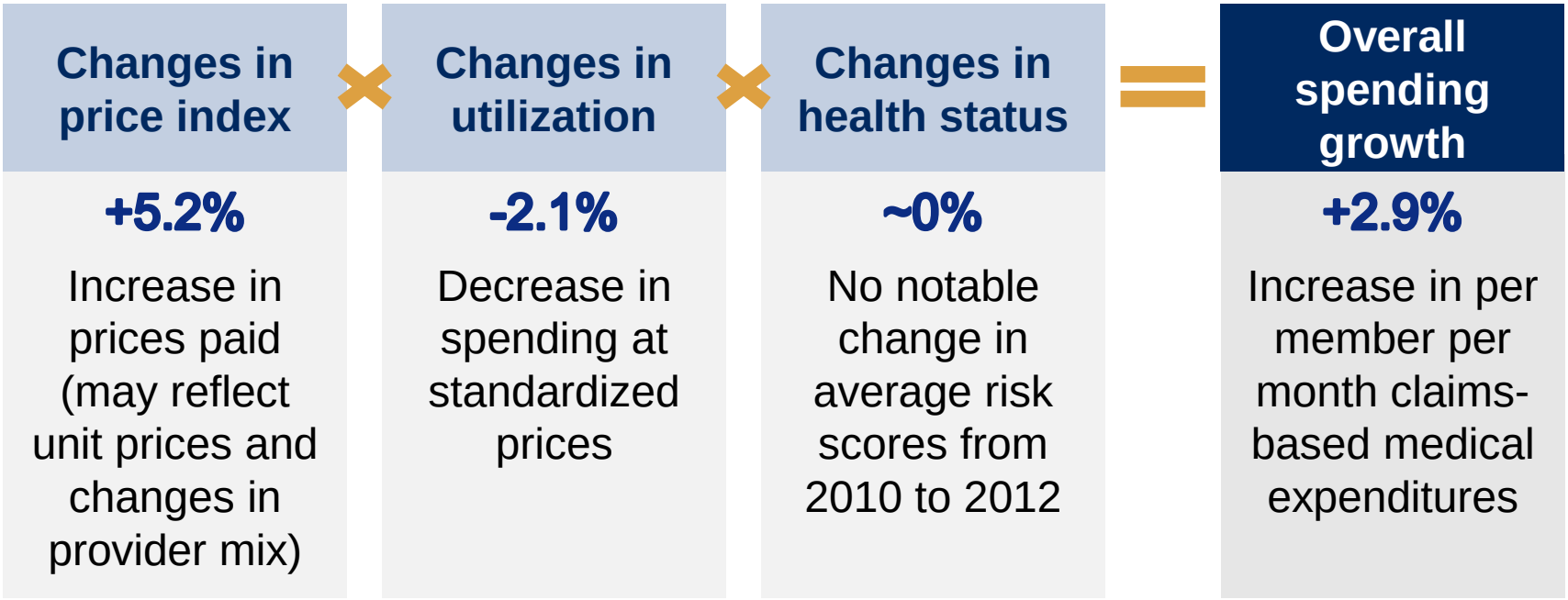
Figure A.1: Drivers of growth in claims-based medical expenditures in Massachusetts

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

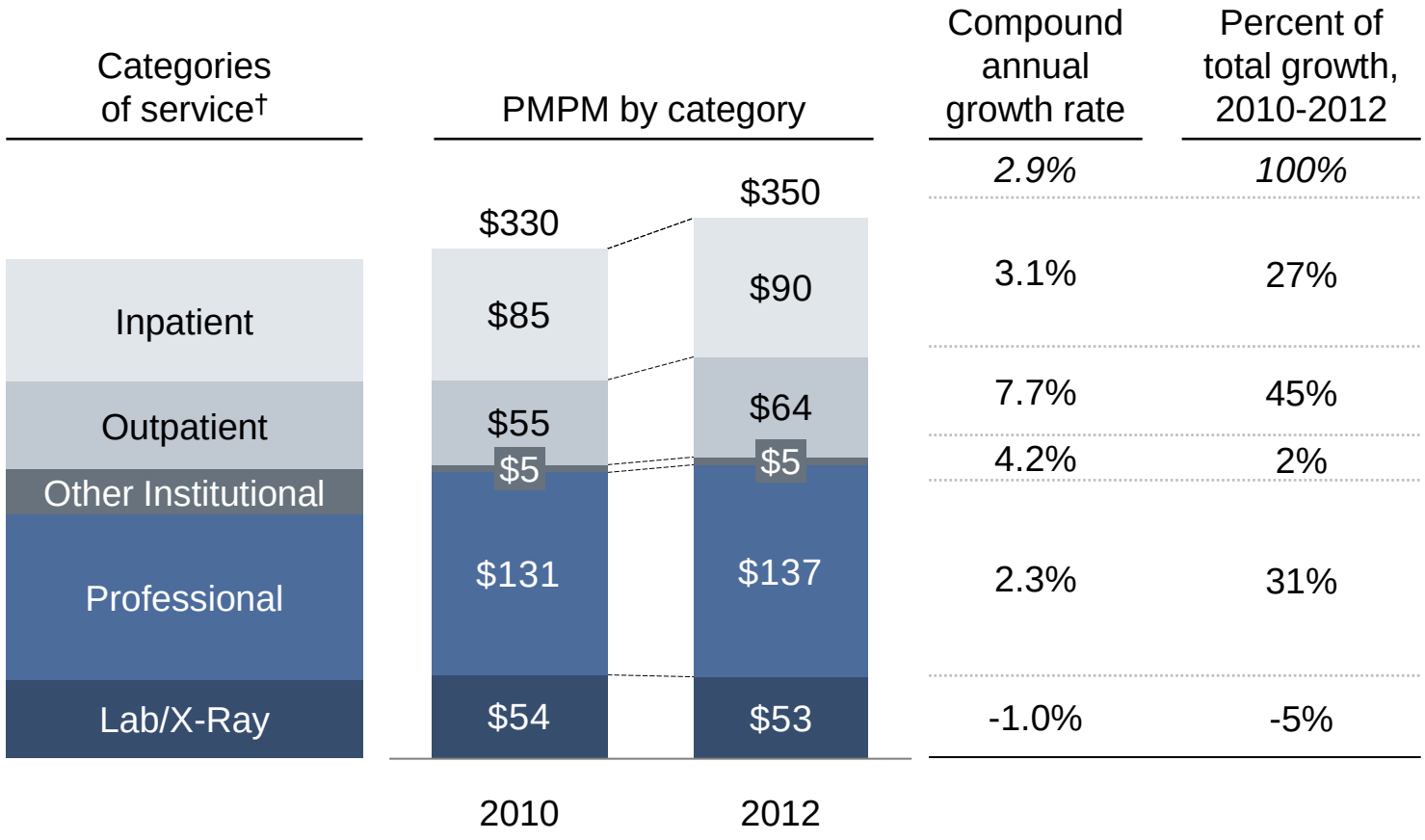


* Analysis is based on a sample that consists of claims submitted by the three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP) – representing 66 percent of commercially insured lives. Claims-based medical expenditure measure excludes pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments).

SOURCE: HPC analysis of the All-Payer Claims Database

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

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



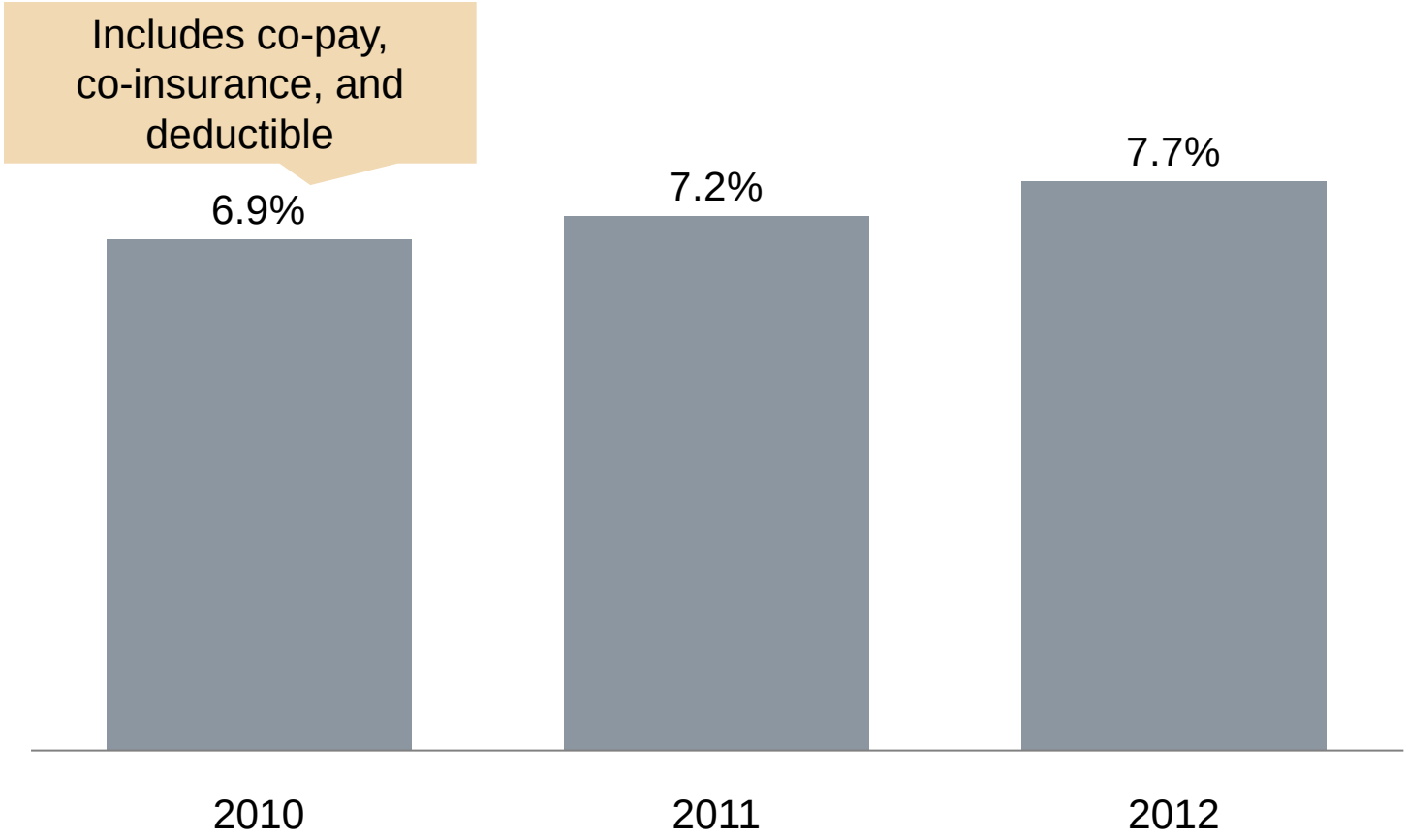
* Analysis is based on a sample that consists of claims submitted by the three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP) – representing 66 percent of commercially insured lives. Claims-based medical expenditure measure excludes pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments).

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

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

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

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



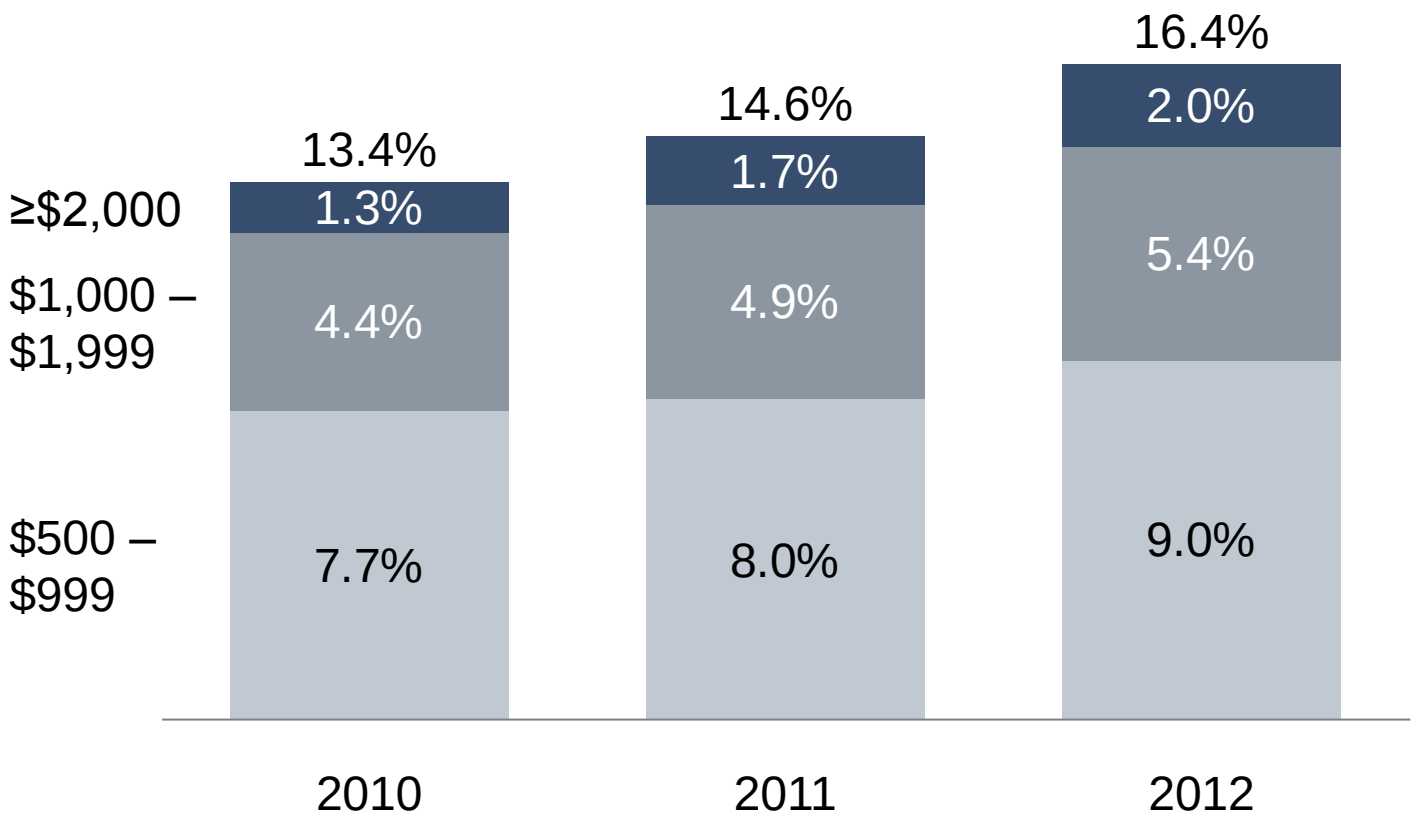
* Out-of-pocket spending includes cost-sharing (co-payments, co-insurance, and deductibles) for medical services covered by by commercial insurance. Pharmacy spending and services paid for outside of the insurance claims system are not included.

† Analysis is based on a sample that consists of claims submitted by the three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP) – representing 66 percent of commercially insured lives. Claims-based medical expenditure measure excludes pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments).

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

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

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

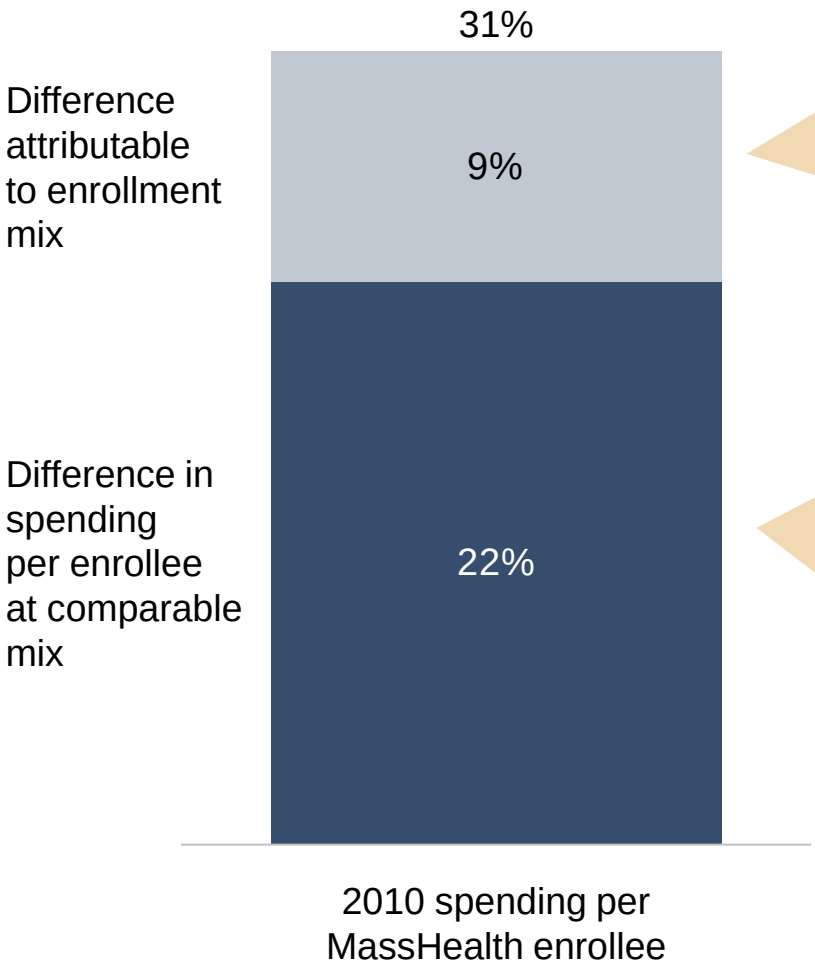


* Out-of-pocket spending includes cost-sharing (co-payments, co-insurance, and deductibles) for medical services covered by by commercial insurance. Pharmacy spending and services paid for outside of the insurance claims system are not included.

NOTE: Analysis is based on a sample that consists of claims submitted by the three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP) – representing 66 percent of commercially insured lives. Claims-based medical expenditure measure excludes pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments).

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

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



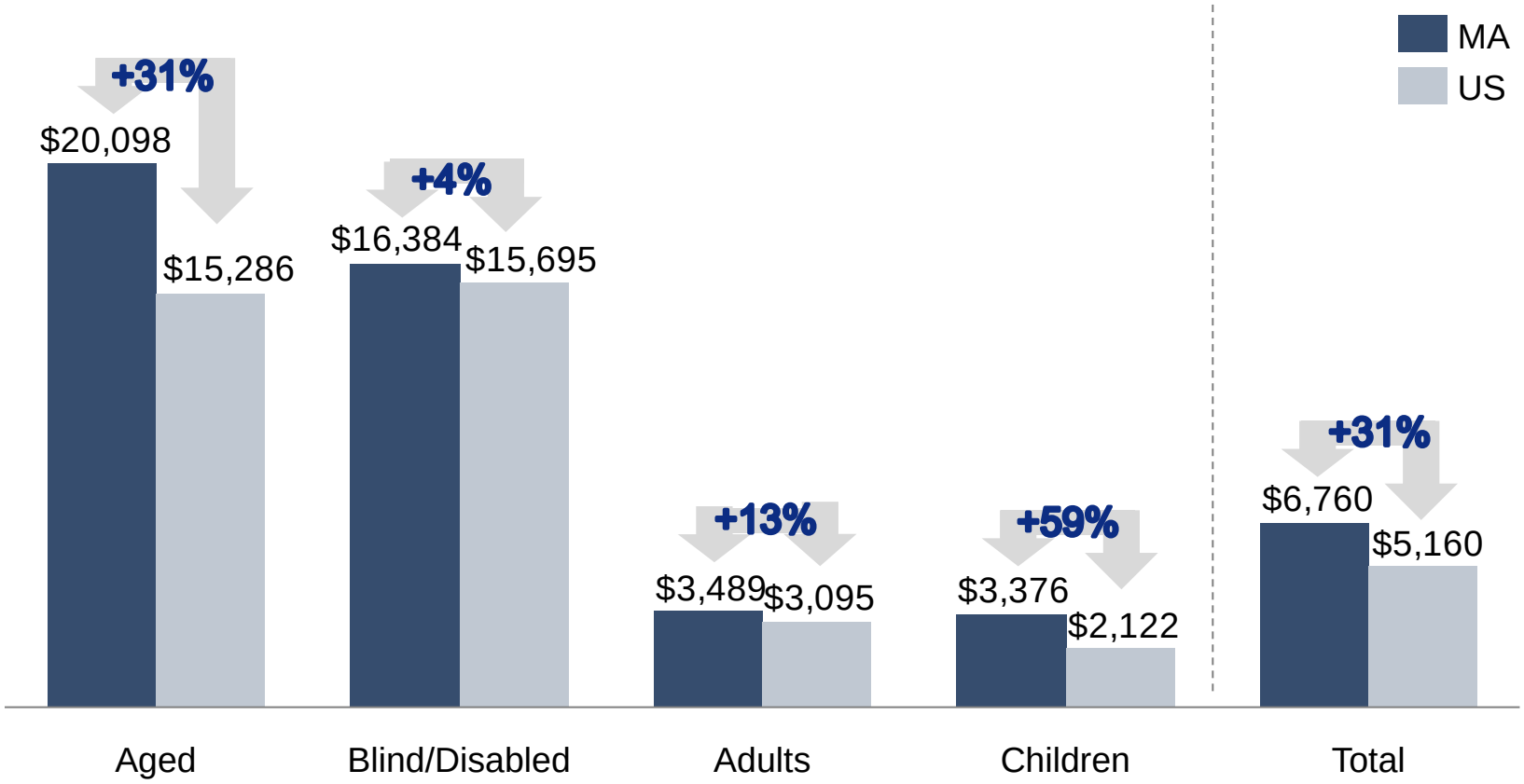
- Massachusetts has a higher proportion of aged and blind/disabled enrollees than average Medicaid program
- Average spending per enrollee in these complex needs groups is 2.4-3.0x overall average spending per enrollee

- Massachusetts has higher spending per enrollee than US average within each eligibility group:
  - Aged: +31%
  - Disabled: +4%
  - Adults: +13%
  - Children: +59%

SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

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

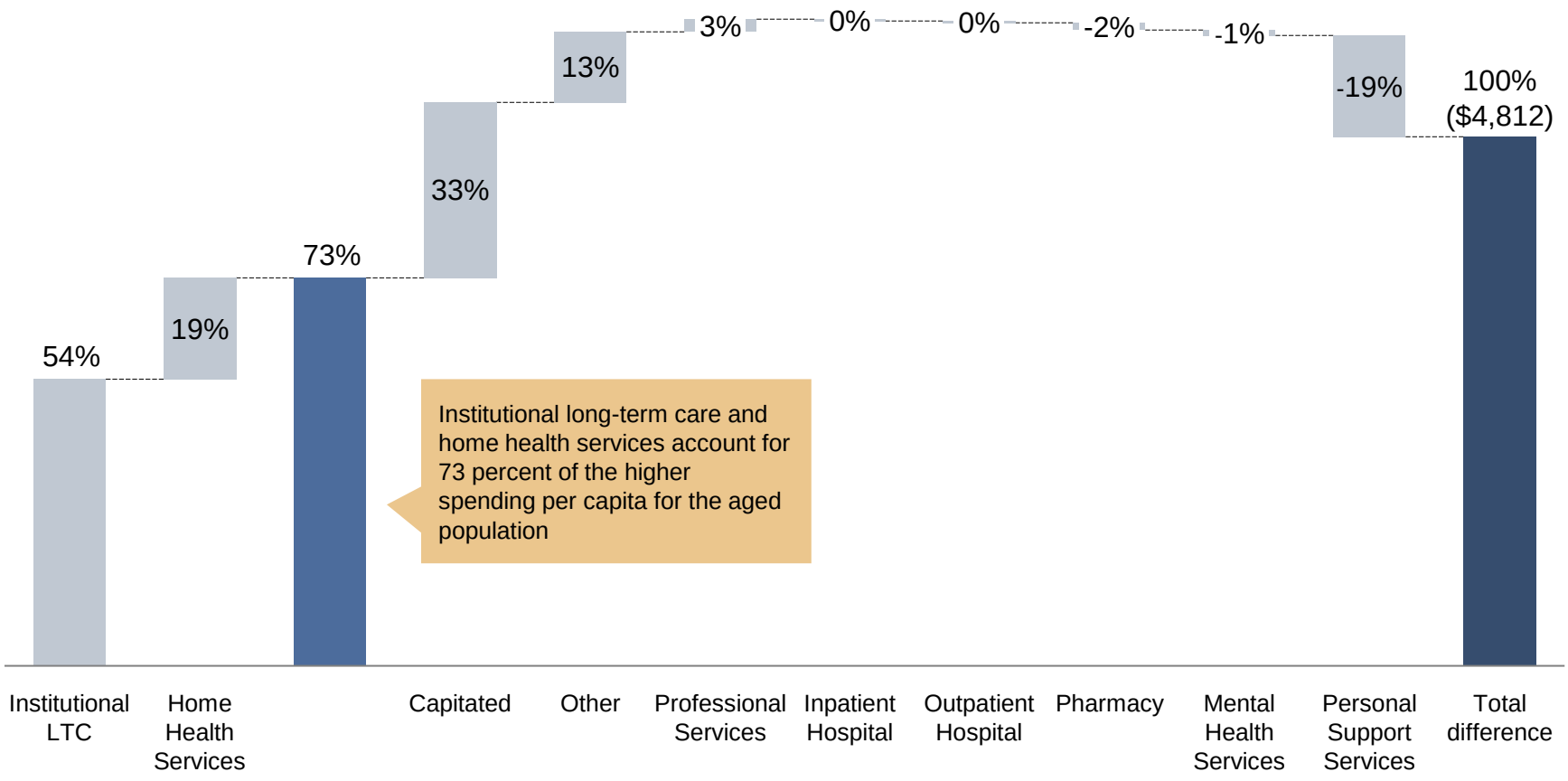
Dollars per enrollee, 2010



SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

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

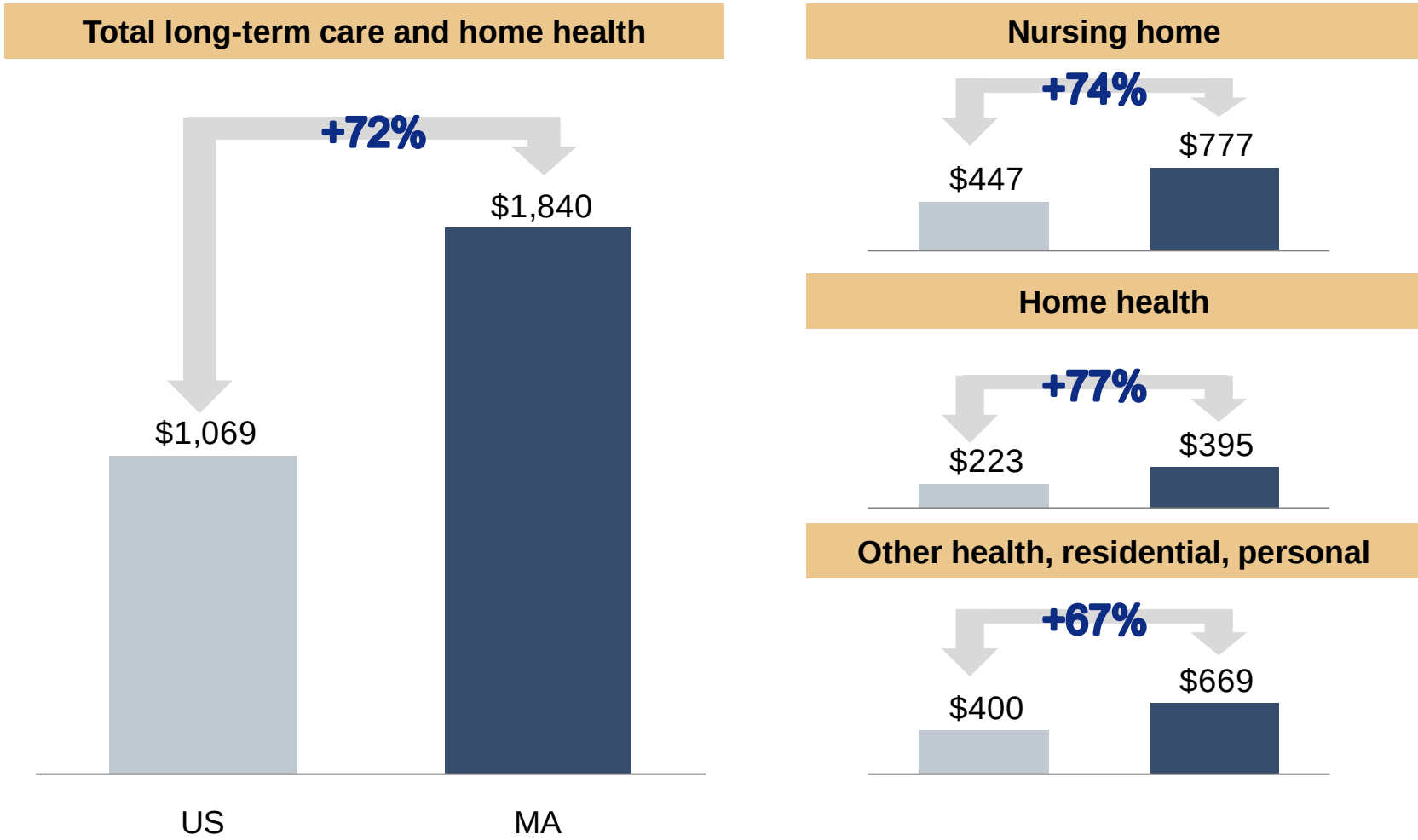
Dollars per enrollee, FFY 2010



SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

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

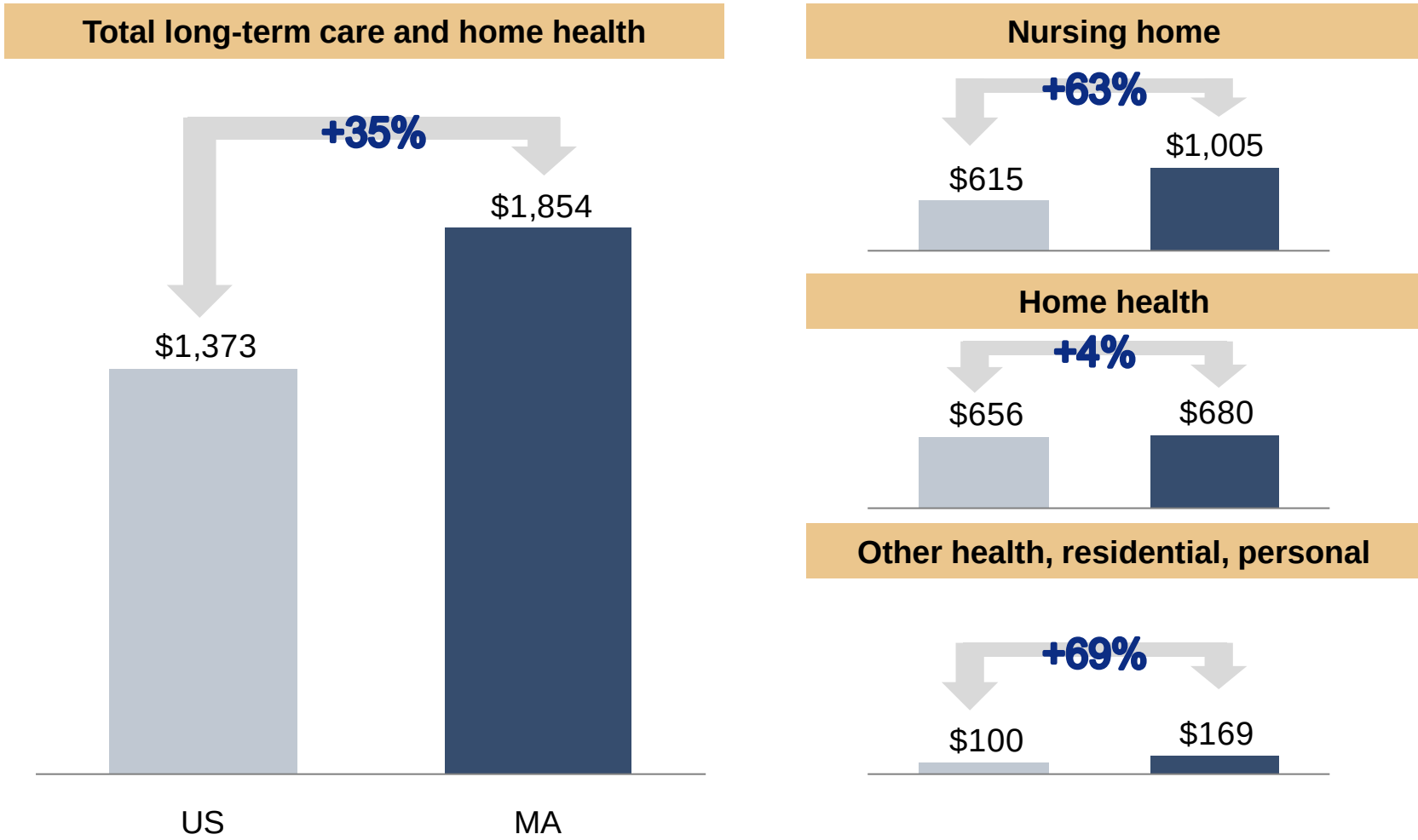
Dollars per capita, 2009



SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

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

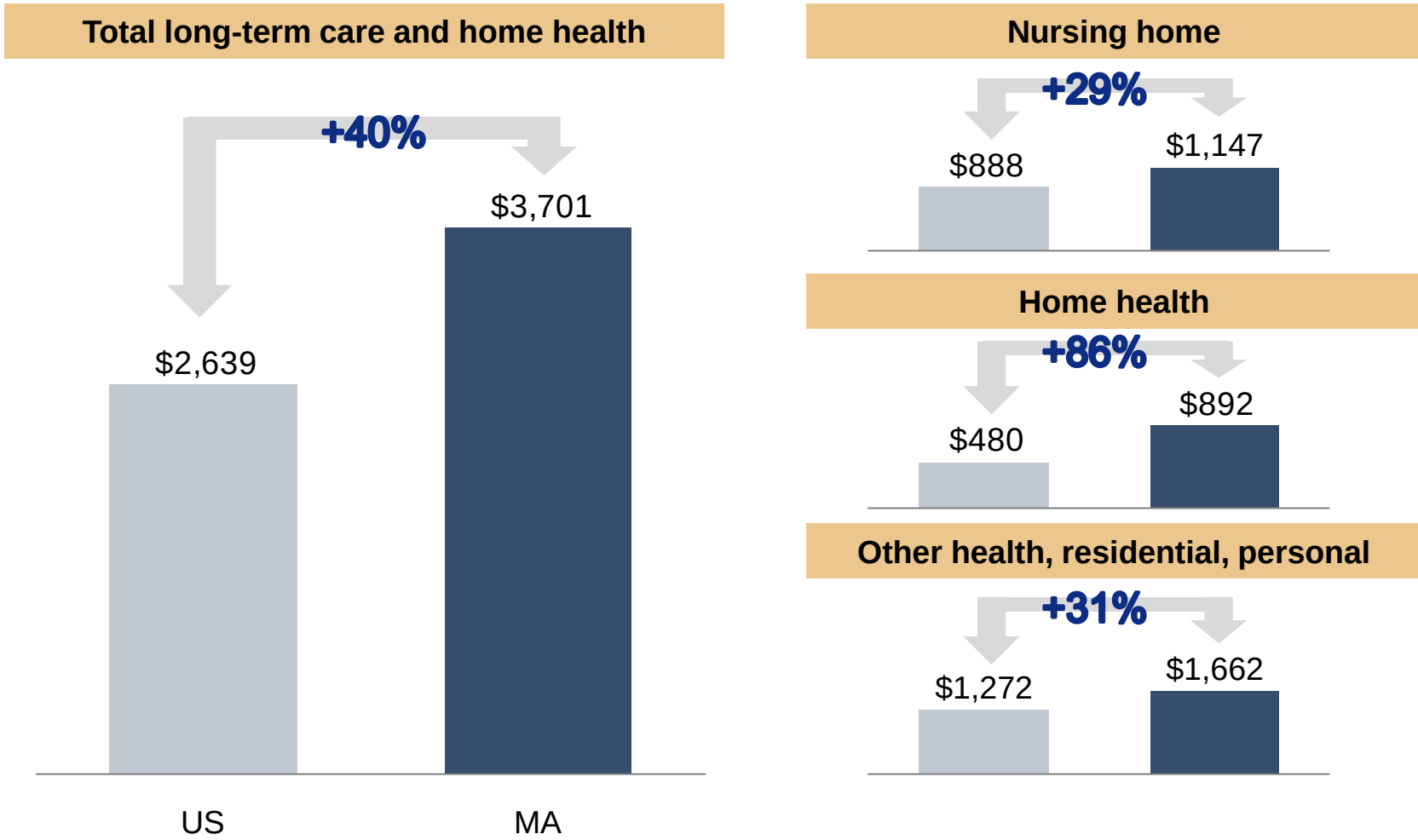
Dollars per beneficiary, 2009



SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

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

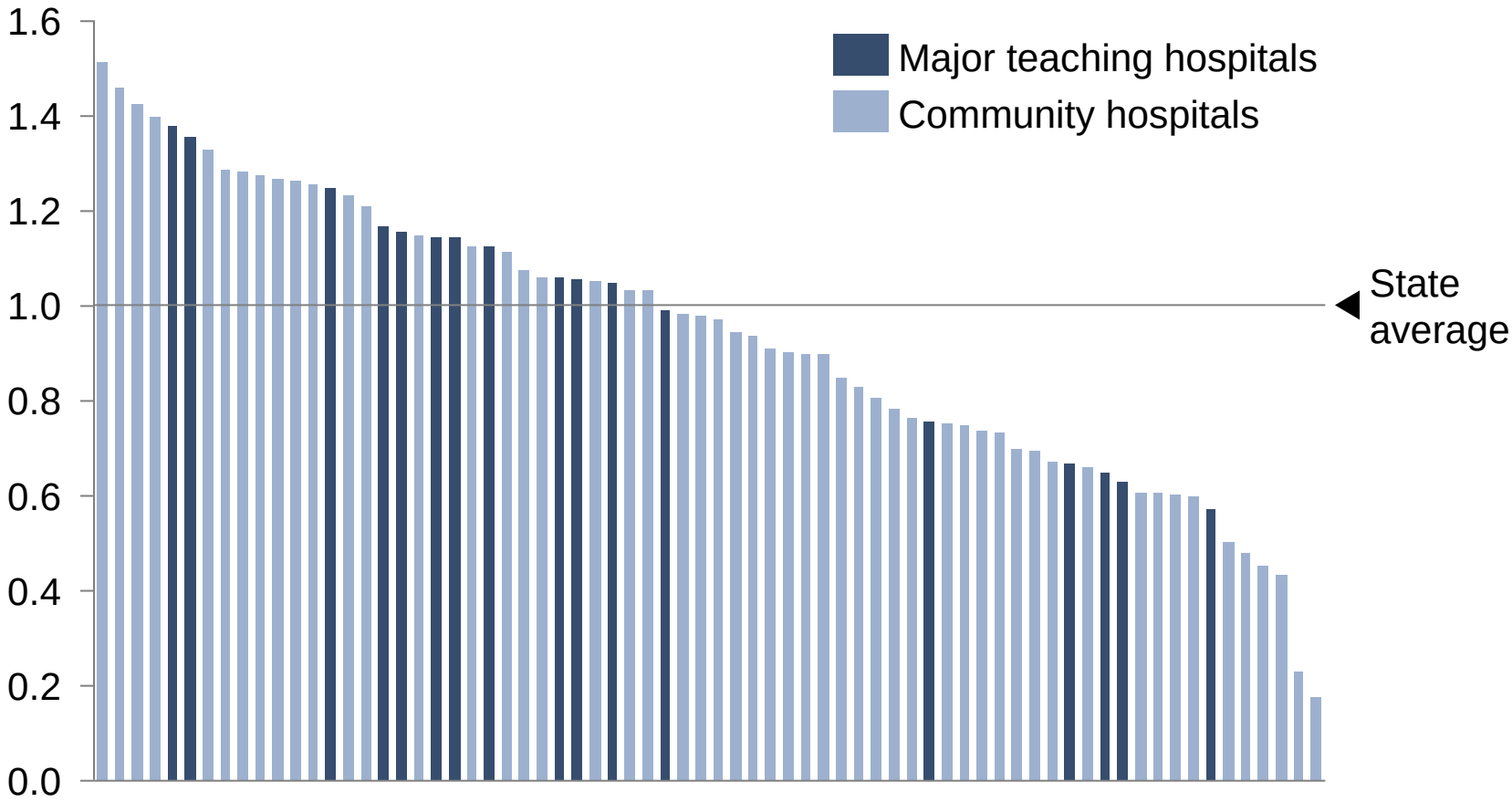
Dollars per beneficiary, 2009



SOURCE: Centers for Medicare & Medicaid Services; HPC analysis

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

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

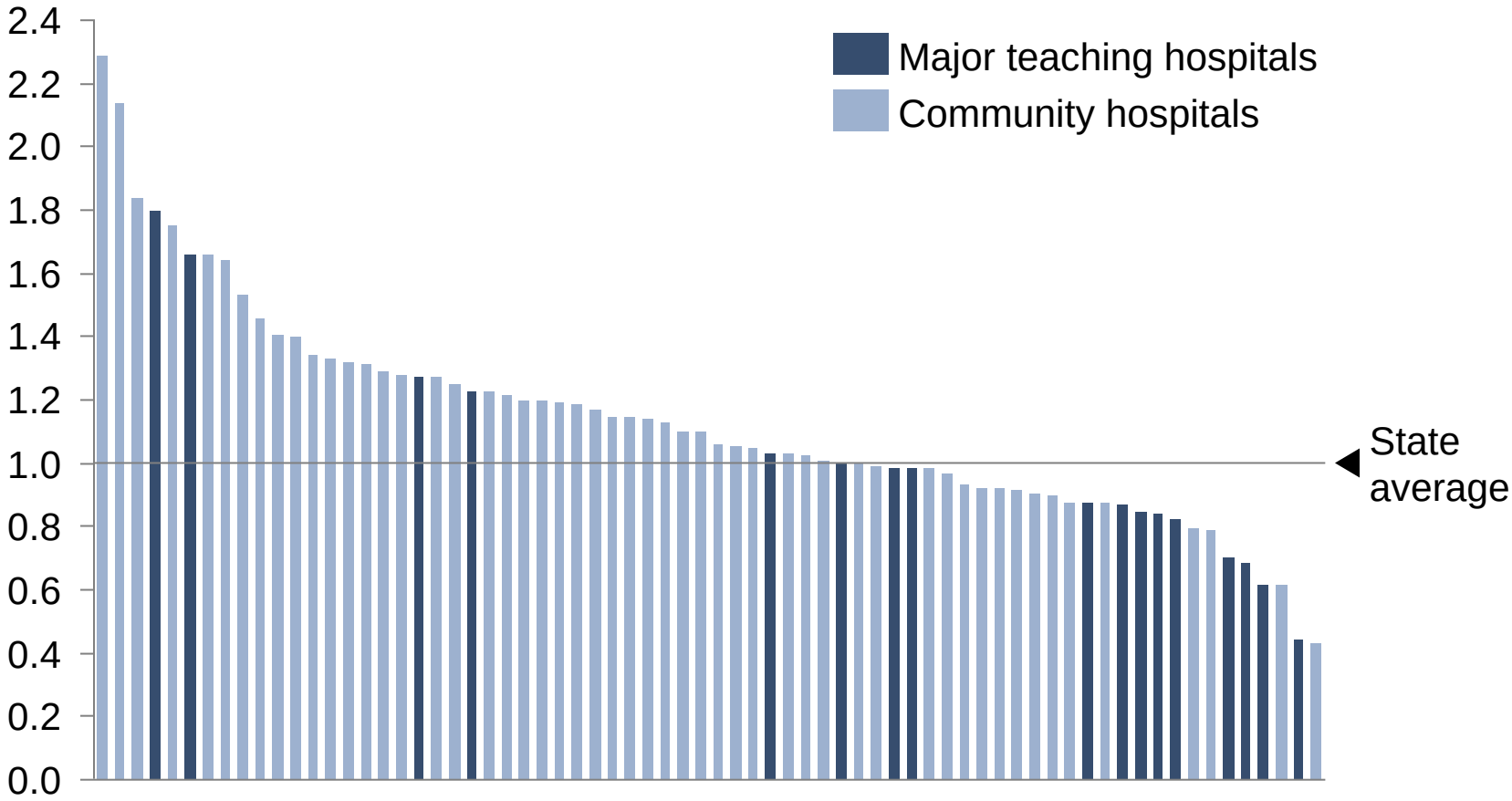


* Rates for each hospital were estimated using a logistic regression model that adjusted for the following: age, sex, payer group, income, admit source of the patient, length of stay, and DRG. Our sample included patients who were at least 18 years of age and had a routine discharge, a discharge to a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

SOURCE: Center for Health Information and Analysis; HPC analysis

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

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

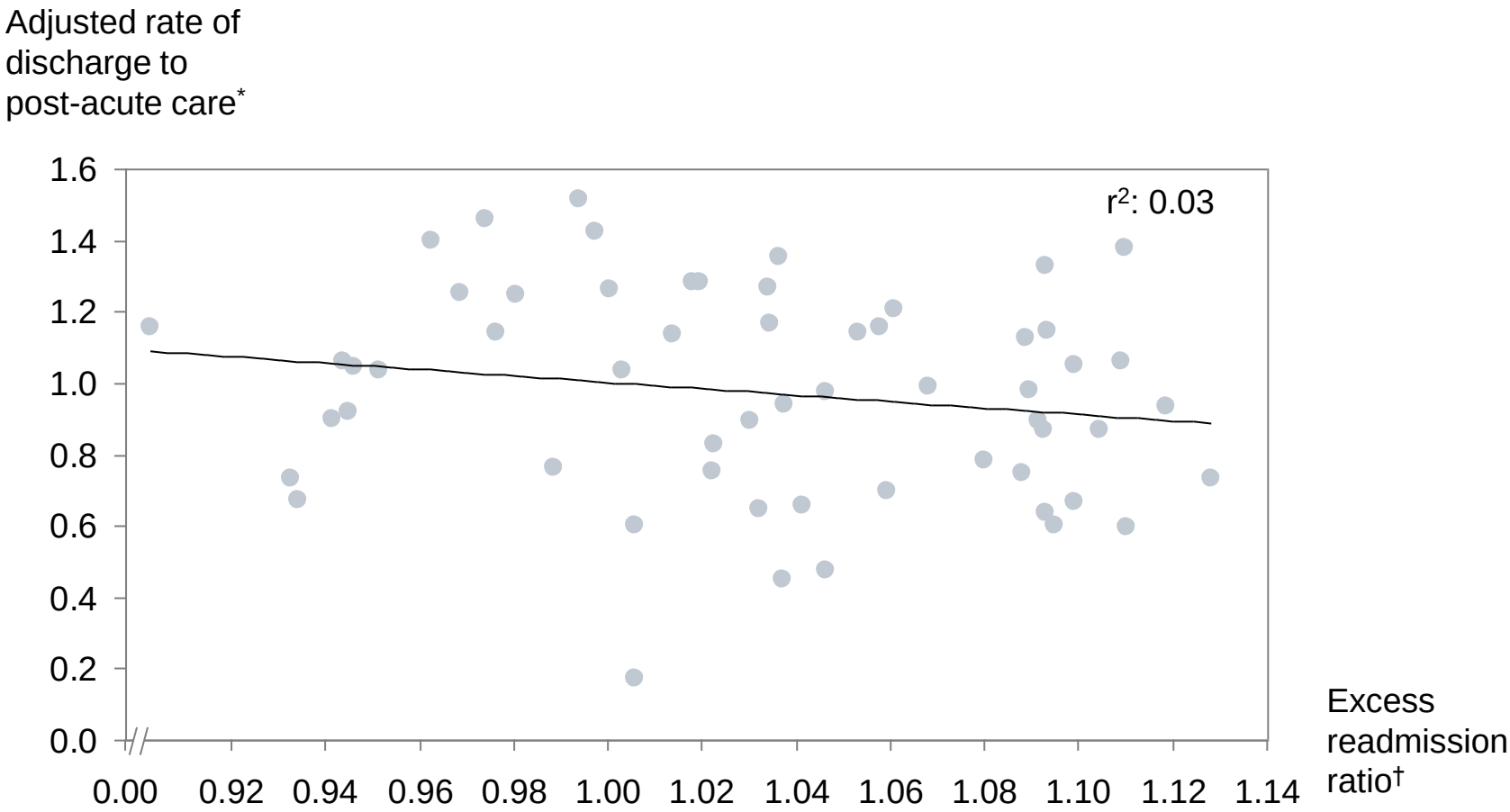


* Rates for each hospital were estimated using a logistic regression model that adjusted for the following: age, sex, payer group, income, admit source of the patient, length of stay, and DRG. Our sample included patients who were at least 18 years of age and had a routine discharge, a discharge to a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

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

SOURCE: Center for Health Information and Analysis; HPC analysis

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

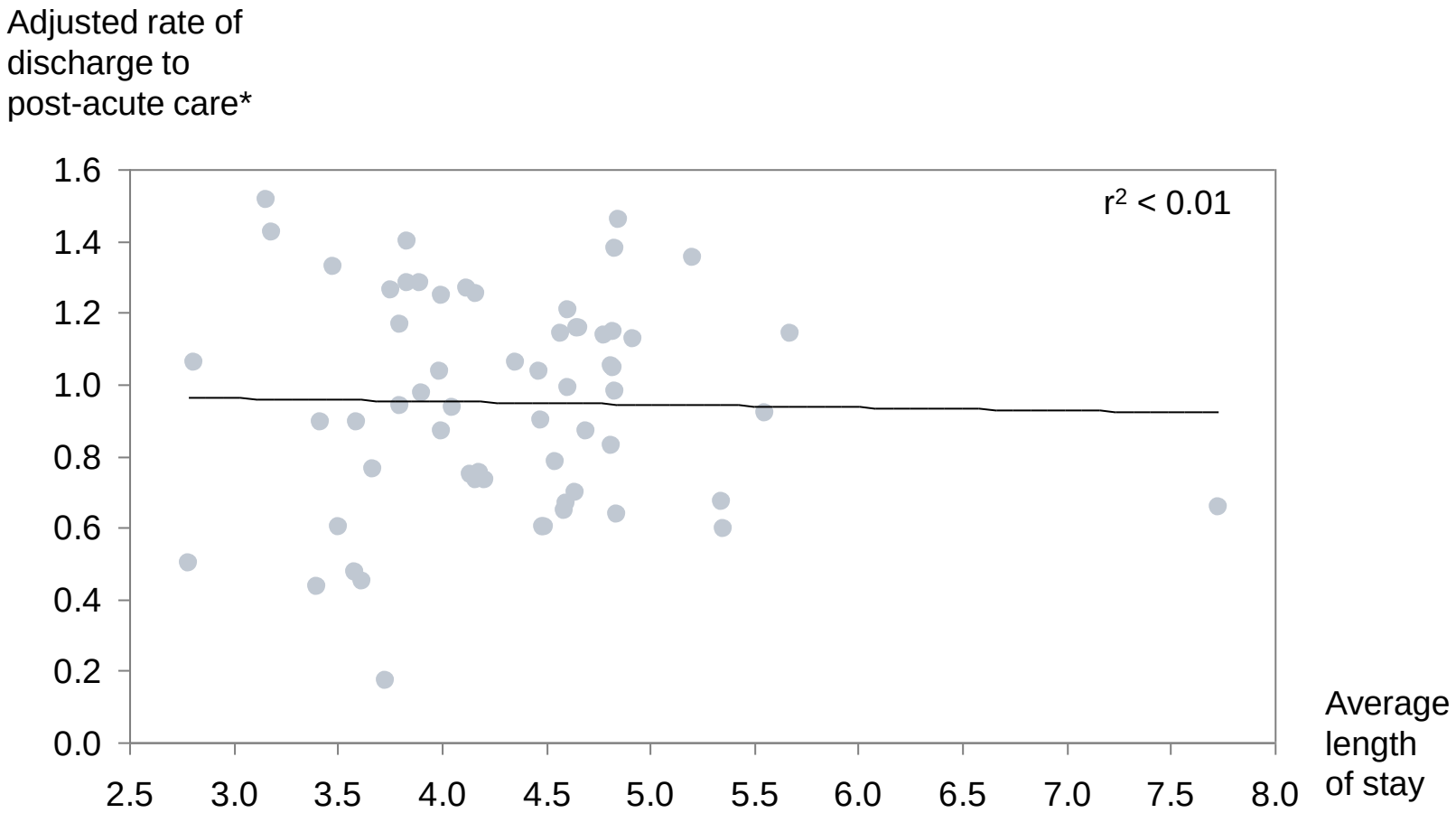


* Rates for each hospital were estimated using a logistic regression model that adjusted for the following: age, sex, payer group, income, admit source of the patient, length of stay, and DRG. Our sample included patients who were at least 18 years of age and had a routine discharge, a discharge to a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

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

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

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



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

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

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

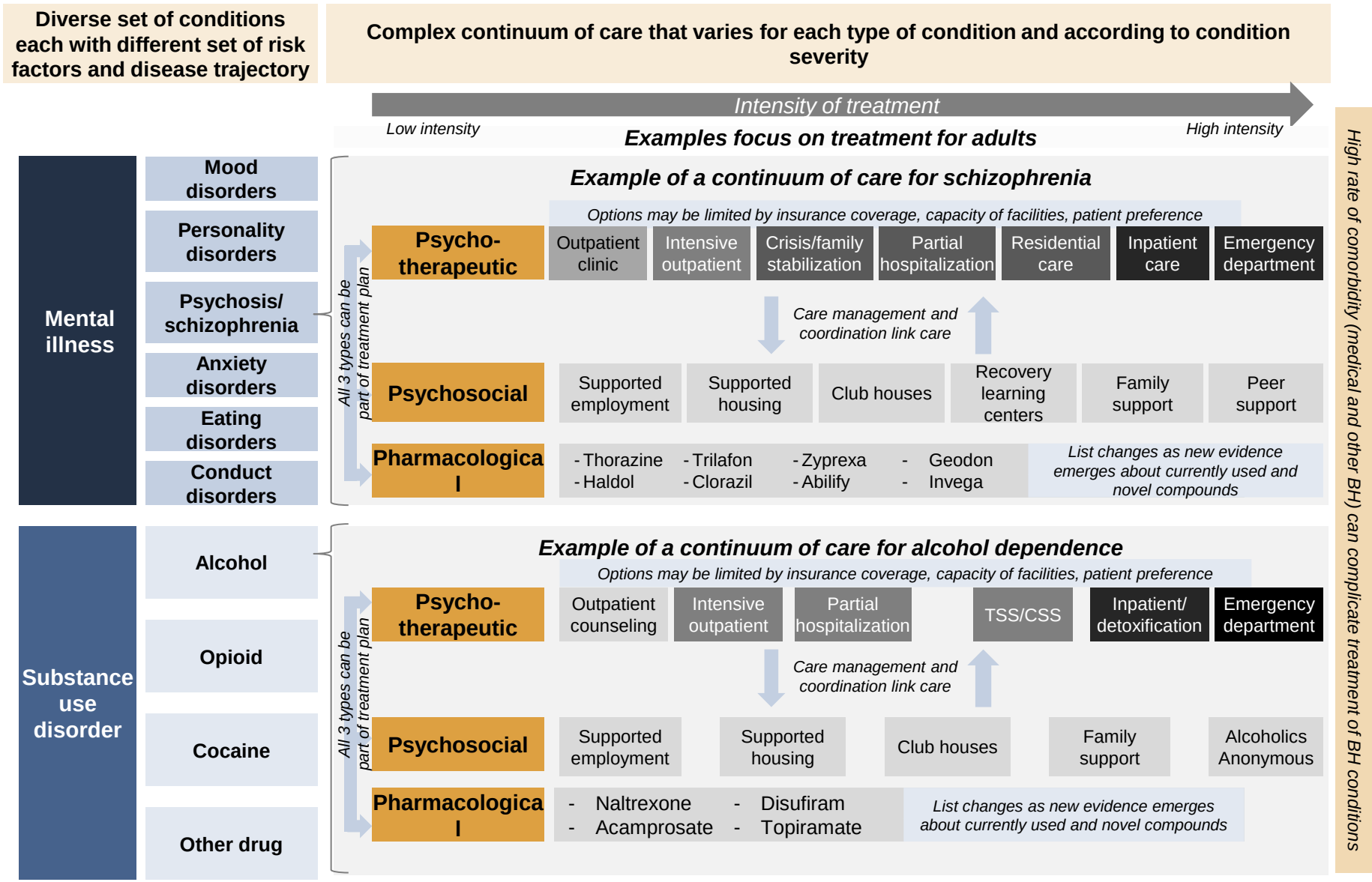
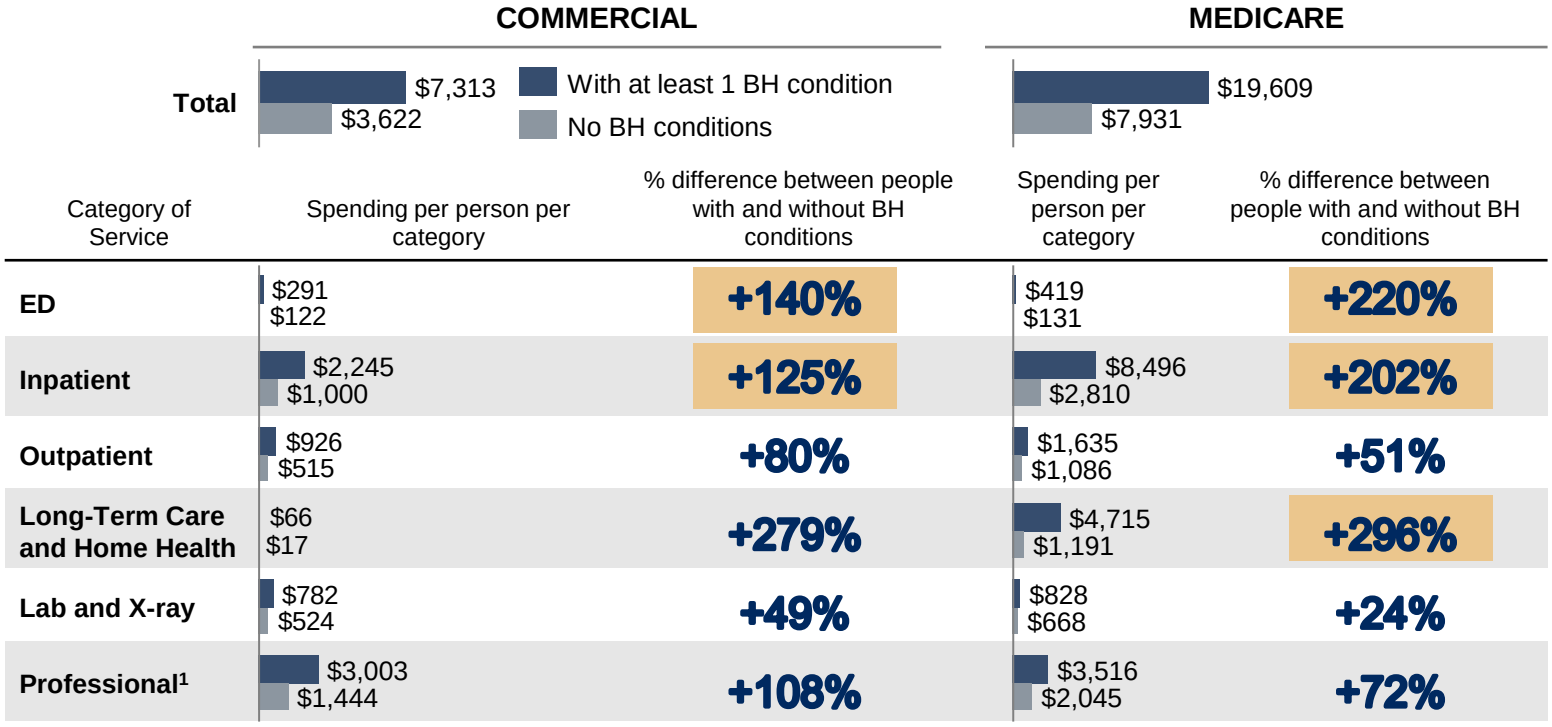


Figure A.16: Spending by category of service for people with and with-out behavioral health conditions

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



* Analysis is based on a sample that consists of claims submitted by the three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP) – representing 66 percent of commercially insured lives. Claims-based medical expenditure measure excludes pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments).

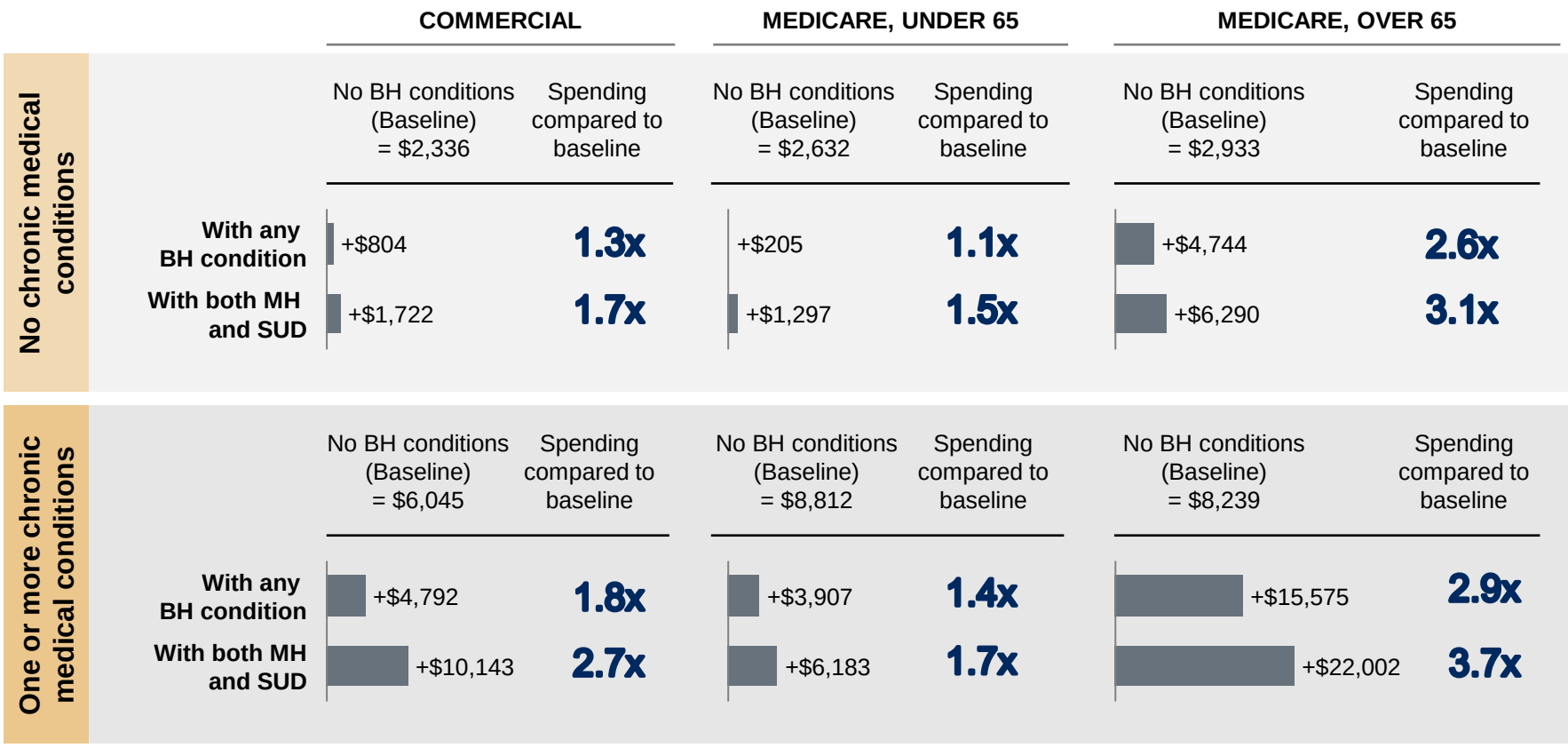
† For detailed definitions of categories of service, see CHIA and HPC publication, "Massachusetts Commercial Medical Care Spending: Findings from the All-Payer Claims Database." Lab/x-ray category includes professional services associated with laboratory and imaging.

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

SOURCE: HPC analysis of the All-Payer Claims Database

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

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



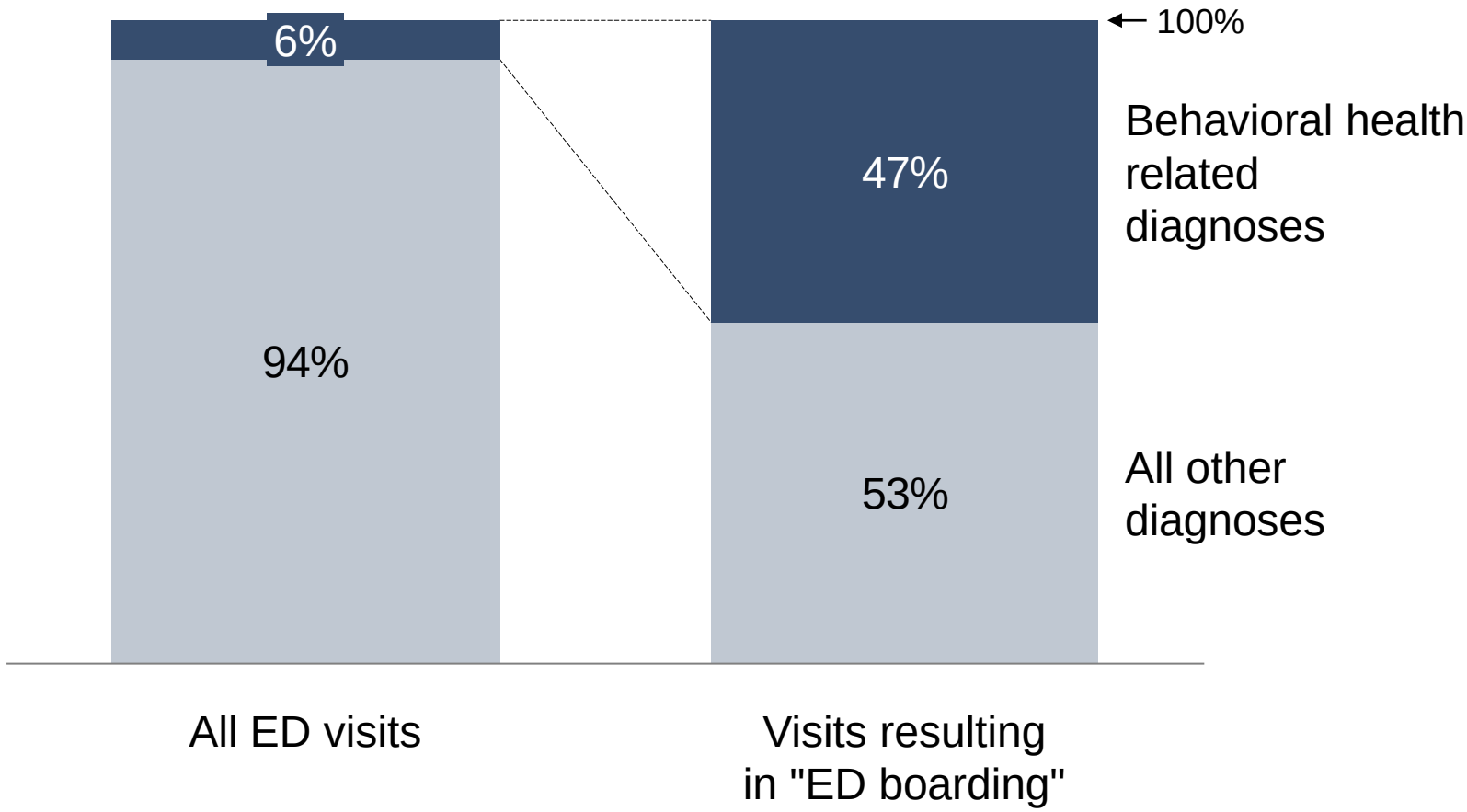
* Analysis is based on a sample that consists of claims submitted by the three largest commercial payers – Blue Cross Blue Shield of Massachusetts (BCBS), Harvard Pilgrim Health Care (HPHC), and Tufts Health Plan (THP) – representing 66 percent of commercially insured lives. Claims-based medical expenditure measure excludes pharmacy spending and payments made outside the claims system (such as shared savings, pay-for-performance, and capitation payments).

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

SOURCE: HPC analysis of the All-Payer Claims Database

Figure A.18: ED visits and boarding by diagnosis type

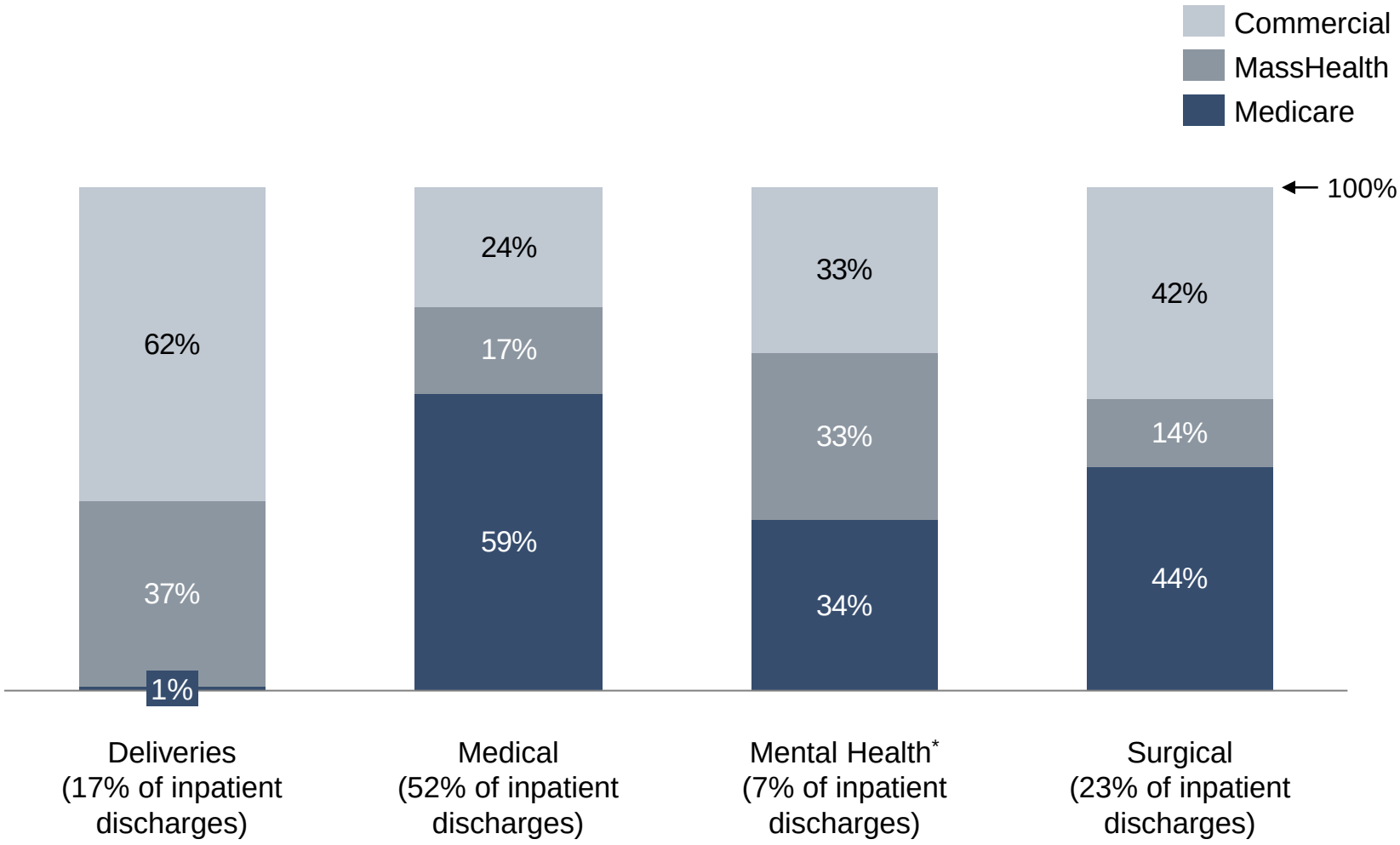
Percent of visits, 2012



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

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

Percent of discharges in each service category, 2012



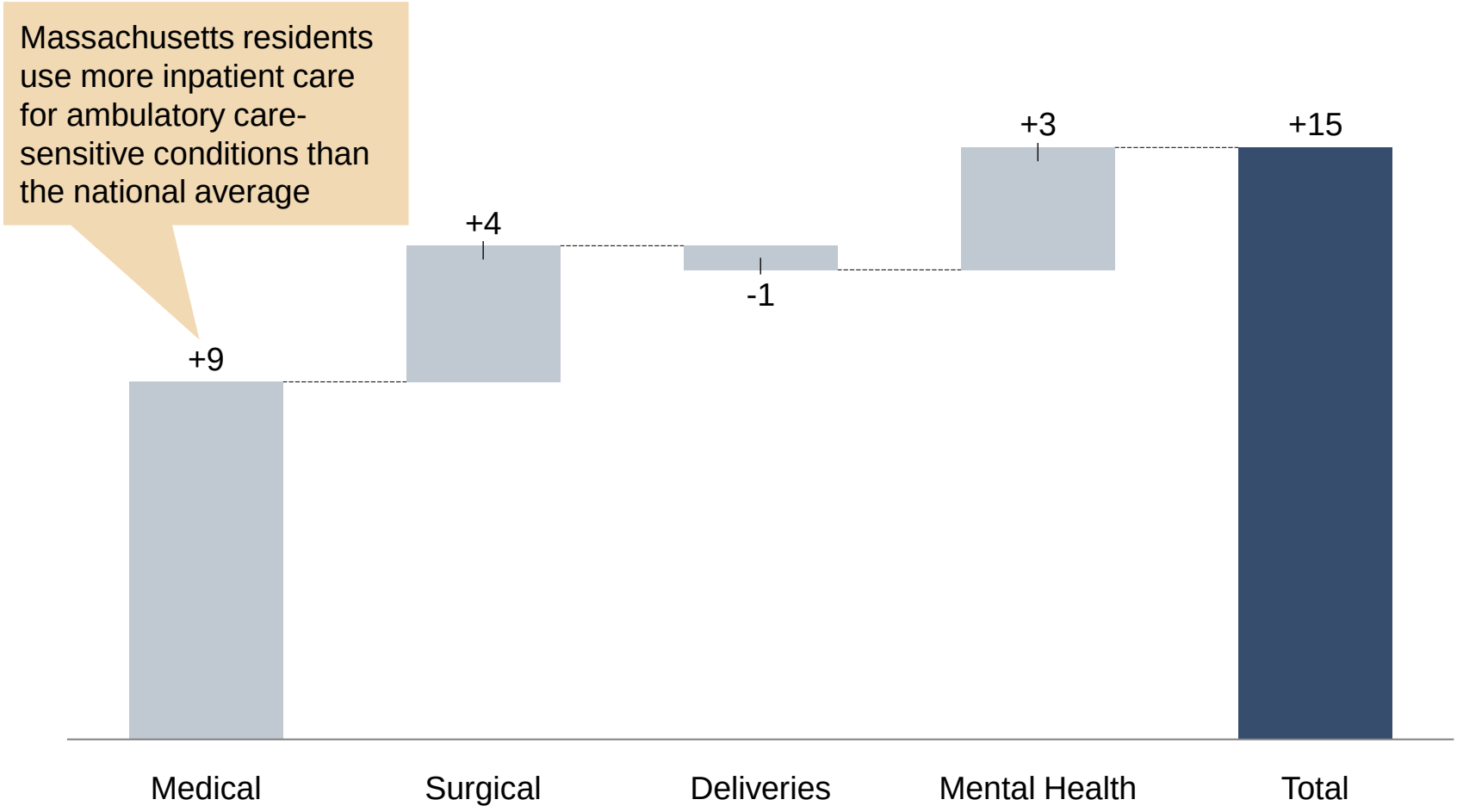
* Discharges in general acute care hospitals. Excludes discharges in psychiatric, specialty non-acute, and chronic care hospitals.

† Payer mix for discharges in general acute hospitals. Psychiatric hospitals do not report number of discharges by payer type, although in 2012 their mix of charges (gross patient service revenue) was 39 percent commercial, 30 percent MassHealth, and 32 percent Medicare.

SOURCE: Massachusetts Health Data Consortium; HPC analysis

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

Inpatient discharges* per 1,000 persons, 2011

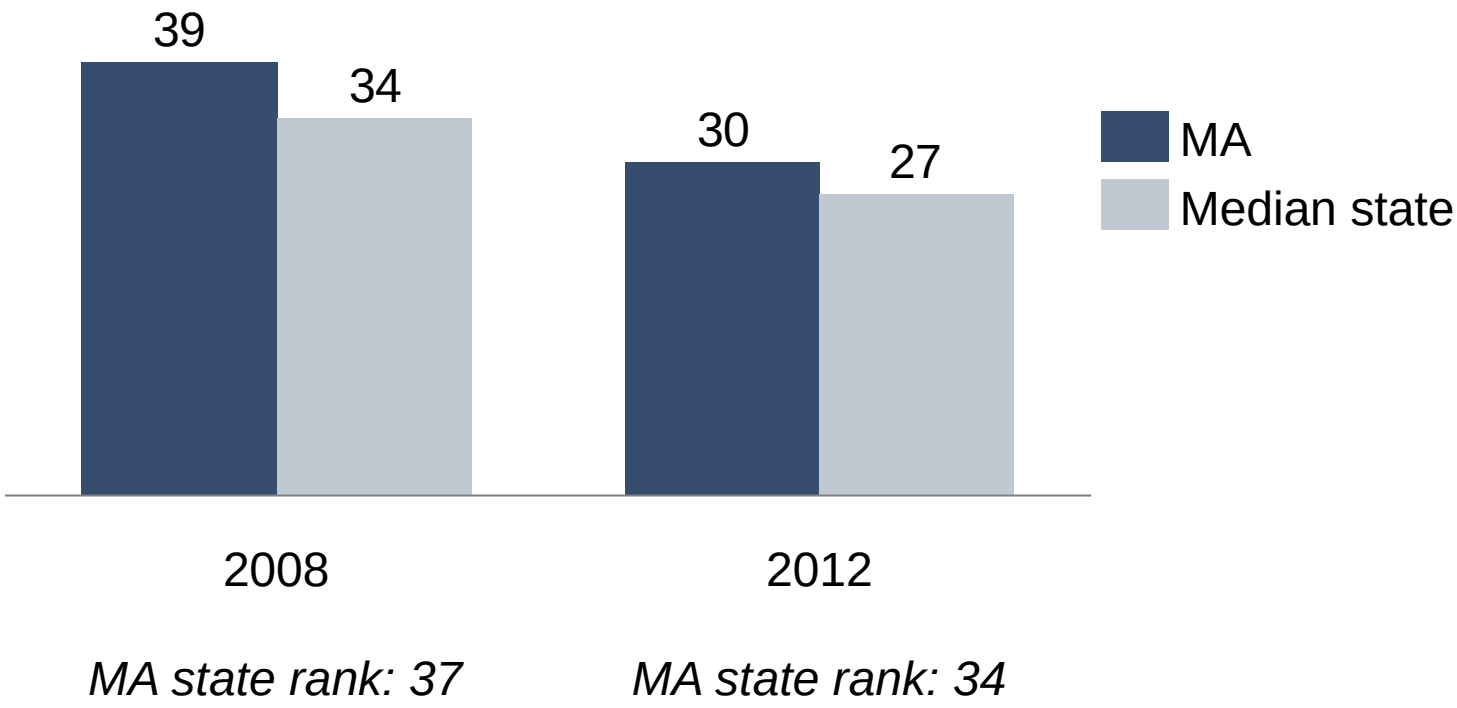


* Discharges in general acute care hospitals. Excludes discharges in psychiatric, specialty non-acute, and chronic care hospitals.

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

Figure B.3: Hospital admissions for ambulatory care-sensitive conditions among Medicare beneficiaries, age 65-74

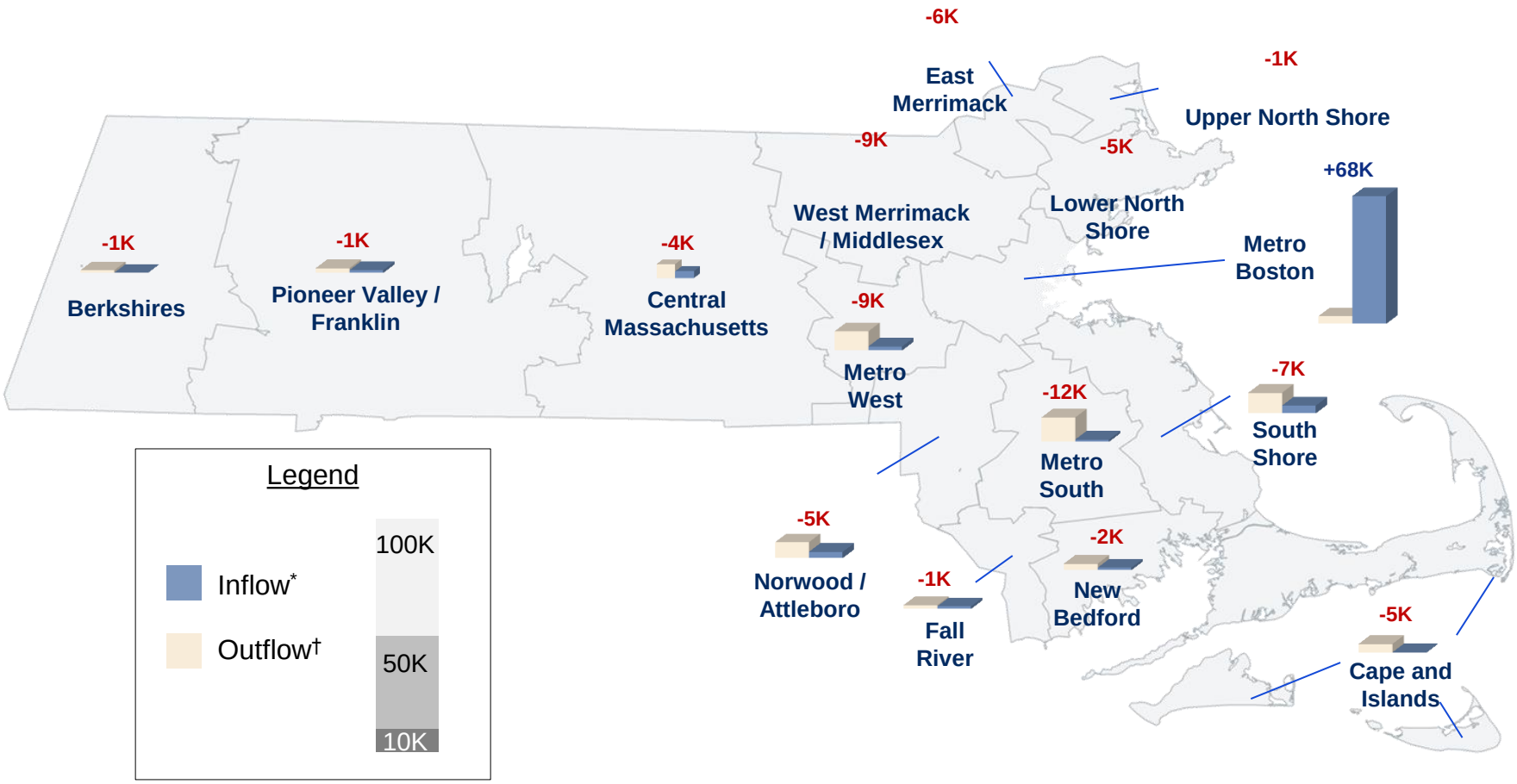
Admissions per 1,000 persons



SOURCE: Commonwealth Fund Health System Data Center

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

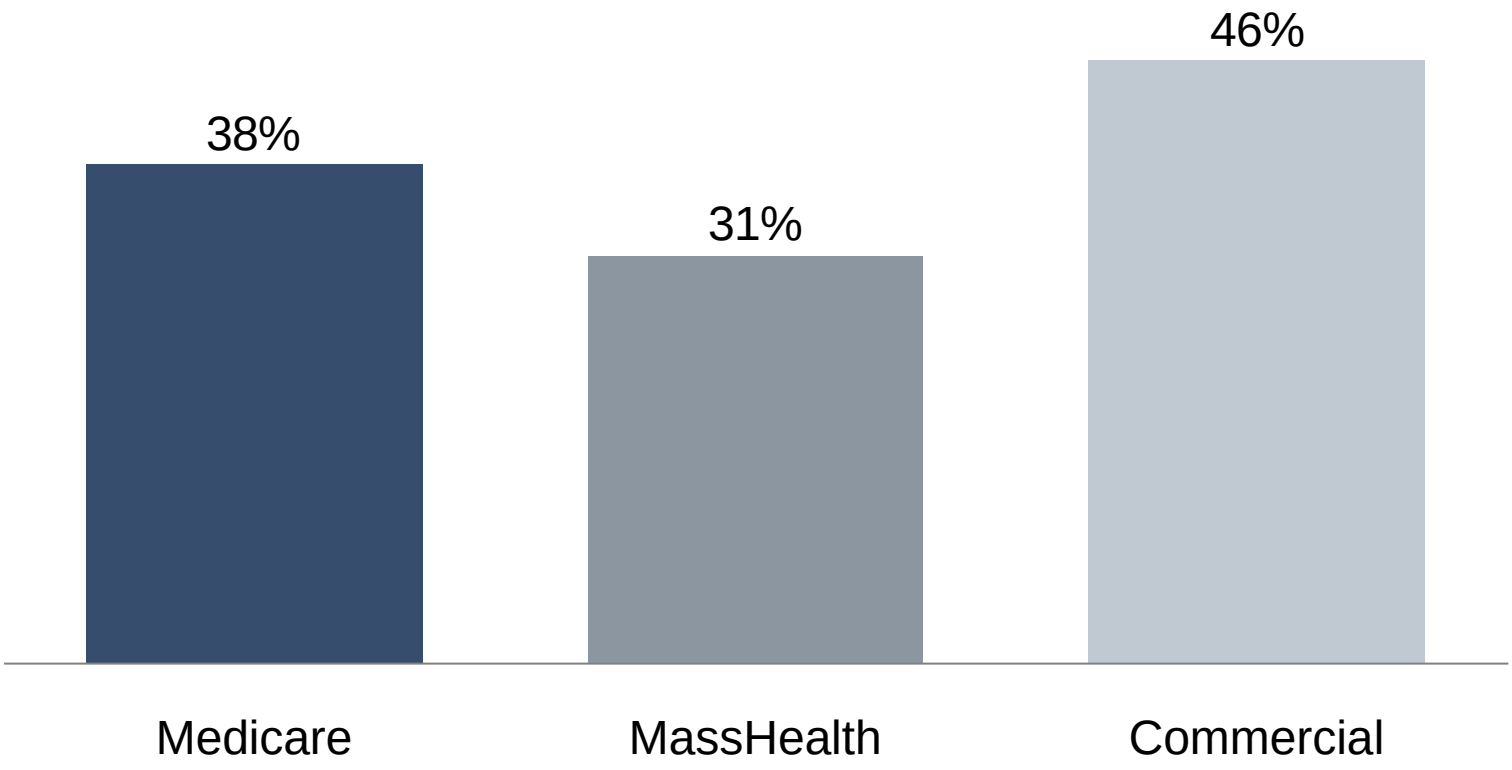
Number of inpatient discharges for non-transfer, non-emergency volume, 2012



* Discharges at hospitals in region for patients who reside outside of region
† Discharges at hospitals outside of region for patients who reside in region
SOURCE: Center for Health Information and Analysis; HPC analysis

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

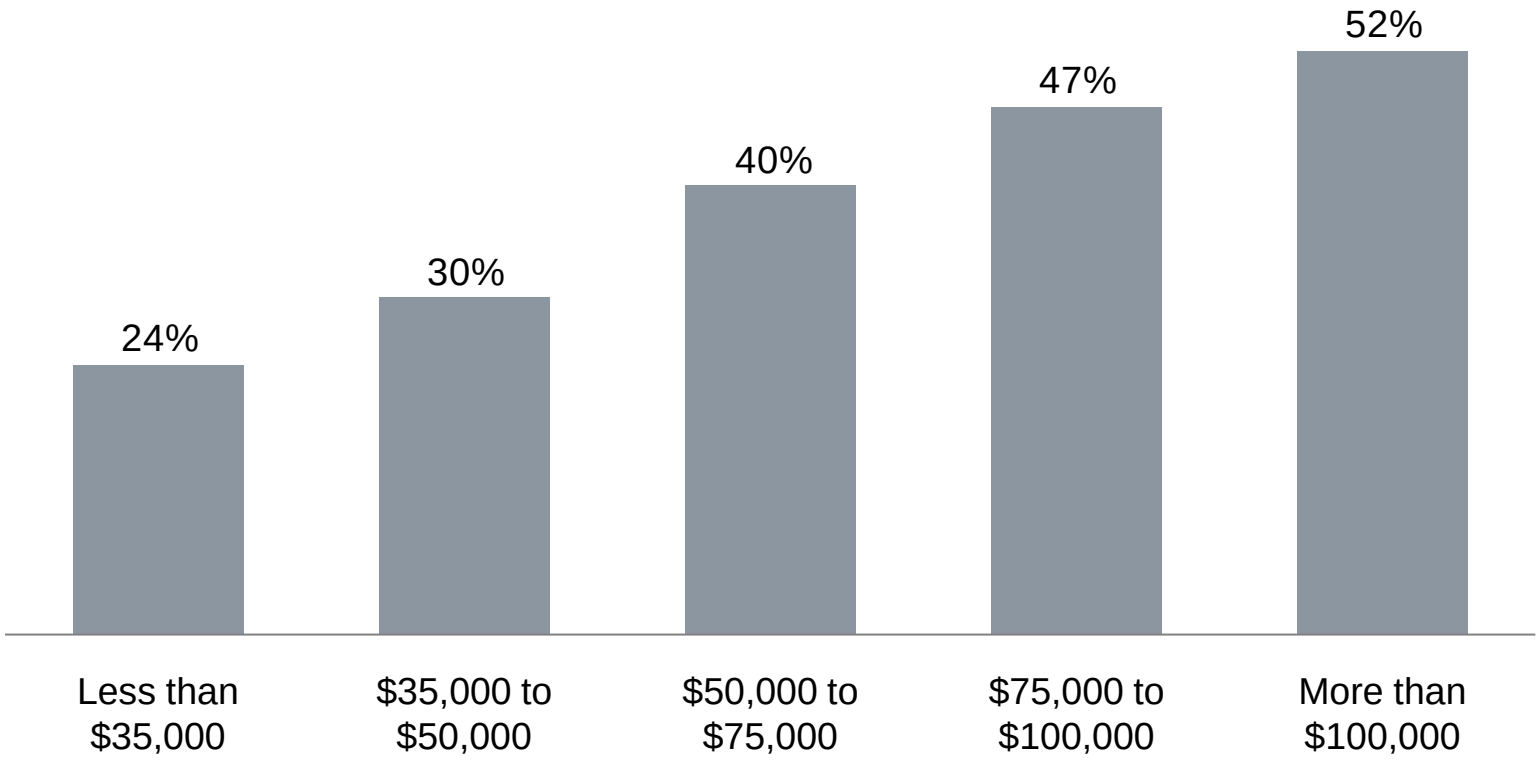
Percent of non-emergency, non-transfer inpatient discharges for payer type, 2012



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

Figure B.6: Inpatient care received outside of home region by income group

Percent of non-emergency, non-transfer inpatient discharges for community income group*, 2012



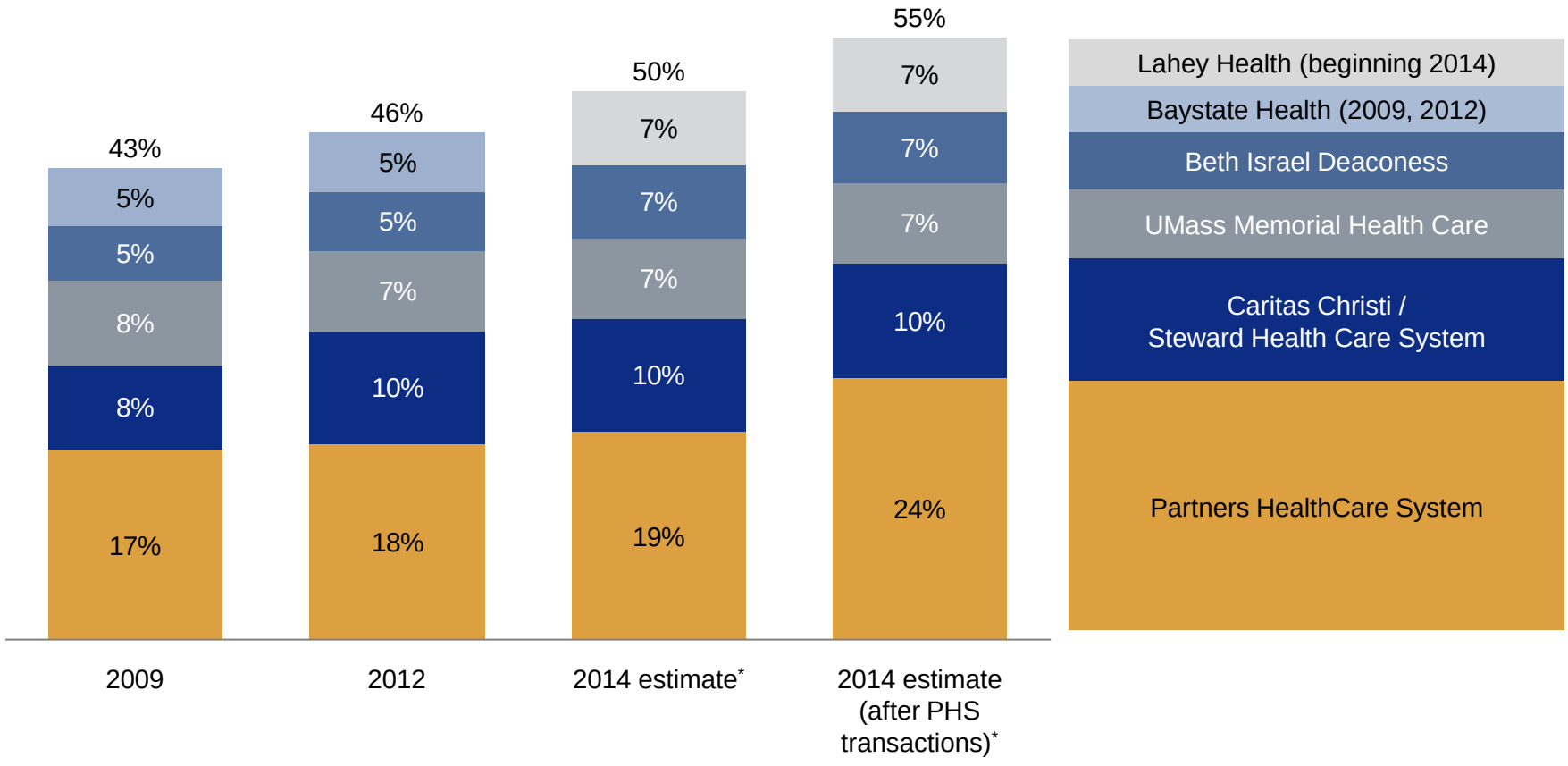
* Community income is estimated as the median household income for the patient's zip code

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

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

Figure B.7: Concentration of inpatient care in Massachusetts

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



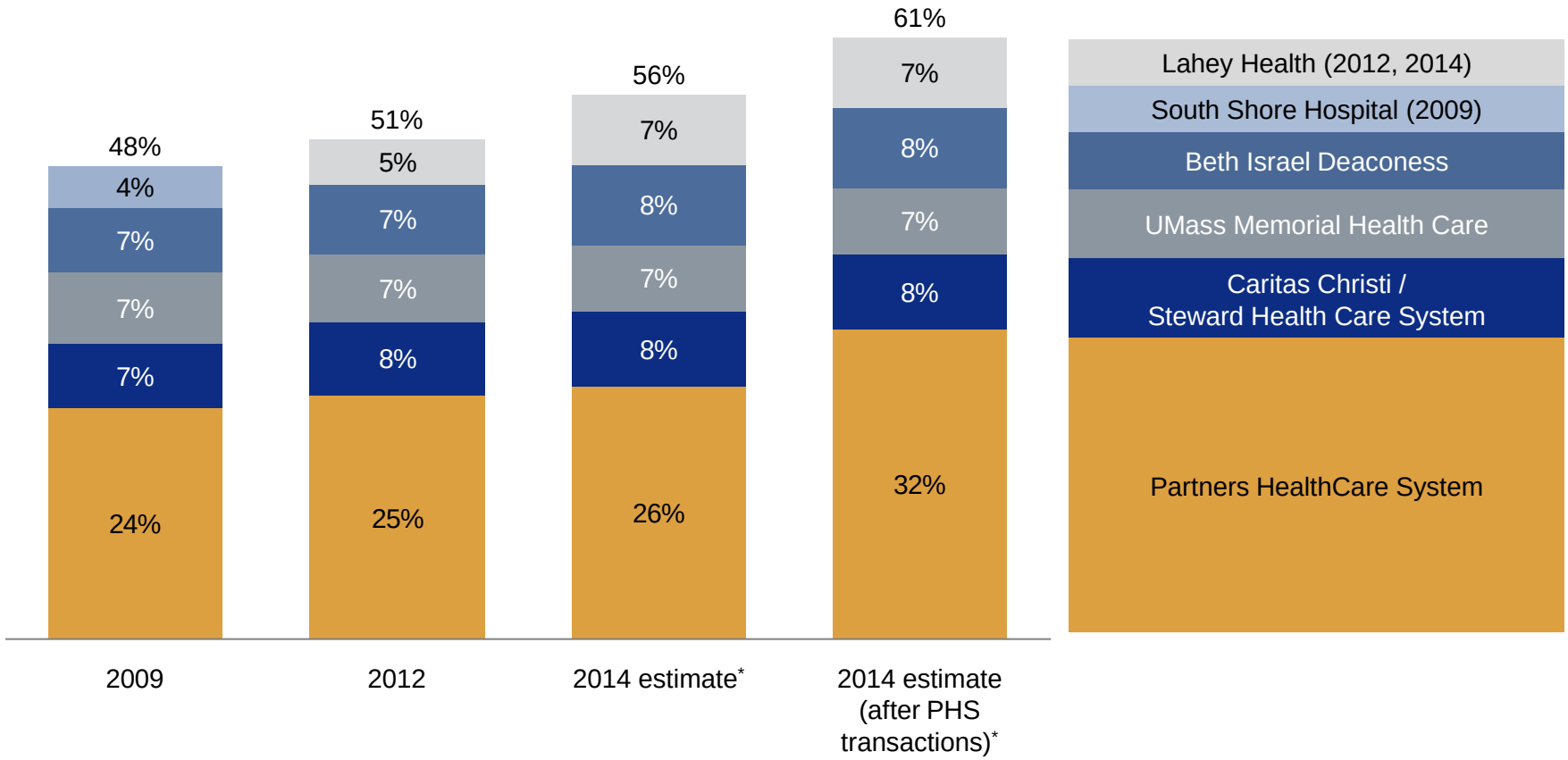
* 2014 data not yet available. Based on applying systems established by 2014 (including 2013 Partners HealthCare acquisition of Cooley Dickinson and 2014 Lahey Health acquisition of Winchester hospital) to 2012 inpatient discharge data

† Includes South Shore Hospital and Hallmark Health hospitals within Partners HealthCare System

SOURCE: Center for Health Information and Analysis; HPC analysis

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

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



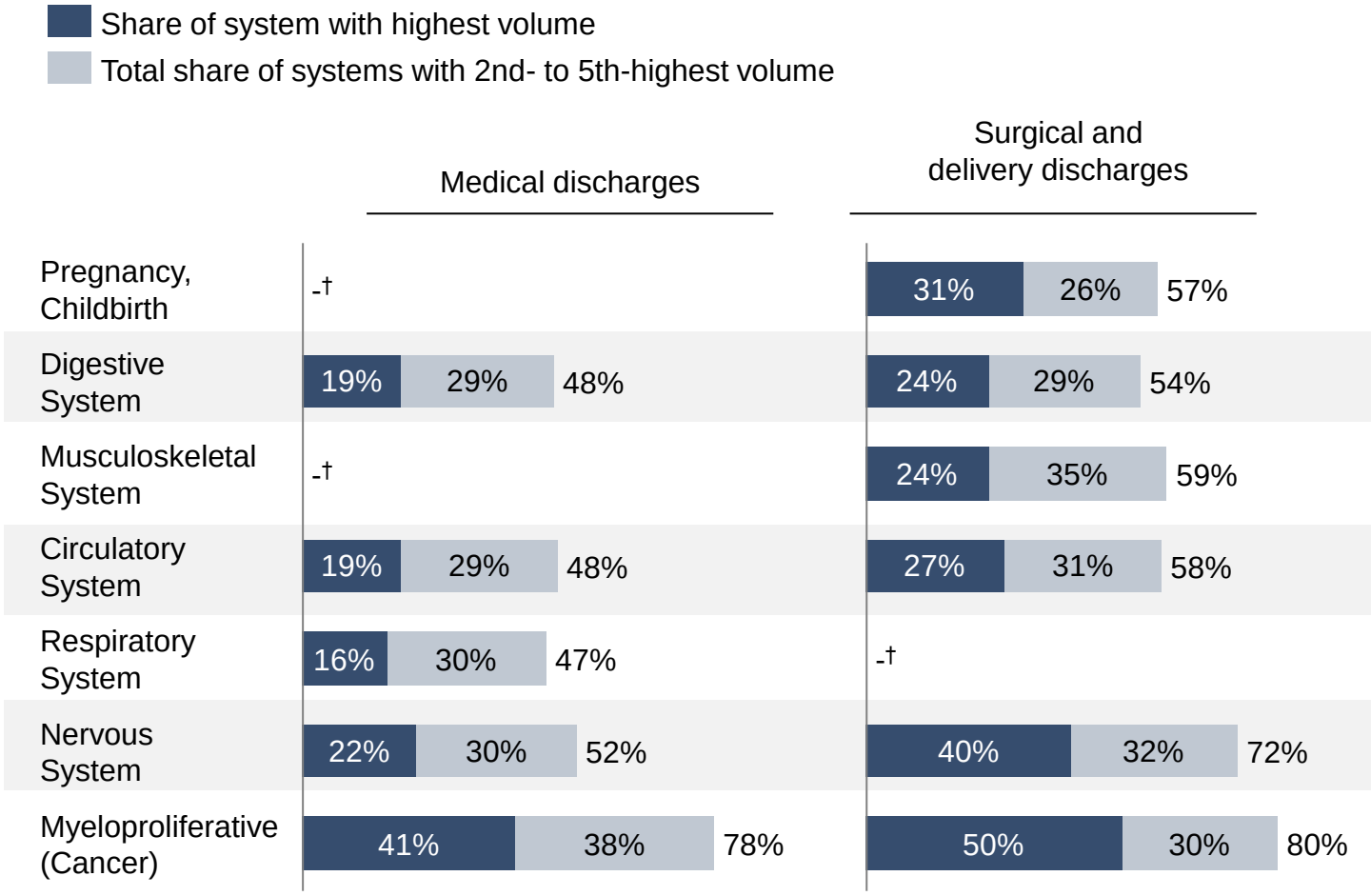
* 2014 data not yet available. Based on applying systems established by 2014 (including 2013 Partners HealthCare acquisition of Cooley Dickinson and 2014 Lahey Health acquisition of Winchester hospital) to 2012 inpatient discharge data

† Includes South Shore Hospital and Hallmark Health hospitals within Partners HealthCare System

SOURCE: Center for Health Information and Analysis; HPC analysis

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

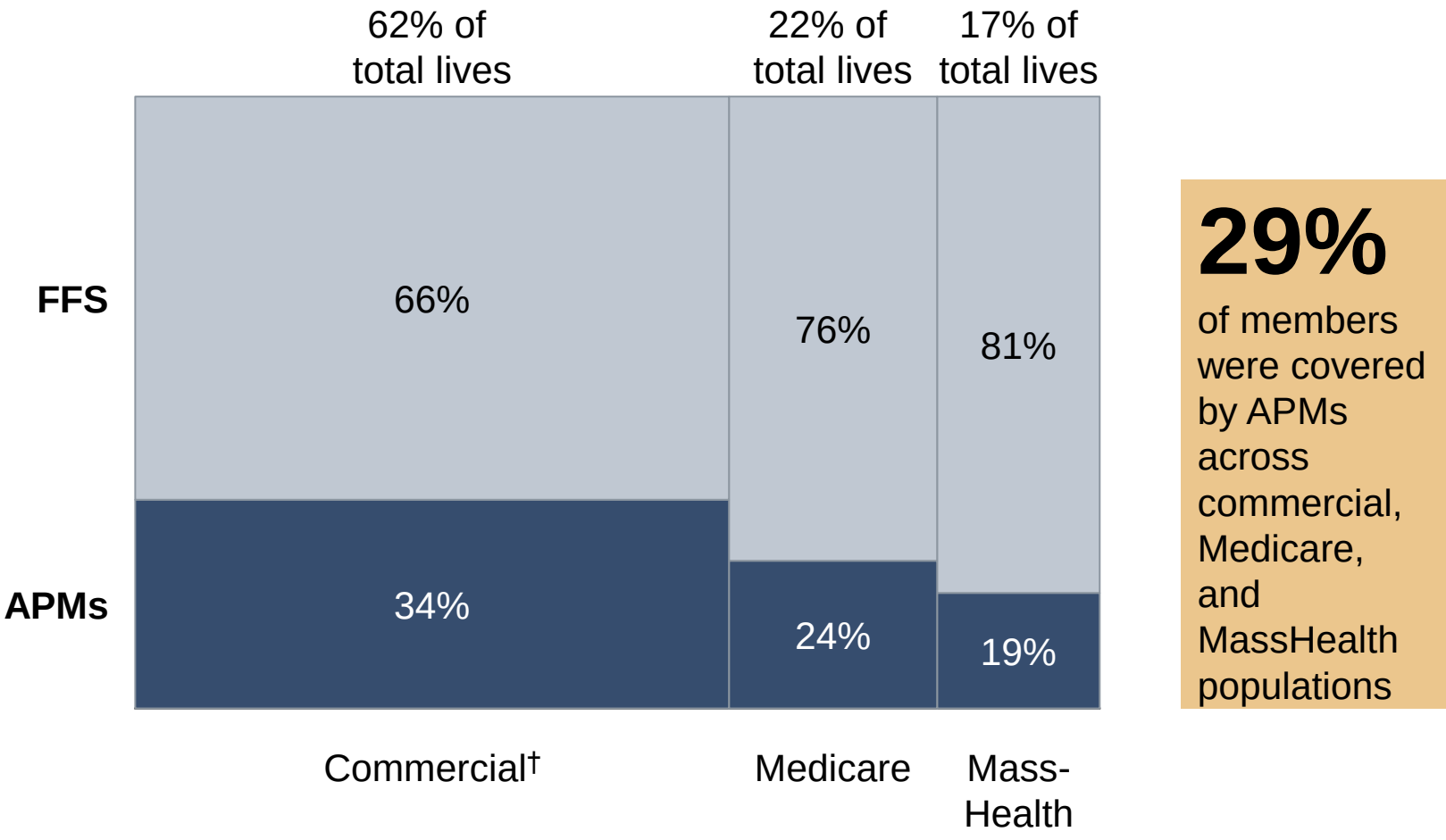
Percent of commercial inpatient discharges at 5 highest-volume hospital systems in each diagnostic area*, 2012



* Diagnostic areas shown were selected as high-volume and/or high-expenditure service lines
† Not shown because of low volume of discharges of this type
SOURCE: Massachusetts Health Data Consortium; HPC analysis

Figure B.10: APM coverage by payer type

Percent of members/beneficiaries covered by APMs*, 2012



29%

of members were covered by APMs across commercial, Medicare, and MassHealth populations

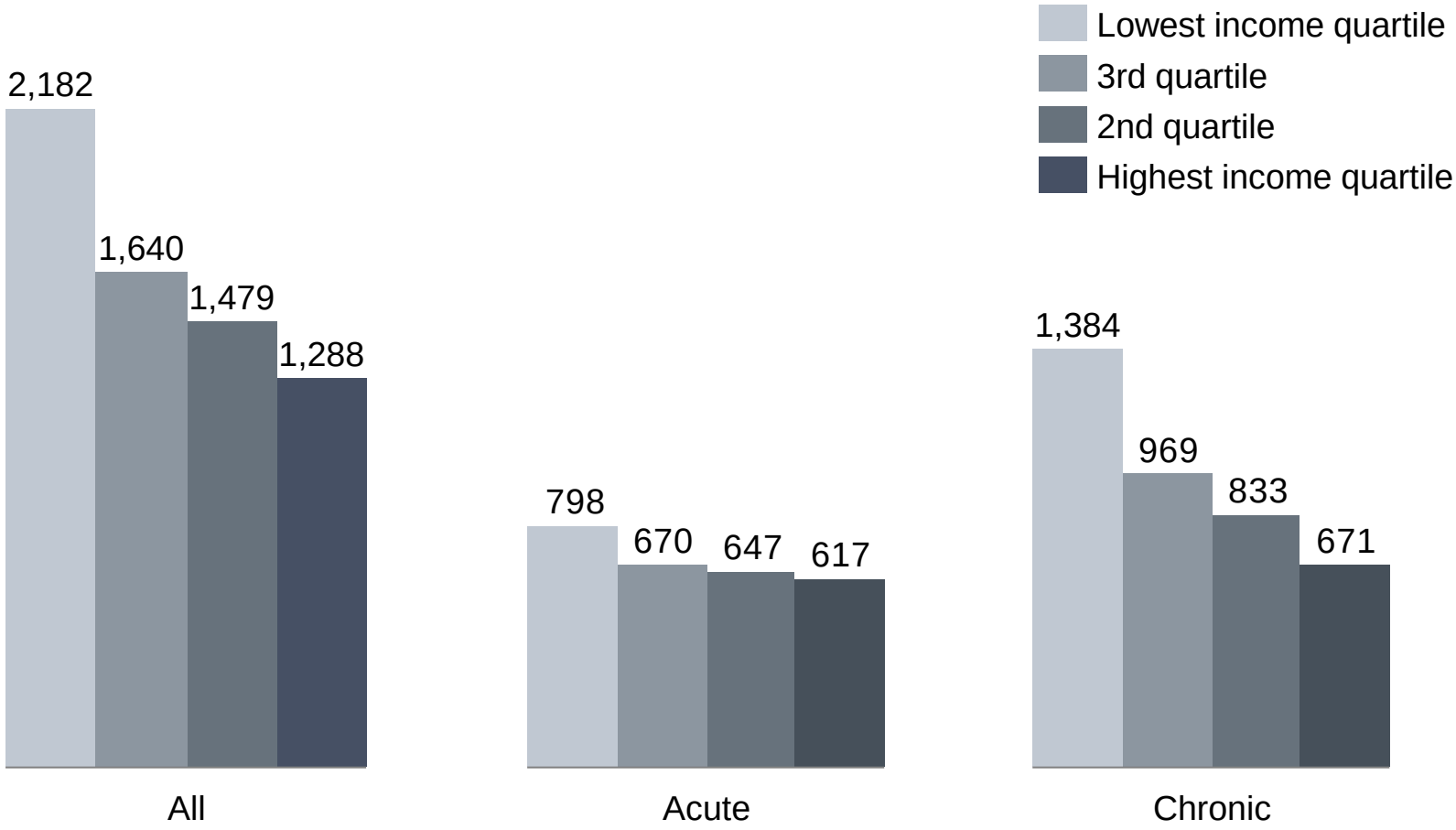
***** For the purpose of these estimates, we consider APMs based on the definition used in CHIA's 2013 report on Alternative Payment Methods in the Massachusetts Commercial Market. This definition includes global budget, limited budget, bundled payment, and other non-fee-for-service models. Pay-for-performance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

***** Includes Commonwealth Care

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

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

Preventable admissions per 100,000 residents, 2012

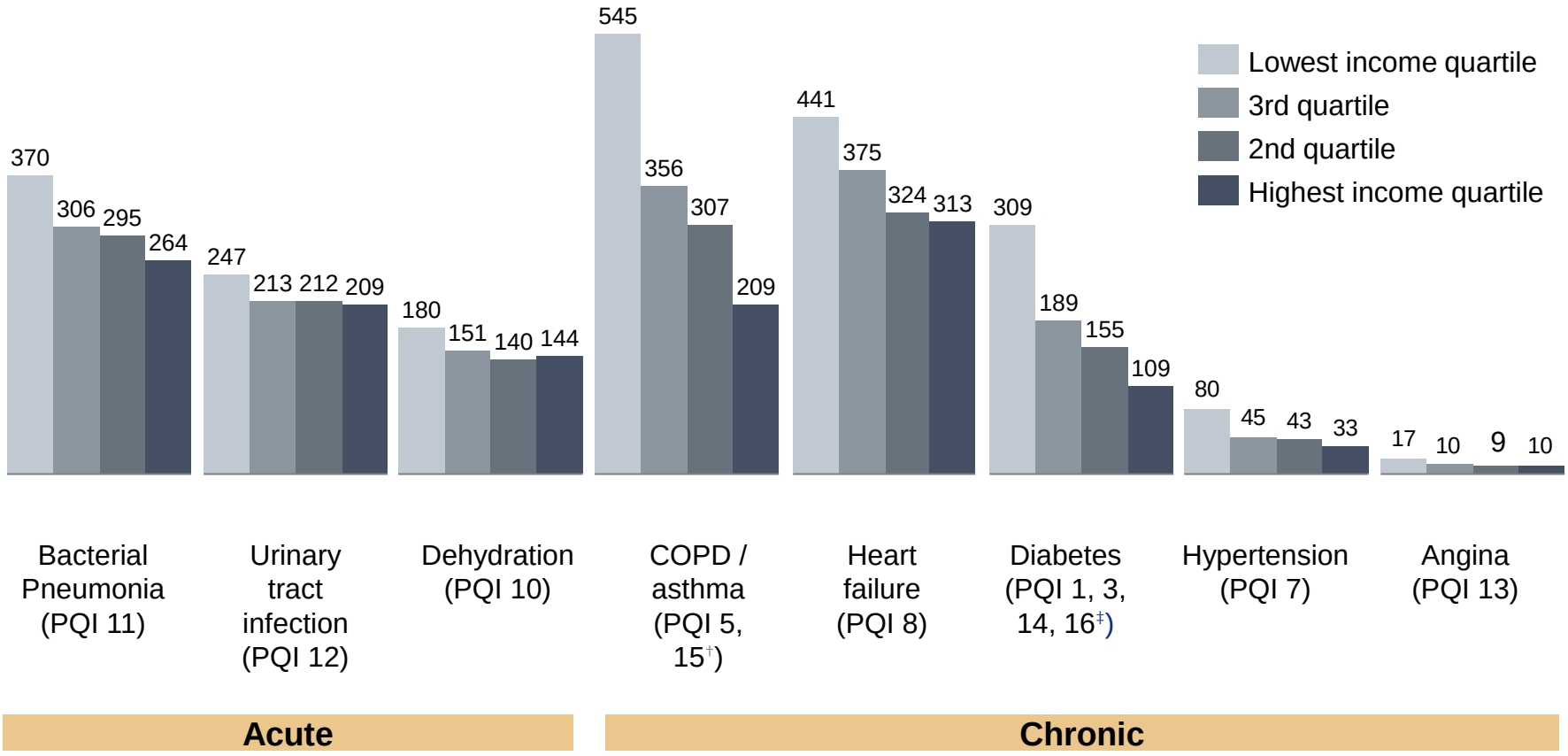


* Income was estimated using the median household income for the patient's zip code. Preventable hospitalizations were calculated using AHRQ's prevention quality indicator (PQI) measures. All figures are age- and sex-adjusted.

SOURCE: Center for Health Information and Analysis; HPC analysis

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

Preventable admissions per 100,000 residents, 2012



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

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

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

SOURCE: Center for Health Information and Analysis; HPC analysis