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HPC DATAPOINTS

Variation in Imaging Spending for Medicare Beneficiaries

INTRODUCTION

Medical imaging is a critical aspect of patient care for screening, diagnosis, and monitoring. However, experts find that imaging is prone to overuse. Spending on unnecessary imaging tests, which comprise a large share of unnecessary care identified in the Choosing Wisely initiative, can often lead to radiation risks and further excess costs due to false positives or follow-up on benign issues. Imaging use (and prices) in the U.S. far exceeds that in most other OECD countries, contributing to significantly higher health care costs in the U.S.

Imaging spending is driven by volume of services, intensity of service mix (for example, high-cost versus low-cost services), regional prices, and setting of care for services. Setting of care is increasingly a focus of attention in imaging, with imaging tests performed in hospital outpatient departments (HOPDs) costing substantially more than the same tests performed in office settings or at freestanding imaging centers. This has a large impact on spending, as many tests can be safely and effectively performed in all of these settings. DataPoints Issue 6 found wide variation in commercial radiology spending by provider organization, for example.

This 7th publication in the DataPoints series uses data on imaging use and spending for Original Medicare ("fee-for-service") beneficiaries to compare spending and use in Massachusetts to the rest of the U.S.

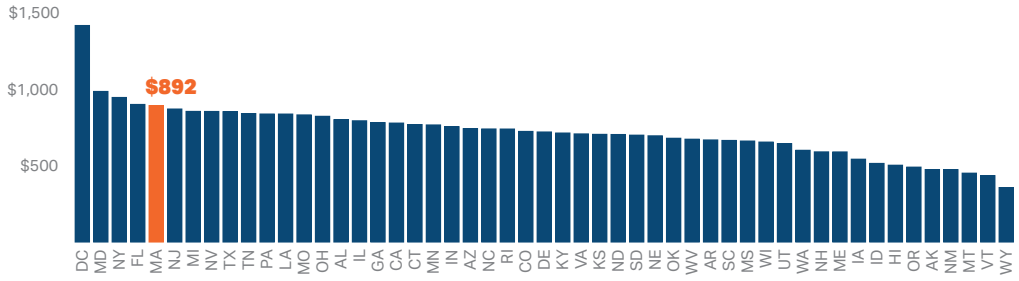
This is a printable version of DataPoints. The online version features interactive graphics that show additional information, and is available on the HPC's website at www.mass.gov/service-details/hpc-datapoints-series.

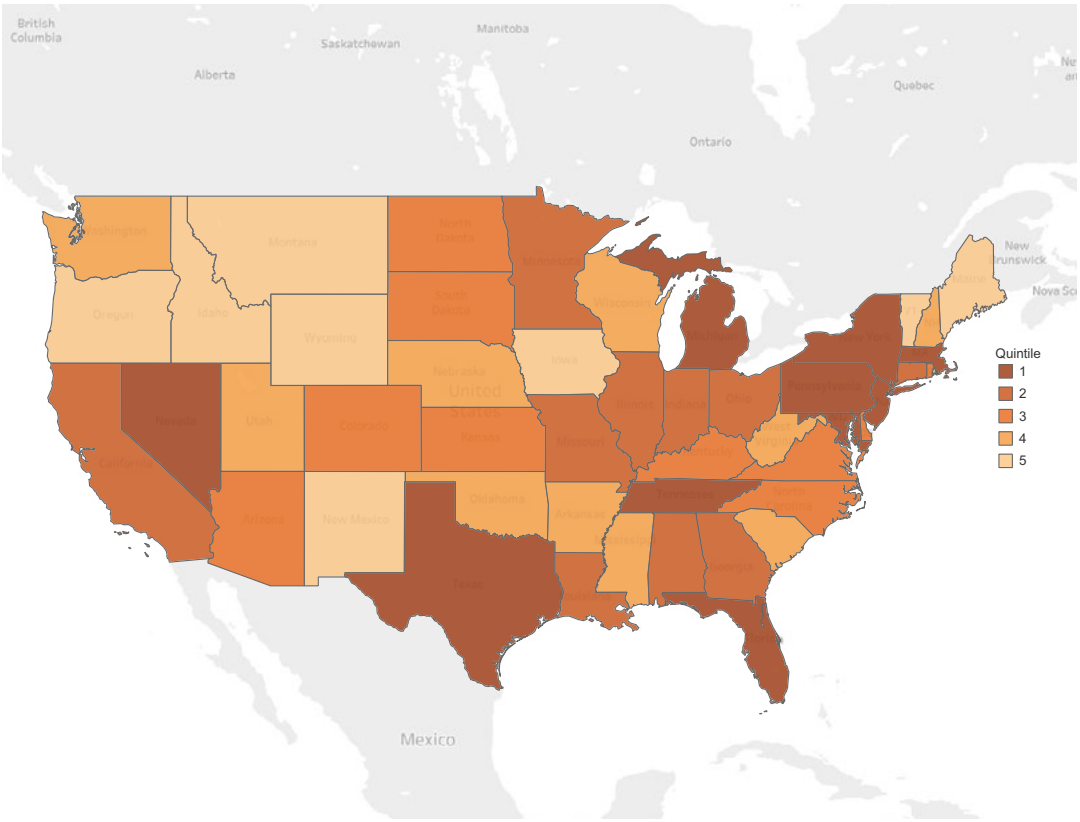
TOTAL SPENDING FOR IMAGING

Original Medicare spending for imaging amounted to **$892 per beneficiary** in Massachusetts, **14% higher** than the amount spent in the rest of the U.S. (**$782 per beneficiary**).

Overall, Original Medicare spending for imaging in Massachusetts totaled $762.1 million in 2015, or 5.6% of Original Medicare spending and 1.3% of total healthcare expenditures (THCE).[1] That spending amounted to $892 per beneficiary in Massachusetts, 14% higher than the amount spent in the rest of the U.S. ($782 per beneficiary). Massachusetts ranks 4th highest spending by state (excluding D.C.), as shown in the graph below (map on following page).

Annual imaging spending per beneficiary, by state





SPENDING FOR TOP IMAGING PROCEDURES

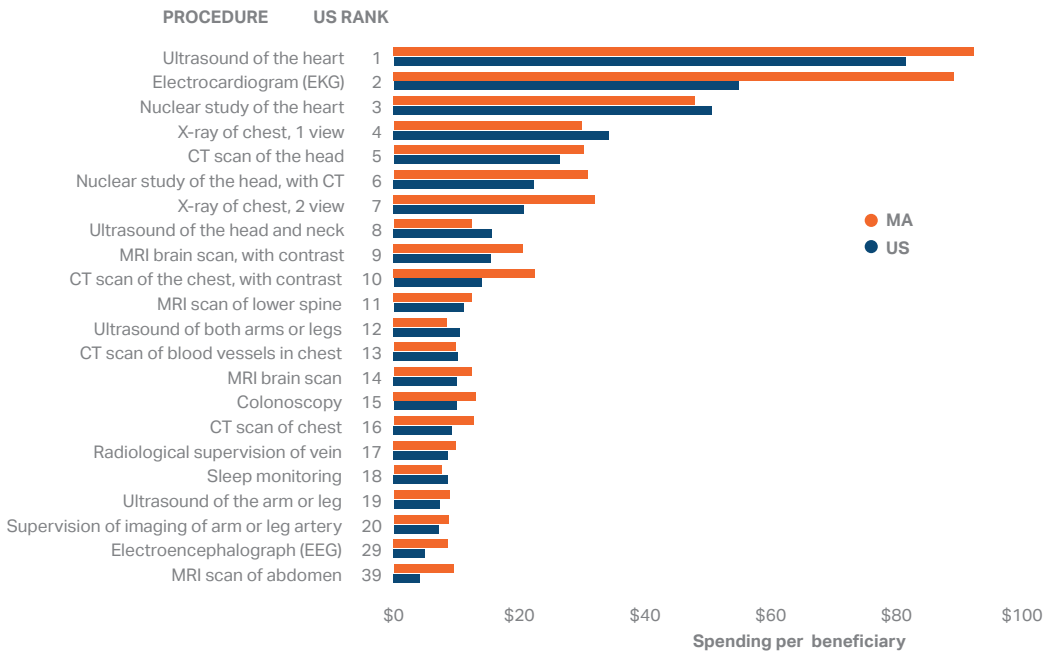
To better understand the specific services and drivers that account for this relatively high overall spending, the HPC analyzed the imaging procedures that account for the most spending per beneficiary per year (PBPY). The graph on the following page shows the 22 procedures that represent the top 20 procedures in either Massachusetts or the U.S., ranked by PBPY spending. These 22 procedures account for 59.4% of imaging spending among Original Medicare beneficiaries in Massachusetts.

Average spending was **higher in Massachusetts** for most procedures and **21% higher** in aggregate across the **22 procedures.**

The graph shows PBPY spending in Massachusetts and the U.S. for these top procedures. Average spending was higher in Massachusetts for most procedures and 21% higher in aggregate across the 22 procedures. The online version includes an interactive graph that can be refined by imaging category. For example, selecting the category of advanced imaging, which includes many high-cost procedures such as magnetic resonance imaging (MRI) and computed tomography (CT), shows that spending per beneficiary is 31% higher in Massachusetts than the U.S.

The interactive version of the graph can also show the average Medicare price of each procedure in Massachusetts and the U.S., reflecting both differences in regional prices and the differences in the setting of care for services. That is, the average price reflects the amount paid if the procedure is performed in a facility (facility payment rate) (e.g., HOPD) and the amount paid if it is performed in a physician office or freestanding imaging center (office payment rate), weighted by the percentage of procedures performed in either setting.[2] For example, the average price for one common imaging procedure (ultrasound of the heart) was $459 in Massachusetts, compared to an average U.S. price of $379, a 21% difference.

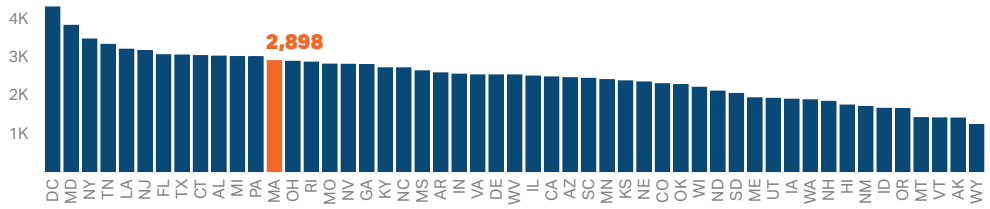
Annual spending per beneficiary by procedure, Massachusetts versus the U.S.

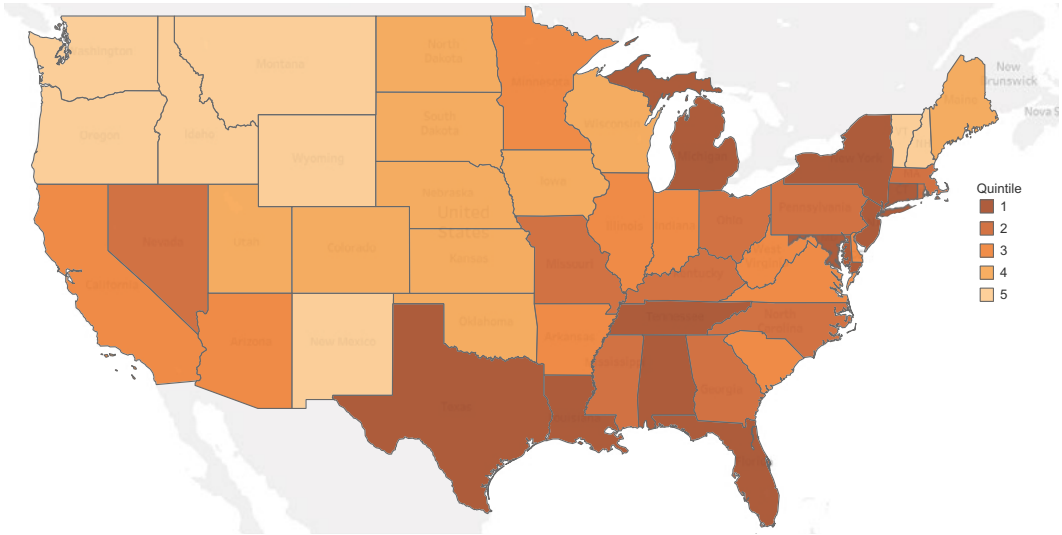


VARIATION IN IMAGING USE

Utilization of imaging services in Massachusetts is relatively high compared to other states, with Massachusetts ranking 12th highest (excluding D.C.).[3] This ranking partly reflects the particularly high use of electrocardiograms (EKG) in Massachusetts.[4] As shown in the chart on the following page comparing imaging volume by procedure between Massachusetts and the U.S., EKG use is one-third higher in Massachusetts, with more than one EKG per beneficiary per year on average (1,229 EKGs per 1,000 beneficiaries). For some of the other top procedures, average utilization is lower in Massachusetts.

Services per 1,000 beneficiaries by procedure, Massachusetts versus the U.S.





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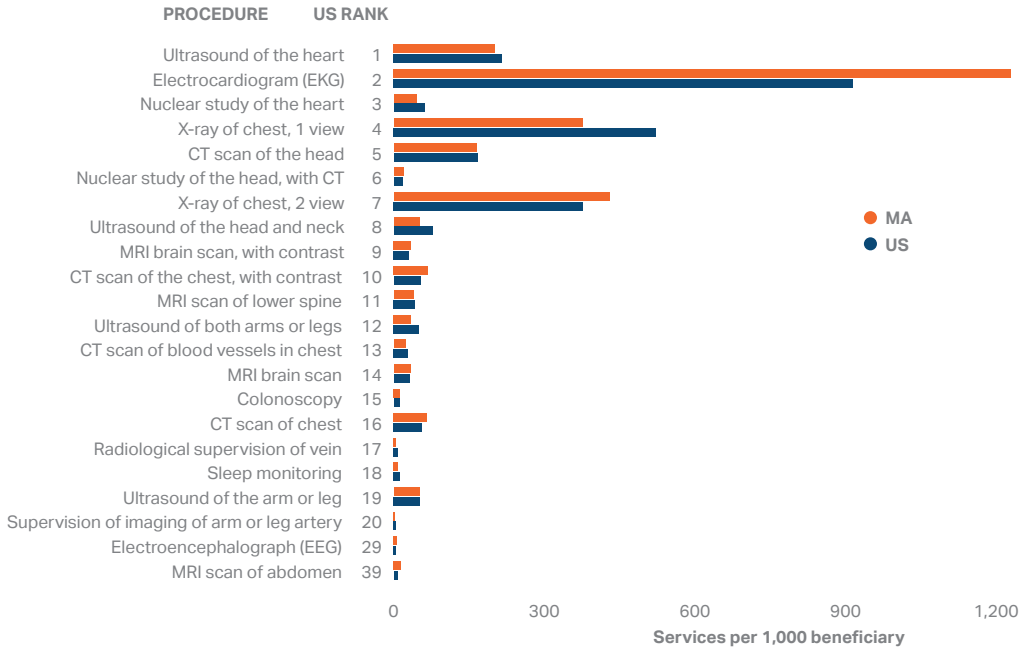
Services per 1,000 beneficiaries by procedure, Massachusetts versus the U.S.



PRICE BY GEOGRAPHY AND SITE OF SERVICE

Medicare prices in Massachusetts are higher than the U.S. average because of formula adjustments Medicare makes that reflect input costs such as wage rates. Medicare prices for imaging services range from 3% to 20% higher in Massachusetts compared to the U.S. average.

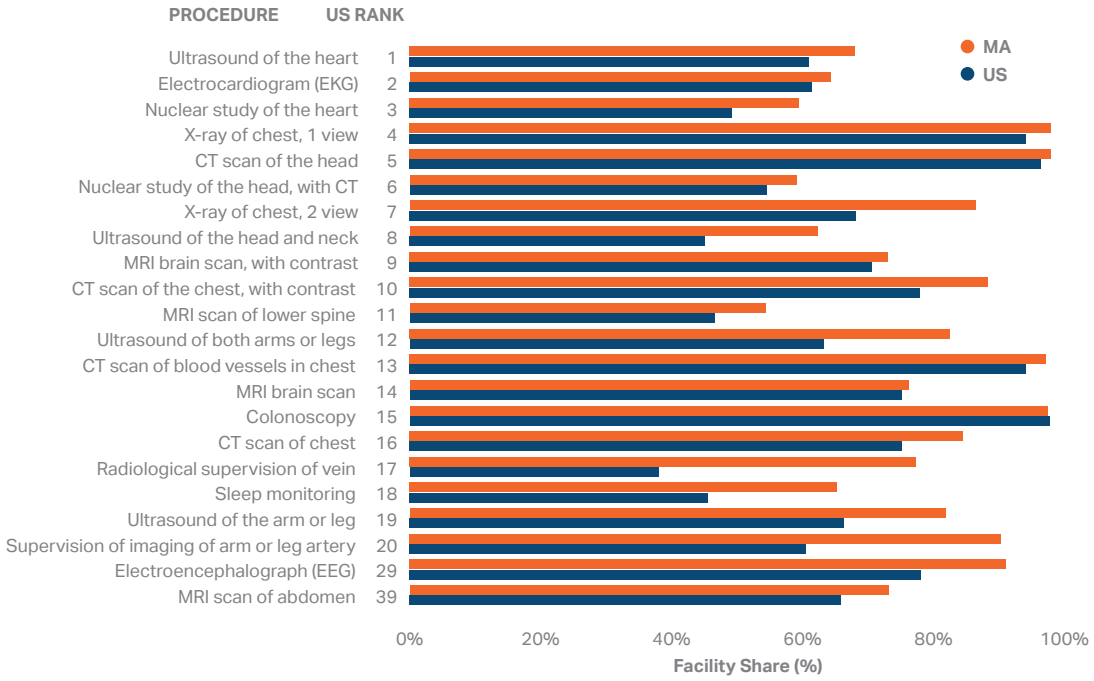
The **average price** in Massachusetts for an MRI of the brain with contrast was **more than twice** as expensive at a facility setting **($699),** compared to a non-facility setting **($337).**

However, Medicare prices vary far more substantially by site of service than by geography. As detailed in the 2017 Cost Trends Report, Medicare prices are typically more than twice as high when the service is provided in a HOPD or other facility, compared to the same service performed in a doctor's office or other non-facility setting. Compared to the U.S. average, Massachusetts residents receive a larger share of all services examined in HOPDs, resulting in higher spending for the same services.

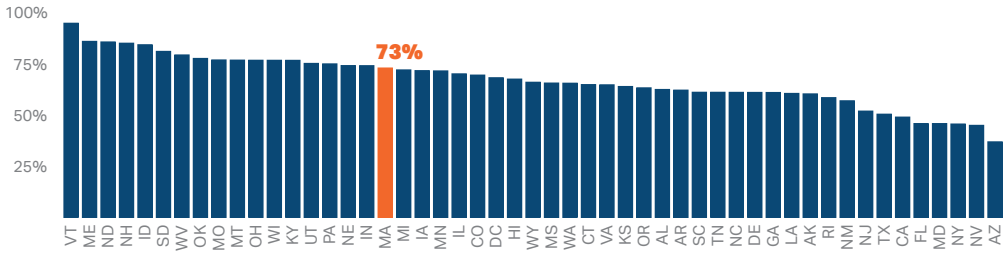
The finding holds true for imaging. The first graph on the following page shows that for nearly all the top imaging procedures, Medicare beneficiaries in Massachusetts receive a larger share of services in facilities. The bars in the interactive version can display the difference in price by setting. For example, the average price in Massachusetts for an MRI of the brain with contrast was more than twice as expensive at a facility setting ($699), compared to a non-facility setting ($337). If Massachusetts beneficiaries had received these services in non-facility settings at the same rates as the U.S., Medicare spending would have been $27 million lower (6%) for these 22 imaging procedures.

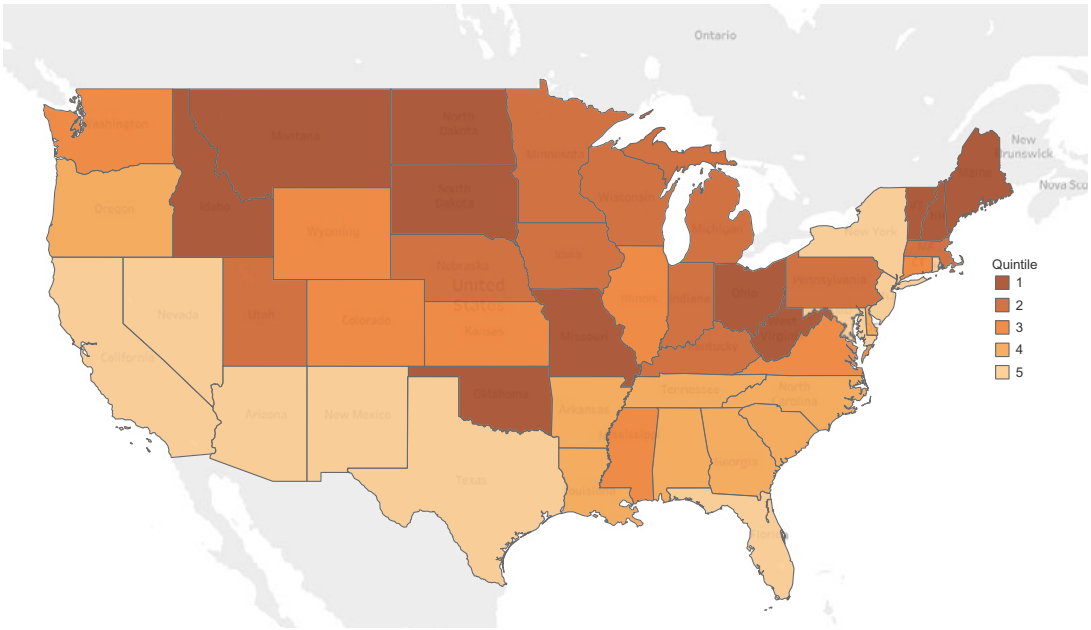
The share of procedures provided in facilities varied almost two-fold between states, with 95% in Vermont compared to 37% in Arizona.[5] Massachusetts had relatively high facility use for these imaging procedures, ranking 18th among states.

Share of services performed in facilities by procedure, Massachusetts versus the U.S.



Share of services performed in facilities for top procedures, by state





The Massachusetts Health Policy Commission (HPC) is an independent state agency that develops policy to reduce health care cost growth and improve the quality of patient care. The HPC's mission is to advance a more transparent, accountable, and equitable health care system through its independent policy leadership and innovative investment programs.

HPC DataPoints is a series of online briefs that spotlight new research and data findings relevant to the HPC's mission to drive down the cost of health care. It showcases brief overviews and interactive graphics on relevant health policy topics. The analysis underlying these briefs is conducted by HPC staff. To view all HPC DataPoints, visit our website.

Endnotes

1 Spending was categorized using Berenson-Eggers Type of Service (BETOS) codes. These codes provide groupings of HCPCS procedure into a hierarchy of meaningful clinical categories.

2 The HPC used the Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public-Use File (PUF), 2015. This dataset notes whether a service was provided in a "facility" setting or an "office" setting and the associated payment amount. A range of care settings meet the respective definitions of "facility" and "office." However, based on the context for the specific services studied, we have assumed that most instances of services provided in a "facility" setting occur in the hospital outpatient department setting. We have assumed that most instances of services provided in a "non-facility" setting occur in the office or freestanding imaging center setting. See Technical appendix B2 for the 2017 Cost Trends Report for further details.

3 The comparisons by state include only the top 20 procedures in the U.S. by PBPY spending.

4 Electrocardiograms (EKG) have different billing codes based on the site of service, with a global procedure code (93000) when the EKG is provided in a non-facility setting, and separate codes for the technical (93005) and professional (93010) components when provided in a facility setting. This analysis aggregates the different codes and the graphs list them under a single EKG procedure code of 93000.

5 The comparisons by state include only the top 20 procedures in the U.S. by PBPY spending and exclude procedures that are almost always (>90%) performed in facilities.

Sources:

HPC analysis of the Center for Medicare and Medicaid Services (CMS) Physician and Other Supplier Public Use File (PUF), 2015 and Hospital Outpatient Prospective Payment Final Rule, CY 2015.