Best Practices in Health Care Claims Data Analysis to Inform State Action and Control Costs

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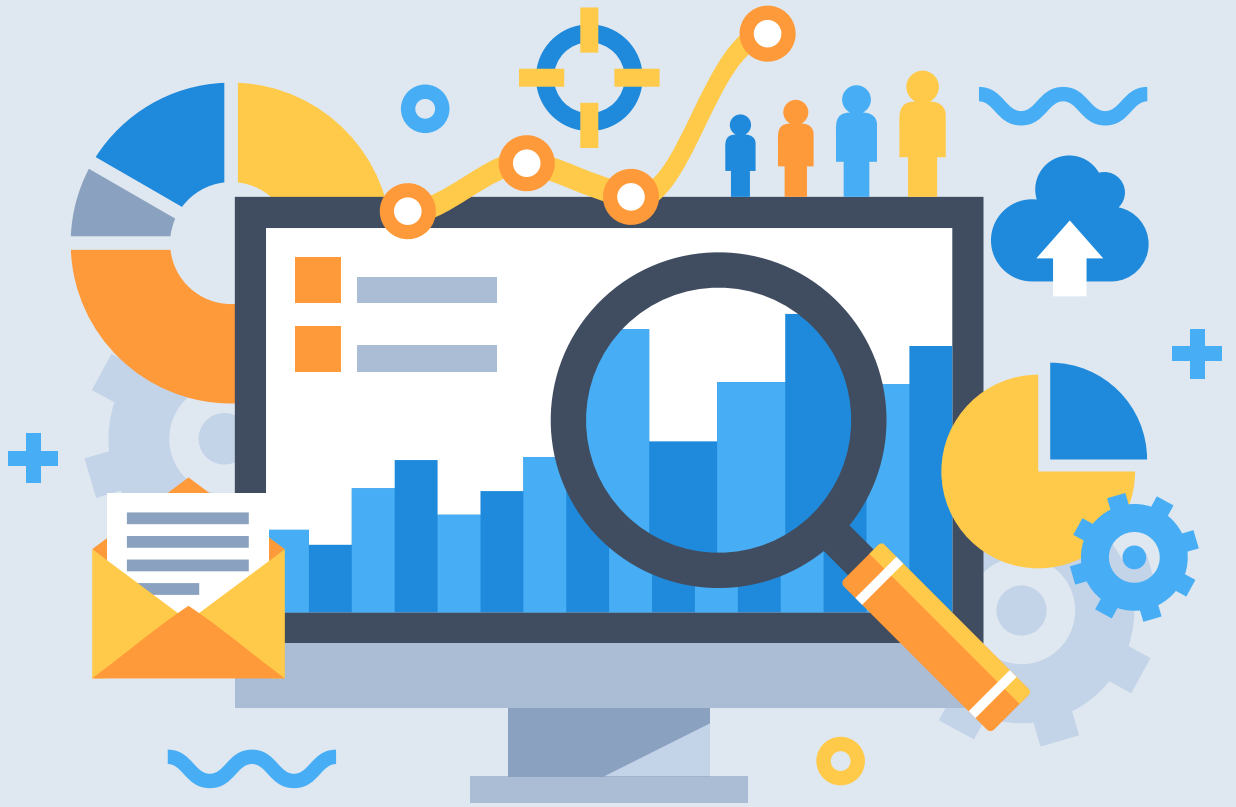

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Peterson-Milbank
Program for Sustainable
Health Care Costs

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INTRODUCTION

Over the last decade, high and rising health care costs have squeezed patients' wallets, strained local economies, and consumed a growing share of state budgets. In response, states have increasingly recognized the urgency of addressing unsustainable health care cost growth through innovative cost containment strategies. A critical first step in this effort is to understand the *cost drivers* – the root causes of health care spending growth. The most effective way to identify cost drivers is by generating actionable insights from health care spending data.

In 2021, Peterson-Milbank published a guide[1] for states on analyzing health care spending data from state All-Payer Claims Databases (APCDs). Since then, state agencies have made significant progress in building their capacity and expertise in this area. This updated resource incorporates lessons learned from that experience, offering enhanced recommendations for analyzing APCD data to produce meaningful insights that support data-driven communications and policymaking.

This document begins with an overview of best practices for conducting health care spending analyses, and then recommends specific cost driver analyses states should conduct to better understand where spending is high and growing. Where applicable, the analyses include examples – primarily from states, though some come from stakeholder coalitions – to demonstrate the types of insights these analyses can yield.

GUIDING CONSIDERATIONS FOR ALL ANALYSES

Framework

States should utilize a framework that guides the analyses they perform so they can be certain to prioritize those that produce the greatest value and insight. States should begin with three central questions:

1. Where is spending problematic?
2. What is causing the problem?
3. What does performance look like by market, payer, and provider?

Important Note: When conducting analyses using APCD data, states should note that APCD data may not include a significant percentage of self-insured market. However, research shows that APCD data still accurately represent full commercial market spending trends.[2]

Where is spending problematic?

States should ask themselves where spending is problematic, which can be defined in one or more of the four ways:

- **High spending.** When looking at service categories at a point in time, where is spending the highest? This represents the largest opportunity to rein in spending.
- **Fast-growing spending.** When examining spending by service category over time, where is spending growing the fastest? In addition to identifying categories with dramatic growth, states should assess the *relative contribution* of service categories to total spending growth. For example, a category that sees double digit spending growth may not warrant special attention if the category represents a low percentage of total spending.
- **Varied spending.** How has spending changed from year to year? Across entities? Is the variation present in a single year, or is it representative of a larger pattern? How does spending growth vary?
- **Comparison of spending with other states and national trends.** How does a state's spending compare to other states' spending, either at a point in time or in terms of change over time? States should refer to other states' APCD analyses to better understand their own health care spending trends, carefully noting differences in methodologies and definitions before making comparisons.[3] As of June 2025, states have access to a set of standardized definitions for analyses of cost growth drivers to facilitate cross-state comparisons (see sidebar for more information). Additionally, states should use the Health Care Cost Institute's annual reports to see how their breakdown of spending compares to a nationally representative sample. States can further contextualize their spending patterns with complementary data described in the Appendix.[4]

What is causing the problem?

States should identify the cost drivers, which may be one or more of the following:

- **Price,** sometimes more accurately referred to as "average unit payment" or "payment per unit", is the amount a payer reimburses a service provider for a unit of service plus any patient cost-sharing obligations such as deductibles and coinsurance, i.e., the "allowed" amount. Price can also refer to the value of non-fee-for-service payments for covered services, such as capitated payments. Price has been the primary driver of health care spending growth in the commercial market, largely due to provider consolidation and market power.[6]
    - Examining changes in average unit payment alone can be misleading if the analysis does not control for or otherwise consider changes in service mix. Service mix refers to the scope and types of services utilized for treatment. It can capture differences in the site of care (e.g., hospital outpatient department [HOPD] vs. non-hospital-based settings), billing intensity, and treatment modality (e.g., robot-assisted vs. manual surgery). It can also capture differences in provider resource application based on variation in patient need.
    - States should investigate whether the growth in unit payments for a service category could be masking a change in service mix (e.g., in one year, an office provider may provide short office visits that are lower-cost, but then the next year, the provider provides longer visits that are higher-cost). States will need to review spending at the individual procedure-code level to make this determination.
- **Volume** refers to the quantity of service units or treatment episodes. It is challenging to measure service volume when the underlying payment model is not fee-for-service.

Peterson-Milbank Standardized Definitions

Bailit Health, with support from the Peterson-Milbank Program for Sustainable Health Care Costs and the participation of states, analytic vendors, and the National Association of Health Data Organizations, developed standardized definitions for health care service categories to be used in cost driver analyses.[5] These definitions include supporting code lists and step-by-step instructions for calculating spending on each category, enabling states to produce comparable analyses.

What does performance look like at different levels of accountability?

States should analyze data at four levels: state, market, payer, and provider entity (see Table 1).

Table 1. Analyzing Performance Accountability at Four Levels

Level of Analysis	Categories	Potential Subcategories
State	N/A	Region, county, metropolitan area
Market	Commercial Medicaid Medicare	Commercial fully insured, commercial self-insured, marketplace, Medicaid managed care, Medicaid fee-for-service, Medicare Advantage, traditional Medicare
Payer	Individual payer by market	Commercial payer product (e.g., HMO, PPO, exclusive provider organization [EPO], state employee health plan [SEHP])
Provider entity	Provider organization with primary care providers to whom members are attributed	Practice/practice site, facility, health system, clinician and facility specialty type

As states use the above framework to approach their APCD data to glean insights, states should concurrently determine the ideal format of the APCD data to support their analytical needs.

Data Format to Support Internal State Analysis and External Reporting

The best format for receiving APCD data will differ for each state and depends on analytic goals, state capacity, and goals for sharing information externally. Options range from data extracts for ad hoc analysis, to static reports summarizing key trends, to interactive dashboards that allow users to explore spending and utilization patterns on their own. Each format serves different purposes and has different resource demands of the state. Selecting the best format – or combination of formats – can ensure the data are both usable and impactful.

APCD Data Extract

A data extract (or "data pull") from the APCD is a static file (likely in Microsoft Excel) that contains the aggregated data for a set of parameters identified by the user (see Figure 1 as an example). Depending on the state's request, their analytic contractor or APCD vendor will provide data without disclosing individual claims. Using an extract of APCD data can be useful for the following reasons:

- **States can retrieve the data easily from their APCD vendors.** The most time-intensive portion of the data extract format is when states scope their request for the APCD vendor to pull the appropriate data and to clean the dataset. Retrieving the information in an extract is relatively simple.
- **States have flexibility in their request for these data.** The state could look at the most general categories, such as the broad service categories: inpatient hospital, outpatient hospital, and professional, or include the underlying detailed subcategories, such as outpatient surgery under outpatient facility.

- **States can easily refer to the output file for analysis.** Analysts need not be concerned about selecting the correct filters or parameters, as is the case with "live" reports. For example, if the analyst knew how much was spent on GLP-1s in prior years, they could remove that sum from the total spending for retail pharmacy to see how much spending would have grown without these medications.

Figure 1. Example of Output from APCD Data Extract (Not Specific to Any State)

Aggregate Spending by Service Category (in billions)

	2019	2020	2021	2022	2023
Inpatient	$305	$295	$315	$335	$345
Outpatient	$265	$270	$285	$300	$310
Professional	$420	$410	$435	$450	$470
Other	$75	$70	$80	$95	$90
Retail Pharmacy	$135	$140	$150	$160	$170
Total	$1,200	$1,185	$1,265	$1,340	$1,385

Aggregate Spending by Outpatient Hospital Service Category (in billions)

	2019	2020	2021	2022	2023
Outpatient Surgery	$83	$84	$89	$94	$97
Administered Drugs	$45	$45	$48	$50	$52
Administration of Drugs	$10	$10	$11	$11	$12
Imaging and Radiology	$36	$37	$39	$41	$43
Emergency Department	$33	$34	$36	$38	$39
Observation Stays	$11	$11	$11	$12	$12
Lab/Pathology	$28	$29	$30	$32	$33
Miscellaneous	$19	$19	$20	$21	$22

Parameters: Commercial Market only; 2019-2023; all age groups; all genders; Outpatient Facility services: Facility spending

However, relying on data extracts is challenging for a few reasons:

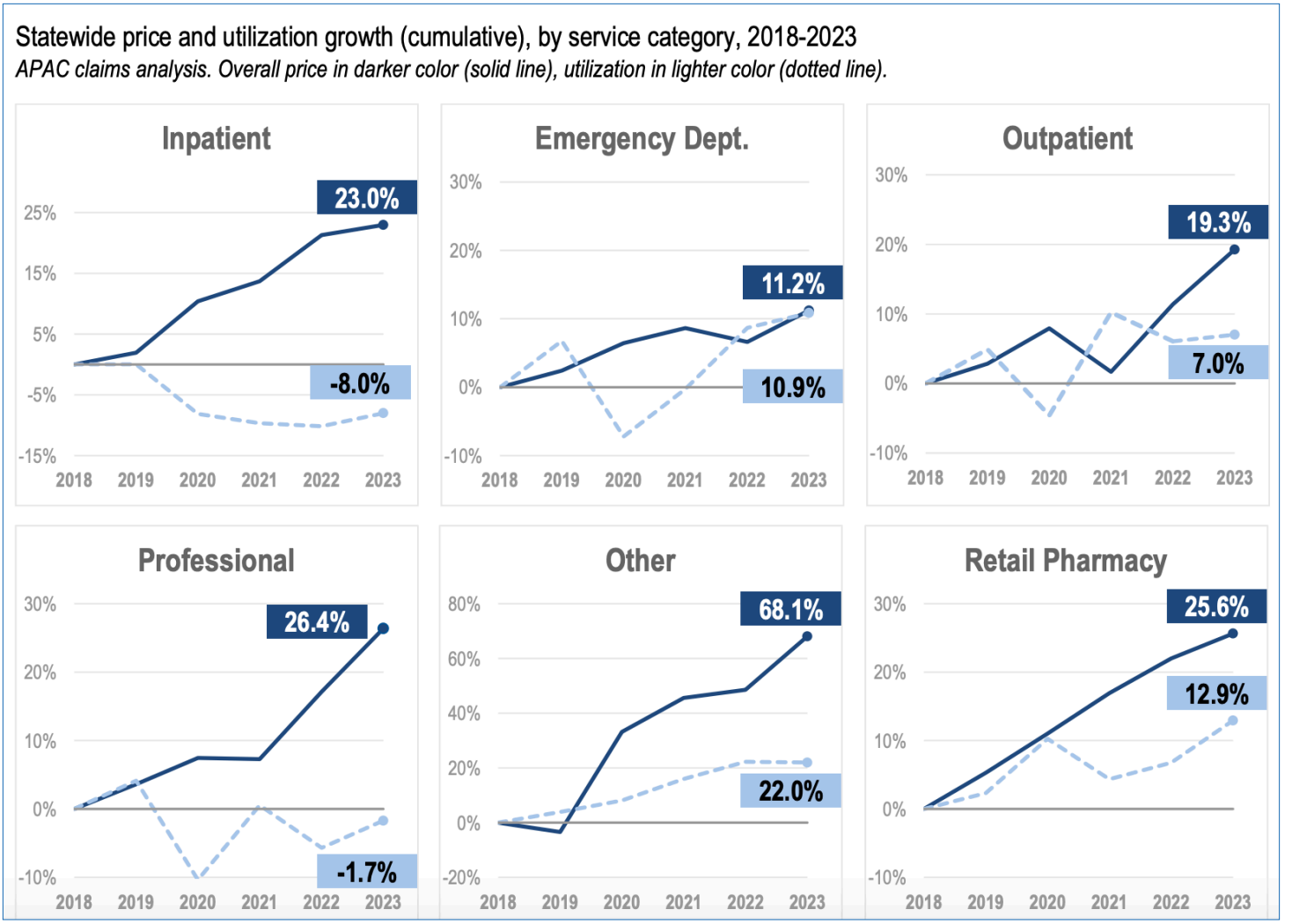
- **It requires that state staff have the skills to credibly examine the data.** Staff who receive the data extract should have prior experience manipulating data on health care spending trends, and have been privy to practices in other states. This background enables them to spot aberrant patterns, contextualize results, and draw meaningful insights that can inform policy decisions.
- **State staff need significant time to review and scrutinize the data.** Not only do staff need to have the appropriate skill set to examine the data, but they also need to allot significant resources to review and dissect the data. This includes dedicating time for quality checks and interpreting the data within the larger state context. Without these necessary steps, states run the risk of drawing incorrect conclusions.

- **The outputs are not as user-friendly as static reports or a dashboard.** Even though users can add filters to the data extracts, a static extract cannot perform the same dynamic functions that an interactive dashboard can. Additionally, these static data extracts can be difficult to maneuver, especially with larger datasets.

Static Reports

Static reports refer to data that has been processed, summarized, and fixed at a point in time. The main benefit of using static reports is the **ability to display curated, priority analyses, at a low cost.** States can create narrative reports, tables, or charts to draw attention to a set of specific analyses that they want readers to focus on. This option is significantly cheaper than creating an interactive tool. For example, states may create curated analyses that focus on changes in unit payments and utilization for each service category (see Figure 2).

Figure 2. State Example of Static Report: Oregon Health Authority's Annual Cost Growth Target Report



Source: Oregon Health Authority. 2025 Sustainable Health Care Cost Growth Target Annual Report. https://www.oregon.gov/oha/HPA/HP/Cost%20Growth%20Target%20documents/Oregon-Health-Care-Cost-Trends-Report-2022-2023.pdf. Accessed October 9, 2025.

However, there are also challenges with utilizing static reports, too:

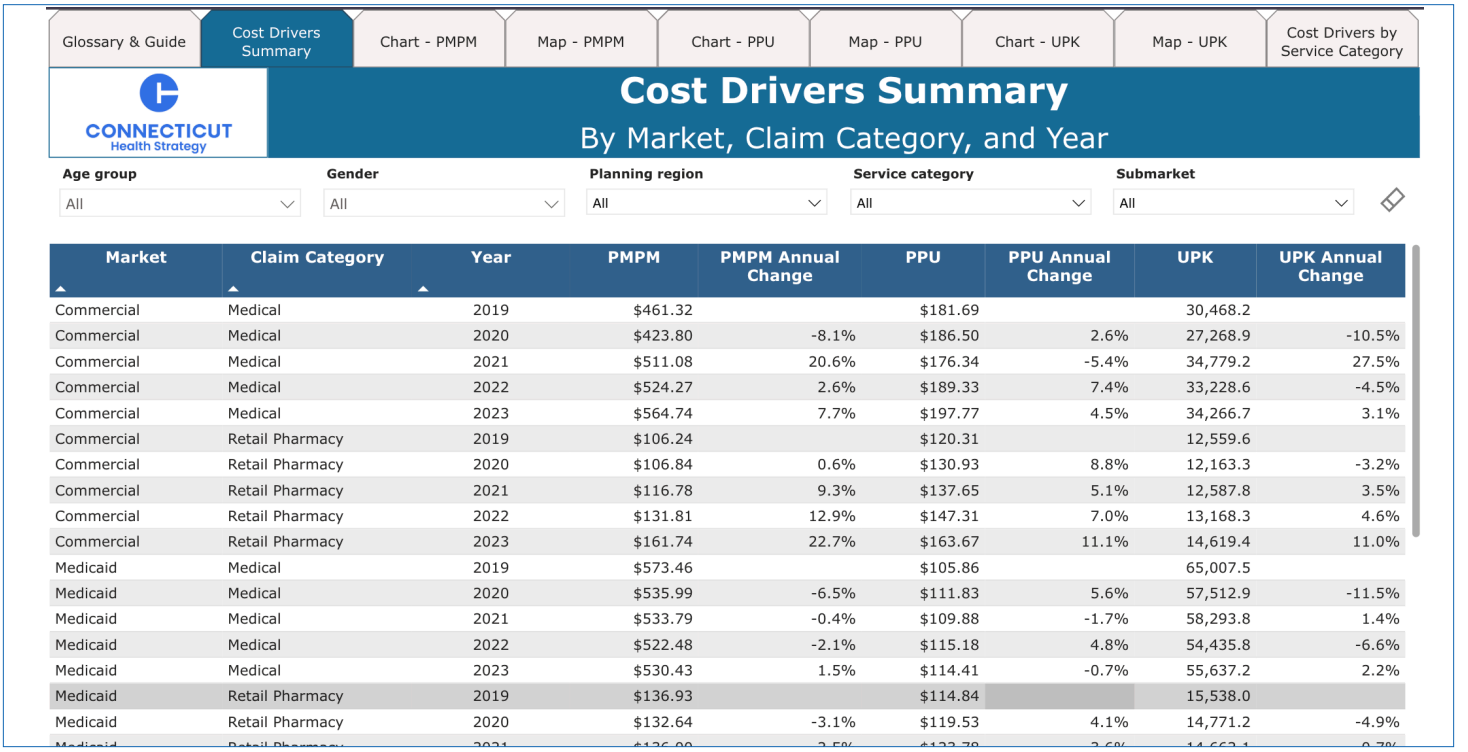
- **High potential for information overload.** States may be tempted to include all analyses possible using a single data set in a formatted written report. States must balance the need for detail and readability; states should also be wary of being too brief and excluding important caveats or notes for the data.
- **No interactivity.** Readers cannot dig more deeply into the data in a self-contained report, and do not have the ability to conduct exploratory analyses.

Interactive Dashboards

Interactive dashboards are dynamic analytic tools that allow users to create their own desired "cuts" of the data using filters and drilldowns. Figure 3 below is an example from Connecticut of such a tool. Dashboards are useful because they:

- **Facilitate exploratory analysis.** Interactive dashboards provide an accessible starting point for non-technical users to discover patterns and trends for themselves.
- **Support transparency and engagement.** Interactive dashboards can support public transparency should the state wish to make health care spending and utilization data accessible to the public.
- **Can handle large amounts of data.** Typically, these tools are supported by software like Tableau and Microsoft PowerBI, which can handle and organize much more data than an Excel file.
- **Can be easily updated with new data as they become available.** The underlying data sources are often linked directly, allowing for automatic refreshes. This reduces the burden on staff by eliminating the need for manual intervention.

Figure 3. Connecticut Office of Health Strategy's Healthcare Cost Drivers Dashboard



Market	Claim Category	Year	PMPM	PMPM Annual Change	PPU	PPU Annual Change	UPK	UPK Annual Change
Commercial	Medical	2019	$461.32		$181.69		30,468.2	
Commercial	Medical	2020	$423.80	-8.1%	$186.50	2.6%	27,268.9	-10.5%
Commercial	Medical	2021	$511.08	20.6%	$176.34	-5.4%	34,779.2	27.5%
Commercial	Medical	2022	$524.27	2.6%	$189.33	7.4%	33,228.6	-4.5%
Commercial	Medical	2023	$564.74	7.7%	$197.77	4.5%	34,266.7	3.1%
Commercial	Retail Pharmacy	2019	$106.24		$120.31		12,559.6	
Commercial	Retail Pharmacy	2020	$106.84	0.6%	$130.93	8.8%	12,163.3	-3.2%
Commercial	Retail Pharmacy	2021	$116.78	9.3%	$137.65	5.1%	12,587.8	3.5%
Commercial	Retail Pharmacy	2022	$131.81	12.9%	$147.31	7.0%	13,168.3	4.6%
Commercial	Retail Pharmacy	2023	$161.74	22.7%	$163.67	11.1%	14,619.4	11.0%
Medicaid	Medical	2019	$573.46		$105.86		65,007.5	
Medicaid	Medical	2020	$535.99	-6.5%	$111.83	5.6%	57,512.9	-11.5%
Medicaid	Medical	2021	$533.79	-0.4%	$109.88	-1.7%	58,293.8	1.4%
Medicaid	Medical	2022	$522.48	-2.1%	$115.18	4.8%	54,435.8	-6.6%
Medicaid	Medical	2023	$530.43	1.5%	$114.41	-0.7%	55,637.2	2.2%
Medicaid	Retail Pharmacy	2019	$136.93		$114.84		15,538.0	
Medicaid	Retail Pharmacy	2020	$132.64	-3.1%	$119.53	4.1%	14,771.2	-4.9%

Source: Connecticut Office of Health Strategy. CT Healthcare Cost Drivers Dashboard. https://app.powerbigov.us/view?r=eyJrIjoiNDhlNzYzMjUtNzE2OS00NGE0LWJhYmYtOTMyZGJkY2ZkMzkxIiwidCI6IjExOGI3Y2ZhLWEzZGQtNDhiO-S1iMDI2LTMxZmY2OWJiNzM4YiJ9. Accessed October 9, 2025.

As with data extracts and static reports, there are some challenges with interactive dashboards too. They are:

- **Very resource-intensive to develop.** As with data extracts, they require diligent scoping and specific parameters around what should be displayed. To support both high-level overview and drill-down analyses in the same dashboard, analysts may spend a lot of time checking that the drill-down analyses "roll up" to the overview values; otherwise, any inconsistencies can erode trust in those using the tools. This results in time-intensive quality checks.
- **Prone to information overload.** While it is beneficial for users to explore data freely, some dashboards with massive amounts of data can be overwhelming or hard to examine because of a lack of direction. Having more filters in a single dashboard, while useful, demands more sophistication and time of the user.

All data formats have a place in a state's analytic toolkit and can be used in conjunction with one another. Ultimately, selection of the data format will depend on the intended purpose of the analysis, state resources, and staff expertise and capacity. Data extracts may be the best path for topic areas where state staff know they will want to conduct ad hoc analyses as they explore a question. Static reports and dashboards may be better tools when the state has determined a priori a well-defined set of analytic outputs. Some states may be able to pursue all three approaches simultaneously, while others may start with static reports and eventually build up their analytic capacity and expertise to create interactive dashboards. States should consider these decisions in the context of their unique needs and resources, and with input from key stakeholders who are intended users or audiences.

RECOMMENDED ANALYSES

State staff should establish a routine of conducting analyses that are foundational for monitoring and understanding the state of health care spending in their state. States should plan to conduct these analyses annually, including after annual updates to APCD data, so that they have the most up-to-date information to inform their understanding. They can do so with two sets of complementary analyses: routine, standardized analyses, and deep-dive analyses into drivers of high spending that are identified from the routine analyses.

Starting with the Basics: Standard Analyses

States should calculate the following set of standard metrics for each topic area they are interested in exploring:

- Per person spending (often represented as per member per month, or PMPM): calculated as total spending divided by total members
- Average unit payment (price or average unit payment or payment per unit (PPU)): calculated as total spending divided by total units
- Utilization: usually measured in units per 1,000 members (UPK)

We offer six basic analyses that states should conduct below.

Spending by Market (Overview)

States should begin their assessment of health care spending by calculating expenditures by insurance market – commercial, Medicaid, and Medicare – both in aggregate and on a per person basis. It is crucial to analyze spending by market, as each has unique characteristics, including differing payment policies, covered populations, and scope of coverage. Additionally, states have different policy levers for each of the markets – for instance, they have more opportunity to influence costs in the commercial market than for Medicare.

While it is possible to also calculate average unit payment and utilization at this broad level, such analysis may have limited value due to the heterogeneity of the services included. To better understand the impact of changes in price and utilization, states should begin by examining spending by service category.

Spending by Service Category

States should calculate spending by service category within each market, followed by the average unit payment and utilization. Analyzing spending by service category is critical, as different types of services require tailored cost containment interventions. For example, an intervention that reins in hospital-level spending would not work the same to rein in retail prescription drug spending.

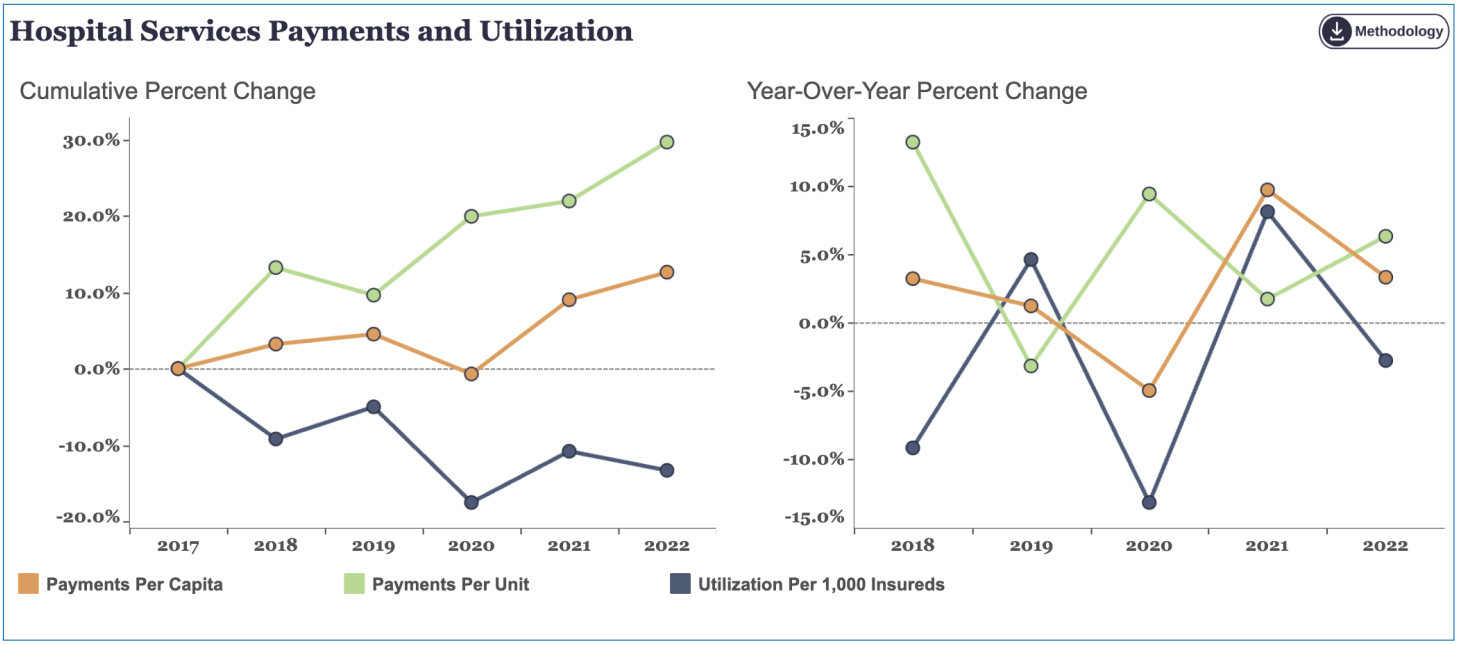
States analyzing spending by service category should consider the following:

1. Identify the service category that had the biggest change in spending that may have given rise to what happened at the overall level. For example, if spending at the overall market level grew at 8 percent, and this analysis revealed that inpatient hospital was the only service category for which per person spending grew by more than 10%, that indicates that a state should investigate inpatient hospital services further.
2. Calculate the cumulative change in per person spending, average unit payment, and utilization over a multi-year period, in addition to year-over-year changes. Cumulative change shows the total difference in a metric from a starting point, which gives a clearer picture of long-term patterns. It also provides more color to what could otherwise be a picture that is skewed by short-term volatility or aberrant trends.

STATE SPOTLIGHT: Maine's hospital services dashboard shows both cumulative change and annual percentage change in per person spending, average unit payment and use (see Figure 4). This tool allows users to examine how payments, utilization, and cost sharing payments vary based on type of insurance coverage and by service category.

During 2024 and 2025, the Peterson-Milbank Work Group on Standardized Definitions for Cost Driver Analyses established a set of standard service categories (inpatient hospital, outpatient hospital, professional, long-term care, retail pharmacy, medical pharmacy, and other) and accompanying definitions. States should adhere to these definitions[7] for their analyses for the added benefit of comparing their results with other states that have operationalized the same definitions.

Figure 4. State Example of Spending, Unit Payments, and Utilization by Service Category: Maine Office of Affordable Health Care's Hospital Services Dashboard



Source: Maine Office of Affordable Health Care. Hospital Servies Payment and Utilization Dashboards. https://www.maine.gov/oahc/hospital-payments-utilization-dashboards. Accessed October 9, 2025.

3. For retail pharmacy and analyses of hospital services, states should examine the average annual change in per person spending, average unit payment, and utilization with and without COVID-19 vaccines for analyses of 2021 and 2022 data.

Spending by Payer and Provider

Payer and provider-level data can point to the entities that are contributing most to spending and spending growth for specific services and reveal how dramatically spending varies from entity to entity. From there, states can conduct more granular analyses to understand the factors driving this variation in payer- and provider-level spending.

Spending by Demographic Variables

States should determine a set of demographic variables with which they want to analyze average unit payment and utilization. These data can help states identify inequities in health care access and monitor progress toward more equitable health outcomes. Age and gender are common variables by which data are stratified, but states with more demographic data available may include other kinds of stratification, such as income or disability status.

Spending by Geography

An analysis of spending by geography requires breaking up the state into meaningful geographic regions, such as by county, hospital service area, or other relevant divisions. Definition of the geographic units should be informed by the size of the state, concentration of populations within the state, and pre-existing knowledge about variation in spending patterns across the state. Examining spending data by geographic area can highlight differences in availability of services, provide insight into where residents most commonly seek care, and can help states focus resources on areas that may be underserved.

Deeper Dive: Priority Analyses

Based on each state's unique landscape, they may wish to explore specific APCD analyses to illuminate new, or buttress existing, policy priorities. States have recently focused on hospital and pharmaceutical spending, which represent major cost drivers of unsustainable health care spending growth nationally. Analyses of primary care and behavioral health are also priorities given state interest in investing more heavily in these services. The deeper dive analyses that each state undertakes should be informed by priorities gleaned from the standard analyses described above.

Hospital

Nationally, hospital services account for almost half of all commercial health care spending, according to a 2022 Health Care Cost Institute report.[8] For most of the past decade, increases in average unit payment for hospital services have largely driven spending growth. States are increasingly interested in spending containment strategies that are specific to hospitals, such as reference-based pricing and site-neutral payments. The following analyses, organized into three subcategories ("starter pack" analyses, price variation analyses, and service intensity analyses), can help states identify hospital-specific cost drivers and opportunities to contain hospital spending.

"Starter pack" analyses

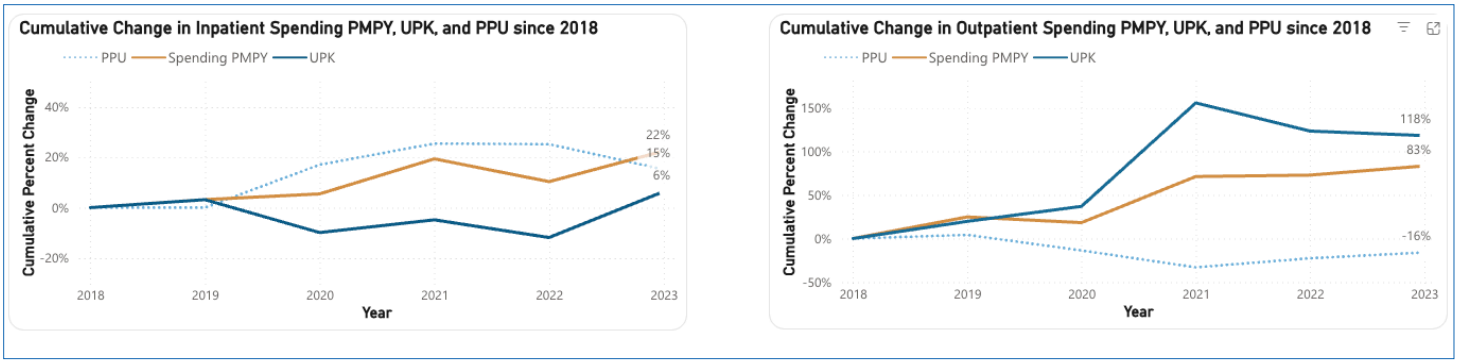
The "starter pack" analyses refer to analyses that examine unit payment and utilization of hospital services on three levels, from the most aggregated (inpatient and outpatient) to the most granular (individual services). We describe these analyses below. They offer a starting point for states to determine whether deeper dive analyses into hospital prices and price variation are warranted.

- **Inpatient and outpatient:** States should start by comparing growth in unit payments and utilization for hospital outpatient and hospital inpatient categories if they have not already done so as recommended in Standard Analyses section.
  Note: One "unit" of an outpatient service can refer to either a single episode of care or a single service. Calculations of unit payment and utilization differ greatly depending on how units are defined. For this reason, it is critical for states to define their unit of analysis clearly.

  To do this, states should use APCD data to calculate annual per capita commercial market spending growth for inpatient and outpatient services and then calculate average and cumulative annual changes in inpatient and outpatient unit payments and utilization over the same time period to determine the relative impact of each on spending growth.

STATE SPOTLIGHT: The Connecticut Office of Health Strategy offers a helpful hospital-specific dashboard with graphs that display cumulative growth in unit payment and utilization between 2018 (see Figure 5). This type of analysis can empower policymakers to point to hospital unit payments as the leading driver of spending growth for inpatient services and utilization as the driver for outpatient spending.

Figure 5. State Example of Comparing Inpatient and Outpatient Price per Unit and Utilization per 1,000 Members Connecticut Office of Health Strategy



Source: Connecticut Office of Health Strategy. CT Hospital Dashboard. https://app.powerbigov.us/view?r=eyJrIjoiZW0yOWM2ODUtYjBlNS00ODUyLWFmMDYtNDRlYzQxZTRiMmUxIiwidCI6IjExOGI3Y2ZhLWEzZGQtNDhiOS1iMDI2LTMxZmY2OWJiNzM4YiJ9 Accessed October 9, 2025.

To further drill down on hospital cost drivers, states may consider analyzing hospital-specific service categories and individual hospital services.

- **Hospital-specific service categories:** Some service categories such as radiology, outpatient surgery, and lab/pathology might see volatile unit payment or utilization growth over time at a specific hospital. Analysis of service categories helps states understand spending patterns within broad outpatient or inpatient service categories for that entity. States may consult the Peterson-Milbank Consensus Specifications for service category drilldowns for outpatient hospital services. Units for inpatient services are typically defined at the Diagnostic-Related Group (DRG) level, which is established by CMS as part of the Hospital Inpatient Prospective Payment System.
- **Individual hospital services:** States may wish to track particularly expensive or highly utilized individual services over time (e.g., joint replacement) and understand how unit payments and utilization vary across hospitals for these services.

STATE SPOTLIGHT: The Connecticut Office of Health Strategy's hospital-specific dashboard offers users the ability to pick from a drop-down menu of 16 services that account for either the greatest spending or utilization in Connecticut during the most recent year and compare the cumulative change in spending, unit payment and utilization of these services (see Figure 6).[9] According to this dashboard, an emergency department visit (low medical decision-making) saw a 74.5% increase in average unit payment and a 7.8% increase in use between 2018 and 2023; this growth in price was greater than all other 16 highest spend or highest utilization services in 2023, representing an opportunity to slow price growth.

Figure 6. State Example of Analysis Examine Spending, Price and Utilization of a Single Hospital Service: Connecticut Office of Health Strategy

Service Category	Service Trend	Service	Hospital
Outpatient	Most Spending	99283: EMERGENCY DEPT VISIT LOW MDM	All Hospitals

Annual and Cumulative Change in PMPY, PPU, and UPK for EMERGENCY DEPT VISIT LOW MDM since 2017

Service and Year	Spending PMPY ($)	Cumulative Change in PMPY(%)	Annual Change in PMPY(%)	UPK	Cumulative Change in UPK(%)	Annual Change in UPK(%)	PPU ($)	Cumulative Change in PPU(%)	Annual Change in PPU(%)
2018	$41.45	0.0%		59.79	0.0%		$693	0.0%	
2019	$42.74	3.1%	3.1%	53.36	-10.8%	-10.8%	$801	15.5%	15.5%
2020	$35.60	-14.1%	-16.7%	40.23	-32.7%	-24.6%	$885	27.6%	10.5%
2021	$56.41	36.1%	58.5%	56.66	-5.2%	40.8%	$995	43.6%	12.5%
2022	$71.18	71.7%	26.2%	65.61	9.7%	15.8%	$1,085	56.5%	9.0%
2023	$79.79	92.5%	12.1%	65.96	10.3%	0.5%	$1,210	74.5%	11.5%

Source: Connecticut Office of Health Strategy. CT Hospital Dashboard. https://app.powerbigov.us/view?r=eyJrIjoiZW0yOWM2ODUtYjBlNS00ODUyLWFmMDYtNDRlYzQxZTRiMmUxIiwidCI6IjExOGI3Y2ZhLWEzZGQtNDhiOS1iMDI2LTMxZmY2OWJiNzM4YiJ9 Accessed October 9, 2025.

Price variation analyses

Recent trends in vertical and horizontal provider consolidation have enabled dominant hospitals and health systems to demand higher prices or threaten to leave insurer networks, especially in highly concentrated markets with little competition.[10] Analyses of price variation can reveal opportunities to reduce unnecessary spending, as high prices can reflect hospital market dominance and negotiating leverage rather than differences in cost or quality of care.[11] The following analyses can support states in understanding hospital unit payment variation.

- **Prices as a percentage of Medicare:** States can use their APCD data to compare commercial payment per unit across hospitals using allowed amounts (the amount a payer paid a provider, plus any member cost sharing) as a percentage of Medicare rates. Medicare payment rates are a helpful benchmark because they are meant to cover hospitals' costs and ensure that beneficiaries have access to high-quality care while encouraging efficient use of resources. They are set by CMS rather than negotiated with providers. Medicare rates include many appropriate adjustments to account for factors such as regional differences in wages and other input costs, inflation, the cost of teaching programs, the share of low-income patients served by a hospital, and the level of uncompensated care provided. Medicare payment rates offer the opportunity to make cross-hospital and cross-state comparisons, which can enable states to better identify hospitals with high prices and how the hospital prices in their state compare to other states. The RAND Employer-Led Transparency Initiative, Round 5.1 data, which uses some states' APCD data among other sources, shows commercial prices paid to hospitals and health systems as a percentage of Medicare rates. For more information, see the sidebar.
- **Market basket methodologies:** A "market basket" is another way states can use APCD data to examine hospital price variation. The market basket methodology is unique in that it can control for differences and changes in service mix and isolate changes in price. Each market basket represents a high-level category of services, such as psychiatry or surgery. We describe two different types of hospital market baskets below.
  - **Comparing market baskets across hospitals at a point in time:** This methodology examines price variation across hospitals for the same set of services or "market basket." States should note that services must be provided by all hospitals included in the analysis. This can dramatically limit the number of hospital services for which states can examine payments. Alternatively, states can group hospitals by type and size and create market baskets for each to capture higher percentages of total hospital spending.

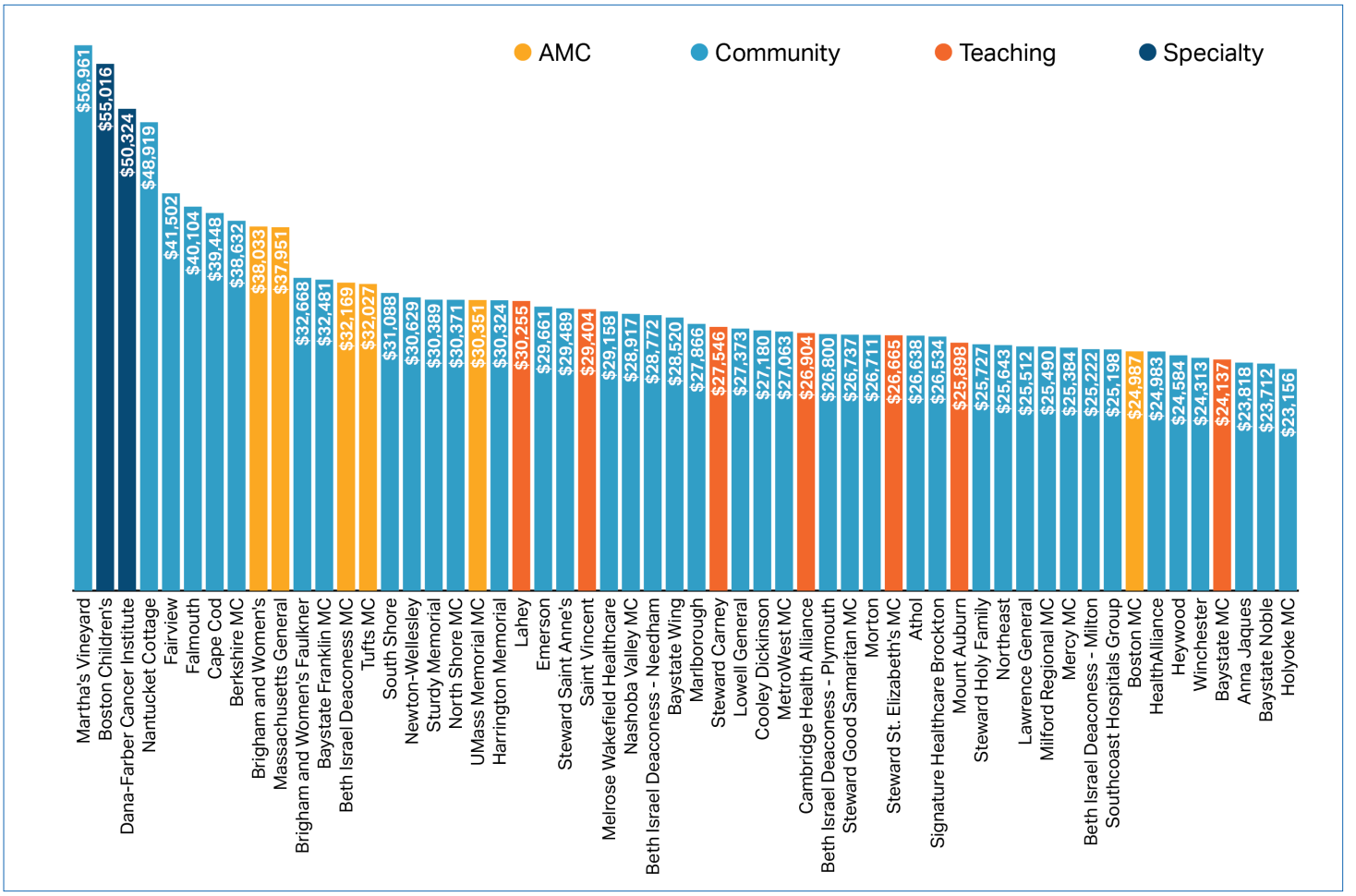
RAND Employer-Led Transparency Initiative data

The RAND Employer-Led Transparency Initiative, Round 5.1 (also known as the RAND Hospital Price Transparency Study) data, is a study that uses 2020–2022 medical claims data from a large population of privately insured individuals to study commercial payments to hospitals and other facilities from across the United States. In addition to a report with findings, RAND's Sage Transparency 2.0 dashboard[12] incorporates 2022 data from the National Academy for State Health Policy Hospital Cost Tool.[13] RAND also publishes more detailed public data in an Excel file which calculates two key metrics for each hospital: relative price[14] and standardized price.[15]

- **Comparing a market basket at one hospital over time:** States can also look at whether prices are changing for the same "market basket" of services at a given hospital over time. This analysis holds utilization of the market basket services fixed at the most recent year in the analysis to isolate changes in unit payments between two years. Services must be offered in both measurement years in the analysis and states may elect to set a minimum utilization threshold if they want to exclude infrequently delivered services from analysis. Doing so will increase the reliability of the analysis, and brings priority topics into greater focus, thereby increasing potential for impact.[16]

STATE SPOTLIGHT: The Massachusetts Health Policy Commission developed a fixed-quantity market basket of the 50 highest-cost HOPD services to allow for comparisons of unit payments across payers and providers (see Figure 7). This chart shows the cost of the market basket by hospital in 2022. This analysis enabled Massachusetts policymakers to understand where payments were high, controlling for service mix variation.

Figure 7. State Example of Market Basket Analysis by Hospital: Massachusetts Health Policy Commission



Source: Health Policy Commission. 2024 Annual Health Care Cost Trends Report and Policy Recommendations Chartpack (page 55). Published October 2024. https://masshpc.gov/sites/default/files/2024%20CTR%20Chartpack.pdf. Accessed October 21, 2025.

Another way to control for service mix changes in inpatient services is to calculate spending per case-mix adjusted discharge. This can be performed by dividing total inpatient claims payments by the case mix index multiplied by number of discharges. The case mix index refers to average Medicare Severity-Diagnosis Related Groups weight. This type of analysis is appropriate for both state- and hospital-level analyses. It is subject to the hospital coding practices, however. Massachusetts found that rising payer-reported overall risk scores could not be corroborated by independent measures of rising inpatient illness burden.[18]

Site of care analyses

Payment variation occurs not just across hospitals, but across facility types and geographical locations. The following analyses can enable states to better understand these variations and discover new opportunities to rein in unnecessary health care spending.

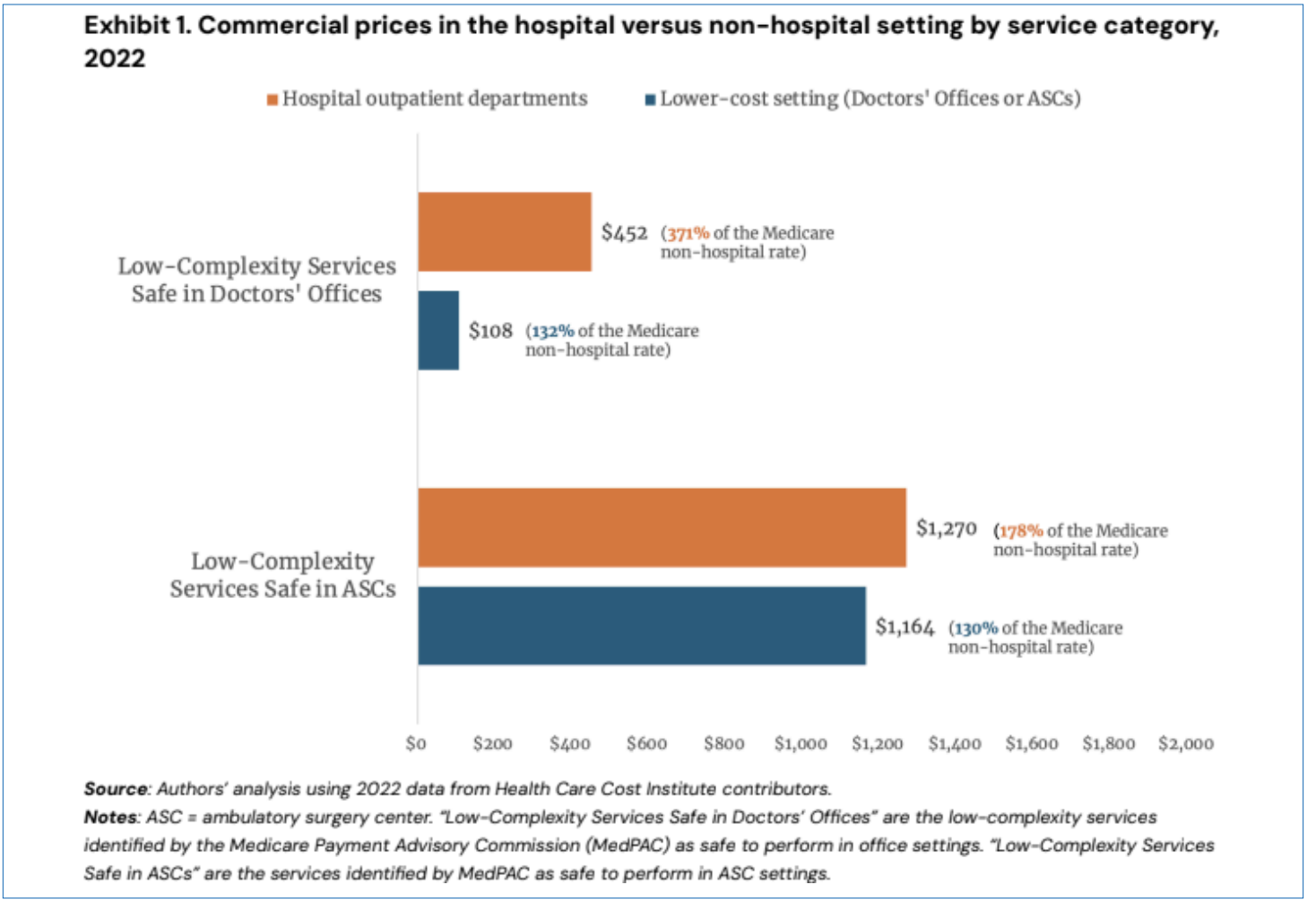
- **Type of facility site of care:** Research has shown that many medical services, such as lab testing or imaging, can be safely provided in non-hospital-based settings.[19] However, the same service delivered in an outpatient facility can cost significantly more than it does in a hospital-based setting due to facility fees[20] and higher negotiated insurer rates.

STATE SPOTLIGHT: To explore payment variation between care settings in New York, Brown University researchers compared commercial payments for medical services in hospital outpatient departments and lower-cost settings such as doctor's offices or ambulatory surgical centers (see Figure 8). They grouped the services according to complexity level and ability to be performed safely in non-hospital settings, as recommended by the Medicare Payment Advisory Committee. They found that the weighted average unit payment was greater for the hospital outpatient departments than the lower-cost setting. The difference was particularly striking for low-complexity services safe in doctor's offices, for which the hospital outpatient departments saw an average payment that was 4.2 times greater than the average payment for the lower-cost settings.

This type of analysis may inspire state policymakers to institute site-neutral payment policies, or employers to implement benefit design incentives for patients to seek care at non-hospital settings instead of hospitals where possible and safe. In New York's case, this research provided state policymakers with evidence for the necessity of Senate Bill S705 in the 2025-2026 legislative session, which would have established payment caps for a range of low-complexity services at a percentage of Medicare's non-hospital rates.

- **In-state versus out-of-state care:** For states that are geographically small or have large urban centers that lie at the edge of state borders, analyses examining care that is delivered out of state may be of interest. Payment variation may exist between care that state residents receive in state versus out of state; redirecting care delivery using incentives or other means may represent another opportunity for states to potentially contain unnecessary health care spending growth. In addition, this analysis might reveal whether a significant share of health care spending escapes a state's regulatory scope; this could potentially indicate in-state systemic inefficiencies or lack of access that forces patients to seek care elsewhere.

Figure 8. State Example of Price Variation Analysis between Care Settings: Brown University's Center for Advancing Health Policy Through Research's Analysis of a Sample of Commercially Insured Residents of New York State

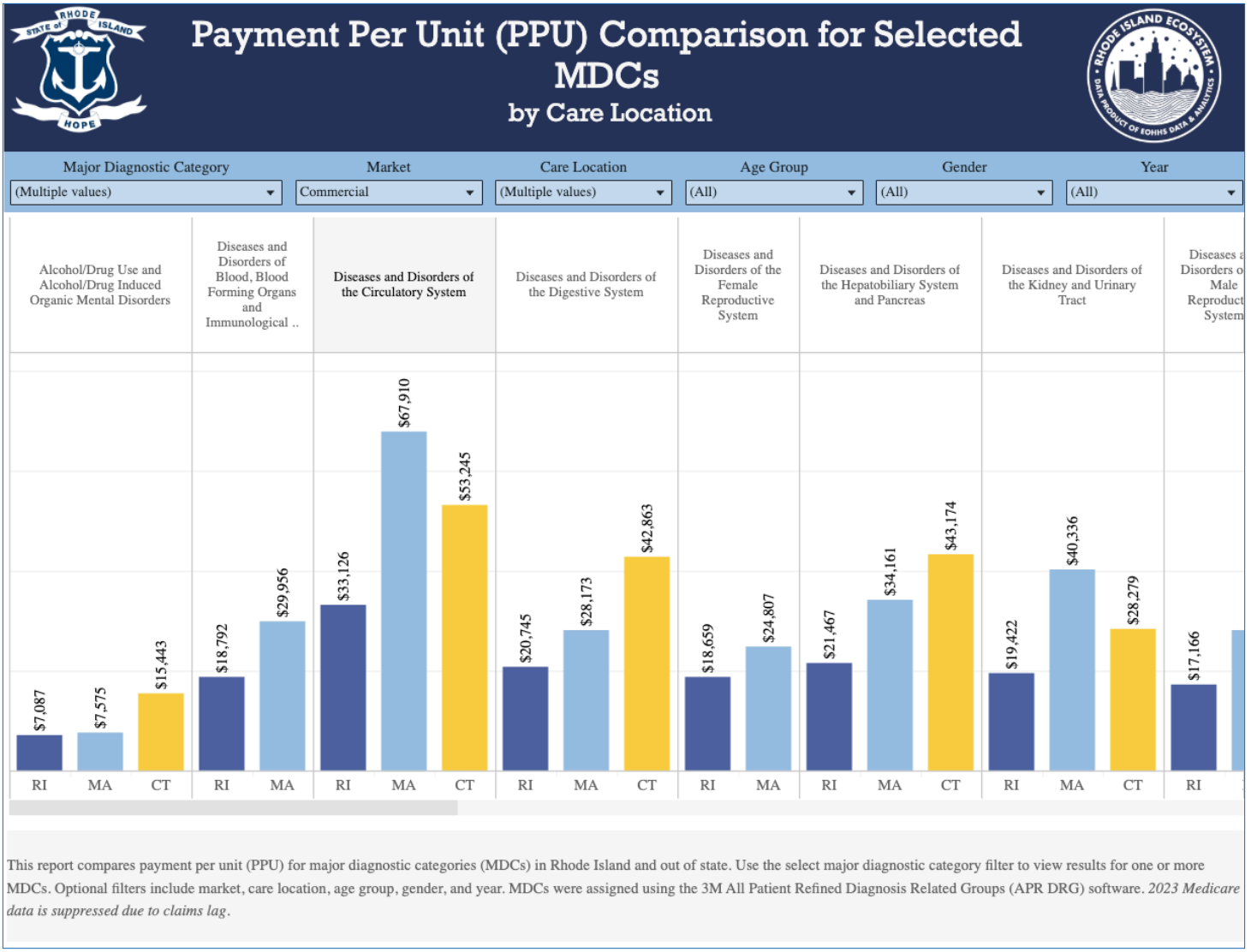


Source: Murray R, Janjua H, Whaley C. "Estimating Savings from the Fair Pricing Act and Commercial Site-Neutral Payments in New York State." Published February 11, 2025. https://drive.google.com/file/d/1ByF77uAu7vR-LO8VQ9zH0iCwv_WV3jVaa/view. Accessed October 9, 2025.

STATE SPOTLIGHT: For some conditions, a lot of Rhode Islanders will travel to Massachusetts hospitals for their care despite availability of the same treatments in Rhode Island. Care at Boston hospitals is often much more expensive than hospital care delivered in Rhode Island. The Rhode Island Office of the Health Insurance Commissioner has a dashboard that compares in-state and out-of-state spending for hospital-provided services for which Rhode Island residents traveled out of state (see Figure 9).

For the Major Diagnostic Categories visible in the graphic below, services are more expensive in neighboring states (i.e., Connecticut and Massachusetts) than in Rhode Island. This illuminates an opportunity to bring some of this care back to Rhode Island by increasing and otherwise enhancing in-state capacity, and thereby reducing unnecessary health care spending.

Figure 9. State Example of Examining the Amount of Care Provided In-State vs. Out-of-State: Rhode Island Office of the Health Insurance Commissioner



Source: Rhode Island Office of the Health Insurance Commissioner. Care Migration dashboard. https://ohic.ri.gov/data-reports/ohic-data-hub. Accessed October 9, 2025.

Change in service intensity

Service intensity (or "service mix") refers to the scope and types of services utilized for treatment, such as site of care or treatment modality. Sometimes, changes in service mix can mask what appears to be a change in average unit payment (e.g., an increase in average unit payments for hospital outpatient services may reflect more expensive services moving from inpatient to outpatient, therefore making outpatient services appear more costly).

While service intensity can be controlled for using a market basket methodology as described above, it is difficult to capture service intensity. To date, there is no clear consensus on a methodology for determining if changes in spending are due to changes in service intensity.

One aspect of service intensity is billing code intensity. To examine this, we recommend that states examine changes in the codes that are billed and paid. For example, for some inpatient services, there are separate DRG codes for "without complication," "complication," and "major complication." States should examine how the volume of claims billed under each of these

codes has changed over time to learn whether billing code intensity has increased. Providers may be incentivized to increase billing code intensity to boost reimbursement rates, representing yet another opportunity to contain unnecessary health care spending growth.

STATE SPOTLIGHT: A Connecticut Office of Health Strategy (OHS) analysis assessed Connecticut hospital inpatient commercial spending longitudinally (2017-2022) to examine possible increases in coding intensity in billing.[21] The analysis examined spending, utilization, complexity rates, and risk metric trends for six conditions for which DRGs are tiered for patient complexity. OHS found that across the six conditions, Connecticut health systems increased the number of visits billed at the highest severity level. These data lend insight into one reason why payment per discharge has risen in Connecticut and could inform state strategies to slow spending growth.

Retail Pharmacy

The analyses highlighted below illustrate potential approaches to examining retail pharmacy spending trends.

Note: State's APCDs generally do not include information on drug rebates, which are discounts that drug manufacturers give to third-party entities like health insurance companies on the cost of prescription drugs. Therefore, many of these analyses may overstate spending on prescription drugs.

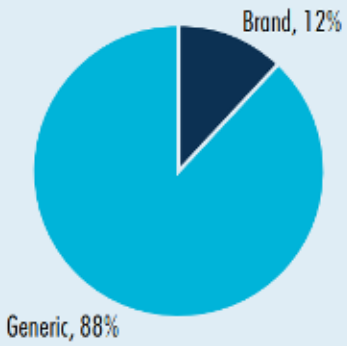
- **Spending on brand-name vs. generic medications.** Most spending on retail pharmacy medications is on brand-name drugs. To determine how expensive they are, states should calculate the following:
  - Utilization of brand-name medications vs. generic drugs, and associated spending for each category (e.g., brand-name drugs make up approximately 15% of units but 85% of spending).
  - Growth in price for brand vs. generic drugs
    - In the last year
    - Over the last five years (cumulative change)
    - Average annual change in average unit payments for both
- **Spending by drug type or class.** States should identify leading contributors for increases in spending at the overall level. They should also:
  - Identify the drug class for which unit payments saw the greatest growth over the most recent five-year period.
  - Conduct another drill-down and identify the specific medications that experienced the highest unit payment increases each year, sorted by total annual spending.

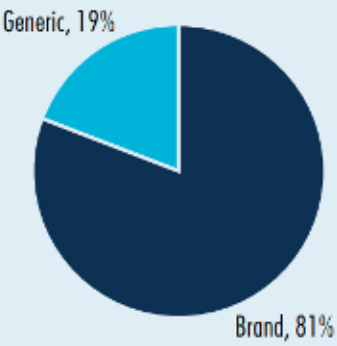
STATE SPOTLIGHT: In its 2023 Annual Report on Health Care Spending and Quality, the Rhode Island Office of the Health Insurance Commissioner performed a focused analysis on retail pharmacy using data from the state's APCD (see Figure 10). OHIC deduced that most spending was on brand-name drugs, performed a drill-down analysis that identified immunological agents as the category with the most spending, and then highlighted a few medications that experienced large increases in unit payments and most contributed to increased spending in the state.

Figure 10. State Example of Pharmacy Spending Analyses to Identify Pharmacy Category with the Highest Spending and High Unit Payment Increases: Rhode Island Office of the Health Insurance Commissioner

	All Drugs	Brand Drugs	Generic Drugs
2017	$120	$90	$30
2018	$129	$99	$31
2019	$129 18.7%	$100 27.8%	$29 -9.2%
2020	$139	$109	$29
2021	$142	$116	$27
Average Annual Growth	**4.4%**	**6.4%**	**-2.3%**

Source: OHIC analysis of HealthFacts RI data. Medicare fee-for-service data are excluded.





Source: OHIC analysis of HealthFacts RI data. Medicare fee-for-service data are excluded. Units are defined as 30-day equivalent prescriptions.

Drug	2017		2021		Change from 2017–2021	
	PRICE PER UNIT	UNITS/1000	PRICE PER UNIT	UNITS/1000	CHANGE IN PRICE PER UNIT	CHANGE IN UNITS/1000
Humira	Not on the market	NA	$6,828	18	19% (since 2019)	80% (since 2019)
Stelara	$9,604	2	$14,624	5	52%	150%
Enbrel Sureclick	$4,431	8	$5,817	7	32%	-13%

Source: OHIC analysis of HealthFacts RI data. Medicare fee-for-service data are excluded.

Source: Rhode Island Office of the Health Insurance Commissioner. 2023 Annual Report: Health Care Spending and Quality in Rhode Island. Published May 13, 2023. https://ohic.ri.gov/sites/g/files/xkgbur736/files/2023-05/Health%20Care%20Spending%20and%20Quality%20in%20Rhode%20Island_FINAL%202023%2005.pdf. Accessed April 24, 2025.

States may also be interested in ad hoc drill-down analyses, such as looking at specific medications within a class (e.g., glucagon-like peptide 1s within weight loss and diabetes medicine).

STATE SPOTLIGHT: The Massachusetts Health Policy Commission conducted a deep dive into GLP-1 spending in the state from 2018 through 2023. A state publication included data on patient experience and variation in payer coverage for these medications.

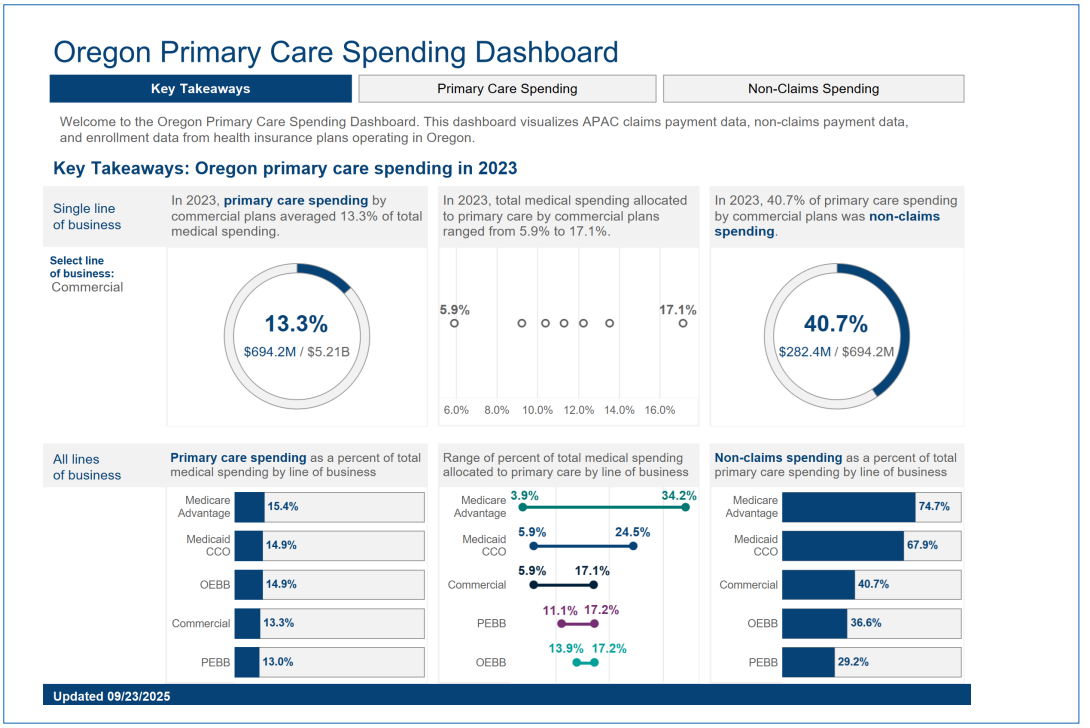
Primary Care

Primary care is facing daunting workforce and administrative burden challenges across the nation. A deeper understanding of the primary care spending landscape enables states to identify opportunities to increase investment, strengthen primary care, and generate system-wide health care savings.

- **Share of total health care spending spent on primary care:** States should calculate the amount of total health care spending that goes to primary care. This data point indicates how much the state is investing in primary care compared to other services and can reveal the extent to which spending is disproportionately concentrated on pharmaceuticals specialty, and hospital-based care. In most states, only a small share of health care dollars goes to primary care, even though it plays a critical role in reducing costly emergency and inpatient services and improving population health. States can refer to the definition of primary care in Peterson-Milbank's consensus administrative specification for primary care claims spending and utilization.[22]

STATE SPOTLIGHT: The Oregon Health Authority and the Department of Consumer and Business Service annually publish a primary care dashboard that shares data on primary care spending in the state (see Figure 11). It includes a tab that shows each commercial insurer's share of primary care spending and the commercial statewide average as a comparison point. Users can also filter these data by other lines of business and markets. This dashboard only shows one year of data at a time; states may expand their analyses to include longitudinal data.

Figure 11. State Example of Spending Analysis on Primary Care: Oregon Health Authority and Department of Consumer and Business Service

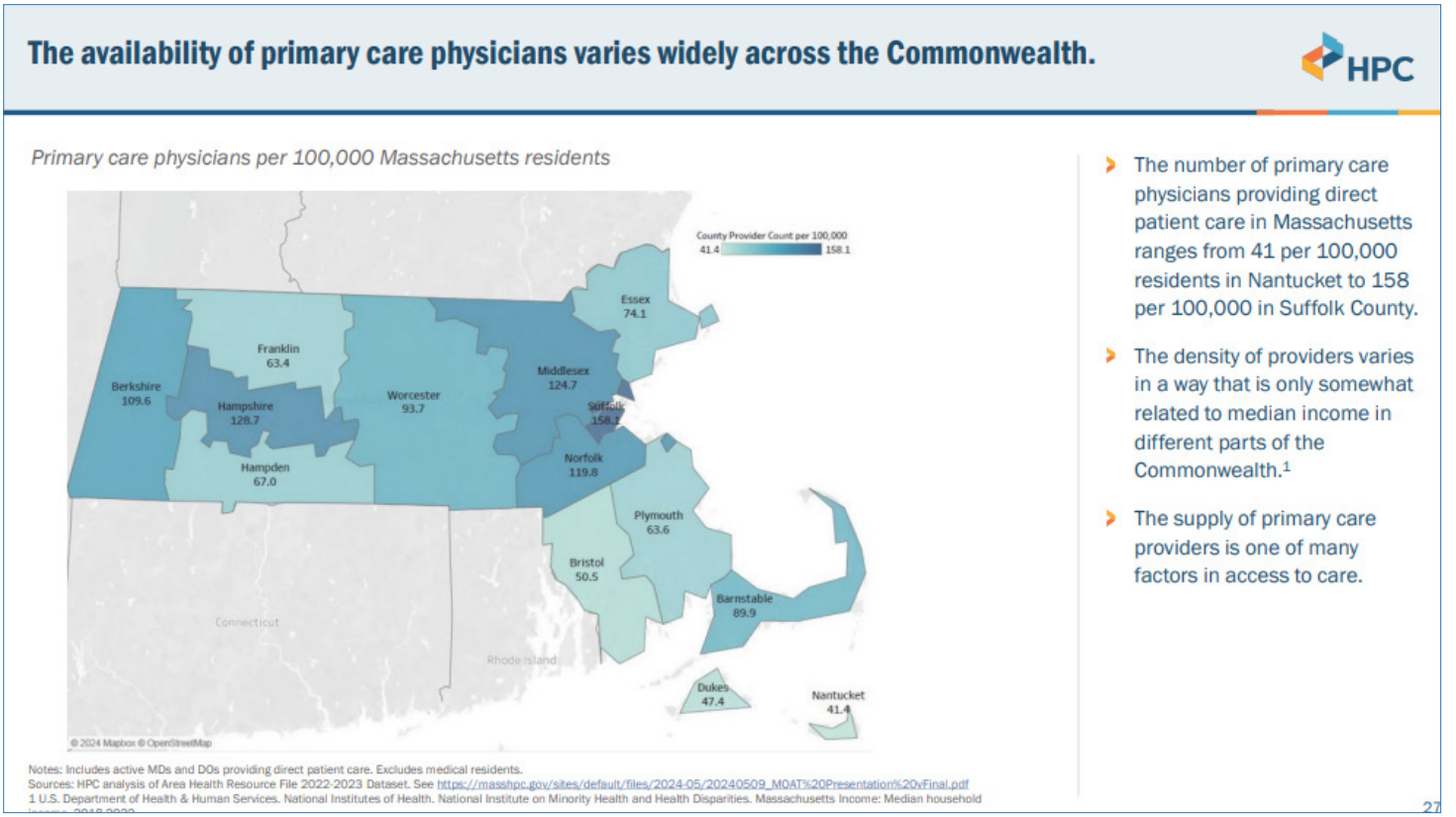


Source: Oregon Health Authority and Department of Consumer and Business Services. 2023 Primary Care Spending in Oregon: A Report to the Oregon Legislature. September 2025. APAC version 24.0. https://www.oregon.gov/oha/HPA/ANALYTICS/Pages/Primary-Care-Spending-Dashboard.aspx. Accessed October 9, 2025.

- **Growth in spending on primary care and other medical services:** States should calculate the rate of growth in spending on primary care and other medical services over several years. Dramatic growth in spending on hospital or specialty care, coupled with flat or moderate growth in primary care spending, demonstrates a system-wide focus on specialty and acute care rather than preventive care. The discrepancy in spending growth between primary care and other medical services can help make the case for bolstered investment in primary care, which can potentially reduce spending in the other, more expensive parts of the health care system.
- **Trends in primary care spending in primary care offices, urgent care, and emergency department settings:** States should quantify how much spending is associated with a primary care procedure code (e.g., for a wellness visit or sick visit) in each of the three settings. Since care provided in primary care settings tends to be much less expensive than care in urgent care or the emergency department, this analysis could highlight potential cost savings for state residents if more care was delivered in primary care settings. These findings could demonstrate the cost implications of limited patient access to timely services in primary care offices.
- **Variation in density of primary care providers by geography:** States could also calculate the density of primary care providers by a defined geographic unit, such as a county or city. It provides insight into whether these providers are evenly distributed throughout the state, or if they are clustered and concentrated in urban areas, leaving underserved areas without adequate coverage.

STATE SPOTLIGHT: The Massachusetts HPC published a policy brief that spotlights a few areas where primary care in the state is particularly struggling (burnout for providers and access barriers for patients) and includes policy options to improve the condition of primary care (see Figure 12). It includes an analysis on the availability of primary care physicians by county, revealing stark differences in the supply of physicians across the state.

Figure 12. State Example of Analysis of Primary Care Physicians by Geography: Massachusetts Health Policy Commission



Source: Massachusetts Health Policy Commission. A Dire Diagnosis: The Declining Health of Primary Care in Massachusetts and the Urgent Need for Action. Published January 2025. https://masshpc.gov/publications/policyresearch-brief/dire-diagnosis-declining-health-primary-care-massachusetts-and. Accessed October 9, 2025.

Behavioral Health Care

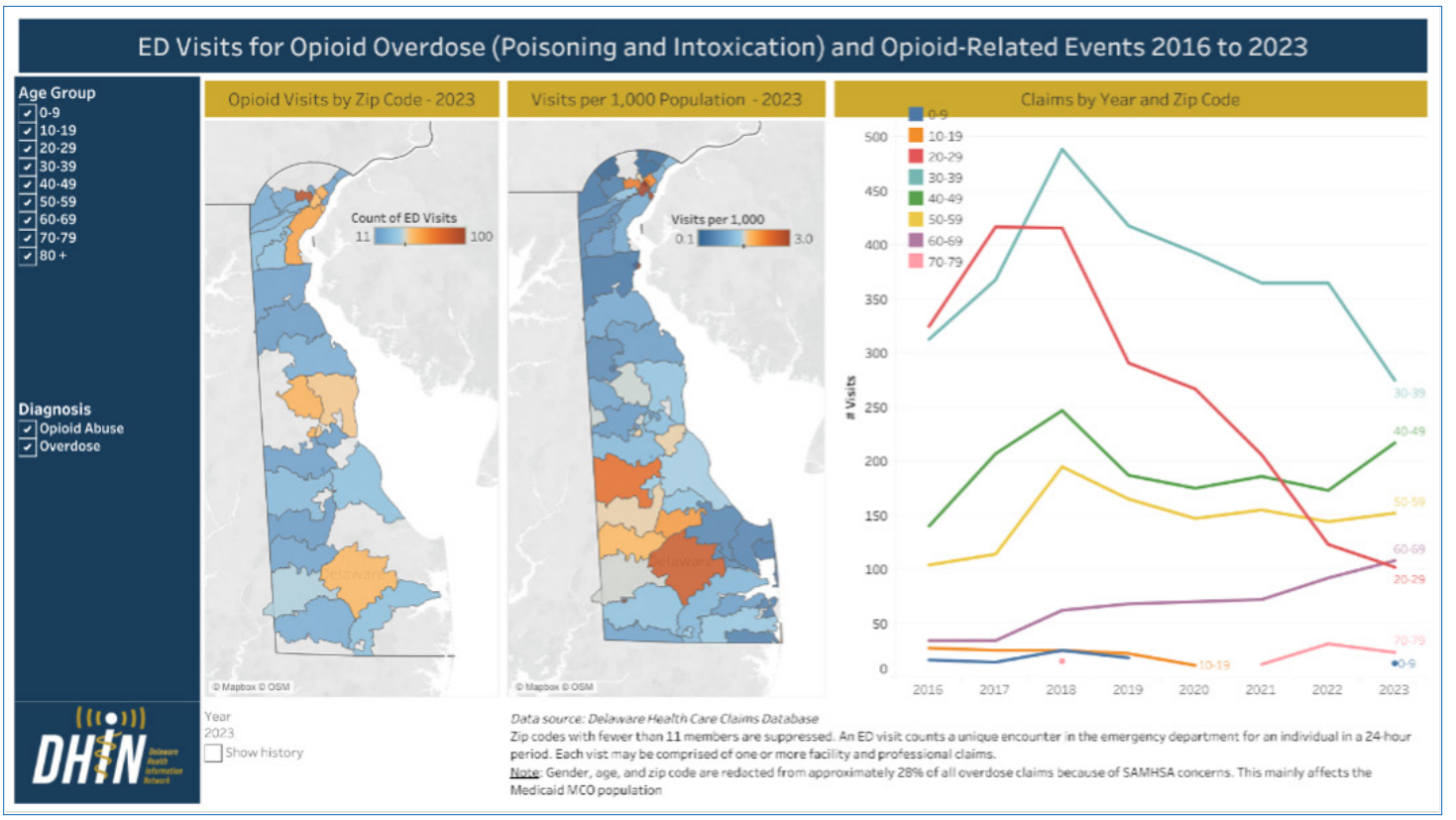
As with primary care, spending on behavioral health care is important to monitor because it can significantly impact individuals' well-being and impact population health. Behavioral health encompasses an array of services that are much more heterogeneous than primary care services. It covers a wide variety of conditions (from outpatient therapy to intensive inpatient psychiatric care), treatment types, and care settings, and is inclusive of mental health treatment and substance use treatment. This section identifies key data points that states should collect to gain insight into this category of health care spending.

Substance Use Analyses

- **Total spending for claims with substance use disorders or opioid use disorders as the primary diagnosis:** States should first understand spending levels for claims with behavioral health diagnoses. They can then aggregate spending on the disorders by diagnosis group to determine the types of spending most common in their state.
- **Volume of opioid-related emergency department (ED) visits:** Examining the number of opioid-related visits to the ED in a state can provide insight into the severity of the opioid crisis. Stratification of these data by demographic variables shines a light on populations in most need of intervention.

STATE SPOTLIGHT: Delaware has a dashboard that quantifies the number of ED visits for opioid-related events from 2016 to 2023 (see Figure 13). Users can toggle between each of the years to seehow the patterns change over time. This dashboard also allows users to filter by age group and zip code.

Figure 13. State Example of Behavioral Health Analysis by Geography: Delaware Health Information Network



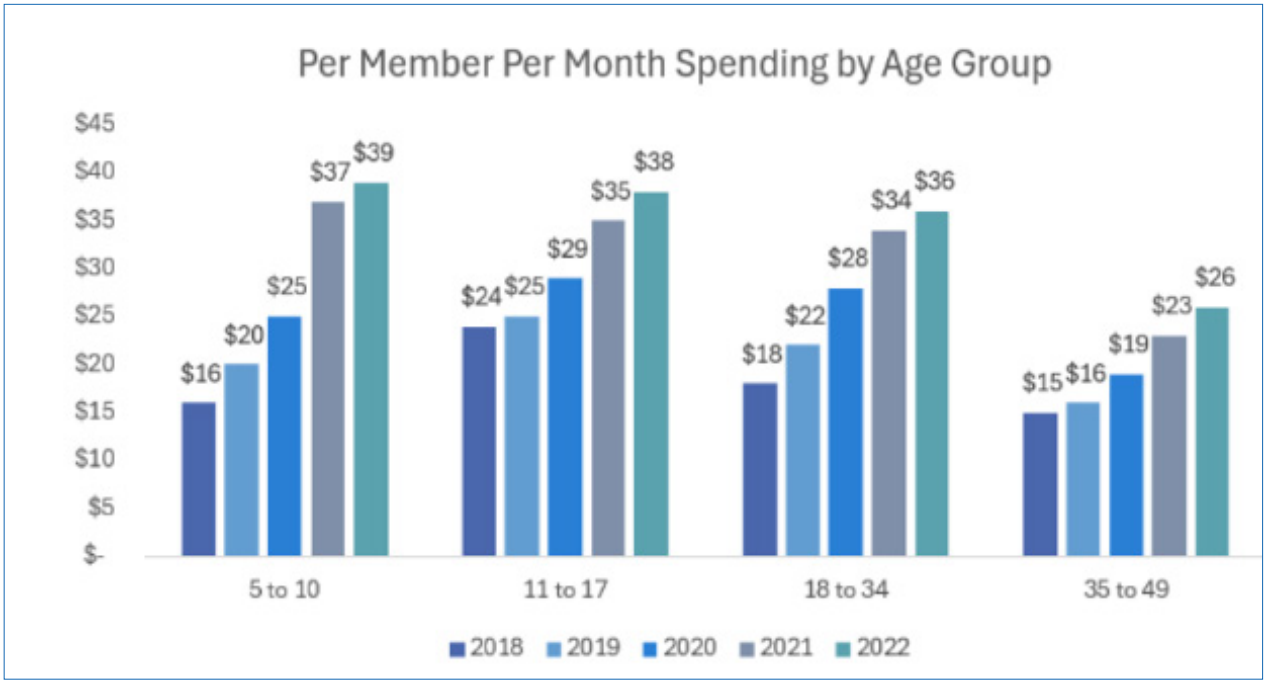
Source: Delaware Health Information Network. ED Visits for Opioid Overdose (Poisoning and Intoxication) and Opioid-Related Events (2016-2026). Published April 19, 2024. https://dhin-hccd-portal.medicasoft.us/public/view?v=OpioidRelatedEDVisits%2FEDVisitsforOpioidOverdose&embed=false. Accessed October 9, 2025.

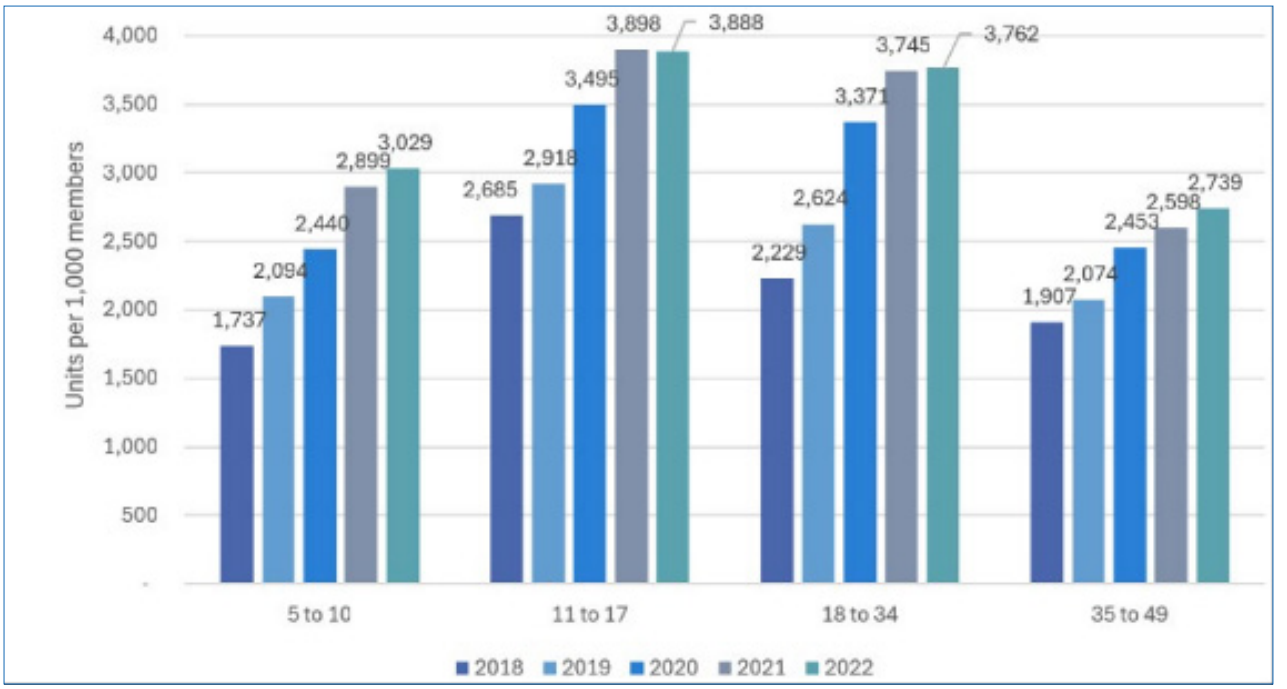
Mental Health Analyses

- **Per person spending, unit payment, and utilization for all mental health services and stratified by age group:** Age is a particularly important demographic to consider when analyzing patterns in mental health spending given that utilization patterns vary significantly across age groups.

STATE SPOTLIGHT: The Rhode Island Office of the Health Insurance Commissioner analyzedspending on mental health services for its commercially insured population from 2018 to 2022, and found that spending more than doubled for children and adolescents in this five-year period (see Figure 14). This increase in spending was driven mostly by growth in utilization, with most of the increase occurring between 2018 and 2021, spanning the years leading up to and through the COVID-19 pandemic.

Figure 14. State Example: Spending and Utilization of Mental Health Services by Age Group: Rhode Island Office of the Health Insurance Commissioner





Source: Rhode Island Office of the Heath Insurance Commissioner. Mental Health Service Utilization on the Rise in Rhode Island. Published April 2024. https://ohic.ri.gov/sites/g/files/xkgbur736/files/2024-03/RI%20OHIC%20March%20Data%20Story%20Mental%20Health.pdf. Accessed October 9, 2025.

- **Spending by mental health conditions by market:** Interested states should also analyze spending by mental health condition by market. Medicaid and commercial plans cover different types of mental health services, and understanding the differences in a state-specific context can uncover new insights.
- **ED visit rate by condition:** States should understand how many conditions are being treated in the emergency department, which can signal that patients are not getting the preventive or maintenance care they need to stay healthy.

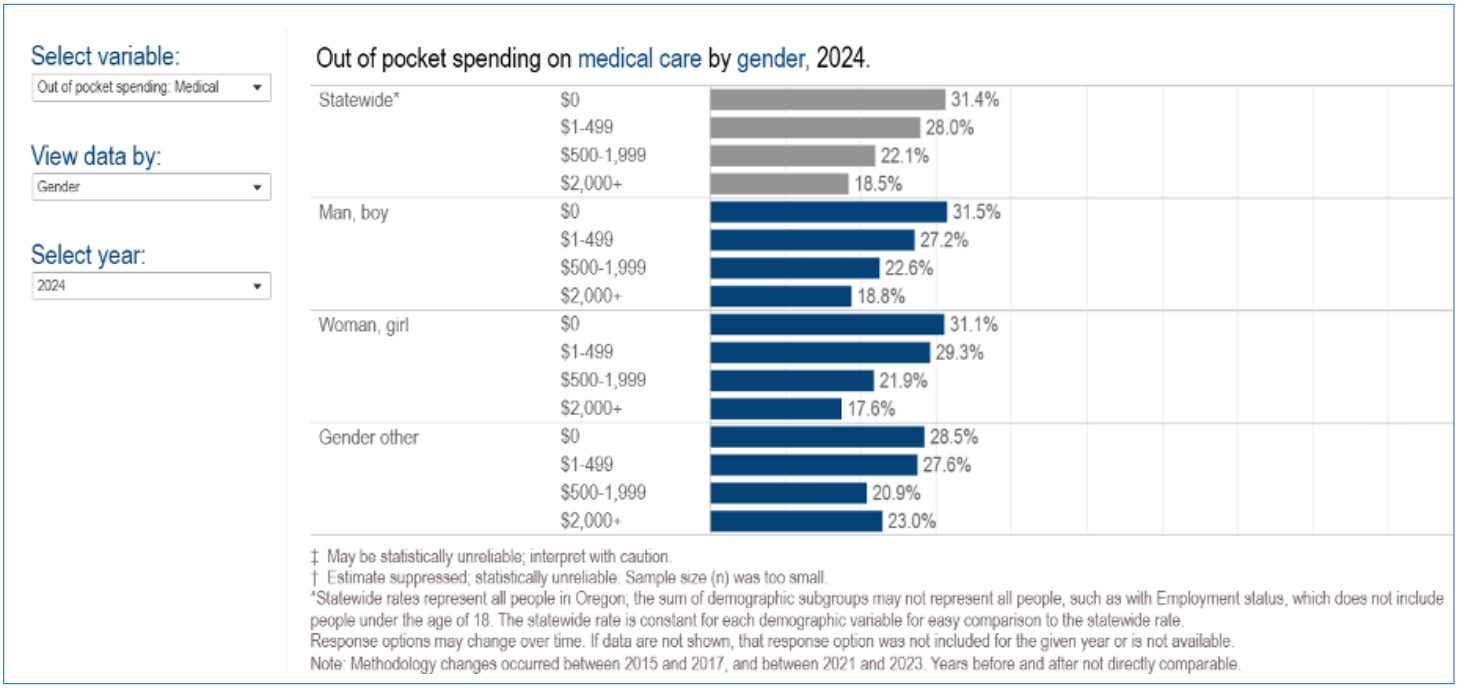
Cost of Care and Its Associated Impacts

The following analyses do not use APCD data but are recommended as states pursue the ultimate goal of every health care cost containment strategy: to make health care more affordable for consumers. We recommend monitoring the affordability burdens of health care on consumers via the following analyses.

- **Cost of annual deductible and monthly premium:** States should better understand trends in the amount that residents pay for their annual deductible or in monthly premium contributions for a family or single plan. States could use median household income data from the Federal Reserve Bank of St. Louis[23] to better understand the proportion of income that state residents are spending on deductibles and premiums.
- **Monthly out-of-pocket costs for medical care:** States should monitor the amount that residents are paying out of pocket per month for medical care.

STATE SPOTLIGHT: The Oregon Health Authority hosts a dashboard that enables users to look at monthly premium costs or out-of-pocket spending for various categories (medical, dental and vision, mental health, and prescriptions) (see Figure 15). Users can also stratify these variables by age, coverage type, disability, employment, federal poverty level, gender, geographic area, and race and ethnicity. This type of dashboard can contextualize understanding of consumer impact of health care costs.

Figure 15. State Example of Analysis of Out-of-Pocket Spending: Oregon Health Authority



Source: Oregon Health Authority. Oregon Health Insurance Survey. Last updated February 24, 2025. https://www.oregon.gov/oha/hpa/analytics/pages/ohis-cost.aspx. Accessed October 7, 2025.

- **Care avoidance and delay due to costs:** Beyond monitoring what state residents are paying for care, states should monitor how costs affect heath care behaviors. Altarum's Consumer Healthcare Experience State Survey[24] (CHESS) and other state-specific surveys are designed to capture health care affordability burdens on residents, such as care avoidance and delay due to costs, cutting pills in half, medical debt, using up all of their savings to pay for care, among others.

STATE SPOTLIGHT: The 2022 California CHESS survey found that 50% of all California resident respondents delayed or went without health care due to cost in the last 12 months. These data are crucial for California policymakers to make a compelling case for health care affordability initiatives.

CONCLUSION

The analyses described in this resource can provide insights into health care spending trends and patterns, and inform data-driven health care affordability initiatives. Such analyses can also help states create compelling cases for policy change, build stakeholder support, fend off industry opposition, and hold major health care players accountable for rising health care spending. By leveraging APCD and other data in these ways, states can take meaningful, evidence-based action to improve health care affordability for their residents.

APPENDIX A: PROS AND CONS OF EXTERNAL BENCHMARK SOURCES AND COMPLEMENTARY DATA SOURCES

External Benchmark Source	Description	Pros	Cons
External Benchmark Data			
Health Care Cost Institute Annual Reports	Year-over-year and five-year cumulative trends in health care spending for individuals with employer-sponsored insurance	✓ Sample is representative	- Annual reports are significantly lagged and do not represent a timely data source
Complementary Data Sources			
The Commonwealth Fund Scorecard on State Health System Performance	State snapshots of health care system performance metrics focusing on access and affordability, prevention and treatment, avoidable hospital use and cost, health outcomes, and health disparities	✓ Offers race and ethnicity stratifications for some metrics ✓ Offers state rankings for each metric	- Metrics focused on affordability and spending containment are limited
RAND Corporation Employer-Led Transparency Initiative Data	Medical claims data from a large population of privately insured individuals	✓ Metrics enable cross-hospital price comparisons	- Relative price cannot be compared longitudinally due to changes in the underlying Medicare payment methodology

NOTES

[1] Sayles JN, Kanneganti D, Bailit M. A Data Use Strategy for State Action to Address Health Care Cost Growth. Published June 2021. https://www.milbank.org/wp-content/uploads/2021/06/Peterson-Milbank-Data-Use-Strategy_6.pdf. Accessed April 24, 2025.

[2] Health Affairs paper: While no published literature compares the representativeness of an APCD to the full commercial market, a 2023 Health Affairs study shows that commercial market prices for a set of common health care services were equivalent across self-insured and fully insured plans, and for several services even higher in self-insured plans. Sen AP, Chang JY, Hargraves J. Health Care Service Price Comparison Suggests That Employers Lack Leverage To Negotiate Lower Prices. Health Affairs. September 2023, 42(9):1241–1249.
Connecticut Office of Health Strategy (OHS) analysis: To assess whether its APCD was representative of the total commercial market, the Connecticut OHS performed an analysis using 2021 data to determine whether the inpatient hospital DRGs identified as representing a) the most discharges, and b) the most spending according to APCD data were the same as those identified through analysis of the hospital inpatient discharge database (HIDD). Unlike the APCD, the HIDD contains all discharges, including discharges for patients with fully insured and self-insured commercial coverage. Spending data in the HIDD are based on charges, while APCD spending data are based on allowed amounts. The analysis found that the APCD and HIDD shared seven of the top ten highest spending DRGs statewide in 2021, and nine of the top ten highest volume DRGs.
Massachusetts Health Policy Commission (HPC) analysis: The HPC compared overall spending and spending by provider organization for fully and self-insured members in the state's three largest commercial health plans in 2015, just prior to losing much of the self-insured data due to the Gobeille decision. The HPC's analysis found minimal difference, if any, in the spending levels between the fully-insured and self-insured populations. See slides 14-22 at: https://www.mass.gov/doc/20180613-moat-presentation-posting/download

[3] Wide-spread adoption of the Peterson-Milbank standard definitions will be particularly helpful in making confident cross-state comparisons. See "Peterson-Milbank Standardized Definitions" in the sidebar for more information.

[4] See Appendix A for a list of pros and cons of the HCCI source. Note that states should evaluate the methodology of external benchmarks to ensure comparability.

[5] Peterson-Milbank Program for Sustainable Health Care Costs and Bailit Health. Consensus Administrative Specifications for Health Care Cost Driver Analyses. https://www.milbank.org/wp-content/uploads/2025/06/Compiled-Cost-Driver-Specs-2025-06-17.pdf Accessed June 18, 2025.

[6] See the following:
Li SE, Jones D, Rich E, Lansdale A. How do hospitals exert market power? Evidence from health systems and commercial health plan prices. Health Aff Sch. 2025 Jan 16;3(1). https://pmc.ncbi.nlm.nih.gov/articles/PMC11736714/
Liu J, Levinson Z, et al. Environmental Scan on Consolidation Trends and Impacts in Health Care Markets. RAND Corporation. September 30, 2022. https://www.rand.org/pubs/research_reports/RRA1820-1.html

[7] Peterson-Milbank Program for Sustainable Health Care Costs and Bailit Health. Consensus Administrative Specifications for Health Care Cost Driver Analyses. https://www.milbank.org/wp-content/uploads/2025/06/Compiled-Cost-Driver-Specs-2025-06-17.pdf Accessed June 18, 2025.

[8] Health Care Cost Institute. 2022 Health Care Cost and Utilization Report. April 2024. https://healthcostinstitute.org/health-care-cost-and-utilization-report/annual-reports

[9] The Connecticut hospital dashboard is available here: https://app.powerbigov.us/view?r=eyJrIjoiZWQyOWM2ODUtYjBlNS00ODUyLWFmMDYtNDRlYzQxZTRiMmUxIiwidCI6IjExOGI3Y2ZhLWEzZGQtNDhiOS1iMDI2LTMxZmY2OWJiNzM4YiJ9.

[10] See the following:
Brand K, Garmon C, and Rosenbaum T. In the Shadow of Antitrust Enforcement: Price Effects of Hospital Mergers from 2009 to 2016. The Journal of Law and Economics. November 2023. 66(4). https://www.journals.uchicago.edu/doi/abs/10.1086/724841?journalCode=jle
Cooper Z et al. The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured. Q J Econ. February 2019. 134(1):51-107 https://pubmed.ncbi.nlm.nih.gov/32981974/
Lin H, McCarthy I, and Richards M. Hospital Pricing Following Integration with Physician Practices. J Health Econ. 77:102444. May 2021. https://pubmed.ncbi.nlm.nih.gov/33784540/

[11] See the following studies:
Crespin DJ and Whaley C. The Effect of Hospital Discharge Price Increases on Publicly Reported Measures of Quality. Health Services Research. July 2022. 58(1):91-100.
Cooper Z, Doyle Jr JJ, Graves KA, Gruber J. Do Higher-Priced Hospitals Deliver Higher Quality Care? National Bureau of Economic Research. NBER Working Paper Series. February 2022, Revised January 2023.
Beauvais B, Gilson G, Schwab S, Jaccaud B, Pearce T, Holmes T. Overpriced? Are Hospital Prices Associated with the Quality of Care? Healthcare (Basel). May 2020. 8(2):135.

[12] Employer Price Transparency Project. Sage Transparency 2.0. Last updated December 17, 2024. https://employerptp.org/sage-transparency/. Accessed April 23, 2025.

[13] National Academy for State Health Policy. Hospital Cost Tool. Last updated February 7, 2025. https://tool.nashp.org/. Accessed April 25, 2025.

[14] Relative price expresses each hospital's total commercial payments as a percentage of what Medicare would have paid for the same services at the same hospital. States should be cautious when interpreting relative price, as it reflects Medicare's underlying payment methodologies (e.g., Inpatient and Outpatient Prospective Payment Systems, Critical Access Hospital payment methodology), which include state-specific adjustments based on factors like location, medical education activities, uncompensated care, and facility type, among others. This means that higher relative price does not necessarily indicate a higher absolute price at a particular facility, and cross-state comparison is flawed. Relative price also cannot be compared across multiple rounds of the RAND study due to changes in the underlying Medicare payment methodology, so relative price cannot be used to measure price changes over time.

[15] Standardized price represents the average commercial paid amount for a "standardized unit of service." This means that each inpatient visit or outpatient service is weighted and adjusted for complexity and resource intensity. Standardized price allows for comparison across hospitals, including when hospitals provide different services or treat more complex cases.

[16] For more details on the hospital market basket methodology that examines price growth at one hospital over time, see the Guide to Hospital Price Growth Targets, available at: https://www.milbank.org/publications/guide-to-hospital-price-growth-targets/.

[17] For additional details on the methodology for this analysis, see the Technical Appendix 6, Commercial Price Trends, Addendum to 2023 Cost Trends Report (pages 9-11). For examples of measuring the cost of the HOPD market basket overtime, see the 2022 Health Care Cost Trends Report and Policy Recommendations Chartpack (pages 21-28)

[18] See: Massachusetts Health Policy Commission. 2019 Annual Health Care Cost Trends Report. https://www.mass.gov/doc/2019-health-care-cost-trends-report/download (pages 23-24) and Technical Appendix B2: Changes to Inpatient Severity of Illness, Addendum to 2019 Cost Trends Report. https://www.mass.gov/doc/b2-changes-in-inpatient-severity-of-illness/download

[19] Higgins A, Veselovskiy G, Schinkel J. National estimates of price variation by site of care. Am J Manag Care. March 2016. 1;22(3):e116-21. https://pubmed.ncbi.nlm.nih.gov/26978238/

[20] Health Care Cost Institute. "Facility Fees and How They Affect Health Care Prices. June 2023. https://healthcostinstitute.org/images/pdfs/HCCI_FacilityFeeExplainer.pdf

[21] LaSpina K, Thompson G. Drilling into hospital spending: Case Mix and Coding Intensity. Presentation for the Connecticut Office of Health Strategy. Presented January 31, 2024.

[22] Peterson-Milbank Program for Sustainable Health Care Costs and Bailit Health. Consensus Administrative Specifications for Health Care Cost Driver Analyses. https://www.milbank.org/wp-content/uploads/2025/06/Compiled-Cost-Driver-Specs-2025-06-17.pdf Accessed June 18, 2025.

[23] Federal Reserve Bank of St. Louis. Accessed May 9, 2025. https://fred.stlouisfed.org/

[24] Altarum Healthcare Value Hub. Consumer Healthcare Experience State Survey (CHESS). https://healthcarevaluehub.org/consumer-healthcare-experience-state-survey/. Accessed May 8, 2025.

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