



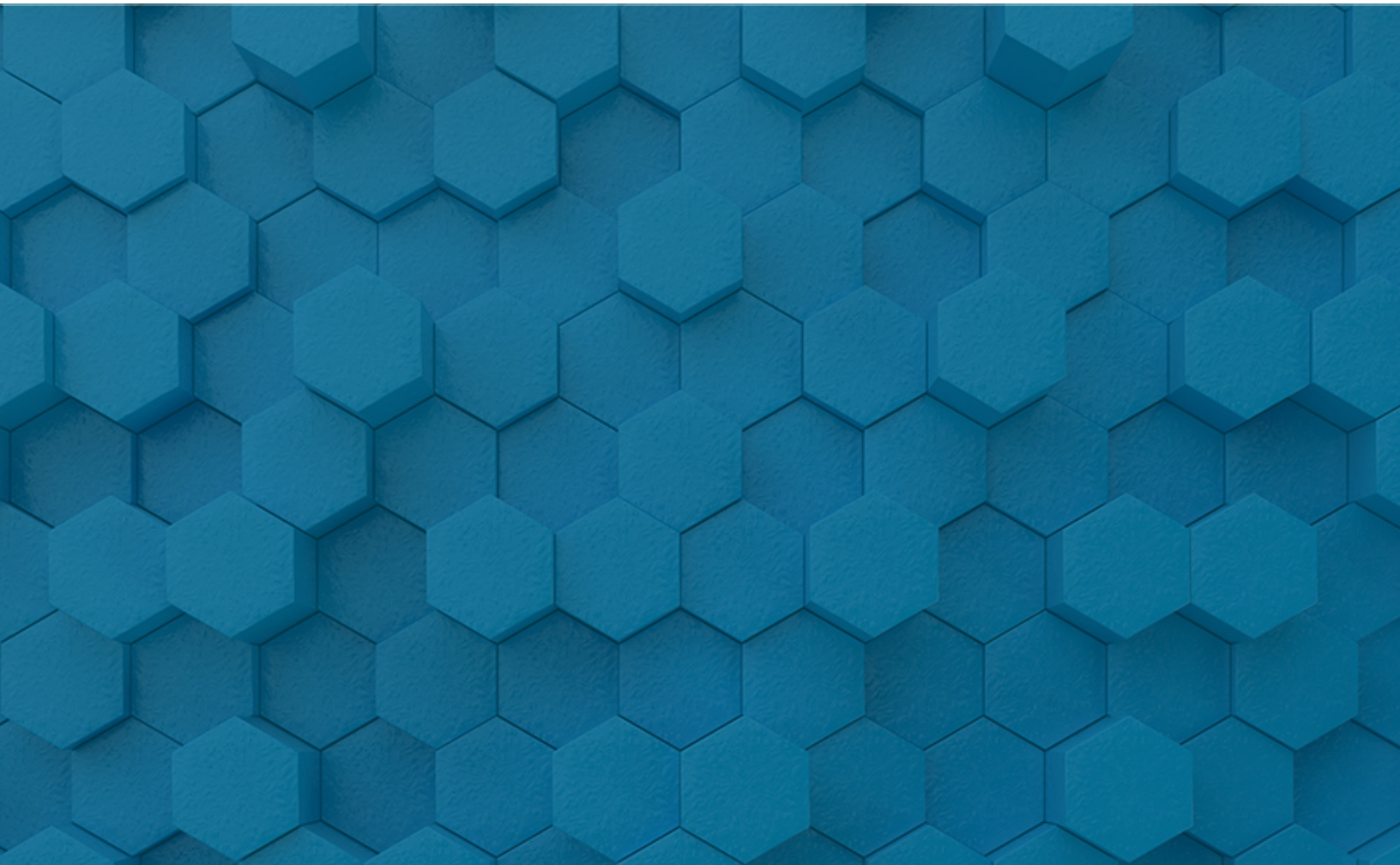
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A Data Use Strategy for State Action to Address Health Care Cost Growth

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Introduction

States with health care cost growth targets (or benchmarks) need to perform two types of analyses on data collected from payers and providers to identify factors driving health care spending levels and health care spending growth:

1. Routine standardized analyses to inform, track, and monitor impact of the cost growth target, and
2. In-depth, ad hoc analyses of the potential drivers of high cost, cost variation, and cost growth that are identified from the routine reports.

These two types of cost analyses are complementary: the regularly released reports draw attention to health care spending patterns that warrant further investigation via in-depth reports. The end goal is to use both types of analyses to identify and implement strategies to mitigate cost growth. Because the analyses are intended to inform and result in actions to address cost growth, we refer to the overarching strategy as a “data use strategy.”

A primary application of the data use strategy analyses is to inform each state about the specific factors contributing to health care cost growth in their state. The analyses could be of additional value if states with cost growth targets conduct them in the same way to facilitate valid comparisons across states. However, any differences in methods and data sources would need to be considered before these comparisons could be made.

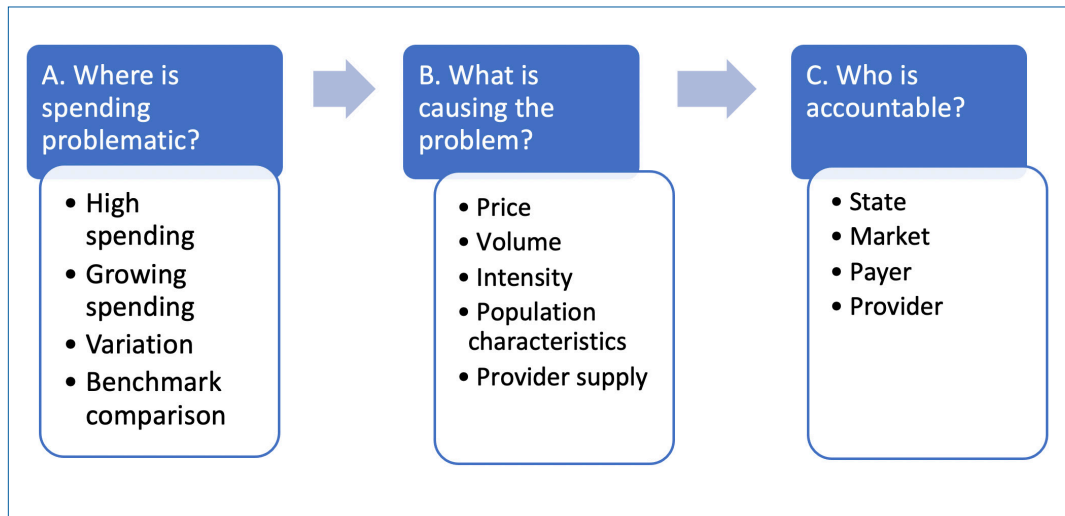
This report initially focuses on the design of the first category of analysis, which serves as a starting point for understanding health care spending patterns and trends. We present an analytic framework for these analyses, as well as a series of 11 recommended standard reports that apply the key framework dimensions. We also provide examples of more advanced analyses that we call “Phase 2,” which states may develop once they have mastered the standard reports. Stakeholder engagement and involvement of multiple state agencies in the design of the reports can help ensure that the analyses will be put to productive use.

Analytic Framework for a Data Use Strategy

Our framework for analyses is designed to inform efforts to slow health care cost growth (Figure 1). It is organized around three major questions:

- A) Where is spending problematic?
- B) What is causing the problem?
- C) Who is accountable for the problem?

Figure 1. Framework for Data Use Strategy Analyses



States can apply this framework to design and produce analyses that provide a high-level overview of spending patterns and trends and identify areas for potential ad hoc, in-depth analyses of the findings. These analyses should be conducted on a regular schedule, at least annually.

Ideally, these analytic reports would be part of a dynamic business intelligence tool that would allow for variable manipulation so that the in-depth analyses would not need to be manually designed. For the purposes of this report, however, the authors have assumed that states will need to start with static report designs. States should, however, plan for dynamic functionality so that they are not reliant on static report designs.

A. Where Is Spending Problematic?

Analysis should begin by determining the sources of problematic spending. By “problematic” spending, we mean spending that is high and/or growing at a high rate, either universally or regionally. We also mean spending that varies greatly within the state, and spending that is far above benchmark references.

Answering this question allows states to identify the greatest opportunity to achieve impact. It requires application of several complementary perspectives on spending patterns. For the following types of analysis, the unit of time is typically one year, but states can use a shorter time frame.

- **Spending by service categories:** Legend has it that bank robber Willie Sutton told a reporter that he robbed banks “because that’s where the money is.” So, too, it makes sense for states to focus on services for which expenditures are highest, such as pharmaceuticals or inpatient care. States can perform *point-in-time analysis* to assess spending.
- **Spending by rates of growth:** To slow spending growth, states need to understand the drivers of per capita spending growth. Spending growth is assessed through *change-over-time analysis*.
- **Variation:** Health care spending is highly variable because of inconsistent practice patterns, variation in the competitiveness and composition of provider markets, and patient population characteristics. Reducing variation can reduce cost growth or

increase savings. Variation in spending can be understood through both *point-in-time* and *change-over-time* analyses.

- **Benchmark comparisons:** Analyses using only internal state data can miss spending pattern differences across states. Cross-state or “benchmark” comparisons using external data sources can identify opportunities to lower costs. States have several options, including the National Health Expenditure Accounts,¹ Kaiser State Health Facts,² and the Commonwealth Fund Scorecard on State Health System Performance.³ The Health Care Cost Institute (HCCI)⁴ and RAND Corporation⁵ benchmark analyses are also options. For all sources, states should evaluate the methodology to ensure that the data and metrics collected in the state are comparable to the external benchmark. Benchmark analyses can consist of both *point-in-time* and *change-over-time* analyses.

B. What Is Causing the Problem?

Five primary drivers of health care spending and spending growth will inform the design of standard analytic reports. The first four can be assessed using claims databases. Some states will be able to use their all-payer claims database (APCD) while others will need to gather a sample of available data such as those for Medicaid and state employees. The fifth reporting area requires additional data sources. High-level definitions of these drivers and each driver’s implications for analysis are as follows:

- **Price:** Typically, price refers to the amount a payer reimburses a service provider for a unit of service plus patient payments such as deductibles and coinsurance. Price can also refer to non-fee-for-service payments, such as capitation, episode-based payment, and global budgets. Price has been the primary driver of health care spending in the commercial market, largely due to provider consolidation and market power.
- **Volume:** 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.
- **Intensity:** Service intensity refers to the scope and types of services utilized for treatment. It captures differences in the site of care (e.g., inpatient vs. outpatient) and treatment modality (e.g., robot-assisted vs. manual surgery). Service intensity is complex to capture analytically. If it is not captured, it can be masked as a change in price (e.g., when a new expensive drug replaces an old one). Service intensity is often referred to as “service mix” or “provider mix.”
- **Population characteristics:** The illness burden (“clinical risk”), demographic characteristics, and social risk of a population all influence health care needs, access to care, and service utilization. States can either adjust for these characteristics (e.g., illness burden, age, gender) or stratify them (e.g., clinical conditions, demographic characteristics, social risk) in analyses. Population demographics may yield additional insight into variation in spending, including possible equity issues.

There is no standard method for assessing the impact of changes in service intensity. One method, employed by the Washington Health Alliance, is to use relative value units (RVUs) to calculate RVUs per episode for an array of episodes of care using any number of episode groups. This method enables a state to look across a “market basket” of episodes to detect changes in service intensity.⁹

- **Provider supply:** Repeated analyses have shown that provider supply (e.g., specialists, hospital beds) correlates with increased utilization and spending.⁶⁻⁸ Unlike the other cost and cost growth drivers, provider supply cannot be analyzed with APCD data alone. The role of provider supply could be assessed with supplemental data sources as outlined later in this report.

The analytic report should include analysis of the first four cost drivers to show their relative impact. For example, in a 2018 analysis, the Washington Health Alliance found that across 13 prevalent clinical conditions, 65% of the change in per member per month (PMPM) spending was attributable to price, 18% was due to volume of services, 9% was due to treatment intensity, and 8% was due to age/gender mix (Figure 2).¹⁰ This deep-dive analysis integrated the cost drivers to show their relative impact and allowed purchasers and payers to see the outsized influence of price and develop strategic and operational approaches accordingly.

Figure 2. Washington Health Alliance Assessment of Cost and Cost Growth Drivers

Hospital	A sort button appears when you hover over the column header. Click to sort low, high, and alphabetical results.			Changes in Spending					
	2016 Spending	2015 Spending	Change (%)	Volume Related			Pricing Related		
				Membership	Service Frequency	Volume Effect	Treatment Intensity	Unit Price	Price Effect
Swedish Medical Center	\$222,128,588	\$205,490,103	8.1%	\$47,892	\$25,142,254	\$25,190,145	\$7,044,687	(\$15,596,348)	(\$8,551,661)
CHI Franciscan Harrison Medical Center	\$54,771,323	\$46,393,538	18.1%	\$10,812	\$8,113,134	\$2,282,778	\$2,282,778	(\$2,028,940)	\$253,838
Providence Regional Medical Center Everett	\$127,228,363	\$120,470,887	5.1%	\$28,077	\$4,906,404	\$4,934,481	\$120,180	\$1,702,816	\$1,822,996
MultiCare Good Samaritan Hospital	\$27,498,100	\$21,270,328	29.3%	\$4,957	\$3,136,665	\$3,141,622	\$3,709,725	(\$623,575)	\$3,086,150
MultiCare Tacoma General Allenmore	\$115,037,123	\$109,160,738	5.4%	\$25,441	\$3,851,085	\$3,876,526	(\$785,952)	\$2,785,811	\$1,999,858
Valley Medical Center	\$61,762,182	\$55,947,200	10.4%	\$13,039	\$23,385	\$36,424	\$3,663,556	\$2,115,002	\$5,778,559
Multicare Auburn Medical Center	\$13,667,646	\$8,675,887	57.5%	\$2,022	(\$135,754)	(\$133,732)	\$1,027,398	\$4,098,093	\$5,125,491
Overlake Hospital Center	\$100,778,986	\$97,190,366	3.7%	\$22,651	(\$4,156,736)	(\$4,134,085)	\$4,361,789	\$3,360,916	\$7,722,705
Seattle Cancer Care Alliance	\$11,694,373	\$8,530,020	37.1%	\$1,988	(\$2,041,775)	(\$2,039,787)	\$4,500,591	\$703,549	\$5,204,140
Swedish Medical Center/Cherry Hill	\$76,043,450	\$73,107,464	4.0%	\$17,038	\$11,706,700	\$11,723,739	\$2,675,606	(\$11,463,358)	(\$8,787,752)
CHI Franciscan St Anthony Hospital	\$16,046,167	\$13,261,448	21.0%	\$3,091	\$2,275,842	\$2,278,933	\$464,510	\$41,276	\$505,786
MultiCare Deacones Hospital	\$13,903,790	\$12,322,200	12.8%	\$2,872	\$612,246	\$615,118	\$532,800	\$433,672	\$966,473
EvergreenHealth Medical Center	\$39,247,678	\$37,830,170	3.7%	\$8,917	(\$491,027)	(\$482,210)	\$928,086	\$971,633	\$1,899,719

Source: Highlight: Inpatient Spending Trends in Washington State (February 2020). Washington Health Alliance. <https://www.wacommunitycheckup.org/highlights/inpatient-spending-trends-in-washington-state-february-2020/>. Accessed June 1, 2021.

C. Who Is Accountable?

States, insurers, and provider organizations all take actions—intentionally or otherwise—that influence care delivery and spending. Any effort to slow spending growth will require purposeful and coordinated action across these actors. When looking at total spending, spending growth, variation, and benchmark comparisons, states should analyze data at the same four levels for which performance against the cost growth target is customarily evaluated: state, market, payer, and provider entity (Table 1).

In the context of cost growth target assessment, a “provider entity” is an organization that is large enough to be held accountable to a cost growth target on a total-cost-of-care basis. Measurement of provider entities accountable to a cost growth target can be technically complex. A provider directory that maps individual clinicians to discrete provider entities simplifies such analysis by allowing states to attribute patients and their spending to the provider entity through its affiliated primary care clinicians.

Table 1. Levels of Analysis for a Data Use Strategy

Level of Analysis	Categories	Potential Subcategories
State	N/A	Region, county, city, zip code
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])
Provider entity ^a	N/A	Practice/practice site, facility, clinician and facility specialty type, site of service

^a It is straightforward to attribute spending to an individual provider using billing data and national provider identifiers (NPIs). However, many states do not have provider directories that map provider NPIs to specific practice sites and/or facilities. Creating and maintaining a provider directory requires significant state commitment and effort.

States may wish to begin with state- and market-level analyses because they provide a broad overview of spending patterns. Subsequent standardized reporting should include payer and provider entity-level inquiry.

A state can also assess spending associated with providers (e.g., hospitals, medical groups, imaging centers, drug manufacturers) that are not directly accountable for cost growth target performance but that generate significant amounts or increases in health care spending. Such analyses are not the focus of this report.

Recommended Standard Analytic Reports: Phase 1

States should begin their health care spending analysis with 11 standard analytic reports produced annually at the state and market levels. Each report should examine the effect of price, volume, service intensity, and population characteristics in the context of broader changes to spending and spending growth (Table 2). States should assess changes in spending using a minimum of two years of data; however, using more than two years is optimal to observe longitudinal patterns and trends. All reports should be produced on both a total and per capita spending basis.

Ideally, states should publish the analytic reports together and time their release to complement public reporting of performance against the cost growth target. This approach will help ensure that the data use strategy supports the broader work to meet cost growth targets.

Table 2. Standard Reports

Report No.	Report Description	In-Depth Trend Analysis
1	Spend by Market (PMPM)	None
2	Trend by Market (per capita)	Price, volume, intensity
3	Spend by Geography (PMPM)	Price, volume
4	Trend by Geography	Price, volume, intensity
5	Spend by Service Category	Price, volume
6	Trend by Service Category	Price, volume, intensity
7	Spend by Health Condition	Price, volume

Report No.	Report Description	In-Depth Trend Analysis
8	Trend by Health Condition	Price, volume, intensity
9	Spend by Demographic Variables	Price, volume
10	Trend by Demographic Variables	Price, volume, intensity
11	Cost Growth Target Unintended Consequences	N/A

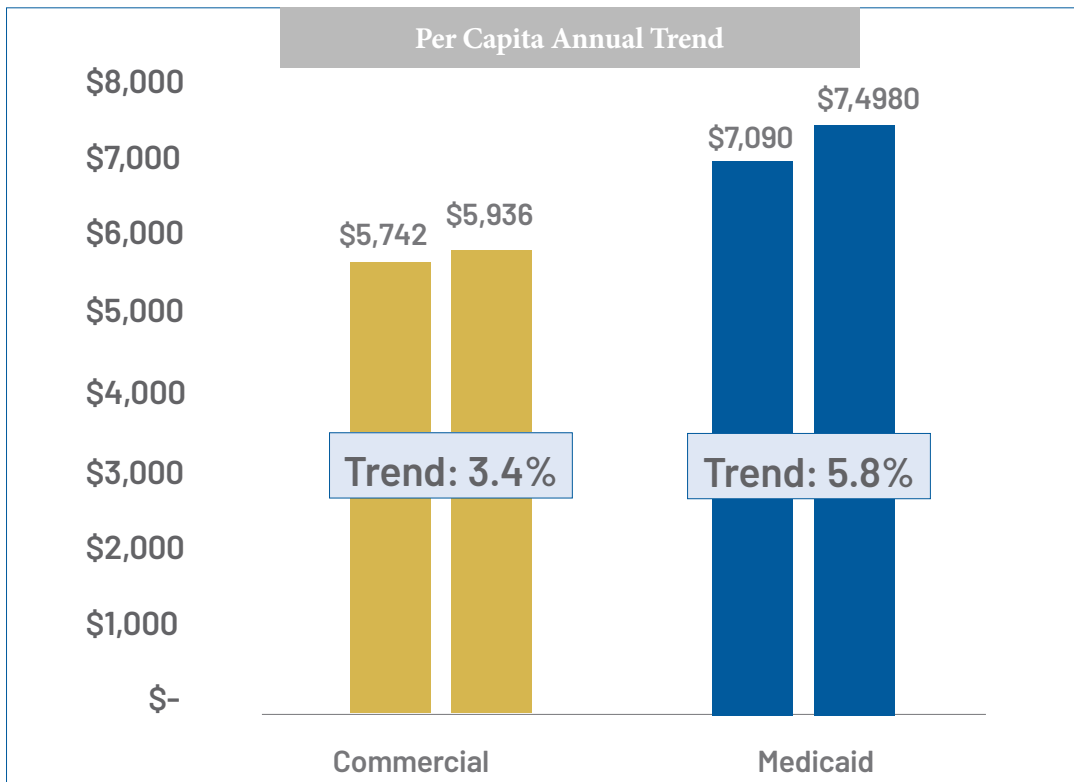
Additional details and examples of each report follow. While several states have implemented cost growth targets, no states have established data use strategies with standard, routinely generated reports. Therefore, these examples leverage existing state analytic reports that align with the recommendations but are not necessarily produced annually as advised in this report.

Reports 1 and 2: Spend and Trend by Market

These reports provide the highest levels of analysis of spending and spending growth by commercial, Medicaid, and Medicare markets. Because of the data missing from the APCD, the trend figures should approximate but will never equal calculations performed using payer-reported data for the state cost growth target.

Figure 3 shows an example of spend and trend analytic reporting by market from the Rhode Island Office of the Health Insurance Commissioner, which publishes data on performance relative to the state’s health care cost growth target. Although the primary measure in this figure is per capita spending, analyses of total spending and PMPM spending are recommended.

Figure 3. Spend and Trend by Market: Example from Rhode Island



Source: Rhode Island Office of the Health Insurance Commissioner. *Baseline 2017-2018 Performance Against the Cost Growth Target*. <http://www.ohic.ri.gov/documents/2020/November/Cost%20Trends/steering%20committee%202020-8-17.pptx>. August 17, 2020. Accessed February 24, 2021.

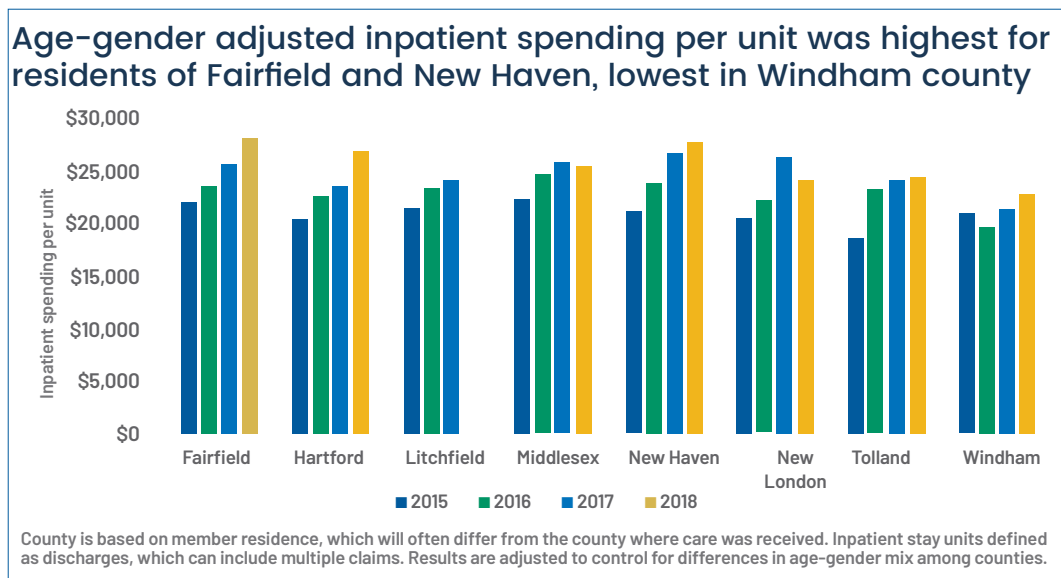
Reports 3 and 4: Spend and Trend by Geography

Reports 3 and 4 break down the previous reports to look at market spending by state geography. For over two decades the Dartmouth Atlas of Health Care has demonstrated tremendous variation in health care delivery and spending in the United States.¹¹ Analyses of variation in spending and utilization at the state level are consistent with national findings.

States should define geographic regions in ways that are meaningful within the state, such as by county, hospital service area, public health region, or other relevant divisions.

Figure 4 shows an analysis of medical claims in Connecticut's APCD for its commercial market (excluding self-insurance beyond the state employee health plan) by geography.

Figure 4. Spend and Trend by Geography: Example from Connecticut



Source: Connecticut Office of Health Strategy. *CT Commercial Cost Trends*. Analysis of the Connecticut commercial market performed by Mathematica. January 21, 2021.

Reports 5 and 6: Spend and Trend by Service Category

States should identify standardized health care service categories and subcategories to use in the analyses. Appendix A provides an example adapted from the categories that the Centers for Medicare & Medicaid Services (CMS) uses for its National Health Expenditure Accounts (NHEA).¹² These categories have been previously validated through widespread use by states and CMS, and the subcategories align with payer administrative data.

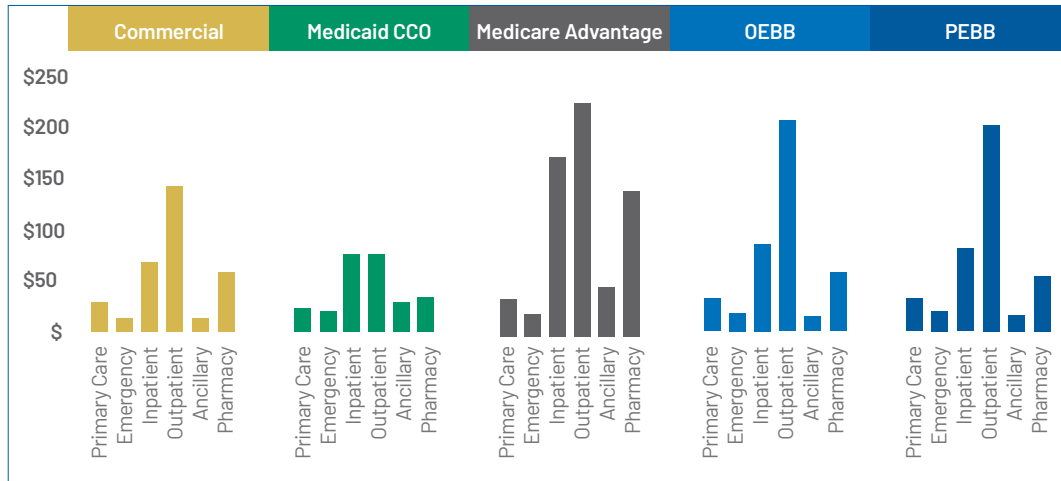
States may choose to include several subcategories that are not in the original NHEA framework but may provide additional insights. These subcategories include spending for primary care versus specialty care (within the NHEA professional services category) and spending for brand-name drugs, generic drugs, and specialty drugs (within the pharmaceutical spending category). In addition, we recommend modifying the NHEA pharmaceutical spending category to exclude diagnostic products that are available only by prescription because their direct intended use is not therapeutic.

Certain categories of the NHEA framework may not be applicable for all markets (e.g., long-term care is primarily relevant for Medicaid). The bottom line is that states can utilize any framework that is feasible and relevant. Some states, for example, have developed or

adopted special definitions for primary care spending. Other states have utilized the HCCI categories¹³ for analysis, although the categories were developed for use with commercial claims.

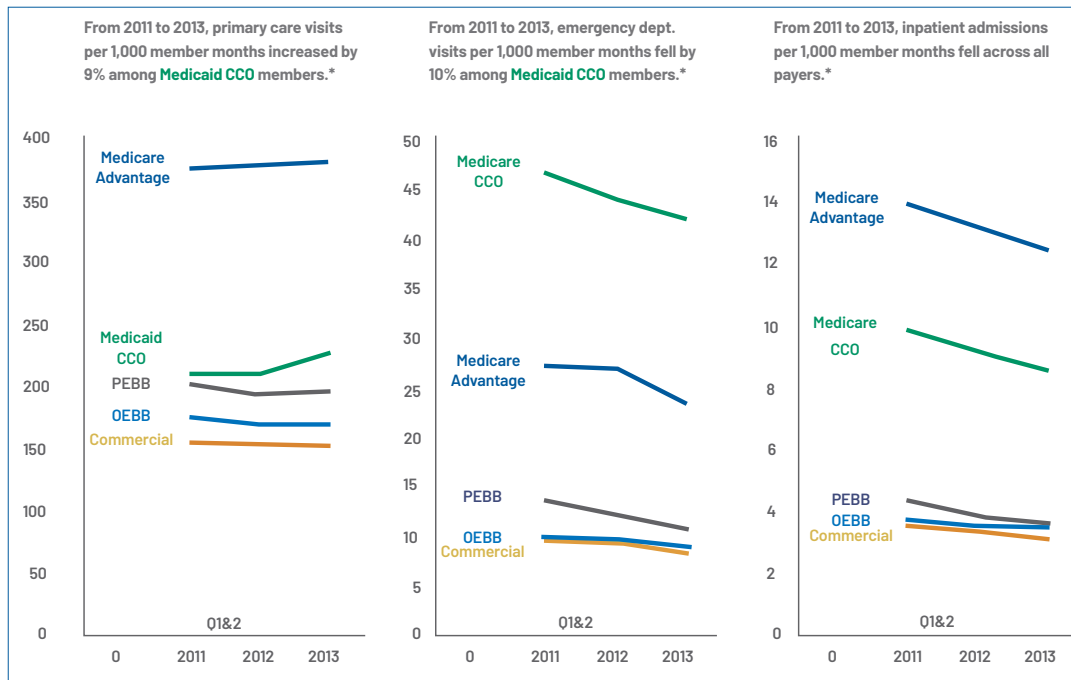
Figures 5 and 6 are examples from the Oregon Health Authority's All-Payer, All-Claims Reporting Program assessment of spend and trend by service category (and by market).

Figure 5. Spend by Service Category: Example from Oregon



Source: Oregon Health Authority. *Leading Indicators for Oregon's Health Care Transformation: Quarterly Data from the All-Payer, All-Claims Reporting Program.* https://www.oregon.gov/oha/HPA/ANALYTICS/APAC_Page_Docs/Leading-Indicators-Report-April-2015.pdf. April 30, 2015. Accessed February 24, 2021.

Figure 6. Trend by Service Category: Example from Oregon



Note: PEBB= Public employees' coverage. OEBB=Coverage for educators.
 Source: Oregon Health Authority. *Leading Indicators for Oregon's Health Care Transformation: Quarterly Data from the All-Payer, All-Claims Reporting Program.* https://www.oregon.gov/oha/HPA/ANALYTICS/APAC_Page_Docs/Leading-Indicators-Report-April-2015.pdf. April 30, 2015. Accessed February 24, 2021.

Reports 7 and 8: Spend and Trend by Health Condition

In addition to service category, states should understand spend and trend by health conditions to detect whether and how changes in health conditions influence service utilization. Chronic disease is a major factor in morbidity and mortality and is a significant driver of health care spending. In addition, chronic illness prevalence is growing in the United States.¹⁴ There is no definitive method for such analysis, but states can start by using CMS's Chronic Condition Warehouse (CCW) algorithms¹⁵ to assign chronic condition flags to individuals in the APCD using diagnostic codes. The CCW algorithms use a reference period of one or two years for each condition listed in Appendix B, with the exception of the Alzheimer's Disease and Related Disorders or Senile Dementia condition, which uses a three-year reference period.

Figure 7 is an example of a spend report using the CCW conditions produced by analyzing medical claims in Connecticut's APCD for its commercial market (excluding self-insurance beyond the state employee health plan).

Figure 7. Assessment of Spend by Health Condition: Example from Connecticut

Condition	2028		
	Members with condition	%	PMPY for members with this condition
All members	455,780	100.0	\$6,151
Hyperlipidemia	73,081	16.0	\$11,842
Hypertension	70,419	15.5	\$13,739
Rheumatoid Arthritis/Osteoarthritis	67,943	14.9	\$13,866
Depression	50,979	11.2	\$13,501
Diabetes	28,608	6.3	\$14,197
Anemia	26,723	5.9	\$25,355
Acquired Hypothyroidism	25,918	5.7	\$12,911
Glaucoma	18,035	4.0	\$9,004
Chronic Kidney Disease	17,732	3.9	\$24,029
Asthma	17,500	3.8	\$16,887
One or more of 27 chronic conditions	218,598	48.0	\$10,336
Two or more of 27 chronic conditions	115,855	25.4	\$14,379

Source: Connecticut Office of Health Strategy. *CT Commercial Cost Trends*. Analysis of the Connecticut commercial market performed by Mathematica. January 21, 2021.

Other proprietary methods of grouping and analyzing spending by condition have been developed. For example, Milliman has created the "Chronic Condition Hierarchical Groups."¹⁶ The Pediatric Medical Complexity Algorithm is designed for children and adolescents.¹⁷ If a state has such tools available for use with its APCD, it could consider using them as alternatives to the CCW algorithms.

Alternatively, states can measure spending associated with individuals with certain high-prevalence chronic conditions. This type of analysis would yield complementary information.

Since not all spending is associated with chronic conditions, states might consider adding analyses of other health conditions to understand clinical contributors to spending and spending growth. One way to do this is to use CMS's hierarchical condition categories (HCCs), a risk-adjustment model initially designed to estimate future health care costs. The 79 HCCs are each mapped to an ICD-10 code. A second approach is to use major diagnostic categories (MDCs).^{18,19} Like HCCs, the 25 MDCs utilize ICD-10 codes. Finally, a state can leverage categorizations already used by its analytics vendor or incorporated into its APCD.

Reports 9 and 10: Spend and Trend by Demographic Variable

States should select demographic variables to include in these reports, each of which may actually be several reports employing different variables for stratification.

Typical population demographic variables include age, gender, race/ethnicity, preferred language, English proficiency, income, rurality, and disability status. Some states may also wish to consider sexual orientation and gender identity variables. States should leverage supplemental data sources, such as census data from the American Community Survey (ACS), to link demographic data to APCD data by zip code or census tract. By so doing, states can evaluate how trends differ among communities with different demographic characteristics that are largely missing from APCDs, including race/ethnicity, preferred language, English proficiency, and income.

Demographic reporting has some limitations based on available data:

- ACS data are useful to evaluate the impact of race and ethnicity when analyzing spending, and have been demonstrated to be accurate at the large population level. These data are much less accurate for smaller population cohorts and not accurate at the individual level. This data source also fails to use what many consider to be the preferred method of assessing race and ethnicity: patient self-identification.
- Disability status is especially difficult to assess. Medicaid eligibility categories capture disability status, but many people with disabilities may not be identified as such in Medicaid data.

An example of spend analysis by demographic variables can be found in Figure 8, which focuses on people in Connecticut who were fully insured in commercial plans or covered by the state employee public health plan.

Figure 8. Income, Medical Spend, and Chronic Condition Prevalence by Racial Status: Example from Connecticut

Decile	Percentage white	Median family income	PMPM (adj.)	ED visit rate (adj.)	Percentage with condition				
					One or more conditions	Two or more conditions	Hypertension	Diabetes	Asthma
All	0 - 100	\$97,310	\$526.69	494	0.48	0.25	15.5	6.3	3.8
1	0 - 31	\$45,663	\$545.33	736	0.51	0.30	22.2	11.8	5.6
2	31 - 50	\$68,060	\$561.26	606	0.49	0.27	18.1	8.6	4.5
3	50 - 61	\$82,466	\$562.29	591	0.50	0.28	17.3	7.9	4.6
4	61 - 71	\$105,442	\$494.28	477	0.48	0.26	15.2	6.7	3.7
5	71 - 77	\$103,407	\$497.68	494	0.48	0.26	16.1	6.6	3.9
6	77 - 82	\$122,067	\$499.30	434	0.47	0.25	14.1	5.4	3.5
7	83 - 87	\$149,181	\$506.68	413	0.46	0.23	13.6	5.0	3.5
8	87 - 91	\$127,302	\$481.19	457	0.47	0.24	14.1	5.0	3.4
9	91 - 94	\$118,223	\$484.70	493	0.48	0.25	14.7	5.0	3.5
10	94 - 100	\$112,875	\$526.69	476	0.49	0.26	15.4	5.1	3.7
Ratio of 1st to 10th decile		0.40	1.09	1.55	1.03	1.17	1.44	2.33	1.51

Source: Connecticut Office of Health Strategy. *CT Commercial Cost Trends*. Analysis of the Connecticut commercial market performed by Mathematica. January 21, 2021.

Report 11: Cost Growth Target Unintended Consequences

While there is no evidence yet to support the concern, there is a risk that provider actions taken in response to the state’s cost growth target could have the effect of restricting patients from receiving medically necessary services. Such actions could exacerbate existing disparities in health care access and quality. States need to provide oversight in their cost growth programs using measures that can detect possible unintended adverse consequences of the cost growth target.

Report 11 comprises several measures selected to detect potential adverse consequences. The measures should be calculated both before and after the cost growth target period to assess changes over time. States should consider the following analyses:

- **Quality measures assessing utilization of preventive and chronic illness care.** These can include cancer screening measures, well-visit measures, diabetes-related measures, high blood pressure measures, and more.
- **Patient self-reported access to care, including but not limited to access to specialty care.** Such measures may help identify patient perceptions of underutilization that can be captured only through surveys, such as the Consumer Assessment of Healthcare Providers and Systems (CAHPS). This analysis can also include tracking member grievances, collected primarily for public plans, to identify whether members are experiencing challenges obtaining timely appointments.
- **Provider patient panel composition (to detect possible efforts to shun high-need, high-cost patients in lieu of healthier patients).** This analysis includes measures focused on assessing whether provider organizations are proactively selecting healthier

or more adherent patients (i.e., “cherry-picking”) or dropping patients who are less healthy or more complicated (i.e., “lemon dropping”).

- **Stratified analyses to assess specific—and disparate—impact of the target on groups that have been economically and socially marginalized, people with disabilities, Black people, Indigenous people, and people of color.** This analysis consists of stratifying the above measures using supplemental data sources (e.g., ACS data).

For more information on these measures, as well as a sample timeline for how to implement a plan to detect potential adverse consequences of a cost growth target, refer to the Connecticut Office of Health Strategy’s “Cost Growth Benchmark Unintended Adverse Consequences Measurement Plan.”²⁰

Because many factors affect performance on these measures, their use will not allow a state to definitively conclude that a state’s cost growth target produced any adverse changes that were observed. Any detected adverse changes should, however, trigger additional analyses to ascertain whether the cost growth target played a substantive contributing role.

Recommended Supplemental Reports: Phase 2

Once a state has established a regular cadence for the recommended standard reports, it should develop supplemental reports to enhance its ability to identify opportunities for actions to reduce cost growth. These supplemental reports might include, but would certainly not be limited to, analysis of the following factors:

- Provider entity- and payer-level analysis
- Variation across payers, providers, and geographies
- Supply as a cost driver
- Market consolidation as a cost driver
- Pharmacy cost drivers
- Out-of-pocket spending
- Benchmark analysis
- Site of care
- Professional specialty analysis

This section provides additional detail on these supplemental reports that could be used to further examine cost growth trends.

1. Provider entity- and payer-level analysis

After assessing spend and trend at a high level using the reports outlined in Phase 1, it is critical to assess spend and trend by provider entity and by payer. Assessing total spend and trend by provider and payer, especially relative to volume of services delivered, sheds light on whether spending varies because of differences in prices or utilization. These analyses should consider spend and trend for all total medical expenses, but can also be stratified to look at how spending for a specific service category or health condition varies by provider entity and payer.

2. Variation Across Payers, Providers, and Geographies

Capturing the variation in cost and cost growth drivers among payers, providers, and geographies can signal opportunity for reduced spending. Drilling down to understand which specific payers, providers, and geographies are high-cost outliers can inform more focused investigation of the underlying causes and inform targeted interventions. Identifying low-cost outliers may also provide useful insights if contributing factors can be elicited and best practices and/or lessons can be shared and adopted by payers and providers or in specific geographic locations with higher costs. States should proceed with caution to make sure low-cost outliers are not improperly limiting access to needed care or otherwise delivering substandard care.

3. Supply as a Cost Driver

It is well documented that the number of hospital beds and specialists in a given region impacts the amount of care delivered and its intensity.^{21,22} Analyses of the per capita specialist supply and per capita hospital bed supply—and their relationship to utilization across service categories in specific regions—may help pinpoint drivers of cost growth due to volume and service intensity. This in turn can identify opportunities for purchasers and payers to address regional care patterns, including where value-based payment methodologies may be applied as a tool to limit cost growth due to supply of specific categories of service.

For example, a study utilizing the Dartmouth Atlas of Health Care has demonstrated that in the fee-for-service Medicare population, the interaction between medical specialist supply, practice intensity, and level of hospital bed supply significantly increases cost by way of service intensity.²³ In regions with the lowest quintile of hospital bed supply, increasing the internist/medical specialist supply from the lowest to the highest quintile is associated with an 18% increase in the intensity of care. However, in areas with hospital bed supply in the highest quintile, the same increase in physician supply is associated with a 34% increase in intensity of care.

4. Market Consolidation as a Cost Driver

Extensive research has found a causal relationship between health care provider market consolidation and high prices.²⁴ States can assess the impact of provider organization mergers and acquisitions on price and on health care cost growth. They can also analyze variation in price based on regional market consolidation and the presence in the market of a dominant provider organization. Such analysis is relevant for facility and practice consolidation alike, and can be used to inform the design and application of policy actions to mitigate cost growth.

5. Pharmacy Cost Drivers

Pharmacy spending warrants special attention for a few reasons: (a) it represents a high percentage of total spending—sometimes over 25% for persons with commercial coverage; (b) in recent years it has often grown faster on a per capita basis than other categories of service spending, and with biologics and gene therapy drugs coming to market, growth is projected to continue; and (c) understanding pharmacy spending trends requires use of different measures than are typically employed for medical services.

Because manufacturer drug rebates are a significant offset to prescription drug spending, states should be mindful that claims-based analyses will overstate drug spending. Nonetheless, insights and opportunities can be gleaned from drug category analysis.

Key pharmacy spending metrics should assess the following:

- **Brand-name vs. generic drug utilization.** High utilization of branded drugs represents an opportunity to reduce costs through interventions such as evidence-based formularies and provider education.
- **Specialty drug spending.** Specialty drugs typically make up over 70% of pharmaceutical spending; therefore, more detailed analyses in this category may yield opportunities for cost and cost growth reductions. States should define specialty drugs as those with a 30-day equivalent negotiated price of \$670 in 2020 and \$780 in 2021, as defined by CMS, and examine spending by drug.^{25,26} This analysis can lead to insights on specific specialty drugs that may be driving overall pharmacy cost. Statewide or multistate collaborations may be instituted to influence price, volume, or prescribing, depending on the specific drug and context.
- **Spending patterns by drug classification category.** The American Society of Health-System Pharmacists produces the AHFS Pharmacologic-Therapeutic Classification. National drug codes (NDCs) can be mapped to 27 AHFS classes. Alternatively, Wolters Kluwer produces Lexicomp, another drug classification system.

The key pharmacy spending metrics that can be tracked to identify sources of cost and cost growth from APCD data are:

- Total and per capita pharmacy spending (\$)
- Total and per capita pharmacy claims (number)
- Total and per capita pharmacy spending (\$) for drug category and percentage of overall pharmacy spending
- Total and per capita claims (number) for drug category and percentage of all pharmacy claims
- Average spending (\$) per claim in drug category
- Total and per capita pharmacy spending by class (\$)
- Total and per capita pharmacy claims by class (number)

6. Out-of-Pocket Spending

Changes in commercial plan design to address fast-growing costs, and employer and employee selection of plans that trade lower premiums for higher cost sharing, have resulted in significant growth in consumer out-of-pocket spending. Analyses in multiple states have revealed that commercial enrollee out-of-pocket spending has grown much faster than total medical expenses on a per capita basis.^{27,28} No state can consider its cost growth target strategy to be completely successful so long as this is the case. For this reason, states should track out-of-pocket spending growth. This spending can be isolated by subtracting paid claims from total medical expenses. APCDs often collect data about member liability (e.g., co-insurance) that also provide information about out-of-pocket costs to individuals. Additional data sources can potentially be used to estimate self-payment for services with access constraints and for non-covered services, as well as for premium contributions.

7. Benchmark Analysis

Benchmarking results across market, payer, geography, and provider entity, as well as according to cost drivers in comparison with national databases and other states, is one

approach to identify opportunities for intervention. As noted previously, CMS publishes NHEA data.²⁹ Both HCCI³⁰ and RAND³¹ produce public reports on cost and cost growth benchmarks, and insurers routinely use cost benchmarks provided by third parties as a part of their financial and actuarial analyses that could be shared at a state or regional level. States should be careful to assess whether such analyses adequately capture the experience of a state's primary payers and whether there are differences in methodologies before using these outside sources for comparison purposes.

States can also compare results with other states that are engaging in cost growth target work and producing similar data and reports. Benchmarking may allow states to understand where their costs and cost growth deviate significantly from reference data (be it national or another state's data). This can help states prioritize and focus their action and intervention. Care will need to be taken when making such comparisons because states may employ differing definitions and methodologies.

8. Site of Care

Health care spending can be greatly influenced by the site of care. Place-of-service codes³² may be used to examine cost and cost growth at different sites of care, such as inpatient facilities, ambulatory surgery centers, pharmacies, skilled nursing facilities, and other settings. Additionally, examining place-of-service variation among providers and by geography for high-cost clinical conditions may provide insight into opportunities to utilize resources more effectively. For example, examining place-of-service codes for a given procedure or condition could help identify provider groups that utilize inpatient facilities for procedures that can be safely and less expensively performed in outpatient and ambulatory surgery center settings (e.g., endoscopy, minor surgical procedures), resulting in higher unit cost for a given procedure related to the condition.

Site-of-care analysis can allow a state to pinpoint factors that contribute to cost trends and cost variation and also identify opportunities for cost growth mitigation. For example, one state reportedly found that urgent care centers were generating higher costs than emergency rooms for treatment of like conditions. This finding led to a change in payment policy.³³

9. Professional Spending Analysis

Professional spending for specialty care may be of special interest when states are trying to ascertain cost drivers. States interested in such an area of inquiry should consider using the Berenson-Eggers Type of Service (BETOS) Codes.³⁴ The BETOS codes categorize professional spending into six categories:

- Primary care
- Non-procedural medical specialties (oncology, neurology)
- Procedural internal medicine specialties (cardiology, gastroenterology)
- Surgical specialties (e.g., general surgery, orthopedics)
- Other physician specialties (e.g., diagnostic radiology, pathology)
- Other health professionals (e.g., nurse practitioners, social workers)³⁵

Designed initially for analysis of Medicare spending, this approach can be modified to analyze Medicaid and commercial spending data, in part by including obstetrics and pediatrics. Brown University researchers performed such modifications to analyze Rhode Island APCD data, for example.³⁶

Future Directions

States should consider a phased approach to publishing their health care spending analyses. Beginning with simple and easy-to-understand findings provides an opportunity for states and their stakeholders to gain familiarity with the data and build the trust of key partners and stakeholders. States should also be transparent about their analytic methodologies and develop a process to allow providers and/or payers to review their own data prior to publication. All of these actions will support robust and collaborative ongoing efforts to reduce state health care cost growth.

After states have implemented the recommended standard analytic reports and pursued at least some of the recommended supplemental reports, they may develop more sophisticated reports to provide further insight into the cost drivers identified in the standard reporting. These ad hoc reports should drill down to explore specific spending patterns that could be addressed through stakeholder or policy-level actions to reduce health care cost growth. Examples include these possible objectives:

- Understanding the locus and frequency of inappropriate resource use or low-value care to craft strategies for its reduction.
- Analyzing the impact of payment models on cost and how payment models interact with unit price, service volume, risk mix, and service intensity.
- Understanding the cost implications of market competition and market concentration.
- Understanding the impact of primary care spending on total health care spending.

There is a vast universe of areas of inquiry for states seeking to support cost growth target attainment through analytic reports. Of course, state agency budgets limit the breadth and depth of analyses that states can pursue in a given year. For this reason, a structured, data-informed, and prioritized approach to analysis can ensure efficient application of state resources.

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Appendix A: Example of Health Care Service Categorization

Asterisks indicate categories or subcategories that are not included in the National Health Expenditure Accounts framework; other modifications of that framework are noted in the table.

Category/Subcategory	Description
Hospital care	Services provided by hospitals to patients, including room and board, ancillary charges, services of resident physicians, inpatient pharmacy, hospital-based nursing home and home health care, and any other services billed by hospitals
Inpatient hospital care*	
Outpatient hospital care*	
Other hospital-based care*	
Professional services	
Physician and clinical services	Services provided by MDs and DOs, and by outpatient care centers (e.g., FOHCs, RHCs)
Primary care*	Spending associated with primary care-specific provider taxonomy codes ³⁷
Specialty care*	Spending associated with specialty care-specific provider taxonomy codes ³⁸
Other professional services	Services provided in establishments operated by health practitioners other than physicians and dentists (e.g., private-duty nurses; chiropractors; podiatrists; optometrists; physical, occupational and speech therapists)
Dental services	Services provided in establishments operated by a DMD, DDS, or DDSc
Other health, residential and personal care services	Spending for home and community-based Medicaid waivers, residential care facilities, ambulance services, school health, and worksite health care
Home and community-based waivers*	
Residential care facilities*	
Other subcategories defined by the state's Medicaid program*	
Home health care	Medical care provided in the home by freestanding home health agencies
Nursing care facilities and continuing care retirement	Nursing and rehabilitative services provided in freestanding nursing home facilities
Subacute nursing facilities*	
Rehabilitative services*	
Long-term care*	
Assisted living*	
Pharmaceutical spending	Spending for human-use dosage-form prescription drugs, biological drugs, or vaccines (modified from the NHEA framework to exclude diagnostic products that are available only by a prescription)

Category/Subcategory	Description
Brand-name drugs*	
Generic drugs*	
Specialty drugs*	Drugs with a 30-day equivalent negotiated price of \$670 in 2020 and \$780 in 2021 ³⁹
Physician-administered drugs*	Distinguished by the use of a J code on medical claims; sometimes referred to as “medical pharmacy”
Durable medical equipment	Spending on items such as contact lenses, eyeglasses, surgical and orthopedic products, hearing aids, wheelchairs, and medical equipment rentals
Other*	All other spending not captured in the categories above (e.g., laboratory facilities, imaging facilities, freestanding surgical centers)

Appendix B: CMS Chronic Condition Warehouse

Conditions		
Acquired Hypothyroidism	Chronic Kidney Disease	Hip/Pelvic Fracture
Acute Myocardial Infarction	Chronic Obstructive Pulmonary Disease and Bronchiectasis	Hyperlipidemia
Alzheimer’s Disease	Colorectal Cancer	Hypertension
Alzheimer’s Disease and Related Disorders or Senile Dementia	Depression	Ischemic Heart Disease
Anemia	Diabetes	Lung Cancer
Asthma	Endometrial Cancer	Osteoporosis
Atrial Fibrillation	Female/Male Breast Cancer	Prostate Cancer
Benign Prostatic Hyperplasia	Glaucoma	Rheumatoid Arthritis/ Osteoarthritis
Cataract	Heart Failure	Stroke/Transient Ischemic Attack

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