

## The “Top 5” Low- and High-Value Services: Trends in Health Care Spending Among the Privately Insured, 2014-2016

### EXECUTIVE SUMMARY

In an analysis of health care claims from a major U.S. health insurer, we find that for the privately-insured population, spending growth from 2014 to 2016 on five frequently cited low-value health care services was slower than the growth in total health spending over the same period. Spending on five high-value services increased moderately, but also at a slower pace than total health spending. Using these ten services as *indicators* to compare trends in low-value and high-value health care spending in the U.S., we find some evidence that progress has been made in transitioning overall spending from low to high-value care. However, given the focus of researchers (consensus groups), policymakers, and health sector leaders on reducing the use of the five low-value services measured in this study, the limited progress observed in eliminating this care seems underwhelming. When extrapolated from the claims dataset to the entire U.S. privately-insured population, we estimate that annual spending on the five frequently cited low-value services was nearly \$3.0 Billion dollars.

Over the period analyzed, some progress was observed in reducing spending on two of the low-value care services, specifically: pre-operative testing for low-risk surgery and routine Vitamin D screening. However, spending on prostate-specific antigen (PSA) tests for men over 75 and on a selection of branded drugs with available chemically identical generics remained mostly flat. Spending on imaging for low-back pain increased substantially from 2014Q1 to 2016Q4 - up by 44%. Among the high-value services analyzed, spending on retinopathy for diabetics and on vaginal deliveries remained flat while spending on healthy behaviors counseling, HIV antiretroviral therapy, and annual flu shots grew faster than total health care spending.

This work, while far from a comprehensive analysis of “total spending” on low-value and high-value care, serves to establish an indicator approach of changes in spending through the analysis of frequently cited high-value and low-value services. It also establishes a baseline to contrast trends in spending over time and can be enhanced and improved by adding further to the lists of low-value and high-value services. This work also highlights the persistent use for some of the services that have been cited as obvious examples of low-value care—such as Vitamin D testing and imaging for low-back pain—and the continued need for interventions and institutional commitments to reduce these examples of care, e.g., in new payment policies.

### ACKNOWLEDGEMENTS

This work was completed under the [Research Consortium for Health Care Value Assessment](#), a collaboration of Altarum and VBID Health and funded by [The PhRMA Foundation’s Value Assessment Initiative](#). Further information on the Research Consortium can be found in this [Health Affairs Blog](#). This Consortium seeks to bring together research and discussion on value in health care from various stakeholders and researchers, and it conducts small, Consortium-funded annual research projects. This report highlights findings of the first “Quick Strike” research project, conducted in 2018.

## BACKGROUND

The focus on identifying, measuring and reducing the prevalence of low-value care services has increased over the last several years, with researchers looking to quantify the level to which these services are occurring in certain populations ([Schwartz, Colla, Segal, Oakes](#)). The low-value services targeted by researchers are typically developed by consensus processes and [professional societies](#) and are services that provide limited benefit to patients (or in many cases can cause more harm than benefit due to procedure risks or the potential costs of identifying false positives). Previous analyses in recent years have found that the use of these services remains frequent and also makes up a measurable portion of total spending ([Schwartz, Colla, Segal, Oakes](#)). With healthcare spending at [17.7% of GDP](#) (equating to \$3.7 trillion dollars) as of early 2019, it is rational to look at where reductions to health care spending could occur without impacting the quality of care given.

If spending on low-value care were directly reallocated to high-value services (services whose clinical benefits outweigh the risks and the costs) spending nearly 18% of our GDP on health care may not be as unpalatable as it currently is. Yet, current knowledge of the breakdown between low-value and high-value services is largely unknown, due to the difficulty in analyzing the many thousands of possible services for a wide array of patients. Indicators suggest that U.S. health care spending is likely disproportionately focused on low-value care, because while we spend more than any other developed country, we have some of the [poorest health outcomes](#). As we seek to analyze the trends in total health care spending, understanding the breakdowns between low-value and high-value care could aid in the determination of the extent to which the overall health care spend is too high.

## CURRENT PROJECT

To add to the understanding around the comparison and trends in low-value and high-value care spending, this analysis examined the prevalence and cost of five low-value care services and five high-value care services using claims data from 2014 through 2016 from a large commercial insurer, covering over 10 million lives. While analyses of just five low-value and high-value services are not complete characterizations of low-value and high-value care, trends among these notable examples serves both as plausible indicators of likely trends in other low-value and high-value services and also establishes a baseline measurement approach from which future analyses could expand to a greater number of services.

The five low-value services were identified through work of the [VBID Health Low-Value Care Task Force](#). These services were selected through a consensus process among the Task Force professionals as services that:

- clearly provided little to no value, independent of clinical context
- were not deemed controversial to evidence-based medicine, and
- could be eliminated without reducing overall quality to patients.

The Low Value Care Task Force, led by Dr. Mark Fendrick and Dr. Michael Chernew, recognized the need to include clinical nuance in the discussion of health care services. According to Drs. Fendrick and Chernew and the [Center for Value Based Insurance Design](#), clinical nuance “recognizes two important facts about the provision of medical care: 1) medical services differ in the amount of health produced, and 2) the clinical benefit derived from a medical service depends on who is using it, who is delivering the service, and where it is being delivered”. Because of the recognition of clinical nuance

in health care services, the Low-Value Care Task Force identified both the procedural codes needed to identify the service and procedural/diagnosis codes that could be used to identify clinical situations wherein the services were warranted. By providing both the inclusion criteria and exclusion criteria, we can disregard situations in which the service was likely warranted, leaving us with the remainder of those that are likely not warranted or likely of low-value.

Low-value services included in this analysis were:

- Vitamin D screening tests
- PSA testing in men 75+
- Unneeded testing and laboratory work prior to low-risk surgery
- Imaging for uncomplicated low-back pain within the first six weeks
- Use of more expensive branded medications when generics with identical active ingredients are available

The five high value services were selected through a literature review process, a review of high-value service recommendations from VBID Health, The Health Effectiveness Data and Information Set (HEDIS measures) from the National Committee for Quality Assurance, and recommendations from the U.S. Preventive Services Task Force. A down-selection of services was based on our ability to measure the service in claims data and the likelihood of the service being widely used. This resulted in a selection of seven high-value services which we vetted down to five. High-value services included in this analysis were:

- Retinopathy screening for diabetics
- Influenza vaccinations
- HIV therapy drug regimens
- Vaginal deliveries
- Healthy behaviors counseling (BMI counseling, tobacco counseling, and drug abuse counseling)

## DATA AND METHODS

The Research Consortium team built upon the coding specifications identified by the Low-Value Care Task Force by programming each of the five low-value care and high-value care definitions and then estimating the total utilization and spending on each service in a commercial claims dataset from a single insurer, spanning from 2014 to 2016. The commercial dataset, containing complete medical and pharmaceutical claims for over ten million enrollees, represents enrollees from each of the fifty states and accounts for at least 5% of the privately-insured population in 24 states. While not perfectly representative of the total U.S. privately-insured population, the breadth and extent of this insurer's coverage supports extrapolations to the entire U.S. privately-insured population. Furthermore, given that the algorithms to identify low-value and high-value care are applied consistently over the data, trends in the use of these services should accurately depict changes in utilization and spending.

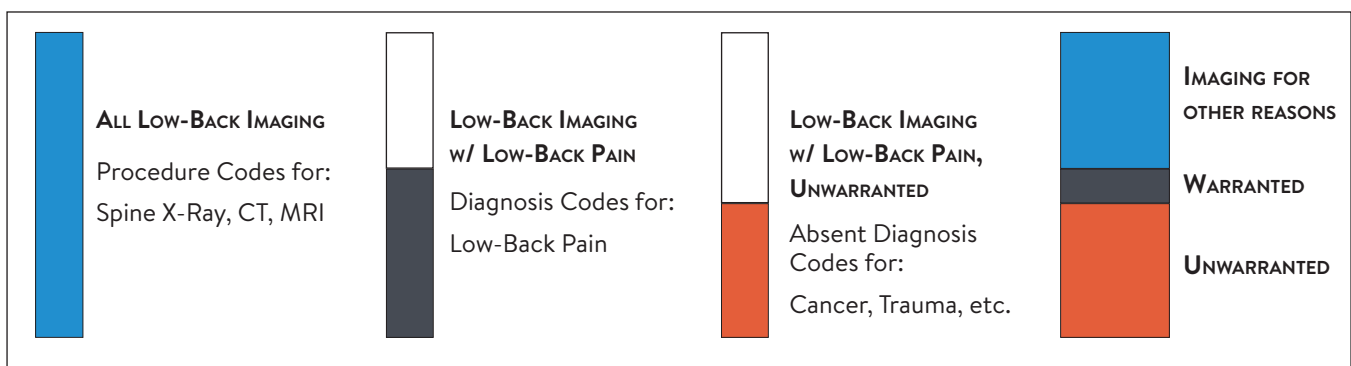
The algorithms of low-value and high-value care services followed the [definitions](#) of the *Low-Value Care Task Force* and were applied such that the following populations and categories of services were identified, displayed graphically in Figure 1:

- **Total utilization of a potentially low-value service.** This includes any receipt of a potentially low-value service, independent of corresponding diagnoses. Included in this count are services given

for diagnoses not relevant to the low-value care definition and also care given when possible “exclusion” conditions indicate the care may still have been appropriate.

- **Utilization of a potentially low-value service for the relevant diagnosis.** This step narrows the count and spending on the potentially low-value service to the instances where that service was given in the presence of a diagnosis code specific to the low-value care recommendation specifications.
- **Utilization of a potentially low-value service for the relevant diagnosis without exclusions.** Finally, even in cases where a potentially low-value service was given for a relevant diagnosis, we do not count uses of this services when possible “exclusion” criteria are present; for example, the presence of trauma diagnoses for low-back imaging for low-back pain.

**FIGURE 1: EXAMPLES OF LOW-VALUE CARE IDENTIFICATION (LOW-BACK IMAGING)**

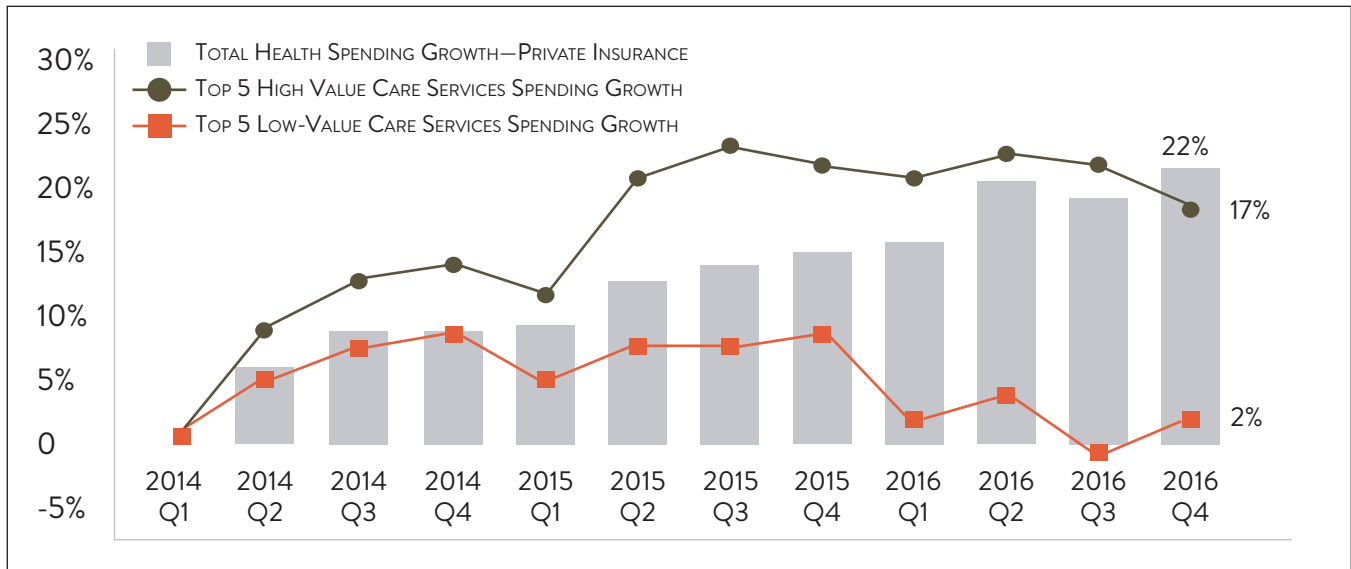


Data on the total amounts and trends in spending on low-value and high-value services are shown for the most specific category of the three: services with all relevant inclusion and exclusion criteria applied.

Results on total estimated spending on low-value and high-value care for the U.S. privately-insured population were made by extrapolating the frequency of use of the low-value and high-value services per member within the claims dataset to estimates of the entire commercially-insured population in each year as estimated by Centers for Medicare and Medicaid Services (CMS) National Health Expenditure Accounts (NHEA) [data](#). In order to avoid biasing the estimates of total spending on low-value and high-value care with the prices per service from this particular insurer, we instead compute spending estimates from Medicare prices for each procedure and then conservatively estimate that average U.S. private prices per service are 160% that of the Medicare prices. Furthermore, spending data on low-value and high-value services are inflated by the health care medical price index from Altarum’s [Health Sector Economic Indicators](#), so that the totals can be compared to nominal growth in privately-insured health spending, derived from Altarum’s [calculations](#) and CMS NHEA data.

All quarterly data on low-value and high-value spending represent estimates of spending within that quarter and are computed directly from variations in utilization in the commercial claims dataset with the exception of flu shot utilization. Due to a seasonality in the receipt of flu shots (most individuals receive their annual shots in either Q4 or Q1), we normalize the flu data for the cumulative quarterly chart (**Figure 2**) by attributing the total annual spending on flu shots equally across all four quarters within the year, instead of showing the unusually higher growth in high-value care in winter and then subsequent declines in the summer. Annual growth rates and data are unchanged by this approach.

**FIGURE 2: CUMULATIVE QUARTERLY SPENDING GROWTH, 2014-2016**



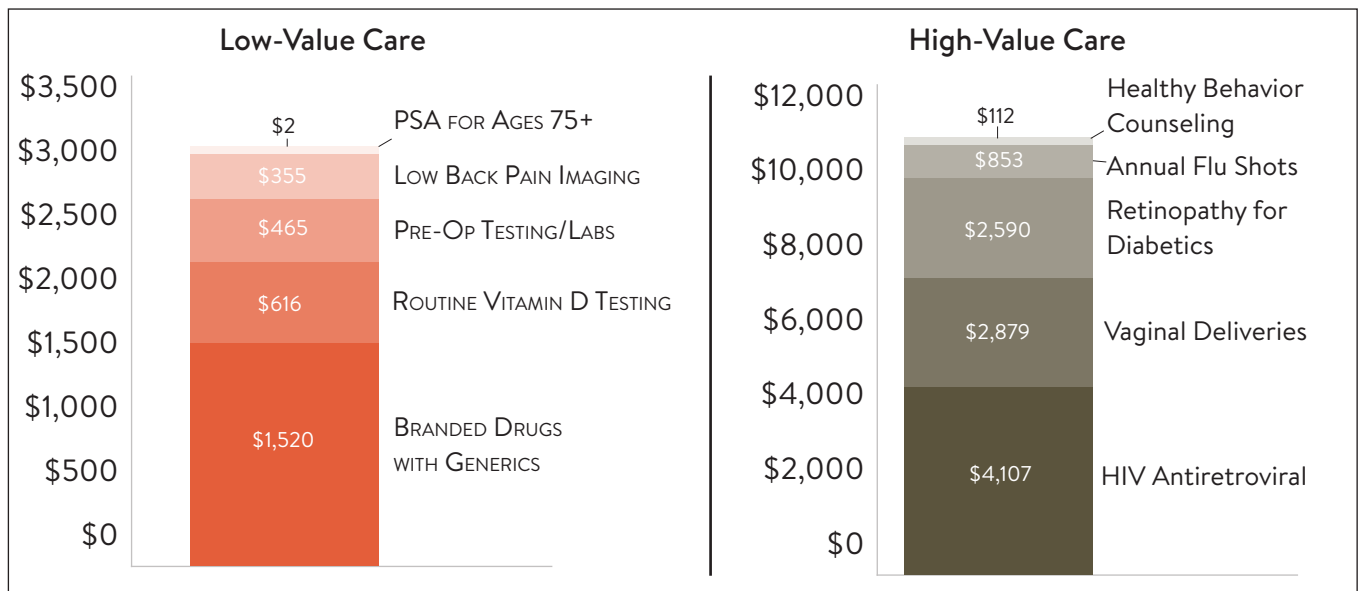
**RESULTS**

Extrapolating the estimates from our dataset of utilization of low-value and high-value care results to the entire U.S. commercially-insured population (196.9 Million enrollees in 2016) and then adjusting for changes in prices, we contrast the aggregate growth in spending on the five low-value care, five high-value care, and total private health spending from 2014 to 2016. While total private health spending averaged 6.6% growth per year over this period, high-value care spending averaged slightly less at 5.6% growth, and low-value care annual spending growth actually declined slightly by 1.7% (annual results not shown). While the selected low-value care services are not growing faster than national health care expenditures, it is not the decrease expected, given the attention to eliminating low value care and the specific services measured.

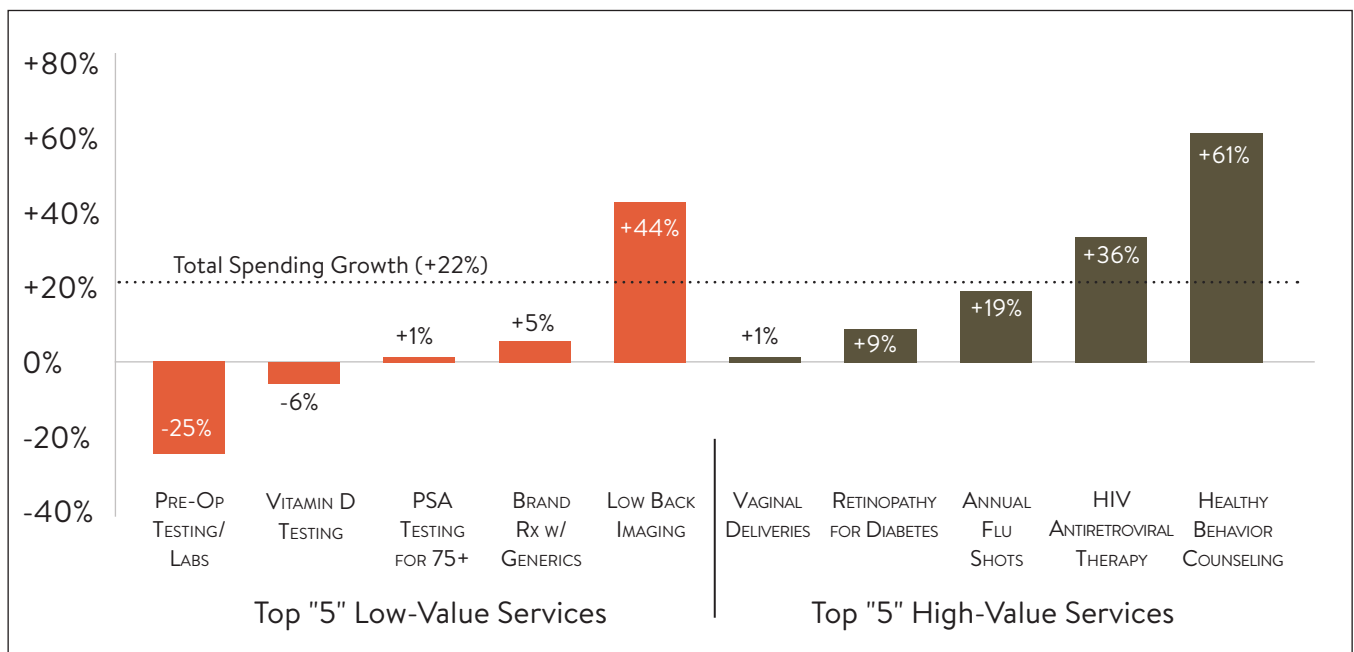
Further detail on growth in spending among low-value and high-value care is shown in **Figure 2**, which shows the cumulative changes in spending measured quarterly. While there is some inconsistency in the observed trends, growth in high-value care spending has generally exceeded total spending growth, while growth in low-value care spending has been well below total aggregate spending trends. In the quarterly data, spending through 2016 Q4 on high-value care grew by 17% from 2014 Q1, low-value care spending for the same period grew by only 2%, while total private health care spending was 22% higher at the end of 2016 compared to the beginning of 2014.

**Figure 3** shows the results of the extrapolation out to the entire U.S. commercially-insured population. In 2015 it is estimated these five low-value services alone cost nearly \$3.0 billion among the privately-insured nationally, with use of branded drugs when a pharmaceutically-equivalent generic was available was \$1.5 billion of the total. The next largest estimated total from the “Top 5” low-value services was Vitamin D testing, followed by pre-operative testing and labs for low-risk surgery and low-back pain imaging. PSA Tests for those 75 and older were rare in the privately-insured population and only accounted for an estimated \$2 Million in national spending.

**FIGURE 3: TOTAL SPENDING ON FIVE LOW- AND HIGH-VALUE CARE SERVICES (\$ MILLIONS), U.S. PRIVATELY INSURED POPULATION, 2015**



**FIGURE 4: SPENDING GROWTH ON THE "TOP 5" LOW-VALUE CARE SERVICES AND "TOP 5" HIGH-VALUE SERVICES 2014-2016**



When looking at changes in spending for each of the five services between the first quarter of 2014 and the end of 2016 (Figure 4), we find that low-back imaging spending increased by 44%, while spending on routine vitamin D testing and pre-operation testing and labs fell slightly. Branded drugs with generics and PSA Tests for those over age 75 remained relatively constant.

Figure 3 also shows estimates for what was spent on high-value care services in 2015. Here we estimate over \$10.5 Billion was spent nationally for the commercially insured population on the five



select high-value care services. Understanding that three of these services are affected by changes in diagnosis prevalence, vaginal deliveries and HIV therapies were the highest contributors, with healthy behaviors counseling contributing the least to the total.

**Figure 4** also shows changes in spending on high-value care services between 2014Q1 and 2016Q4. All five examples had positive growth over this period, healthy behavior counseling and HIV antiretroviral therapy had the fastest growth at 61% and 36% respectively over the period. Annual flu shots spending growth also exceeded total spending changes, resulting in 19% greater spending in 2016. For healthy behavior counseling, the total in 2014 was quite small, so despite the fast growth rate, it remained the smallest portion of the total in 2016.

## CONCLUSION

This report provides a framework to discuss health care spending in terms of where we are spending in addition to how much we are spending and provides data on trends in high-value and low-value spending empowered by analyses of “Top 5” frequently-cited examples of each. By tracking services over time, we can observe where improvements are being made in the reduction of low-value services and increases in high-value services relative to total spending. Where we are spending our health care dollars is a critical question to understanding areas for fruitful policy changes. The data suggest that even though there has been significant discussion on reducing low-value care services in the system, to-date, the reduction has been slight. In contrast, the increase in spending on the selected high-value services is a positive indicator; however, the growth is inconsistent. As the tracking of low-value and high-value care matures, the Research Consortium team aims to add additional low-value and high value-services to the calculations and apply those algorithms to a more comprehensive dataset, which ideally includes both Medicare and Medicaid claims data in addition to private insurance.

## AUTHORS

Corwin Ryan, Beth Beaudin-Seiler, Mark Fendrick, George Miller and Michael Budros.



### ABOUT US

The Research Consortium for Health Care Value Assessment is a partnership between Altarum and VBID Health, with funding from the PhRMA Foundation as part of its Value Assessment Initiative, established to promote the pursuit of value in health care delivery in the U.S.

**Contact:** Beth Beaudin-Seiler, Ph.D., 3520 Green Court, Suite 300, Ann Arbor, MI 48105  
(734) 302-5691 | [www.hcvalueassessment.org](http://www.hcvalueassessment.org) | @ValueConsortium