These monthly reports provide a summary of key trends in U.S. health care spending, prices, utilization, and employment. They build on Altarum’s Health Sector Economic IndicatorsSM briefs (HSEI) and the U.S. Census Bureau’s Quarterly Services Survey (QSS). Advance QSS data for the third quarter (Q3) of 2017 were released in November 2017 and are reflected in this expanded report through the Bureau of Economic Analysis (BEA) spending data that incorporate QSS, and are a primary source for our HSEI spending briefs. The shaded sections on pages 1 and 2 present key observations; the remainder of the report describes current trends in greater detail.

This month, CMS released its official health spending data for 2016 and showed growth slowing to 4.3%. HSEI shows 2017 growth averaging 4.7% through Q3, but downward revisions seem probable.

- HSEI data, reflecting the latest QSS, show health spending growth at 4.8% for Q3 2017, bringing the three quarter average to 4.7% (all growth rates are year-over-year unless otherwise specified).

- Spending on the health care services component grew by 4.6% in Q3 (see chart), the same rate as the Q1 through Q3 average. This is down slightly from the 4.8% growth experienced in 2016.

- Prescription drug spending has averaged 5% growth from Q1 through Q3 2017, up from 1.3% in 2016. However, the 2017 growth rate estimates do not take account of rebates and may well be revised downward when CMS data for 2017 come available next December (see next page).

Growth in health care services spending by quarter, 2006 through Q3 2017

Source: Altarum Center for Sustainable Health Spending. Growth above 4% is highlighted in red.

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Official CMS estimates of prescription drug spending are adjusted for manufacturer rebates, while BEA growth rates reflect pre-rebate spending.¹

- CMS estimates of growth in spending on prescription drugs have tended to be lower than BEA estimates since 2007, and this is likely due to the rapid growth in rebates during this time (see chart).²
  - For example, in 2016, BEA data showed 5.0% growth, while newly released CMS data show 1.3% (see chart)
  - Thus, HSEI data had been showing 5.0% growth in prescription drug spending for 2016, but now shows 1.3% growth.

- BEA data show 5.0% growth in prescription drug spending through Q3 2017, but it seems likely that this rate will be adjusted downward once CMS data for 2017 come available next December.³

**Growth in spending on prescription drugs: BEA and CMS**

![Chart of growth in prescription drug spending](chart.jpg)

*Source: Altarum analysis of BEA and CMS data*

Health care price growth has averaged only 1.1% over the past four months (through November 2017), below the 1.8% recent growth in economy-wide prices.

- The newly-released CMS estimate of prescription drug price growth shows 1.3% for 2016, while the BLS prescription drug CPI shows 5.0% growth. This difference also likely reflects rebates.⁴

Through November, health job growth has averaged 24,000 in 2017, compared to 32,000 in 2016.

- Much of this slowdown is due to hospital job growth, which has slowed to about 5,000 per month through November 2017 compared to 10,000 per month in 2016.

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¹ Reminder: HSEI prescription drug spending growth rates are benchmarked to CMS through the most current CMS year (now 2016) and are based upon BEA data for more recent months.

² When rebates grow faster than pre-rebate spending, net spending grows more slowly than pre-rebate spending. Note that due to differences in data and methods, CMS and BEA growth rates may vary for reasons other than rebates.

³ This assumes that rebates will continue to grow faster than pre-rebate spending. Of course this pattern will eventually cease and even reverse but this does not seem to be happening yet.

⁴ CMS uses the BLS prescription drug CPI as the initial basis for its price growth estimate but then makes adjustments for rebates.
Distribution of National Health Expenditures

The health spending data described in this report are derived from the Altarum monthly HSEI. This is a change from previous expanded versions of this report that directly incorporated QSS data into our estimates for the most recent quarter. That is no longer necessary thanks to the new Advance QSS which, because of its earlier release schedule, is incorporated into the HSEI in time for use in this report. HSEI data are designed to be consistent with national health expenditures (NHE), as defined in the National Health Expenditure Accounts (NHEA) maintained by the Centers for Medicare & Medicaid Services (CMS). Data through 2016 are benchmarked to the most recent official annual estimates by CMS, as released on December 6, 2017 (we derive monthly detail). For 2017, HSEI data represent our best estimates of monthly NHE using methods described in the monthly HSEI releases.

To gain an understanding of trends and growth in health spending, it is useful to have a picture of the major components of NHE and their relative proportions. We present this information as background by using NHEA data for 2016. Figure 1 breaks down NHE into the major spending categories. Health care products (goods) and services accounted for about 85% of NHE in 2016, with services alone accounting for 71.7%. Administrative and net costs of insurance made up 7.9% of NHE. Public health, medical research, and investments in structures and equipment made up the remaining 7.2%.

**Figure 1: NHE by Spending Category, 2016**

- Services: 71.7%
- Products: 13.2%
- Pub Hlth, Research, Structures & Equip: 7.2%
- Admin & Net Cost of Insurance: 7.9%

**Source: CMS Office of the Actuary.**

**Figure 2: NHE by Major Components of Categories, 2016**

- Other: 31.2%
- Physician and Clinical: 19.9%
- Prescription Drugs: 9.8%
- Net Cost of Insurance: 6.6%
- Hospitals: 32.4%

**Source: CMS Office of the Actuary.**

Figure 2 presents another way to divide NHE, identifying the largest components of the major spending categories. The largest components of health care services are hospitals and physicians, which together account for more than half (52.3%) of NHE. Health care products are dominated by prescription drugs (9.8% out of 13.2%), and the net cost of insurance accounts for most of the administrative and net costs of insurance category (6.6% out of 7.9%). Taken together, these 4 components—hospitals, physician and clinical services, prescription drugs, and the net cost of insurance—make up more than two-thirds of NHE (68.8%).

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5 The Advance QSS data are first incorporated into monthly Bureau of Economic Analysis (BEA) spending estimates that we then incorporate into HSEI. 
6 Per CMS, “Government administration and the net cost of health insurance includes the administrative cost of running various government health care programs, and the difference between premiums earned by insurers and the claims or losses incurred for which insurers become liable.”
Growth in NHE with Selected Components

The shaded bars in Figure 3 show the annual growth rates in NHE from 2006 through Q2 2017. During 2006 and 2007, the years immediately preceding the recession, the growth rate exceeded 6%. In 2009, the last year of the recession, the rate dropped to 4% and remained close to 4% through 2012. The annual growth rate dipped further in 2013 to an all-time low of 2.9%. Growth then accelerated to 5.1% in 2014 and 5.8% in 2015. Quarterly data for 2015 (not shown) reveal that growth peaked in Q1 at 7.1% and declined steadily to a rate of 4.5% in Q4. This downward trend bottomed out at 4.3% in 2016 and has averaged 4.7% during the first 3 quarters of 2017.

Figure 3 also displays the growth rates over this period for health care services, prescription drugs, and the cost of insurance, which together account for about 89% of NHE. While health care services constitute the largest component by far, and drive most of the movement in overall health expenditure growth, the volatility of spending on prescription drugs and the cost of insurance in the past gives these two smaller components a disproportionate impact on NHE growth rates in some years.

The increases in NHE during 2014 and 2015 were partially a result of expanded coverage under the Patient Protection and Affordable Care Act (ACA). The growth rate for services was 5.8% in 2015, well above the 2010-2012 average of 4.3%. Improved access to both public and private health insurance increased utilization over this period and drove up overall spending. Expanded coverage also had impacts on prescription drug spending and the cost of insurance. After a large spike in prescription drug spending in 2014 resulting, in part, from the introduction of the costly hepatitis C specialty drugs, growth remained high in 2015 due to lingering impacts of expanded coverage. The jump in growth rates in administration and the net cost of insurance in 2014 is partly due to expanded coverage and partly to higher enrollment of Medicaid beneficiaries into managed care. In fee for service Medicaid, the cost of insurance is limited to government administrative costs. When beneficiaries transition to managed care, the net cost of insurance jumps as Medicaid Health Maintenance Organizations (HMOs) collect more in premiums than they pay out in benefits while government administrative costs are largely unaffected.

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7 Price inflation for the U.S. economy, as measured by the gross domestic product deflator, averaged 3.1% for 2005-2007 and 1.5% for 2009-2013, a drop of 1.6 percentage points. Thus, nearly 60% of the roughly 2.7-percentage-point decline in the health spending growth rate pre- and post-recession can be attributed to lower overall price inflation. See Charles Roehrig’s Health Affairs blog for a detailed breakdown of the post-recession spending slowdown. The recession began in December 2007 and ended in June 2009.
The slowdown in health spending growth in 2016 and the first half of 2017 is indicative of the slowing expanded coverage from the ACA. Spending on health care services in 2016 slowed to 4.8% and through Q3 of 2017 has dropped to 4.6%, close to its rate for 2010 through 2012. Growth in prescription drug spending slowed to 1.3% in 2016 (this includes the impact of rebates) and is averaging 5.0% through Q3 of 2017 (these growth rate estimates do not account for rebates and may overestimate actual growth since rebates appear to be increasing as a share of prescription drug spending).

Figure 4 compares the growth rate in health care services spending to the growth rates of its two largest components: hospitals and physicians. During the years shown prior to coverage expansion (2006–2013), the average growth rate in hospital spending (5.6%) was substantially higher than for physician spending (4.1%). However, since coverage expansion began in 2014, physician spending has averaged 5.4% growth compared to 4.6% for hospitals. Thus, expansion appears to have affected physician spending more than hospital spending (the cause of the precipitous drop in hospital spending growth in Q2 and Q3 of 2017 is not yet known). As discussed in the next section, the growth in services spending in 2016 and through Q3 of 2017 comes despite only moderate changes in prices, suggesting that this growth is a result of utilization.

The Role of Health Care Prices in Spending Growth

Total spending on health care can be represented by the familiar economic formula of $P \times Q$, where $P$ represents the price paid for the product or service and $Q$ represents the quantity purchased. The percentage growth in $P \times Q$ is well-approximated by the percentage growth in $P$ plus the percentage growth in $Q$. This means that the difference between the growth rates in spending and prices is an indicator of the growth rate in the quantity of care consumed or, using the more familiar term, health care utilization.

Figure 5 plots the growth rate in spending on health care services along with the growth in prices for those services. For the pre-recession years of 2006 and 2007, the growth rate for spending on services averaged 6.2%, with 3.3%

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8 Prior to the release of official CMS spending for 2016, we were estimating about 5% growth in prescription drug spending but noted that our data source did not account for rebates and might overstate growth. The CMS release, which accounts for rebates, showed only 1.3% growth. It seems likely that our 2017 growth rate estimates are also biased upward since they do not account for rebates. However, it is important to recognize that if rebates grow at the same rate as pre-rebate spending, the adjustment for rebates does not impact the growth rate.

9 It is well known that in health care, the price charged often bears little resemblance to the price actually paid, thanks to negotiated contracts that supersede list prices (charges). To address this problem, the Bureau of Labor Statistics (BLS) price indexes that Altarum uses are based on “transaction” prices (the agreed-upon payment) rather than charges. For prescription drugs, these transaction prices do not reflect rebates which are a separate payment directly from the manufacturer.

10 To be precise, the growth in $P \times Q$ is equal to the growth in $P$ plus the growth in $Q$ plus the product of the growth rates. When growth rates are small, the product is negligible and the approximation is quite accurate.

11 Price growth is based on a health services price index constructed from the health care price index data obtained from CMS. Deflating by this measure gives an implicit measure of utilization.
attributable to prices and 2.9% to utilization. Post-recession, from 2009 to 2013, growth in spending on services averaged 4.2%, with prices and utilization each accounting for 2.1%. Spending growth peaked at 5.8% in 2015 with prices contributing only 0.6%. Thus, utilization growth accelerated to 5.1% in 2015. This is the expected impact of expanded coverage as the newly insured use more care. For 2016 and through Q3 of 2017, spending growth has averaged 4.7% with prices contributing 1.3%. Thus, utilization growth had fallen back to 3.4% and will presumably fall even further as coverage expansion has leveled off.

The growth in prices for health care services is determined primarily by prices for hospital and physician services, each plotted for recent years in Figure 6. Comparing 2006–2007 with 2009–2014, hospital price growth dropped from 3.9% to 2.3%; for physician services, there was a decline from 2.5% to 1.3%. While hospital prices have grown slowly over the past 3 years, physician prices actually decreased throughout 2015, returning to 0.2% average growth in 2016. This swing accounts for some of the change in physician and clinical spending observed in Figure 4. The negative physician price growth observed in 2015 reflects the discontinuation of enhanced primary care payments for Medicaid providers. The return to positive growth in 2016 is predictable as prices are being compared to 2015, the first year of the discontinuance of enhanced payments.

Figure 7 plots rates of growth in spending and prices for prescription drugs. Medicare Part D prescription drug coverage began in 2006, thus the large rate of growth in prescription drug spending in that year is an outlier. After 2006, the rate of growth in drug spending ranged from about 5% to nearly 0%, but was well-controlled in a historic context until 2014, when the rate jumped to 12.4%, driven primarily by new specialty drugs. This high rate of spending growth trended down in 2015 and through the first 3 quarters of 2016.
The pattern of growth in drug prices has been less volatile and suggests that the rapid spending growth in 2006, 2014, and 2015 was driven by utilization. This is, of course, what would be expected from the expanded coverage that occurred in each of these years. Spending and price growth through 2016 are based upon CMS estimates that are adjusted for drug rebates. However, growth rates for 2017 are based upon BEA monthly spending data and the BLS prescription drug CPI, neither of which are adjusted for rebates. When rebates are increasing as a share of spending, which has been the case recently, spending and price growth will be overstated. Thus, it seems likely that our 2017 estimates will be adjusted downward when CMS releases official 2017 data next December.

Health Care Services Jobs and Productivity

The health care services industry is a major employer, accounting for more than 15 million jobs, about 10.8% of all U.S. jobs (an all-time high). Interestingly, the distribution of jobs across types of services is quite different from the distribution of spending on types of services (Figure 8). For example, while hospitals account for 45% of health services spending, their share of health services jobs is only 33%. Similarly, physicians account for 28% of spending but only 17% of jobs. The remaining services, including nursing homes, home health, dentists, and other ambulatory services, account for more than half of all jobs but only 27% of spending.

There are various reasons for these large differences between the distribution of jobs and spending. In the case of physician services, a key factor is that the job totals do not include unincorporated self-employed individuals, and many physicians fit into this category. More broadly, there are differences in the mix of occupations and salaries, and in the amount of nonlabor costs, associated with different categories of services. For example, the nonlabor share of hospital costs is about 48%, but for nursing homes, it is 38%.

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12 In 2016, the BEA and BLS CPI datashow 5% growth in prescription drug spending and prices while the recently released CMS rebate-adjusted estimates put both growth rates at 1.3%.

13 Labor data used in this report are from the BLS Current Employment Statistics monthly survey.

14 “Nonlabor costs” refers to costs not associated with employment.

If the method of producing health care services remained constant over time, the rate of growth in health services jobs would equal the growth in the utilization of such services. As noted earlier, the rate of growth in services utilization can be approximated by subtracting the rate of growth in prices from the rate of growth in spending.\(^1\)

Figure 9 compares growth rates for jobs and utilization from 2006 through Q3 of 2017. The growth rates are similar through 2013, apart from a small bump in utilization growth in 2012. In 2014, utilization growth jumped well above job growth, with the gap peaking in 2015 and then declining in 2016 and 2017 to date. The difference between the utilization and job growth is a rough measure of productivity, in the sense that it represents the percentage change in services produced per job. By this measure, productivity has increased since 2005, with services per job up by 8.6% as of Q3 2017 (Figure 10). (Utilization growth in 2014 and 2015 may be somewhat overstated due to reductions in uncompensated care, which causes spending to rise faster than \(P \times Q\).) When observed over a longer time horizon, this rough productivity measure was relatively flat in the 1990s, grew slowly prior to the 2008 recession and then moderated until the spike in 2014 and, especially, 2015 as shown in Figure 10.

**Concluding Observations**

We had been estimating 4.6% growth in health spending for 2016, but this has been revised downward to 4.3% as a result of the new CMS data. Most of the revision was due to a lower estimate of prescription drug spending growth; CMS showed only 1.3% growth in prescription drug spending for 2016, while we had been estimating 5.0% growth. This lower CMS estimate is likely due to the fact that CMS adjusts prescription drug spending for rebates. Similarly, CMS estimates 1.3% growth in prescription drug prices for 2016, despite the fact that the BLS prescription drug CPI shows 5.0% growth in 2016. While CMS cites the BLS prescription drug CPI as their source for prescription drug price growth in their methodology document, email correspondence confirms that they adjust this index for rebates. This is appropriate because the BLS index measures changes in prices paid at retail, and rebates are not reflected in the retail prices. These large CMS adjustments for 2016 suggest that our estimates of prescription drug spending and price growth for 2017 to date could also be subject to significant adjustments (since rebates are not reflected in our 2017 growth rates). We continue to research approaches to developing our own current year adjustments.

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\(^1\) More precisely, the formula is spending growth minus price growth, all divided by the sum of 1 and the price growth.

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