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 second quarter (Q2) of 2017 were released in September 2017 and are reflected in this expanded report through the Bureau of Economic Analysis 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.

**In Q2 2017, health spending growth drops below 4% for the first time since Q1 2014.**

- HSEI data, reflecting the latest QSS, show health spending growth at just under 4% for Q2 2017 (all growth rates are year over year unless otherwise specified).
- Health spending growth is now estimated at 4.4% for the first half of 2017 compared to 4.6% for 2016.
- Spending on the health care services component dropped sharply to 3.5% in Q2 (see chart), led by hospital spending which grew by a paltry 1.3%. Spending on prescription drugs grew at 5.2% in Q2 but this estimate does not account for possible changes in the share of rebates.

**Growth in health care services spending by quarter, 2006 through Q2 2017**

![Chart showing growth in health care services spending by quarter, 2006 through Q2 2017.](chart)

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

This report was authored by Charles Roehrig, charles.roehrig@altarum.org, with assistance from Corwin Rhyan, Ani Turner, Paul Hughes-Cromwick, and George Miller. All are with the Center for Sustainable Health Spending (CSHS).

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Company sales of hepatitis C increased slightly in Q2 2017

- Sales of hepatitis C drugs (net of rebates) have leveled off at about $2.2 billion per quarter, but a new entry from AbbVie (Mavyret) could disrupt this pattern starting in Q3 2017.

U.S. sales of hepatitis C drugs from quarterly company reports

![Graph showing sales of hepatitis C drugs from 2013 to 2017 Q2](image)

Source: Altarum Center for Sustainable Health Spending analysis of company reports.

During the first half of 2017, health care price growth averaged 1.8%, the same as economy-wide inflation.

- Growth in prices of health care services averaged only 1.4% in the first half of 2017 and, since 2011, has been at or below economy-wide inflation (see chart).
- Prescription drug prices (not adjusted for rebates) grew at 4.5% during the first half of 2017.

Growth in health care services prices compared to economy-wide price growth

![Graph showing growth in health care services prices compared to GDP deflator](image)

Source: Altarum Center for Sustainable Health Spending.

Monthly health sector job growth in 2017 through August has slowed to an average of 26,000 jobs per month, compared to 32,000 in 2015 and 2016.

- Monthly growth in health care jobs in 2017 has ranged from 15,000 in March to 41,000 in July. The most recent month (August) showed growth of 20,000 jobs.
- Most of the variation in 2017 health job growth has been in the ambulatory sector, where growth ranged from 8,000 jobs in March to 30,000 jobs in July.
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 2015 are benchmarked to the most recent official annual estimates by CMS, as released on December 2, 2016 (we derive monthly detail). For 2016, 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 2015. Figure 1 breaks down NHE into the major spending categories. Health care products (goods) and services accounted for about 85% of NHE in 2015, with services alone accounting for 71.3%. 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 7.4%.

**Figure 1: NHE by Spending Category, 2015**

Source: CMS Office of the Actuary.

**Figure 2: NHE by Major Components of Categories, 2015**

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 (52.1%) of NHE. Health care products are dominated by prescription drugs (10.1% out of 13.5%), 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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1 The Advance QSS data are first incorporated into monthly Bureau of Economic Analysis (BEA) spending estimates that we then incorporate into HSEI.

2 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%, according to CMS revised data. Growth then accelerated to 5.3% in 2014 and 5.8% in 2015. Quarterly data for 2015 (not shown) reveal that growth peaked in Q1 at 7.2% and declined steadily to a rate of 4.5% in Q4. This downward trend leveled off at 4.6% in 2016 and has averaged 4.4% during the first 2 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 and 2015 is partly due to expanded

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3 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, about 60% of the roughly 2.6-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.

4 As a rough rule of thumb, the impact of a particular component on changes in the overall NHE growth rate from one year to the next is the product of the change in the growth rate of that component and its share of total NHE. For example, the growth in spending on prescription drugs increased by about 9.8 percentage points between 2013 and 2014. Since spending on prescription drugs represented 9.2% of NHE in 2013, the jump in the growth rate added about 0.9 percentage points to NHE growth in 2014 (0.098 x 0.092 = 0.0090).
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.

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 4.9% and in the first half of 2017 has dropped to 4.3%, similar to its rate for 2010 through 2012. Growth in prescription drug spending slowed to 5.0% in 2016 and is averaging 5.2% for the first half 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 5.5% growth compared to 4.8% 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 of 2017 is not yet known). As discussed in the next section, the growth in services spending in 2016 and the first half 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.\(^5\) The percentage growth in \( P \times Q \) is well-approximated by the percentage growth in \( P \) plus the percentage growth in \( Q \).\(^6\) 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.\(^7\) 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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\(^5\) 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.

\(^6\) 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.

\(^7\) 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 5.7% 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 the first half of 2017, spending growth has averaged 4.6% with prices contributing 1.3%. Thus utilization growth fallen back to 3.3% 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. However, there are important issues with the BLS prescription drug price index used here. First, it does not capture the impact of rebates, so in periods when rebates are increasing as a share of spending, price growth will be overstated. Second, the introduction of an expensive new drug such as Sovaldi does not affect the price index in the year of introduction. Finally, when there is a major shift from brand names to generics, as occurred in 2012, the impact on the BLS index is delayed, because the market basket used to weight prices is not immediately updated. Because rebates are not accounted for in our estimates of prescription drug spending growth for 2016 and 2017, these growth rates may overestimate actual growth (for years prior to 2016, growth rates are benchmarked to CMS estimates which do account for rebates). Likewise, prescription drug price growth estimates do not include rebates and, therefore, are likely to be biased upwards since rebates appear to be a growing share of spending.

**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

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8 Growth in price indices are calculated by finding the weighted average price change of a “market basket” of goods. When a new product (such as Sovaldi) is released, it takes time before it appears in the market basket and, therefore, it initially has no impact on price growth. Its impact is thus limited to price changes after it appears in the market basket.

9 The Rx price growth shown in Figure 7 is based on Table 23 from CMS NHE Tables through 2014 and the BLS prescription drug consumer price index (CPI) for 2015. CMS documentation cites the BLS CPI as a source for its prescription drug price index but has introduced adjustments to properly capture the timing of the 2012 “patent cliff.”

10 Labor data used in this report are from the BLS Current Employment Statistics monthly survey.
in the amount of nonlabor costs, associated with different categories of services.\textsuperscript{11} For example, the nonlabor share of hospital costs is about 48%, but for nursing homes, it is 38%.\textsuperscript{12}

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.\textsuperscript{13}

**Figure 9: Growth in Health Jobs Versus Utilization**

![Graph showing growth in health jobs versus utilization from 2006 to 2017.](image)

**Figure 10: Health Services per Job Index**

![Graph showing health services per job index from 2006 to 2017.](image)

Source: Altarum CSHS.

Source: Altarum CSHS. Index = 1.0 in 2005.

Figure 9 compares growth rates for jobs and utilization from 2006 through Q2 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 back to zero in Q2 2017. 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 nearly 7% as of Q2 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 x 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**

One of the ongoing themes in these monthly reports has been the expectation that health spending and job growth would be driven up during the period of rapid coverage expansion under the ACA, and should fall back once coverage had leveled off. The bulk of coverage expansion occurred during 2014 and 2015 with a leveling off starting in 2016. As shown in the exhibit on the first page of this report, the growth in spending on health care services did indeed respond, jumping to a peak of 7.1% in the first quarter of 2015 and declining since then, though unevenly, back toward 4%. Growth in health jobs also responded, jumping from 1.5% in 2013 to a peak of 2.7% in the third quarter of 2015, and declining to a current growth rate of 2.1% (see September HSEI Labor Brief). Because data are volatile and subject to revision, and there are other cost drivers at work, it remains to be seen whether we will return to the record low growth rates that preceded coverage expansion.

\textsuperscript{11} “Nonlabor costs” refers to costs not associated with employment.


\textsuperscript{13} More precisely, the formula is spending growth minus price growth, all divided by the sum of 1 and the price growth.