

Do Structural Changes Drive the Recent Health Care Spending Slowdown? New Evidence

Updated Implications for Medicare Policy and Deficit Reduction

Dobson | DaVanzo

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New Evidence of Structural Changes Driving Health Care Spending Slowdown

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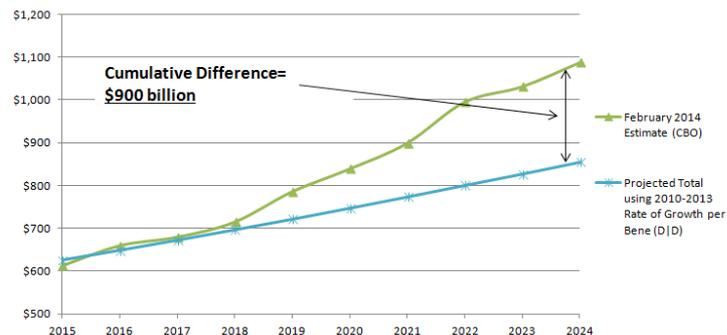
II. Discussion

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Key Takeaways from Our Assessment of the Health Care Spending Slowdown

- **The trend endures:** With a projected rate of 3.8% in 2013, national health care spending growth remains at historic lows for the 4th consecutive year.¹
- **There are more than economic forces at play:** “The slowdown in health care cost growth is more than just an artifact of the 2007-2009 recession: something has changed...Rather, the slowdown appears to reflect ‘structural’ changes in the United States health care system.”² According to CBO Director Douglas Elmendorf, “Growth in spending for the fee-for-service portion of Medicare has slowed markedly in the past few years—apparently *not* because of financial turmoil and recession but because of other factors affecting the behavior of beneficiaries and providers.”³
- **Significant savings in near-term:** CBO has lowered its health care spending projections for the 6th consecutive year, acknowledging, “that growth will be slower than usual for some years to come.”⁴ Applying these new projections to our prior model estimates as much as \$900 billion in additional Medicare savings beyond current CBO projections.

Sources: 1. Cuckler et al. (2013). National Health Expenditure Projections, 2012-22: Slow Growth Until Coverage Expands And Economy Improves. *Health Affairs* 32(10):1820-1831.
2. Council of Economic Advisers (2013, November). Trends in Health Care Cost Growth and the Role of the Affordable Care Act.
3. Douglas W. Elmendorf, CBO, September 19, 2013.
4. Congressional Budget Office (2014, February). The Budget and Economic Outlook 2014 to 2024. [Pub. No. 4869]. Washington, DC: CBO.

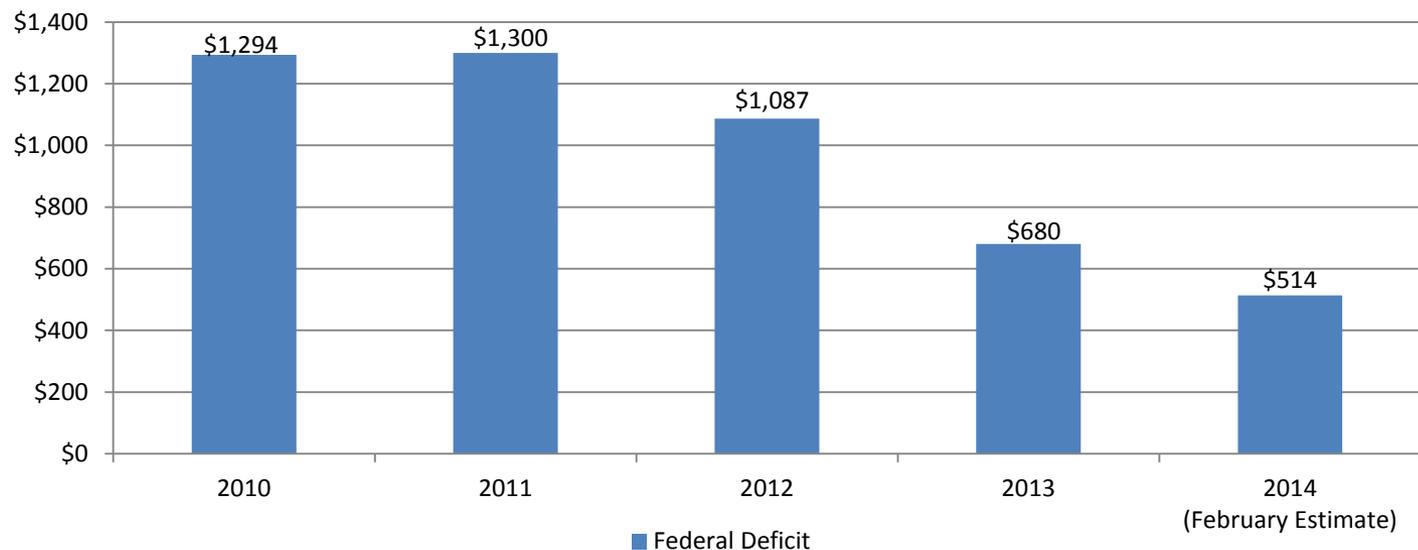


Source: Dobson | DaVanzo analysis of 2014 Baseline CBO estimates (see slide 24)

Actual and Projected Federal Deficits Continue to Decrease

- The projected deficit continues to decrease, and for 2014 is less than half of the 2012 deficit and almost 25% less than the 2013 deficit
- This is driven, in part, by slower health care expenditure growth

Federal Deficit (billions)



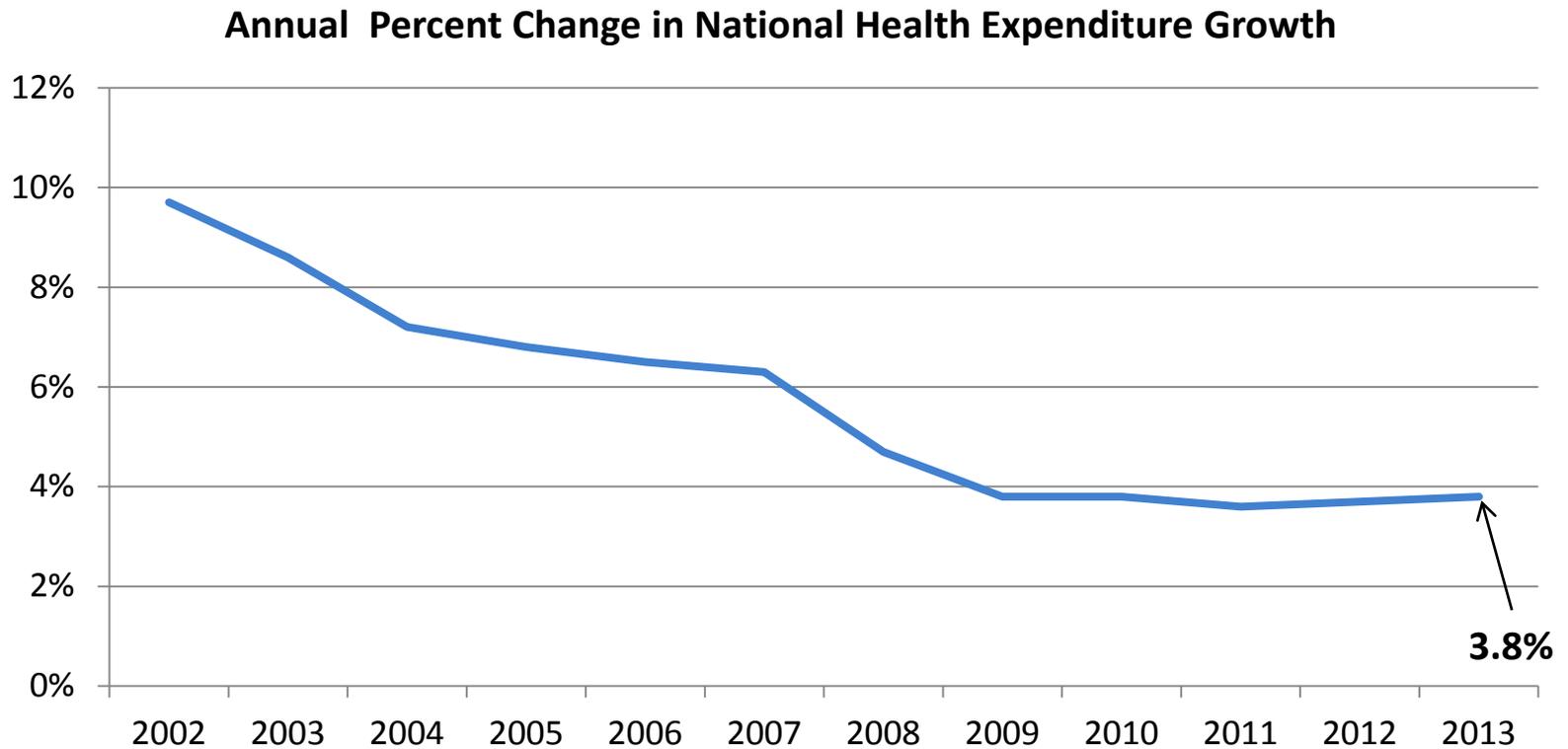
Source: Congressional Budget Office (2014, February). The Budget and Economic Outlook 2014 to 2024. [Pub. No. 4869]. Washington, DC: CBO.

CBO Reduces Medicare Spending Projections for 6 Years in a Row

- **Since 2013, CBO has further lowered its projections of Medicare and Medicaid spending by \$221 billion through 2023**
- **This projection reflects \$154 billion from the Medicare program and \$67 billion from the Medicaid program in reduced spending**
- **This lower projection is in part due to lower estimated health care input prices**
 - “[CBO’s] projected prices for goods and services (including the cost of both labor and non-labor inputs) are lower [compared to 2013 projections]”
 - “In the Medicaid program, lower projected prices for medical services and for labor are also expected to reduce spending”

Source: Congressional Budget Office (2014, February). The Budget and Economic Outlook 2014 to 2024. [Pub. No. 4869]. Washington, DC: CBO.

Four Years of Historic Low Growth Indicate the Cost Curve Is Bending

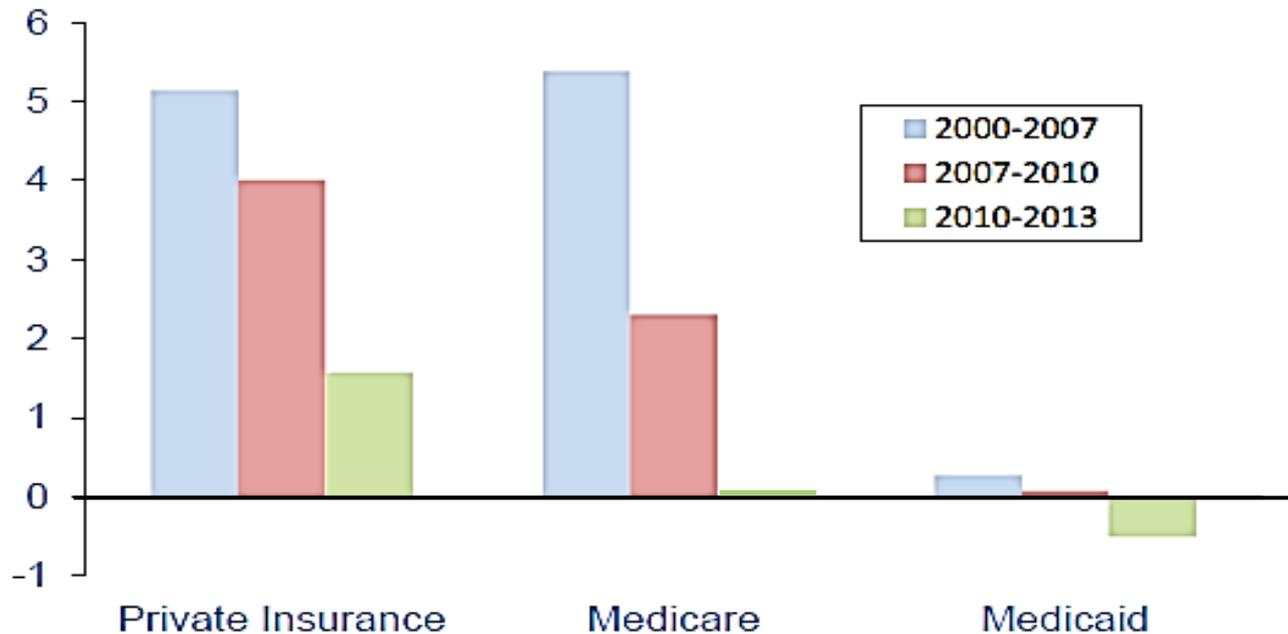


Source: CMS OACT National Health Statistics Group. Note: 2013 is a projection.

New Evidence of Slowdown: Per Enrollee Spending Growth Is Falling Across Payers

Real Per Enrollee Growth in Health Spending by Payer

Average Annual Growth Rate



Notes: Figures for 2012 and 2013 are projections.

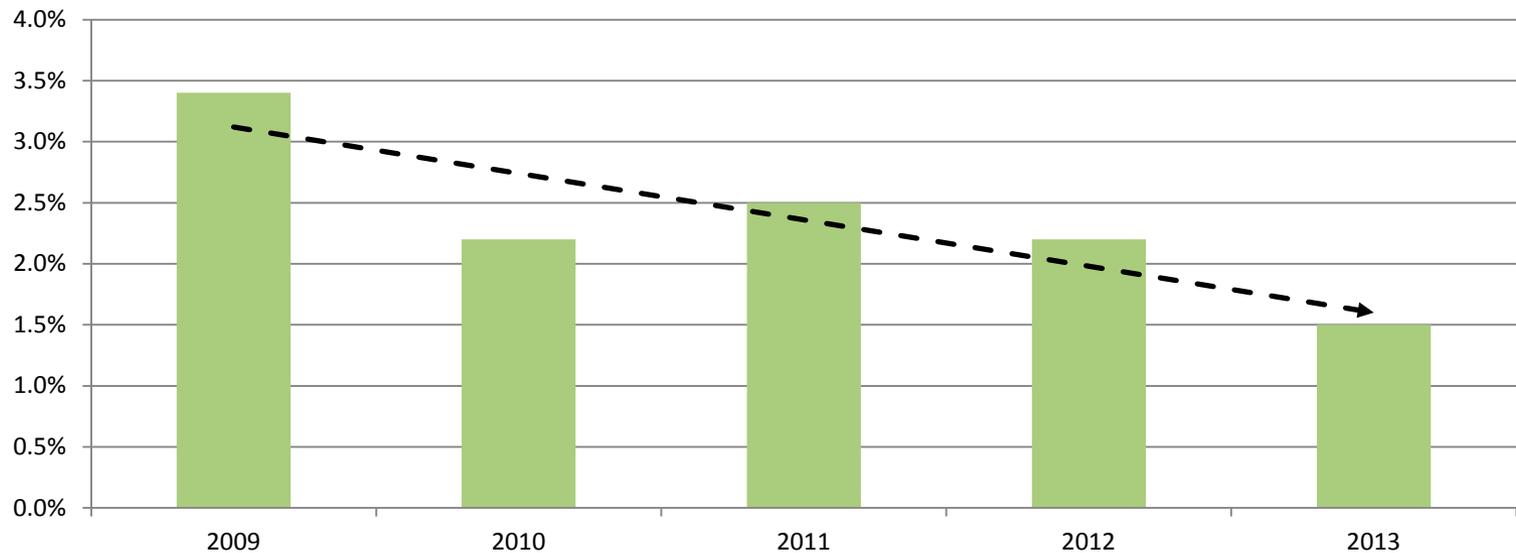
Sources: Center for Medicare and Medicaid Services and Bureau of Economic Analysis.

Source: Council of Economic Advisors (2013, November). Trends in Health Care Cost Growth and the Role of the Affordable Care Act.

New Evidence of Slowdown: Declining Growth of Hospital Prices

- **Growth rates in hospital prices, historically a large driver of overall health care prices, reached near-historic lows in 2013**
 - Recent trends in hospital consolidation have not led to higher growth in hospital prices over the past several years (just 1.5% from December 2012 to December 2013)

Year-Over-Year Growth Rates in Hospital Price Index (2009-2013)

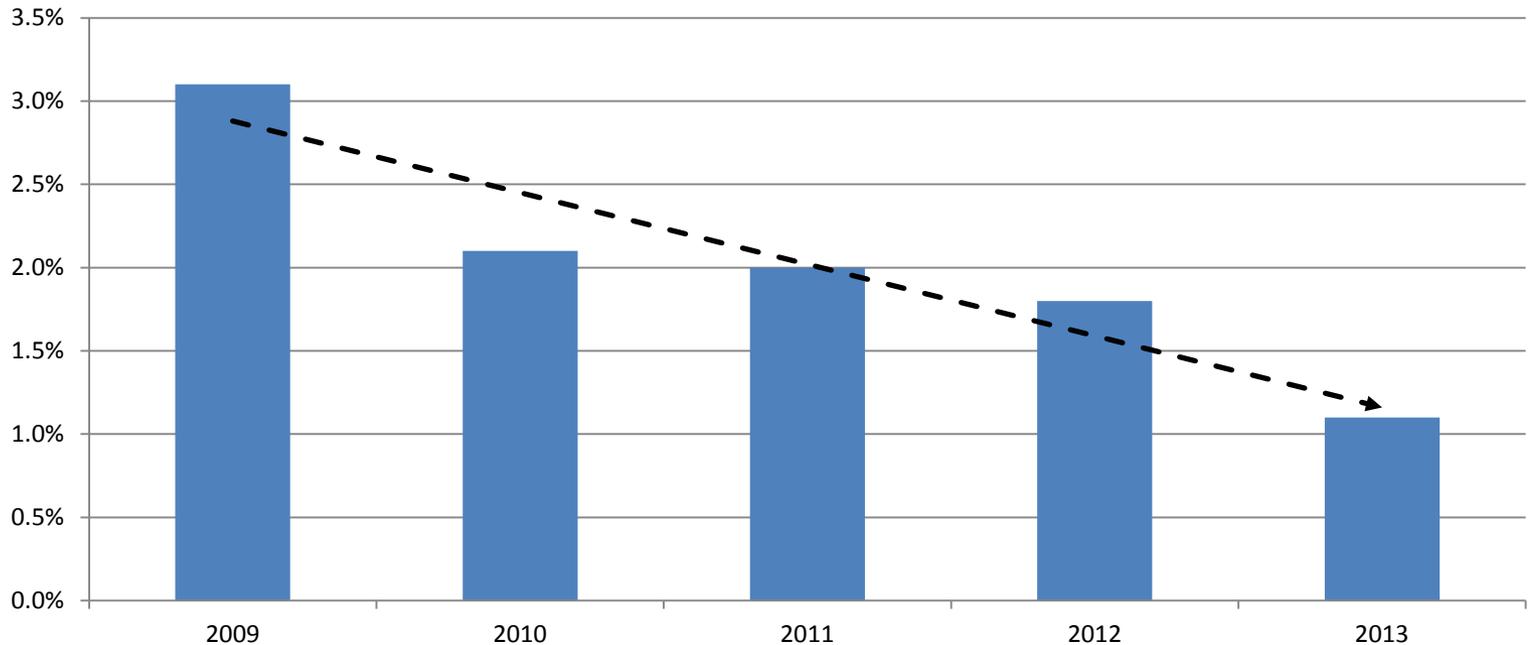


Source: Dobson | DaVanzo analysis of Bureau of Labor Statistics Data. Note: annual growth rates calculated from December to December of each year.

Falling Prices to Near-Historic Lows Could Help to Sustain the Spending Slowdown...

- Health care prices increased just 1.1% from December 2012 to December 2013, the 2nd lowest increase in the past 50 years¹

Year-Over-Year Growth Rates in Health Care Price Index (2009-2013)²



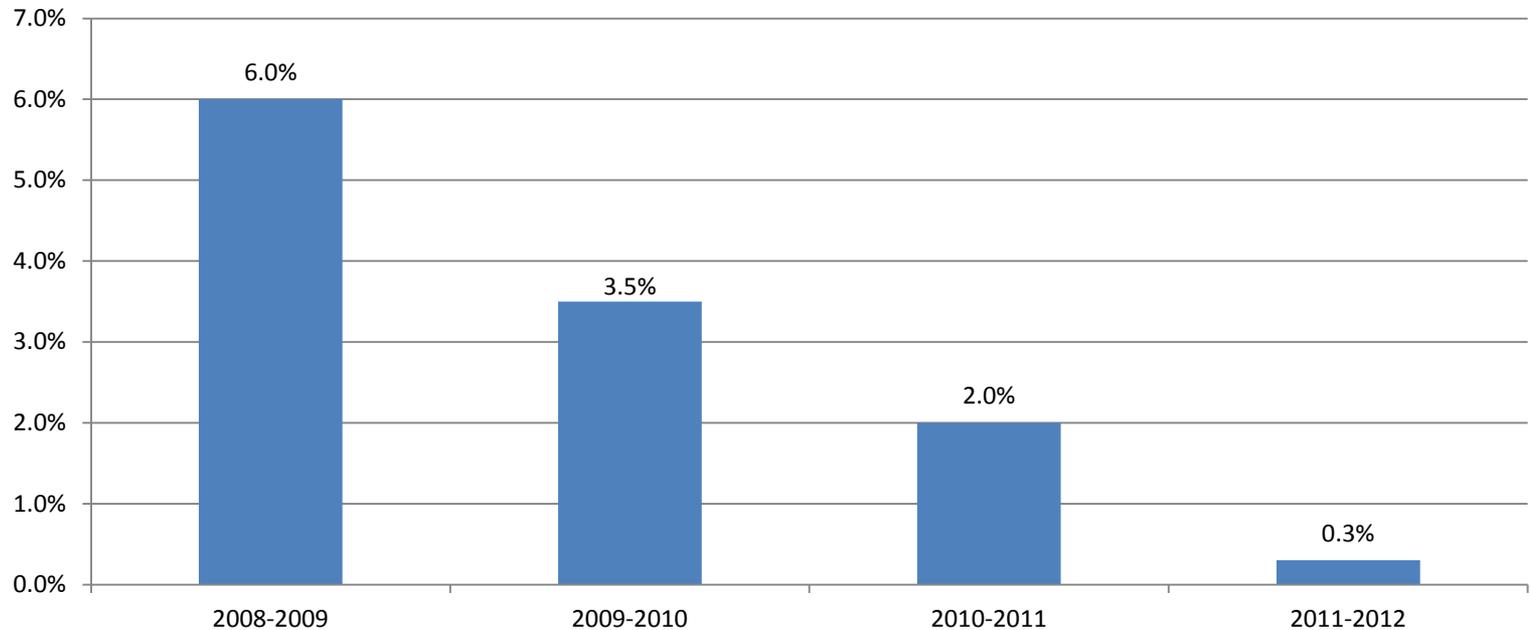
Sources: 1. Altarum Institute Center for Sustainable Health Spending. (2014) January Price Brief.

2. Dobson | DaVanzo analysis of Bureau of Labor Statistics Data. Note: annual growth rates calculated from December to December of each year.

...And Contribute to Decelerating Growth in Hospital Spending Per Medicare Beneficiary

- **The annual growth rate of spending per Medicare beneficiary on hospital services has decreased to nearly 0% since 2008**

Annual Growth in Medicare Per Beneficiary Hospital Spending

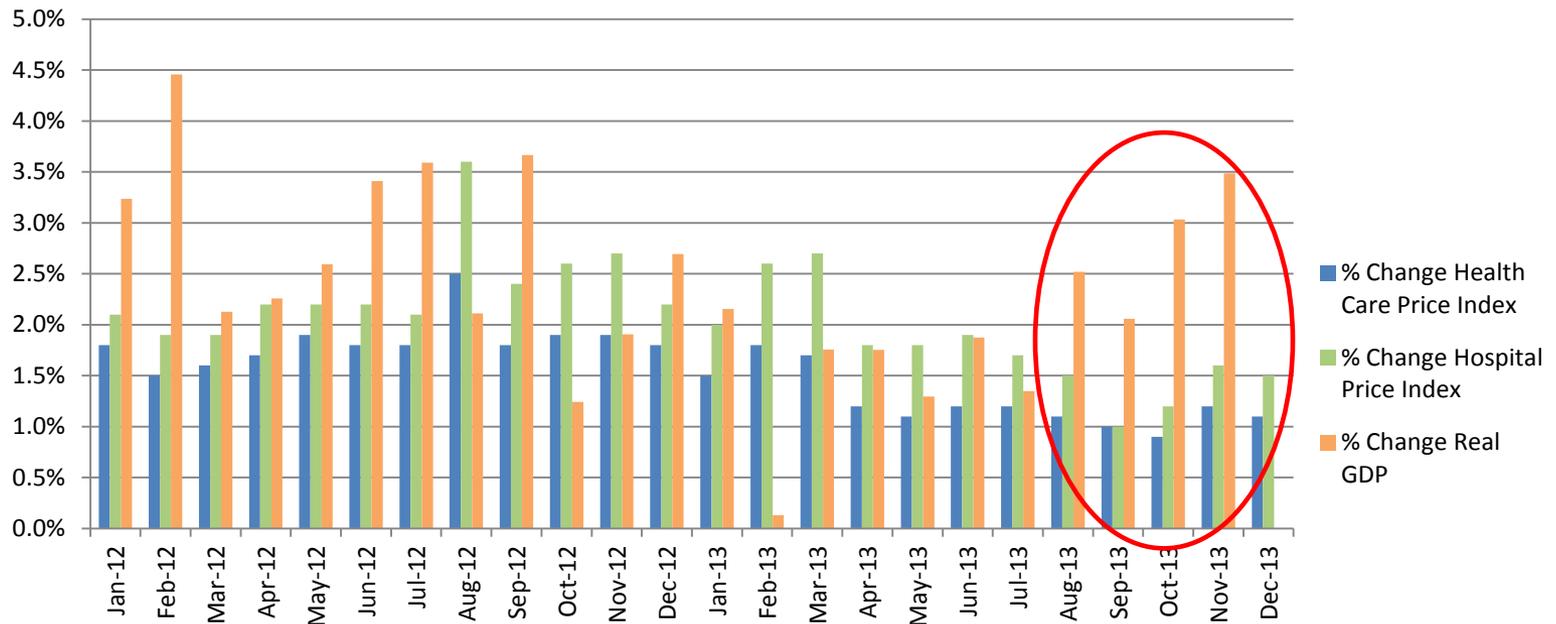


Source: MedPAC, 2009-2013.

New Evidence of Slowdown: Growth of GDP Exceeding Growth of Hospital and Health Care Prices

- Year-over-year growth rates of real (inflation adjusted) GDP have exceeded year-over-year growth rates of health care and hospital prices in 14 of the past 23 months, including the past 4 consecutive months

Year-Over-Year Growth Rates in Health Care Price Index, Hospital Price Index, and Real GDP



Source: Dobson | DaVanzo Analysis of Bureau of Labor Statistics and Bureau of Economic Analysis Data.

New Evidence: Structural Changes Driving Health Care Employment Efficiencies

- **Over the entire year of 2013, the health care sector added 204,000 jobs, the lowest gain since 1999^{1,2}**
- **The number of hospital jobs declined by 4,500 in January 2014, the 2nd straight month in which hospital employment declined^{1,3}**
 - 2013 marked the first year in which annual hospital employment decreased since 1994

Sources: 1. <http://money.cnn.com/2014/01/10/news/economy/health-care-jobs/>

2. Health Sector Economic Indicators: Insights from Monthly Employment Data through January 2014. (2014). *Altarum Institute Center for Sustainable Health Spending*.

3. <http://www.modernhealthcare.com/article/20140207/NEWS/302079945>

Structural Changes Driving Slowdown: Spending Not as Strongly Related to Macroeconomic Trends

- **Attribution of the slowdown in health care expenditure growth to economic forces varies widely^{1,2}**
- **Recent evidence suggests that the significance of economic growth as a driver of health care growth may be overstated²**
 - Time-series association between growth in GDP and growth in health care spending is very sensitive to changes in lag structure, suggesting the regression models are easily misspecified
 - 5-year geometric mean GDP well correlated with health care spending
 - 3- and 7-year geometric mean GDP poorly correlated with health care spending

Sources: 1. Council of Economic Advisors (2013, November). Trends in Health Care Cost Growth and the Role of the Affordable Care Act.
2. Chandra et al. (2013). Is This Time Different? The Slowdown in Healthcare Spending.

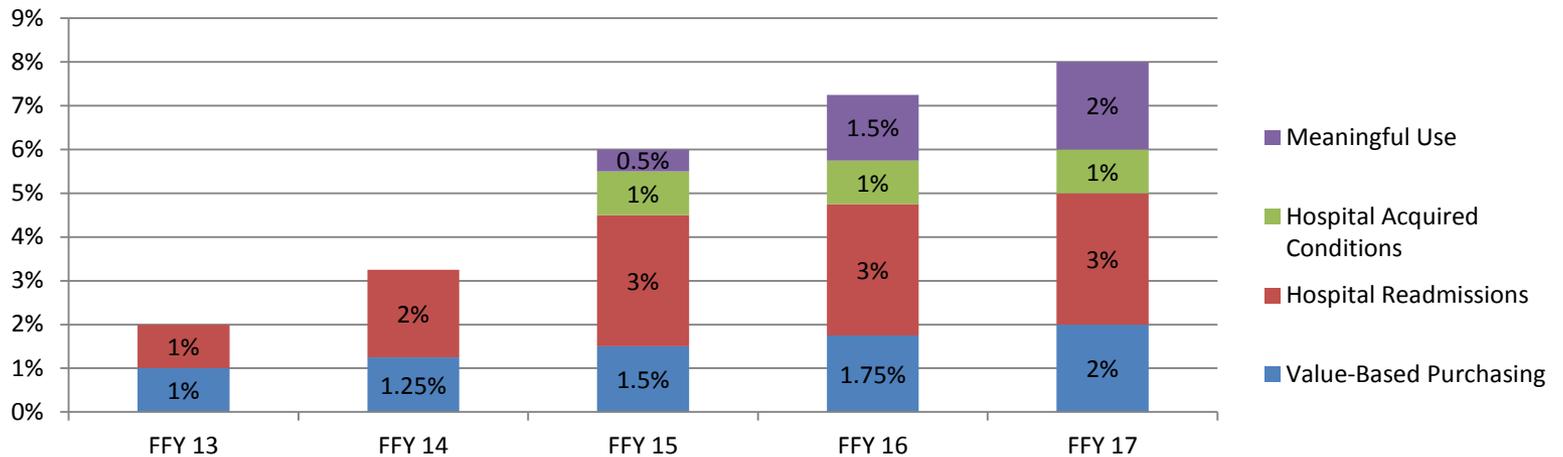
Structural Changes in Health Care Drive the Trend and Support Its Durability

- ***“There are forces in motion that could keep cost increases significantly lower than they have been historically” – David Cutler¹***
- **Examples include:**
 - Shift to value-based payments
 - Increased patient cost-sharing
 - Slowdown in diffusion of expensive technologies (including prescription drugs)
 - Reductions in health care associated infections and hospital readmissions
 - State initiatives

Source: 1. Ydstie J (2014). Reining In Health Care Costs Key To Trimming Deficit. *NPR* (Interview of David Cutler and Joe Antos).

Structural Changes Driving Slowdown: Shift to Value-Based Payments

Total Medicare Inpatient Revenues at Risk for Mandatory Elements of Reform

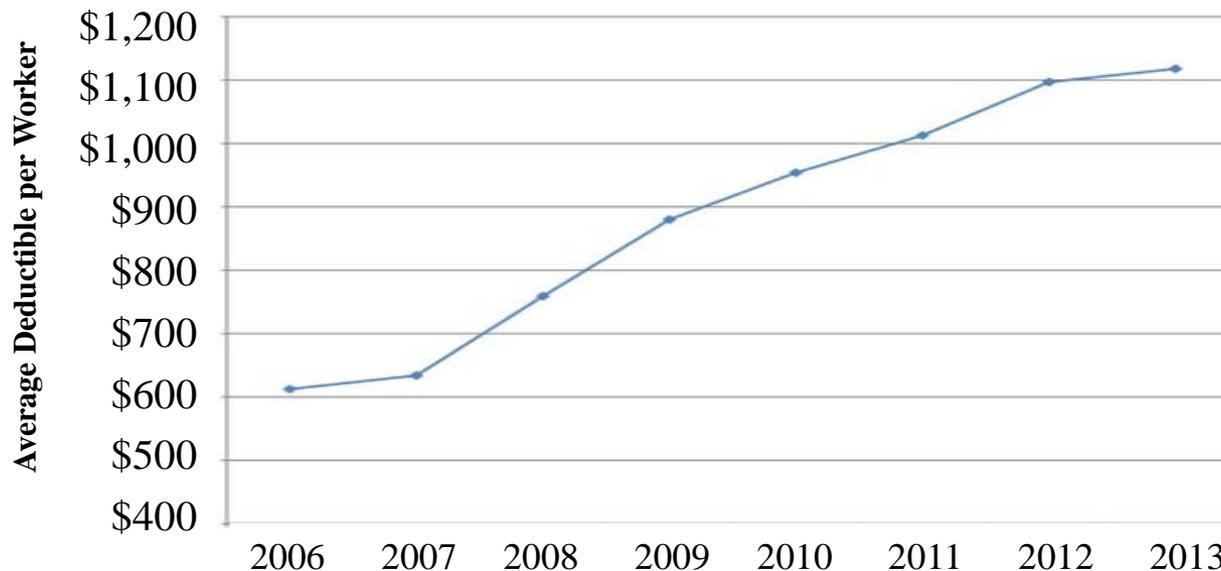


- **The transition to value-based payments ushers in a paradigm shift in how care is provided**
 - Population health management
 - Episodes of care
 - Prevention of unnecessary care and/or downstream complications

Sources: hfma.org, "Bon Secour's Value-Oriented Payment Performance Dashboard"

Structural Changes Driving Slowdown: Increased Patient Cost-Sharing

- The average patient deductible has nearly doubled since 2006¹
- For private insurance enrollees, increased consumer out-of-pocket costs may have led to a cumulative decline of 10-15% in utilization of health care services from 2006 to 2013²

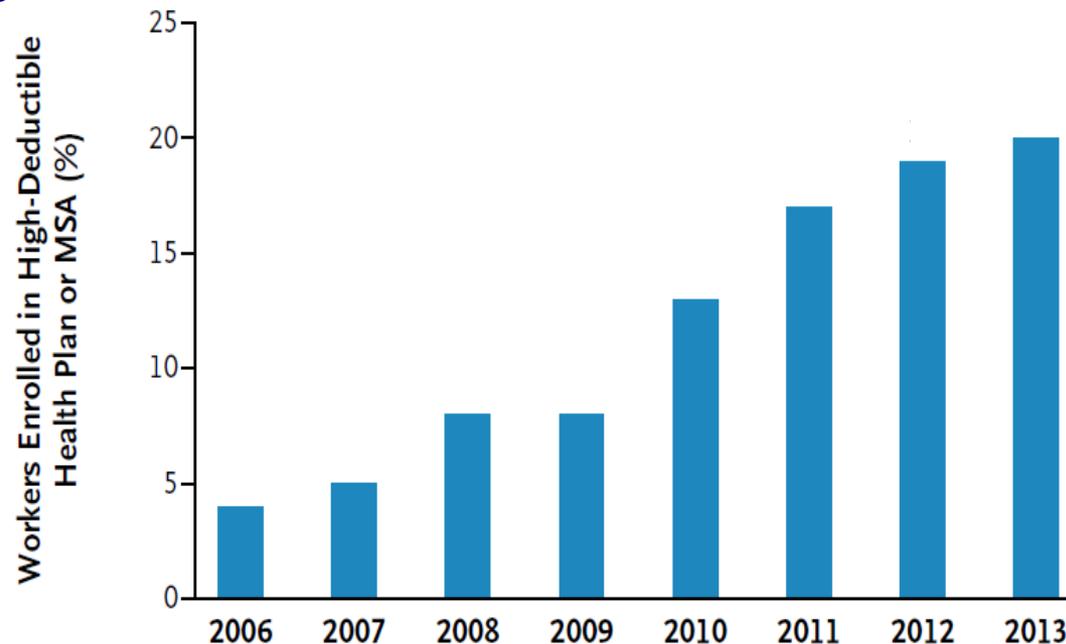


Source: Kaiser HRET Survey of Employer-Sponsored Health Benefits, 2013, inflation adjusted using the GDP deflator (through Q2 2013). Family plans have higher deductibles but similar growth patterns.

Sources: 1. O'Brien, M. (2013). Everything You Need to Know About the Healthcare Slowdown. *The Atlantic*.
2. Chandra et al. (2013). Is This Time Different? The Slowdown in Healthcare Spending.

Structural Changes Driving Slowdown: Increased Patient Cost-Sharing (cont.)

- **The percentage of workers with high-deductible plans increased from 4% in 2006 to 20% in 2013**
 - The typical plan deductible now exceeds the typical family's available savings



Source: Blumenthal D, Stremikis K, Cutler D. (2013). Health Care Spending—A Giant Slain or Sleeping? *New England Journal of Medicine* 369(26):2551-2557.

Structural Changes Driving Slowdown: Diffusion of Expensive Technologies

- **Lower prices for generic prescription drugs**
 - Patents for several blockbuster drugs—including Lipitor and Singulair—have recently expired and been replaced by cheaper generics
 - Prescription prices increased 0.8 percent in 2013, compared to 4.1 percent in 2011¹
- **Decline in the per-enrollee use of coronary artery bypass graft (CABG) and angioplasty since 2004²**
- **The growth of complex imaging use slowed from 6 percent per year in the decade prior to 2006 to 1-3 percent per year from 2006-2009³**

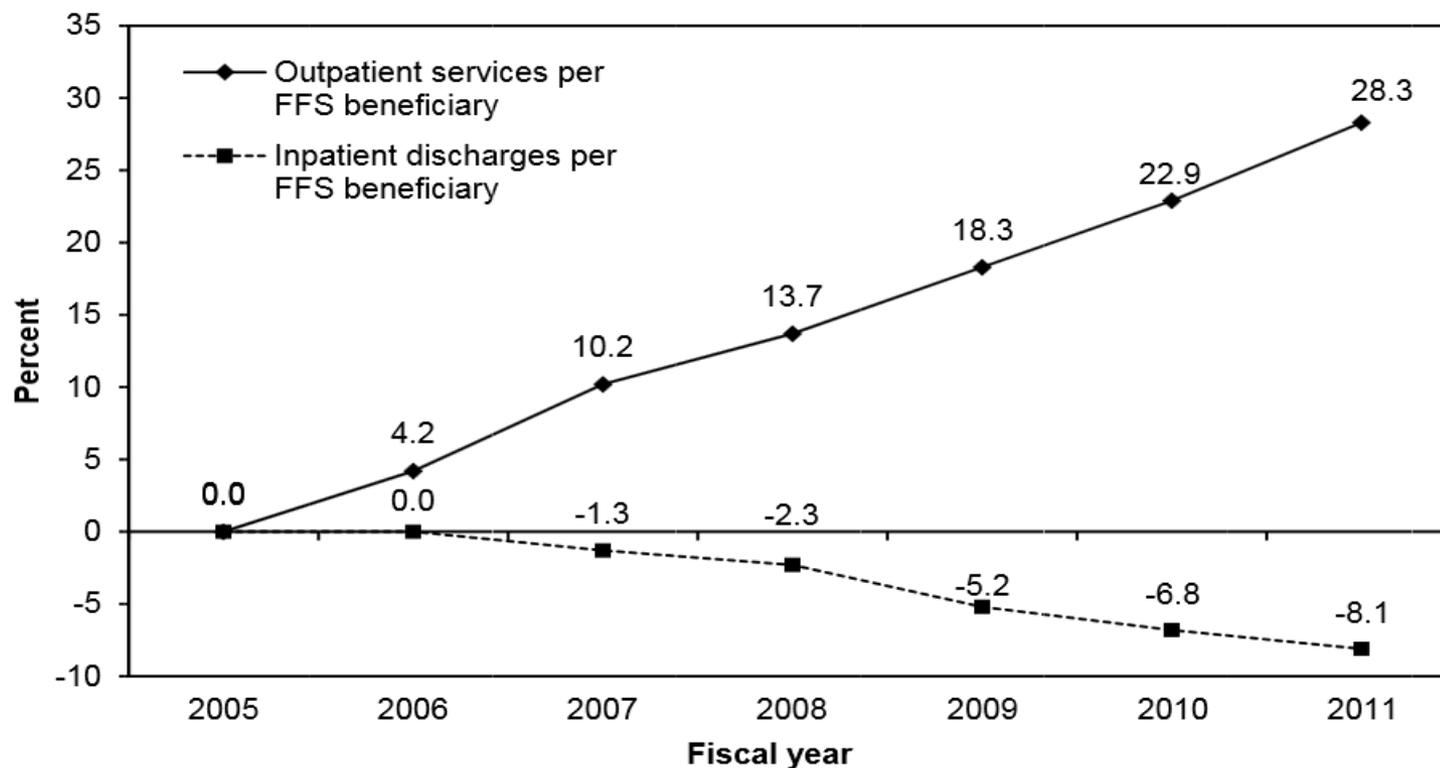
Sources: 1. December Price Brief. (2014). *Altarum Institute Center for Sustainable Health Spending*.

2. Chandra et al. (2013). Is This Time Different? The Slowdown in Healthcare Spending.

3. Lee D, Levy F. (2012). The Sharp Slowdown in Growth of Medical Imaging: An Early Analysis Suggesting Combination of Policies was the Cause. *Health Affairs* 31(8):1876-1884.

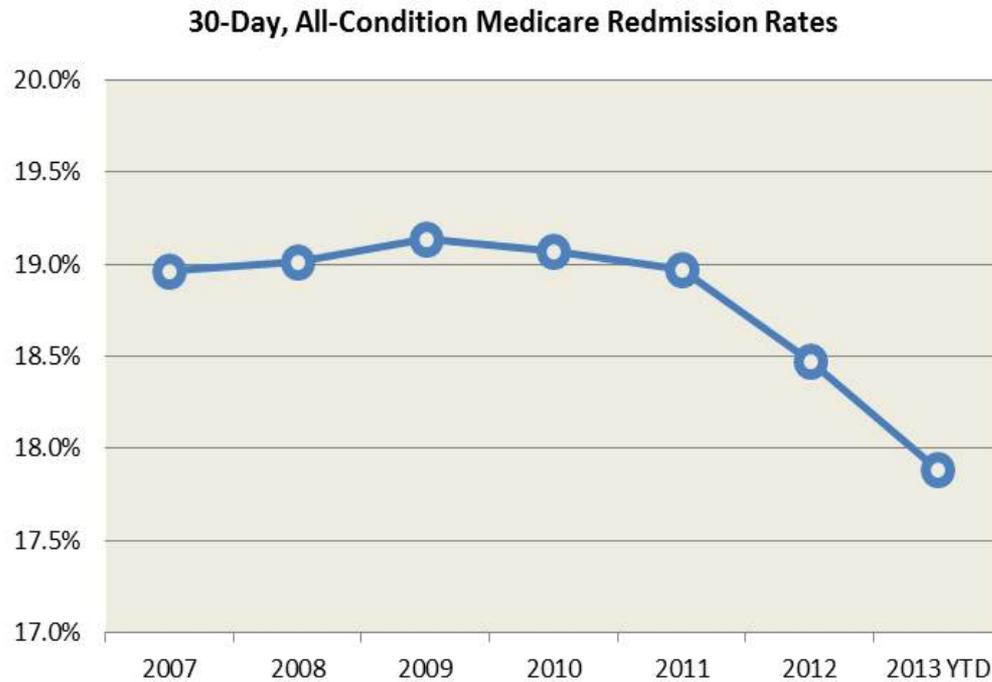
Structural Changes Driving Slowdown: Shifting Services to the Outpatient Setting

Cumulative Change in Medicare Outpatient Services and Inpatient Discharges per FFS Beneficiary 2005-2011



Source: MedPAC (2013). A Data Book: Health Care Spending and the Medicare Program.

Structural Changes Driving Slowdown: Falling Rate of Hospital Readmissions



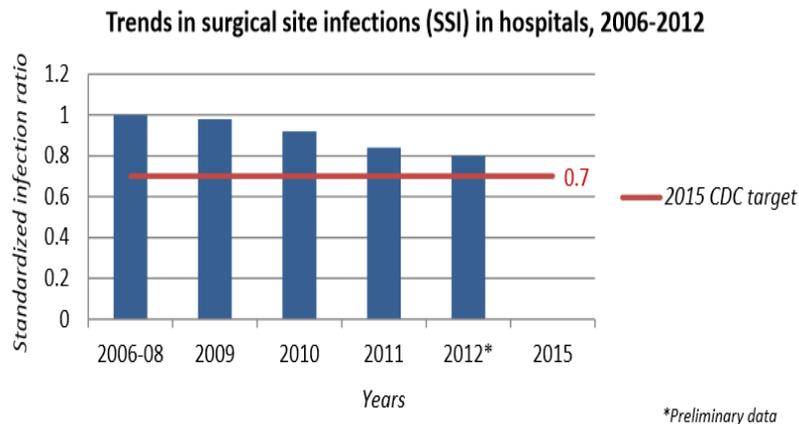
- **Hospital readmissions more than double the cost of care for Medicare beneficiaries¹**
- **Medicare readmission rates have declined substantially since 2011 to less than 18 percent²**
- **This reduction resulted in approximately 130,000 fewer hospital readmissions between January 2012 and August 2013²**

Sources: 1. Dobson et al. (2012). Medicare payment bundling: Insights from claims data and policy implications. Report submitted to American Hospital Association and Association of American Medical Colleges.

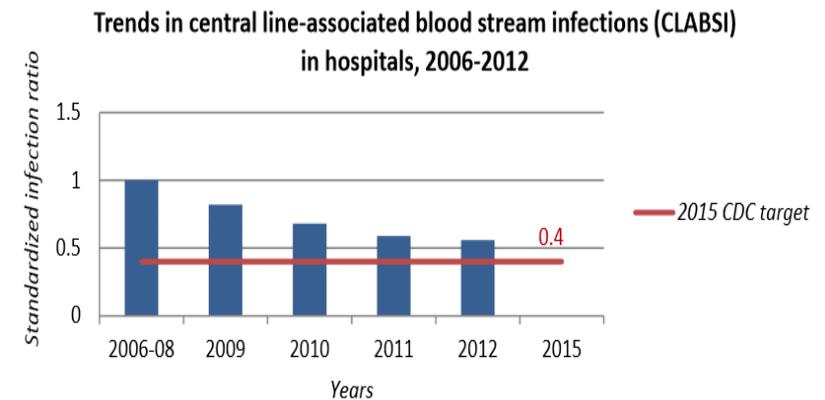
2. CMS. "New Data Shows Affordable Care Act Reforms Are Leading to Lower Hospital Readmission Rates for Medicare Beneficiaries."

Structural Changes Driving Slowdown: Improved Patient Safety Conditions

- **Hospital acquired conditions (HACs) cost \$10 billion annually¹**
- **There have been substantial reductions in HACs since 2006²**
 - Surgical site infections (33.7% of total HAC costs)
 - Central line-associated blood stream infections (18.9% of total HAC costs)
- **The continued reduction of these rates could result in potential cost savings of \$5.0 to \$5.5 billion annually¹**



Source: CDC's National Healthcare Safety Network (NHSN)



Source: CDC's National Healthcare Safety Network (NHSN)

Sources: 1. Zimlichman et al. (2013). Health care-associated infections: A meta-analysis of costs and financial impact on the US health care system. *JAMA Internal Medicine* 173(22):2039-2046.

2. <http://www.cdc.gov/winnablebattles/targets/pdf/hai-winnablebattles-progressreport.pdf>

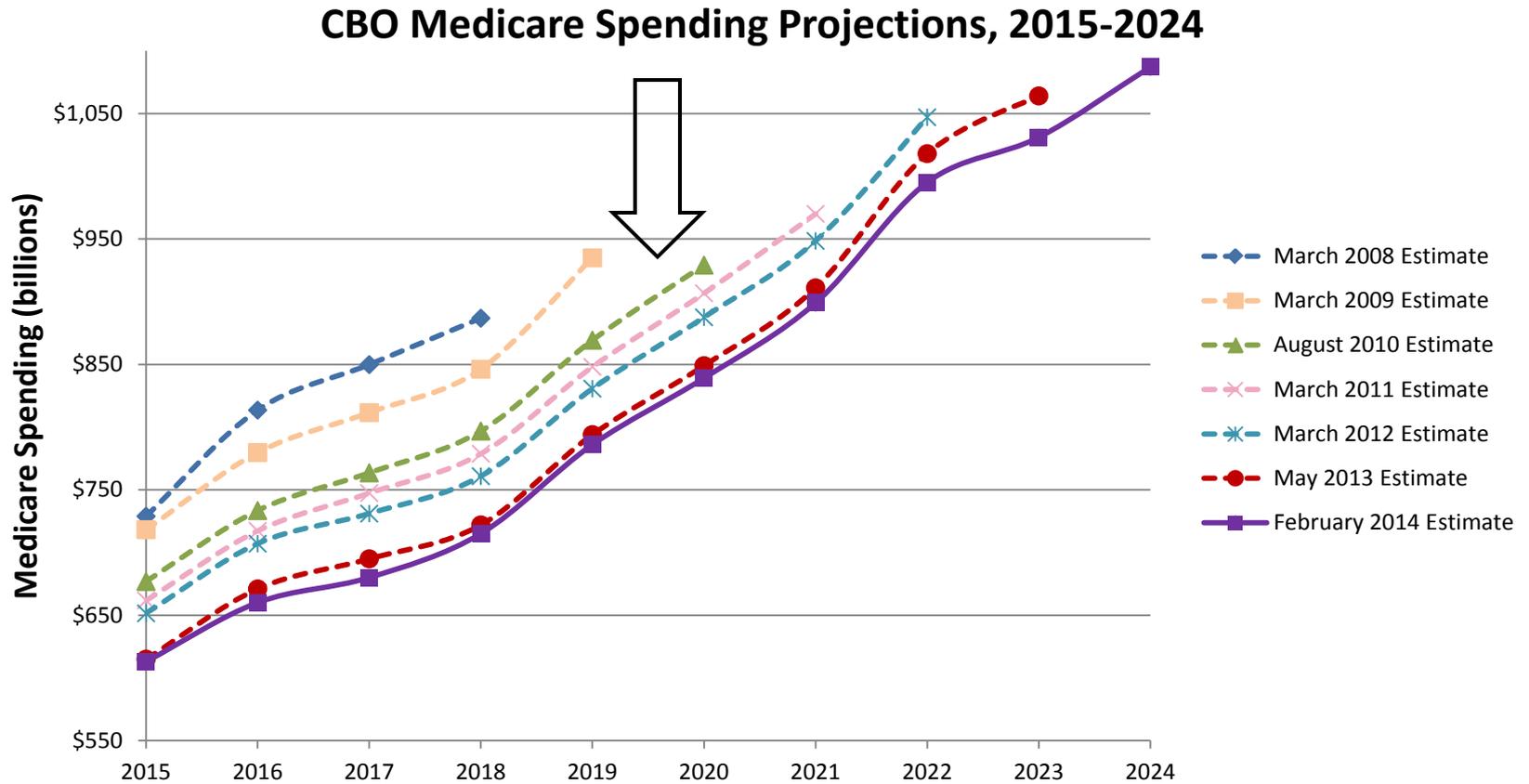
Structural Changes Driving Slowdown: State Initiatives

- **States are implementing new and innovative policies to reform the health care system, which need time to mature and be evaluated before more federal policies are enacted**
 - **Arkansas**
 - Patient centered medical home model
 - Episode-based care delivery for acute, procedural, or ongoing specialty care conditions, using retrospective payment system
 - **Colorado**
 - Numerous bundled payment, global payment, and shared savings demonstrations
 - Delivery and payment reform across the Medicare, Medicaid, and commercial populations
 - **Maryland**
 - All-payer hospital rate regulation system
 - Proposing shift to global budget model capturing virtually all hospital revenue
 - **Massachusetts**
 - Implemented a private ACO model, incorporating a global budget and pay-for-performance
 - Preliminary evaluations show savings¹

Source: 1. Song et al. (2012). The 'Alternative Quality Contract,' based on a global budget, lowered medical spending and improved quality. *Health Affairs* 31(8).

How Have Actuarial Projections of Medicare Spending Changed in 2014?

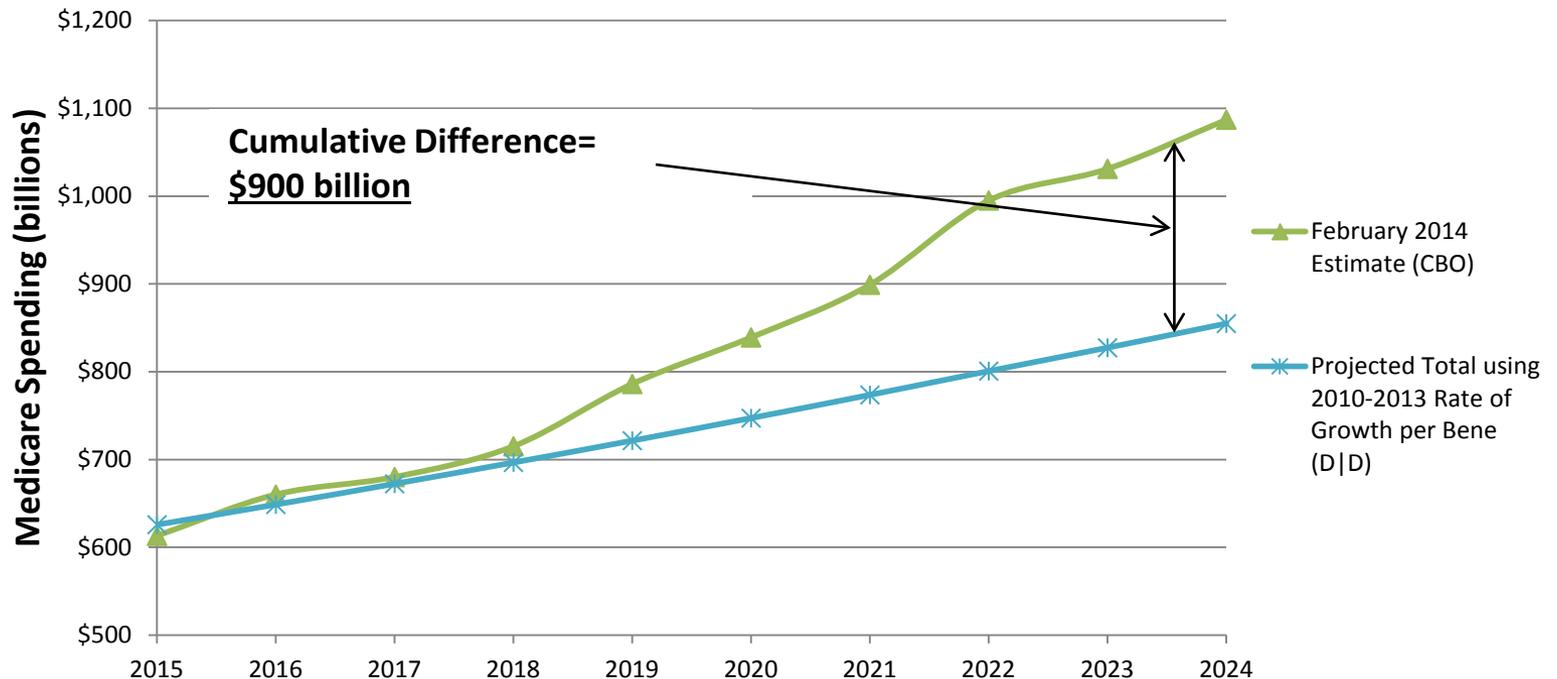
CBO Reduces Medicare Spending Projections 6 Years in a Row



Sources: 2008 to 2014 Baseline CBO estimates.

\$900 Billion in Additional Medicare Savings Is Within Reach if We Stay the Course

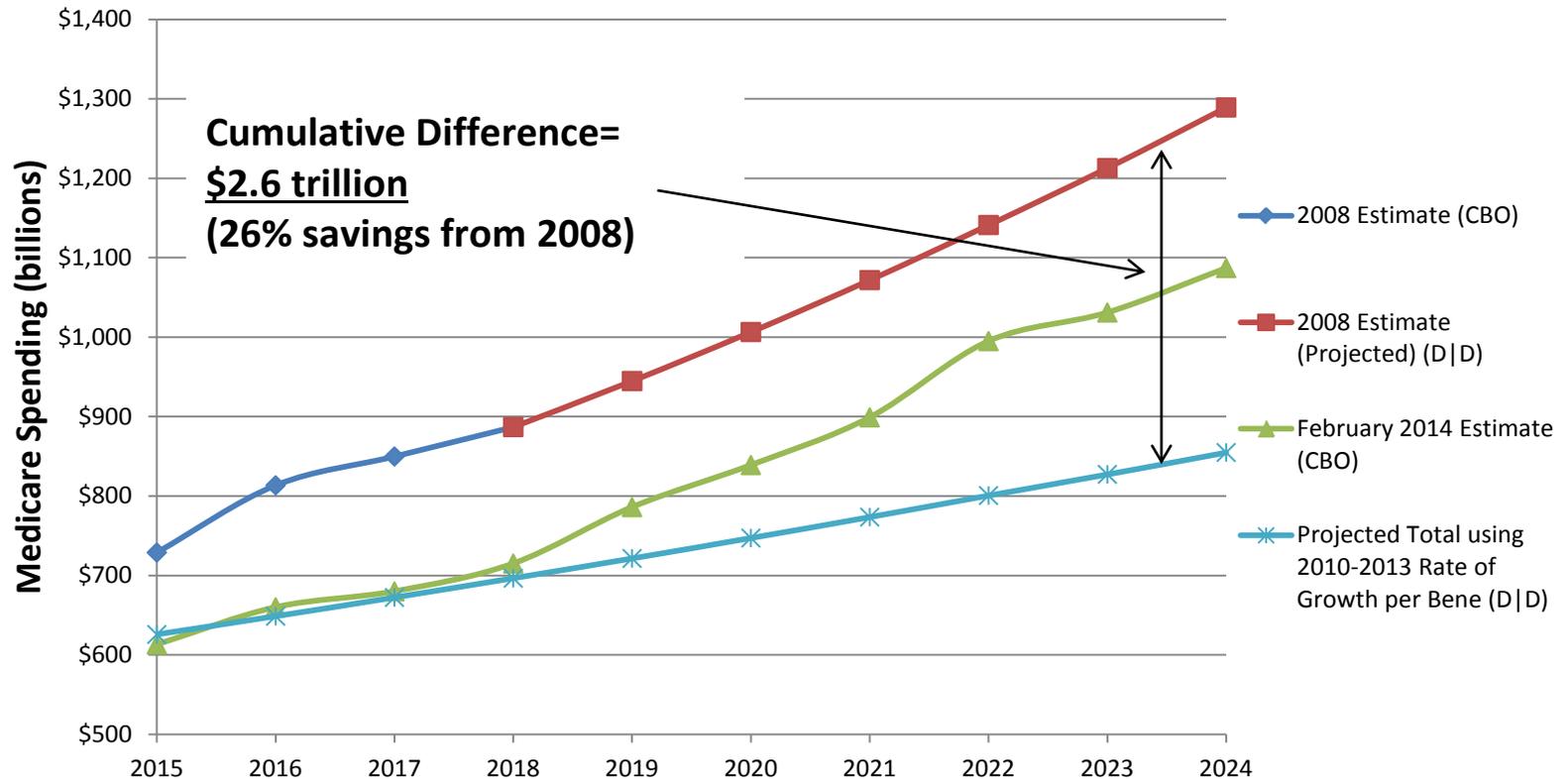
- If Medicare spending per beneficiary grows at the average 2010-2013 rate, the cumulative federal deficit from 2015 to 2024 could be reduced by 12%



Note: D|D is Dobson | DaVanzo.

Source: Dobson | DaVanzo analysis of 2014 Baseline CBO estimates. The average growth rate from 2010-2013 was calculated using CBO estimates of total Medicare expenditures from 2010-2013 (reported in the February 2014 CBO baseline estimate) divided by the number of Medicare beneficiaries in each year as reported in the 2013 Medicare Trustees report. See "Methods in Brief" for forecasting methodology.

Compared to 2008 CBO Estimates, Slowdown in Spending Could Yield \$2.6 Trillion in Overall Medicare Savings



Note: D|D is Dobson | DaVanzo.

Source: Dobson | DaVanzo analysis of 2014 Baseline CBO estimates. The average growth rate from 2010-2013 was calculated using CBO estimates of total Medicare expenditures from 2010-2013 (reported in the February 2014 CBO baseline estimate) divided by the number of Medicare beneficiaries in each year as reported in the 2013 Medicare Trustees report. See "Methods in Brief" for forecasting methodology.

Discussion

Additional supporting evidence of a continuing, historic slowdown in the growth rate of health care spending has been released since our preliminary report, published June 2013.

A growing group of experts now attributes the ongoing nature of this unprecedented slowdown to forces beyond economic recovery from the Great Recession—instead, it is now believed structural changes implemented across the health care industry are responsible for a significant portion of this trend, and will be the driving force by which it continues in the near-term.

Given these factors and a sixth consecutive CBO projection that lowers expected health care spending, we re-assessed our June 2013 findings using these new CBO numbers, projecting significant savings beyond that which CBO projects: \$900 billion in Medicare savings through 2024 if the 2010-2013 rate of spending per beneficiary continues over the next decade.

Medicare spending projections were reduced by CBO for the sixth consecutive year; if spending growth remains at current levels, there could be an additional \$900 billion in savings over the next decade.

Key Findings

In the second half of 2013, health care spending continued to grow at historically low rates, despite signs of U.S. economic recovery.

- National health expenditures are projected to grow at just 3.8% in 2013, consistent with the growth rate in 2012 and approximately four and a half percentage points below the growth rates seen a decade earlier.¹ This trend was driven in particular by slower growth in hospital spending (3.7%), the fourth consecutive year of low growth.
- Medicare spending per beneficiary on hospital services grew only 0.3% from 2011 to 2012.²
- In addition, in the fourth quarter of 2013, hospital prices (and health care prices in general) reached near-historically low annual rates, indicating that recent trends in health care spending could likely continue into 2014.³
 - Hospital prices grew at 1.5% annually from 2012 to 2013

¹ Cuckler et al. (2013). National Health Expenditure Projections, 2012-22: Slow Growth Until Coverage Expands And Economy Improves. *Health Affairs* 32(10):1820-1831.

² MedPAC. (2009-2013). Assessing payment adequacy and updating payments: Hospital inpatient and outpatient services.

³ Altarum Institute Center for Sustainable Health Spending. (2014) February Price Brief.

- Health care prices grew at 1.1% annually from 2012 to 2013
- Medicare per beneficiary inpatient hospital spending growth decreased, falling 2.3% from 2011 to 2012.⁴

While the cause of the declining growth in health care spending is not conclusive, new research suggests that the economy may have an even smaller impact on health care spending than previously thought as recently as one year ago. Since June 2013, additional analyses have been undertaken showing that prior time-series regression models may have overstated the relationships between growth rates in GDP and health care spending. Additionally, recent analyses have shown that varying economic conditions cause little change in the demand for health care services among Medicare enrollees,^{5,6} which represent a large portion of overall health care spending.

Instead, transformations in the health care market suggest that structural changes in health care delivery are taking effect and may continue to have a major impact on reducing future health care spending, including:

- Slower growth in health care prices;
- Increased patient cost-sharing; and
- Preliminary results from payment and delivery reform (e.g., falling hospital readmission and hospital acquired infection (HAC) rates, reduced health care spending in state innovations).

Meanwhile, many innovative programs (e.g., the Bundled Payments for Care Improvement (BPCI) initiative, Accountable Care Organizations (ACOs)) are still in the implementation phase and could further impact health care delivery and cost once fully established. For these reasons, many experts echo the sentiment of economist David Cutler, who recently stated, “there are forces in motion that could keep cost increases significantly lower than they have been historically.”⁷

Given the numerous activities currently underway, policymakers should support and encourage the reform efforts already in motion and allow time for further implementation and evaluation of these efforts before considering any major new structural reforms. Policies set in place over the past several years will take time to implement on a broad scale; these policies will require a paradigm shift in how care is provided in order to be effective and as mid-course corrections to these programs are considered. In addition, hospitals will need capital reserves to invest in infrastructure changes based on this

⁴ MedPAC. (2012-2013). Assessing payment adequacy and updating payments: hospital inpatient and outpatient services.

⁵ Council of Economic Advisors (2013). Trends in Health Care Cost Growth and the Role of the Affordable Care Act.

⁶ Levine, M., Buntin, M. (2013). Why Has Growth in Spending for Fee-for-Service Medicare Slowed? Congressional Budget Office. Working Paper 2013-06.

⁷ Ydstie, J. (2014). Reining In Health Care Costs Key To Trimming Deficit. NPR (Interview of David Cutler and Joe Antos).

paradigm shift in order to accelerate the ongoing structural transformation of health care delivery.

For example, hospital readmissions are only one of many quality measures reported by hospitals, but reducing readmissions involves changing the internal operations of the entire hospital and its relationship to other providers across the care continuum. Hospitals are shifting their focus from functioning primarily as acute care providers to maintaining population health, as reducing readmissions involves managing a patient's health both within the hospital and outside the hospital's four walls after discharge. This role change will necessitate improved data capabilities, and instruments that can better track and predict a patient's health status in addition to behavioral changes.

Introduction and Study Purpose

Dobson DaVanzo & Associates, LLC (Dobson | DaVanzo) was commissioned by the Federation of American Hospitals (FAH) to update its June 2013 study investigating the reduced rate of growth in health care and Medicare spending.⁸ The updated results are encouraging and directionally consistent with the prior study, suggesting that structural forces are driving the slowdown in health care spending—even as the economy recovers, health care spending growth remains at historically low levels.

In this study we analyze the most recent data and literature pertinent to the slowdown in the rate of growth in health care spending. This includes peer-reviewed journal articles, government reports, and revised actuarial projections of the future 10-year growth in total health care and Medicare spending. In addition, as the economy has shown noticeable recovery in 2013—with fourth quarter Gross Domestic Product [GDP] growing at an annual rate of 3.2%⁹—we were able to further investigate the evolving relationship between the rate of growth in health care spending and broader economic factors.

In this updated report, we:

- Review health care spending literature and projections published since July 2013;
- Analyze recent data relating to historical growth in total health care and Medicare spending prior to 2014, as well as falling projections of future spending growth;

⁸ Dobson, A., DaVanzo, J., Berger, G., Reuter, K. (2013). Structural Changes Drive Health Care Spending Slowdown: Implications for Medicare Policy and Deficit Reduction. Vienna, VA: Dobson | DaVanzo.

⁹ Sharf, S. (2014). U.S. GDP Grew 3.2% In The Fourth Quarter 2013. Forbes.

- Update our analysis of potential “savings” to the federal budget if the most recent slowdown in health care spending continues based on actuarial projections released in February 2014; and
- Analyze why the current slowdown could continue over the long term based on new evidence of structural forces underlying trends as observed in the most recent literature.

Background

In last year’s report, we examined historical trends in health care spending through 2012. Prior to 2012, health care spending growth had outpaced GDP growth since the 1960s, and as of December 2011 represented 17.4% of GDP.¹⁰ As health care spending increases relative to GDP, there are important societal consequences, including: growing federal and state deficits, reduced taxable incomes,¹¹ and opportunity costs of having fewer dollars available for purchasing non-health care related goods and services. However, over the past several years, health care spending has remained at historically low levels, declining as a percentage of GDP from 17.4% in 2011 to 17.3% in 2013.¹²

From 2010 to 2013, the average real (inflation adjusted) per capita national health expenditure growth rate was just 1.3%, the lowest three-year growth rate recorded in the past 50 years, and approximately one-third of the average growth rate since the 1960s.¹³ This has, in large part, led to a reduction in the federal deficit, which CBO projects for 2014 (\$514 billion) will be less than half of the actual deficit in 2012 (\$1,087 billion).¹⁴

These low growth rates in health care spending follow two important events in our nation’s history: 1) the “Great Recession,” during which GDP declined more than during any other time period since the Great Depression, and 2) broad-based health care reform, largely reflected by the Affordable Care Act of 2010 (ACA) and other public and private initiatives to shift from fee-for-service to risk-based and value-based payments over the past decade.

While health care spending growth has at times lagged GDP growth in prior years,¹⁵ there are numerous reasons to believe that this time may be different, and that, as GDP rebounds from the recession, health care spending may not return to historic rates of real growth. Recently, numerous programs and initiatives have been set in place that reward providers for more efficient care and better outcomes for patients through shared risk

¹⁰ Altarum Institute Center for Sustainable Health Spending. (2014). February Spending Brief.

¹¹ Due to the tax deductible nature of employer-provided health insurance.

¹² Altarum Institute Center for Sustainable Health Spending. (2014). February Spending Brief.

¹³ Council of Economic Advisors (2013). Trends in Health Care Cost Growth and the Role of the Affordable Care Act.

¹⁴ Congressional Budget Office (2014, February). The Budget and Economic Outlook 2014 to 2024. [Pub. No. 4869]. Washington, DC: CBO.

¹⁵ Assessing the Effects of the Economy on the Recent Slowdown in Health Spending. (2013). Washington DC: Kaiser Family Foundation.

with payers. These types of policies have caused behavioral changes—many of which are just beginning to occur—among providers, private payers, and patients. These changes include increases in provider integration and care coordination, potentially less generous health insurance benefits, and greater use of lower intensity (lower cost) services, among others. As structural changes in the health care marketplace continue to evolve, we as consumers and taxpayers could see numerous benefits, including: greater provider efficiency, better patient outcomes and quality of care, and, ultimately, a lower relative rate of increase in health care costs over time.

In last year’s report, we showed that in response to evolving structural changes (among other reasons), actuarial projections of Medicare spending had been declining since 2008. Since that time, the CMS Office of the Actuary (OACT) and the Congressional Budget Office (CBO) have both released updated actuarial projections. In September 2013, OACT released updated actuarial projections showing a small increase in Medicare spending over the next decade in comparison to their prior year’s estimates. Although these projections show a slight uptick in health care spending growth rates, OACT also acknowledged that numerous uncertainties exist in projections and that other large factors with unknown influence are difficult to quantify and therefore take into account: “Other major factors [driving health care spending] include...the effect of changing relationships between economic growth and spending.”¹⁶ It is noteworthy, however, that OACT did reduce its estimates of Medicare spending for the year 2012 from \$590.8 billion in its 2012 projections to \$579.9 billion in its 2013 projections.¹⁷

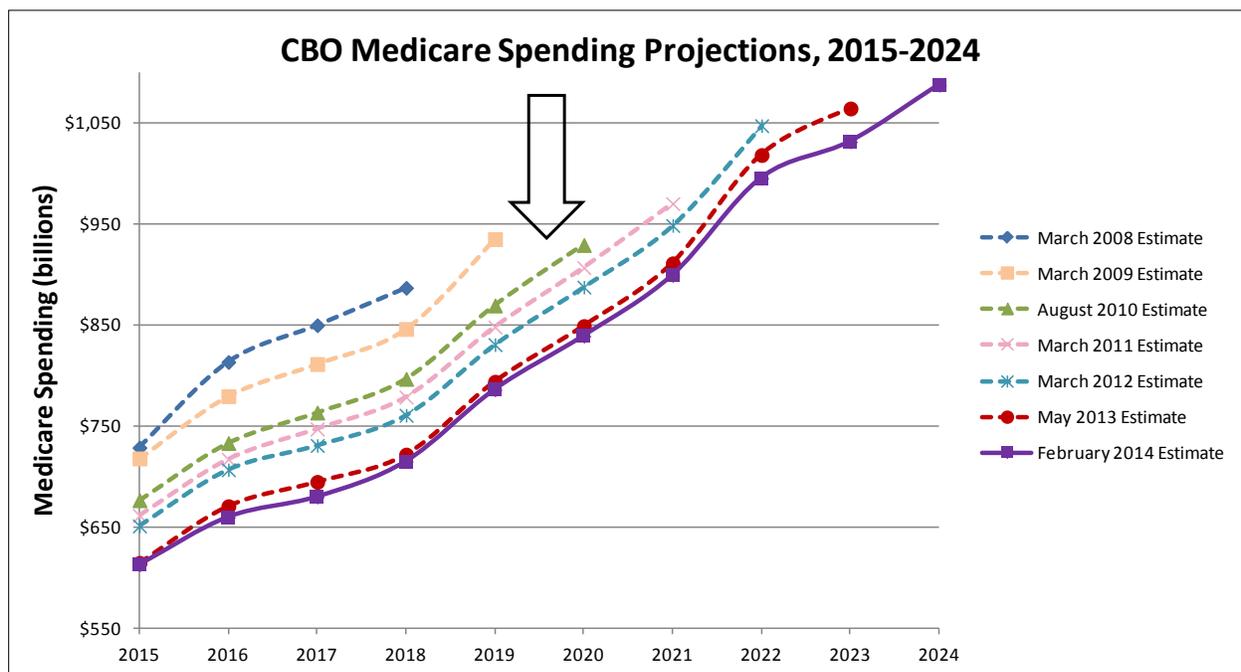
In contrast, CBO more recently released estimates of Medicare spending in February 2014 showing a reduction of \$154 billion in Medicare spending through 2023 (Exhibit 1). CBO’s revision of these estimates is in large part a result of findings from a study released in September 2013, which concluded that “available evidence does not support a finding that demand for health care by Medicare beneficiaries was measurably diminished by the financial turmoil and recession,” and instead, “much of the slowdown in spending growth appears to have been caused by other factors affecting beneficiaries’ demand for care and by changes in providers’ behavior.”¹⁸

¹⁶ CMS Office of the Actuary. (2013). Analysis of Factors Leading to Changes in Projected 2019 National Health Expenditure Estimates: A Comparison of April 2010 Projections and September 2013 Projections.

¹⁷ CMS Office of the Actuary. (2012-2013). National Health Expenditure Projections.

¹⁸ Levine, M., Buntin, M. (2013). Why Has Growth in Spending for Fee-for-Service Medicare Slowed? Congressional Budget Office. Working Paper 2013-06.

Exhibit 1: CBO Medicare Spending Projections, 2015-2024 (billions)



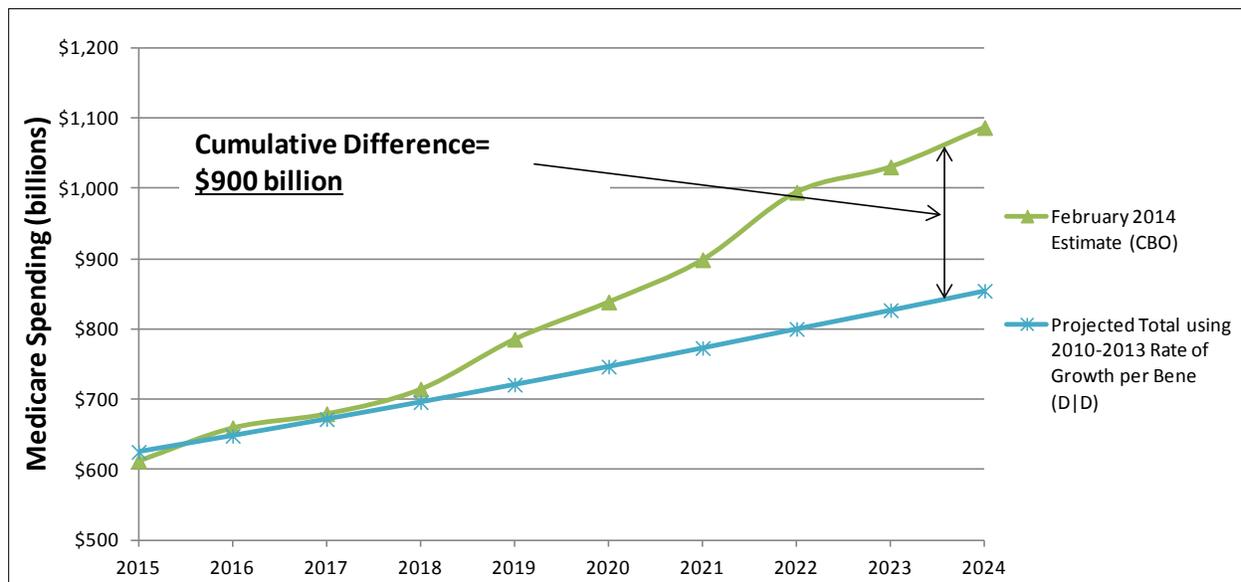
Source: Congressional Budget Office, Annual Reports (2008 to 2014). The Budget and Economic Outlook.

Exhibit 2 compares two Medicare spending projections based on CBO and Medicare Trustees information for the 2015 to 2024 period:

- 1) Medicare baseline spending from 2015 to 2024 projected in 2014; and
- 2) Projected Medicare spending from 2015 to 2024 if the annual growth rate in Medicare spending per beneficiary continues at the 2010-2013 rate.

This analysis, which updates the “savings” projections presented in our June report, shows similar results to our prior analysis. If the trend in Medicare spending growth over the period 2010 to 2013 were to continue through 2024, we estimate that Medicare spending could be \$900 billion lower than the 2014 CBO projections. While CBO has lowered estimates of Medicare spending in its most recent projections, there still may be nearly \$1 trillion in additional savings to achieve if the health care system can continue its success in restraining per beneficiary spending growth over the next 10 years to levels achieved over the past five years. Because much of this restraint is due to structural and behavioral change that is likely to continue, rather than economic cycles, there are reasons to believe that these additional savings will materialize.

Exhibit 2: Projected Aggregate Medicare Savings (2015-2024) based on CBO February 2014 Baseline (billions)



Note: D|D is Dobson | DaVanzo.

Source: Dobson | DaVanzo analysis of 2014 Baseline CBO estimates. The average growth rate from 2010-2013 was calculated using CBO estimates of total Medicare expenditures from 2010-2013 (reported in the February 2014 CBO baseline estimate) divided by the number of Medicare beneficiaries in each year as reported in the 2013 Medicare Trustees report. See “Methods in Brief” for forecasting methodology.

New Evidence of Structural Changes in Health Care

In last year’s report, we presented a variety of reasons behind the recent slowdown in health care spending. The primary drivers identified in the literature were thought to be: 1) the Great Recession or broad economic forces; and 2) structural changes to the health care market. In that report, we found that attribution of the slowdown in health care expenditures to the economy varied widely depending on source, with estimates ranging from nearly 80% to roughly 30%.¹⁹

Since June, additional analyses have been published examining the effects of the Great Recession and economic forces in general on health care spending. Substantiating the theory put forth in our last report, a recent study found that the ways in which explanatory models are calibrated and specified seems to influence analytic results. Specifically, the study found that regression models used to determine the significance of GDP in predicting health care expenditure growth are highly sensitive to variable specification. For example, when the authors changed the explanatory variable (GDP) by increasing or decreasing lag time in relation to health care expenditures, the predictive

¹⁹ Dobson, A., DaVanzo, J., Berger, G., Reuter, K. (2013). Structural Changes Drive Health Care Spending Slowdown: Implications for Medicare Policy and Deficit Reduction. Vienna, VA: Dobson | DaVanzo.

power of the variable decreased significantly. In addition, regression models of this sort lack statistical power as they contain few data points (i.e., one data point for each year going back to the 1960s is just 50 or so data points). Based on this analysis, the authors found that economic forces explain less than half of the recent slowdown.²⁰

In another recent study, representatives from the CBO found that economic forces had a very limited effect on Medicare spending. As cost-sharing in the Medicare program is minimal and has not changed significantly over the past decade compared to the commercial market, the authors found that the Great Recession had very little impact on Medicare beneficiaries' use of services.²¹ Because the economy had such a small impact on Medicare spending, some other forces must have been at play to drive historically low growth rates in the Medicare program from 2011 to 2013 as discussed above.

While we believe that the economy has contributed to the recent slowdown to some degree, these findings suggest that broad based structural changes to the health care market may well be responsible for a significant portion of the current slowdown, and therefore might have a sustainable impact that is currently not fully captured by actuarial analyses of health care spending. OACT, as an example, attributed the recent slowdown mostly to economic forces, and as such, increased their Medicare spending estimates in their September forecasts from those made in the previous year.²² CBO, on the other hand, acknowledged the significant impact of structural changes in the marketplace in their February projections,²³ and for that, among other reasons, revised estimates of health care spending downward from their 2013 estimates.²⁴ However, based on our analysis, CBO still projects Medicare spending to be \$900 billion higher than if the current rate of spending²⁵ per beneficiary were to continue through 2024.

Building on last year's report, which outlines many of the structural forces at play in the health care marketplace, in this report we present additional evidence that those structural forces can continue to lead the way in sustaining the slow the growth in health care spending going forward.

In 2013, health care selling prices²⁶ slowed to historic lows. Health care selling prices increased just 1.1% from December 2012 to December 2013, the second slowest on

²⁰ Chandra et al. (2013). Is This Time Different? The Slowdown in Healthcare Spending. Brookings Institute.

²¹ Levine, M., Buntin, M. (2013). Why Has Growth in Spending for Fee-for-Service Medicare Slowed? Congressional Budget Office. Working Paper 2013-06

²² CMS Office of the Actuary. (2013). National Health Expenditure Projections 2012-2022.

²³ Levine, M., Buntin, M. (2013). Why Has Growth in Spending for Fee-for-Service Medicare Slowed? Congressional Budget Office. Working Paper 2013-06

²⁴ Congressional Budget Office (2014, February). The Budget and Economic Outlook 2014 to 2024. [Pub. No. 4869]. Washington, DC: CBO.

²⁵ Average annual growth rate in Medicare per beneficiary spending 2010-2013 (see Exhibit 2).

²⁶ The Bureau of Labor Statistics price index is a measure of selling prices: "The Producer Price Index (PPI) is a family of indexes that measures the average change over time in selling prices received by domestic producers of goods and services. PPIs measure price change from the perspective of the seller. This contrasts with other measures, such as the Consumer Price Index (CPI), that measure price change from the purchaser's perspective. Sellers' and purchasers' prices may differ due to government subsidies, sales and excise taxes, and distribution costs." Retrieved from: <http://www.bls.gov/ppi/ppiover.htm>

record in the past 50 years, and slower than prices in the overall economy.^{27,28} Hospital input prices, a large proportion of overall health care prices, increased at comparably slow rates, just 1.5% from December 2012 to December 2013.²⁹ Much of the decline in hospital and health care input prices could be a factor of slowed growth in health care employment, as health care labor represents approximately 57% of total health care spending.³⁰ In 2013, the health care industry added just 204,000 jobs, the lowest amount since 1999. Growth in employment further slowed going into 2014, when the industry lost approximately 400 jobs.³¹ This trend warrants further monitoring going forward, as reduced employment could signal a continuing slowdown in health care spending.

Increased patient cost-sharing is also cited by many authors as a large contributor to the slowdown in spending.^{32,33} This is particularly true in the commercial market. Since 2006, the average patient deductible has nearly doubled, leading to a cumulative decline of 10 to 15% in utilization of health care services among private insurance enrollees during this time period.³⁴ Additionally, the percentage of workers with high-deductible plans increased almost 500% from 2006 to 2013.³⁵ As the cost burden of health care has been shifted more towards the consumer, they have reacted by using fewer services.

In last year's report we indicated that the slower diffusion of expensive technologies was also a contributor to the slowdown in health care spending. In particular, the rate of increase in drug spending has declined substantially over the past decade, and in 2012 declined for the first time in 58 years,³⁶ as patents on blockbuster drugs such as Lipitor expired in the 2000s and were not replaced by new blockbuster drugs. In fact, none of the best selling drugs on the market today were developed in the past 10 years.³⁷ Although many believe that this slowdown in drug spending may be a one-time reduction, others believe that physicians have become less likely to use expensive drugs, particularly when there is little evidence of improved outcomes compared to cheaper alternatives.³⁸ Additionally, there has been a reduction in expensive surgical procedures such as CABG and angioplasty³⁹ as well as a reduction in advanced imaging since the mid-2000s.⁴⁰

²⁷ Dobson | DaVanzo analysis of US Bureau of Labor Statistics Data.

²⁸ Altarum Institute Center for Sustainable Health Spending. (2014). January Price Brief.

²⁹ Dobson | DaVanzo analysis of US Bureau of Labor Statistics Data.

³⁰ Diamond, D. (2014). Health Care's Biggest Paradox: Slowing Spending, Rising Jobs. *Forbes*.

³¹ Altarum Institute Center for Sustainable Health Spending. (2014). February Labor Brief.

³² Chandra et al. (2013). Is This Time Different? The Slowdown in Healthcare Spending.

³³ Blumenthal, D., Stremikis, K., Cutler, D. (2013) Health Care Spending- A Giant Slain or Sleeping? *New England Journal of Medicine* 369(26).

³⁴ Blumenthal, D., Stremikis, K., Cutler, D. (2013) Health Care Spending- A Giant Slain or Sleeping? *New England Journal of Medicine* 369(26).

³⁵ Chandra et al. (2013). Is This Time Different? The Slowdown in Healthcare Spending.

³⁶ Linton, B. (2013). Total Real Per Capita Spending on Medicines Fell 3.5 Percent; Fewer Doctor Office Visits and Non-Emergency Hospital Admissions; Prescription Use Down 0.1 Percent. IMS Institute for Health Informatics.

³⁷ Cutler, D. (2013). The health-care law's success story: Slowing down medical costs. *The Washington Post*.

³⁸ Cutler, D. (2013). The health-care law's success story: Slowing down medical costs. *The Washington Post*.

³⁹ Chandra et al. (2013). Is This Time Different? The Slowdown in Healthcare Spending. Brookings Institute.

Movement away from drugs, devices, and procedures that are more expensive yet show little or no evidence of added value compared to other alternatives has very likely contributed to the slowdown.⁴¹

Over the past decade, hospitals have also shifted a large portion of services from the inpatient to outpatient setting, reducing overall costs for these services. In fact, inpatient discharges per fee-for-service Medicare beneficiary have declined more than 8% cumulatively since 2005.⁴² Although the shift of inpatient admissions to observation stays and movement of surgeries to outpatient settings are often cited as a prime driver of this shift, a recent study found that other factors may be driving this decrease as well. In a January *Health Affairs* study, authors examined rates of ambulatory care sensitive conditions, or those conditions identified by the Agency for Healthcare Research and Quality for which outpatient care can potentially prevent the need for hospitalization. In a large metropolitan area, the study found that the rate of hospital admissions for ambulatory sensitive care conditions had substantially dropped from 2010 to 2012. The authors concluded that changes in the way providers were caring for these patients with chronic conditions, through intensive medical management, were keeping these patients out of the hospital.⁴³

Shifting services from the inpatient to outpatient setting is just one way in which hospitals are changing their care and business models in reaction to recently implemented policies. Under the ACA, hospitals will have 8% of their Medicare revenues at risk by 2017, including penalties for hospital readmissions and hospital-acquired infections for those with the highest rates. Recent evidence has shown that providers have begun to move in a positive direction in regards to these measures. Since 2011, hospital readmissions have declined by approximately 10%.⁴⁴ As a hospital readmission more than doubles the cost of care for a Medicare beneficiary,⁴⁵ this represents huge savings to the Medicare program (although this number is difficult to quantify as we do not know the types of cases for which readmissions are being reduced). Rates of hospital-acquired infections have also declined dramatically. For example, surgical site infections, which account for approximately one-third of total HAC costs, declined by approximately 20%

⁴⁰ Lee, D., Levy, F. (2012). The Sharp Slowdown in Growth of Medical Imaging: An Early Analysis Suggesting Combination of Policies was the Cause. *Health Affairs* 31(8):1876-1884.

⁴¹ Chandra et al. (2013). Is This Time Different? The Slowdown in Healthcare Spending. Brookings Institute.

⁴² MedPAC (2013). A Data Book: Health Care Spending and the Medicare Program.

⁴³ York, R. (2014). Where Have All the Inpatients Gone? A Regional Study with National Implications. *Health Affairs Blog*.

⁴⁴ Cutler, D. (2013). The health-care law's success story: Slowing down medical costs. *The Washington Post*.

⁴⁵ Dobson, A., DaVanzo, J., Heath, S., Shimer, M., Berger, G., Pick, A., Reuter, K., El-Gamil, A., Manolov, N. (2012). Medicare Payment Bundling: Insights from Claims Data and Policy Implications: Analyses of Episode-based Payment. Report submitted to American Hospital Association and Association of American Medical Colleges.

from 2006 to 2012.⁴⁶ A continued reduction of HAC rates given these current trends, could reduce future health care spending by \$5.0 to \$5.5 billion annually.⁴⁷

Innovations in the health care industry are spreading across the country as well. As of 2013, more than 50,000 health care providers across every state were participating in a Center for Medicare and Medicaid Innovation (CMMI) grant, experimenting with new payment approaches including bundled payments, accountable care models, and other multi-payer initiatives. These range in size and complexity from small quality-based bonuses for limited populations to multi-payer global budget models, such as the plan currently proposed in Maryland.⁴⁸ While many of these programs have just recently been implemented and have yet to be thoroughly examined, initial results are promising. For example, in Massachusetts, a recent study found that a multi-payer ACO-model demonstration produced savings to the state in its third year of operation. In addition the study found improved outcomes through improved chronic care management, adult preventive care, and pediatric care.⁴⁹ Efforts to evaluate these numerous initiatives will require many resources over the next several years, but could also be rewarding as best practices and beneficial payment models are developed that can be shared across providers.

Policy Implications

The implications of this year's study update are encouraging. Despite an exceptionally strong equities market and a generally recovering economy, health care expenditures continued their historically slower rate of increase. This is advantageous for both public and private payers. From the broader economic perspective, this translates to reduced deficits, reduced fiscal pressures, and increased abilities to fund activities other than health care.

The reasons for the continued and somewhat unprecedented relative decline in health care expenditure growth rates are complex. The extended impact of expenditure growth reduction is defying the notion that it is mostly a consequence of the Great Recession. And, as noted above, there are also technical reasons to test the hypothesis that the slowdown in health care expenditure growth is predominately a result of the economy.

This report highlights a series of alternative hypotheses and supporting evidence. Value-based purchasing of hospital services has had a significant impact on hospital behavior. Hospitals are highly sensitive to changes in financial incentives. Movement away from a

⁴⁶ <http://www.cdc.gov/winnablebattles/targets/pdf/hai-winnablebattles-progressreport.pdf>

⁴⁷ Zimlichman, E., Henderson, D., Tamir, O., et al. (2013). Health Care–Associated Infections: A Meta-analysis of Costs and Financial Impact on the US Health Care System. *JAMA Internal Medicine* 173(22):2039-2046.

⁴⁸ Council of Economic Advisors (2013). Trends in Health Care Cost Growth and the Role of the Affordable Care Act.

⁴⁹ Song, et al. (2012). The 'Alternative Quality Contract,' Based On A Global Budget, Lowered Medical Spending And Improved Quality. *Health Affairs* 31(8).

preponderance of fee-for-service payments is also likely to permanently alter hospital behavior. For instance, emphasis on reduced readmissions has reportedly changed how hospital managers think about care delivery, from the care delivered within their four walls towards coordinating care outside their four walls as they track patients as they return to the community or to various post acute care settings.

An observation is that hospitals and other providers are being called to change their care delivery models and business models as payment systems evolve. In a general sense this is leading to a re-engineering of care- slow to start with, but gaining momentum over time. The ACA, with its call for CMMI grants, shows the potential magnitude of private and public sector experiments with alternative organizational forms such as ACOs and medical homes in combination with payment system incentives in the form of payments for value, payment bundling and capitation and prompting the health care industry to reconsider delivery models that reduce incentives for volume of care under fee-for-service. As organizational forms and payment models evolve, augmentation of computing powers and more ready access to “big data” claims files emphasizes an ability to better understand the consequences of change in terms of clinical and economic outcomes.

The extent to which activities currently in place can continually bend the cost curve is, of course, uncertain. But evidence to date suggests that the overall health care system is moving towards efficiency and enhanced value, and that the cost curve has, in fact, been bent beyond everyone’s expectations just a few years ago. If we can simply keep the curve at its current slope, we can arguably achieve the \$900 billion in additional deficit reduction that this report estimates. Supporting these existing initiatives with carefully targeted public policy would seem a prudent course of action.

Methods in Brief

The findings of this study are based on two types of analyses, as was used in our previous report:

- 1) A targeted review of the most recent literature on trends in health care spending, including peer-reviewed journal articles, government reports, and other forms of “grey” literature; and
- 2) Analyses of secondary data released by CBO from 2008 to 2014.

In this report we updated the “savings” estimates that were presented in our previous report based on the most recently released projections of Medicare spending by CBO. We compared projected expenditure levels from 2008 estimates to most recent estimates (from February 2014) in order to show “savings” to the Medicare program from spending levels forecasted in 2008 over the 10-year period 2015 to 2024.

When available, we used total Medicare expenditures for each year in our projections. When unavailable, we estimated future projected expenditure levels based on prior projections:

- 1) Medicare expenditures per beneficiary were calculated for five years prior to the last year of the projection by dividing total forecasted Medicare expenditures by the estimated total number of Medicare beneficiaries for each year (based on enrollment statistics from the Medicare Trustees 2013 annual report).
- 2) A compound annual growth rate in Medicare spending per beneficiary was calculated for five years prior to the last year of the projection.
- 3) This compound annual growth rate was reduced by 0.2% to account for the changing age structure of Medicare beneficiaries.¹
- 4) This adjusted compound annual growth rate was then used to project Medicare expenditures per beneficiary for the years not included in the original forecast.
- 5) The forecasted per beneficiary spending was then multiplied by the estimated number of Medicare beneficiaries for each given year from the last year of the projection through 2024 (based on enrollment projections from the Medicare Trustees 2013 annual report).

We then combined the original 2008 CBO estimate of future Medicare spending with our extrapolated projections of the 2008 estimates to create a 2008 baseline projection of Medicare spending over the period 2015 to 2024.

After creating the 2008 baseline estimate for the 2015 to 2024 timeframe, we estimated total Medicare spending from 2015 to 2024 if the rate of growth in spending per Medicare beneficiary remained at the same levels over this period as from 2010 to 2013 using the following three-step methodology:

- 1) A compound annual growth rate in Medicare spending per beneficiary from 2010 to 2013 was calculated using actual reported total Medicare expenditures divided by the number of Medicare beneficiaries for each year (based on enrollment statistics from the Medicare Trustees 2013 annual report).
- 2) This calculated compound annual growth rate was reduced by 0.2% to account for the changing age structure of Medicare beneficiaries.¹
- 3) The adjusted compound annual growth rate was then used to forecast Medicare spending per beneficiary from 2015 to 2024.
- 4) The forecasted per beneficiary spending was then multiplied by the estimated number of Medicare

beneficiaries for each year over the period 2015 to 2024 (based on enrollment statistics from the Medicare Trustees 2013 annual report) to estimate total Medicare spending as if the rate of growth in spending per beneficiary remained at 2009 to 2012 levels.

The methodology described above to forecast future Medicare spending from 2015 to 2024 using the 2010 to 2013 growth rate in spending per beneficiary was adapted by Dobson | DaVanzo from a study published by David Cutler and Nikhil Sahni in *Health Affairs*. Below we highlight the differences between our analysis and the Culter/Sahni methodology:

	Cutler/Sahni Methodology*	Dobson DaVanzo Analysis
Population	Total public health care spending	Total Medicare spending
Time Period Projected	2012-2021	2015-2024
Source Used	OACT	CBO
Growth Rate Used for Projection	2009-2012 per beneficiary spending	2010-2013 per beneficiary spending
Baseline Used in Savings Estimate	2012 OACT forecast	2008 CBO forecasts [†]

* Cutler, D., Sahni, N. (2013). If slow rate of health care spending growth persists, projections may be off by \$770 billion. *Health Affairs* 32(5), 841-850.

† Projected forward at average spending per beneficiary growth rate in the 2008 CBO 10-year projection, and 2013 Medicare Trustees projections of Medicare enrollees from 2015-2024.

The methodology used to forecast Medicare spending over the period 2015 to 2024, as described above, has several limitations. As the Medicare spending projections from 2008 were made prior to passage of the ACA, they do not reflect changes to the Medicare program or expected changes in Medicare enrollment that will occur in 2015 to 2024 due to the legislation. For example, the implementation of Medicaid expansion is likely to increase Medicare Part B enrollment—this increase in enrollment is not incorporated into our extrapolation of 2008 Medicare spending projections. However, we believe this trend has a minimal impact on our savings estimates.

In order to account for a reduction in the growth rate of average Medicare spending per beneficiary due to the enrollment of the Baby Boomers (who are younger, healthier, and therefore expected to incur lower Medicare costs than the average beneficiary), we reduced our projected annual growth rate in Medicare spending by 0.2% each year from 2015 to 2024.¹ We applied this adjustment to the 2008 baseline projection and to our 2014 projection of Medicare spending assuming the rate of growth in spending per beneficiary remains at 2010 to 2013 levels. This adjustment reflects current assumptions about near-term demographic trends in the Medicare population, but may not be consistent with the assumptions underlying the 2008 projections or fully capture the effects of this trend on Medicare spending.

Finally, the analyses presented in this study do not represent an independent actuarial analysis, but are projections of future Medicare spending based on prior and current Medicare spending levels forecasted in secondary data sources.

¹Kronick, R., Po, R. (2013). Growth in Medicare spending per beneficiary continues to hit historic lows. *ASPE Office of Health Policy*.