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By David M. Cutler and Nikhil R. Sahni

If Slow Rate Of Health Care Spending Growth Persists, Projections May Be Off By \$770 Billion

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ABSTRACT Despite earlier forecasts to the contrary, US health care spending growth has slowed in the past four years, continuing a trend that began in the early 2000s. In this article we attempt to identify why US health care spending growth has slowed, and we explore the spending implications if the trend continues for the next decade. We find that the 2007–09 recession, a one-time event, accounted for 37 percent of the slowdown between 2003 and 2012. A decline in private insurance coverage and cuts to some Medicare payment rates accounted for another 8 percent of the slowdown, leaving 55 percent of the spending slowdown unexplained. We conclude that a host of fundamental changes—including less rapid development of imaging technology and new pharmaceuticals, increased patient cost sharing, and greater provider efficiency—were responsible for the majority of the slowdown in spending growth. If these trends continue during 2013–22, public-sector health care spending will be as much as \$770 billion less than predicted. Such lower levels of spending would have an enormous impact on the US economy and on government and household finances.

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A number of recent news stories have noted the slowdown in the rate of health care spending growth, although there is limited literature on this topic.^{1–3} Real per capita health care spending increases were as high as 5.7 percent in 2001–03 but fell to 0.9 percent in 2010–12.⁴ This decline is nearly as large as that seen in the managed care era of the 1990s.

In projecting future spending trends, government actuaries and budget specialists have recognized and incorporated the recent slowdown in health care spending growth to a point. The Centers for Medicare and Medicaid Services (CMS) Office of the Actuary reduced its forecast of health care spending as a share of gross domestic product (GDP) in 2018 by 8 percent from its 2009 to 2012 forecast vintage.^{5,6} Similarly, the Congressional Budget Office (CBO) lowered its forecast for Medicare spending in 2020 by 7 per-

cent from its 2010 to 2013 forecast vintage.^{7,8}

Both of these forecasts are consistent with a view that the health care spending growth slowdown was a result of the 2007–09 recession and subsequent slow recovery. Those who hold this view also expect that more rapid health care spending growth will resume when the economy recovers. Thus, the CMS and CBO forecasts predict that spending growth will remain low in the near term, approximately through 2018, but will return to historical trends shortly thereafter. The belief that the slowdown in health care spending growth is recession driven is perhaps the most common explanation of recent trends.^{9,10}

But what if this view is wrong? An alternative theory is that the slowdown in health care spending growth reflected structural changes in the factors underlying the health care system and that spending growth will remain low for some period of time, even after the economy fully re-

covers from the recession. In this alternative view, even the recent reductions in the CMS and CBO forecasts for health spending growth may not go far enough.

Our goal in this article is to analyze the reasons for the recent slowdown in health care spending growth and draw inferences about the likely course of future spending. Although the data were not definitive, we found the argument for a structural change in the health care system contributing to the slowdown in spending growth at least as compelling as the argument rooted in an economic cycle. We based this conclusion on a few sets of facts.

First, we show below that the slowdown in health care spending growth is far greater than can be explained by quantifiable factors, including the recession, Medicare payment rate changes, and differences in insurance mix. The slowdown pre- and postdates the recession and shows up in populations whose medical care use is normally unaffected by economic cycles, such as the elderly.

Second, we discuss factors that lead to sustained health care spending increases over time and examine how those factors have played out over the past few years. In particular, the diffusion of existing technologies in many parts of medicine appears to have slowed, consumer cost sharing is increasing, and payment rate changes are pushing providers to become more efficient.

We conclude by discussing the cost implications of a continued slowdown in health care spending growth. The impact of such a change would make a sizable dent in the long-term budget deficit.

Existing Literature

Scholarly research on recent trends in health care spending and its growth has been limited. Chapin White and Paul Ginsburg showed that Medicare spending growth slowed in recent years because of a long-term trend toward tighter Medicare payment policy along with policy changes such as the Deficit Reduction Act of 2005 in the mid- and late 2000s.¹¹ Yet Medicare represents only one-fifth of total health care spending; there has been little analysis of health care spending as a whole, where Medicare payment changes are less important. One recent analysis by Charles Roehrig and colleagues compared actual health care spending growth to potential GDP growth, estimating that the slowdown in health care spending growth began 2.5 years before the recession. The authors speculated that changes in structural factors were at work but did not provide much analysis of what they could be.¹²

Study Data And Methods

To measure expectations about cost growth absent a slowdown, we used the health spending projections made by the CMS Office of the Actuary in 2004 and published in early 2005.¹³ Their forecasts covered the period 2004–13. We chose to focus on these projections not because they were particularly worthy of critique, but rather because the estimates reflect general economic consensus about factors that have driven spending growth historically.

Several factors can cause forecasts to deviate from realized experience, not all of which we wanted to attribute to the health system. Thus, we made several adjustments to the CMS forecast. The first adjustment was for differential economic performance realized relative to what was forecast—errors in forecasting the macro economy are not the focus of our analysis. To adjust for forecast errors in inflation rates, we took the CMS forecast of real per capita health care spending and added to it *ex post* inflation.¹⁴

We made a similar adjustment for inaccurate forecasts of overall economic growth. In particular, we assumed an income elasticity of health care spending of 1.0, based on our results below. We then used this to simulate a new forecast assuming that the 2004 forecast had accurately forecast real per capita GDP growth through 2006 and that growth from 2007 on was equal to that from the period 2003–06. This took out income forecasting errors prior to the recession; we accounted for the recession itself separately.

Our third adjustment was for the implementation of Medicare Part D. The CMS Office of the Actuary forecast from 2004 includes an estimate of the spending implication of the Medicare Part D drug benefit, which was enacted in 2003. To account for possible forecast error regarding this legislation, we formed an alternative forecast that assumed that the CMS Office of the Actuary had correctly forecast the increase in the national prescription drug growth rate between 2005 and 2006.¹⁵

Starting with actual spending in 2003, we then formed a projection for 2012 based on the adjusted growth rate, which we compared to realized spending in 2012. Since the National Health Expenditure Accounts provided by CMS only ran through 2011, we used data from the Bureau of Economic Analysis National Income and Product Accounts to estimate 2012 spending.¹⁶

Study Results

The 2004 CMS Office of the Actuary forecast projected that real per capita national health care spending would increase by 3.9 percent annually from 2003 through 2012. In the intervening

period, however, real per capita health care spending increased, on average, only 1.9 percent, including 1.2 percent annual growth during 2009–12. This is evident in the “actual growth” data for these years presented in Exhibit 1. As a result, total health care spending in 2012 was \$514 billion, or 16 percent lower than what was predicted based on the CMS actuarial growth rates.

Our measure of the growth slowdown was not particularly sensitive to the year chosen for the forecast. The forecast for 2001–11, released in early 2002, projected a growth rate of 3.4 percent in real per capita spending—again, well above actual growth.

The current health care spending growth is nearly as significant as the slowdown during the managed care era of the 1990s.^{17,18} Between 1993 and 2000 real per capita health care spending grew at the rate of real per capita GDP growth, which was 2.8 percent. In contrast, the growth rate during 2003–12 was 1.2 percentage points above GDP growth per capita, compared to the average of 2.9 percentage points above GDP growth during 1970–93 (Exhibit 2).

Exhibit 3 provides further detail on the slowdown in health care spending, focusing on spending growth by sector.¹⁹ Real per capita health care spending growth slowed in almost all sectors during 2003–12 compared to previous time periods.

THE RECESSION The most frequently discussed reason for the slowdown in health care spending growth is the recent recession. To estimate the impact of the recession on health care spending, we followed a methodology similar to that of the CMS Office of the Actuary and other researchers:

We related annual real per capita overall health care spending changes for the 1970–2012 time period to the average growth rate of the economy for the previous few years. We then used that relationship to predict the health care spending slowdown explained by the recession.

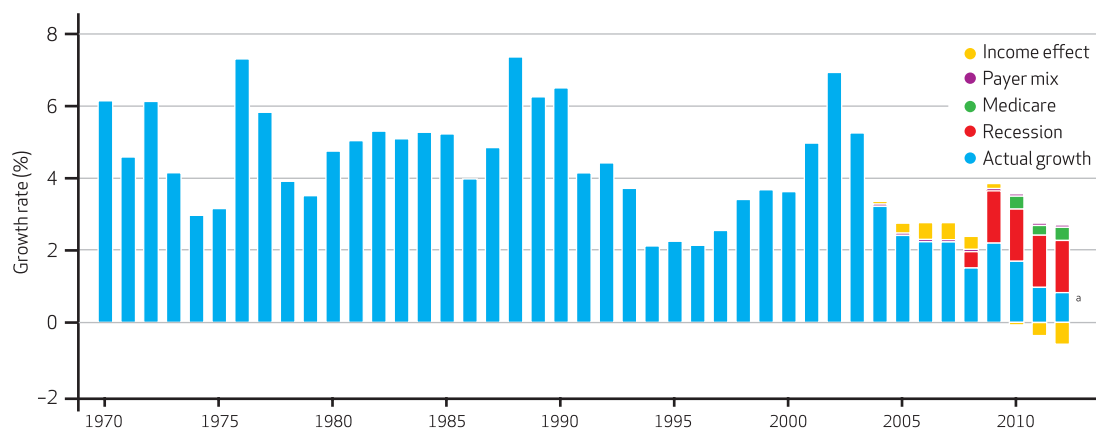
In examining the relationship between health care spending and GDP growth, the best fit was relating annual health care spending growth to a five-year average of GDP growth.²⁰ The model suggested a constant trend for medical spending of 2.5 percent per year and an income elasticity of 1.02—meaning that every one-percentage-point increase in GDP growth increased health care spending growth by 1.02 percentage points. The R² from this model is 31 percent.²¹

This model structure is comparable to that of the CMS Office of the Actuary.²² In particular, the CMS model uses a five-year moving average of income to forecast personal health care spending, although shorter time periods are used for other categories. Additionally, the actuaries use relative prices in their models. However, because relative prices of health care services are notoriously unreliable,²³ we did not include service prices in our model. Our model is also similar to that of Thomas Getzen, who finds that five years of lagged income is the best predictor of medium-term health care spending, with an income elasticity close to 1.²⁴

Using the model results, we estimated the effect of the recession on health care spending growth by taking the difference between predicted health care spending growth assuming real per capita GDP growth had remained constant at the 2007 level through the recession, and predicted health care spending given the actual

EXHIBIT 1

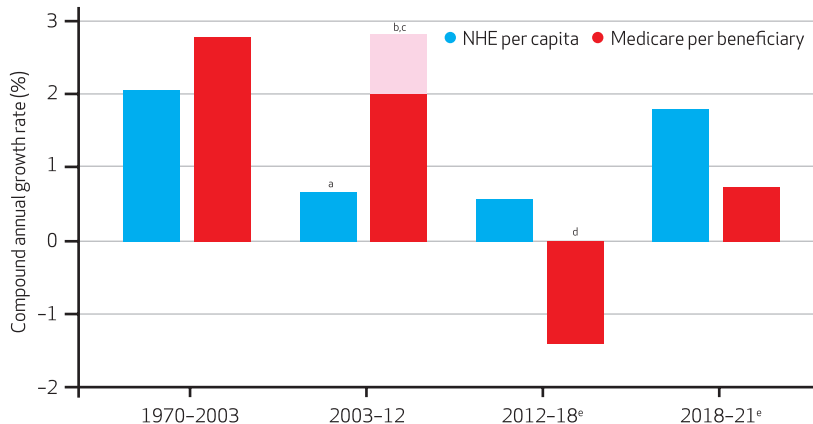
Annual Growth In Real Per Capita Health Care Spending, By Influencing Factor, United States, 1970–2012



SOURCE Authors’ calculations based on data from the Bureau of Economic Analysis (BEA) and the Centers for Medicare and Medicaid Services. ^aThe actual growth rate for 2011–12 was estimated using BEA National Income and Product Accounts tables.

EXHIBIT 2

Real Excess Growth In National Health Expenditures (NHE) Per Capita And Medicare Spending Per Beneficiary Over Gross Domestic Product Per Capita, United States, 1970–2021



SOURCE Authors' calculations based on data from the Bureau of Economic Analysis (BEA), Centers for Medicare and Medicaid Services (CMS), and Department of the Treasury. ^aGrowth rate for 2011–12 was estimated using BEA National Income and Product Accounts tables. ^bPart D was removed by holding the 2005–06 growth rate constant at the 2004–05 growth rate. ^cGrowth rate for 2011–12 was estimated using monthly Treasury statements. ^dThe Sustainable Growth Rate cut for 2013 was removed from the forecast. ^eEstimates made by CMS in 2012.

GDP growth rates. We found that health care spending growth would have been 1.1 percentage points greater annually during 2007–10 absent the recession, or 0.7 percentage points greater during 2003–12 (see the data for recession growth rates in Exhibit 1). This amount, attributable to the recession, represented 37 percent of the overall slowdown.

DIFFERENCES IN INSURANCE MIX Health care spending growth also depends on the mix of

payers, because prices and utilization vary by payer. Spending on health care by people with public insurance is lower than if they were privately insured. Health care spending for the uninsured is lower still. Thus, a movement from private coverage to Medicaid and being uninsured would reduce spending growth.

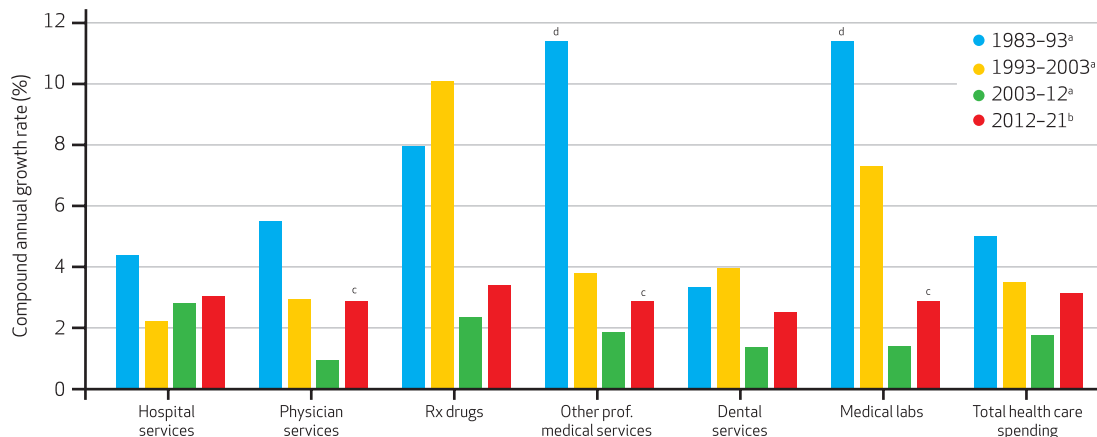
Data show that the prevalence of private insurance coverage has been declining for some time.²⁵ Nonetheless, the decline in private health insurance was particularly rapid in the 2000s. The CMS actuarial forecast in 2004 for 2007 overestimated private coverage and underestimated public coverage, although not by a great deal.

To determine the impact of unexpected insurance changes on the slowdown in health care spending, we compared the forecast payer distribution in 2012 to the actual distribution in 2012. We started by extrapolating the actual data from the period 2007–12, assuming that the annual change in payer mix between 2003 and 2007 continued through 2012—that is, eliminating the impact of the recession on payer mix. The actual data showed somewhat less private coverage than was forecast. Combining these data with differential payment rates by payer, the difference in spending in 2012 resulting from the unexpected change in payer mix would be 0.5 percent of total health care spending, or 3 percent of the slowdown.²⁶

Even this low estimate may be an overstatement because the difference in coverage forecasts may be related to the difference in forecast income growth, which we already accounted for. Thus, we put little weight on this explanation.

EXHIBIT 3

Real Per Capita Health Care Spending Growth, By Category, United States, 1983–2021



SOURCE Authors' calculations based on data from the Bureau of Economic Analysis (BEA) and the Centers for Medicare and Medicaid Services (CMS). ^aEstimates using BEA data through December 2012. This results in some discrepancy from CMS estimates of national health expenditures. ^bEstimates made by CMS in 2012. ^cCategory not split up in projections. ^dCategory not split up prior to 1987; growth rate includes home health.

MEDICARE POLICY CHANGES Medicare policy also changed over this time period. Adjustments were made in 2010 to payment rates for Medicare Advantage plans and home health outlier payments—additional payments made for uncommonly high-cost home care patients.²⁷ In 2011 the Affordable Care Act froze Medicare Advantage premiums and reduced annual updates for providers,²⁸ although CMS announced that it was increasing Medicare Advantage payments in April 2013.

To estimate the impact of Medicare payment rate changes on the slowdown in health care spending, we used data from unpublished tabulations provided by the CMS actuaries (John Shatto, Office of the Actuary, Centers for Medicare and Medicaid Services, personal communication, 2013 Mar 18). Those data showed spending by service category during the period 1991–2012. We considered a counterfactual in which spending growth rates for services affected by payment rate changes—specifically to hospitals, home health agencies, and managed care plans—were held constant at the 2008–09 growth rate. We then examined the difference between actual spending and counterfactual spending.²⁹

The Medicare payment rate changes combined to explain a reduction in the Medicare growth rate of 1.8 percentage points annually during 2009–12. In the context of the overall health system, however, the changes were smaller: a reduction of 0.3 percentage points annually during 2009–12, or 0.1 percentage points annually over the 2003–12 time period. This is 5 percent of the total health care spending slowdown.

Discussion

The combination of the recession, changes in insurance mix, and Medicare payment rate changes explained 45 percent of the slowdown in health care spending growth, leaving another 55 percent to be explained. With spending growth reductions in almost all sectors, as shown in Exhibit 2, our findings suggest that more fundamental changes may be at work.

WILL LOWER SPENDING GROWTH RECUR? An important question about the factors we examined was whether the spending growth slowdown was a one-time event or whether it will recur.

The recession itself was a one-time event that caused health care spending growth to slow. Some economists and health policy experts believe that the end of the recession will even lead to catch-up health care spending growth as consumers use services they deferred during the recession.³⁰

The Medicare payment rate changes led to a mix of one-time and recurring savings. The reduction in Medicare Advantage payment rates and home health outlier payments were one-time savings: Once prices were lowered, they remained so and did not decline further. The reduction in update factors for inpatient hospitals was recurring and will contribute to lower health care spending growth in perpetuity. During 2009–12 nearly three-quarters of the lower Medicare spending was attributable to the home health and Medicare Advantage adjustments. This suggests that one-time savings dominated in this time period.

Thus, the bulk of the factors that could be readily identified fit the theme of a one-time slowdown in health care spending growth to be followed by future increases. This roughly justifies the current set of assumptions about health care spending growth rising in the future, as predicted by CMS and the CBO.

The central question, then, is how to account for more than half of the slowdown in health care spending that our analyses cannot explain. Here, we explore a few explanations that are difficult to quantify but may be important in explaining the trend.

CHANGING TECHNOLOGICAL LANDSCAPE Changes in the technological landscape—specifically, less rapid development of new medical care treatments—seem to partially explain the results in Exhibit 2. The pharmaceutical industry is a prime example of such changes. A number of drugs coming off patent and fewer new blockbusters, combined with policy changes such as tiered formularies to control the use of high-cost brand-name drugs, slowed the growth of prescription drug spending from 10.1 percent annually during 1993–2003 to 2.3 percent annually during 2003–12. Many analysts forecast very slow future growth for pharmaceutical spending; drugs that account for roughly 17 percent of prescription drug spending are coming off patent in the next five years, resulting in lower-price options for a large portion of current drugs.³¹ Although the expansion of coverage among the currently uninsured through the Affordable Care Act will result in increased use of prescription drugs, populations most affected by these expansions are relatively modest users of prescription medications.³²

Imaging fits a similar pattern. After rapid growth in magnetic resonance imaging and computed tomography use during 1996–2005, growth leveled off in 2006.^{33,34} It is difficult to determine whether flattening rates of use are due to slowing in technological change, better utilization management, or changing incentives related to limits on imaging center ownership

and referrals, or whether improvements in digital technology and image sharing have decreased the need for re-imaging. In any case, slowed use of imaging is probably a recurring change to the landscape. Studies have not shown a shift from magnetic resonance imaging to other advanced imaging.^{35,36}

Other technological changes are recurring but might not explain the slowing of health care spending growth. Although more people are receiving procedures than in the past, since the 1990s there has been a continuing shift from inpatient to outpatient care. Thus, the increase in surgical volume has been accomplished at lower rates of increase in spending.³⁷ From 2001 to 2011 inpatient days per capita decreased 12 percent, although hospital spending growth did not decline relative to the previous decade.³⁸

INCREASED COST SHARING Changes in cost sharing over the past decade are likely an additional factor slowing the growth of health care spending. The percentage of covered workers in a plan with a deductible greater than \$1,000 for single coverage has increased twenty-four percentage points since 2006, according to the annual Employer Health Benefits Surveys from the Kaiser Family Foundation and Health Research and Educational Trust. Such plans constituted more than a third of all employer-sponsored plans in 2012.^{39,41} In real terms, deductibles for single preferred provider organization coverage increased 91 percent, or 5.6 percent annually, during 2000–12.^{41,40} This far exceeds income growth for the median family.

Copayments for physician visits have also risen. For example, in real terms, copayments for primary care provider visits increased by 1.9 percent annually from 2006 to 2012. Across all covered workers with a copayment for an office visit, 47 percent of plans required a copayment of more than \$25 to visit a primary care provider in 2012—an increase of twenty-seven percentage points since 2006. For a specialist visit, 64 percent of all plans required a copayment of more than \$30 in 2012—an increase of thirty-six percentage points since 2006.⁴⁰

Although the recession has increased cost sharing for covered workers, evidence points to increased cost sharing even before the recession. Real health maintenance organization copayments for a physician office visit rose 4.4 percent annually during 1999–2007, compared to 1.3 percent annually during 2007–11.⁴²

The impact of higher deductibles and copayments on health care spending is hard to pinpoint. Traditionally, the economic literature has estimated the impact of cost sharing on spending by relating total spending to the percentage of the bill paid out of pocket.⁴³ By this

metric, cost sharing has declined. The share of total health spending that is out of pocket fell from 13.3 in 2003 to 11.4 percent in 2011, leading to a projection of increased spending.

Another set of analyses argues that this methodology is incorrect, however.⁴⁴ First, the out-of-pocket share methodology underweights cost sharing for services that are priced so high that their use is minimal. A drug formulary with a very high third tier will steer patients to generic drugs but will not show up as high cost sharing. Indeed, the share of spending paid by consumers will look low, even though it is quite high for some medications.

Second, the methodology ignores income effects. Even if the consumer's share of the bill is falling, the level of that payment may be high enough to discourage use. Real median household income for the insured fell by 6.3 percent between 2001 and 2011, even as cost sharing increased. Studies show that consumers are responsive to dollar amounts paid out of pocket, not just the share of total expenses paid by insurance.⁴⁵

Consistent with a structural change, recent data show that numbers of physician visits continued to decline after the recession ended, with a fall of 17 percent from the second quarter of 2009 through the second quarter of 2011.⁴⁶

GREATER PROVIDER EFFICIENCY Increased efficiency by providers is an additional factor that may explain slowed health care spending growth. A number of institutions have been able to achieve efficiency savings since the early 2000s and especially in the past five years. For example, starting in 2001 the University of Pittsburgh Medical Center reduced its rate of hospital-acquired infections by 85 percent.⁴⁷ Between 2006 and 2008 Geisinger Health System cut its readmission rate from 6.9 percent to 3.8 percent on thirty-day readmissions for heart bypass surgery.⁴⁸ Parkland, a public hospital in Dallas, reduced readmissions for Medicare heart failure patients by about 40 percent in 2010–11.⁴⁹ Finally, Denver Health was able to reduce its cardiopulmonary arrest rate by 63 percent over a period of several years using a new rapid response system.⁵⁰

Some data suggest that the efficiency gains may be widespread. Readmission rates in Medicare decreased more than one percentage point in 2012 from an average of 19 percent during 2007–10.⁵¹ The Centers for Disease Control and Prevention reported that central line-associated bloodstream infections decreased by 41 percent from 2008 to 2011. In hospital intensive care units, where the largest number of these infections occur, the infection rate dropped by an even greater 44 percent during that time

period.⁵² From 2008 to 2012 the QUEST collaborative, a quality improvement and cost-cutting initiative involving 333 hospitals, has saved \$9.13 billion.⁵³

It is unclear to what the observed gains in efficiency can be attributed. A good deal of attention has been devoted to safety issues. Organizations such as the Agency for Healthcare Research and Quality and the Institute for Healthcare Improvement have promoted patient safety. Patient safety is also the topic of Atul Gawande's "The Checklist Manifesto"⁵⁴ and Peter Pronovost and colleagues' Keystone Initiative.⁵⁵ It is possible that these initiatives are bearing great fruit.

In considering readmissions in Medicare, financial penalties for hospitals with high readmission rates began only in fiscal year 2013, and they affect primarily institutions with very high readmission rates.⁵⁶ In 2009 Medicare ended payments for hospital-acquired conditions. By 2015 Medicare will levy financial penalties for hospital-acquired conditions. Whether the shifts in provider efficiency are results of past Medicare policy, early responses to future Medicare policy, adaptations to private insurance policies, or other factors is not known.^{57,58} Yet it is safe to say that these are recurring changes that have an impact on health care spending growth.

Long-Term Outlook And Policy Implications

Although the data are not definitive, they are clear about some points. First, the recession was an important factor in bringing about slower health care spending growth, but it wasn't the only factor. Annual health care spending growth had already slowed prior to the recession and was maintained during the recession period. Our results suggest that only about one-third of the slowdown in health care spending growth was a result of the recession. There was a significant but smaller contribution from Medicare payment rate changes. Less definitively, there is reasonable evidence that points to other factors contributing to the health care spending growth slowdown: less rapid technological change, increased cost sharing, and greater provider efficiency.

For these less certain factors, it remains to be seen whether or not they will persist. Technology is notoriously hard to forecast, but there is nothing immediately on the horizon that portends an outpouring of new, expensive technologies. New drug approvals are (finally) increasing, but even drugs that were touted as blockbusters on launch, such as Zaltrap for colorectal cancer and Benlysta for lupus, are not sell-

ing as well as expected.⁵⁹ Similarly, cost sharing in private insurance has been increasing for some time, including in time periods when the economy was growing. Thus, it seems unlikely that cost sharing will decline significantly in the future.

A particularly intriguing idea is that greater provider efficiency contributes to the slowdown in health care spending growth. In this regard, the future of the Affordable Care Act may be as important to health care spending as economic growth is. Even with a decrease in hospital readmissions among Medicare beneficiaries to 17.8 percent, estimates suggest that the readmission rate could be reduced further, to 4–13 percent.^{60–62} Together, hospital-acquired conditions and unnecessary readmissions account for about 5 percent of national health expenditures.^{63,64} Even spread over several years, the impact of eliminating mistakes and readmissions could be substantial. And these areas may be just the tip of the iceberg.

New Forecasts

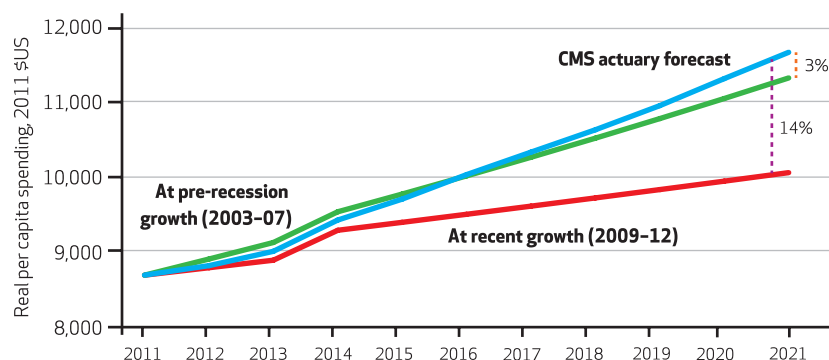
As noted, official forecasts have started to recognize the trends that have contributed to the slowdown in health care spending growth, but only near-term forecasts have been adjusted downward. For example, the CMS Office of the Actuary projected that national health care spending growth will remain low through 2018 and then increase markedly thereafter.⁶ Similarly, the CBO forecasts that Medicare spending growth above GDP growth will stall through 2018 and then surge.⁸

A 2012 accuracy analysis by CMS shows a trend toward overestimating health care spending growth.⁶⁵ The CMS Office of the Actuary attributes this to a slowness in incorporating new spending trends into annual spending projections. It may be that forecasters should place more weight on the recent past—outside of one-time events such as the recession—than they are currently.

If health care spending growth remains at its current low level, the official forecast will significantly overstate spending in the latter years of this decade. Exhibit 4 shows total health care spending forecasts through 2021 under the CMS Office of the Actuary current forecast and with two alternatives: a continuation of the growth rate of the past three years, and a continuation of the average growth rate from 2003–07. The past three years have seen the slowest growth in health care spending since 1970, except during the recent recession. The second forecast is an attempt to capture what growth may look like once the economy has recovered.

EXHIBIT 4

Projected Health Spending, United States, 2011–21



SOURCE Authors' calculations based on data from the Bureau of Economic Analysis (BEA) and the Centers for Medicare and Medicaid Services (CMS).

In each case, we added in the increase in health care spending that was forecast to result from the addition of the uninsured in 2014. We also took out of the forecast the implementation of the payment cuts attributable to the Sustainable Growth Rate for Medicare physician payment in 2013, which has been postponed for many years.

Continuation of the very recent trend implies that the CMS actuarial forecasts for 2021 are overestimated by 14 percent. In dollar terms, health care spending in 2021 would be \$401 billion less than currently projected. Over the entire ten-year period, public-sector health care spending would be \$770 billion less than currently projected in 2021.

Even a continuation of the trend from the period 2003–07 implies that the CMS actuarial forecasts would be 3 percent too high, resulting in \$85 billion less in health care spending than

currently projected in 2021. Public-sector health care spending would be \$76 billion less than currently projected for the ten-year period.

The consequences for businesses and households of such an extended slowdown in health care spending growth would be similarly enormous. Under the alternative forecasts, spending by businesses in 2021 would be \$92–\$430 per covered worker per year less than currently expected, and out-of-pocket spending per household per year would be about \$62–\$290 lower. Slow health care spending growth might thus bring much-needed relief throughout the economy.

Conclusion

Despite earlier forecasts to the contrary, US health care spending growth has slowed by more than \$500 billion since 2003. Our analyses suggest that only 45 percent of the slowdown can be accounted for by the 2007–09 recession, decline in private insurance coverage, and cuts to Medicare—mostly one-time events. This leaves 55 percent of the spending slowdown unexplained. We conclude that a host of structural changes—including less rapid development of imaging technology and new pharmaceuticals, increased patient cost sharing, and greater provider efficiency—were responsible for the majority of the slowdown in health care spending growth. The evidence thus suggests at least as strong a case for structural changes as for cyclical factors. If these trends continue over the next ten years, public-sector health care spending will be as much as \$770 billion less than predicted. Such lower levels of health care spending would have an enormous impact on the US economy and on government and household finances. ■

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NOTES

- Jaspen B. Health costs slow to lowest rate in 15 years as employer commitment to benefits wanes. *Forbes*. 2013 Mar 7.
- Emanuel EJ. Health care's good news. *New York Times*. 2013 Feb 14.
- Cliff S. Want to debate Medicare costs? You need to see this chart first. *Washington Post*. 2013 Mar 15.
- Authors' calculations using data from the Centers for Medicare and Medicaid Services and Bureau of Economic Analysis.
- Centers for Medicare and Medicaid Services, Office of the Actuary. National health expenditure projections 2008–2018. Baltimore (MD): CMS; 2009 Jun.
- Centers for Medicare and Medicaid Services, Office of the Actuary. National health expenditure projections 2011–2021. Baltimore (MD): CMS; 2012 Jun.
- Congressional Budget Office. Medicare—August 2010 baseline. Washington (DC): CBO; 2010 Aug 1.
- Congressional Budget Office. Medicare—February 2013 baseline. Washington (DC): CBO; 2013 Feb 5.
- Goozner M. Recession keeps health-care spending in check. *Fiscal Times*. 2012 Jan 9.
- Marmor T, Oberlander J. From HMOs to ACOs: the quest for the holy grail in US health policy. *J Gen Intern Med*. 2012 Mar 13. [Epub ahead of print].
- White C, Ginsburg P. Slower growth in Medicare spending—is this the new normal? *N Engl J Med*. 2012;366(12):1073–5.
- Roehrig C, Turner A, Hughes-Cromwick P, Miller G. When the cost curve bent—pre-recession moderation in health care spending. *N Engl J Med*. 2012;367(7):590–3.
- Heffler S, Smith S, Keehan S, Borger C, Clemens MK, Truffer C. US health

- spending projections for 2004–2014. *Health Aff (Millwood)*. 2005;24:w5-74–85. DOI: 10.1377/hlthaff.w5.74.
- 14 Throughout the article, inflation estimates are made using the gross domestic product (GDP) deflator. Population data are from the US census, and Medicare enrollment data are from the Centers for Medicare and Medicaid Services Office of the Actuary. All growth rates are compounded annual growth rates.
- 15 In reality, the CMS Office of the Actuary underestimated the increase in prescription drug spending. To make the adjustment, we took the actual increase in prescription drug spending growth from 2005 to 2006 and added this to the forecast for 2005 growth in the 2004 report.
- 16 The discrepancy between the Bureau of Economic Analysis data and the CMS national health expenditure data is relatively small at an aggregate level. Hartman MB, Kornfeld RJ, Catlin AC. Research spotlight: a reconciliation of health care expenditures in the national health expenditures accounts and in gross domestic product. Washington (DC): Bureau of Economic Analysis; 2010 Sep.
- 17 Glied S. Health care costs: on the rise again. *J Econ Perspect*. 2003;17(2):125–48.
- 18 Schur CL, Berk ML, Yegian JM. Public perceptions of cost containment strategies: mixed signals for managed care. *Health Aff (Millwood)*. 2004;23:w4-516–25. DOI: 10.1377/hlthaff.w4.516.
- 19 Sector spending data are from the Bureau of Economic Analysis.
- 20 The equation used was as follows: [one-year real, per capita overall medical spending growth] = β * [five-year real, per capita GDP growth] + intercept.
- 21 R^2 represents the amount of variation in the dependent variable explained by the independent variables. A higher value implies a stronger relationship.
- 22 Office of the Actuary, Centers for Medicare and Medicaid Services. Projections of national health expenditures: methodology and model specification. Baltimore (MD): CMS; 2011 Jul.
- 23 Berndt ER, Cutler DM, Frank RG, Griliches Z, Newhouse JP, Triplett JE. Medical care prices and output. Chapter 3 in: Culyer AJ, Newhouse JP, editors. *Handbook of health economics*. Vol. 1. Amsterdam: Elsevier; 2000. p. 119–80.
- 24 Getzen TE. Forecasting health expenditures: short, medium, and long (long) term. *J Health Care Financ*. 2000;26(3):56–72.
- 25 DeNavas-Walt C, Proctor BD, Smith JC. Income, poverty, and health insurance coverage in the United States: 2011. Washington (DC): Census Bureau; 2011.
- 26 This assumes no cost shifting between payers. Although that assumption is not necessarily right, it is an upper bound on the importance of payer distribution changes. Data on relative payment rates are from the American Hospital Association and Medicare Payment Advisory Commission for each payer.
- 27 Ledue C. Medicare updates home health payments for 2010. *Healthcare Finance News*. 2009 Nov 2.
- 28 Market baskets are a fixed-weight index to estimate price changes absent a change in goods or service mix.
- 29 Not all of the Medicare changes were legislative. Thus, their impacts were not estimated by the Congressional Budget Office or other agencies.
- 30 Coombs B. Americans scaled back on health spending during recession. *USA Today*. 2012 Jan 12.
- 31 IMS Institute for Healthcare Informatics. The global use of medicines: outlook through 2015. Danbury (CT): IMS Health; 2011 May.
- 32 According to the CMS national health expenditure projections, incremental growth in 2014 for prescription drugs as a result of the Affordable Care Act is calculated to be 4.7 percent, largely due to increased use by the uninsured. Assuming forty-five million currently uninsured people, this is an increase of \$322 per capita, or 33 percent of average per capita spending.
- 33 Lee DW, Levy F. The sharp slowdown in growth of medical imaging: an early analysis suggests combination of policies was the cause. *Health Aff (Millwood)*. 2012;31(8):1876–84.
- 34 Smith-Bindman R, Miglioretti DL, Johnson E, Lee C, Feigelson HS, Flynn M, et al. Use of diagnostic imaging studies and associated radiation exposure for patients enrolled in large integrated health care systems, 1996–2010. *JAMA*. 2012;307(22):2400–9.
- 35 Thomson Reuters. Fact file: outpatient trends. New York (NY): Thomson Reuters; 2010 Feb.
- 36 Thomson Reuters. Fact file: outpatient trends. New York (NY): Thomson Reuters; 2011 Apr.
- 37 McKinsey Center for US Health System Reform. Accounting for the cost of US health care: pre-reform trends and the impact of the recession. Washington (DC): McKinsey and Company; 2011 Dec.
- 38 American Hospital Association. Trends affecting hospitals and health systems. Chicago (IL): AHA; 2011.
- 39 To calculate weighted averages, we assumed the midpoint for each category (for example, copayments between \$20 and \$30 were assumed to be \$25). The last categories of each analysis are listed as “or more.” For these we assumed the same size bucket as the preceding category and set the estimate at the midpoint. For health maintenance organization copayments for a physician office visit, “\$20 or more” was set to \$25. For copayments for a physician visit, “\$40 or more” was set to \$45. For single preferred provider organization coverage deductibles, “\$2,000 or more” was set to \$2,500.
- 40 Kaiser Family Foundation, Health Research and Educational Trust. Employer health benefits: 2012 annual survey. Menlo Park (CA): KFF; 2012 Sep.
- 41 Kaiser Family Foundation, Health Research and Educational Trust. Employer health benefits: 2006 annual survey. Menlo Park (CA): KFF; 2006 Sep.
- 42 Kaiser Family Foundation, Health Research and Educational Trust. Employer health benefits: 2011 annual survey. Menlo Park (CA): KFF; 2011 Sep.
- 43 Smith S, Newhouse JP, Freeland MS. Income, insurance, and technology: why does health spending outpace economic growth? *Health Aff (Millwood)*. 2009;28(5):1276–84.
- 44 Newhouse JP, Phelps CE, Marquis MS. On having your cake and eating it too: econometric problems in estimating the demand for health services. *J Econometrics*. 1980;13(3):365–90.
- 45 Goldman DP, Joyce GF, Zheng Y. Prescription drug cost sharing. *JAMA*. 2007;298(1):61–9.
- 46 Kaiser Family Foundation. The economy and medical care [Internet]. Menlo Park (CA): KFF; 2011 Nov 15 [cited 2013 Apr 9]. (Policy Insights). Available from: <http://policyinsights.kff.org/2011/november/the-economy-and-medical-care.aspx>
- 47 UPMC. Reducing the risk of hospital-acquired infections [Internet]. Pittsburgh (PA): UPMC; [cited 2013 Mar 13]. Available from: <http://www.upmc.com/about/why-upmc/quality/excellence-in-patient-care/pages/reducing-risk-of-hospital-acquired-infections.aspx>
- 48 McCarthy D, Mueller K, Wrenn J. Geisinger Health System: achieving the potential of system integration through innovation, leadership, measurement, and incentives. New York City (NY): Commonwealth Fund; 2009 Jun.
- 49 Barr P. Cutting readmissions: index allows hospital to track high-risk patients. *Mod Healthc*. 2011; 10(Suppl).
- 50 Gabow P, Mehler P. A broad and structured approach to improving patient safety and quality: lessons from Denver health. *Health Aff (Millwood)*. 2011;30(4):612–18.

- 51 Council of Economic Advisers. Economic report of the President. Washington (DC): The Council; 2013 Mar.
- 52 Malpiedi PJ, Peterson KD, Soe MM, Edwards JR, Scott RD II, Wise ME, et al. 2011 national and state healthcare-associated infections standardized infection ratio report [Internet]. Atlanta (GA): Centers for Disease Control and Prevention; 11 Feb 2013 [cited 2013 Apr 9]. Available from: http://www.cdc.gov/hai/pdfs/SIR/SIR-Report_02_07_2013.pdf
- 53 McKinney M. QUEST quality initiative sees big reduction in infections, costs, Premier says. *Mod Healthc*. 2013 Mar 18.
- 54 Gawande A. The checklist manifesto: how to get things right. New York (NY): Henry Holt and Company; 2009.
- 55 Pronovost P, Needham D, Berenholtz S, Sinopoli D, Chu H, Cosgrove S, et al. An intervention to decrease catheter-related bloodstream infections in the ICU. *N Engl J Med*. 2006;355:2725–32.
- 56 Sahni NR, Cutler DM, Kocher R. Will the readmission rate penalties drive hospital behavior changes? *Health Affairs Blog* [serial on the Internet]. 14 Feb 2013 [cited 2013 Apr 9]. Available from: <http://healthaffairs.org/blog/2013/02/14/will-the-readmission-rate-penalties-drive-hospital-behavior-changes/>
- 57 McNair PD, Luft HS, Bindman AB. Medicare's policy not to pay for treating hospital-acquired conditions: the impact. *Health Aff (Millwood)*. 2009;28(5):1485–93.
- 58 Pronovost PJ, Marsteller JA, Goeschel CA. Preventing bloodstream infections: a measurable national success story in quality improvement. *Health Aff (Millwood)*. 2011;30(4):628–34.
- 59 Editorial. Failure to launch. *Nat Biotech*. 2013;31(1):1.
- 60 Council of Economic Advisers. Economic report of the President. Washington (DC): The Council; 2013 Mar.
- 61 Medicare Payment Advisory Commission. Report to the Congress: promoting greater efficiency in Medicare. Washington (DC): MedPAC; 2007 Jun.
- 62 Joynt KE, Jha AK. Thirty-day readmissions—truth and consequences. *N Engl J Med*. 2012;366(15):1366–9.
- 63 Scott RD. The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention. Atlanta (GA): Centers for Disease Control and Prevention; 2009 Mar.
- 64 The CDC estimates that hospital-acquired infections—nearly all of which are preventable—cost \$37–\$45 billion each year. Reducing readmissions to rates noted in the text would save \$21–\$59 billion annually. Together, these amount to nearly 5 percent of medical spending.
- 65 Centers for Medicare and Medicaid Services, Office of the Actuary. Accuracy analysis of the short-term (1-year) national health expenditure projections. Baltimore (MD): CMS; 2012.

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