



The Two Trillion Dollar Solution

Saving money by modernizing the health care system

Melinda Beeuwkes Buntin and David Cutler June 2009

Center for American Progress



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Introduction and summary

The fundamental challenge in health reform is to reduce the growth rate of health care costs. If annual cost increases can be lowered, then workers' incomes will increase, labor market distortions will decline, and government budgets will move closer to balance. If we cannot "bend the curve" of increasing health care costs, then we will not be able to afford our current commitments to Medicare, Medicaid, and the State Children's Health Insurance Program, let alone the cost of covering the 45 million uninsured Americans.

The enormity of the challenge is widely recognized. So too are the fundamental ideas about how the problem should be met. These widely accepted solutions include bringing health care into the information age, reforming health insurance markets, and learning what works and which health care providers are better at what they do. Reform will also require reorienting payments away from fee-for-service every time a patient visits a doctor, checks out of a hospital or is prescribed a battery of clinical tests. Health reform instead must move us toward value-based systems that pay for entire episodes of care, stressing prevention and not just acute treatment.

Based on a wide array of research, our best guess is that fundamental health system reform involving just three of these strategies will lead to federal savings of about \$550 billion over the next decade. First, investments in health information technology and other types of health care-provider infrastructure could bring direct federal savings of \$196 billion between 2010 and 2019, primarily through administrative simplification and the more productive use of time by physicians and nurses.

Second, creating insurance "exchanges," local or national organizations designed to act as clearinghouses for health insurance policies, could foster competition and drive down administrative costs for individual and small group policies. We estimate these reduced costs could bring in additional federal revenues of \$64 billion over the next 10 years.

Finally, payment system reforms based on the idea that quality care should be rewarded rather than just more and more expensive care would create incentives to improve quality and efficiency. This could save the federal government \$299 billion over this period, primarily by reducing the frequency and intensity of hospitalizations.

These three sets of policies together would yield overall system savings of \$1.5 trillion over the coming decade, which is consistent with the goals outlined recently by health industry

leaders and with the president's budget released earlier this year. When combined with reductions in existing overpayments—and with other promising policy innovations that we discuss throughout the paper—they have the potential to yield hundreds of billions of dollars more over the next decade and beyond.

Yet challenges remain. Some health policy experts are skeptical that the will exists in Congress to legislate real changes. The Congressional Budget Office's scores, which Congress relies on to gauge how effective particular policies will be, are low for some individual health reforms, reflecting the fact that isolated policies can't be expected to bring systemwide savings. Recognizing this, observers have asked for more specifics about how President Barack Obama's pledge during the presidential campaign to save Americans \$2,500 per family on their health care costs could be achieved.

Our analysis in this paper shows how a critical set of reforms can achieve these savings goals. We first lay out the two potential means for achieving savings—by cutting waste and inefficiency out of the “base” of current health care spending and by aligning incentives to encourage the growth of only effective health care services. We then discuss how other industries have achieved efficiency gains and the specific policies that experts agree can bring cost savings.

In the second half of the paper, we present evidence about the quantitative impact of these types of policies taken together. We sum up each section with a discussion of related strategies that have promise but to which we have not assigned savings estimate in an effort to be evidence-based and conservative in our calculations.

The potential for cost savings

Two sorts of savings are possible in health care. The first is eliminating waste and inefficiency. The most commonly cited estimate is that 30 percent of the money spent on medical care does not buy care worth its cost.¹ Medicare costs per capita in Minneapolis, for example, are about half those in Miami, yet Miami does not have better health outcomes.² International comparisons yield the same conclusion.³ Indeed, even the 30 percent estimate might understate possible savings, since care is not delivered with perfect efficiency even in the country's low-cost areas.⁴

Second, reform might stimulate cost-reducing innovation instead of the continuous cost increases that accompany current innovation. For nearly 20 years, scholars have argued that generous reimbursement policies for medical care have led to innovations that almost always increase health care costs.⁵ Changing that dynamic by investing in research about what works and rewarding health care providers who choose efficient treatments could have a dramatic effect on cost growth. Over the next few decades, these two forms of cost savings will interact, but each is important.

Reducing costs by 30 percent will take time and effort, but it is not inconceivable over the long term. Experience in the health care sector and other industries suggests that cost reductions on the order of 1.5-to-2.0 percentage points per year are within reach.⁶ This is consistent with what the health industry interest groups, including the American Medical Association, America's Health Insurance Plans, and the American Hospital Association, committed to President Obama and the president's promise on the campaign trail to reduce costs by \$2,500 per family.⁷ A reduction of this magnitude would lower total medical spending by more than \$2 trillion and save the federal government nearly \$600 billion over 10 years.

Because the medical system is so large and growing, however, these 10-year savings are not an immense part of total spending. Medical costs are expected to total \$2.5 trillion in 2009, and grow by 6.2 percent annually over the next decade.⁸ The health care industry group pledge to reduce the annual rate of growth by 1.5 percentage points for the next decade will reduce projected spending by just 8 percent. And even with these changes, medical spending will still grow when adjusted for inflation and the aging of the population. The United States will still spend much more than other countries on medical care.

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Keys to improved efficiency

Research on other industries provides a guide to how productivity might be improved. From the mid-1970s through the mid-1990s, productivity growth in the vast bulk of U.S. businesses was low, averaging just over 1 percentage point annually. Beginning in 1995, however, productivity growth increased substantially, averaging 2.5 percentage points annually between 1995 and 2008. The difference is about 1.5 percentage points—again, exactly the productivity improvement goal we anticipate through health care reform. The task for health reformers is to foster a similar productivity revolution in medicine. Three elements were instrumental in other industries' rapid productivity growth:⁹

- **Better information.** No industry has ever become more efficient without knowing what it was doing. In health care, we know very little about what is done, what ought to be done, and which health care providers are better or worse at providing care.
- **Appropriate compensation arrangements.** A hallmark of high-productivity industries is that employee compensation is aligned with producing value. In health care, compensation is generally based on doing more, not doing better.
- **Empowering people to make decisions.** When the right information is present and employees' financial interest are aligned with that of their company as a whole, empowering people to make changes sets in motion a process of continuous quality improvement. In health care, there is little ability for individual actors to make systemic changes.

The experience of the Veterans Administration health system demonstrates these points. The VA was able to hold down cost increases and improve quality markedly through the deployment of information systems, by improving financial arrangements, and by empowering regional managers to make decisions.¹⁰ Other integrated health care systems, such as Geisinger Health System in Pennsylvania and Kaiser Permanente in California, have done the same, investing in technology, realigning payments and incentives for their employees, and allowing individual employees the freedom to make changes.

Similarly, Medicare's value-based purchasing initiative and the state of North Carolina's Community Care Program are saving money while improving health care. All of these public- and private-sector initiatives demonstrate that it is possible for government programs to partner with innovative health care providers, sharing savings with them in mutually beneficial pilot programs.¹¹

We also learn from failures as well as successes. There are health care institutions that have spent large sums on health IT with zero or even negative returns; some health IT reforms made matters worse and had to be uninstalled. The reason for the failures: lack of organizational changes.¹²

The way doctors and hospitals practice medicine is more important than the tools they use. Health information technology must both work within organizational cultures and change them. Most IT-driven disease management programs, for example, did not succeed in generating cost savings because they targeted only the patient side of the care equation and failed to substantially change incentives or enhance the information available to doctors, hospitals and clinics.¹³ And payment-system changes made in the absence of information on quality outcomes have had unintended consequences. Now that we've learned these lessons, we can design better systems to save money.

The closest parallels in private industry make the same point. Retail trade is a clear example. Companies traditionally sold items to individuals on a personal contact basis with high administrative costs and haphazard quality—a description that could easily be applied to our health care system today. In the mid-1990s, however, that changed. Several things happened to the industry, but a few stand out:

- Better access to information, especially through the use of the Internet.
- Financial incentives such as compensation based on sales performance.
- Human resource changes such as decentralizing decision-making authority.

The result was a surge in productivity.

Health care will need changes in each of these three areas, too. Health care providers and those who pay for health care—the government, insurance companies and patients—need to use health information in more dynamic ways. Health care compensation arrangements must change to focus on quality care. And patients and all types of health care providers need to be empowered to make decisions that improve quality care.

Fortunately, there is a good deal of agreement about the components of reform. To provide some context for this analysis, we summarize several recent proposals for cost savings on the health-care-provider side of the equation: A recent survey of health care opinion leaders conducted by the Commonwealth Fund; proposals released by the Senate Finance Committee; and proposals from MedPAC. Table 1 summarizes these policy proposals.¹⁴

Health Reforms that Work

Consensus reforms affecting health care providers

	Majority in health opinion leaders survey	Senate Finance Committee	MedPAC
Information			
Encouraging health information technology use	√	√	√
Comparative effectiveness research	√	√	√
Improving quality measurement		√	√
Payment system reforms			
Bundled payments			
Hospital readmissions and post-acute bundling	√	√	√
Payment for transitional care activities	√	√	√
Episode-based payment/moving away from fee-for-service	√		√
Accountable care organizations	√	√	√
Improving primary and chronic care			
Primary care and general surgery bonus	√	√	√
Chronic care management #	√	√	√
Integrating performance into payment	√	√	√

Sources: Stremikis and others, Senate Finance Committee, *Description of Policy Options: Transforming the Health Care Delivery System: Proposals to Improve Patient Care and Reduce Health Care Costs*. Washington, D.C. April 29, 2009. MedPAC Reports to Congress 2002, 2005, 2007, 2008, 2009.

Note: # includes proposed CMS Chronic Care Management Innovation Center, "Medical homes", and related proposals.

In the sections below we describe these strategies and how much they might bring in savings, provide examples of successful model programs where they exist, and discuss the amount of time needed to implement the strategy. We also discuss the potential of other strategies in each area that might bring further savings, but about which there is less consensus. These include strategies oriented toward patients and disease prevention and wellness.

Reforming health care's information-intensive infrastructure

Health care is the most information-intensive industry in the economy, but it uses information technology less intensively and is organized less effectively than almost any other sector of the economy. This fact is a major contributor to the enormous divergence between what is possible with modern medical care and what is actually delivered to patients.

How can we improve our health care infrastructure to generate savings? Investments in health information technology are the first need. In a summary of the potential of health IT, the RAND Corporation estimated \$77 billion per year net savings if electronic medical records were fully adopted.¹⁵ We also take that as our goal, assuming that potential can be realized over the course of a decade.

We start by backing out areas where subsequent studies suggest the RAND estimates were too optimistic. We then add in additional savings from more recent studies showing possible savings in interactions between physicians and insurers, and in the reduced time spent on documentation that could come with voice recognition software and links between medical equipment and electronic medical records, all which we will detail below. We assume that 90 percent of these savings are realized by 2019, consistent with the CBO estimate. Finally, we net out the savings from health IT that the Congressional Budget Office has already accounted for.

The result of these infrastructure changes is a federal saving of \$196 billion in the next decade. Some savings will flow into practices and hospitals directly from IT investments. These include allowing a physician to enter notes about a patient's condition and care directly into a computerized record, thus eliminating or substantially reducing the need for clerical staff to physically pull medical charts from office files.¹⁶ Health IT and administrative simplification will also free up physician and nurse time for more productive tasks.

Several more recent studies suggest the magnitude of these possible savings. A recent study of physicians and medical group administrators found that physicians spent on average 142 hours annually interacting with health plans—at an estimated annual cost to physician practices of \$31 billion, or \$68,274 on average per physician per year.¹⁷ Another new study found that 35 percent of nurses' time in medical-surgical units was spent on documentation.¹⁸ Half or more of this spending could be easily reduced through current or likely future IT systems.

The result of these infrastructure changes is a federal saving of \$196 billion in the next decade.

Case in point: A segment of administrative costs are attributable to pharmacy and formulary-related interactions—costs that could be reduced through administrative simplification via the ubiquitous use of information technology.¹⁹

Another part of costs is associated with basic data entry: recording and transcribing notes, and inputting laboratory and physiological measures into systems. Advances in voice recognition software and computerized ways of transmitting the vital status of a patient into medical records would reduce these costs. Kaiser Permanente, for example, found that use of electronic records combined with organizational changes led to a 35-minute reduction in nursing time associated with transferring information at shift changes.²⁰

Thanks to recent legislation, savings associated with information technology should occur in the next few years. The American Recovery and Reinvestment Act allocated more than \$30 billion to spur the implementation of a national system of interoperable electronic medical records.²¹ As mentioned above, the Congressional Budget Office estimates that 90 percent of physicians will have adopted electronic records by 2019.²²

Furthermore, it would not be difficult to achieve savings from streamlining the administrative interactions between health care providers and public and private insurance plans. We would expect our estimated \$196 billion in direct savings to starting accruing rapidly over the next five years.

The wider potential of health care infrastructure and information technology

Information technology should also allow clinicians to make better care decisions when they see patients, and allow other health care providers and researchers to gather the data needed to improve care processes. One study estimates savings of \$22 billion in federal programs over the period 2009-2018 from e-prescribing alone, due to reductions in drug costs, adverse drug events, and better adherence.²³ The Congressional Budget Office conservatively estimates savings of \$7 billion to federal programs during the five-year period 2010-2014 resulting from reduced utilization of health care services related to health IT adoption, and notes that another \$17 billion are possible if federal payments are adjusted downwards to reflect the efficiencies gained by providers.²⁴

Advanced imaging is an example of an area where there is a growing amount of evidence that it is overused and leads to the overuse of other services.²⁵ Decision-support tools that display appropriateness criteria within the system used by physicians who order diagnostic imaging studies could lead to fewer, more targeted tests.²⁶

Health IT is valuable not just when doctors meet with patients at their offices, at a hospital or clinic but also when the information gathered during these visits can be collected and analyzed to understand what works. Many common medical practices have never been

evaluated in the situation they are used in, and even current consensus guidelines about what care to provide are often based on very little clinical evidence.²⁷ Thus, a part of the national information infrastructure strategy must be invested in understanding what works.

One clear need is to pool information to learn about the effectiveness of different treatments. The Recovery Act allocated \$1.1 billion to jumpstart comparative effectiveness research, but these funds run out in two years. A sustained investment is needed in order to generate savings down the line.²⁸

An additional benefit to gathering health care data electronically is the feedback on quality outcomes the data analysis can deliver to health insurance plans, hospitals, physician groups, and individual physicians. Many performance measures now exist that would be enhanced by better data. In fact, a recent publication from the Centers for Medicare and Medicaid Services, or CMS, notes that quality measures are available in settings accounting for 94 percent of medical spending.²⁹ Just the timely reporting of quality information to providers could save money.³⁰

The performance of physicians, for example, seems to improve when lower-performing physicians are shown the record of their better-performing peers.³¹ Such quality information would have an even greater impact when coupled with payment changes and changes in the structure of practices.

In an effort to be conservative, we have not included in our estimate savings from these types of downstream effects of health IT on the decision-making of health care providers, comparative effectiveness data, and performance reporting—but such savings are also potentially large.

Market infrastructure: Insurance exchanges and administrative loads

Information technology is one form of infrastructure; setting up functioning markets is another. One tenet of reform is that individuals should have choice among insurance plans. If insurance “exchanges” were created, they could foster competition and drive down administrative costs for individual and small group policies. Insurance exchanges are local or national organizations designed to pool individuals and small companies into a common group and thus save on administrative and marketing expenses. We estimate these reduced costs could bring in additional federal revenues of \$64 billion over the next 10 years.

How would these reforms be achieved? There is ample evidence that people are responsive to small differences in premiums when they choose which plans to enroll in. They also choose plans with higher quality when quality information is provided.³² The lack of competition in the health insurance market—especially for individuals and small companies—limits the potential for competition.

Health care administrative costs vary from 27 percent for small companies to 9 percent for large corporations,³³ as a result of marketing and underwriting that are done separately for each company. The result is more than \$100 billion spent on health insurance administration annually, or 12 percent of total spending. This total increases at the same rate as medical services, and is projected to do so in the future.

Creating insurance exchanges that allow individuals and small companies to have the choices that large corporations and their employees already enjoy could cut administrative costs substantially while preserving healthy competition between private insurers.³⁴ For insurance pools to have this effect, however, there must be limits on the ability of insurers to underwrite firms individually—both inside and outside of exchanges.³⁵

We modeled the impact of these policies assuming that they cut administrative costs for all companies to the 9-percent level seen in medium-to-large corporations. These savings accrue to private payers, including insurers, businesses, and patients, with some savings coming to the federal government in the form of reduced tax exclusion. This would generate additional federal revenues of \$64 billion in the next decade.

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The wider potential of market infrastructure and health insurance exchanges

Greater competition in insurance might have a spillover effect to underlying medical costs as well. Cost increases in the managed-care era of the 1990s were 2 percentage points lower than otherwise expected as price-sensitive consumers pressured insurance plans to lower the prices they paid to health care providers.³⁶ It is possible that prices could fall again from their current level, if there were additional insurance market competition.³⁷ The magnitude of such savings is not clear, however, so they are not included in our savings estimates.

Payment systems reforms

Payment system reform is based on the idea that good care should be rewarded more than just more treatment and that reward structures should create incentives to improve quality and efficiency. While there are many avenues for payment reform that meet these criteria, our ‘best guess’ estimate is that they could save about 8 percent of projected spending over the next decade.

This is consistent with the overall savings achieved by the more successful groups studied to date, such as the Marshfield Clinic system in Wisconsin, Geisinger Health System in Pennsylvania, and Medicare’s Heart Bypass Center Demonstration Project in Atlanta, among others that we will examine below. These kinds of savings are also consistent with the theoretical analyses of what is feasible, as demonstrated by the Prometheus payment model and Geisinger’s ProvenCare, which we also examine below.

Such savings, however, would not be realized right away. We assume they would phase in over eight years starting in 2012, with a 1 percentage point lower growth rate each year. These reforms would lead to \$299 billion in federal savings over the period 2010-2019.

Broadly speaking, payment reform mechanisms that might bring such savings fall into three categories: bundled payments; rewarding quality care by primary and chronic care providers; and pay for performance. We will examine each of these in turn.

Bundled payments

Bundled payments are related to treatment of a single medical problem involving multiple health care providers over a period of time that should come from the same pot of money. Many mistakes in medicine occur when there are handoffs between different health care providers.³⁸ Information is not transmitted appropriately. Clinical procedures are not followed. And patients fall through the cracks. By bundling payments between different kinds of health care providers engaged in handoffs, payment reforms can encourage those providers to work more closely together.

Similarly, health care providers can make investments in preventing downstream complications and exacerbations through better management of chronically-ill patients and patient safety initiatives such as reduced infection rates in hospitals and fewer medication

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errors. Bundling payments for episodes of care ensures that health care providers and patients alike benefit financially from the savings that accrue from these investments.

Viable options for bundling include bundling physician and hospital inpatient costs, putting together the acute and post-acute portions of care episodes in order to reduce hospital readmissions and churning of patients through post-acute care sites, and paying for high-cost chronic diseases as a whole. Medicare's Heart Bypass Center Demonstration Project in the 1990s paid a single rate for physician and hospital inpatient services for coronary artery bypass graft surgeries. The project achieved savings of more than 15 percent per episode, and likely would have been renewed if CMS had not faced constraints due to Y2K problems and the difficulty of implementing the provisions of the Balanced Budget Act of 1997.^{39,40}

Recent research documents that 20 percent of hospitalized Medicare patients are rehospitalized for the same or a related condition within 30 days, and that a majority of these rehospitalizations could have been prevented with good follow-up care.⁴¹ Those preventable hospitalizations cost approximately \$12 billion per year—\$12 billion that a well-designed payment system would allocate between government savings and the hospitals successfully reducing readmissions.

Geisinger Health System has one such system already in place for cardiac care. It includes preoperative care, the surgery and inpatient stay, and 90 days of follow-up care. The episode price is based on the cost of routine services plus an amount equal to half the average cost of complications.⁴²

The Prometheus payment model⁴³ prices out the typical costs of care for episodes and what portion of these episodes represent “potentially avoidable complications.”⁴⁴ For conditions common in the elderly, such as joint replacements, heart attacks, congestive heart failure, and diabetes care, 14 percent to 70 percent of episode costs are potentially avoidable. A payment model that assumes half of these complications could be avoided and that half of any savings would be shared with health care providers would yield savings of as much as 10 percent per episode.⁴⁵ State initiatives, including one in Minnesota, have created care bundles and expect health care providers to bid on prices for those bundles in 2010.⁴⁶

Other options under discussion include more comprehensive payment bundles that would cover acute and post-acute care such as rehabilitation and home health services, which assist patients to recover after a hospitalization, and chronic care episodes. This latter kind of bundled payment would cover all care related to chronic disease over the period of a year.⁴⁷ Payment models combining acute and post-acute care could build on initiatives to improve “transitional care” as patients move from hospitals to other settings which have proven effective in randomized trials and in multiple hospitals.⁴⁸

In some medical settings, care can be bundled for the patient as a whole, for example by paying accountable organizations a fixed amount per member per month, varying only

with patient sickness and measured quality outcomes. Elliot Fisher and his colleagues at Dartmouth University estimate that such systems might cut cost growth by 1 percentage point per year for some time.⁴⁹

A similar idea has been tested in the Medicare program, where large medical groups are offered opportunities to take responsibility for a defined population of patients to improve the quality and efficiency of care. Groups participating in the Medicare Physician Group Practice Demonstration, which are large, integrated organizations with electronic health records and other tools for coordinating and managing patient care, can share savings with CMS if they meet specific quality goals.⁵⁰ The experiment has so far shown over \$17 million in savings, and 4 of the 10 sites exceeded the 2 percent savings threshold in the second year of the program, making them eligible for bonus payments.⁵¹

Marshfield Clinic in Wisconsin, the most successful of the participating sites in this Medicare demonstration program, saved about 4.5 percent relative to its target rate by the end of the second year of the program.⁵² In addition, ramp-up periods are to be expected, so participants expect better results in later years of the program—especially as the groups learn from each other and as the cycle of feedback of results becomes faster.

Rewarding quality care by primary and chronic care providers

Better management of patients before diseases become acute could yield overall savings. And as much as three-quarters of medical spending is due to chronic disease. Quality care that helps prevent the onset of chronic diseases and manages chronic diseases effectively and efficiently upon the onset of a disease is an obvious avenue for lowering costs.⁵³ Because primary care is often underused,⁵⁴ these reforms generally increase pay for primary care and so-called “cognitive” care, which involves visits, patient evaluations, and care management and planning rather than tests and procedures. These kinds of payment increases are often accompanied by paying less for expensive tests and procedures.⁵⁵

A closely related concept is the “medical home,” a model of health care delivery and payment reform that emphasizes the central role of primary care.⁵⁶ Evidence about the impact of such reforms is promising. In addition to the Medicare Physician Group Project demonstration described above, Geisinger Health System’s medical homes initiative registered 7 percent total medical cost savings and a significant reduction in hospital admissions in pilot sites in the first year.⁵⁷

The Medicare Coordinated Care Demonstration also shows promising signs. It involved 15 competitively awarded demonstration sites aiming to improve care for patients with chronic illnesses and reduced Medicare expenditures. A number of sites in that demonstration successfully contained costs by avoiding initial hospitalizations and rehospitalizations. Overall those sites appear to be able to save about \$120 per member per month when they

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target populations of patients with chronic illnesses—an amount consistent with a reduction of 15 percent of total inpatient costs.⁵⁸

In addition, about two-thirds of Medicare spending is for patients with five or more chronic conditions. And a quarter of Medicare spending is for patients in their last year of life.⁵⁹ Significant savings and improved care are possible for patients with serious illnesses and at the end of life as well. It is well known that in many cases, patient wishes for less intensive care or a dignified death in a home rather than a hospital setting are not followed.⁶⁰

Comprehensive palliative care programs for patients with serious illnesses that seek to address these problems yield evidence of savings.⁶¹ One study shows a savings of \$2,600 per hospital patient referred to a palliative care consultation program, even when restricted to the inpatient setting.⁶² Currently about 2 percent of admissions get a palliative consult of some kind, but up to 8 percent could benefit from one.⁶³ The savings from this alone would be nearly \$2 billion annually.⁶⁴

Pay for performance

Pay-for-performance purchasing, sometimes referred to as value-based purchasing, is a method of adjusting fee-for-service payments to reflect the quality of the care provided. Performance-based payment is being used in a wide variety of ways around the country, including by many private insurers and in pilot programs within Medicare.⁶⁵

Evidence on the impact of pay-for-performance on the quality of care and the cost of that care is mixed, reflecting the paucity of large experiments using these methods as well as the focus of these programs on quality improvements, not cost efficiency.⁶⁶ Still, some findings are clear. Pay for performance can significantly improve the delivery of evidence-based care processes, which is not surprising since we know from experience with the Medicare fee schedule that rewarding some types of care more than others results in a shift in the services physicians and hospitals provide.⁶⁷ For example, experts report that payment is more generous for physicians performing spinal injections for chronic pain than for spending time encouraging patients to undertake specific physical training or other self-management approaches.⁶⁸

More research is needed to identify the set of process-and-outcome measures that could be targeted through pay for performance with the goal of improving not just quality but also efficiency. Savings are certainly possible through better chronic care management in outpatient settings and better practices on the inpatient side in hospitals and clinics.⁶⁹ Additional work is also underway to identify a broad set of measures of overuse or inappropriate care that could also be targeted by pay-for-performance programs.

A multi-pronged strategy for payment reform

As the discussion of these avenues for payment reform makes clear, multiple approaches to payment reform may be appropriate. Almost a third of physicians, for example, still operate in one- or two-person practices.⁷⁰ It would be difficult for these practices to be held accountable for quality and costs in the way that larger group practices are.⁷¹ In the interim, patients who rely on doctors in small office practices might be covered by a bundled payment for their acute and post-acute care. In these cases, their hospitals could receive incentives to set up transitional care programs, with other outpatient health care providers targeted for performance-based bonuses while they work toward putting together more integrated quality care systems. Many large physician practices could become medical homes or “accountable care organizations” over time, the latter of which would be responsible for most or all of the care patients receive, but they are not ready to do so now.⁷²

In this way payment reforms and cost-sharing reforms could be implemented in some fashion very rapidly. Pay-for-performance models are available for bundled payments and medical home models, and existing measures of quality that physicians and hospitals are currently gathering on a voluntary basis could be incorporated into these new payment systems. Medicare can be the leader in promoting these new payment policies, which would encourage private insurers to adopt Medicare’s more innovative payment practices—as they have often done in the past.

To encourage health care providers to adopt these new payment policies, reforms must be made in existing Medicare payment mechanisms. In particular, inappropriate rewards for too many high-tech medical tests and services must be eliminated and replaced with rewards for efficient primary and chronic care.⁷³ CMS can promote the rapid adoption of new, effective payment policies if given the authority to:

- Substantially expand pay-for-performance demonstrations.
- Rigorously and rapidly evaluate and report results.
- Offer health care providers new payment methods proven to be successful without seeking additional authority from Congress.

In these ways virtually all of the health care providers in Medicare could have a value-rewarding payment system in place within three to five years. The system would then need to evolve as better measures of performance are developed and government and providers learn about what works better and worse.

Ultimate savings from these reforms are difficult to assess, but experts suggest that savings on the order of 3 percent to 5 percent are feasible in the first few years. Most of these savings come through the relatively low-hanging fruit of preventing rehospitalizations and acute exacerbations of chronic conditions. Over time one would expect these savings to increase as more familiarity is gained with these new payment systems and providers work out the necessary infrastructure changes.⁷⁴

Yet some programs may cost money to implement in the short term. Physician practices that gear up to become “medical homes,” for example, may need to make investments in hiring, training, and developing relationships with their referral network. In addition, savings from these programs will not simply accrue to the government or other payers such as health insurance companies. They must be shared with high-performing organizations to reward them for improvements and provide incentives for others to strive to improve quality. For these reasons, other observers have been correct to note that program design elements can have large effects on expected savings.⁷⁵

However, looking at the high rates of preventable hospitalizations and numerous programs that have successfully brought down the number and intensity of inpatient admissions, the evidence shows that coupling better information systems with targeted programs of bundled payments for conditions that frequently lead to rehospitalizations could lead to significant savings over the medium term. Coupling such programs with rewards to deliver chronic care more effectively and thus avoid costly hospitalizations in the first place would achieve further savings over a 10-year horizon.

Some analysts question a portion of these savings, especially those related to the prevention of exacerbations and complications, on the grounds that short-run savings do not necessarily translate into lifetime savings.⁷⁶ A diabetic who does not suffer a heart attack, for example, may develop Alzheimer’s disease later in life, requiring more costly care in total. But recent research discounts this viewpoint for a number of reasons.⁷⁷ First, as discussed above, innovations in palliative care and chronic care management will bring down end-of-life costs as well. Further, as we discuss below, lifetime cost savings from prevention are possible. Not all prevention programs save money, of course, but enough do to make them worthwhile.

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The wider potential of payment reform alongside prevention and consumer empowerment

Changes in consumer cost sharing would complement health care provider payment reforms and drive further change. It is well established that people use fewer services when cost sharing is higher.⁷⁸ Giving health care providers financial incentives to promote prevention will be more successful if consumer cost sharing is oriented the same way. Value-based insurance is designed so that prevention and informed consumer choice can be encouraged by lowering copayments for care that is clearly appropriate and raising copays on care that is more discretionary.⁷⁹

Such programs clearly save money, for example by encouraging patients to adhere to drug regimens for chronic diseases.⁸⁰ Consumer choice may also be of use in the decision about which care to use and who to provide it if good information on price and quality of different providers are available.

Beyond price, there is a belief that technology or new kinds of medical personnel such as care coordinators or outreach workers can be used to encourage prevention. In preventing severe disease, for example, “high-touch” systems involving one-to-one interactions between patients and care coordinators seem to work well and save money, especially when integrated with health information technology.⁸¹ It may be that high-tech systems that feedback real-time information on patient status can ultimately do the same. This is an area where more experimentation would be extremely valuable.

Our focus on medical care reform also omits the importance of longer-term savings that might result from investments in community-oriented prevention. For instance, obesity adds significantly to the cost of health care, and so limiting obesity could save significant money. If obesity levels were the same today as they were in 1987 then we would spend an estimated \$220 billion less on health care.⁸² Dana Goldman at RAND and his colleagues show that medical regimens that control hypertension and obesity have the potential to generate large savings for the Medicare program.⁸³ Finally, investments in improving the health of specific populations of patients, such as school- or workplace-based interventions for people who are overweight or obese, at younger ages could also pay off.⁸⁴

We know some things about how to effect such changes. Raising prices on cigarettes, alcohol, and fatty foods,⁸⁵ limiting where people can smoke,⁸⁶ and being around peers who engage in healthier practices⁸⁷ all limit unhealthy behaviors. The nonprofit group Trust for America’s Health recently compiled a set of recommendations for community-based health interventions and estimates that a package costing about \$3 billion per year would save \$16 billion per year within five years.⁸⁸ These policies are properly part of health care reform, but as there is no clear consensus on how much they can save over the next decade we have not included direct savings from prevention in our estimates.

Finally, we have focused our attention on policies that would reduce costs by changing the way that medical care is paid for and delivered. There are many other possible savings avenues within the payment area, including those that would refine physician fees, combat fraud and abuse, and reform the Medicare Advantage program. These more traditional programmatic changes could be a source of immediate savings in Medicare.⁸⁹

Conclusion

Based on the existing health care research and analysis that we documented extensively in this paper, our best guess is that fundamental health system reform will lead to federal savings of about \$550 billion over the next decade. When combined with other policies to reduce existing overpayments, these reforms would lead to overall savings in our health care system of close to 8 percent, or about \$2 trillion over a decade. This is the amount of savings that leaders of the health care industry proposed to President Obama to help him achieve his campaign promises.

In addition, we believe that in many cases our estimates of federal savings are conservative. We have not included in our estimates any savings from informational or organizational changes in long-term care settings, such as reduced administrative expenses in nursing homes or home health agencies, better use of prescription drugs resulting from pharmaceutical payment reform, the use of comparative effectiveness research, or from prevention—even though each of these areas could yield tens of billions of dollars apiece in savings.

Even within the categories that we do project savings estimates, we have been conservative. We did not project any savings from health IT related to the reduced use of inpatient imaging services such as CT scans even though there is evidence their use has grown dramatically and perhaps inappropriately.⁹⁰ And our projected savings from payment reform came solely from the reduction in the frequency and intensity of inpatient episodes, not from greater efficiencies in the outpatient setting.

We also did not project savings from payment reforms that are as high as some studies indicate they would be because we can't assume these payment reforms will be implemented immediately, or be mandatory for health care providers from day one. In addition, the details of the structure of these payment reforms are critical, but they will likely change over time as health care providers and payers, including the government and private insurers, gain experience with new forms of medical care delivery.

Because of the need for ongoing refinement of policy, the type of reforms we consider highlight a central political-economy fact—the reforms we propose have a much better chance of success if changes can be made administratively as opposed to legislatively. Almost all changes in Medicare now have to be made through legislation. To ensure that

delivery system reform has the maximum impact on the cost and quality of medical care, Congress will need to set a direction for reform but try not to micromanage the process.

Finally, we have not discussed the implications of these reforms for health care quality, but we believe that they would also be substantial and favorable. Reducing administrative expenses will free up time of doctors and nurses to be with patients, leading to a better care experience. Preventing exacerbations and hospitalizations will improve the length and quality of life. In sum, by making the infrastructure, compensation, and organizational changes needed to improve the operation of medicine we can have a higher-quality, lower-cost medical care system.

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Endnotes

- 1 Elliott S. Fisher and others, "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care," *Annals of Internal Medicine* 138 (2003): 273-287; Elliott S. Fisher and others, "The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care," *Annals of Internal Medicine*, 138 (2003): 288-298.; Rand Compare, "U.S. Health Care Today: Waste," available at <http://www.randcompare.org/current/dimension/waste>; Boat, Chao, and O'Neill, "From Waste to Value in Health Care," *JAMA* 299(5) (2008):568-571, available at <http://jama.ama-assn.org/cgi/content/full/299/5/568>; Arnold Milstein, MD, MPH, Testimony before the Senate Committee on Health, Education, Labor, and Pension, 108th Cong, 2nd Sess., January 28, 2004.
- 2 John E. Wennberg, "Variation in Use of Medicare Services Among Regions and Selected Academic Medical Centers: Is More Better?" (The Commonwealth Fund, 2005), available at <http://www.commonwealthfund.org/Content/Publications/Fund-Reports/2005/Dec/Variation-in-Use-of-Medicare-Services-Among-Regions-and-Selected-Academic-Medical-Centers--Is-More-B.aspx#citation>.
- 3 McKinsey Global Institute, "Accounting for the Cost of U.S. Health Care: A New Look at Why Americans Spend More" (December 2008).
- 4 Proctor P. Reid, W. Dale Compton, Jerome H. Grossman, and Gary Fanjiang, eds., "Building a Better Delivery System: A New Engineering/Health Care Partnership" (Washington, D.C.: National Academy Press, 2005).
- 5 Burton A. Weisbrod, "The Health Care Quadrilemma: An Essay on Technological Change, Insurance, Quality of Care, and Cost," *Journal of Economic Literature* (1991).
- 6 David Cutler, "Health System Modernization Will Reduce the Deficit" (Washington, D.C.: Center for American Progress Action Fund, May 2009), available at http://www.americanprogressaction.org/issues/2009/05/pdf/health_modernization.pdf.
- 7 Stephen J. Ubl and others, Letter to President Obama, May 11, 2009, available at http://www.whitehouse.gov/assets/documents/05-11-09_Health_Costs_Letter_to_the_President.pdf; Healthreform.gov, "Coming Together to Bring Down the Cost of Health Care," available at <http://www.healthreform.gov/factsheethealthreformstake.pdf>.
- 8 Sisko and others, "Health Spending Projections Through 2018: Recession Effects Add Uncertainty To The Outlook," *Health Affairs* 28(2) (2009): w346-w357.
- 9 Erik Brynjolfsson, "Seven Pillars of Productivity," *Optimize*, May 2005.
- 10 Adam Oliver, "The Veterans Health Administration: An American Success Story?" *The Milbank Quarterly* 85(1) (2007): 5-35; Kenneth W. Kizer and R. Dudley Adams, "Extreme Makeover: Transformation of the Veterans Health Care System," *The Annual Review of Public Health* 30 (2009): 313-339.
- 11 State of North Carolina, Office of the Governor, "Governor Easley Announces Community Care Saves Taxpayers \$231 Million," Press Release, September 25, 2007.
- 12 Ceci Connolly, "Cedars-Sinai Doctors Cling to Pen and Paper," *The Washington Post*, March 21, 2005, Page A01; Laura Gater, "CPOE — Building Electronic Safeguards," *Radiology Today* 6(12) (June 13, 2005): 18.
- 13 D. Bott and others, "Disease Management for Chronically Ill Beneficiaries In Traditional Medicare," *Health Affairs* 28 (1) (2009): 86-98; Mattke S, Seid M, Ma S, Evidence for the Impact of Disease Management: Is \$1 Billion a Year a Good Investment? *American Journal of Managed Care*, 2008 Jan; 13 (12):670-676; Mehrotra and others, "Congestive Heart Failure Disease Management in Medicare-Managed Care," *American Heart Journal* 154 (6) (2007): 1153-1159, available at <http://www.ncbi.nlm.nih.gov/pubmed/18035089>.
- 14 Note that the endorsements checked are not exactly equivalent—the opinion leaders might have supported more of the Senate Finance Committee options than are checked below, but did not feel that they would meet the standard of "very or extremely effective" cost or utilization control strategies, or they might not have been asked about them. In addition, MedPAC only addresses Medicare issues and only publishes recommendations in a limited number of areas.
- 15 Richard Hillestad and others, "Can Electronic Medical Record Systems Transform Healthcare? An Assessment of Potential Health Benefits, Savings, and Costs," *Health Affairs* 24 (5) (September 14, 2005).
- 16 Federico Girosi, R. Meili, and R. Scoville, "Extrapolating evidence of health information technology savings and costs" (Santa Monica, CA: RAND; 2005).
- 17 Lawrence P. Casalino and others, "What Does It Cost Physician Practices to Interact with Health Insurance Plans?" *Health Affairs* web exclusive, May 14, 2009, p. w533-w543.
- 18 Ann Hendrich, Marilyn Chow, Boguslaw A Skierczynski, and Zhenqiang Lu, "A 36-Hospital Time and Motion Study: How Do Medical-Surgical Nurses Spend Their Time?" *The Permanente Journal* 12(3) (Summer 2008): 25-34.
- 19 Gans, "The cost of healthcare complexity," (Medical Group Management Association, Center for Research, November 2004). Survey of more than 300 Group Practice Research Network members. Costs cited do not include cost to hospitals, health plans, pharmacies, etc.
- 20 Personal communication with George Halverson, July 21, 2008.
- 21 Robert Steinbrook, "Health Care and the American Recovery and Reinvestment Act," *NEJM* 360 (11) (2009):1057-1060, available at <http://content.nejm.org/cgi/content/full/360/11/1057>.
- 22 Robert A. Sunshine, Congressional Budget Office, Letter to Charles B. Rangel, January 21, 2009, available at <http://www.cbo.gov/ftpdocs/99xx/doc9966/HITECHRangelLtr.pdf>; Congressional Budget Office Cost Estimate, "H.R. 1 American Recovery and Reinvestment Act of 2009," January 26, 2009, available at <http://www.cbo.gov/ftpdocs/99xx/doc9968/hr1.pdf>.
- 23 Visante, "American Recovery and Reinvestment Act Will Save Billions and Reduce Medication Errors by Accelerating E-Prescribing" (2009), available at <http://pcmanet.org/wp-content/uploads/2009/03/final-arra-impact-on-e-prescribing.pdf>.
- 24 CBO Health Options, Volume 1 (2008).
- 25 MedPAC (June 2009) Report to ; Government Accountability Office, "Medicare Part B imaging services: Rapid spending growth and shift to physician offices indicate need for CMS to consider additional management practices," GAO-08-452 (Washington, DC: GAO, 2008).
- 26 Christopher L Sistrun and others, "Effect of Computerized Order Entry with Integrated Decision Support on the Growth of Outpatient Procedure Volumes," *Radiology* 251(1) (2009):147-155.
- 27 Pierluigi Tricoci and others, "Scientific Evidence Underlying the ACC/AHA Clinical Practice Guidelines," *JAMA* 301(8) (2009): 831-841.
- 28 Gail Wilensky, "Developing a Center for Comparative Effectiveness Information," *Health Affairs* 25(6) (2006): w572-w585.
- 29 CMS, "Roadmap for Quality Measurement in the Traditional Medicare Fee-for-Service Program." December 2008 available at http://www.cms.hhs.gov/QualityInitiativesGenInfo/downloads/QualityMeasurementRoadmap_OEA1-16_508.pdf.

- 30 MedPAC, "Report to the Congress: Reforming the Delivery System" (June 2008) Washington DC.
- 31 Rosenthal and others, Early Experience with Pay-for-Performance: From Concept to Practice. *JAMA* 294 (2005):1788-1793; Green, Beckman, and Mahoney, *Health Affairs* 27 (4) (2008): w250-w259 (published online 20 May 2008; 10.1377/hlthaff.27.4.w250).
- 32 David Cutler and Richard Zeckhauser, "The Anatomy of Health Insurance," in Joseph P. Newhouse and Anthony Culyer, eds., *Handbook of Health Economics, Volume 1A* (Amsterdam: Elsevier, 2000); Jonathan Kolstad and Michael Chernew, "Quality and Consumer Decision Making in the Market for Health Insurance and Health Care Services," *Medical Care Research and Review*, 2990 (66)(1 Suppl): 285-525.
- 33 Congressional Budget Office, *CBO's Health Insurance Simulation Model: A Technical Description* (Washington, D.C.: Congressional Budget Office, October 2007); Actuarial Research Corporation, "Study of the Administrative Costs and Actuarial Values of Small Health Plans" (prepared for the Small Business Administration Office of Advocacy, January 2003).
- 34 In Massachusetts the Connector Authority assesses an administrative fee to pay for its operations: In FY07 it was 5 percent of the unsubsidized premiums, and in FY08 and FY09 it was 4.5 percent.
- 35 Merlis, "A Health Insurance Exchange: Prototypes and Design Issues" (National Health Policy Forum, 2009), available at http://www.nhpf.org/library/issue-briefs/IB832_HealthExchange_06-05-09.pdf.
- 36 Most of the savings from managed care were in lowering the price of care; the quantity of services fell in selected markets (especially behavioral health), but not overall. David Cutler, Mark McClellan, and Joseph Newhouse, "How Does Managed Care Do It?" *RAND Journal of Economics* 31(3) (Autumn 2000): 526-548.
- 37 John Holahan and Linda Blumberg, "Can A Public Insurance Plan Increase Competition and Lower the Costs of Health Reform" (Washington, D.C.: The Urban Institute, 2008); Bodenheimer T. High and Rising Health Care Costs. 4 part series. *Annals of Internal Medicine*. 2005; 142:847-854, 932-37, 996-1002; 143:26-31.
- 38 Institute of Medicine, "Crossing the Quality Chasm: A New Health System for the 21st Century" (Washington, D.C.: National Academy Press, 2001).
- 39 Cromwell, Dayhoff, and Thomaian, "Cost Savings and Physician Responses to Global Bundled Payments for Medicare Heart Bypass Surgery," *Health Care Financing Review* 19 (1) (Fall 1997): 41-57.
- 40 According to the MedPAC June 2003 report, Chapter 8: "After the CABG demonstration, CMS twice tried to launch similar demonstrations. In 2000, after receiving over 100 responses to a request for proposals for cardiac and orthopedic procedures, CMS suspended its new Centers of Excellence demonstration citing resource constraints from Y2K and the Balanced Budget Act of 1997. Later, CMS renamed the initiative Partnerships for Quality and sent RFPs to eligible providers in three states. Response was limited and ultimately interest dissolved due to a combination of factors. Those declining to participate cited pending physician fee schedule reductions and DRG classification issues, both of which have been subsequently addressed to some extent." It is still seen by informed observers as a model for reform e.g. Hackbarth G, Reischauer R, Mutti A. Collective Accountability for Medical Care- Toward Bundled Medicare Payments. *New England Journal of Medicine* 359(1) (2008) 3-5. <http://content.nejm.org/cgi/content/full/359/1/3>
- 41 Jencks SF, Williams MV, Coleman E, Rehospitalizations among Patients in the Medicare Fee-for-Service Program. *New England Journal of Medicine*. 2009 Apr 2; 360(14):1418-28.
- 42 Casale and others, "ProvenCareSM: A provider-driven pay-for-performance program for acute episodic cardiac surgical care," *Annals of Surgery* 246 (2007):613-623.
- 43 The goal of Prometheus is "to design an entirely different approach to paying for health care which would simultaneously improve quality, lower administrative burden, and pay providers fairly for what science says should be brought to bear to treat a patient for a specific condition or constellation of conditions." See Prometheus homepage at www.prometheuspayoutment.org.
- 44 A. Gosfield, "Making Prometheus Payment Rates Real: Ya' Gotta Start Somewhere" (Prometheus, June 2008), available at: <http://www.prometheuspayoutment.org/publications/index.htm>.
- 45 Personal communication with Francois DeBrantes of Prometheus, June 1, 2009.
- 46 Minnesota refers to them as "baskets" of services: <http://www.health.state.mn.us/healthreform/baskets/index.html>. Minnesota Department of Health, Minnesota's Health Reform Initiative.
- 47 MedPAC, "Report to the Congress: Reforming the Delivery System" (June 2008) Washington DC.
- 48 Naylor and others, "Comprehensive discharge planning and home follow-up of hospitalized elders: A randomized clinical trial," *Journal of the American Medical Association*, 281 (7) (1999): 613-620; Coleman and others, "The Care transitions intervention: Results of a randomized controlled trial," *Archives of Internal Medicine* (166) (2006): 1822-1828; Randall Brown, "The Promise of Care Coordination: Models that Decrease Hospitalizations and Improve Outcomes for Medicare Beneficiaries with Chronic Illness" (The National Coalition on Care Coordination, March 2009).
- 49 Elliott S. Fisher and others, "Fostering Accountable Health Care: Moving Forward in Medicare," *Health Affairs* 28(2) (2009): w219-w231 (published online 27 January 2009; 10.1377/hlthaff.28.w219).
- 50 Centers for Medicare and Medicaid Services, "Physician Groups Improve Quality and Generate Savings Under Medicare Physician Pay for Performance Demonstration," Press release, July 11, 2007, available at <http://www.cms.hhs.gov/apps/media/press/release.asp?Counter=2274>.
- 51 Trisolini and others, Commonwealth Fund Report (2008) Medicare Physician Group Practices: Innovations in Quality and Efficiency available at <http://www.commonwealthfund.org/Content/Publications/Fund-Reports/2006/Dec/Medicare-Physician-Group-Practices-Innovations-in-Quality-and-Efficiency.aspx>; Pope and others, Site Report for Marshfield Clinic (2006); Centers for Medicare and Medicaid Services, "Medicare Physician Group Practice Demonstration" (August 2008), available at http://www.cms.hhs.gov/DemoProjectsEvalRpts/downloads/PGP_Fact_Sheet.pdf; Marshfield Clinic Dr. Ted Praxel powerpoint briefing, "Participation in the Centers for Medicare and Medicaid Services Physician Group Practice Demonstration Project- Lessons Learned," available at <http://www.amga.org/Education/IQL/Presentations/2008/participatingInTheCMSPhysician-GroupPracticeDemonstrationLessonsLearned.ppt>.
- 52 Based on figures in <http://www.amga.org/Education/IQL/Presentations/2008/participatingInTheCMSPhysicianGroupPracticeDemonstrationLessonsLearned.ppt>.
- 53 Kenneth E. Thorpe, "The Rise in Health Care Spending and What To Do About It" *Health Affairs* 24(6) (November/December 2005): 1436-1445.
- 54 McGlynn EA, Asch SM, Adams J, et al. The Quality of Health Care Delivered to Adults in the United States. *New England Journal of Medicine*. 2003 Jun 26; 348(26):2635-45.
- 55 Thomas Bodenheimer, Mina Matin, and Brian Yoshio Laing, "The Specialist-Generalist Income Gap: Can We Narrow It?" *Journal of General Internal Medicine* 23(9):1539-41; A. Bruce Steinwald, Testimony Before the Senate Committee on Health, Education, Labor, and Pensions, "Primary Care Professionals," US Government Accountability Office, February 12, 2008 available at <http://www.gao.gov/new.items/d08472t.pdf>; <http://aspe.hhs.gov/health/reports/08/medicareevolume/index.shtml>; Paul Ginsburg, "Efficiency and Quality: The Role of Controlling Health Care Cost Growth in Health Care Reform" (Center for American Progress, May 2009).
- 56 The seven components of the patient-centered medical home model are: 1) a personal physician; 2) physician-directed medical practice; 3) whole-person orientation; 4) coordinated/integrated care; 5) quality and safety; 6) improved access; and 7) payment. Robert Graham Center, Policy Studies in Family Medicine and Primary Care, "The Patient Centered Medical Home: History, Seven Core Features, Evidence, and Transformational Change" (November 2007), available at <http://www.graham-center.org/PreBuilt/PCMH.pdf>.
- 57 Paulus and others, "Continuous Innovation In Health Care: Implications of The Geisinger Experience," *Health Affairs* (2008).
- 58 Randall Brown, "The Promise of Care Coordination: Models that Decrease Hospitalizations and Improve Outcomes for Medicare Beneficiaries with Chronic Illness" The National Coalition on Care Coordination (March 2009); D. Peikes, A. Chen, J. Schore, and R. Brown, "Effects of Care Coordination on Hospitalization, Quality of Care, and Health Care Expenditures Among Medicare Beneficiaries: 15 Randomized Trials," *JAMA* 301(6) (February 11, 2009): 603-618.
- 59 Partnership for Solutions, "Chronic Conditions: Making the Case for Ongoing Care" (September 2004 Update). Available at: <http://www.rwjf.org/files/research/Chronic%20Conditions%20Chartbook%209-2004.ppt> (slide 14); James D. Lubitz and Gerald F. Riley, "Trends in Medicare payments in the last year of life," *New England Journal of Medicine* 328 (1993): 1092-1096.
- 60 Heyland DK, Dodek P, Rocker G, et al. What matters most in end-of-life care: perceptions of seriously ill patients and their family members. *Canadian Medical Association Journal*. 2006 Feb; 174:627-633.

- 61 Byock I, Twohig JS, Merriman M, Collins K, Promoting Excellence in End-of-Life Care: A Report on Innovative Models of Palliative Care. *Journal of Palliative Medicine*. 2006; 9(1): 137-146. (e.g. "Franklin Health, Inc., a collaborator in the Integrating Community Case Management and Palliative Care demonstration project, reported a positive return on investment resulting from reductions in average numbers of hospital inpatient days, admissions, and readmissions per claimant (\$2.7 million in savings on \$0.8 million in care management costs—or \$22,000 per managed case—in the second year of implementation, and \$55.4 million in savings on \$1.3 million in costs—or \$33,000 per managed case—in the third year of implementation)).
- 62 Morrison RS, Penrod JD, Cassel B, et al. Cost Savings Associated with US Hospital Palliative Care Consultation Programs. *Archives of Internal Medicine*. 2008 Sept 8; 168(16) 1783-1790. Siu AL, Spragens LH, Inouye SH, et al. The Ironic Business Case for Chronic Care in the Acute Care Setting. *Health Affairs*. 2009 Jan/Feb; 28(1): 113-125.
- 63 Siu AL, Spragens LH, Inouye SH, et al. The Ironic Business Case for Chronic Care in the Acute Care Setting. *Health Affairs*. 2009 Jan/Feb; 28(1): 113-125.
- 64 CMS/ORDI, "Medicare Data Compendium" (December 2008); Goldsmith, Dietrich, Du, and Morrison, "Variability in access to hospital palliative care in the United States" *J Palliat Med* 11 (2008):1-9.
- 65 Meredith B. Rosenthal, "Beyond Pay for Performance- Emerging Models of Provider-Payment Reform," *New England Journal of Medicine* 359(12) (2008): 1197-1200.
- 66 Petersen, Woodward, Urech, Daw, and Sookanan, "Does Pay-for-Performance Improve the Quality of Health Care?" *Ann Int Medicine* 145(4) (2006): 265-272.
- 67 Ginsburg, P. B., and J. M. Grossman. 2005. When the Price Isn't Right: How Inadvertent Payment Incentives Drive Medical Care. *Health Affairs Web Exclusive*, August 9. available at content.healthaffairs.org/cgi/content/full/hlthaff.w5.376/DC1.
- 68 Buntin and others, "Volume Growth in Medicare" Working Paper WR-6310-ASPE, (RAND, 2009), available at <http://aspe.hhs.gov/health/reports/08/medicare-volume/report.pdf>.
- 69 Curtin and others, "Return on Investment in Pay for Performance: A Diabetes Case Study," *Journal of Healthcare Management* 51 (6) (November/December 2006): 365-376; Ateev Mehrotra, Cheryl L. Damberg, Melony E. S. Sorbero and Stephanie S. Teleki. Pay for Performance in the Hospital Setting: What Is the State of the Evidence? *American Journal of Medical Quality* 2009.
- 70 Allison Liebhaber and Joy M. Grossman, "Physicians Moving to Mid-Sized, Single-Specialty Practices" (Center for Studying Health System Change. Tracking no. 18 August 2007), available at <http://www.hschange.org/CONTENT/941/?topic=topic22>.
- 71 Government Accountability Office, *Medicare Physician Payment: Care Coordination Programs Used in Demonstration Show Promise, but Wider Use of Payment Approach May Be Limited* (February 2008), available at <http://www.gao.gov/new.items/d0865.pdf>.
- 72 Steven Shortell, "Measuring the Medical Home Infrastructure in Large Medical Groups," *Health Affairs* (2009).
- 73 David M. Cutler and Judy Feder, "Financing Health Care Reform: A Plan to Insure the Cost of Reform is Budget Neutral" (Center for American Progress, June 2009) (forthcoming).
- 74 Sandra M. Foote, "Next Steps: How Can Medicare Accelerate The Pace Of Improving Chronic Care?" *Health Affairs* 28(1) (2009): 99-102.
- 75 Two very recent discussions of this subject include Medicare Payment Advisory Committee (MedPAC), Report to Congress: Improving Incentives in the Medicare Program (June 2009) and Douglas W. Elmendorf, Congressional Budget Office, Letter to Kent Conrad, June 16, 2009, available at <http://www.cbo.gov/ftpdocs/103xx/doc10311/06-16-HealthReformAndFederalBudget.pdf>
- 76 Russell, Louise B. Preventing Chronic Disease: An Important Investment, but Don't Count On Cost Savings. *Health Affairs*. 2009 Jan/Feb; 2009 28(1) 42-45.
- 77 J.T. Cohen and others, "Does Preventive Care Save Money? Health Economics and the Presidential Candidates," *New England Journal of Medicine* 358 (7) (2008): 661-663.
- 78 Joseph Newhouse and the Insurance Experiment Group, "Free for All? Lessons from the RAND Health Insurance Experiment" (Cambridge, MA: Harvard University Press, 1993); Melinda Beeuwkes Buntin and others, "Consumer-Directed Health Care: Early Evidence About Effects on Cost and Quality," *Health Affairs* web exclusive 24 (October 2006), available at <http://content.healthaffairs.org/cgi/reprint/hlthaff.25.w516v1>.
- 79 Michael Chernew and others, "Value Based Insurance Design," *Health Affairs* 26(2) (2007): w195-w203.
- 80 Dana P. Goldman and others, "Optimal Drug Benefit Design: The Case of Cholesterol-Lowering Drug Therapy," *American Journal of Managed Care* 12(1) (2006).
- 81 Randall Brown, "The Promise of Care Coordination" (Washington, D.C.: The National Coalition on Care Coordination, March 2009).
- 82 Kenneth E. Thorpe, "Making Health Care More Affordable" (Emory University, 2008), available at http://www.emory.edu/policysolutions/pdfs/Senator_Obama_Health_Care_Plan.pdf; Kenneth E. Thorpe, Curtis S. Florence, David H. Howard, and Peter Joski, "The Impact of Obesity in Rising Medical Spending," *Health Affairs* web exclusive (October 20, 2004).
- 83 Dana P. Goldman, David M. Cutler, Baoping Shang, and Geoffrey F. Joyce, "The Value of Elderly Disease Prevention," *Forum for Health Economics & Policy* 9 (20) (2006), Article 1.
- 84 Thorpe, "The Rise in Health Care Spending and What to Do about It," *Health Affairs* 24(6) (2005): 1436-1445.
- 85 Jonathan Gruber, "The Economics of Tobacco Regulation," *Health Affairs* 21(2) (March/April 2002): 146-162; Kevin G. Volpp and others, "A Randomized, Controlled Trial of Financial Incentives for Smoking Cessation," *New England Journal of Medicine* 360(7): 699-709.
- 86 William N. Evans, Matthew C. Farrelly, and Edward Montgomery, "Do Workplace Smoking Bans Reduce Smoking?" *American Economic Review* 89(4) (1999): 728-747.
- 87 Lisa M. Powell, John A. Tauras, and Hana Ross, "The Importance of Peer Effects, Cigarette Prices, and Tobacco Control Policies for Youth Smoking Behavior," *Journal of Health Economics* 24(5) (September 2005): 950-968.
- 88 Trust for America's Health, "Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities" (July 2008), available at <http://healthyaamericans.org/reports/prevention08/Prevention08.pdf>.
- 89 David M. Cutler and Judy Feder, "Financing Health Care Reform: A Plan to Insure the Cost of Reform is Budget Neutral" (Washington, D.C.: Center for American Progress, June 2009) (forthcoming).
- 90 GAO, "Medicare Part B Imaging Services: Rapid Spending Growth and Shift to Physician Offices Indicate Need for CMS to Consider Additional Management Practices" (2008), available at <http://www.gao.gov/new.items/d08452.pdf>.

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