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Improving Health While Reducing Cost Growth:  
What is Possible?

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# Improving health while reducing cost growth: What is possible?

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### Abstract

This paper addresses two questions: What policies could reduce the projected growth of health spending while enhancing population health and the quality of health care? How much difference might these policies make if successfully executed? We find that depending on the costs of new treatments, biomedical innovation may place upward pressure on health spending, while increasing the length of healthy lives. We examine three complementary strategies for avoiding wasteful spending linked to inefficiencies in health care delivery, lack of market competition, and poor population health. One is reforming provider payment systems by moving away from rewarding volume of service toward rewarding measurable value. Another is enhancing competition to increase consumer incentives to choose cost-effective treatments and providers and also to choose health plans that have more efficient payment and benefit design. A third is enhancing a culture of health by providing incentives for healthy behaviors and shifting the emphasis of providers and communities toward prevention and enabling healthy living. We identify successful examples of each and, based on preliminary and incomplete evidence, provide illustrative simulations of possible changes in health spending associated with successful implementation of a range of policies. We conclude that, while several approaches are promising, a major sustained effort is needed to identify, evaluate, and implement reinforcing policies that will restrain the growth in spending while improving population health.

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## Introduction

With only brief interruptions, health care spending in the United States has grown substantially faster than the economy for decades. The health care sector now accounts for over 17% of GDP. Other advanced countries with modern health care systems spend 12% or less, although most have also experienced substantial health care spending growth. In the last decade, however, health care spending increases in the United States have slowed and in the past several years have been at record lows. While there are some reasons to believe that this slower growth will persist, both the aging of the population and the development of potentially valuable and expensive new biomedical innovations are likely to put continuing upward pressure on health spending.

Sheiner’s paper illustrates possible scenarios for future health spending growth, ranging from further slowing to a resumption of rates well above the growth of the economy. As the Gale, Boyd, and Ginsburg papers illustrate, the rate of health spending growth makes a huge difference to both public and private sectors. If health spending reverts to growth rates significantly greater than GDP, decision-makers in both the public and private sectors will face hard choices. Both other consumption and investments in future economic growth will be squeezed. Future rates of health spending matter significantly to long-term economic prosperity and individual well-being.

No matter which trend in health spending prevails, the nation would clearly be better off if Americans were healthier and health resources were used more efficiently. This paper identifies policies that hold some promise for improving health and reducing the growth of health care costs. We examine three major approaches to avoiding waste and improving health: reforming provider payment systems; increasing competition and improving consumer information; and creating a culture of health by shifting attention to prevention and wellness. Each could potentially reduce the growth of health spending while improving quality of care and health outcomes. The approaches are not mutually exclusive – indeed, they reinforce each other – but all face formidable obstacles of changing entrenched expectations, practices, and behaviors. We attempt to estimate, based on the available preliminary and incomplete evidence, how successful implementation of some of these reforms might affect spending growth and health outcomes.

The first section addresses the reasons we think it is possible to reduce health spending growth while improving health, through more rapid adoption of valuable innovations in health care delivery. The second section discusses the interaction between biomedical innovation, health, and spending growth. The third section focuses on various types of reforms in provider reimbursement aimed at rewarding high-value care and care coordination, rather than volume of services provided. The fourth section looks at the potential for improving the efficiency of health care delivery by improving information available to consumers about cost and value, and increasing competition and consumer sensitivity in health insurance and health care markets. In the fifth section, we turn to the potential for prevention and wellness programs outside of traditional health care to improve health while reducing costs. In the sixth section, we offer preliminary estimates of the impact of some of these reforms based on optimistic assumptions that the most successful examples can be replicated, and describe ways in which success could be encouraged. Finally, we conclude with observations about the way forward.

### **I. Why do we believe it is possible to reduce health spending growth while improving health?**

Many opportunities exist to reduce health care spending growth while improving health. As the Institute of Medicine’s 2012 report “Best Care at Lower Cost” makes clear, health care delivery in the US is often inefficient and uncoordinated, leading to wasteful public and private spending, and avoidable health problems for patients.<sup>1</sup> Health care providers tend to practice medicine in silos and fail to coordinate care when patients transition across care providers and settings. This fragmented delivery system leads to duplicative and avoidable services and

complications, particularly for the growing number of patients with complex chronic conditions who account for most health care costs. Patients receive many treatments that evidence suggests are often unnecessary, or for which better and less costly alternatives exist. Substantial variations in costs that appear unrelated to patient health occur across geographic areas large and small, as well as across different providers and payers, including Medicare, Medicaid, and private insurance systems.<sup>2</sup> High prices resulting from market power and anti-competitive behavior also contribute to health care spending. Individual choices about care also lead to inefficiency, because most services are paid for by a third-party and patients have limited information about the best care options. Poor environmental conditions that put individuals at greater risk for developing costly diseases such as diabetes and heart disease also lead to higher costs.<sup>3</sup>

Amid these concerns about the efficiency of the health care system, there are several examples of high-performing, lower-cost health care providers. These examples include large integrated care delivery systems like Geisinger, ThedaCare, and Kaiser Permanente, where integration enables the adoption of common information technology and decision support tools, the ability to review more comprehensive data and implement team-based approaches to care across multiple providers. The size and scope of these organizations have also made it easier to adopt capitated reimbursement, as well as provider payment systems that are not tied to volume and intensity. These improvements may make it easier to support innovations that improve patient care and reduce costs.

However, full integration may have disadvantages in terms of specializing in particular types of patient health problems, as well as creating concerns about market power.<sup>4</sup> There are many examples of providers focusing on improvements in particular aspects of care. In specialty care, Virginia Mason has implemented reforms to reduce cost and improve quality for patients presenting to emergency rooms with problems like chest pain and severe headaches. Other organizations are aiming to be “focused factories” in treating particular health problems. In primary care, many “physician-led” accountable care organizations (ACOs) have reduced costs.<sup>5</sup> Finally, some organizations are moving beyond traditional health care to use social services and community interventions that address the underlying causes of preventable health complications before they result in emergency room visits and costly medical complications. These interventions are aimed at low-income and uninsured individuals where such influences on health are especially prominent. For instance, The Camden Coalition of Health Care Providers in New Jersey adopted a “hot spotter” technique that allowed the organization to first identify high-cost, frequent utilizers of the emergency room and subsequently better coordinate their care to include social services (i.e. transportation and behavioral health support). This approach decreased hospital visits and costs by 40 to 50%.<sup>6</sup>

Such examples of health care organizations that deliver better care at lower cost are encouraging, but are difficult to replicate broadly. Many of these systems have existed for years alongside other seemingly less efficient health care practices, and their approaches have never become the standard. Further, what matters for spending growth is the extent to which these or other promising forms of delivering care can continue to reduce costs and increase productivity over time. With many existing and emerging opportunities to improve the efficiency of care, understanding how to *continue* to innovate successfully in health care delivery and improve health is important.

In this paper, we focus on reforms in health care and other policy areas that could create more pressure and support more rapid improvements in health care delivery, so that high-value health care innovation becomes a more routine. Several recent reports reflect a growing consensus about policy levers that could be used to slow spending growth and improve patient care.<sup>7,8,9</sup> In the coming sections, we review some of the evidence that these major types of reforms can improve health and lower costs, and potentially encourage continuing health care innovation over time.

## II. How does biomedical innovation affect health care spending growth and health?

Biomedical innovation, defined as new knowledge and new drugs, biologics, devices, and procedures based on that knowledge, can affect cost growth in a number of ways.<sup>10,11</sup> Some innovations lead to improvements in efficiency and cost savings over time. In general, these are iterative or incremental innovations that improve products or processes to achieve a similar standard of care while using fewer resources. For example, incremental improvements to the design and manufacturing of medical devices can lower per unit cost. Iterative innovation includes efficiency improvements introduced through lower-cost, higher-quality products (e.g., an improved cardiac catheter that is more precise and less likely to cause bleeding or other complications), or improvements in the design and use of a device that results from accumulating experience in practice. This type of innovation also reflects the contributions of improved digital processing and computing capacity in “functional” MRIs, and improved capacity to monitor patients and provide care remotely as a result of wireless technologies and web-based platforms.

These innovations happen commonly in health care, and may lead to important productivity improvements due to a reduced unit cost per procedure. On the other hand, they often lead to increased utilization: improvements in cataract lens replacement techniques and materials, for example, or the use of less invasive surgical techniques, have substantially increased demand for these procedures. Further, standards of medical practice and licensing as well as regulatory requirements for product marketing approval may create barriers to the introduction of lower-cost approaches to care that are not clearly of the same or better quality as existing approaches. We return to this policy issue later.

Novel products and procedures that dramatically improve outcomes or potentially cure patients are also central to changes in health care delivery and are major contributors to rising health care spending. These scientific advancements are the result of research and development to address unmet medical needs, and because they save and improve lives, they are highly valuable to patients and society. For example, HIV drugs developed in the 1990s, and more effective drugs and drug combinations developed in the 2000s, have substantially increased both the life expectancy and quality of life of patients with HIV. The value of these health improvements has been significant, and has increased with greater evidence over time. For example, a recent study found that treating patients with HIV at an earlier stage in recent years had a value of over \$80 billion on its own, beyond the high-value in terms of reducing HIV complications created by the previous patterns of use of HIV medications.<sup>12</sup> However, because these medical products are valuable, they generally come with a significant additional cost. Indeed, we spend much more on HIV treatments that represent valuable breakthroughs for HIV patients today than we did 20 years ago.

There are two kinds of cost impacts from biomedical innovations that enable treatment of previously untreated or less well-treated diseases. First, the outcome-improving treatments themselves often have a significant price. For example, new treatments for hepatitis C are effective enough to cure the disease in many patients, but a course of treatment may cost over \$80,000.<sup>13</sup> Second, the new treatments have “downstream” cost implications. These may include avoided medical costs related to complications of the condition in question. For example, widespread use of more effective HIV treatments mean not only better survival rates, but also fewer hospitalizations and medical utilization related to the complications of immune deficiencies. On the other hand, reductions in an important health risk do not mean perfect health forever; avoiding one risk exposes patients to more years of other health risks along with the associated health care spending. Greater avoidance of heart attacks and other cardiovascular complications has meant more Americans go on to develop cancer, or dementia, or other health problems that may significantly add to costs.

Depending on the price of the new valuable treatment and the burden of additional disease during those extended lifespans, the upward pressure on health spending could easily swamp cost reductions coming from

other types of health care innovation. A 2005 study explored the impacts of various promising innovations, including a hypothetical effective anti-aging drug, on Medicare spending levels. Of note is the effect on spending of the anti-aging regimen, especially when coupled with increased exposure to the risks of morbidity and disability in the additional life years gained through treatment. When simulated, total health spending in Medicare for a relatively healthy population of beneficiaries would be 14% greater than the estimated baseline in 2030 due to the impact of longer lives.<sup>14</sup> This increase becomes even more outsized if extended life years are accompanied by greater disease and disability: in this simulation, Medicare spending would be a staggering 70% higher than the baseline.<sup>15</sup> The increased use of health care services for other health risks for a longer time period is also the reason why many preventive interventions, such as programs to reduce smoking, may also lead to higher population health care costs.

Additional spending that creates longer and better lives can be well worth the cost, based on commonly-used standards of cost effectiveness and the value of better health. Even when estimating the cost per additional life year for the pessimistic anti-aging drug scenario above, researchers found that it would still be a “good deal” by public policy standards at a cost of about \$30,000 for each additional year of life.<sup>16</sup> This is true not only for HIV and a hypothetical life-extending wonder drug; it is also true in terms of overall spending versus outcome trends for virtually all other areas of care, including cardiovascular disease, pregnancy and childbirth (particularly for high-risk pregnancies and low-birth weight infants), many cancers, and a wide range of other conditions that have been studied.<sup>17,18,19,20,21</sup>

While a breakthrough anti-aging drug still seems far off, breakthrough treatments may be coming for a growing range of health problems that today remain debilitating or fatal, including many forms of cancer, immune-mediated disorders, and even dementias. Many of these are targeted therapies or combinations of therapies based on a more sophisticated understanding of the development of a disease, which provides both better insight on how to intervene to stop or slow disease progression in particular patients and better ways to monitor patient response to treatment. Though the targeted populations may be small, the potential for a range of these breakthroughs – or even more broadly effective treatments – could increase health care spending significantly.

Health care innovation thus involves both cost reductions and cost increases. Innovation in care delivery and incremental biomedical innovation may lead to cost reductions over time, provided that the expansion in demand and use of treatments does not fully offset reductions in per unit cost. Policy steps that speed up such innovations may thus help reduce costs. At the same time, breakthrough innovations that help people live longer may raise health care costs depending on the extent to which they increase downstream use of health care services. Their overall impact on health spending will vary based on the relative cost impact of several factors, including the direct costs of the new treatment and the indirect costs of lifetime medical utilization or morbidities that patients later develop. Policies that encourage life-extending innovations are important public priorities, but should be pursued knowing that they may also ultimately increase health care spending.

Evidence is limited on how to encourage valuable biomedical innovation while discouraging changes in treatment that add to costs without commensurate health benefits. Patent protections and payment policies that enable the developers of breakthrough treatments to charge high prices for some period of time are intended to encourage innovation, but clearly lead to higher prices through the patent period. There is also evidence that more generous insurance coverage encourages higher use of new medical technologies over time and thus higher costs,<sup>22</sup> and that the increased spending on many new treatments is substantially less than the value of their impact on health.<sup>23,24</sup> Still, the impact of policy reforms on biomedical innovation is less clear.<sup>25,26</sup>

Recent trends in prescription drug spending illustrate the interaction between policy and these two kinds of innovation. When brand name prescription drugs come off patent, competing pharmaceutical firms are able to

introduce lower-cost generic versions to market. Innovations in insurance benefit design, including tiered benefits introduced in private insurance plans and in the competing plans that were chosen by Medicare Part D beneficiaries, provide strong incentives for patients to switch to generic versions of drugs when available. The resulting shift in care in conjunction with many widely-used drugs going off-patent led to a substantial reduction in health care spending growth. A 2008 study, for example, estimated that the use of generics directly contributed to a 22% decrease in pharmaceutical spending over a four-year period (2003-2007).<sup>27</sup> The effects of available generic drugs have also been demonstrated in annual National Health Expenditure (NHE) reports from the Centers for Medicare & Medicaid Services (CMS). The most recent NHE report for 2012 noted that growth in pharmaceutical spending had slowed from 2.5% in 2011 to 0.4%, largely due to generics uptake.<sup>28</sup> The use of generic drugs as a share of total prescription medications over this period rose 8%, a full five points higher than the average increase in the ratio of generics to branded products in 2009 through 2011.<sup>29</sup> Further, changes in benefit designs and payment policies are documented to have had a permanent effect on innovation in the pharmaceutical industry, with a reduction in overall investment and in particular less spending directed toward “me too” drugs than in the past.

However, with improvements in the science behind the development of well-targeted therapies for unmet needs, more high-cost drug products for such unmet needs are reaching the market. The 2012 NHE report notes that increases in specialty drug spending for costly new therapies were enough to blunt some of the cost savings of increased generic availability described above.<sup>30</sup> Other reports forecast as much as a 30% increase in spending on such specialty products in developed markets like the U.S. over the next five years, pointing to breakthrough innovation as “one of the single biggest cost concerns” for spending growth in advanced health care systems.<sup>31</sup> These trends can raise questions about whether some of these specialized therapies are worth their costs.

Spending on innovative pharmaceuticals and biologics represents only a small fraction of health care spending and spending growth, but highlights a key issue for evaluating and simulating the effects of health care policy reforms in the remainder of the paper. Important as the effects of health care policies on efficiency and on promoting incremental health care innovation are, their most significant consequence may be their implications for promoting high-value, lower-value, or inefficient biomedical innovation.

Ideally, policies and the decisions that result from them could send a clearer message to product developers that only treatments that meaningfully improve health will get additional payments. Moreover, using existing treatments efficiently means more resources are available both for valuable but costly biomedical innovations as well as non-medical investments that improve health and well-being.

### **III. Could payment reforms promote high-value, innovative care?**

Payment reform has received considerable attention as an effective strategy to promote high-value care through better coordination, more efficient use of services, and innovative approaches to care delivery and disease management. Overall, proponents of payment reform have focused on three weaknesses of the current system: (1) the fee-for-service payments that reward providers for the volume and intensity of services delivered irrespective of quality or efficiency, (2) a fragmented delivery system that inhibits care coordination across providers and care settings, and (3) innovative approaches to care that rely on new lower-cost sites of treatment or wireless services that are not compensated in traditional payment systems. The most promising payment reforms, discussed in greater detail in this section, dampen the financial incentives for providers to deliver more care and reward providers when they focus on the efficient delivery of services that improve patient health. Successful efforts to eliminate wasteful health care spending and improve productivity would contribute to a slowdown in overall health spending growth. Although promising models have been implemented, efforts to evaluate the effectiveness of these payment reforms are still in the early stages.

During the past decade, payers in both the public and private sectors have experimented with alternative ways to pay physicians and other health professionals. In general, their efforts to replace existing FFS payments move toward person-level payments, but differ in terms of the scope of the payments and level of financial risk that providers take on.

### ***Capitation***

At one end of the spectrum is capitation, where the health delivery system assumes full financial risk for all services provided to a patient population, fully incorporating the insurance function. There are existing models of capitated systems, such as Kaiser Permanente and Geisinger Health System, which manage the total cost and quality of care for their patient population. The capitated payment to cover all services facilitates alignment and integration among the incentives of physician groups, hospitals, and the health plan. Many of these systems employ physicians and staff their own hospitals and other health care facilities; as a result, they have more incentive to coordinate care efficiently and a greater capacity to use resources collaboratively to do so. The systems have incentives to keep patients healthy and reduce costs because avoidable costs are a financial loss; they cannot bill for additional services. If investments in IT infrastructure and in new kinds of services like care managers and remote monitoring are a less costly way to deliver care, they can redirect their capitated resources to do so.

Capitated health systems are well positioned to implement delivery reforms. For example, Kaiser's Collaborative Cardiac Care Service (CCCS) and Geisinger's ProvenHealth Navigator (PHN) programs rely on team-based care models and sophisticated health information technology (health IT). For instance, Geisinger's PHN program—a patient-centered medical home model—reduced the total cost of care by over 7% for its patients over a four-year period, relative to the projected cost of care Geisinger Health Plan would have incurred for these patients in the absence of the PHN initiative.<sup>32</sup> Capitation also enables providers to implement other types of care delivery reforms such as disease management programs in a way that targets them to specific types of patients who are likely to benefit. The savings from better management of high-cost chronic diseases can be substantial. Among patients enrolled in Kaiser's CCCS program, total cost of care was reduced by nearly \$22,000 per patient per year on average, compared to a matched population of similar Kaiser patients not enrolled in CCCS.<sup>33</sup> In both cases, the savings result from better health outcomes for patients and fewer hospitalizations and hospital readmissions.<sup>34</sup> These results suggest that capitation can provide incentives for health care delivery innovation that result in better health outcomes and lower health care costs.

The experience of many fully capitated, integrated delivery systems demonstrates the promise of payment reforms to promote high-value innovations in care delivery. However, while integrated systems like Kaiser are often regarded as exemplary health systems, there are serious concerns about how easily this model can be scaled up and replicated across different provider types and markets that are much more fragmented. Efforts by many provider groups to take on financial risk in the 1990s resulted in failures, indicating that there is likely a limit to how much risk many provider groups can feasibly bear.<sup>35</sup>

### ***Accountable Care Organizations (ACOs)***

More recently, ACOs are gaining traction in both the public and private sector as a significant step toward the benefits of fully capitated payments for increasing providers' focus on population health and overall costs, without requiring providers to assume full financial risk. ACOs are provider-led organizations that are jointly accountable for achieving overall, per capita quality improvements and spending reductions for their patient population.<sup>36</sup> There is considerable flexibility in the form ACOs take and they could include a variety of provider

configurations and payment models. But in general, providers earn more when they improve on quality and health outcome measures for their patient population while reducing spending trends. The Medicare Shared Savings Program (MSSP) is an example of a “shared savings” model, in which participating ACOs may earn an additional payment on top of existing FFS payments if they reduce spending below a benchmark and meet quality standards. They are not subject to penalties (“downside risk”) if they fail to realize savings. This one-sided risk model is a first step toward holding providers accountable for care delivered by other providers in different settings and encouraging them to work across the care continuum to reduce costs. ACOs with more experience and infrastructure to support care reforms may take on “two-sided” risk, i.e. shared risk or partial capitation, to provide more incentive to redirect resources to high-value services.

One of the strengths of the ACO model is its ability to meet providers where they actually are, rather than trying to move them immediately to fully capitated model, since many providers are not prepared or willing to take on a high degree of financial risk. While ACO models are still in their infancy, there is considerable provider and payer interest in this approach and the early evidence suggests ACOs may be one path toward more efficient health care. Private payers began entering into ACOs prior to the start of the Medicare ACO program, and many private payers have moved toward greater shared-risk models, with notable success in some cases.

One example is the Alternative Quality Contract (AQC) that Blue Cross Blue Shield of Massachusetts implemented in 2009.<sup>37</sup> Provider groups who enter into the AQC with Blue Cross receive per patient fixed payments intended to cover patients’ total cost of care and have the opportunity to receive bonus payments when they meet quality performance targets. They can also choose to share risk with Blue Cross rather than taking on full risk for patient health care costs. In addition to the shift in payment incentives, Blue Cross also provided infrastructure and data analytics support to primary care groups participating in the AQC. The technical support providers received included a data and performance reporting system that helped providers identify opportunities for clinical improvement and assess their clinical and financial performance relative to the benchmarks.

The combination of AQC’s performance-based payment incentives and technical support for physicians to assist them with efficient care management led to a substantial cost savings in the first two years —2.8% lower spending for enrollees whose primary care physician entered the AQC.<sup>38,39</sup> The savings resulted from shifting care to lower cost providers and settings and, to a lesser extent, from reducing utilization. Measures of care outcomes also improved, including chronic care management and preventive care. According to a recent study that found health cost reductions for Medicare beneficiaries who received care from providers paid under the AQC, the impact of Blue Cross’ commercial ACO model may be even larger than these estimates suggest once the spillover effect on other patient populations is considered.<sup>40</sup> The initial success of the program with early participants created competitive pressure for other provider organizations to join as well.

The Medicare Pioneer ACO pilot is Medicare’s effort to help provider organizations move toward more significant payment and delivery reform with a transition to assuming both upside and downside financial risk. Because MSSP ACOs only face one-sided risk and do not pay a greater share of the costs when medical spending exceeds the target, the incentives to reduce wasteful spending and improve care are not as strong as in the AQC and Pioneer models, and there is less financial opportunity to redirect resources toward new methods of care. For example, a MSSP ACO that consists of physician groups and hospitals can invest more in steps to prevent admissions to get a portion of shared savings, but it also loses the entirety of the FFS revenue from the admission. In contrast, a similar ACO with partially-capitated payments would generally lose only a fraction of the admission revenues.

First-year results from the Medicare ACO programs are mixed. Almost half of the MSSP ACOs reduced cost trends—producing net shared savings of \$126 million and \$128 in net savings for the Medicare Trust Funds—and

about one-quarter saved enough to receive bonus payments.<sup>41</sup> Many of the organizations that did not achieve savings in the first year are continuing in the program, and expect that their investments in delivery reform will have greater payoffs in the future. The evidence on ACOs is limited, but suggests they have the potential to improve quality and lead to more cost-effective care. Altering provider behavior and lowering spending growth by changing the way providers are paid is unlikely to quickly yield substantial savings given the upfront investment costs required and the difficulty of changing long-standing provider behaviors.

In addition to and sometimes in conjunction with ACO models, some payers including Medicare and private insurers are implementing bundled or episode payments. These payments cover the cost of a set of related services provided during a defined time frame for a particular health problem or procedure. For example, Medicare's Participating Heart Bypass Center Demonstration implemented a single payment rate for all hospital inpatient and related physician care provided to heart bypass patients. This payment reform reduced the average patient's length of stay in the hospital and lowered the overall costs of bypass surgery by about 10%.<sup>42</sup>

### ***Bundled Payments***

Commercial insurers have also successfully lowered health spending on some medical procedures and common conditions through the use of bundled payments. A notable example is the Geisinger ProvenCare program, which Geisinger is using to align payments with its care improvement goals for their non-employed, affiliated physicians. While the Geisinger Health System receives capitated payments, providers who are not employed by Geisinger also treat patients enrolled in Geisinger's health plan. Geisinger is interested in implemented value-based payment arrangements, such as bundled payments, that provide similar incentives to these providers as the Geisinger-employed providers face. Following the initial success of cardiac surgery bundled payments, which reduced hospital costs by 5% and reduced the risk of readmission,<sup>43</sup> Geisinger expanded this approach to other conditions including hip replacements and diabetes care.

Taken together, the evidence on payment reforms such as bundled payments and ACOs suggests that the work of determining which payment approaches work best has a long way to go. Shifting more accountability for the overall cost and quality of care to providers can lead to reforms in care that improve measurable results and in many instances lower costs. However, the evidence that payment reforms can reduce health care spending at a point in time does not necessarily imply these reforms will be able to successfully slow the rate of spending growth over a longer period. Most payment reforms achieve cost savings by shifting care to high-value providers and services and reducing wasteful utilization. For the reforms to significantly lower spending growth over time, they must not only continue to promote progress in these areas, but also impact other factors that increase spending growth, such as the development and adoption of low-value new medical technologies. Whether the payment reforms described here will alter health care delivery in ways that sustain lower spending growth over a longer period of time is an open question.

Given the limited impact of payment reforms in many cases, the process of provider payment reform will likely need to accelerate, which requires addressing numerous challenges along the way. One key issue is the development of better measures of quality and value. Measures of quality and methods for adjusting them for inherent differences in patient risk are imperfect, raising the possibility that moving toward more bundling or capitation may reduce quality and access for some patients, particularly those at higher risk. Other important challenges to address include finding better ways that payers and others can support these reforms, for example through better administrative data sharing to identify opportunities for improvement, and through more consistency in the use of performance measures. More comprehensive payments and greater financial risk also tend to increase the benefits to providers of consolidating, which in turn may add to upward pressures on prices.

Finally, payment reforms are likely to have a greater impact when they are aligned with other financing and regulatory reforms, such as in consumer choice and transparency.<sup>44</sup>

#### **IV. Could consumer choice, transparency and improved competition lead to greater efficiency and higher value?**

The previous section discussed one set of strategies for simultaneously improving the quality of health care and the growth of health care spending: transitioning from fee-for-service payments that reward providers for the volume and intensity of care toward payments intended to reward better care at a lower cost. This section focuses on a complementary strategy: harnessing the power of consumer choice and market competition to slow the rise of health care spending and improve the value of care.

##### ***Consumer Choice in the Health Care Marketplace***

Like most goods and services markets, Americans rely heavily on consumer choice and competition to produce better quality at lower cost. The results are impressive, although regulation is often necessary to ensure product safety, reduce environmental damage, limit market power, and otherwise control the downsides of unfettered competition.

In health care delivery, however, competition and consumer choice play limited roles. Consumers are dependent on the expertise and advice of health care professionals to evaluate their many of their health needs accurately. Buying care for a serious condition like cancer or diabetes is much more complex than buying a refrigerator. Moreover, a large fraction of health spending is covered by public or private insurance, so that neither the consumer nor the provider has much incentive to pick the most cost-effective option at the time of delivery. Especially in the case of large expenses for serious illnesses, which make up a high proportion of total health spending, the patient with health insurance has little reason to focus on the cost of treatment, and the provider has equally small incentive to economize, if the insurer will pay the bill.

As a result, little information is available to patients on the cost of alternative treatments or providers. Indeed, many clinicians are unaware of the price of the sets of services they are providing, especially in a hospital setting. As recent press reports have dramatized, the real price of care for even common conditions or procedures is hard to discern from available information on specific services, medical devices, and pharmaceuticals.<sup>45</sup> Useful information about the outcomes of alternative therapies or the quality of care offered by different providers is also sparse. Recent efforts to improve transparency with respect to cost and quality measures are still in early stages.<sup>46</sup>

Calls for eliminating health insurance and treating health care like other product or service market in which competition prevails are simplistic and impractical. The asymmetry in information between patients and medical specialists cannot be eliminated and most people want insurance protection against unexpected health care expenses that could be disruptive or even catastrophic. Nevertheless, there are promising ways of increasing price and quality transparency, empowering consumers to make more cost effective choices, and introducing more competition into health care delivery.

In this section, we examine high-deductible health insurance plans, often combined with health savings accounts, and value based insurance designs. To enhance competition among health plans, we consider insurance choice models in which consumers receive a subsidy toward the purchase of health plans that compete on price and benefits, including the Medicare Part D marketplace, insurance exchanges under the Affordable Care Act, and a premium support model for Medicare.

### ***High-Deductible Health Plans and Health Savings Accounts***

In a high deductible health plan, consumers have to cover their own routine health expenditures, such as office visits and prescriptions, until they have met the deductible. Health Savings Accounts were enacted in 2003 to facilitate consumer savings for such medical expenses in conjunction with a high-deductible plan. They are tax-free savings accounts that generally can be used only for health expenditures. Research has focused on the whether consumers spend less when they are spending their own money, what type of spending they reduce, and how different income groups are affected.

In general, studies of high deductible plans and other cost sharing indicate that consumers do spend less when their spending is not covered by insurance and that pharmaceutical expenditures are the most affected.<sup>47</sup> The classic evidence on lower spending with higher deductibles comes from the RAND health insurance experiment,<sup>48</sup> in which individuals are randomly assigned to higher-deductible insurance (and given additional income to make up for the higher financial uncertainty) spent significantly less on health care. More recent studies compared large groups that differed in access or use of high-deductible plans, using a variety of methods to try to control for bias from healthier patients choosing less generous coverage. In general, these studies have found that higher out-of-pocket payments significantly reduce spending. For example, a RAND study of employer high-deductible plans found 14% lower health expenditures for workers whose employer coverage had deductibles of more than \$1,000 per person, due to using care less often and spent less per episode of care.<sup>49</sup>

The Employer Benefit Research Institute (EBRI) found that the introduction of high-deductible health insurance plans (deductibles over \$2000) reduced health expenditures by almost 25% relative to the control group in the first year, declining to an 8% difference in the second year.<sup>50</sup> Another study by Amitabh Chandra, Jonathan Gruber, and Robin McKnight found that an increase in co-pays on office visits for prescription drugs for retirees in the California Public Employees Retirement System (CalPERS) in 2000-2003 led to a substantial reduction in prescription drug spending and overall spending growth.<sup>51</sup> Studies of HSAs have found similar effects. For example, Anthony Sasso and coauthors found that HSA enrollees spent 5 to 7% less than non-HSA enrollees. Spending reductions were greater with respect to drug costs. HSA enrollees spent 6 to 9% less than the non-HSA enrollees.<sup>52</sup>

While study results vary, many found that the most persistent spending effects involved pharmaceuticals. Spending impacts were also concentrated among individuals with relatively low expenditures; those with high expenditures well above the out-of-pocket limits had little to no reduction in expenditures. The studies also generally found that spending was reduced for medical services that appeared to be of high-value as well as low value. Spending for preventive care declined, including childhood vaccines and cancer screening, as did spending on high-value drugs. Indeed, Chandra, et al found that 35% of the prescription drug expenditure reduction was offset by higher emergency department spending.

Thus, while high-deductible plans with HSAs can reduce costs, their effects are limited by the heavily skewed distribution of health care costs, and they may have adverse impacts on quality of care and outcomes. The implications of large out-of-pocket cost differences for the low-income population is especially worrisome, since they would most likely forego or delay treatment that could lead to more serious conditions or complications.

### ***Value-Based Insurance Design***

Traditional health insurance benefit design has a uniform deductible and co-pays that are the same for a class of spending (e.g., office visits or prescriptions or generic drugs) irrespective of the treatment used. VBID are intended to direct consumer expenditures towards drugs or treatments that are most cost-effective, i.e. have

significant health benefits relative to their costs. The hope is that VBID – by directing health care consumption towards “valuable” care—will reduce health expenditures without compromising quality.<sup>53</sup>

The implementation and evidence on VBID is limited so far. Value-based co-pays have been applied primarily to prescription drugs, but application to other types of treatment may grow in the future as measurement of treatment effectiveness improves. In general, the evidence to date suggests that VBID can promote greater use of high-value treatments, but has more speculative effects on overall costs. For example, Michael Chernew and co-authors studied the impact of a private insurers’ substantial reduction in co-pays on five classes of drugs effective in treating hypertension and diabetes, as well as some additional conditions.<sup>54</sup> Michael Chernew and co-authors studied the effect that the value-based insurance had on overall spending. They estimated that the policy would break even if plan cost of lower co-pays (and thus greater adherence to the drug treatment regimen) reduced other expenditures by more than 17%. Based on a literature review of relevant random trial experiments, they concluded that it was likely that expenditures were reduced by more than that amount.

Similarly, Goldman, et al showed that targeting copayments for cholesterol-lowering drug premiums could produce savings and improve care.<sup>55</sup> They showed that raising copayments for those who have a low risk of developing high cholesterol and eliminating copayments for those who have a high risk of developing high cholesterol could save upwards of \$1 billion annually. Similarly, Rosen, et al found that reducing co-pays for ACE inhibitors for those with diabetes could save both money and lives. Reducing co-pays was associated with an increase of 0.23 QALYs and an annual reduction in Medicare costs equal to \$1,606.<sup>56</sup>

A report by Mark Fendrick, Michael Chernew, and Gary Levi<sup>57</sup> presented evidence that the private sector is rapidly adopting VBID. According to their study 20 to 30% of large employers utilize some type of VBID. For instance, when IBM introduced a VBID plan for employees, healthcare costs decline by 3 to 4% below trend expenditure growth; Gulfstream held expenditure growth to 3.4% growth per year. Other employers have seen more targeted improvements in health care. For instance, Caterpillar has seen a substantial improvement among diabetic employees, and Pitney Bowes found that reduced co-pays for long-acting asthma medications increased adherence (from 49% of the population to 66%) resulting in a 22% decline in emergency room use and a 62% decline in avoidable hospital admissions. They found similar effects in drug treatments for other chronic diseases. Overall, there was a small reduction in health care expenses.

These studies show that VBID can improve quality of care and reduce complications of diseases, particularly those that can be treated effectively with medication. However, net savings have generally been limited, in part because co-pays alone do not change the behavior of all patients, and because the lower co-pays add to plan costs for patients who are already using the effective treatments. For instance, the Blue Cross Blue Shield of North Carolina instituted a VBID program in 2008. The program reduced co-pays for several classes of drugs and adherence to medication regimes increased by 2.7 to 3.4%. However, although increased adherence resulted in a \$5.7 million reduction in non-medication related expenses, the medications themselves cost an additional \$6.4 million.

Further efforts in benefit design are using tools from behavioral economics and methods to target the application of benefit changes and other interventions to beneficiaries likely to respond.<sup>58</sup> With better measures of the cost and effectiveness of a broader range of medical products and health care providers, these benefit reforms may play an increasing role in restraining spending while rewarding quality.

### ***Stronger Competition in Health Plan Marketplaces***

Competition among health plans in a transparent market place is another example of harnessing the power of consumer choice. Indeed, stronger competition on price and quality in insurance markets would encourage

insurers to innovate in both provider payments and benefit designs that enable consumers to get better care at a lower cost.

In these reforms, health plans compete for customers on web-based exchanges. Competition is facilitated by the availability of reliable, extensive information about premiums, expected out-of-pocket costs, and the quality of the services provided by the plan. Competition is also facilitated by consumers receiving a fixed subsidy toward the total cost of their insurance choice. That is, the consumer pays the full difference in price between a higher-priced plan and a lower-priced plan. The subsidies can be adjusted for income, and additional steps including risk adjustment, reinsurance, and risk corridors can also help reduce incentives for plans to avoid high-risk, high-cost enrollees.

Medicare Part D embodies this model. Medicare beneficiaries receive a fixed subsidy (higher for those with incomes below 150% of poverty) toward the purchase of a prescription drug coverage plan that they choose. For all of these plans, beneficiaries and family members or advisers working with them can also use online tools to compare the total costs of their specific drugs, as well as lower-cost alternatives like generic drugs or other drugs that work in similar ways (where the drug plan may have negotiated a lower price). Thus, the Medicare Part D reforms were designed to introduce more substantial competition in drug coverage on quality and cost.

By all accounts, Medicare Part D was a substantial success. The program came in costing substantially less than expected, with 90% of Medicare beneficiaries covered. Many analyses, including by CBO,<sup>59</sup> have documented a large number of firms competing in each market (an average of approximately 17 plan sponsors per market). Further, bids submitted by the Medicare Part D plans tend to be lower in areas with more insurance companies.

The program was anticipated to cost \$88.5 billion in 2012 but actually ended up costing \$44.2 billion in 2012. In part, due to lower enrollment than initially projected by the CBO, but it was also due to a substantial reduction in the effective price of drugs. Seniors overwhelmingly chose plans with lower premiums and tiered benefit designs, amounting to a rapid market-wide transition to a form of VBID. The most cost-effective drugs, generics, were on the lowest tier, with an out-of-pocket cost of a few dollars at most. For brandname drugs in categories like cholesterol-lowering agents and oral diabetes drugs, the drug plans typically negotiated lower prices with manufacturers of several drugs. These drugs would be placed on a “preferred” tier, costing beneficiaries around \$20 to \$30 per month. Other, higher-priced drugs would be covered, but the tiered benefit design provides much larger savings to beneficiaries if they switch from brands to generics. Having chosen these plans, beneficiaries moved from brands to generics at a high rate; with some highly used drug came off patent, over 80% of Part D prescriptions today are for generics, far higher than when the program began. Beneficiaries also switched from non-preferred to preferred brand-name drugs with lower prices on lower benefit tiers.<sup>60</sup>

Competition in benefit design and then changes in drug choices substantially reduced the expected cost of the program. Studies have documented that Medicare Part D led to large reductions in the effective drug prices paid by seniors; according to Duggan and Morton, drug prices were 20% below what they would have otherwise been in the first year of the Medicare Part D program.<sup>61</sup> Follow up work by these authors has shown that much of these savings persisted in following years.<sup>62</sup> Another study of the post-Medicare Part D pharmaceutical market showed that Medicare Part D increased the negotiating power of insurance firms vis-à-vis the pharmaceutical manufacturers, causing market wide reduction in drug prices. Indeed, Part D was estimated to lower the prices for non-Medicare Part D programs by 3.7%.<sup>63</sup>

The exchanges set up by the Affordable Care Act (ACA) embody a model with similar features. Supporters of the Affordable Care Act designed it to increase competition among insurers on the basis of price and attractiveness of product. As with Medicare Part D, the concept was that consumers, armed with improved information and fixed

federal subsidies related to income (i.e., subsidies in which they would pay the full price difference between lower-cost and higher-cost plans) would be able to put pressure on health plans to compete on premiums, benefit design, and the resulting quality of care. The new exchanges proved daunting to set up and have been operating only a few months, so only very preliminary information is available on their impact on quality and cost. Moreover, it has proven much more difficult to provide meaningful comparative cost and quality information related to health care providers in an insurance plan than on drugs in a Part D plan. For example, states like California that have moved aggressively to implement exchanges have only been able to provide limited information on quality; potential enrollees cannot easily discern whether their doctors are in a particular plan. Millions of Americans have enrolled in coverage, but in almost all states, most eligible individuals remain unenrolled.<sup>64</sup> CBO and other independent projections suggest that the exchange markets will take several years to achieve more widespread and stable enrollment.

Although it will be several years before it will be possible to tell what impact are having on the price and quality of care, a few early studies have been published. The Kaiser Family Foundation has studied the health insurance exchanges and found suggestive initial evidence that the exchanges are making health insurance markets more competitive in a few large states.<sup>65</sup> However, other states studied by Kaiser had little change in market concentration, and a minority of states has seen a reduction in plan participation.

According to a Department of Health and Human Services report,<sup>66</sup> the lowest cost “silver plan” offered on health insurance exchanges have premiums 18% lower than projected by CBO, and there is a correlation between the number of plans offered and the premium in the health insurance market. McKinsey notes a change in the nature of plans offered, with lower premiums accompanied by an increase in plans with narrow provider networks.<sup>67</sup> A plan from a particular insurer with a broader network typically has a median price 26% higher than the same insurer’s narrow-network plan. The increasing number of narrow-network plans suggests that, at least in these early days, many consumers are unwilling to pay the full cost difference associated with having very broad access to providers.

### ***Enhanced Competition in Medicare and Employer Coverage***

The evidence from Medicare Part D, and the very early evidence from the ACA exchanges, shows that successful competition will depend on consumers having easy-to-understand information on plan coverage, premiums and out-of-pocket costs, and quality of care. It will also depend on plans being able to effective payment and reimbursement designs, not just in the breadth of network contracts, but in other payment reforms to encourage higher value care.

Making plans more affordable requires new income-related subsidies under the ACA and was therefore expensive. But Medicare beneficiaries are already subsidized and could be offered more competitive choices. More than a quarter of them have chosen Medicare Advantage plans, which receive capitated payments and often provide more integrated care, but almost three-quarters are in the fee-for-service system, where their care is often fragmented, uncoordinated, and arguably less cost-effective than integrated care.

Premium Support proposals would apply the competition to Medicare, by setting up a Medicare exchange and allowing Medicare beneficiaries (armed with a risk-adjusted Medicare subsidy) to choose either to stay in FFS Medicare or opt for a private plan on the exchange. If the forces of competition work as they are supposed to, the integrated plans would be expected improve quality, lower premiums and attract increasing numbers of beneficiaries away from FFS. While there have been several proposals for reforming Medicare in this direction (see Domenici-Rivlin,<sup>68</sup> Ryan Wyden,<sup>69</sup> and the Brookings Medicare Comprehensive Care proposal<sup>70</sup>) and some estimates for Medicare savings,<sup>71</sup> the idea remains controversial and has not been tried.

Similarly, some large employers are taking steps to encourage more effective health plan competition, through offering employees a choice of plans with comparative information on quality and higher payments for more costly plans.<sup>72,73</sup> The ACA small-employer (SHOP) exchanges are intended to achieve the same goal. Capping the tax exclusion for employer-provided health insurance would make employees more sensitive to the price of insurance and could encourage more effective competition and lower costs.<sup>74</sup> Replacing the employer subsidy with a fixed tax credit or subsidy that individuals could use regardless of whether they chose employer coverage or not would encourage more participation in the individual insurance market.

### ***Impediments to Competition in Insurance and Health Care Markets***

The success of consumer directed competition in the insurance market could be derailed by concentration in the insurance and health care markets. If consumers in a region have only one or two plans to choose from they will not be able to exert much pressure on health plans to lower premiums or provide higher value care.<sup>75</sup> Moreover, hospital markets are highly concentrated in many parts of the country, and big hospital system have been buying up physician practices and acquiring market power in recent years. Concentration in the hospital market and other markets for health services can prevent competition among insurers from producing savings.<sup>76</sup> In some areas there is only one hospital or one dominant one. If the health plan has to have the dominant hospital or health system in its network in order to compete, the plan may have little ability to negotiate lower prices or promote reforms in care, especially if important physician practices are owned by the hospital system.

Hence, reliance on competition among health plans to reduce cost and enhance quality will have to be accompanied by serious attention to the structure of insurance and provider markets. The anti-trust laws provide some remedies, but the litigation process can be long and cumbersome.

## **V. Can greater attention to prevention and wellness improve health and reduce the cost of health care?**

While reforms in health care financing and regulation may be able to reduce the growth of health care spending and improve the quality of care, health care actually has a relatively small effect on health. Non-medical factors, such as genetics, diet, exercise, substance abuse, pollution, are far more important determinants of health than health care and thus, preventing or delaying disease can potentially contribute far more to population wellness than curing or managing disease after it occurs. This suggests that successful efforts to mitigate environmental hazards and induce healthy behaviors may have more potential than health care reform to improve population health and affect the health care cost trends resulting from changes in population health over time.<sup>77</sup> Compared to other advanced countries, the United States spends more on health care but ranks relatively low on important indicators such as life expectancy, infant mortality, and maternal mortality that are primarily influenced outside of traditional health care.<sup>78</sup> Moreover, other Organization for Economic Cooperation and Development (OECD) countries spend more on social services such as income supplements, housing, and unemployment coverage relative to health care than the United States and enjoy better health, which suggests that investments in other sectors could promote a healthier population.<sup>79</sup>

A growing focus on population health has led to for health care policy reforms that emphasize prevention and wellness. I less clear how to integrate health care reform with steps to promote changes in neighborhoods, income, and education that may lead to better health, or how to integrate initiatives that are effective in encouraging better diet, exercise, smoking cessation, and other healthy behaviors.

To shift this focus in public policy, organizations like the Robert Wood Johnson Foundation (RWJF) are promoting a broader emphasis of a “culture of health.” The RWJF’s Commission to Build a Healthier America gives high priority to public spending on early childhood interventions and building healthy communities, arguing that these steps may be more likely than higher spending on traditional health care to improve population health. The Commission also proposed steps to encourage health care providers to place a greater emphasis on supporting non-medical activities that can affect health outcomes for their patients.<sup>80</sup> These recommendations seek to foster an environment that enables individuals and families to pursue healthy lifestyles that can improve health over time by preventing or delaying the onset of illness. Their recent report highlights that this increased emphasis on effective long-term steps to improve population health are necessary inside and outside the health care setting. For example, pediatric and family health care providers might be held accountable for improving pre-school and school attendance and such funding might enable more or better-coordinated resources to support participation in effective education programs. Similarly, providers treating lower-income, vulnerable populations who are implementing accountable-care payment reforms would likely be more successful if these health care reforms were combined with other policy reforms that make it easier for health care providers to work with social services and other community services.<sup>81</sup> Organizations such as Camden Coalition of Health Care Providers (New Jersey) and Denver Health (Colorado) include care management programs such as social work, residential, and behavioral support and this work is strengthened by integrated funding streams.<sup>82</sup>

Because of the impact of these fundamental influences on health mostly occurs over longer time frames, it seems likely that they may take some years to have an impact on population health and especially health care spending. In addition, prevention and wellness initiatives that prolong a healthy life and increase income could significantly increase the amount of health care consumed over a lifetime. To illustrate the potential impact of reforms that succeed in significantly influencing health-related behaviors, we consider evidence related to smoking cessation and obesity reduction.

Fifty years after Surgeon General’s report warning of the association between smoking and lung cancer, the adult smoking rate has been reduced from 42.4% in 1965 to around 18% today.<sup>83</sup> Efforts to reduce smoking include individual- and population-level interventions such as smoking quit lines, smoking cessation products, labeling of tobacco products, restricting tobacco advertisements, large education campaigns, banning of smoking in public places, and taxing cigarette sales, to name a few. The introduction of such policies has been widespread (local, state, and federal) and at different rates across the country. Despite the numerous and diverse policies that have encouraged an anti-smoking culture, smoking rates have remained stable for the past decade, and smoking remains the leading cause of preventable death, strongly associated with the incidence of lung cancer, chronic obstructive pulmonary disease, and coronary heart disease. Moreover, it is unclear how new technologies like the recent rapid growth of electronic cigarettes may impact smoking rates and exposure to health risks related to tobacco use.<sup>84</sup> Nonetheless, this example illustrates that behavioral change is possible—and arguably more importantly, that harmful behaviors can be prevented in younger cohorts with a sustained effect—if a number of reinforcing policies can be enacted to cultivate a healthier, anti-smoking environment.

The health care cost implications of improvements in smoking cessation are clearer than other prevention and wellness efforts. Studies recognize that smokers have greater health care costs than non-smokers, but if all smokers were to quit, health care costs might fall in the short term but would rise over time due to increased longevity and the associated increases in other costly disease risks.<sup>85</sup> As with many other new medical innovations, however, the benefits of improved health status far outweigh the additional health care costs.

Efforts to reduce obesity have some features in common with previous and current smoking cessation tactics. It is well known that high rates of childhood (17%) and adult obesity (35.7%) challenge clinical care and result in enormous costs (\$147 billion/year), but the causes of obesity—poor diet and lack of exercise—are largely found

outside the health care system.<sup>86</sup> Examples of policies seeking to reduce obesity through promotion of healthy eating and increased physical activity include nutrition labeling, restaurant calorie posting, employer wellness programs, and reforming school nutrition, to name a few. Yet many policy ideas such as taxation, advertising restrictions, and bans on unhealthy products have yet to be implemented and creating non-obesogenic environments is still in the beginning stages. Moreover, many implemented programs have yet to include a national sample or have been subject to longitudinal evaluation; hence, it is difficult to determine what approaches to obesity reduction are most effective. Promising findings, while preliminary, suggest that system-wide action that include multiple stakeholders and reinforcing messages of healthy eating and consistent physical activity are slowly curbing the rate of obesity. This is particularly important for children, as childhood obesity is a risk factor for adult obesity. For example, recent news revealed that obesity rates have reduced in children ages 2-5, from 12% in 2010 to 8% in 2012,<sup>87</sup> and builds on prior results indicating that obesity among low-income preschools had reduced in 18 states.<sup>88</sup> While these are encouraging indicators, obesity reduction efforts must continue and strengthen to ensure that these results will persist into adulthood.

In contrast to smoking cessation, however, evidence suggests that reducing obesity could simultaneously lead to significant and sustained reductions in health care spending as obesity tends to increase the occurrence of costly health problems (e.g. diabetes, heart disease, stroke, and arthritis) without leading to substantially earlier deaths. In particular, estimates suggest that an obese seventy-year old will live as long as someone with normal weight but will spend more than \$39,000 on health care and this higher cost will not be mitigated by reduced longevity as the life expectancy between obese and normal weight are similar.<sup>89</sup>

The evidence on obesity and smoking cessation highlights that policies to improve population health need to look beyond traditional health care and should foster effective interactions between the health care providers and non-medical initiatives that can help patients reduce their health risks.<sup>90</sup> However, critical as such steps are for improving health, it is less clear that they will help reduce health care spending growth; they may even increase it. Further studies should examine whether steady, ongoing improvements in healthy behaviors could lead to short-term savings that offset longer-term cost increases from greater longevity. In any case, these simulations highlight why it is important to better understand how progress in prevention and health promotion will affect health care spending trends.

## **VI. Illustrations of reforms with potential to improve health and lower cost, using the Future Elderly Model**

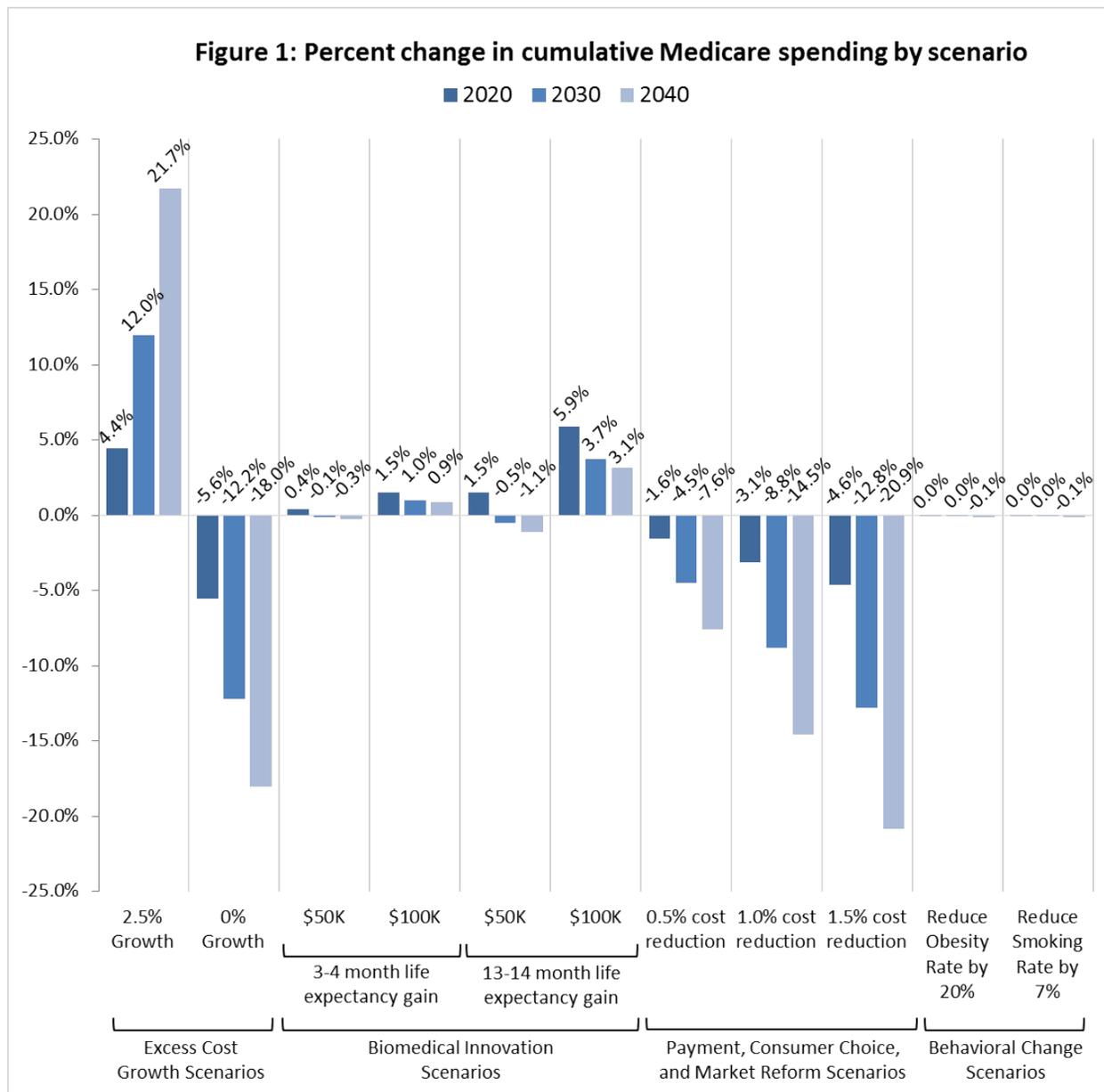
Based on the prospects for biomedical innovation, successful reforms to improve efficiency and competition in health care, and efforts—many outside the traditional health care sector—to promote prevention and wellness, we constructed several kinds of scenarios to begin to simulate the potential impact of these changes on health care spending and health outcomes over the next few decades. All simulations were conducted using the Future Elderly Model (FEM)<sup>91</sup>, a micro-simulation model that tracks health and health care spending outcomes over time for the population aged 51 and older.<sup>92</sup> To help approximate magnitudes of effects, we provide a comparison to the Medicare spending impact under some alternative scenarios estimated by Sheiner for 2020, 2030, and 2040.<sup>93</sup> We emphasize that these preliminary results are intended to be illustrative; we expect to use this approach to develop more refined estimates in future work.

To simulate the impact of biomedical innovation, we assume substantial advances in medicine leading to more effective medical innovations that prevent or delay the incidence of common medical conditions, including stroke, cancer, heart disease, lung disease, hypertension, and diabetes. While more effective disease treatments will reduce disease incidence and help people live longer, healthier lives, these types of medical innovations are also likely to be costly for the reasons discussed in Section 2. Our first set of biomedical innovation simulations

assumes new technologies lead to a 7% reduction in disease incidence across the population, increasing life expectancy by 3 to 4 months. In the first scenario, these improvements in health come at an average price that is generally regarded as reasonable —\$50,000 for an additional year of life expectancy. We also simulate a scenario with less cost-effective innovations that cost \$100,000 per additional year. We note that we consider only mortality impacts here; treatments that improve quality of life may also add considerable value.

These simulations are shown in Figure 1. Not surprisingly, biomedical innovation matters for health care costs, but the cost impacts may be relatively modest at the population level, particularly if the prices of new technologies are in line with commonly used valuations of an additional year of life. For example, technologies that reduced the risk of common diseases in a way that added more than 3 months to population life expectancy contributed only modestly to spending growth. While the lower incidence of disease increases life expectancy, adding to medical costs, the population is also healthier and more likely to be disability free. This translates into lower costs of care at any given age, and offsets part of the spending increase resulting from extending life expectancy. Innovative treatments with a cost of \$50,000 per additional life year lead to a small initial increase in Medicare spending relative to baseline projections; however, better treatments that enable people to live longer, healthier lives reduce total Medicare costs after about a decade. The overall cost increases associated with such treatments are also relatively modest when new technologies are priced at \$100,000 per additional life year. While Medicare spending is higher throughout the 25-year period considered here, the increase is small (1.5% in 2020) early on and diminishes over the next two decades.

Larger “breakthroughs” in biomedical technology that represent substantial improvements over available treatments and significantly reduce or delay disease incidence would obviously have larger effects. Our second set of biomedical innovation scenarios examine the impact of novel technologies that reduce disease incidence by 25% and extend life expectancy by more than a year. Larger disease incidence reductions also add to spending growth, at least initially. But as seen in the scenario with a 7% reduction in the risk of disease incidence, the magnitude of the cost increase is diminished to the extent that the lower disease risk reduces disease-related medical utilization and spending for some time to come. While it is true that longer life expectancy does not preclude these disease-related costs someday, a lower risk in each time period means that someday can be far out in the future. In our simulations, a lasting, long-term reduction starting now in the risk of developing diseases that require costly treatment offset as much as half of the cost of the treatment, even as far out as 2040. In the case of treatments that cost \$50,000 per additional life year—a cost generally considered “worth it”—sustained 25% reductions in the risk of developing diseases lowers spending after the first decade due to better population health. These results suggest biomedical innovations that successfully prevent or delay the onset of common diseases may be able to substantially improve population health outcomes without contributing to higher health care spending depending on the cost of the treatment and the extent to which the resulting health improvements postpone or avoid other medical utilization. The cost impacts would be higher if the treatments were substantially more expensive (e.g., priced at \$500,000 rather than \$50,000 or \$100,000 per year of additional life expectancy) or if they reduced disease risk only for the short term (e.g., the risk of developing diabetes or cancer complications were delayed by only a year, then cumulative risks “caught up” to the baseline risk).



**NOTES:** *Excess cost growth scenarios:* Spending impact of two excess cost growth scenarios estimated by Louise Sheiner. *Biomedical innovation scenarios:* Spending impact of reducing the probability of disease incidence by 7% and 25% as the result of new treatments priced at either \$50,000 or \$100,000 per additional life year. These disease incidence scenarios increase life expectancy by 3-4 months and 13-14 months, respectively. *Payment, consumer choice, and market reforms scenarios:* Spending impact of reducing costs by the specified amount (0.5%, 1%, or 1.5%) each year. The cost reductions are compounded annually. *Behavioral change scenarios:* Spending impact of gradually reducing the obesity and smoking rates among the 51 and 52 year old replacement cohorts that enter the model every other year. The full reductions of 20% and 7% affect the new 51/52 year old cohort in 2040.

To simulate the effects of meaningful provider payment reforms, and reforms affecting consumer choice and competition among providers and health plans, we assumed that these reforms could lead to reductions in the growth rate of costs for treating all disease states. The assumptions ranged from reductions of 0.5% to 1.5% per year. The cost reductions are compounded annually. While we believe these estimates (especially at the lower end) are consistent with the available evidence, we emphasize that most of the evidence involves short-term effects on spending levels and not effects on spending growth. For example, early evidence from the relatively modest accountable care payment reforms implemented by Medicare (i.e., shared savings added to fee-for-service payments) found savings on the order of 0.5% to 1% in the first year. Many ACO implementers and experts believe that longer-term savings are likely to be larger, but little evidence is available yet. Similarly, reforms in consumer payment like high-deductible plans show reductions in costs of this magnitude, but whether the reductions are sustained and increase over a longer period of time is harder to estimate. Value-based insurance designs may lead to modest short-term savings, but their stronger emphasis on quality may make them more sustainable, especially as they expand from areas like discrete procedures to a broader range of clinical conditions. Insurance reforms like the shift to Medicare Part D have been associated with substantially slower spending growth, but determining causality is somewhat controversial.

These results are in additional columns of Figure 1. We find that if impacts on spending growth can be sustained through continued innovation in health care delivery that reduces costs, even modest ongoing impacts can have substantial implications for long-term spending growth. Sustained productivity gains that reduce spending by 1% each year significantly lower Medicare spending over time. By 2040, total Medicare spending under this scenario approaches the lower spending level achieved by keeping per beneficiary cost growth in line with GDP over the next few decades. Reducing health care spending growth by 1% per year by historical standards may seem like a bold assumption, but a 1% reduction in wasteful spending is small when compared to the evidence on the magnitude of inefficiencies in the existing care delivery system. Further, as we have noted, implementing these reforms together could have synergistic effects.

Finally, we also simulate the effect of behavioral changes that influence health and health spending by reducing health risk factors. In particular, we consider the impacts of obesity reduction and smoking cessation, which are key determinants of individual- and population-level health outcomes, on health care spending. Given the difficulty of changing long-standing behaviors, we assume the replacement cohorts of 51 and 52 year olds that are added to the simulation every other year are the only individuals that make healthier choices, so that the share of the population making behavioral changes grows gradually over time. However, as this population subgroup ages and new cohorts of 51 and 52 year olds are added to the model, a larger share of the total population will exhibit the effects of these behavioral changes and contribute to lower medical spending.

The results are shown in the final columns of Figure 1. Reductions in obesity lead to lower costs and long-term reduced spending growth, though the cost reductions are very small and do not appear for nearly two decades. This is because obesity has a much larger effect on long-term disease risks that increase medical costs, but has relatively little impact on life expectancy, at least for the mildly to moderately obese population<sup>94</sup>. In addition, the obesity reduction simulated here is less than a 20% population-wide obesity reduction because only the replacement cohorts are affected; reductions impacting a broader population would have larger impacts on costs. Our results also highlight that while other forms of prevention like smoking cessation may increase long-term health care costs, the long term is way out in the future. Previous studies found lower smoking rates led to increased health care costs in the long term<sup>95</sup>. However, even though quitters and nonsmokers live longer and incur significantly higher lifetime medical costs than smokers, our model suggests the reduced health risks mean health care cost savings for at least several decades particularly when people make behavioral changes at younger ages. Smoking cessation now may mean higher health care costs in 2050 or beyond, but for the next 20-30 years, the net cost effect is modestly negative.

The different kinds of reform simulations also highlight that there are a lot of ways to get to slower spending growth, each of which may have different implications for population health. The approaches leading to the most value involve a combination of behavioral (non-medical) changes, plus rapid progress in valuable biomedical innovation whose cost implications are offset by rapid progress in health care delivery innovation.

## VII. Conclusion

While the slowdown in health care spending growth has taken some pressure off public and private budgets, it would be a mistake to assume that slow growth in health care spending will continue or that spending reflects high-value care and therefore, health care delivery reform is no longer an urgent priority. If more rapid health spending growth resumes, it will likely continue to crowd out other types of spending, especially public and private investment, that lead to higher future productivity and prosperity and better health.

Strong forces will put upward pressure on health spending in the next couple of decades and demand for health care will likely increase as economic growth strengthens, unemployment falls, and insurance coverage increases under the Affordable Care Act. The surge of older people in the population, especially as the 'baby boomer' generation moves into their seventies and eighties, will be another contributing factor. Moreover, as discussed in this paper, the rapid pace of biomedical innovation, with new kinds of personalized treatments in development, is likely to provide valuable, but expensive life-extending therapies that could benefit an increasing number of patients. Even a highly desirable increase in healthy behaviors may increase longevity and the number of older potential patients needing additional care.

But even if spending growth does not accelerate in the near future, there is still plenty of evidence that health care delivery in the United States is fragmented, often uncoordinated, and wasteful. Failing to make health care more efficient means continued restrictions on resources available for other top priorities that have faced cutbacks over the past decades. Consequently, both public and private sectors must accelerate efforts to deliver more effective health care and better health at lower cost by creating stronger incentives for valuable health care innovation including cost-saving innovation—thankfully, there is no shortage of proposals for improving health outcomes while reducing cost. In this paper, we have examined three approaches to improving health while restraining cost: payment reform, increased competition and consumer choice, and increasing emphasis on prevention and wellness. In each case, we have found promising interventions with some record of success, but no compelling evidence that a particular set of reforms will be sufficient to counteract the upward pressures on health spending. To support current and future reforms, a more systematic effort is needed to try approaches to improve health while containing cost growth, to analyze the evidence, and to implement the most successful reforms; this should include support for regional and national efforts to implement and evaluate the promising reforms we have described here. This effort could also include the routine adoption of meaningful measures of health care quality, outcomes, and resource use. These measures should replace the current sets of complex health care spending measures and be used to evaluate health care reform initiatives with a focus on costs and benefits at the person level.

Our framework for assessing biomedical innovation, provider and consumer reforms, and non-medical improvements in health provides an approach for understanding and more precisely assessing next steps to address health care spending growth while improving health. While the reforms we have been able to identify and simulate do not appear to strongly impact the health care spending trajectory, our findings suggest that it will take an aggressive, sustained effort on all fronts—payment reform, competition, wellness—to move toward greater cost-effectiveness and hold the line against the forces that will inevitably push spending up: aging and biomedical innovation.

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