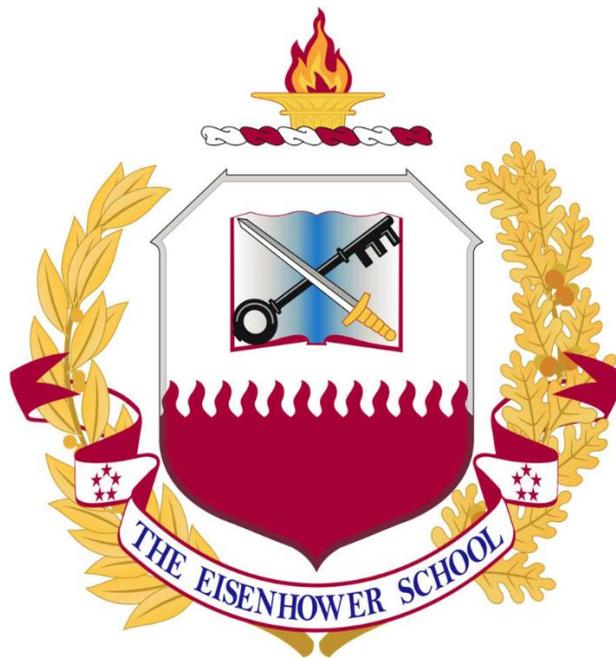


**Spring 2015
Industry Study**

**Final Report
*Healthcare***



The Dwight D. Eisenhower School for National Security and Resource Strategy
National Defense University
Fort McNair, Washington, D.C. 20319-5062



HEALTHCARE 2015

ABSTRACT: The United States spends more on healthcare than any other nation in the world, yet its health outcomes compare unfavorably with other developed countries. At nearly 18 percent of the U.S. economy and growing, healthcare is unsustainable for the long-term future and will threaten U.S. national security without major policy interventions. Over the course of seven months, the Healthcare Industry Seminar met with healthcare providers, insurers, and suppliers, along with government officials and renowned experts in the United States, India, and the United Kingdom, to consider policy changes. The seminar concluded that ongoing market failures in the industry were largely responsible for the trajectory of U.S. healthcare and recommended policy changes to address those failures.

LTC Sardar Ahmadzai, Afghan National Army
Ms. Vivienne Alonso, Department of Veterans Affairs
CDR Aldrith Baker, U.S. Navy
Ms. Michelle Clemens, Department of Defense
Lt Col Lawrence Colby, U.S. Air Force
COL Tina Connally, U.S. Army
COL Robert Cornes, U.S. Army
CAPT Thomas Emerick, U.S. Coast Guard
LtCol Robert Freeland, U.S. Marine Corps
Lt Col Renae Hilton, U.S. Air Force
Lt Col Curtis Madeley, U.S. Air Force
Mr. Dan Mills, Department of Defense
Mr. Harry Oldland, Department of Defense
Mr. Ronald Packowitz, Department of State
COL Kristian Rogers, U.S. Army
Ms. Beverly Schladt, Government Accountability Office

COL Samuel Smith, U.S. Army, Faculty Lead, Industry Study
Mr. Mark Foulon, Faculty
LTC Dennis O'Neil, U.S. Army, Faculty
COL Stephen Bowles, U.S. Army, Faculty



PLACES VISITED

Domestic:

U.S. Chamber of Commerce, Washington, DC
Office of Management and Budget, Washington, DC
Greater Prince William County Health Center, Manassas, VA
National Center for Medical Intelligence (NCMI) Fort Detrick, Maryland
U.S. Army Medical Materiel Development Activity (USAMMDA), Fort Detrick, MD
U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD
Walter Reed National Military Medical Center, Bethesda, MD
National Institutes of Health, Bethesda, MD
Uniformed Services University of the Health Sciences, Bethesda, MD
Geisinger Hospital System, Danville, PA
Sibley Memorial Hospital/Johns Hopkins Medicine, Washington, DC
Anthem, Inc., Washington, DC
Sinai Hospital/LifeBridge Health, Baltimore, MD
Kaiser Permanente Capitol Hill Medical Center, Washington, DC
Lebanon Veteran's Affairs Medical Center, Lebanon, PA
Siemens Healthcare, Malvern, PA

International:

Health Care Global, Bangalore, India
Souyka International Holistic Healing Centre, Bangalore India
GE Healthcare John F. Welch Technology Centre, Bangalore, India
Medwell Ventures Private Limited/Medela Hospitals, Bangalore, India
Narayana Health, Mazumdar Shaw Medical Centre, Bangalore, India
mDhil Networks, Bangalore, India
Hospital Corporation of America International, London, England
British United Provident Association, London, England
National Institute for Health and Care Excellence, National Health Service, London, England
United Kingdom Ministry of Defense, London, England
St. George's Healthcare National Health System Foundation Trust, London, England



INTRODUCTION

A Tale of Two Cities and Two Healthcare Systems

For a country like the United States that values its culture of limited government while also maintaining a wide compassionate streak, Bangalore, India, and London, England, might seem like unusual locales in which to seek solutions for what ails American healthcare. With India's freewheeling marketplace that promises medical care only to those who can afford it, and the United Kingdom's government-owned and -operated care system that is often called "socialist," neither is likely to be adopted as a whole in the United States anytime soon. Nevertheless, the Eisenhower School's Healthcare Industry Study Seminar visited those two cities in March 2015 to explore whether features of their healthcare systems might help put U.S. healthcare on a stronger footing.

The U.S. healthcare industry is a behemoth that comprises nearly 18 percent of the nation's economy, more than any other country in the world.¹ Even after the reforms enacted by the Patient Protection and Affordable Care Act (commonly shortened to "Affordable Care Act" or "ACA"), the American healthcare system is still saddled with market imperfections and outright failures that drive up costs and reduce patient access and quality of care. Thirty-six million people in the United States remain uninsured a year after implementation of the ACA,² and the country fares worse in health outcomes than developed nations that spend much less as a share of their own gross domestic product.³ Taken together, healthcare market distortions cost too much in U.S. national resources, crowding out spending on other priorities for government and the private sector, creating the risk of a debt crisis, and setting the United States on an unsustainable course that jeopardizes its national security.

But these market distortions might also be corrected with deftly managed government intervention. Later we will consider whether London and Bangalore can offer lessons to help find the right mix of policies.

U.S. Healthcare: A Collage of Industries, a System of Systems

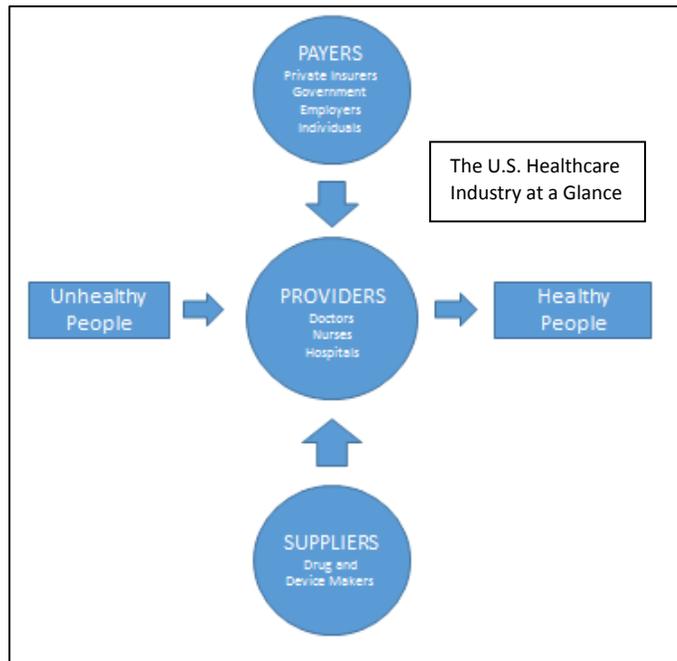
Befitting an industry that makes up such a large share of the economy, healthcare in the United States is in fact a collage of industries—at least 33 of them, according to the North American Industrial Classification System, or NAICS.⁴ These industries are roughly divided into three broad categories: providers, such as doctors, nurses, and hospitals; suppliers, including pharmaceutical manufacturers and device-makers; and payers, consisting of private insurers, employers who self-insure their employees, government programs like Medicare and Medicaid, and individual patients who pay out of their own pockets. The identity and interaction of these providers, suppliers, and payers in markets, and the incentive those interactions create, vary widely depending on which subsystem of healthcare within the overall system a patient is using. There are four distinct subsystems in the United States, each of which resembles healthcare systems used in other countries of the world:

- *Government-insured medical care*, in which the federal or state governments pay for



medical services and supplies that are primarily delivered by private-sector providers and suppliers. The largest government insurance programs are Medicare, a federally administered program that covers all Americans 65 and over, and Medicaid, a federal-state partnership that covers the poor and disabled. These programs resemble the healthcare system in Canada, in which national and provincial governments act as payers for privately delivered care.

- *Care for active-duty military and veterans* by the Departments of Defense and Veterans Affairs, in which the federal government is the sole payer and provider, usually in government-run facilities. This system of care is much like the United Kingdom’s National Health System.
- *Private insurance coverage for those under 65 and not disabled*, in which patients receive their insurance plans as a benefit from their employers or purchase it themselves, and which pays for care delivered mostly by private-sector providers. Known as the “Bismarck” model, similar approaches have established universal insurance coverage in Germany and Japan.
- *For the uninsured, care for which the patient pays out-of-pocket* or foregoes entirely if unable or unwilling to pay, as would a citizen of many developing countries.



Uninsured patients in the United States also have guaranteed access to hospital emergency care, but only long enough for the patient to be stabilized and released.

These four subsystems did not develop in a coordinated fashion but have been a product of piecemeal policy decisions (or lack thereof) over many years. For example, Medicare and Medicaid, the government programs that pay healthcare costs for the elderly and the poor, were created by legislation in 1965 as part of President Johnson’s Great Society. Meanwhile, the private-insurance approach for Americans under 65 developed almost by accident, propelled by a 1954 Internal Revenue Service decision that deemed employer-provided insurance benefits non-taxable.⁵

In addition, though not strictly encompassed in the definition of healthcare by NAICS, there are other industries within the United States that help keep people healthy—often called wellness services—like dietitians and health clubs, and these, too, can play a role in improving the U.S. healthcare system.



Enter the Affordable Care Act

In 2010, President Obama signed the Patient Protection and Affordable Care Act, and while some parts went into effect soon thereafter, the most substantial measures were not implemented until 2014. The ACA, as it is known, was primarily insurance reform; its central objective was to reduce the number of uninsured in the United States, which had reached about 50 million in 2010.⁶ It did so with the following legislative provisions:

- A requirement that insurers accept and keep all customers, regardless of pre-existing illnesses, and that premiums differentiate only based on customers' location, age, and whether they smoke.
- A mandate that most Americans and legal residents in the United States obtain health insurance or pay a tax if they do not.
- The creation of insurance “exchanges”—websites at which potential customers can explore insurance options and immediately purchase plans. Some of these exchanges are managed by individual state governments, while the Department of Health and Human Services established an umbrella exchange for those states that did not create their own.
- Establishment of federally funded subsidies to cover premiums for those who purchase insurance on the exchanges and whose incomes are below a certain level.
- A requirement that employers with 50 or more full-time employees offer health insurance to those employees.
- Expansion of Medicaid to cover more people in every state, and additional federal funding sent to the states to support it. (A subsequent Supreme Court decision allowed states to opt out from this expansion, and 22 have elected not to expand their Medicaid programs.⁷)

Taken together, these provisions were designed to expand the insurance rolls through (1) direct government funding and (2) compelling healthier people (or their employers on their behalf) to purchase insurance when they might not otherwise do so, and thereby subsidize premiums for sicker people. Since the ACA's full implementation in 2014, the number of uninsured has indeed diminished, from about 50 million in 2010 to 35 million in 2015, and the Congressional Budget Office projects that the number will diminish further, to 26 million by 2019.⁸

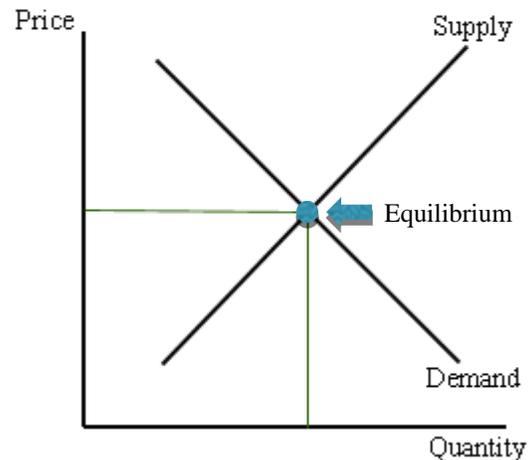
Although reducing the uninsured population was the ACA's primary goal, it also addressed other aspects of the healthcare industry. Most notably, for Medicare patients, it encouraged the formation of Accountable Care Organizations, which are groups of healthcare providers who join together to coordinate patient care and then share in any resulting savings achieved for the Medicare program. Some commentators see Accountable Care Organizations as a trend that will spread to other parts of the industry as a replacement for the fee-for-service model.⁹



The Failing and Flailing Markets of American Healthcare

Because the American healthcare colossus was not developed in a coordinated manner, its collage of industries and system of systems interact in ways that create multiple market failures and imperfections, most of which were not addressed by the ACA. If the United States is to cut into healthcare's nearly 18-percent share of GDP, there is much to be gained by eliminating the inefficiency that results from these persistent market distortions.

In an efficiently functioning market, consumer demand for a product or service increases as price goes down, while sellers will offer a greater supply of the good or service as the sale price goes up. At the intersection of these supply and demand curves is an equilibrium point (see figure at right) that should determine the price of the good or service and the quantity supplied at a level that is most equitable for consumers and producers, and that reflects the best use of society's resources.¹⁰ When a market fails to function properly, the intersection of price and demand does not accurately reflect the best use of resources and therefore represents a drag on the economy. Such market failures can, if desired by government decision-makers, be addressed with a menu of policy options consisting of (1) government regulation, (2) subsidies or taxes intended to harness market forces, or (3) allowing the distortion to continue without government intervention.



Lack of Transparency in Pricing: A Failure of Competitive Conditions

As a precondition for a properly functioning market, both the buyer and seller must have access to the same information. If information is unequal, the party with more of it obtains an advantage over the other. In the U.S. healthcare industry, sellers enjoy just such an advantage over buyers because pricing is not transparent.¹¹

Unlike a buyer of most other products, who can readily investigate prices, features, and quality ratings to make a wise purchase decision, a patient seeking medical care, whether insured or not, has little opportunity to independently research how much the treatment should cost, whether it is worth the money, and whether another provider might offer the same or better treatment at a lower price. Talk of cost and quality rarely comes up during a medical consultation, and even if it did, many providers would be hard-pressed to address such matters with a patient in advance of treatment. Charges at hospitals are particularly opaque, with a complex list of prices that is not generally made available to the public.¹² Exacerbating the problem, patients seeking healthcare must often make decisions quickly and under great stress, with no time to explore alternatives.



As a result of this pricing power that providers enjoy, patients are disadvantaged because they cannot shop around for a good deal. Consequently, the equilibrium point of price and quantity in the healthcare market does not accurately reflect an equitable and efficient solution.

Inefficiencies Created by Health Insurers as Third-Party Payers

Health insurance in the United States, in its present form, is not “insurance” as we know it in other sectors. Unlike fire insurance—which is a means of pooling risk by taking premiums from many to cover the costs for the few who suffer a loss—health insurers do not just pool risk, since nearly every customer makes claims. Rather, for basic care at least, insurers merely pool costs and act merely as payment facilitators.¹³

This role of insurers as third-party payers contributes to costs and inefficiency in the healthcare industry for a number of reasons. First, health insurance plans generally remove the price of services as a motivating factor for consumers. This results, among other things, in the phenomenon of “moral hazard”—a term that refers to the tendency of people to change their behavior after entering into a transaction so as to disadvantage the other party.¹⁴ Just as car owners might drive more daringly after raising their auto insurance policy limits, a consumer with health insurance might take greater risks (like participating in dangerous sports or eating unhealthy foods) and may also visit healthcare providers for less important or frivolous reasons. Since third-party payment largely eliminates cost from consumer decisions to seek healthcare, it raises the overall cost of the healthcare system.

Conversely, when providers treat patients who are insured under a fee-for-service arrangement, those providers have an incentive to act in their own interests by performing additional tests and procedures, knowing they will be compensated by a deep-pocketed insurer. This phenomenon is called the “principal-agent problem” and contributes to additional healthcare costs.¹⁵

Healthcare insurance’s greatest contribution to inefficiency may be the administrative burden it imposes on providers as they file claims on behalf of their patients.¹⁶ Time after time, the Healthcare Industry Study Seminar heard from hospitals and doctors who described the extensive back-office staffs required to follow through with private insurers and obtain reimbursement, adding enormous further cost to their delivery of care.

The Positive Externality of Preventive Care and Wellness Behaviors

Within a market, a positive externality occurs when the benefit of a transaction to a purchaser is less than the benefit of the transaction to society as a whole. For example, a college education has value not just to a student who obtains the education but to the greater community because it makes the person more productive in the economy.¹⁷ The purchaser, however, will be willing to pay only for the benefit he or she receives. In the absence of government intervention, price and quantity will not intersect at a point that is optimal for society, and consumers will be disadvantaged by paying too high a price or by not receiving sufficient quantity.

In the U.S. healthcare system, preventive healthcare and wellness activities are a strong positive externality. Chronic diseases, so often caused by poor decisions related to diet and



exercise, are a major source of illness, long-term disability and death, causing 65 percent of all deaths in the United States¹⁸ and accounting for 86 percent of total U.S. healthcare spending in 2013.¹⁹ Society has much to gain from keeping a person healthy, beyond the benefit to that particular person, so as to maintain his or her productivity in the economy and avoid future healthcare costs to treat diseases. If the benefit to society were somehow captured in the market for preventive care and services that encourage wellness, like health club memberships and dietitian consultations, more such care would be demanded and more supplied. For now, however, there are insufficient economic incentives to pursue such services or make such healthy lifestyle choices. Younger patients may avoid preventive care because of their sense of invincibility and the inconvenience and cost. Insurers, meanwhile, lack incentives to offer preventive services and to encourage overall wellness, because by the time a patient suffers chronic disease from years of poor health choices in old age, he or she will have likely moved on to another insurer or already be covered by Medicare.

The Affordable Care Act partially addresses this positive externality through regulation by requiring that insurers offer certain diagnostic tests, such as cancer and blood-pressure screening, without a deductible or co-payment.²⁰ But insurers do not have to offer coverage for services provided by dietitians, exercise physiologists, and others who play an important role in maintaining wellness. Nor must insurers offer their patients incentives for making good choices about their health.

Pharmaceuticals: A Market Distortion Brought about by Government Policy

Pharmaceuticals cost more in the United States than anywhere else and two to three times more than in other developed countries.²¹ These higher costs prevent some people from accessing drugs, thereby leading to poorer health outcomes, and crowd out other spending in the economy by taking money out of patients' pockets.²²

In other countries, the pricing power of manufacturers is balanced by the purchasing power of governments, leading to an equilibrium of price and quantity that is closer to optimal for consumers and society. But in the United States, Congress has barred the largest purchaser—the U.S. government—from negotiating with pharmaceutical companies, thus removing one of the primary safeguards against the industry's pricing power. Drug manufacturers take advantage of this situation to recoup their research and overhead costs from U.S. markets. In other words, U.S. consumers are subsidizing drug prices for the rest of the world.²³

Further contributing to manufacturers' pricing power is a 20-year patent right for new drugs, and up to seven years of exclusivity rights separately granted by the Food and Drug Administration.²⁴ These protections create temporary monopolies on new drugs as a reward for manufacturers' investment in innovation. Congress has further limited competition in the by barring Americans from importing small amount of medications from overseas for their own personal use.²⁵ Taken together, these policy decisions reflect a clear decision to favor profit-incentivized innovation in the pharmaceutical industry over patient access to medication through lower prices.



These various market distortions can be reduced or limited through government policy so as to save a large share of healthcare spending in the United States. We now look at two very different places to show how.

Looking for Answers in Bangalore and London

Nearly 5,000 miles away from each other on the globe, Bangalore, India, and London, England, have healthcare systems that are even farther apart. Healthcare in India, with the exception of price-controlled pharmaceuticals, is largely a competitive marketplace. Few people are insured, so nearly everyone either pays out-of-pocket, relies on charity, or (as is often the case) forgoes care entirely.²⁶ Because consumers paying for their own care are price-sensitive, healthcare providers compete heavily on price, which they publicize transparently.²⁷ The environment rewards high volume as a further means to drive down costs, and some hospitals perform diagnostic imaging procedures day and night for a constant stream of patients. For example, one hospital specializing in heart disease can perform up to 60 major heart surgeries each day, with a break-even cost of just \$1,500 per surgery.²⁸

In the United Kingdom's National Health System, nearly all care is paid for by the government, provided by government employees and contractors, and delivered in government-owned hospitals.²⁹ Rationing is explicit: some tests, procedures, devices, and pharmaceuticals are not covered because the government has concluded that their cost does not justify the improvement they make in patients' lives. Facilities and their staffs are overbooked, and any non-emergency appointment, even time-sensitive matters like heart and cancer surgeries, are regularly delayed by up to 18 weeks.³⁰ Annual checkups are considered cost-ineffective and are not offered. Despite these limitations, the National Health System is widely supported by political classes and the public.

While neither system is right for the American ethos, elements of both can help us shape policy responses—whether regulations, taxes, or subsidies—that could be adapted to address American healthcare's market distortions.

Transparency in Pricing: India illustrates how transparent pricing, coupled with price-sensitive consumers, can help drive down costs. Law- and policymakers in the United States should regulate the healthcare industry to require that healthcare providers set and publicize clear pricing for every product and service when it is paid by the patient out-of-pocket. With this greater transparency, consumers will be able to shop around for the best price.

The Third-Party Payer Problem: In India, healthcare consumers are price-sensitive because they pay for most of their healthcare out-of-pocket and thereby drive down costs. The United States should use regulatory mechanisms to shift further toward a model that similarly gives consumers a direct financial stake in their healthcare expenditures, so that they, too, will spur competition by shopping around. One such mechanism that already exists in limited form is Health Savings Accounts (or "HSAs"), coupled with high-deductible insurance plans, in which consumers deposit money into special accounts in exchange for tax benefits and then spend that money for basic healthcare. The high-deductible insurance policy then acts as coverage only for catastrophic



care and thereby serves a more typical, risk-pooling role along the lines of fire insurance. To make such a model work even for people who cannot afford to pay into an HSA, Congress should consider converting the subsidies currently offered under the Accountable Care Act, which now go toward payment of premiums, into subsidies that could instead be deposited directly into HSAs.

Money deposited into HSAs, even if paid from government subsidies, would feel like the consumer's own money and so would trigger cost-sensitive spending decisions. This would largely eliminate the problem of moral hazard and would also limit the principal-agent problem, since providers would feel more constrained if they were paid directly by consumers rather than deep-pocketed insurers. This mechanism would also alleviate some of the administrative burden of billing insurers that occupies so much staff time in every doctor's office, since consumers would pay many of their bills directly.

Incentivizing Use of Preventive Medicine and Healthy Behaviors: The United Kingdom's National Health System has determined what tests and procedures are cost-effective for preventive health and what health behaviors should be encouraged, such as vaccination, and pays only for them.³¹ While Americans might take issue with the United Kingdom's specific decisions, the concept is valuable. Congress and the Administration should undertake a fuller effort to determine which preventive health measures are cost-effective for the long-term and which healthy behaviors are worth incentivizing and add them to the list of those from the Affordable Care Act that insurers must cover without deductibles or co-payments. For consumers who rely on HSAs (see above), an incentive could be created to offer greater tax benefits for those who spend their account funds on behaviors that encourage wellness, such as health club memberships and dietitian consultations.

Pharmaceuticals: Indian law directly limits pharmaceutical prices, while the United Kingdom covers only those drugs whose costs justify the improvement they make in patients' lives.³² The United States should adopt a similar goal of reducing drug prices but with other tools at its disposal. First, the U.S. government should reduce exclusivity and patent rights for pharmaceuticals to a point that still provides sufficient incentive for innovation but that allows new competitors to enter the market sooner.

Second, Congress should amend the law to allow patients to import personal-use amounts of medications from developed nations whose drug regulation regimes are deemed adequate. This, too, will increase competition and help drive down drug prices, though in a market-based manner, and limit the extent to which drug manufacturers can pass on all of their innovation costs to American consumers.

Finally, Congress should change U.S. law to allow Medicare to negotiate for lower drug prices on behalf of its 37 million Part D subscribers. Though some commentators argue that such a change would constitute government "interference" in the pharmaceutical market,³³ it is in fact a market-based solution that would allow consumers to win back some of the pricing power they have lost to manufacturers through legislation that, as of now, strongly favors the pharmaceutical industry.

Conclusion and Summary of Main Recommendations



A series of market failures and distortions are responsible for inefficiencies in the U.S. healthcare system and have set us on an unsustainable course that jeopardizes national security. The following is a summary of recommendations to correct those market deficiencies:

- Law- and policy-makers in the United States should regulate the healthcare industry to require that providers set and publicize clear pricing for every product and service.
 - To create price signals in the healthcare market, the United States should shift further toward models that give consumers a direct financial stake in their healthcare expenditures. Subsidized Health Savings Accounts, coupled with high-deductible insurance plans, would help achieve this objective.
 - Congress and the Administration should undertake a fuller effort to determine which preventive health measures are cost-effective for the long-term and which healthy behaviors are worth incentivizing and add them to the list of those of services from the Affordable Care Act that insurers must cover without deductibles or co-payments.
 - Patent and exclusivity rights for pharmaceuticals should be reduced.
 - Congress should amend the law to allow patients to import personal-use amounts of medications from developed nations whose drug regulation regimes are deemed adequate.
 - Congress should change the law to allow Medicare to negotiate lower drug prices with pharmaceutical manufacturers.
-



ESSAYS ON ADDITIONAL MAJOR ISSUES

The following essays cover a selection of additional key issues in the U.S. healthcare system that were researched by the Healthcare Industry Study:

Provider Shortage

This country's increasing demand for healthcare is outpacing the supply of providers in the United States. According to the Association of American Medical Colleges, by 2025, "the United States will face a shortage of 130,000 physicians...with primary care accounting for the largest share (37%)."³⁴ Regarding nurses, Dr. Peter Buerhaus in *Nursing Economic\$* states that "more than 75% of registered nurses believed the nursing shortage presents a major problem for the quality of patient care."³⁵ The American Association of Colleges of Nursing found through a national survey that "40% of Americans think the quality of health care has worsened in the last five years" and that one of the most important issues affecting medical error rates is "too few nurses (69%)."³⁶ With an influx of millions of formerly uninsured people and a growing overall population, the divide between supply and demand will continue to grow.

Approximately half of the one billion office visits to physicians in the United States in 2008 were to primary care physicians, making primary care arguably the largest component of the U.S. health system.³⁷ Under current trends, physicians are the dominant provider of primary care, providing 77 percent of these services.³⁸ As a result, primary care physicians are the focal point of provider shortages. Non-physician clinicians and other types of healthcare providers also provide various primary care services and face workforce challenges as well.

Improved quality, decreased cost, and increased access have become the bedrock principles for healthcare reform. Primary care is a common thread, and evidence supports the importance of this segment of care in reaching U.S. healthcare goals and improving the population's health. Increased access to primary care is tied to better healthcare outcomes and lower healthcare-related costs.³⁹

Claims of a looming shortage of primary care physicians have been made for at least the past decade. The Health Resources and Services Administration (HRSA) estimated that there were 205,000 practicing primary care physicians in the United States, based on 2010 data.⁴⁰ Accounting for new entrants, a traditional model of care, retention, variations in work hours, demographic changes, and healthcare reform through the Affordable Care Act (ACA), HRSA projects that there will be 220,800 practicing primary care physicians in 2020, resulting in a shortage of 20,400.⁴¹ According to 2012 data from the Organization for Economic Cooperation and Development, the United States had the lowest ratio of primary care physicians per 100,000 population of any other industrialized country.⁴² Fewer than one out of three physicians today practice primary care.⁴³ This is a significant shift from several generations ago, when one out of every two physicians practiced primary care.⁴⁴ The important takeaway from this data is not the specific numbers but the fact that the current and projected numbers of primary care physicians do not meet demand.

Statistics on two other major deliverers of primary care show larger percentages of growth than that for physicians. In 2010, primary care nurse practitioners numbered 55,400, with a



projected number of 72,100 by 2020.⁴⁵ Primary care physician assistants numbered 27,700 in 2010 and are projected to number 43,900 by 2020.⁴⁶ These less dire projections for non-physician clinicians may indicate opportunities to mitigate physician shortages in the future.

Even in the current environment, where primary care is delivered through various models, the predominant provider remains the physician. Assuming that the growth in the number of patients (demand) is equal to or surpasses the growth rate of available physicians (supply) and the model of delivery does not change dramatically, the shortage of primary care physicians will, at best, remain at current levels but will likely grow. Potential remedies for this dilemma include increasing the number of providers; increasing patient panel sizes, or the number of patients under the care of a specific provider; and modifying care delivery models.

The growing demand for primary care and the resulting shortage of primary care physicians are the result of several factors. These include overall U.S. population growth; increasing U.S. population over age 65; healthcare system reform introduced by the Affordable Care Act; individual financial compensation; job satisfaction and the reputation of primary care; perception by medical students and primary care physicians themselves that they are overworked and burdened with excessive administrative responsibilities;⁴⁷ limited residency training capacity; mal-distribution of primary care physicians across the nation; and use of primary care delivery models that heavily rely on physicians.⁴⁸

Evidence suggests that the provider shortage is a complex problem requiring a solution transcending the mere creation of more providers. The nation must embrace alternative primary care delivery models where primary care physicians are not the predominant provider. Accountable care organizations and patient-centered medical homes are existing models proving successful. Other non-physician clinicians are capable of delivering many aspects of primary care and can serve as “gatekeepers” for the larger primary care delivery team. Non-physician clinicians will need to be able to practice at the full extent of their licensed skill sets. As education, training, and acceptance expand for the use of various types of primary care providers, the boundaries of what non-physician clinicians are authorized to deliver should expand accordingly. This change may require the expansion of state-controlled scopes of practice. The American Psychiatric Association has asked its physician members to work more closely with nurse practitioners and physician assistants, promoting more team-based care for mental illness.⁴⁹ For states unwilling to adjust, the federal government may need to consider offering other positive or negative financial incentives to encourage change. Ultimately, expanding the use of all qualified providers to their full extent can change the narrative of the provider shortage and could result in overall cost reductions due to the use of non-physician clinicians over higher-paid physicians.

The federal government should continue to foster innovation in primary care through the Centers for Medicare and Medicaid’s Innovation Center. If a demonstration proves successful, there must be political, professional, and financial support applied to it in order for it to be replicated and take hold in the mainstream primary care system. Successful initiatives should not become simply interesting science experiments.

Primary care must harness technological, as well as administrative and organizational, innovations in ways that can be quickly developed, tested, approved, and fielded. The government may not be able to compel use within the wider civilian medical system, but it can push these



innovations into the Departments of Veterans Affairs and Defense or leverage its influence through Medicare and Medicaid. New technologies for telehealth and changes in interstate medical practice licensing laws can improve access to primary care in shortage areas or with patients unable to travel to primary care facilities.

Telehealth services could eliminate 15 percent of physician office visits, 15 percent of emergency room visits, and 37 percent of urgent care visits, resulting in significant employer savings.⁵⁰ A Health System Facility study about nursing revealed that nurses spend more time on administrative tasks and mundane computer work than on hands-on care of a patient. The data showed that 20.4 percent of nurses' time was spent on patient care activities, while 19.8 percent of their time was spent on logistics, and 16.4 percent on other non-clinical tasks.⁵¹ These findings resulted in the Health System Facility leadership's investment in technologies ranging from infrared walls to radio frequency tagging.⁵² In India, one hospital uses a popular smartphone messaging app and built a cohort of part-time clinicians to provide consults through virtual appointments. Other technology that could be leveraged to alleviate the shortage of providers includes improved communications protocols, barcoding of medications, computerized scribing, and electronic health records. These readily available technologies create easier access for hard-to-reach populations while leveraging unused clinician capacity.⁵³

Regarding medical licensing, the Department of Defense has a successful model for physician licensing and the widespread adoption of telehealth. The Department's one state licensure exemption allows physicians licensed in one state to provide medical services to patients located in any state or internationally.⁵⁴ This exemption is more broadly needed across other federal and state health programs and should be supported in H.R. 2001, the Veterans E-Health and Telemedicine Support Act, and H.R. 3077, Telemedicine for Medicare Act. The Interstate Medical Licensure Compact is another positive step. Three states have passed the Compact, with 22 others expressing interest.⁵⁵ For the Compact to truly maximize its impact, all states must join.

The United States is in need of workforce management for health care. The ACA provided for the creation of a National Health Workforce Committee to address workforce management issues; however, funding was never appropriated. This committee or a similar organization must be fully funded and given some agreed-upon authority to either manage or provide oversight of the management of the health workforce. One consideration is for this body to set and manage nationwide standards or skillsets for primary care providers in a similar fashion to India and the United Kingdom.⁵⁶ This proposal might face resistance, as it would replace individual states' scopes of practice, but it could help nationally by standardizing care and building in cross-state workforce efficiencies.

The Congress must pass new legislation increasing the funding and number of residency positions nationwide. Next, increased emphasis must be placed on recruiting medical students and primary care physicians for the population at large and for HPSAs in particular. Medical schools, professional organizations, state and federal governments, and hospitals should reevaluate the U.S. medical education and training system. This reevaluation should include the curriculum at medical schools and residency training plans and environments that, at a minimum, ensure clinicians are prepared in the analytics of healthcare information so that they are able to harness its full potential. The length of medical school and training should also be reviewed to find efficiencies in increasing



the primary care physician training pipeline throughput. States, academia, and hospitals should endeavor to create new medical schools or training hospitals in HPSAs or other underserved areas. Lastly, incentives and subsidies are needed to ensure that a standard level of medical technology is available in our training institutions. Working with an electronic health record is a reality for the future physician and must be included as an integral part of the education curriculum.

The federal government should renew and extend long-term Affordable Care Act provisions for Medicaid and Medicare payments to primary care providers. This relatively small measure would address part of the dissatisfaction of primary care physicians by giving them pay relative to that of other physicians. Bolstering medical school loan repayment and forgiveness are other incentives to influence the recruitment and geographic distribution of primary care physicians. This effort would need to be deliberate and backed up by an expansion of the U.S. Public Health Service and increased opportunities for loan repayment in exchange for service, similar to the Public Health Service model for physician recruitment. Similar financial incentives should be offered on a broader scale to non-physician clinicians. One recommendation may be to establish policy encouraging college students to major in nursing by providing free tuition (i.e., Teach for America) and tax credits for remaining in the profession.⁵⁷

According to research conducted by a team of California-based researchers on primary care physicians, the average patient panel size, or number of patients under the care of a specific provider, in the United States is 2,300.⁵⁸ Responsibly adjusting this ratio higher, through a team concept, will mitigate aspects of the primary care physician shortage. HPSAs rely on patient panel size to determine a region's designation as a shortage area. If more emphasis is placed on non-physician clinicians' being allowed to provide more primary care services, the criteria for determining HPSA status will need to be updated to account for other qualified and accepted primary care providers. This will change the nature of how the provider shortage is viewed.

Patient Safety and Records Portability

Imagine a time when patients could arrive at their doctors' offices after moving to a new state, take out their smart phones or electronic cards, and share personal patient records with a nurse or doctor. Data, both protected and secure, can already be read, entered, and transferred, allowing easy access to information on health and medicines. Everything from a record of allergic reactions to births to family history of disease is safely portable. While there is debate about the contribution of electronic health records (EHRs) to patient safety, the portability of such records could be a positive move toward improving healthcare.⁵⁹

According to the Council on Graduate Medical Education, sharing patient records "allows a person's health information to be immediately accessed by any approved health provider and would improve the safety and quality of health care, particularly during emergency care."⁶⁰ According to the 2007 Institute of Medicine's work, *Preventing Medication Errors*, "poor communication and exchange of medical information at transition points for patients from one provider to another are responsible for many medical errors and adverse drug events."⁶¹

Considering these facts, leveraging technology in a proper way could lead to better patient safety. The tracking of someone's health in a formalized way across geographic lines is the goal



of the medical community. Critics will argue that the data is only as good as when it was input into the database. Some physicians have said that there are significant barriers to entry, as the “exchange of health information through the electronic interoperability among EHRs...would require extended technical and political processes and involve standardization and modification of current information systems.”⁶² As with any new technology and innovative concept, growing pains are expected. The U.S. federal government has anticipated these issues, and the responsibility of EHRs falls under the Office of the National Coordinator.

A recent *New York Times* article, adding to its long-term criticism of EHRs, recently published an article stating that healthcare, already our “most information-intensive industry, is plagued by demonstrably spotty quality, millions of errors and backbreaking costs.”⁶³ While admitting that the medical community “will never make fundamental improvements in our system without the thoughtful use of technology,” the author admits that “despite the problems, the evidence shows that care is better and safer with computers than without them.”⁶⁴

A patient-centric system that engages patients in their healthcare and healthcare outcomes is necessary to improve the quality of our healthcare system. The technology is available for such a patient-centric system, but we must ensure that the sharing of this information is made in a user-friendly environment where clinicians are comfortable with the input of information, both parties are confident in the security and accuracy of the data, and it will lead to improved healthcare outcomes across the continuum for our nation. The consequence, therefore, is a safer patient environment.

While one thinks of EHRs as a transportable way for patients to track their individual health, medical professionals are using them to track patient data for medical histories, vital signs, and current medications. Other uses of technology include using software programs to forecast patients’ potential for not showing up for appointments, as we learned during our site visits.⁶⁵ Using this program not only improved the chances of patients showing up on time but also has helped patients improve their well-being and health by ensuring that they see the doctor for scheduled treatments.

The technologies that come together to support health information must enable the secure collection and exchange of large amounts of data about individuals, because the collection and movement of this information will drive the healthcare improvements and efficiencies of the future. According to the Office of the National Coordinator for Health Information and Technology, “Health IT [information technology] has the potential to empower individuals and increase transparency; enhance the ability to study care delivery and payment systems; and ultimately achieve improvements in care efficiency, and population health.”⁶⁶

These technologies, including EHRs, have been underused in the recent past. According to the Office of the National Coordinator for Health Information and Technology, as recently as 2010, “only 25 percent of physician offices and 15 percent of acute care hospitals took advantage of EHRs. Even fewer used remote monitoring.... While many consumers access their banking information daily online, only 7 percent have used the web to access their personal health information.”⁶⁷



According to a noted global health leader interviewed by our seminar, “The next big thing in medicine won’t come from pharmaceuticals or medical devices; it will come from innovation in information technology.”⁶⁸ The integration of technology into medicine will help streamline cumbersome medical processes and eliminate errors in handing off medical information from one provider to another along the road to treatment and recovery. Efficiencies gained from process improvements can help providers to focus their attention on diagnosis and treatment as opposed to administrative tasks and allow them to consult with more patients and reduce healthcare costs.

The Office of the National Coordinator has a critical role in improving the effective use of EHRs to improve the quality of care that is provided across the healthcare continuum. These efforts will enhance the experience for the patient and provide a patient-centric approach to healthcare. The “meaningful use” policy has been beneficial in spreading the use of EHRs across the country. However, much work is required in the future with regard to EHR standards and interoperability across multiple healthcare systems. Standards for the data repositories must be established so that any software company (i.e., IBM with its EPIC platform) can link into the data for display and analytics. These standards will enhance the ability to achieve interoperability.

Chronic Disease Prevention

Chronic diseases are a major source of illness, long-term disability, and death, claiming 1.68 million American lives, or 65 percent of total deaths, in 2013.⁶⁹ They are also the leading cost driver of the nation’s \$3.1 trillion healthcare bill, accounting for 86 percent of total healthcare spending.⁷⁰ In 2013, chronic diseases cost the nation \$2.49 trillion and accounted for 15 percent of the GDP of the United States.⁷¹ Experts estimate that the cost of chronic diseases will reach \$4.34 trillion by 2023, accounting for 16.6 percent of GDP. According to one researcher, “without aggressive intervention into the root causes of these chronic diseases and their costs, these trends are expected to continue to worsen.”⁷²

Too many Americans are dying from preventable chronic diseases. According to the World Health Organization, chronic diseases can be “significantly reduced, with millions of lives saved and untold suffering avoided, through reduction of their risk factors, early detection and timely treatments.”⁷³ Smoking, excessive alcohol consumption, poor nutrition, and lack of physical activity are health risk behaviors that lead to conditions—such as high blood pressure, obesity, high sugar levels, elevated cholesterol, and high levels of fat in the blood—that cause chronic diseases.⁷⁴ According to the Centers for Disease Control and Prevention, “80% of heart disease and stroke, 80% of type 2 diabetes, and 40% of cancer could be prevented if only Americans were to do three things: Stop smoking, Start eating healthy, and Get in shape.”⁷⁵ The Centers also state that “the United States cannot effectively address escalating health care costs without addressing the problem of chronic diseases.”⁷⁶

With more than half of Americans afflicted with chronic diseases, their ability to contribute to the nation’s defense and economic growth is greatly compromised, draining the nation of its most valuable resources. In this regard, doing nothing is not an option. The detrimental impact on American lives, the nation’s economy and prosperity, and the national security of the United States makes a compelling case for prevention. As stated by a doctor in London, “Prevention is much cheaper than the cure.”⁷⁷



According to the Milken Institute, “chronic disease prevention and wellness promotion have been shown to reduce costs successfully.”⁷⁸ Evidence-based interventions and controls effective at reducing tobacco use and increasing physical activity are low-cost, easily implemented options.⁷⁹ These options include imposing sales taxes on cigarettes, alcohol, and junk food to make them financially less attractive and providing incentives for better health outcomes through lower insurance premiums, no cost-sharing responsibilities for wellness services, and no-cost gym memberships to increase physical activities. Additionally, the Milken Institute states that “many policymakers are implementing policies and programs to promote physical activity, good nutrition, tobacco avoidance and cessation, and health screenings.”⁸⁰ According to the Centers for Disease Control and Prevention, the ACA is a step in the direction of addressing the underlying drivers of chronic disease to “move from today’s sick-care system to a true health care system that encourages health and well-being.”⁸¹

Data published by Trust for America’s Health shows that there is no better return on investment than prevention, where “an investment of \$10 per person per year in proven, community-based programs to increase physical activity, improve nutrition, and prevent smoking and other tobacco use could save the country more than \$16 billion annually within five years. This is a return of \$5.60 for every \$1.”⁸² This organization estimates that the savings to Medicare could exceed \$5 billion—\$2 billion for Medicaid and \$9 billion for Americans and insurers.⁸³ According to Trust for America’s Health, prevention efforts are expected to “reduce rates of type 2 diabetes and high blood pressure by 5 percent within 2 years; reduce heart disease, kidney disease, and stroke by 5 percent within 5 years; and reduce some forms of cancer, arthritis, and chronic obstructive pulmonary disease by 2.5 percent within 10 to 20 years.”⁸⁴

Defensive Medicine

According to the Office of Technology Assessment, defensive medicine occurs “when doctors order tests, procedures, or visits, or avoid certain high-risk patients or procedures, primarily (but not necessarily solely) because of concern about malpractice liability.”⁸⁵ This definition raises three important considerations and complications. First, the impact of defensive medicine goes beyond the cost of unnecessary tests and procedures and includes something even less measurable: the unwillingness of doctors to perform certain high-risk tasks or to treat high-risk patients out of fear of a lawsuit. This is known as “negative” defensive medicine,⁸⁶ an example of which would be an obstetrician’s declining to accept a patient with a high-risk pregnancy. Second, defensive medicine can be motivated in part by factors other than fear about liability, including a provider’s belief that the defensive practice might actually help the patient. Consequently, some defensive medicine could have a positive effect.⁸⁷ And third, some commentators have noted that defensive medicine includes practices that a physician performs without even realizing that he or she is doing them to avoid malpractice liability.⁸⁸ This form of subconscious defensive medicine would generally occur if a particular protocol, initially developed to avoid malpractice liability, had since become an accepted practice for a group of doctors or for the medical community a whole. All three of these considerations add to the complexity of measuring the extent and cost of defensive medicine.



Direct costs of the medical malpractice system (primarily the cost of defending lawsuits and paying awards) reached approximately \$10 billion in 2008,⁸⁹ equivalent to less than half a percent of the \$2.3 trillion spent on U.S. healthcare overall that year.⁹⁰ The cost of defensive medicine that year was much higher, estimated at \$45 billion in 2008.⁹¹ Together, that \$55 billion was equivalent to more than two percent of total U.S. healthcare costs that same year.

At least 30 states have enacted some version of tort reform to address defensive medicine, largely preempting Congress, which has never addressed the issue nationally in a comprehensive manner. While traditional forms of tort reform, especially caps on damages for pain and suffering, have reduced defensive medicine practices, they have also prevented legitimately wronged patients from obtaining justice for their injuries.

Some states have had success with non-traditional tort reform, such as laws that allow providers to apologize for medical errors without the apology being admissible in a subsequent malpractice trial. Such laws help maintain communication between the provider and patient and make formal litigation less likely. One step further is “communication-and-resolution” programs, in which providers take the initiative to voluntarily acknowledge an error, offer an apology, work to remedy the error through additional treatment, and provide compensation to the patient, all without involving the legal system. Notably, the victim does not give up the right to subsequently sue. Like apology protection, communication-and-resolution programs help maintain trust between the provider and patient, and such programs have been shown to reduce the risk of a malpractice suit.

Untried solutions to tort reform include the creation of so-called “health courts”—panels of experts who rule on malpractice claims in place of layperson juries, resulting in a more efficient and less expensive litigation process.⁹² In theory, these tribunals could decide cases more quickly, fairly, and accurately.⁹³ But no jurisdiction in the United States has yet been willing to test this concept out, in part because the elimination of the right to a jury trial would raise constitutional concerns.⁹⁴ Such non-traditional tort reforms are promising and should be tested or rolled out further.

Pharmaceuticals

Pharmaceutical firms doing business in the United States enjoy a market that incentivizes innovation and return on investment over affordability and access. U.S. government policy helps shape this market through intellectual property laws that grant firms robust exclusivity periods to sell their drugs, a prohibition on Medicare from directly negotiating drug prices with pharmaceutical firms, a prohibition on individuals from importing prescription drugs, and a lack of price controls.⁹⁵ All of these policies were left untouched or enhanced in the ACA.⁹⁶

Drugs cost more in the United States than they do in the rest of the world. A report from the Bipartisan Policy Center in 2012 estimates that branded drugs sold in the United States are two to three times more expensive than they are in other developed countries.⁹⁷ On average, Canadians pay 20 to 50 percent less than U.S. consumers pay for the same drug made by the same company.⁹⁸ Even generic drugs have become more expensive in the United States, with the cost of some



generic drugs rising by over 1,000 percent, leading to overtures requesting that Congress get involved.⁹⁹ The higher costs of drugs negatively impact access and lead to lesser health outcomes.

According to the Centers for Disease Control and Prevention, from 2002 to 2012, the number of patients not receiving needed prescription drugs because of cost increased from 9.7 percent to 13.3 percent.¹⁰⁰ In 2012, uninsured adults between 18 and 64 were four times more likely not to get prescription drugs due to costs than were those who are insured.¹⁰¹ In 2007, over 23 percent of Americans were more likely to leave prescriptions unfilled or skip doses because of costs, a percentage that is significantly higher than that of other countries.¹⁰² This number rises to over 34 percent for low-income Americans.¹⁰³ Also, over 13 percent of Americans spend more than \$1,000 out of pocket for prescription drugs; the next closest nation is Canada, at just over 5 percent.¹⁰⁴ The point is that the cost of prescription drugs in the United States prevents some people from getting healthier, and it takes money out of the pockets of patients, many of whom are low-income, that could be spent on items such as food, rent, or other healthcare.

The high cost of drugs is frustrating for U.S. consumers, but the pharmaceutical sector contends that innovation is expensive and that they need these profits to innovate.¹⁰⁵ The truth may lie somewhere in between. A recent *Economist* article explains that the pharmaceutical industry overstates the cost of developing new drugs by rolling the cost of failed drugs into the cost of drugs that eventually get the Federal Drug Administration's approval.¹⁰⁶ In the article, the CEO of GlaxoSmithKline, Sir Andrew Witty, asserts that new drug development can be achieved for under \$1 billion, which is far less than the \$1.4 billion to \$2.6 billion cited by the pharmaceutical industry and other groups.¹⁰⁷ What is clear is that U.S. consumers subsidize the cost of innovation for other countries.¹⁰⁸



Endnotes

¹ "Health Expenditure, Total (% of GDP)." The World Bank. Accessed April 7, 2015. http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS?order=wbapi_data_value_2012_wbapi_data_value_wbapi_data_value-last&sort=desc.

² According to the Congressional Budget Office, in 2015, 36 million nonelderly people will be uninsured. See *The Budget and Economic Outlook: 2015 to 2025*, January 2015, <https://www.cbo.gov/sites/default/files/cbofiles/.../49892-breakout-AppendixB>, accessed April 5, 2015.

³ See, e.g., "Mirror, Mirror on the Wall, 2014 Update: How the U.S. Health Care System Compares Internationally." The Commonwealth Fund. January 1, 2014. Accessed April 7, 2015. <http://www.commonwealthfund.org/publications/fund-reports/2014/jun/mirror-mirror>.

⁴ "NAICS Association," NAICS Association, accessed April 8, 2015, <http://www.naics.com/>.

⁵ See Revenue Act of 1954 (Sec. 106). This act excludes from taxation employers' contributions to accident and health plans benefiting employees and clarifies that such contributions had always been deductible as business expenses.

⁶ See CBO letter to the Honorable Nancy Pelosi, March 20, 2010, table 4, on H.R. 4872, Reconciliation Act of 2010, www.cbo.gov/publication/21351, accessed April 5, 2015.

⁷ See www.statereform.org/Medicaid-Expansion-Decisions-Map, accessed April 5, 2015.

⁸ "Insurance Coverage Provisions of the Affordable Care Act— CBO's March 2015 Baseline," Congressional Budget Office, March 1, 2015, accessed April 8, 2015. <https://www.cbo.gov/sites/default/files/cbofiles/attachments/43900-2015-03-ACAtables.pdf>.

⁹ Jenny Gold, "FAQ on ACOs: Accountable Care Organizations, Explained," *Kaiser Health News*, April 16, 2014, accessed April 8, 2015, <http://kaiserhealthnews.org/news/aco-accountable-care-organization-faq/>.

¹⁰ Glenn R. Hubbard and Anthony Patrick O'Brien, "Where Prices Come From: The Interaction of Supply and Demand," in *Economics* (Upper Saddle River, NJ: Pearson Prentice Hall, 2006), p. 82.

¹¹ Glenn R. Hubbard and Anthony Patrick O'Brien, "The Economics of Health Care," in *Economics*, (Upper Saddle River, N.J.: Pearson Prentice Hall, 2006), p. 214.

¹² Steven Brill, "Bitter Pill," *Time* 181, no. 8: 16-55. EBSCOhost, accessed September 12, 2014, <https://nduezproxy.idm.oclc.org/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=85760535&site=ehost-live&scope=site>.

¹³ See "Health Insurance Isn't Really Insurance, Researcher Says," *Insurance Journal*, September 11, 2009, accessed April 5, 2015, <http://www.insurancejournal.com/news/national/2009/09/11/103684.htm>.

¹⁴ Glenn R. Hubbard and Anthony Patrick O'Brien, "The Economics of Health Care," in *Economics* (Upper Saddle River, N.J.: Pearson Prentice Hall, 2006), p. 215.

¹⁵ Ibid.

¹⁶ Steven Brill, "Bitter Pill," *Time* 181, no. 8: 16-55. Note: Read "Part 1. Academic Search Premier," EBSCOhost, accessed September 12, 2014, <https://nduezproxy.idm.oclc.org/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=85760535&site=ehost-live&scope=site>.



¹⁷ Glenn R. Hubbard and Anthony Patrick O'Brien, "Externalities, Environmental Policy, and Public Goods," in *Economics* (Upper Saddle River, N.J.: Pearson Prentice Hall, 2006), pp. 138-141.

¹⁸ "Leading Causes of Death," Centers of Disease Control and Prevention, last modified February 6, 2015, accessed February 7, 2015, <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>.

¹⁹ "Chronic Diseases and Health Promotion," National Center for Chronic Disease Control and Prevention, last modified May 9, 2014, accessed January 11, 2015, <http://www.cdc.gov/chronicdisease/overview/index.htm>.

²⁰ "Preventive Services Covered Under the Affordable Care Act," Hhs.gov, accessed April 5, 2015, <http://www.hhs.gov/healthcare/facts/factsheets/2010/07/preventive-services-list.html>.

²¹ Bipartisan Policy Center, *What is Driving US Health Care Spending? America's Unsustainable Health Care Growth*, September 2012, accessed December 5, 2014, 18, http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2012/rwjf401339.

²² Steve Morgan and Jae Kennedy, "Prescription Drug Accessibility and Affordability in the United States and Abroad," *Issues in International Health Policy*, June 2010, the Commonwealth Fund, accessed January 15, 2015, http://www.commonwealthfund.org/~media/Files/Publications/Issue%20Brief/2010/Jun/1408_Morgan_Prescription_drug_accessibility_US_intl_ib.pdf.

²³ Peter Ubel, "People in the US Are Footing the Bill for Switzerland's Medical Care," *Forbes*, April 18, 2014, accessed January 17, 2015, <http://www.forbes.com/sites/peterubel/2014/04/18/the-real-health-care-subsidy-problem/>.

²⁴ U.S. Food and Drug Administration, "Frequently Asked Questions on Patents and Exclusivity," accessed April 3, 2015, <http://www.fda.gov/Drugs/DevelopmentApprovalProcess/ucm079031.htm>.

²⁵ Julie Appleby, "Advocacy Groups Say Medicare Should Negotiate With Drugmakers," *Kaiser Health News*, July 24, 2014, accessed April 4, 2015, <http://kaiserhealthnews.org/news/advocacy-groups-say-medicare-should-negotiate-with-drugmakers/>.

²⁶ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

²⁷ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

²⁸ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

²⁹ T.R. Reid, "The UK; Universal Coverage, No Bills," in *The Healing of America: A Global Quest for Better, Cheaper, and Fairer Health Care* (New York: Penguin Press, 2009).

³⁰ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.



³¹ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

³² Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

³³ See, e.g., Brian Hujdich, "Don't Tamper with Medicare Part D," *TheHill.com*, March 25, 2015, accessed April 7, 2015, <http://thehill.com/blogs/congress-blog/healthcare/236839-dont-tamper-with-medicare-part-d>.

³⁴ Julia Brown, "Primary Care Physician Shortage," *Managed Healthcare Executive*, 23, no. 23 (October 2013): 30.

³⁵ "Impact of the Nursing Shortage on Patient Care," American Association of College of Nursing, accessed January 18, 2015, <http://www.aacn.nche.edu/media-relations/nursing-shortage-resources/impact>.

³⁶ "Impact of the Nursing Shortage on Patient Care," American Association of College of Nursing, accessed January 18, 2015, <http://www.aacn.nche.edu/media-relations/nursing-shortage-resources/impact>.

³⁷ U.S. Congress, Senate Committee on Health, Education, Labor & Pensions, Subcommittee on Primary Health and Aging, "Primary Care Access: A Report from Chairman Bernard Sanders," January 29, 2013, 1; S. Petterson, S. et al., "Projecting US Primary Care Physician Workforce Needs: 2010-2025," *Annals of Family Medicine*, 10, no. 6 (2012): 503-509; Agency for Healthcare Research and Quality, "Primary Care Workforce Facts and Stats: Overview," October 2014, accessed January 26, 2015, <http://www.ahrq.gov/research/findings/factsheets/primary/pcworkforce/index.html>.

³⁸ U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), National Center for Workforce Analysis, *Projecting the Supply and Demand for Primary Care Practitioners Through 2020* (Rockville, MD: U.S. Department of Health and Human Services, 2013), 1.

³⁹ Council on Graduate Medical Education, *Twentieth Report: Advancing Primary Care*, (Rockville, MD: Council on Graduate Medical Education, December 2010), 4.

⁴⁰ HRSA, *Projecting*, 11; figures vary significantly as to the number of primary care physicians. According to the National Institute for Health Care Reform, there were as many as 300,000 physicians practicing primary care in 2011. See Emily Carrier et al., "Matching Supply to Demand: Addressing the U.S. Primary Care Workforce Shortage," *National Institute for Health Care Reform Policy Analysis*, no. 7 (Washington, DC, December 2011): 2.

⁴¹ HRSA, *Projecting*, 1-14 and 26; Estimated shortages of primary care physicians vary significantly across various studies—the Association of Medical Colleges projects a shortage of 65,000 primary care physicians by 2025.

⁴² David Blumenthal and Melinda Abrams, "Putting Aside Preconceptions—Time for Dialogue among Primary Care Clinicians," *New England Journal of Medicine* 368, no. 20 (May 16, 2013): 1933.

⁴³ Julia Brown, "United States Faces Physician Shortage in Near Future," *Managed Healthcare Executive* 23, no. 1 (January 2013): 32.

⁴⁴ Senate Committee on Health, "Primary Care Access, 1-2.

⁴⁵ HRSA, *Projecting*, 15-16.

⁴⁶ *Ibid.*, 17-18.



⁴⁷ Senate Committee on Health, “Primary Care Access, 3.

⁴⁸ HRSA, *Projecting*, 28.

⁴⁹ Louise Radnofsky, “Where Are the Mental-Health Providers?” *Wall Street Journal*, <http://www.wsj.com/articles/where-are-the-mental-health-providers-1424145646> (accessed 16 February 2015).

⁵⁰ Rene Quashie and Amy Lerman, “Telemedicine and Employers: The New Frontier,” *TechHealth Perspectives*, March 11, 2015, <http://www.techhealthperspectives.com/2015/03/11/telemedicine-and-employers-the-new-frontier/> (accessed March 22, 2015).

⁵¹ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

⁵² *Ibid.*

⁵³ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

⁵⁴ Thompson.house.gov. “One Page Summary on the H.R. 1832, the STEP Act,” <https://thompson.house.gov/sites/thompson.house.gov/files/One%20Page%20Summary%20on%20the%20STEP%20Act.pdf> (accessed December 19, 2014).

⁵⁵ Deepak Asudani, “Accelerate Multistate Medical Licensure Sans Redundancy,” February 19, 2015, accessed March 19, 2015, <http://blogs.hospitalmedicine.org/Blog/?s=deepak>.

⁵⁶ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

⁵⁷ “Assistance for Pre-existing Loans,” AmeriCorps, accessed February 15, 2015, <https://www.teachforamerica.org/why-teach-for-america/compensation-and-benefits/assistance-pre-existing-loans>.

⁵⁸ Justin Altschuler et al., “Estimating a Reasonable Patient Panel Size for Primary Care Physicians with Team-Based Task Delegation,” *Annals of Family Medicine* 10, no. 5 (September/October 2012): 396.

⁵⁹ See T. R. Reid, *The Healing of America: A Global Quest for Better, Cheaper, and Fairer Health Care* (New York: Penguin Press, 2009): 46.

⁶⁰ James R. Friction, DDS and Diane Davies, MD, “Personal Health Records to Improve Health Information Exchange and Patient Safety,” AHRQ, accessed March 25, 2015, http://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-resources/resources/advances-in-patient-safety-2/vol4/Advances-Fricton_21.pdf

⁶¹ *Ibid.*

⁶² *Ibid.*

⁶³ Robert M. Wachter, MD, “Why Health Care Tech Is Still So Bad,” *The New York Times*, March 21, 2015, accessed March 25, 2015. <http://www.nytimes.com/2015/03/22/opinion/sunday/why-health-care-tech-is-still-so-bad.html>.



⁶⁴ Robert M. Wachter, MD, “Why Health Care Tech Is Still So Bad,” *The New York Times*, March 21, 2015, accessed March 25, 2015. <http://www.nytimes.com/2015/03/22/opinion/sunday/why-health-care-tech-is-still-so-bad.html>.

⁶⁵ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

⁶⁶ Office of the National Coordinator for Health Information and Technology, *Federal Health Information Technology Strategic Plan 2011-2015*.

⁶⁷ Ibid.

⁶⁸ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

⁶⁹ “Leading Causes of Death,” Centers of Disease Control and Prevention, last modified February 6, 2015, accessed February 7, 2015, <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>.

⁷⁰ “Chronic Diseases and Health Promotion,” National Center for Chronic Disease Control and Prevention, last modified May 9, 2014, accessed January 11, 2015, <http://www.cdc.gov/chronicdisease/overview/index.htm>.

⁷¹ “Chronic Disease Prevention and Health Promotion,” Centers for Disease Control and Prevention, last modified January 20, 2015, accessed January 23, 2015, <http://www.cdc.gov/chronicdisease/index.htm>.

⁷² Michael P. Fierro, “Trends Alert – Costs of Chronic Diseases: What Are States Facing?” The Council of State Governments, 5, 2006, accessed on January 17, 2015, http://www.healthystates.csg.org/NR/rdonlyres/E42141D1-4D47-4119-BFF4-A2E7FE81C698/0/Trends_Alert.pdf.

⁷³ “Global Status Report on Noncommunicable Diseases 2010,” World Health Organization, 1, 2010, accessed January 17, 2015, http://whqlibdoc.who.int/publications/2011/9789240686458_eng.pdf?ua=1.

⁷⁴ “Noncommunicable Diseases: Fact Sheet,” World Health Organization, March 2013, accessed January 17, 2015, <http://www.who.int/mediacentre/factsheets/fs355/en/>.

⁷⁵ “An Unhealthy Truth: Rising Rates of Chronic Disease and the Future of Health in America,” California Partnership for Access to Treatment, 3, 2007, accessed January 18, 2015, http://www.caaccess.org/pdf/6_unhealthy_truths.pdf.

⁷⁶ “An Unhealthy Truth: Rising Rates of Chronic Disease and the Future of Health in America,” California Partnership for Access to Treatment, 1, 2007, accessed January 18, 2015, http://www.caaccess.org/pdf/6_unhealthy_truths.pdf.

⁷⁷ Interview with a confidential source. All interviews granted to students were with the agreement of non-attribution. Names are withheld by mutual agreement between the source and the Dwight D. Eisenhower School for National Security and Resourcing Strategy.

⁷⁸ Ross DeVol and Armen Bedrossian, “An Unhealthy America: The Economic Burden of Chronic Disease -- Charting a New Course to Save Lives and Increase Productivity and Economic Growth,” Milken Institute, i, October 1, 2007, accessed January 11, 2015, <http://www.milkeninstitute.org/publications/view/321>



⁷⁹ Helen Ann Halpin, Maria M. Morales-Suarez-Varela, and Jose M. Martin-Moreno, "Chronic Disease Prevention and the New Public Health," *Public Health Reviews*, Volume 32, No. 1, 120, 2010, accessed January 12, 2015, <http://www.publichealthreviews.eu/show/f/24>.

⁸⁰ Ross DeVol and Armen Bedroussian, "An Unhealthy America: The Economic Burden of Chronic Disease -- Charting a New Course to Save Lives and Increase Productivity and Economic Growth," Milken Institute, i, October 1, 2007, accessed January 11, 2015, <http://www.milkeninstitute.org/publications/view/321>

⁸¹ "Investing in Prevention: The New National Prevention, Health Promotion and Public Health Council (National Prevention Council)," Centers for Disease Control and Prevention, 1, October 5, 2010, accessed January 12, 2015, http://www.cdc.gov/policy/resources/new_council.pdf.

⁸² "Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities," Trust for America's Health, 1, July 2008, accessed February 6, 2015, <http://healthyamericans.org/reports/prevention08/Prevention08Exec.pdf>.

⁸³ "Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities," Trust for America's Health, 1, July 2008, accessed February 6, 2015, <http://healthyamericans.org/reports/prevention08/Prevention08Exec.pdf>.

⁸⁴ "Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities," Trust for America's Health, 2, July 2008, accessed February 6, 2015, <http://healthyamericans.org/reports/prevention08/Prevention08Exec.pdf>.

⁸⁵ U.S. Congress, Office of Technology Assessment, *Defensive Medicine and Medical Malpractice*, OTA-H-602 (Washington, DC: U.S. Government Printing Office, July 1994).

⁸⁶ Ibid.

⁸⁷ "Joint Work Group Meeting on the Cost of Defensive Medicine." Webinar Agenda. January 9, 2015, accessed February 20, 2015, <http://www.hsrc.maryland.gov/documents/md-maphs/wg-meet/dm/Agenda-Defensive-Med-presentation-Panel-Discussion.pdf>.

⁸⁸ Ibid.

⁸⁹ Michelle Mello, "National Costs of the Medical Liability System," *Health Affairs* 29, no. 9 (2010): 1571.

⁹⁰ Robert Pear, "Health Spending Rises in 2008, but at Slower Rate," *The New York Times*, January 4, 2010, accessed February 16, 2015, <http://www.nytimes.com/2010/01/05/health/policy/05health.html>.

⁹¹ Michelle Mello, "National Costs of the Medical Liability System," *Health Affairs* 29, no. 9 (2010): 1571.

⁹² Michelle Mello, "The Medical Liability Climate and Prospects for Reform," *Journal of the American Medical Association* 312, no. 20 (2014).

⁹³ Ibid.

⁹⁴ Ibid.

⁹⁵ Exclusivity periods are periods during which exclusive marketing rights are granted by the Food and Drug Administration upon approval of a drug and can run currently with a patent or not. See <http://www.fda.gov/Drugs/DevelopmentApprovalProcess/ucm079031.htm#What%20is%20the%20difference%20between%20patents%20and%20exclusivity?>

⁹⁶ In Section 7002 of the ACA, a 12-year exclusivity period was established for biologics, where previously there had been no protection.



⁹⁷ Bipartisan Policy Center, *What is Driving US Health Care Spending? America's Unsustainable Health Care Growth*, September 2012, accessed December 5, 2014.18. http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2012/rwjf401339.

⁹⁸ T. R. Reid, *The Healing of America: A Global Quest for Better, Cheaper, and Fairer Health Care* (New York: Penguin Press, 2009), 134

⁹⁹ Elisabeth Rosenthal, "Officials Question the Rising Cost of Generic Drugs," *New York Times*, October 8, 2014, accessed January 25, 2015. http://www.nytimes.com/2014/10/08/business/officials-question-the-rising-costs-of-generic-drugs.html?_r=0.

¹⁰⁰ Center for Disease Control and Prevention. "Health, United States, 2013, with Special Feature on Prescription Drugs," May 2014, accessed December 26, 2014, <http://www.cdc.gov/nchs/data/hus/hus13.pdf#114>.

¹⁰¹ Center for Disease Control and Prevention, "Health, United States, 2013, with Special Feature on Prescription Drugs," May 2014, accessed December 26, 2014, <http://www.cdc.gov/nchs/data/hus/hus13.pdf#114>.

¹⁰² Steve Morgan and Jae Kennedy, "Prescription Drug Accessibility and Affordability in the United States and Abroad," *Issues in International Health Policy*, June 2010, the Commonwealth Fund, accessed January 15, 2015, http://www.commonwealthfund.org/~media/Files/Publications/Issue%20Brief/2010/Jun/1408_Morgan_Prescription_drug_accessibility_US_intl_ib.pdf.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ John LaMattina, "High Drug Prices and Innovation," *Forbes*, November 4, 2014, accessed December 7, 2014, <http://www.forbes.com/sites/johnlamattina/2014/11/04/high-drug-prices-and-innovation/>.

¹⁰⁶ "Pharmaceuticals: The Price of Failure," *The Economist*, November 29, 2014, print Edition, accessed March 13, 2015, <http://www.economist.com/news/business/21635005-startling-new-cost-estimate-new-medicines-met-scepticism-price-failure>.

¹⁰⁷ Ibid.

¹⁰⁸ Peter Ubel, "People in the US Are Footing the Bill for Switzerland's Medical Care," *Forbes*, April 18, 2014, accessed January 17, 2015, <http://www.forbes.com/sites/peterubel/2014/04/18/the-real-health-care-subsidy-problem/>.

