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HEALTH CARE 2016

ABSTRACT: The United States (U.S.) spends approximately 17% of its entire GDP on health care, a total of more than $2.7 trillion dollars,[1] squeezing out other government expenditures and investments, including defense. Despite this high cost, the U.S. has some of the poorest health outcomes[2] as measured by life expectancy, infant mortality, and prevalence of chronic conditions among the population.[3] This paper defines the American health care industry, comments on its current condition and explores the challenges, government role, and outlook in three major areas: access, cost, and quality of care. The paper concludes with specific recommendations relating to the use of technology and incentives in order to reduce costs while simultaneously improving access to and quality of care. These changes are necessary in order to provide quality care to all citizens at a cost that does not reduce the ability to secure the nation.

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INTRODUCTION

Compared to other wealthy countries around the world, the United States (U.S.) spends approximately 17% of its Gross Domestic Product (GDP) on health care,[4] yet has some of the poorest health outcomes[5] as measured by life expectancy, infant mortality, and prevalence of chronic conditions among the population.[6] Federally managed health care programs, such as Medicare and Medicaid, account for approximately 23% of the federal budget, while only 17% is allocated for defense programs designed to ensure the national security of the U.S. If health care costs continue to grow at historical rates, the share of GDP devoted to health care in the U.S. is projected to reach 34% by 2040. Of this increase, roughly one-quarter is estimated to be due to the aging of the population and other demographic effects, and three-quarters is due to rising health care costs.[7] Additionally, the Defense Department's budget for fiscal year 2016 includes $32 billion for Defense Health spending,[8] which includes TRICARE.[9] The Congressional Budget Office (CBO) projects health care costs for the military and their families will reach nearly $92 billion by 2030.[10]

This startling fact is a significant impediment to overall U.S. national security, for as Dr. Donald Barr notes in his book on U.S. health policy, "this investment in health care [is] at the expense of other sectors of the economy such as education and national infrastructure. We have less money available for education, infrastructure, and for investing in the capital and technology necessary for the continued expansion of the economy."[11] If the costs of health care remain unchecked, the U.S. will move closer and closer to national bankruptcy. President Obama said in a speech at the White House, "by a wide margin, the biggest threat to our nation's balance sheet is the skyrocketing cost of health care."[12] Economists, physicians, politicians, and security strategists all agree that the U.S. must find a way to control the cost of health care. What these experts cannot agree on is how this can be accomplished.

The status quo is not sustainable in the long term; the country would be unable to support its citizens, service its debt, and maintain its standing in the world. Unfortunately, there are incentives for health care providers to keep the status quo (in a volume-based system, more patients x more problems = more money) and misaligned disincentives for those with chronic disease to make difficult or uncomfortable lifestyle changes (i.e. if the system will manage your illness, why should you change unhealthy diet or exercise habits?). Negative trends in diet and lifestyle, an aging population, and a populace that uses preventive care at half the recommended rate,[13] have led to a crisis of tremendous magnitude which has the potential to impact not only population health in the U.S., but its economy, and national security as more resources are allocated towards this singular issue in the federal budget.

Nonetheless, it is necessary to maintain quality health care, reduce cost, and provide access to care. There is a role for government in the delivery of quality health care with lower costs. These efforts will demand innovation and require cooperation across many disciplines. The purpose of this paper is to define the health care industry, comment on its current condition, and then explore the challenges, government role, and outlook in three major areas: access, cost, and quality of care. The paper will conclude with a summary and recommendations for change. The challenge in health care continues to be providing quality care to all citizens at a cost that does not compromise the nation's security and economy.

THE INDUSTRY DEFINED

The health care industry is an integration of numerous sectors within the economy that provide patients with the full spectrum of health care services. These services include hospitals, physicians, insurance companies, medical universities, pharmaceuticals, medical equipment providers, home health workers, and behavioral health experts. Best estimates from the Bureau of Labor and Statistics project that the health care industry employs over twelve million people, with nursing aides, registered nurses, and home health care aides accounting for the vast majority of the workforce. Job prospects are bright in the health care industry. A confluence of events, namely health care reform, an aging population, and increased focus on health care innovation, act as drivers to expand the sector. The health care industry is anticipated to produce more jobs than any other sector of the U.S. economy between 2014 and 2024. The strong economic growth created by the health care industry is expected to boost GDP by 2.2 percent, which translates into roughly 9.8 million new jobs - a 6.4 percent increase between 2014 and 2024.[14] As the health care industry is so diverse, this section of the paper will focus on hospitals and insurance companies as representatives of the industry as a whole.

The most profitable hospital conglomerates are HCA (Hospital Corporation of America), Tenet, and Universal Health Services, while the largest insurance providers include Anthem, Aetna, and United Health.[15] The current trend in health care is to expand access, thus increasing profit, and merge with other health care organizations to provide all services within the same network. For example, hospital conglomerates may now not only provide hospital beds, but also provide insurance, offer access to a network of outpatient facilities, and encourage the use of urgent care centers at no cost to the patient – Geisinger, in central Pennsylvania, is one example of such an integrated health system. These actions look to lower health care costs as insurance companies and hospitals now feel the squeeze of increased patient volume due to the effects of the Patient Protection and Affordable Care Act (ACA). Indeed, some insurance companies have opted to forgo participation in the health care marketplace because the minimum care mandated by the ACA is not profitable for the provider. As newly insured patients seek more care for ailments that previously were left untreated, health care insurance companies are left to absorb this cost. This phenomenon, known as the health care moral hazard, introduces more complexity into the system of systems that characterizes the industry today, and further complicates the bottom line of hospitals and insurance companies.

CURRENT CONDITION

Today, the healthcare industry is at a crossroad. Strategies to remain profitable in the era of accountable care organizations, the triple aim (population health, experience of care, per capita cost), and constant mergers and acquisitions make it incredibly difficult to remain profitable. The industry is dominated by only a few firms that have been able to carve out an existence by combining the right service offerings coupled with convenience and accessibility for its customers. However, firms aim to buy access to various markets in order to increase the size of their patient pool and therefore become more profitable.

It is important to note that the healthcare industry does *not* behave like other markets. The American health care system suffers from a lack of pricing transparency which causes asymmetric information and therefore, market failure. Although the ACA aims to extend

coverage to the uninsured and create a marketplace whereby consumers and vendors have access to the same information, it is the persistence of asymmetric information within transactions that allows the industry to thrive. An American Hospital Association report claims that the health care industry contributed a staggering $2.6 trillion to the economy in 2013.[16] Further, the inaccessibility of pricing information creates conditions that feed the uneven competition that exists within the market. The ACA also looks to generate true competition that can then lead to better information for consumers.

Health care industry leaders are not standing on particularly solid ground as it pertains to their economic health. Although their aim may be to create value at an acceptable level of risk, some firms have over-extended themselves in the short term by acquiring smaller hospitals, insurance companies, and urgent care centers in order to expand coverage, while losing liquidity in the process. The underlying assumption is that over time, these capital investments will pay dividends as more and more Americans are insured and services are rendered. In other words, firms will recoup and increase their return on investment. This logic is largely validated by stock market analysts who mostly encourage investors to hold onto hospital and insurance stock because their future looks far brighter than the present.[17]

Although there is little competition from foreign companies, the trend of medical tourism has developed in the last decade. It is estimated that 750,000 American citizens travel to other countries to receive medical care each year. Many are immigrants to the United States and are simply deciding to return to their native countries for medical care. [18] Still, a significant number of Americans decide to engage in medical tourism because of the high cost associated with procedures in the United States. The most common procedures attributed to medical tourism are cosmetic surgery, dentistry, and heart surgery.

This paper will explore the many ways the government, along with the private sector and other partners, can work together to deliver reform within the health care industry by increasing access and quality, and leverage technological innovations to drive down costs and help improve overall health outcomes for Americans. Although healthcare in general is too wide for the scope of this paper, the general concern over information asymmetry and market failure is equally as important to our narrower focus on cost, quality, and access.

ACCESS

The core question concerning health care in America remains: is health care a benefit or a right? This is a question with social, political, and moral implications, one that lies at the heart of some of the hottest debates in our national discourse. In many Western countries, it is not even a question; health care—though with a wide range of quality and diversity of delivery—is a cradle-to-grave inalienability. In the U.S., however, health care has traditionally been handled as a privilege or benefit, on a different plane than life, liberty, the pursuit of happiness, or even universal public education. The current U.S. health care system struggles to provide adequate access to quality care for its nearly 320 million-strong population. For many Americans, their only access to health care is through the emergency department at the nearest hospital. The closest the U.S. comes to some form of universal health care is TRICARE for military members and their families, the Veterans Affairs (VA) Administration for military veterans and their families, and Medicare and Medicaid for the elderly and poor, respectively. Today, Medicaid

serves over 72 million people, which is approximately 22% of the U.S. population, making it the largest public health insurance program in the country.[19]

This issue of access to care was central to the ACA, which reformed health care in the U.S., making significant changes to plan options, cost, delivery, and reimbursement. The greatest barrier to health care for many Americans was the prohibitively high cost of medical insurance.[20] In 2014, 27% of uninsured adults did not seek medical care due to prohibitive costs. Uninsured people were less likely to receive preventive care and treatment for major health conditions or chronic diseases when compared with those with insurance coverage.[21] Most uninsured people are in low-income working families (defined as having a family income below 200% of poverty) or are undocumented immigrants who are ineligible for Medicaid. The passage of the ACA resulted in 17.6 million previously uninsured Americans gaining access to coverage, reducing the number of uninsured Americans by 40 percent. Nearly 20 million Americans have gained coverage and the number of uninsured in the U.S. has dropped from approximately 20% of the non-elderly population in 2013 down to less than 13% in 2015.[22] The greatest reduction in the uninsured occurred through the expansion of the Medicaid program. Medicaid expansion was incentivized by the federal government, but allowed each state to decide whether or not to adopt the program. To date, 31 states and the District of Columbia have chosen to expand Medicaid, providing 14 million Americans access to health care. If the remaining states opt to expand Medicaid, four million more uninsured people would have access to coverage.[23]

While access to health care in the U.S. is still a challenge for millions of citizens, it is also a problem for millions of other people across the globe. This group's study of the health care industries in India, Singapore, and China revealed that these nations struggle to provide health care access to their citizens, as well. However, like the U.S., it is clear that health care access is not a problem if one has enough money. This was especially true in China, where very few citizens have adequate health insurance and payment is expected in advance of any medical appointment.

Challenges

Despite the reforms enacted under the ACA, there are still significant challenges in attempting to provide health care to all who need it. The most significant challenges include the cost of care (the following section of the paper is dedicated to the issue of cost, so it will not be addressed in much depth here) and a shortage of certain types of health care providers, as well as a maldistribution of health care providers in general. In the U.S. today, there is an adequate number of health care providers in large metropolitan areas, but shortages exist in many rural areas.[24] These shortages lead to a disparity in health outcomes based on location.

According to the Health Resources and Services Administration, the federal agency within the U.S. Department of Health and Human Services charged with improving access to health care, "there should be no more than 3,500 people for each primary care provider; no more than 5,000 people for each dental provider; and no more than 30,000 people for each mental health provider,"[25] yet nearly 20% of Americans live in areas with an insufficient number of primary care doctors, 16% live in areas with too few dentists, and a staggering 30% live in areas that are short of mental health providers. There are various reasons for the shortages of health

care providers, such as the increased medical care required for the aging population and lack of financial incentives to encourage professionals to enter the health care workforce, especially in mental health specialties. Although payment reforms initiated by Centers for Medicare and Medicaid Services (CMS) are redefining how health care is delivered, especially for Medicare beneficiaries, there is still room to improve access to health care providers, especially in rural areas.

India and China also suffer from health care provider shortages, specifically in rural areas, but surprisingly also in the large cities. Both countries suffer from the inability to adequately pay their providers; however, some private facilities in India provide housing, transportation and food services to its health care providers as an incentive. China struggles with providing appropriate training to health care professionals because most hospitals employ a system in which a provider must be invited by the hospital to enter into a fellowship. During the visit to China, the group learned that approximately 50% of practitioners in China leave the profession within the first 10 years; with such high turnover rates, it is difficult to provide adequate access to health care for the 1.4 billion people living in China.[26] In contrast, access to care seemed quite easy in the highly government-controlled nation of Singapore, with polyclinics (similar to our family practice clinic or urgent care clinic) located in each government-planned and constructed neighborhood.

The best way to address the lack of rural health care providers is to leverage technology and to provide incentives for medical practice in rural areas. The most relevant technology is telemedicine, or telehealth, where a medical appointment can be conducted over the phone, via video conferencing (such as FaceTime or Skype), or by emailing. These methods circumvent the traditional model of a patient and provider needing to live within driving distance of one another. In addition to improving access for those in rural areas, telemedicine offers other advantages, such as reducing the wait time for an appointment since it can be delivered in real time, eliminating the need to travel for traditional face-to-face appointments, and reducing hospital readmissions by allowing for virtual in-home follow up monitoring after certain medical procedures.

Unfortunately, in the U.S., telemedicine is grossly underutilized by health care providers, primarily due to the limited reimbursement opportunities approved by CMS. CMS defines telehealth as those services that require a face-to-face meeting, via live video conferencing, with the patient in an eligible facility such as a hospital, physician's office, rural health clinic or federally qualified health center, which defeats the primary purpose of telemedicine. Home telehealth services, services provided via a telecommunications system, are outside the scope of the federally regulated home health benefit programs and are not covered under Medicare or Medicaid.[27]

India is optimizing its use of telemedicine, especially to reach patients in rural areas where there is no adequate health care. From an interview with a physician in India this group learned that in a country of approximately 1.3 billion people, 900 million people have a mobile phone. By leveraging technology, one hospital is able to treat 53,000 patients in remote areas via telemedicine using a mobile application. Patients can provide their medical history to a provider over the phone and the provider simply takes notes on a piece of paper, snaps a picture of their notes and sends the photo to the patient to verify. If the patient has a question about a certain

medication prescribed or has a rash, the patient snaps a picture and sends it to the provider who in turn provides consultation via the mobile application. Without strict regulations on the use of telemedicine, India is able to provide access to quality health care to millions living in remote areas, and with very little cost. [28]

Government Goals and Role

It should be a goal of the U.S. government to continue to improve access to health care for all American citizens. The government needs to work towards reducing the disparity between reality and the Health Resources and Services Administration's access metrics (1:3,500 for primary care providers, 1:5,000 for dental providers, and 1:30,000 for mental health providers).[29] The role of the U.S. government should be to change regulation so as to encourage the use of telemedicine. U.S. policymakers can look to India as a model for how to leverage telemedicine as a way to deliver quality health care at reduced costs.

Recommendations

1) Approve reimbursements for telehealth usage by health care providers. Payment for services delivered via telemedicine is the biggest obstacle to widespread telemedicine adoption. Patients and health care providers may encounter a patchwork of arbitrary insurance requirements and disparate payment streams that do not allow them to fully take advantage of telemedicine.[30] In order to break down telemedicine barriers, CMS should revise the definition of telemedicine to include services delivered via various telecommunication systems and expand the library of services covered under telemedicine. Advocating for Congressional approval of the Medicare Telehealth Parity Act of 2015 and the Telemedicine Act of 2015 will facilitate payment reimbursement for expanded telemedicine services.[31] Today hospitals are not incentivized to employ telemedicine, especially for Medicare patients, because they are not reimbursed for those services, and until there is a standard system of pricing, telemedicine will continue to be underutilized.

2) Modify the laws that govern areas which influence telemedicine. There are outdated laws in effect that are preventing hospitals from pursuing programs that leverage new technology. The Patient Inducement Act, part of the Social Security Act, enacted as part of Health Insurance Portability and Accountability Act of 1996, is a federal law that prohibits offering or paying rewards, incentives, discounts, or other items of value to federal beneficiaries, such as Medicare or Medicaid patients. The law permits providers to offer inexpensive gifts other than cash (no more than $10 per individual) without violating the statute. This law has not been updated to adjust for new technologies, which is hindering innovation and new solutions to assist in surgeries and to reduce time in hospitals for recovery. One particular integrated health care system launched an initiative to provide patients with the temporary use of an iPad to facilitate real-time, in home, post-procedure care with the aims of eliminating the need for patients to travel for follow up care, allowing patients to recover in the comfort of their own homes, and minimizing the risk of acquiring hospital-borne infections. The CMS' Office of General Counsel reportedly interpreted this innovation as a violation of the Patient Inducement Act,[32] and the program had to be cancelled.[33]

3) Develop incentives to encourage health care providers to practice in underserved areas, and for students to focus on underrepresented medical specialties, such as general practice and mental health, and to pursue careers as nurses and nurse practitioners, who are currently underutilized but hold great potential for growth. Reforming health care legislation to encourage clinicians to practice in areas of workforce shortages will provide some relief; however action by the federal government, specifically CMS, to support clinical residencies in rural areas is necessary to ensure adequate access to care, especially in underserved areas of the country.

Outlook

Although the ACA improved access to health care for millions of Americans, the sustainability and future utilization of the ACA hinges on the upcoming Presidential election and the future administration's outlook on health care. While most key government stakeholders agree that the U.S. health care system, as it exists today, is unsustainable, the challenge lies with convincing Congressional lawmakers, who are supported by powerful lobbyists, to support health care reform, such as improved access to providers in rural areas and poor urban areas, and expanding the use of telemedicine, which could result in decreased profit margins for the big businesses in health care (i.e. pharmaceutical companies, insurance companies and hospitals). Since health care is a for-profit market, essentially a business transaction between health care providers and insurance companies, it could prove challenging to introduce incentives that will decrease profit margins despite the potentially positive impacts to improve overall health for American citizens.

COST

As mentioned previously, the cost of health care in the U.S. is problematic, both for the individual who may not be able to afford necessary health care treatment, and for the government who spends a significant amount of the federal budget on health care. Federal spending on major health care programs, namely subsidies provided through Health Insurance Exchanges, Medicare, Medicaid, and the Children's Health Insurance Program, totaled $936 billion in 2015, an increase of 13% from the previous year.[34] The federal outlays on Medicaid alone grew by 16% in 2015 and 14% in 2014, or $84 billion in these two years.[35] As discussed in the previous section, the ACA was largely successful in improving access to health care; however this expansion in coverage has been enormously expensive due to the high cost of treatment.

This expenditure is being driven up not only by the massive increases in raw enrollment numbers and government payments, but also because the people who are signing up for health insurance in these initial years of the ACA are seeking medical care at high rates. A recent article in the Huffington Post notes, "The customers who flocked to the [health insurance] exchanges are sick and are using a lot of medical care, a trend that could jeopardize Obamacare's gains by destabilizing the health insurance system."[36] In the insurance industry, this phenomenon is referred to as "adverse selection," and if left unchecked it will eventually break the system by precipitating the proverbial death spiral.[37]

It is clear from this evidence that the alterations in law to improve access to health care have had far-reaching impacts on the amount the federal government spends on this budget line item. Although the ACA attempted to offset these outlays with various cost-control measures,

the rate of growth in health care costs continues to outpace the growth in GDP or private sector wages. If the U.S. is to avoid national bankruptcy, the government must take decisive action to control the actual costs of care that are driving these extreme expenses.

Challenges

The majority of the cost in the health care system is generated by the treatment of chronic diseases under a fee-for-service payment model. Chronic conditions, such as heart disease, stroke, cancer, type 2 diabetes, obesity, and arthritis are responsible for seven of every 10 deaths each year, and treating people with chronic diseases accounts for 86% of our nation's health care costs.[38] Chronic diseases and conditions are among the most common, costly, yet preventable of all health problems.[39] For example, approximately 35% of American adults are obese, and another 35% are overweight.[40] The detrimental impact on overall health of these conditions comes with a hefty price tag; the estimated annual medical cost of obesity in the U.S. was $147 billion in 2008 and the annual nationwide productivity costs of obesity-related absenteeism range between $3.38 and $6.38 billion.[41] Hypertension, which is frequently associated with obesity, costs the U.S. $46 billion annually in associated health care costs, medication, and lost productivity.[42] Diabetes adds another $245 billion, even though the most common type 2 diabetes is easily preventable with changes to diet and exercise. Unfortunately, the American health care system incentivizes treatment instead of the preventive care needed to keep people healthy. [43]

The primary driver incentivizing treatment over prevention is the fee-for-service payment model mentioned above. A fee-for-service system pays providers each time a patient uses their services, thereby encouraging more and more treatment. While it is unlikely that a health care provider will deliberately act in such a way to prevent a patient from getting well, a fee-for-service model essentially provides a disincentive for overall patient health. Any program designed to reduce patient utilization of the health care system will have a detrimental impact on demand, and thus profits for doctors, hospitals, pharmaceutical companies, etc. Similarly, any innovation that would provide a comparable positive health outcome through the provision of fewer services is automatically stifled as it is antithetical to the economic interests of the hospital or doctor.[44]

In addition to the cost of chronic disease and the fee-for-service system, there are three additional important contributing factors to high health care costs. First is the cost of drugs, which is particularly high in the U.S. for a number of reasons. In a typical market-driven economy, the price of a product influences demand.[45] However, in the U.S. pharmaceutical market, consumer costs are frequently passed to an insurance policy, resulting in a lack of price sensitivity when a patient decides which medication to purchase, which drives prices up.[46] In other countries, consumers are much more sensitive to pharmaceutical costs. For example, the HIV anti-viral drug, Crixivan, costs a patient an average of $600 per year in Africa and Latin America, whereas in the U.S., that cost is $6,099 per year.[47] Additionally, under the Medicare Part D prescription drug benefit, the government is banned from negotiating with pharmaceutical companies for the price of drugs. As a result, the lack of bargaining ability by the nation's largest purchaser of prescription drugs leads to increased costs within one of the nation's largest non-discretionary spending programs. In the ten year period from 1993 to 2003, the average cost of pharmaceuticals increased 249 percent,[48] and the value of the pharmaceutical market in the

U.S. is expected to reach $550 billion by 2020.[49] The cost for drugs and the U.S. system of regulating them is clearly a strong contributing factor to the overall cost of American health care.

A second major contributor to expensive health care is malpractice lawsuits and the subsequent overuse of defensive medicine. In a nationwide survey of physicians, the Gallup Company found that in 2010 one in four health care dollars spent on patients -- or $650 billion annually -- was attributed to defensive medicine.[50] Due to the high costs of medical malpractice insurance and successful lawsuits, health care providers "treat" non-existent conditions as a means of legal protection. An independent health care consultancy estimated defensive medicine consumed $140 billion in Medicare and $120 billion in Medicaid plans annually.[51] The Institute of Medicine issued a report that 30% of health care costs, or approximately $750 billion per year are spent on waste, including unnecessary health care services.[52]

A third driver of high health care costs is the extent of fraud in the health care system. The National Health Care Anti-Fraud Association (NHCAA) estimates that fraud accounts for somewhere between 3.1% and 10.2% of total health care expenditures each year, equaling $82 to$272 billion. Of that amount, an estimated $36 - $98 billion of that fraud is against public health care programs such as Medicaid and Medicare.[53] These costs are eventually passed along to taxpayers, employers, and beneficiaries in the form of higher tax burdens, more expensive premiums, and less comprehensive coverage.[54]

Government Goals and Role

The system America uses to obtain and pay for health care does not adequately address the overall cost of that care. Vested interests with powerful lobbies, such as the pharmaceutical industry and physician associations, resist efforts to fix the problem. It is evident from the information above that the provisions designed to control cost are not working quickly enough. The U.S. government must enact legislation that addresses this issue.

The heart of the problem lies in the fee-for-service operational model in which health care providers are reimbursed for each procedure rendered. Using this system, volume becomes the strongest contributing factor increasing costs. Under a value model, providers are reimbursed based on the value of the care, meaning they are incentivized for keeping patients healthy. Any additional reformation of the U.S. health care system must encourage a payment structure that motivates providers to control costs while improving health outcomes.

Recommendations

1) Change the fee-for-service system to one based on positive health outcomes, or value-based. Our fee-for-service payment rewards doctors for the quantity—not quality—of care provided. The fee-for-service payment gives large rewards for overtreatment and no reward for eliminating it. In one trial designed to reverse this phenomenon, costs per patient dropped 40 percent, partly because the Texas-based health care delivery network WellMed contracted with Medicare plans to control costs. When a doctor improves the quality of care and saves on costs, WellMed shares the savings with the doctor in the form of bonuses. The doctor is paid an annual salary and sees fewer patients, allowing for longer visits with medical care education of the patient, possibly reducing the impact of chronic disease. The doctor's income can actually

increase with the bonuses for higher patient satisfaction, reduced hospital admissions, and lower cardiology costs. The WellMed philosophy resulted in large reductions in overuse of care and better outcomes for patients. The physicians in this area saved Medicare a total of $26 million, 60 percent of which went back to the doctors.[55]

2) Incentivize research and development (R&D) in pharmaceuticals, while also reducing costs for American consumers. As a way to incentivize continued drug R&D while offering the opportunity for manufacturers to recoup their investment, the Federal Drug Administration should offer profit margin-based patents, as opposed to the current time-based patents. Currently the average profit margin for all health care related industries is about 20 percent.[56] If patents expired based on average profit margins, it would lower medication prices, as the manufacturer would not be under time constraints to recoup their investment. This idea has strong potential to reduce health care related costs overall. Additionally, as another step to reduce the costs of drugs, legislation should implement reference based pricing (RBP). RBP allows the government to set the standard reimbursement level for a drug in a particular class, with the price often based on the lowest cost variant. RBP does not preclude a consumer from buying a higher priced drug, but the patient is responsible for paying the additional out-of-pocket costs. By instituting RBP for Medicare Part D, it would force market competition on pricing and eventually result in lower costs to the consumer.

3) To combat the detrimental impact of malpractice lawsuits on the increasing cost of health care, Congress should pass the Malpractice Reform bill introduced in March of 2016. The Help Efficient, Accessible, Low-Cost, Timely Healthcare (HEALTH) Act was created to improve access to health care and reduce the excessive burden of malpractice litigation places on health care providers. The bill encourages speedy resolution of claims by establishing a time limit for filing litigation and limiting noneconomic damages to $250,000 regardless of the number claimants or defendants. Reduction of awards and attorney compensation are also limited by this bill.[57]

4) To more effectively combat fraud inside the health care system, the federal government should mandate standardized insurance claims forms and electronic medical records, thereby enabling computer analytics to better detect fraud. In addition, there should be a federal immunity guarantee for insurers that share fraud-related information with authorities. Private insurance companies are concerned about getting sued for privacy issues if they share their databases with federal fraud investigators,[58] and a federal immunity guarantee would encourage those companies to come forward with fraud data.

5) In an effort to address the aggregate costs of care, the government should encourage a value-based approach through managed care systems, such as Health Maintenance Organizations (HMOs) or prepaid health plans. Under this model, HMOs agree to provide a specific set of services to Medicaid enrollees, usually in return for a predetermined periodic payment per enrollee.[59] A recent study of 24 managed care models revealed cost savings of up to 20%, due to decreases in inpatient utilization and reductions in pharmaceutical costs.[60]

6) Similarly, evidence based medicine (EBM) should be used to develop and enforce polices that standardize protocols and improve outcomes. EBM leverages established research and proven health trends to effectively treat patients. Furthermore, EBM should focus on

chronic disease management that includes medicine and lifestyle changes. This may go a long way in mitigating chronic disease as an enormous contributor to the overall cost of health care.

Outlook

The various factors described above that contribute to the extraordinarily high health care costs in America will not change without significant government intervention. As a result of the ACA expansion of Medicaid, expenditures on this program alone are projected to increase at an average annual rate of 6.2% and reach $835.0 billion by 2023.[61] Similarly, average enrollment in Medicaid is projected to increase at 3.0% per year over the next 10 years and to reach $78.8 million in 2023.[62] The 2014 Congressional Research Service report on Medicaid Financing and Expenditures notes that the approximately 6% annual growth will outpace the growth rate of state revenues.[63] The payment reforms currently implemented by CMS are projected to only yield small savings in overall program costs with the CBO projecting total Medicare payments will increase from $632 billion in 2015 to $1.2 trillion in 2025, remaining at about 3.3% of GDP.[64] Although the ACA designated $10 billion to CMS for programs encouraging payment model reform, positive results have yet to materialize.

Over the life of the Medicare program, the number of taxpaying workers per Medicare beneficiary, "has declined from 4.6 during the early years to 3.1 today", and is projected to dip to only 2.3 by 2030.[65] This decrease, coupled with the projected increase in Medicare-eligible beneficiaries over the next 15 years, significantly impacts the government's ability to sustain the program in its current configuration. It is estimated that in order to maintain Medicare spending at about 3% of GDP, the program's average annual growth rate would have to be reduced by 1.6% rather than increase as is currently projected. Additionally, the Medicare Trustees project that the Medicare Part A Trust Fund, which pays for inpatient hospital care, will be exhausted by 2030.[66] These problems in paying for Medicare in the future are alarmingly similar to the issues in paying for other components of the health care system.

As one can discern from the data outlined in this section, the provisions in current U.S. law are not an effective mechanism for balancing the costs of access, and the revenue required to pay for the concomitant expenses. Although several components of the ACA attempt to control the rising costs of health care, the enforcement of the regulations, as well as any additional reform, continue to meet obstruction from Congress.[67] It is clearly evident that the next iteration of the ACA, or whatever form the legislation might take, must overcome resistance from the powerful lobbies of the pharmaceutical industry and insurance companies, to name but two. The nation simply has no choice if it is to remain strong and prosperous.

QUALITY

Despite the vast sums of money the U.S. spends on health care, the nation has poor health outcomes, including shorter life expectancy and greater prevalence of chronic conditions when compared to other high-income countries.[68] From a national standpoint, the U.S. ranks very low on standardized quality measures, especially in relation to the amount of money spent. The U.S. spends approximately 17% of GDP on health care, which equates to $9,086 per capita. Yet, the U.S. life expectancy is 78.8 years, infant mortality is 6.1 per 1,000 live births, 68% of the population has two or more chronic conditions, and the obesity rate is 35.3%. As a comparison,

the numbers for the United Kingdom are 81.1, 3.8, and 33%, respectively – with a per capita spending of $3,364.[69] It is difficult to rationalize how a country with every possible advantage (technology, financial and human resources, a history of innovation, an entrepreneurial spirit, and a proven track record of medical success) can have outcomes so poor respective to its potential. There is clearly a breakdown, and quality has emerged as the center of this breakdown—whether it is the cause or one of several contributing factors is debatable.

Establishing quality baselines in a country as large and with a health care system as complex and diverse as the U.S. is easier said than done. A lack of focus on outcomes (See discussion on fee-for-service, above) exacerbates this challenge, as does the subjective nature of quality as a measure. Does merely delivering a health care service imply quality? Or is it necessary to have a (measurable) outcome? In a sense, the nature of American health care is more of a disease management system than one that prioritizes health promotion and maintenance.

Challenges

The diversity that is so central to the very fabric of the nation heavily influences the health care system, and makes measuring quality or setting and enforcing standards a tall order. By its very nature, the multi-payer system that *defines* modern American health care *defies* attempts to standardize quality. What with tier upon tier of private insurers, a multitude of health systems funded and administered by different levels and branches of government, quality of care is often lost in the layers of bureaucracy. Like so much surrounding the American health care system, many would agree that there is a huge delta between the way things are and the way they should be. Topping the long list of challenges for consistent quality care are the fee-for-service system, health care provider shortages, and a lack of standardization for electronic health records (EHRs). Perhaps the greatest challenge to the U.S. health care system is what makes it stand out from other industrialized countries: the fee-for-service system which tends to emphasize quantity instead of quality. In a system based on volume, it is easy to see why this type of numbers-centered environment irrespective of outcomes not only exists, but continues to grow. More is not always better. Medicare records show that in Rochester, Minnesota, where residents enjoy relatively good health and live longer than peers in other regions, Medicare spending is in the lowest 15% of the country. The four states (Louisiana, Texas, California, and Florida) with the highest levels of Medicare spending per capita were near the bottom of the quality of patient care national rankings.[70] At odds with evidence based medicine and demonstrated necessity, the fee-for-service system rewards overtreatment. While providers in other countries (particularly in Europe) are incentivized for sustained, positive outcomes, this concept is in its nascent stages in the United States. The fee-for-service systems in Singapore and China also foster an environment of overtreatment; in those countries, the real revenue for doctors and hospitals is generated not only from physician consultations, but also for medical tests and pharmaceutical prescriptions.

The fee-for-service system encourages volume, but what about relationships between the patient and provider? Though open to debate, health care quality might best be measured by health care consumers who are (or become) healthy and stay that way, and providers who work in conditions most conducive to fostering patient relationships and delivering quality care. A

recent survey indicates approximately 60% of patient visits take 15 minutes or less,[71] and many physical exams occur without a provider actually physically touching the patient, but sitting three feet away at a computer. It is clear that providers are often overtaxed and burdened by administrative requirements, but a return to fundamentals and reframing of priority around health promotion and maintenance would go a long way toward improving quality of care. It appears that, particularly in the private Indian locations we visited, the focus is rightfully placed on health care delivery and outcome, where in the U.S. the surrounding processes, administration, and bureaucracy play a disproportionate role.

A second-order effect of the fee-for-service system is a dearth of health care providers in poor urban and rural areas. If health care providers are paid based on their patient base, then it is logical that doctors will go to locations where there are large numbers of middle- and upper-income patients. As a consequence, health care provider shortages are felt most acutely in rural and poorer areas of the country where morbidity and mortality are disproportionately high.

Incentives for morbidity and mortality are also misaligned in the American system, namely that Americans are not incentivized to maintain their own health. Following the economic principle of moral hazard,[72] Americans with health insurance pass along the cost of their poor health to their insurance companies, and Americans without insurance allow their health to deteriorate to the point where they wind up in the ER, where they have to be treated, regardless of ability to pay.[73] Because costs for care in the U.S. are so opaque, a patient does not know how much their care actually costs. Further, the patient typically only pays a set deductible or co-pay amount and their insurance company pays for the remainder. This system does not provide any incentive for the patient to maintain their wellness, or for the patient to compare prices when considering treatment. This is dissimilar to Medisave, the mandatory Health Savings Plan utilized in Singapore, where all citizens are required to contribute a percentage of their monthly wages into a savings account specifically designated for health care expenditures.[74] When Singaporeans need health care, they shop around among providers who have their prices clearly listed, select the provider that offers the necessary care at an acceptable cost, and pay for the care out of their Medisave account.

A further contributing factor to the issue of quality of care is the inability of health care providers to view a patient's entire medical history. Even though some medical providers are moving to EHRs, not all have done so, and among those who have there is a lack of standardization and interoperability. In the U.S. today, there is no federal regulation requiring health information technologies (HIT) companies to make their records interoperable with other companies. Potentially, a patient's primary care provider using a HIT company with one EHR system cannot digitally transfer or receive input from another HIT company using a different EHR system. At the same time, neither the specialist nor the general practitioner can digitally communicate or share records with a hospital that uses a different EHR system. This means that a patient from Virginia who falls ill while vacationing in Colorado will have to recall important facts about his or her medical history when receiving medical care in Colorado. The patient may not remember all relevant medical history or the names of currently prescribed medications. As a result, the doctor may recommend a particular course of treatment that is actually detrimental to the patient. Nationwide access to a standardized EHR would preclude this type of medical error.

Government Goals and Role

The goals and role of the government relating to health care quality depend upon numerous factors, including political climate, relations among different governmental agencies with responsibility for health care, and relations between governmental and agency entities. However, the goal of the U.S. government should be to leverage innovation to maximize health benefits and reduce risks. The recommendations in the following areas show the greatest potential for progress.

Recommendations

1) Change the fee-for-service system to a value-based system, as discussed in the Cost section above. This would also take steps toward improving the patient-provider relationship; if the provider was incentivized to care about overall patient health and well-being, the provider is likely to spend more time with the patient and express real concern about the patient's issues.

2) The government should institute incentives for Americans to take responsibility for their own heath, and health care costs related to poor lifestyle choices. Certain private insurers are now offering incentives to members for meeting wellness benchmarks, and certain hospitals offer rewards to providers whose patients maintain certain statistics (for example, blood pressure, glucose, and Body Mass Index within normal limits). Because most people are motivated by monetary incentives, the federal government should consider offering a tax credit for healthy living, similar to tax credits offered for education, childcare expenses and energy efficiency. Considering the high rates of American citizens with multiple chronic diseases, offering an income tax credit for maintaining a healthy lifestyle could drive behavioral change and set conditions for improved health outcomes on a national level. Similar tax credit initiatives were introduced in Canada both by individual provinces and the Canadian federal government. The most notable, introduced in 2007, was the Children's Fitness Tax Credit, which offered a tax credit up to $75 per child for the costs associated with enrolling children in organized physical activity programs.[75] More recently, an initiative to expand the tax credit to include adults was introduced and is under review by the federal government. Although costs of offering tax credits for engaging in physical activities could be substantial, and arguments could be made that public funds should be spent on other strategies, people who engage in consistent physical activity are more likely to have better health outcomes and are less prone to developing chronic diseases. Such efforts can translate into significant savings in health care costs, both for government-financed programs like Medicare and Medicaid, as well as for individuals.

3) In addition to incentivizing health care providers to work in rural areas, as recommended in the Access section, the government can encourage less expensive Nurse Practitioners (NPs) and Physician Assistants (PAs) to provide quality care in rural areas, instead of more expensive board-certified physicians. Allowing professionals to practice to their full set of skills has not decreased quality, as evidenced in a study of NPs and PAs treating rheumatoid arthritis patients.[76] Medicare and Medicaid also performed a study which revealed that the states restricting NP practice had a higher incident of hospital readmissions, hence poorer outcomes compared to states that licensed NPs without restrictions.[77] Additionally, a manual comparison between the Kaiser Foundation's primary care shortage report and the American Association of Nurse Practitioners licensure restriction map show eight of the twelve restricted NP licensing

states are in the top 15 states with provider shortages.[78,79] While NPs and PAs cannot completely fill the roles of all physicians such as surgeons, their capability is quite significant, and current research demonstrates that they can deliver quality primary and preventive care to populations who need it. Liberalizing restrictions would have positive impacts on both quality and access, particularly in underserved areas. Various organizations in both India and Singapore cited success with use of non-physician providers in rural areas, particularly for health maintenance, public health, and vaccination administration.[80]

4) Along with the use of PAs and NPs in underserved areas, the government should also incentivize the use of telemedicine to improve the quality of medical care in these areas. Patients who don't have easy access to providers should be encouraged to leverage telemedicine for care. Geisinger, an integrated health care system operating in Pennsylvania, reported that telemedicine enables easier access to quality care, cost savings as a result of not having to travel for care and comfort by remaining in one's own community.[81] Additionally, Geisinger found that utilizing telemonitoring to check vital statistics of post-operative patients at home following medical procedures significantly reduced hospital readmissions. This not only improved quality of care but also prevented patients from acquiring hospital-borne infections such as staph and Clostridium difficile (C. diff), and also generated cost savings. Research supports that action taken to prevent readmissions actually saves hospitals money, which in turn saves the government money. A study for 541 Medicare patients diagnosed with heart failure compared the total costs of care while in the telemonitoring program to the costs incurred when not enrolled in the program. Not only was the efficiency of health care providers involved in the study improved, but the health care system also yielded a 3.3% return on investment, with total savings of about $216 (or 11%) per patient per month. Additionally, the study demonstrated that participants experienced significant reductions in their probability of hospital readmissions with their odds of 30- and 90-day readmissions reduced 44% and 38% respectively during the months they were enrolled in the telemonitoring program.[82]

5) While many operators in the health care space have migrated to EHRs, there is still room for improved use of EHRs, specifically on the interoperability across the health care industry. EHRs help to reduce repetitive testing, keep patients safe with allergy alerts and drug interactions, reduce prescription interpretation errors, and provide data.[83] Efficiently engineered computer systems can decrease administrative burdens, which allow providers to utilize their skills and spend more time with patients. EHRs allow not only for a full recording of a patient's medical history, but can flag errors with respect to drug type and dosage before a mistake is made. CMS should continue to incentivize providers through policies to use interoperable EHR systems. Likewise, U.S. lawmakers should incentivize developers of EHR systems to create interoperable and standardized systems that reduce the administrative burden on providers. Common language and secure platforms for sharing medical information is essential to providing real-time access to data and improving quality of care. The government has an opportunity to implement policy change advocating EHR systems to create information of data minable quality for conveyance to applicable agencies, such as licensing bodies and insurance payers. If EHR data were linked directly to payers, provider documentation could be reduced and value-based medicine more easily implemented. EHRs are also instrumental in establishing standards and evidence based protocols across departments, within a hospital, or even among multiple hospitals. A first step towards full interoperability would be enhanced used of states' Health Information Exchanges (HIE). These information exchanges, while not a replacement for full

interoperability, allow medical providers to see a more complete picture of their patients and increase quality and patient safety. However, HIEs between states need to be compatible across state lines; tying such a regulatory requirement to states' Medicaid funding is one way to incentivize this necessary modernization.

6) In a similar vein, key decision makers in the health care industry should consider adopting a national medical identification number, issuing a medical identification card to each citizen, akin to the system utilized in Singapore, to improve interoperability of EHRs. While this initiative may raise privacy concerns, as EHRs, HIEs, and HITs grow, proper patient identification will become a more significant issue. Adopting an independent medical identification number not only sets conditions for improved interoperability of EHRs, but also improves access to and quality of care by minimizing confusion over patient records.

Outlook

Despite the multitude of serious challenges the U.S. faces in delivering quality health care to its citizens, a collaborative and comprehensive approach, greater ownership of and responsibility for both individual and community health among all stakeholders, and a commitment to elevating this among national priorities can translate into an opportunity for growth and success. While the U.S. has long been at the forefront of medical technology, sophisticated surgeries, and advanced procedures, the U.S. needs to do more to leverage the transformative benefits and practical use of technology. EHRs and telemedicine, which, though vital and complementary components of the U.S. health care system, are currently underutilized, and could benefit from standardization and cross-capability in an effort to bolster quality and maximize efficiency (as well as increase access and reduce cost).

CONCLUSION

With the growing costs of health care on an upward trajectory, there is little room in the federal budget to sustain these programs without innovative policy reforms. In order to preserve U.S. national security for the future, we must take courageous steps to address the growing debt. Meeting the nation's long-term fiscal challenge will require a reexamination of mandatory spending, including entitlements; and tax policies and compliance activities. However, mandatory spending on health programs is the driver of long-term fiscal imbalances. The rising share of health expenditures has dire implications for government budgets. In light of this, lawmakers and policymakers must recognize that the growing costs of health care are unsustainable and real reform is necessary. This paper explored a number of issues related to access, cost, and quality of care in the U.S., while using India, Singapore, and China as comparisons. While none of the four nations have a perfect system, there are aspects of each that can be combined to improve the current American health care system. The recommended changes fall generally into two categories: technology and incentives.

Technology: A coordinated and pragmatic approach here can yield impressive improvement to health care quality, as this recommendation can benefit both the providers' challenge as well as help seize the opportunities outlined in the discussion of EHR and telemedicine above. The government should establish true interoperability standards wherein providers, regardless of EHR system, can access an entire medical record. In addition, the U.S.

can and should seek ways to drastically increase the prevalence of telemedicine as part of the health care system. Lawmakers should consider legislative relief for antiquated laws such as the Patient Inducement Act and support approval of pending legislation to include the Medicare Telehealth Parity Act of 2015 and the Telemedicine Act of 2015.

While not directly related to technology, non-physician providers are key to improving quality, cost, and access issues in rural areas. Legislation must be pursued to permit efficient practice of non-physicians and further improve cost, quality, and access of health care. Another means of improving provider flexibility and patient access is state-to-state reciprocity, which would obviate licensing barriers. If confronted with an issue beyond their professional ability to handle, these non-physician providers can leverage telemedicine to consult with physicians, and make a determination if the patient needs to travel to meet with a physician in-person. Telemedicine in general is an innovative concept with great potential to reduce cost and increase access in rural areas. To be effective future telemedicine laws should follow the DoD approach allowing providers open licensure to practice across state or other boundaries.

In India, we observed a system wherein creative and extensive use of telemedicine expanded access, increased quality, and reduced cost for patients, and maximized providers' time. We saw how simple Smartphone applications allowed physicians to consult with patients and make necessary adjustments to treatment plans without the hassle of an office visit, and mitigated the risk of hospital admission. There is enormous potential for efficiency and quality here. More lax laws and policies with respect to privacy in India certainly aided in getting this off the ground quickly; the process would likely not be so easy in the U.S. and must be tailored to fit our societal and regulative norms, but ignoring telemedicine is done at our peril.

Technology can also be used to simplify patient identification through the use of a national health care identification number, and the simplification and standardization of insurance claims forms, both of which would reduce administrative costs, as well as the likelihood of fraud. A common language and secure platforms for sharing medical information is significant to providing data access and quality. This is not to say the user experience for each platform need be identical but agreed-upon standards on what data must be entered based on the medical diagnoses in accordance with accepted medical protocols should be followed.

Incentives: Accountability must be built into the American health care system. The current system lacks incentives for providers to keep people healthy or for individuals to keep themselves healthy. The system needs to transition to a value-based payment model that incentivizes providers to manage risk, control costs, and deliver quality care. Providers would be incentivized or penalized based on their ability to meet certain targets of quality and cost efficiency. In addition, lifestyle changes must be incentivized or penalized to positively affect medical outcomes. Insurance rates should reflect the behaviors of individuals in society and require bad behavior to accept a proportional fee required to provide them medical care. Similarly, evidence based medicine should be used to develop and enforce polices that standardize protocols and improve outcomes for all patients.

To reduce the high costs of pharmaceuticals in the U.S., it is necessary to incentivize R&D while still allowing pharmaceutical companies to make a profit. This can be accomplished by offering profit margin based patents, as opposed to the current time based patents. Another

high-cost area is malpractice lawsuits. To combat the detrimental impact of malpractice lawsuits on the increasing cost of health care, the U.S. Congress should pass the Malpractice Reform bill introduced in March of 2016.

In order to protect the American people and the federal budget, health care reform is crucial, and it will only happen if state and federal lawmakers force the issue. The health care industry cannot reform on its own (in fact, some current rules and laws are preventing innovative industry reform, especially in telemedicine); as such, it is imperative that the government work with the various health care service organizations to address the challenges we face in the very near future. At 17% of GDP, and growing, this country spends far too much to settle for anything less than the highest quality health care for all its citizens. This paper raised several realistic and implementable suggestions, many of which involve risk and require a mindset shift. However, it is precisely these innovative ideas that will drive true reform, allowing the nation to shift from a sick care to a true health care system.

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