The Economics of Health Care

11

David A. Rosman and Jordan C. Apfeld

Learning Objectives

After completing this chapter, the reader should be able to answer the following questions:

- The size and structure of the health insurance market in the United States
- Health care as an economic good and be able to track where the money comes from in the health-care industry
- What factors and dynamics drive the costs for health services in America's insurance-based system
- How rising demand and the misalignment of risks and incentives have been part of the cause of rising health-care costs in the United States
- New cost-reduction and quality-improvement strategies being implemented in America today

Current Size and Structure of the US Health-Care Market

US Health-Care Market: The Size

A study in *Health Affairs* demonstrates that the United States spent more on health care in 2000 than any other country in the Organisation for Economic Co-operation and Development (OECD) [1]. In 2010, total national health expenditures reached $2.6 trillion [2], which was over 17 % of GDP [3]; this percentage is the highest to date in America because the rise in health-care costs has outpaced inflation since 1970. In fact, in 1970, shortly after Medicare/Medicaid was created, health-care expenditures had comprised a mere 7.2 % of GDP. In 2008, our per-capita health expenditure was $7,538, which was $2,500 more than the next highest per-capita expenditure of Norway [4].

However, after 2000, cost increases have lessened, from 9.5 % in 2002 to 3.9 % in 2010 [5]. Many attribute this to America's economic struggles, especially considering the 2007–2008 financial crisis. Essentially, fewer available dollars to spend would mean less demand for health care, which would also mean minimal price inflation.

D.A. Rosman, M.D., M.B.A. (✉)
Department of Abdominal Imaging, Massachusetts General Hospital, Boston, MA 02144, USA
e-mail: drosman@partners.org

J.C. Apfeld, B.A.
Vanderbilt Orthopedic Institute Center for Health Policy, Vanderbilt University Medical School, Nashville, TN 37232, USA
e-mail: jordan.c.apfeld@vanderbilt.edu

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Detractors of this theory contend that medicine is recession proof and that the slow leveling of costs is a genuine achievement in cost containment [6].

Health-care prices are also much higher in America than in any other country, in addition to the fact that costs of US medical care are the highest in the world [1]. The other 19 most wealthy countries (by GDP) pay less than half what the USA does for health care, and they also have added 6 more years of life expectancy than the USA (since 1970) [7]. Some assert that these statistics show that the US system is both the most costly and the most inefficient health-care system in the world. Others argue that the life expectancy in the USA reflects poor preventive health and the widespread obesity epidemic rather than the inefficiencies of the system. Regardless, our medical system is still the most advanced in the world, so it is now necessary for us to understand its structure in order to take the next steps—decreasing costs and improving quality.

US Health-Care Market: Characteristics

In understanding American health policy, it is instructive to view adverse health episodes as a "costly risk." Health episodes vary greatly in both rates of incidence (risk) and price of medical service (cost). But, in general, a patient will rarely encounter a certain condition, disease, injury, or health attack, but when he or she does, it is very costly. This idea is key to comprehending the market for health care.

Health as a "Good"

In health-care economics, "health care" is a "good" unlike anything else we regularly experience in the American economy. First of all, it is a derived good, as the demand for health care is really a demand for positive health or health outcomes. People want to be in a state of good health, and modern medicine has become the predominant vehicle through which to remain healthy in the United States.

Health care is often consumed like a good, granting relatively direct satisfaction, depending on the outcome of the medical care. The "utility" of getting treatment for a sudden life-threatening heart attack is extremely high because people want to survive to have a long life, but also because patients want to live with minimal pain, discomfort, or disability. When a person becomes injured or grows ill, the utility for curative or palliative care is suddenly very high, whereas it would have been nonexistent before. Consequently, there is a sudden very high demand for care, and that demand is relatively "inelastic," meaning people will probably purchase care even if the price rises. However, they will be less inclined to do so if they are paying out-of-pocket, as opposed to getting insurance to pay for it.

Health care can alternatively be built up like an investment in the long term. Depending on factors like lifestyle, exercise, diet, hereditary characteristics, and preventative care (especially relevant here), a young child will add or subtract from a certain amount of "health capital" over a lifetime. More health capital means a person will be healthier and will possess relatively less risk of becoming ill or injured. In America today, patients (and sometimes physicians) tend to focus on the short term, so they will not see tremendous value/utility in seeking preventative medicine because the results of this care only manifest in the long term. Consequently, demand for preventative medicine is more elastic than demand for curative medicine; people are more willing to forego preventative measures.

The aggregate supply of health-care provision is based on the combined decisions of many providers and can fluctuate based on specialty, regional trends, and health-care legislation, and in response to health-care consumers. However, the total supply of health care is so complex and institutionalized that it will change slowly over time. Aggregate supply of medical care is inelastic in the short term, which means that providers get accustomed to providing any amount of care at a given price and patient/consumer behavior will not be able to change this price. Supply will slowly expand over time, but it can also change suddenly depending on the type of consumer or insurer (meaning supply is also more elastic); this will be explained in detail in the following sections.

A Rational Basis for Health Insurance

It is worth noting that human beings put an extraordinary utility/value on their lives. In most developed countries, the "right to health" can be extrapolated to mean that everyone needs and deserves health care. In the United States, we declare the inalienable right to "life, liberty, and pursuit of happiness" [8]. Indirectly, modern American policy has evolved to guarantee access to health care for every citizen—or at least it aspires to provide for everyone. While public programs like Medicare/Medicaid are well-established ways to guarantee care today in America, the original and most common way to do so has been through health-care insurance.

The purchase of insurance is a *rational* decision by consumer/patients to ensure they can access and afford medical care. It is a *rational* way for third-party insurance companies to make money. And it is a *rational* way for providers to ensure and increase their business. Insurance is rationally advantageous for these three main entities involved in private medical care. This is because it "insures" against two critical problems in the market for health: uncertainty and asymmetric information.

Health, as well as health care, is intrinsically *uncertain*; properly dealing with uncertainty is, in many ways, a critical component in becoming a talented medical professional. Both the patient and the provider have little or no idea when sickness will strike. Therefore, it is difficult for the patient to plan for health-care access ahead of time. In the event that the ill can afford the proper care, there is no guarantee for ideal, certain outcomes from that treatment. Medicine is one of the most scientific disciplines, but does not always have predictable outcomes. The uncertainty about when and if the patient/consumer will need care, *plus* the uncertainty about the effectiveness and value of care, means that the health-care market is far from efficient.

The provision of health care also has intrinsic *information asymmetries*. Both providers and patients possess their own knowledge, which is often unavailable to the other party. Physicians have substantially more knowledge about health conditions than do patients, and they often charge for this expertise as a commodity. Sometimes doctors even "decommodify" themselves, saying we are "the best at joint replacements" or "we have the lowest infection rate" or "we will see you the fastest"—claims that patients might not completely understand. It is also difficult for doctors and insurers to decide on an upfront cost for care, as patients might withhold information about comorbidities or medical history. With this gap in knowledge and ambiguity in market price, there is a deadweight loss in market efficiency; there is a less-than-optimal provision of medical care.

Health uncertainty means that providers may not be paid for treatment except when disaster strikes, and at that time patients may not be able to pay for the expensive care. Here, at the point of service, supply and demand might not match up and purchased health care is foregone. In addition, patients do not possess "full and relevant information" about what treatment they require (as the doctors do), and they might withhold information from the doctor about their illness or ability to pay. Consequently, lack of information means that doctors are less likely to provide services and patients are less likely to seek it.

With the *risks of uncertainty* and the *risks of information asymmetry*, the market loses potential business and people need more care. Currently, the general health of Americans is getting worse, medical treatments are becoming more sophisticated, and therefore medical treatment and technology are getting more costly. These trends only exacerbate the risks that lead to a health-care market shortfall. Insurance is an economically rational, communal, and customary way to address both of these risks. Third-party insurance allows patients/customers to pool both minor and severe health risks, paying a little every month in order to avoid paying a lot when someone falls ill.

Additionally, insurance companies are one entity that might act as an arbiter between provider and patient. When people pool risk under the auspices of insurance corporations that possess more health-care expertise, two things happen. One, the company can negotiate on behalf of both provider and patient to determine a fair market price for services rendered. Two, the

pooling of medical care for many under one insurance umbrella consolidates service and encourages business. Business in batches leads to less ambiguity in point-of-service health-care dealings.

Insurance offers a rational benefit to patients by making service more approachable and affordable; it offers a rational benefit to providers by bringing and facilitating more business than they would otherwise see. For patients, if the marginal cost of buying insurance is less than or equal to the actual benefits above, they will opt to purchase that insurance. Obviously, this does not always occur. Sometimes people will *perceive* fewer benefits from health insurance; for example, a 25-year-old might place his or her risk of being in an accident or getting cancer at "zero," when the *actual* risk is higher. Therefore, people (rationally or irrationally) withhold from buying insurance if the perceived benefit is lower than the actual cost of coverage.

The rising costs of medical care have made insurance less affordable and more important for patients/consumers. In order to understand these rising costs, we must first track how payments flow from patient to provider, usually facilitated by insurance.

US Health-Care Market: The Structure

As demonstrated earlier, the health-care market is both imperfect and complex. As demonstrated in every chapter of this book, health-care systems use an amalgam of payment structures, organizations, acronyms, and terminology. However, it is critical to note that underneath the labyrinth that is insured care, the health-care market revolves around the purchase of a good. Even if insurance obscures the actual flow of money, ultimately it follows that payment for this good goes from a consumer (the patient) to a seller (the provider). Keep this in mind as we trace where this money comes from and where this money goes to.

Where Does the Money Come from?

Payment Terminology

In order to understand where the money comes from, we should know a few terms. "Premiums" are the fees paid by patients (or on behalf of patients) to insurance providers with the expectation that the insurer pays for X amount of necessary medical care in the future. "Coinsurance" is the requirement for patients to share in the costs of medical care, usually a given percentage, sometimes through a "co-pay" for visits to the doctor, medical procedures, or pharmaceuticals. A "deductible" is the amount of expenses that must be paid "out-of pocket" before the third-party insurer will pay for medical expenses [9].

At the point of service, two distinctions are useful. One distinction is between "preventive care," which are anticipatory measures to deter negative health outcomes in the future, and "curative care," which is medical treatment of an illness, disease, or injury. Another distinction is between "charge" and "payment." While providers may have a common charge per visit or procedure, not all medical services are paid back in full. If there is payment for a procedure, sometimes third parties have an agreed-upon discount, which decouples the charge from the payment. However, the uninsured will always pay the full charge, or someone will have to pay that charge on their behalf.

Individual Private Insurance

The most straightforward mode of coverage in the United States is individual private insurance. This insurance group is often referred to as the "non-group." The American health-care system offers elective private insurance but does not require it. Patients who wish to insure against adverse health episodes pay a certain monthly premium, so that in the event of sickness, the insurance company will pay on their behalf. Many conditions are attached to an insurance deal—only certain procedures are covered, procedures are not necessarily covered in full, and the amount of coverage can be tiered according to price.

Effect on Prices

Individual consumers of private health insurance tend to pay more than those in small- and large-group employer-sponsored plans. Insurance corporations will generally not budge on premium

levels on a person-to-person basis, since most of their business comes from the small- and large-group insurance market and because there is too much adverse risk in taking on individual customers.

Employer-Based Private Insurance

As mentioned in the previous chapters, 49 % of Americans obtain health insurance coverage through their employers—employer-sponsored insurance (ESI) [10]. Within a large company, numerous plans might be offered to all employees. In a very basic sense, a company steps in to pay some or all of an employee's premiums; more often than not, the worker will have to contribute a share of the premiums, coinsurance, and deductible.

Effect on Prices

Because their insurance is subsidized, employees generally pay less for their employer-sponsored plans than individuals do for private plans. By purchasing insurance en masse, a company can also lessen the overall price that is paid per unit for health insurance—essentially buying it wholesale. However, even if this does happen, total per-capita health expenditures for employee coverage are usually higher than the non-group market [11], because employees/employers will buy more insurance than individuals.

There are many reasons for this. First of all, employers get federal tax deductions for all health insurance they provide. In a 2008 report, the Congressional Research Service released a report arguing that employers will readily replace wages with more tax-free health insurance coverage, and therefore, employees will seek out more coverage than they otherwise would [12]. Especially due to higher-income people and families, tax deductions cause a significant overpurchase of insurance, which can increase health-care prices and make insurance less accessible to the poor and uninsured.

Medicare/Medicaid

In addition to the subsidy given for the previously mentioned tax exclusion, one of the US government's key roles in health care is to subsidize health insurance for those who cannot access or afford coverage. Medicare offers defined federal benefits to patients under 65 years old: hospital care (Medicare Part A), necessary medical services and physician coverage (Part B), private network plans (Part C), and outpatient prescription drug assistance (Part D). Medicare patients on average cover half of their total health-care costs, paying for supplemental insurance, uncovered services, and coinsurance [13].

The Medicaid program is "means tested" and offered to poor children, their low-income parents, and people with certain disabilities [14]. In contrast to Medicare, Medicaid is managed predominantly at the state level, with funding from federal and state governments. Through fee-for-service or managed care programs approved by the US government, Medicaid covers more services than Medicare, including long-term care and comprehensive services for needy children.

Effect on Prices

Beneficiaries of both Medicare and Medicaid have to share the costs of medical care, some more than others. However, these public programs make their contributions directly to providers and not to patients (who contribute coinsurance), with many implications for health care costs. Because these programs are so expansive, they can bargain with providers for discounted health-care prices or even mandate the value of certain services [15]. While this approach can lower overall long-term health-care prices, physicians shift these costs to commercial insurance plans, and those patients see their premiums rise as a result [16]. As government's share of health-care expenditures continues to rise, public spending will continue to be a powerful policy-making and cost-bending tool.

Out-of-Pocket Payers

Many consumers opt out of health-care insurance. From the approach of rational economic theory, these people perceive the marginal cost of having insurance to be more than the marginal benefit. Out-of-pocket payers owe nothing until they seek elective or urgent medical care. Then they will pay full market price to the provider for

whatever services are given. If they cannot pay the full value of services, the patient, provider reimbursement office, and any necessary government regulators or laws will decide on a proper patient contribution rate.

Without insurance, patients risk very sudden, exorbitant health-care costs, which shock their own finances in the short term and government finances in the long term. The costs of nonpayment by the patient are passed on to the health-care system and absorbed by the government and its taxpayers. While also burdening the system, out-of-pocket payers could lose everything; in 2007, medical payments caused a stunning 62 % of all personal bankruptcies in the United States [17].

Free Care

Many Americans do not purchase health insurance and cannot afford health care at the point and time of service. If patients are over 65, they are enrolled in Medicare. Citizens can pursue either private insurance or Medicaid coverage when they are younger than 65. For those without any type of coverage, the most common recourse is going to the emergency room (ER) when they are very sick. ER care is more expensive and is intended for emergencies, not for untreated sickness. However, uncovered patients even go to the ER for routine outpatient care.

When people wait until their illness warrants ER service, the total amount of ER care increases and overall health-care costs rise. Very often hospitals pay for this care, with assistance from state or federal "uncompensated care pools." These pools have to be very large to cover all ER care, so all Americans bear the cost to support uncompensated ER care.

Free clinics are another important place for people to seek health care. Many of these clinics provide a full range of primary care services, but not for complicated conditions that require more capital-intensive care. Funding for free clinics comes from elective, private sources. Importantly, these clinics provide for poor citizens and draw away costly traffic from hospital ERs, but cannot replace hospital-based care or even more complex outpatient evaluation and management.

Where Does the Money Flow?

In this chapter, we want to focus on where health-care money comes from, but we must also have a feel for where the money goes:

- *The money flows from*: America's total national health expenditure in 2010 was $2.6 trillion. 32 % of this was from private health insurance—the largest source of funding. However, combined public funding for health care comprised half of national health expenditure: the bulk of this is from Medicare at 21 % and Medicaid/CHIP at 16 % [2]. Other private, public, and out-of-pocket spending made up the remaining spending.
- *The money flows to*: in 2009, 30.5 % of the total American health expenditure went to hospital care [18]. The second largest slice of spending was paid for physician or clinical services: 20.3 %. Spending also went to prescription drugs (10.1 %), other personal health care (14.9 %), nursing home care (5.5 %), home health care (2.7 %), and other health spending (15.9 %). The specific flow of cash from consumer (or contributor) to provider is extremely complicated and beyond the scope of this chapter. Helpful details about reimbursement can be found in Chap. 15.

Quick Recap

In the early twentieth century, groundbreaking advances in medical technology led to the formalization of the health-care industry. Part of this formalization was the creation of third-party insurance, which was a way to spread financial risk and adverse effects of a unique health-care economy. Health insurance allows Americans to hedge against the uncertainties and information asymmetries in the market for medical services. In a private fee-for-service (FFS) system, payments for health care come from a number of sources. By examining each source, we can track the origins of significant health cost increases in the latter half of the twentieth century. In the next section, we will zoom out to understand key problems and possible solutions related to health-care affordability in the United States.

Problems Leading to Rising Costs in the Market for Health Care

The United States has a historically "fee-for-service" health-care system, which means that physicians charge fees commensurate with the type and amount of services they provide to patients. This system was tweaked with the emergence of basic managed care and is being markedly altered by different versions of "capitation," a type of payment system we will address in this chapter. However, it is critical to note that although we have many ways to pay for health services, in the end it is always the patient/consumer that pays. However the final bill is rerouted, consumers tend to bear the brunt of cost increases as America heads into the twenty-first century.

What is remarkable is that, because our insurance system is both employer and government based, very few individuals know how substantially they are affected by increasing health-care and insurance costs. Whereas the financial hurt is obvious when you write a larger check to your insurance company, it is hard to notice the raise you did *not* get because your employer's health-care costs were rising, eating away profits that would have gone to you in an increased salary. Below we demonstrate how costs have risen, and then we investigate how risks have been managed and distributed in response to increased costs.

Profit-Maximizing Behavior and the Rising Costs of Health Care

"The failure of the market to insure against uncertainties has created many social institutions in which the usual assumptions of the market are to some extent contradicted." This quote by Kenneth Arrow, one of the most influential health-care economists in history, effectively illustrates that the creation of health insurance to solve one problem—the unaffordability of unexpected care—created a new set of problems. Rising health-care costs are the main sequelae, and we explain them here.

The Adverse Effects of Technology (on Costs)

The cost of health care depends predominantly on medical costs. In the chapter breaking down health insurance, it was evidenced how rapidly advancing medical technology leads to rapidly rising health-care costs. Although imaging is often cited as a cause of the increasing costs, the problem is more system-wide. In 2012, routine MRIs cost $1,080 in the United States, somewhat more than the cost of an MRI in other developed countries (in Switzerland the cost is $903; in Germany the cost is $599). However, the cost of a hospital visit is $15,734 in America, *three times* the going rate in Germany [19]. With more hospital care than ever before in the United States (30 % of expenditures) and more life-threatening illnesses that require those services, our health-care system is very much based on treatment and not prevention. America is richer, sicker, and more medically advanced today than ever. This is why procedures like coronary artery bypasses cost an average of $68,000 in the USA today [19].

The Adverse Effects of Providers (on Costs)

In a fee-for-service (FFS) health-care system without government price controls, joint provider-insurer price agreements, or substantial free-market regulation, it is well documented that the quantity and cost of medical services will increase progressively [20]. FFS health-care payments, aggressive pharmaceutical and medical device marketing campaigns, and ever-rising medical costs create incentives for doctors to provide more treatments. Whether or not providers are aware of their practices, an FFS system will encourage the following financial conflicts of interest: to avoid integrated care, practice self-referral, and put a premium on quantity over quality. Predictable cost increases ensue from such practices.

Cost increases and overutilization of health care reinforce each other, so at the turn of the century, doctors find themselves practicing "hamster health care": decreasing patient care time and increasing patient turnover just to keep their practices afloat [21]. This practice might raise $1

of professional income for doctors, but the final medical bill could increase $5—the multiplier effect in health care. This system is exacerbated by the still-common practice of price-discrimination, where doctors charge more to those who can pay more. They negotiate a higher price with the private market in order to balance out discounts for low-income and nonpaying customers. Private *and* public insurance costs rise as a result of price discrimination.

One last point related to providers: the system for training and becoming a licensed medical doctor restricts the number of qualified doctors. When fewer doctors are available, they will more readily be able to discriminate between patients who can afford their services and those who cannot; restricted supply perpetuates the out-of-control hamster wheel that is health care, and thus, the costs will continue to rise.

The Adverse Effects Due to Consumers (on Costs)

Overutilization of health care is due to many factors other than physicians. If a hospital increases the bed count, those beds will most likely be filled in the short term. In this case, "supply begets demand" of health services, even if people are not getting more ill in the short term [22]. Observing human nature in America, there is little a family will not do to keep loved ones alive. If there is an elderly high-income patient requiring a coronary heart bypass with little chance of survival, few patients (or their family) will choose against measures to stay alive, regardless of the chances. Americans are living longer, and health becomes more expensive after age 65. Consequently, short- and especially long-term care of senior citizens makes up an inordinate share of health-care expenditure [23]. Last-year-of-life expenses constituted 22 % of all medical spending in the United States [23]. And, overall, the highest-spending 5 % of patients (many of whom are the very sick and/or senior citizens) accounted for over half of total health-care expenditures in the United States in 2012 [24].

Those with a high ability to pay, or extreme readiness to seek paid or unpaid services, utilize most medical care; this is a type of reverse price/service discrimination. However, insurance coverage allows more people to pursue these costly services. Having purchased insurance premiums to spread risk, patients feel shielded from paying for health services [25]. In the short term, they could opt for emergency health procedures that cost twice as much. In a medical version of the prisoner's dilemma [26], patients will usually opt for more care if they do not have to pay for it in the short term, even if the services will have minimal health benefits. However, in the long run, everyone will pay higher premiums, including the patient who "benefited" from costly care.

Applying his economic lens to health care, Kenneth Arrow labels overconsumption of health care due to insurance a "moral hazard." In an "inefficient moral hazard," many patients make the same choices (to seek unnecessary medical care because "they can") that make everybody worse in the long term—a net welfare loss. Some scholars will make the case for an "efficient moral hazard," where increased consumption allows individuals to attain better health outcomes in the long term—a net welfare gain [27]. Regardless, the moral hazard undoubtedly inflates the cost of health care.

The Adverse Effects of Insurance (on Cost)

Because of these collective incentives for doctors and consumer/patients to overutilize health care, insurance companies charge higher premiums to offset the resulting increased costs. Eventually, there is a significant group of patients that can no longer afford to insure against health risks. Through new insurance policies denying coverage to people with preexisting conditions and refusing to cover certain services, more patients have been added to this group. The newly uninsured either seek uncompensated care through the ER or forego necessary care while their conditions continue to worsen. Both options hurt not only the individual but also systemic health-care costs and quality.

Insurance companies make a profit by minimizing the "medical loss ratio" (MLR), which means that they cover less in insurance claims than they earn by collecting premiums [28]. If an

insurer is not making a profit, they will exit the health-care market. So when medical services and costs rise, insurance corporations will automatically pass on these costs to the consumer in the form of premiums, coinsurance, or deductibles.

The Adverse Effects of Government (on Cost)

As will be demonstrated later in this section, the government can do a lot to decrease costs. However, there are a few current policies that tend to exacerbate the rising cost of medical care. First of all, the government grants tax exclusions for most employer contributions to employees' health insurance plans. This exemption has helped to keep the American system predominantly employer based and does in fact lead to more total coverage. However, employers end up over-purchasing insurance, which increases cost [12]. Secondly, publicly provided insurance can increase coverage but will also systemically underpay for these hospital and professional services; this forces providers to negotiate higher fees for those covered under private insurance.

Possible Departures from Profit-Maximizing Behavior

Health insurance economist Mark Pauly suggests this situation:

Consider two companies A and B: company A offers health insurance on top of a relatively low salary. Company B does *not* offer health insurance, but workers are paid a higher salary. Company A might prefer to offer discounted insurance instead of extra direct pay, especially since employees put a premium on jobs that supply insurance. However, those employees *could* otherwise be given that same money in hand, were it not that individual private insurance was more risky for the third party and more expensive for the patient.

Health-care insurance is so ingrained into American employment that we rarely stop to think about its cost to the employee/patient/consumer. While workers for Company A see insurance as an important benefit, they do not usually perceive how expensive that benefit really is. For example, if a worker *did* transfer to a viable Company B—one that had the same amount of resources for worker compensation—he or she would earn a much higher salary. While the average American family treats their premium contributions and co-pays as their health-care expenditure, their hidden cost could be 20 % of their salary. An $80,000 annual salary could otherwise be $100,000, but the American public does not always perceive it this way. Only after they underutilize preventive care and overutilize curative treatment do they see health-care costs severely reduce their paychecks.

To make a very long story short, in most cases consumer/patients will bear the brunt of increased medical costs in a fee-for-service (FFS) health-care system. The fact that consumers feel the shock in the long term is largely the problem. There have been many efforts to contain health-care costs in the United States, many of which included dramatic structural changes to how medical care is offered and paid for. These new methods have had varying degrees of success. Here we will briefly survey the most important attempts to reform health-care payment structures.

Managed Care

As described in the previous chapters, managed care was the first concerted system-wide effort to reign in American health-care costs. Managed care organizations (MCOs), the first of which were HMOs, put constraints on medical service usage through utilization review and "gatekeeping" to more effective, integrated care [29]. Managed care augmented the delivery of traditional insurance and effectively slowed cost growth in the 1980s. Even public programs adopted managed care structures, and it was popular opinion that health care was more efficient alongside the emerging practice of evidence-based medicine (as opposed to multiple-approach medicine) [30].

However, total health expenditures rose again in the late 1980s, alongside a transformation in managed care itself. There were many reasons for the decline of managed care as it was originally built to be. As managed care became more

widely used, providers were progressively more resistant to let insurance plans determine which practitioners and hospitals were covered. At the same time, consumers were dissatisfied when they were denied services or received insufficient claims from their plans. Very often both doctors and patients would file for damages against what they thought were faulty business practices [31].

In the late 1990s, dissent grew enough that insurance companies relaxed many of their regulations. Plans now allowed greater access to specialists and referrals for certain hospital procedures. Because utilization review and PCP gatekeepers were the key cost-containment mechanisms for MCOs, something had to take their place. MCOs in turn shifted the responsibility for health-care decision making to consumers/patients. Plans encouraged subscribers to increase preventative care and modify health-related behaviors, with the help of newly created websites. Instead of using time and resources to advocate for their subscribers, MCOs offered wellness programs and disease management.

This was the beginning of what is termed "consumer-driven" health care. Managed care plans started to deny high-risk patients access to their pools, sometimes withdrawing from Medicare and Medicaid entirely [32]. For the consumers that could be covered, a product called the "high-deductible health plan" (HDHP) was created, with fewer premiums in order to control costs. These plans were supposed to insure against catastrophic conditions, and having an HDHP was the only way to qualify for health savings accounts (HSAs) and health reimbursement accounts (HRAs). These accounts were tax deductible and only to be used on health expenses, leaving patient/consumers to make their own spending decisions. In essence, this new type of managed care was becoming increasingly similar to insurance systems before managed care, just adorned with new institutions.

Two examples of these new institutions would be coinsurance and deductibles. In order to limit health cost growth, managed care organizations would keep premiums slightly lower for patients, but they would have to contribute a co-pay for pharmaceuticals, tests, and doctors' appointments. Additionally, patients would now have to pay out-of-pocket for a minimum of health services annually, a limit called a deductible. Basically, today MCOs still are very liable for insurance claims, but they've transferred some of the initial bill to consumers. Patients continue to be asked to contribute more: from 2006 to 2012, the percentage of workers paying deductibles over $1000 rose from 10 % to 34 % [10].

FFS patients today are increasingly responsible for their out-of-pocket expenses, but they are also less shielded from cost increases due to provider or third-party behavior. Insurance companies, after intense provider and consumer pressure, have shifted cost risks to consumers once again.

Capitation

The most obvious problem with fee-for-service (FFS) with regards to increased costs is the adverse incentive to treat more and therefore charge more. With this structural pressure, insurance companies avoid covering high-risk patients, and doctors treat the sickest patients with the most medical "firepower" possible. In the 1980s, providers and HMOs started to create radically new models for physician reimbursement. The new thinking was that 3rd parties should pay in the aggregate in order to discourage overtreatment and moderate the medical costs incurred. Fully extrapolated, this idea would end in full capitation, which means "pay by the head" [33].

DRGs

A precursor and more widely accepted payment methodology to full capitation was the system of diagnosis-related groups (DRGs), originally 467 classifications by Medicare for inpatient hospital diagnoses. Beginning in 1983, Medicare would assign a treatment cost for each DRG, which would be paid regardless of how long a patient was hospitalized [34]. Comorbidities and confounding health-related variables are accounted for in assigning DRGs. As expected, it took decades to refine these groups to represent contingencies and new diagnoses. Medicare used this practice to slow down skyrocketing prices in the 1980s, and DRGs have been moderately successful since.

There are two possible glitches with implementing DRGs. First of all, when patients are sicker than expected and require more hospitalization, doctors might assign a new DRG code with a higher charge. If this reassignment is easy enough, the incentive to limit treatment (to what is necessary) disappears, and the DRG system becomes a de facto fee-for-service payment method. On the contrary, if the hospital does not allow the updating of DRG codes, physicians have the adverse incentive to discharge patients early. This latter incentive is disappearing as Medicare is now penalizing hospitals for readmissions [35].

Full Capitation

In a fee-for-service payment structure, doctors get paid for every piece of work they do. Under capitation, HMOs pay provider groups monthly payments for everyone they insure. After this payment, the provider must (within limits) give care to enrolled people, regardless of whether they accrue tremendous treatment costs or they never fall ill. This payment structure limits health-care cost increases in the short term because providers have incentive to limit unnecessary care. If they do not, doctors cannot make money, and the only recourse is to raise total capitation rates in the long term.

Capitation and FFS programs face *opposite* problems. In an FFS system, doctors' salaries depend on how much care they provide. Under capitation, doctors receive identical revenue whether they provide 2 days or 10 days of inpatient care. However, they will profit much more off of a 2-day hospital stay. Insurers are passing off to providers their responsibility to manage risk. Provider networks now must figure out how to divvy up a monthly set of payments among PCPs and specialists, how to reconcile the desire to increase quality with the incentive to decrease quantity of care, and how to calculate the risks of their patients falling ill, which used to be the insurer's job, using the insurance company's data and techniques.

By nature, provider networks have less actuarial experience in analyzing health risks compared to professional insurance companies. They are also much smaller than HMOs and therefore have fewer patients per insurance pool over which to spread risk. In essence, insurance companies have transferred their financial risk onto providers, who are less-qualified financial managers. The worry with full capitation is that providers will need to sacrifice the quantity of health care, to the detriment of quality. By extension, instead of bearing the financial risks of health services, consumer/patients will now bear more health risks.

Bundled Payments

A bundled payment system represents the "middle ground" between fee-for-service and full capitation systems [36]. In a bundle system, physicians are paid a negotiated lump sum for each hospital visit, rather than a sum for each service provided (FFS), or a sum per month for each patient, irrespective of services provided (full capitation).

In response to issues with diagnosis-related groups, experiments in the late 1980s created "case rates for episodes of illness," basically paying hospitals for a defined period of treatment. This fee would cover any necessary health-related costs, possibly including follow-up clinic visits. The first trial of bundled payments by the Texas Heart Institute in 1984 maintained that this approach lowered costs while maintaining a high quality of care [37]. Trials much later by the Geisinger Health System in Pennsylvania (2006–2007) would show that patients utilizing "ProvenCare"—their bundled payment system—had shorter total lengths of stay, lower readmission rates, and a greater likelihood of being discharged to home [38].

Although bundles have worked in certain situations, they have not been tested outside of these very careful controls. Without sufficient evidence for bundled payments so far, the effect of widespread bundling on health outcomes is "uncertain" [36]. Some concerns with bundles: physicians might still undertreat patients—as is the problem in DRGs. In capitation, repeat visits to the hospital are still covered by the monthly fee, but with bundling if patients are discharged and return for care after the "global payment

period ends," a new bundle starts. While it is possible to regulate against this tendency, doctors will still be incentivized to hospitalize patients unnecessarily [39] and to favorably input patients that can pay more. At risk populations could be left further behind.

A series of other problems are possible, depending on the type of bundling: the hospital might have disagreements with specialists over how to divide payments [33]; academic medical centers will be at a financial disadvantage by using resources for research, teaching, and technology; and it might be excessively difficult to specify what constitutes certain "episodes" and their corresponding "fair compensation rates" [40].

Not a Perfect Solution

With all three approaches—DRGs, capitation, and bundled payments—providers have a reason to reign in care, which can also achieve the goal of reigning in costs. However, providers may be incentivized to do "too little for more money." In 2009, health economists Stuart Altman and Robert Mechanic said: "Considering the advantages and disadvantages of fee-for-service, pay for performance, bundled payment for episodes of care, and global payment such as capitation… 'episode payments' are the most immediately viable approach" [41].

There are many proposed ways to protect against the disadvantages of bundles. One possible way is to give providers a penalty for allowing the cost of a bundle to be upgraded after initial diagnosis or for adverse health outcomes due to insufficient treatment at the point of service. The problem with these solutions is differentiating adverse outcomes that could have been prevented from those that occur due to random variation. Preventing upgrading a bundle or charging for treatment in the latter circumstance is unfair to the treating community.

Alternatively, physicians could receive bonuses for voluntarily cutting down on unnecessary services, leading to a reduced health-care bill. There is the natural response though that it is perverse to incentivize a physician to earn more by doing less. The goal must be to do better. For the first time in history, Medicare is attempting to employ many of these techniques while rolling out a national pilot for bundled payments, specifically for acute and post-acute care [42].

The Problem

After understanding two major approaches to sharing risk—fee-for-service and capitation—there are seemingly intractable trade-offs in the attempts to reform health care in the United States [43]. These trade-offs have the potential to adversely affect the costs, quantity, and quality of health services.

Costs

In seeking quality health for Americans, low costs are not the inherent goal, but high costs are the predominating obstacle. In trying to decrease the cost of medical care, we are faced with what seems like a Catch-22: we must either give out less medical care or pass the cost of more care onto patient/consumers. It does not help that 5 % of Americans require 50 % of our national health expenditures. These high-risk patients are expensive to insure, but if no one insures them, those expenses are borne by "the system" after the patients grow even more sick. Consumers (and sometimes doctors) want to take advantage of services they perceive as free—from either uncompensated pools or insurance claims—but all patients see their premiums rise in the process.

Quantity

The tremendous costs of health care distort the health-care provision in the United States. In a FFS payment system, more services are offered to those who can pay for them; as a result, basic services become unavailable to certain income brackets. There are extensive arguments about whether more is better, and there are clear examples of where it is not. That said, the population continues to demand more care, and setting up and spreading systems to provide better care rather than more care has thus far proven elusive [44]. To exacerbate the decline in American health care, there is a massive shortfall in the provision of preventative medicine. Part of the problem here is that people frequently change insurers,

and thus, a given insurance company does not have the incentive to invest in an individual's health and subsequently sends that investment to a competitor. Even as preventative care increases, the consumer/patient uptake of these services is far from ideal.

Quality

The quality of the top medical care in the United States is unparalleled, but many citizens do not have access to this care. Costs are an important reason why quality suffers. Very few insurance plans cover the full expense of emergent or chronic care, and those plans are unaffordable for most Americans. Many of the worst conditions could be attacked early on through preventive care, but the American health-care system historically shies away from cautionary treatment or wellness programs, as these do not prove lucrative for medical professionals. Insurance companies and consumer/patients alike must deal with the financial risks of catastrophic health in the long term, risks that could be reduced through comprehensive preventative measures. Unfortunately, consumers pay with poor health and extreme expenses, much more so than risk-averse insurance giants.

The Solution

As described previously, two "inevitabilities" of health care have resulted, despite concerted policy efforts to avoid them. Firstly, we have an "iron triangle" encompassing the three essential aspects of health-care systems: quality, cost, and access. Traditionally, health scholars maintain that you cannot affect one aspect without adversely affecting one or both of the others. Secondly, the consumer/patient always tends to "lose," either by paying too much for health care, not receiving ideal quality health care, or by not getting care at all.

However, opponents of the "iron triangle" contend that there is no consistent, direct correlation between the cost of care and its quality, especially since there is a substantial "cost of poor quality" due to overuse, misuse, and waste in American health care. This waste could comprise up to 30 % of health-care spending [45].

A case in point: in 2009 physician-journalist Atul Gawande studied McAllen, Texas, the town with the most expensive health-care costs in America, costs greater than the town's average income. McAllen has the same demographics and comparable technology to El Paso, Texas, but double the per capita health-care spending. Interestingly, despite comprehensive malpractice reform in both cities, McAllen orders 50 % more specialist visits, and its patients are two-thirds more likely to see ten or more specialists in a 6-month period.

On a greater scale in America, there is a negative correlation between the states' levels of Medicare expenditure and their health-care quality rankings [46]. Furthermore, the four states with the highest levels of health-care spending rank at the bottom nationally for quality of patient care [44]. On a much more encouraging note, Mayo Clinic in Rochester, Minnesota, features the highest level of technological capability and quality indicators, while also offering this care at costs in the country's lowest fifteenth percentile [44]. Further studies in Grand Junction, Colorado, and with the Geisinger Health System in Pennsylvania, suggest that Mayo is not an aberration [44]. Solutions exist to overhaul health-care quality alongside health-care costs.

The solution seems to be one with many facets, as there has not really been one cure-all for health-care cost increases. Because of the key problems in American health-care economics—many of which were explained in this chapter—the solution lies in making health care sustainable. The rate of health-care cost increases is unsustainable, even to the United States as a whole. At 17 % of GDP and growing, these costs are the primary driver of American debt [47]. In order to bring down costs and ensure effective medical provision in the future, we must make sure everyone feels cost increases and quality decreases.

In order to do this, many assert that we need to align incentives—for providers, patients, and 3rd parties—to decrease cost and increase quality/access. Early models and techniques for doing so, some included in the Patient Protection and Affordable Care Act (PPACA), emphasize sharing of financial risks as well as incentivizing quality provision of health care for all players. Chapter 15 features in-depth explanations on new

payment methods, but it is critical to first understand the significance of these methods to health-care economics.

When considering this, it is also worth noting our hypothesis that physicians in general want lower-risk jobs. They do not seek high variability in their income and prefer a reliable solid income rather than the chance at a very high income in exchange for the risk of a low income (a risk tolerance more common to Wall Street). As such, these models that transfer risk to doctors transfer it to a group of people not only ill-equipped mathematically to deal with the risk but also ill-equipped in preference to do so.

The Obamacare/PPACA

PPACA, known by supporters and detractors as "Obamacare," features many initiatives for risk sharing and incentivizing quality. The effectiveness of these strategies has yet to be proven one way or the other, but the law is an instructive lens through which to study options for the future. One of the main vehicles through which the US government can set new health-care precedents is through Medicare; its significant purchasing role is "policymakers' most powerful lever to alter negative trends" [48]. Most of PPACA's new ideas will first be trialed through Medicare.

Integrated Care

Health-care policymakers consistently agree that medical care needs to be more seamless and integrated. Streamlining care usually involves improvement in information-sharing technologies and both vertical (primary, secondary, and tertiary care) and horizontal integration (multidisciplinary specialist teams). Most reforms in PPACA contribute to integrating care, and each has potential benefits and drawbacks.

Pay for Performance

Pay for performance (P4P), or "value-based purchasing," is a central strategy in aligning incentives in American health care today. This model is the newest version of managed care, first trialed in California (2001) [49]; in short, providers are rewarded for achieving quality and efficiency standards. One example would be receiving a percentage of all savings underneath the index value for a set of procedures (or patients). P4P oftentimes stipulates disincentives for providers that incur unnecessary costs—due to mistakes and ordering of superfluous tests. At one extreme, payers may refuse to pay for specified "never events" such as avoidable inpatient infections.

One difficulty with implementing P4P is drawing up performance metrics that cover every contingency and yet do not present negative externalities. If certain outcomes are incentivized, providers might select cases they can easily manage and select against the sickest patients with the most uncertain outcomes. If certain procedures are stipulated as "proper care," physicians might overutilize radiographs or lengthen hospital stays. In both cases, defensive medicine is oftentimes an adverse solution that actually yields suboptimal physician performance. Finally, if decreased costs are incentivized, doctors might do the opposite; they would provide "too little for more money"—as is a problem with capitation—but they would also be given a reward for doing so.

P4P has produced a mixed bag of outcomes. Initial studies suggest that P4P implementation shows small gains in quality for the money spent [50]. Start-up administration costs for P4P systems are extremely high, so these studies call into question the P4P models as they stand today. Supporters of P4P stress the unmeasurable performance improvements that result from the model; they also argue that as performance metrics become more nuanced (to reflect particular social and economic circumstances), medical services will improve more significantly.

Accountable Care Organizations (ACOs)

PPACA provides for trials of Accountable Care Organizations (ACOs), a much newer entity that employs some P4P and other capitation ideals. ACOs are doctors' organizations, which means that consumer/patients can see any ACO physician without being restricted to a preselected group of providers. The providers, however, are at risk for the expenses of the patient and thus are incentivized to keep the patient within their own system.

The PPACA enacted regulations in October 2011, outlining requirements for ACOs. Basically, hospitals or groups of physicians can unite under an ACO, receiving a stamp of approval for quality, cost, and patient-interaction measures. The US Department of Health and Human Services (DHHS) allows physicians to participate in their ACO program through the Medicare Shared Savings Program (MSSP) for a minimum of 3 years, with requirements for patient assessment and engagement. As described thoroughly in Chap. 15, there are two models for new ACOs through Medicare, one featuring shared savings (between payers and providers) without shared risks (for providers) and the other featuring greater shared savings for providers but with some shared risks if the cost of care exceeds CMS benchmarks [51].

There are distinguishing traits of ACOs. Firstly, providers are incentivized to integrate care to improve quality and decrease costs simultaneously, without the risks of losing money. Secondly, physicians have a lot of freedom to lead in the structuring of new ACOs. Potential disadvantages can arise with this lack of a specific structure for ACOs. Start-up costs can be high, coordination with patients and payer risks being disorganized, and overorganization could violate antitrust laws and drive up health-care costs.

Government Regulation

PPACA will be more thoroughly covered in Chap. 19 but deserves brief coverage in the context of payments. While it does give government a more active role in organizing health care, it does not constitute a government take-over. It is important to note that, before PPACA, the Federal Government did indeed run Medicare/Medicaid, just as it does Social Security, but not all transfer payments qualified as a rich-to-poor redistribution. Today, Bill Gates and "Joe Sixpack" both receive Medicare and Social Security payments, and very often Medicaid covers sicker patients and not just poorer patients.

PPACA creates a new "triangle" of policies—those of guaranteed issue, community rating, and an individual mandate—which are the lynchpin to the expansion of coverage in the private market. Guaranteed issue requires health insurance plans to offer insurance to every American regardless of preexisting conditions. These plans must be community rated such that an individual cannot be charged a higher premium for uncontrollable factors like a family history of cancer, a diagnosis of heart disease, or even gender. The mandate is well known and requires that every citizen must have insurance. In order to quell concerns with these three requirements, the government will subsidize many plans in order to facilitate universal coverage, and it will also allow grandfathering of individuals' insurance plans.

The government will build an exchange, which can be thought of as an "Amazon.com" for insurance, letting private (and not public) insurers to place their products on the exchange. They demand a minimum level of coverage for a plan to be listed but otherwise leave it as a wide-open competitive market. The government will then subsidize poor individuals, enabling them to purchase on the open market. The overall theme here is to maximize choice and, as much as possible, to keep the government out of health insurance decisions while ensuring that everyone is insured.

It is important to note that arguments against the individual mandate have many misperceptions. If the mandate is struck down, as was unsuccessfully attempted in 2012 [52], the remaining two tenants of Obamacare would destroy the private insurance market as we know it. If people can always get affordable health care (through guaranteed issue and community rating), but do not have to buy it today, they will just choose to buy it tomorrow if and when they get sick. Eventually, private insurance companies will exit the market because there is no incentive to cover the sickest people without seeing commensurate compensation. The result would be single-payer health care. The health economist's takeaway from studying the PPACA: If you want to ensure that anyone with preexisting conditions can be affordably insured (and guaranteed issue and community rating) in the private market, the individual mandate must exist. The three were meant to work in synchrony.

Conclusion

Over the last 100 years, the health-care system has gone through remarkable changes. Hand in hand, the explosion of medical capabilities, augmented by the distribution of risk and insulation from the cost consequence of care provided by third-party insurance, has led to a system that is increasingly taking over the economy. Most agree that the current trends are untenable and that some change must be made in the marketplace to ensure that insurance and the provision of health care do not bankrupt the federal government and state governments, and that these changes do not make business uncompetitive in the international marketplace. There is little agreement on what changes need to be made, but most all agree that the current incentives in the system, both for patients and providers, have perverse consequences and need to be modified in some way. The question for the next decade and for the policymakers of today and tomorrow is how to do this while protecting patients.

Looking towards the future, health care is taking up a larger percentage of persons' total income and could reach 30 % in the not too distant future. The problem with this is that in addition to its obvious costs mentioned in this chapter, growth in health care can crowd out other jobs in the American economy. Throughout both the Bush and Obama administrations, the health-care industry is one of few growing industries alongside otherwise stagnant growth. To make medical care more efficient, we need to figure out how to bend the cost curve. Especially considering efforts with managed care, it seems that many strategies to reduce costs cause a one-time shock, followed by a subsequent rise in prices. New models, including some we have mentioned directly previously in this chapter, could cause similar shocks.

However, health economist Robert Shapiro maintains that, despite our attempts to reform the way medical care is provided, the real problem is in demand for health care [53]. The dearth of preventive care in America, coupled with a growing willingness to seek and provide curative care, makes prices soar. In these situations, providing access to health services is not necessarily the solution in bending the cost curve. If health-care utilization gets more excessive, we could even be looking at health-care cost controls in our country's future. Therefore, we should all examine the root of the problem—patient health—and see what we can do to help quell demand for health care in the future.

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