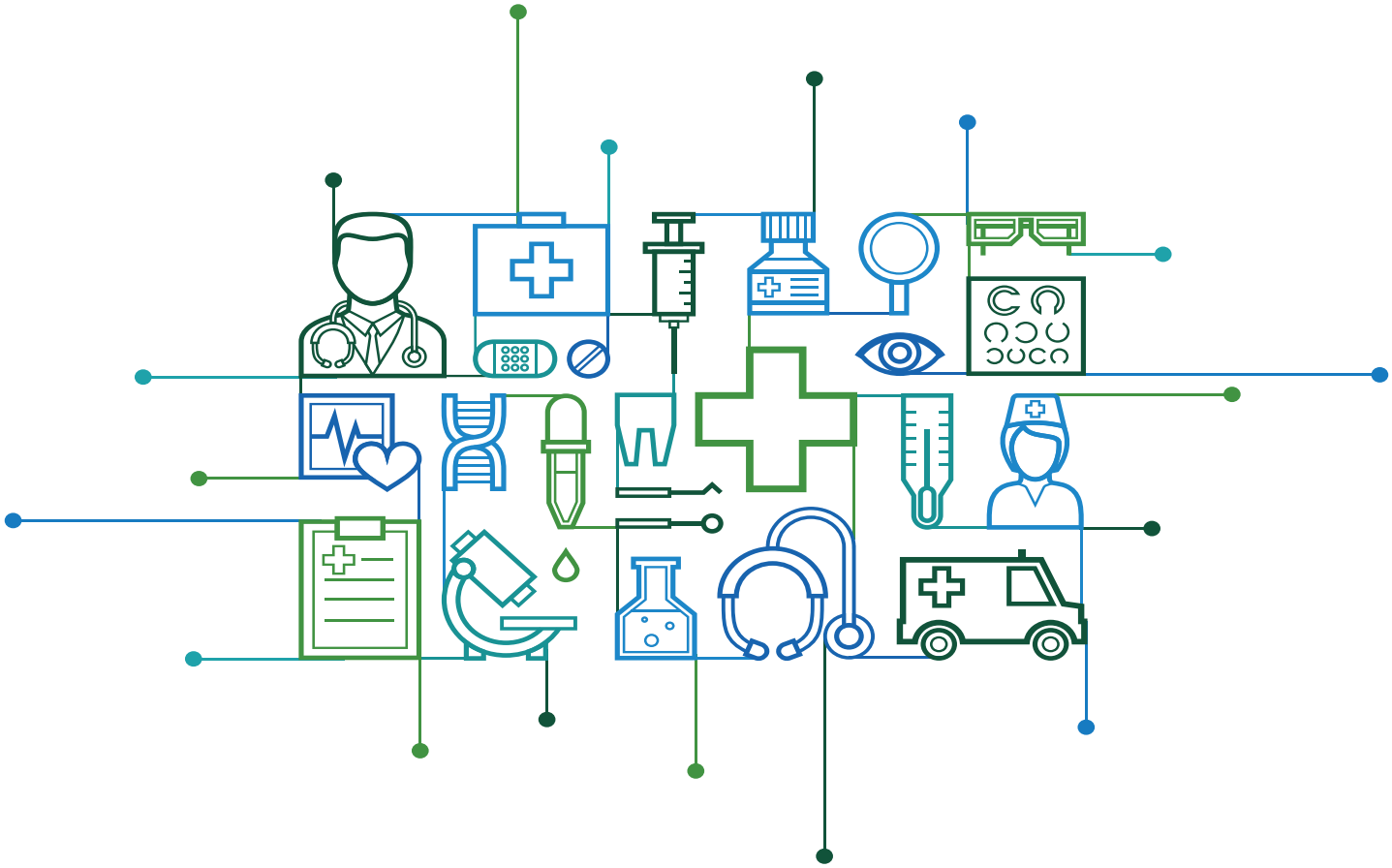

United States Healthcare System: An Inspire Series

Prepared by Axene Health Partners, LLC
with an Introduction by Bethany McAleer, FSA, MAAA

axene health partners
HEALTH ACTUARIES & CONSULTANTS

Inspire

United States Healthcare System: An Introduction

Bethany McAleer, FSA, MAAA

As an American in a post-Obama Obamacare world, it is difficult to ignore all of the debates around repealing/replacing/expanding/changing the healthcare system in the United States today. There are so many sound-bites floating around as to "the real problem is …" or "if only they would change …". Most Americans' opinions of the healthcare system are based on some combination of our own personal interactions with the system, stories we've heard from friends or on social media, and political headlines. These viewpoints, while valid and important perspectives, typically only highlight a few isolated pieces of a very complex healthcare puzzle.

Healthcare is a sensitive and intricate issue. Our health is a fundamental factor of how long we live and what quality of life we have. It can be extremely difficult to talk about our own health and the health of our loved ones in dollar terms, even if we are trying to think about what's best for our society as a whole. But even beyond the sensitivity of the subject, very few of us have a full understanding of how the healthcare system operates as a whole, why certain dynamics are in place, and what consequences would be felt by whom if we were to change various elements of the system. How can we propose solutions for a system when we don't truly understand, or can't agree upon, the problems?

With years of experience consulting in the healthcare industry and a unique blend of actuarial and clinical expertise, Axene Health Partners, LLC (AHP) has both the breadth and depth of knowledge to be able to shed light on the critical healthcare issues of today. AHP has authored this series of papers as a premiere document to help dissect the problems we are facing as a nation and support informed debates across stakeholders. These papers are staunchly non-partisan in nature – AHP is not advocating any particular political viewpoint or legislative outcome. Our intent is primarily to inform and support productive discussions.

Each of the included articles is stand-alone in that it is fully understandable on its own, but all articles play together to give readers a basic understanding of our healthcare system as a whole. The topics included are not comprehensive, but they do represent many of the foundational elements of the current system. AHP will continue to add to the series as the understanding of particular issues, or the interplay between issues, become critical to furthering our country's discussion around reform. A list and brief description of each article is included below.

AHP also regularly publishes articles on diverse healthcare topics through our Inspire blog. We created the Inspire blog to have a positive impact on both the healthcare system and its clients. Subscribe now, using the link below, and you can look forward to health care focused and relevant articles delivered quarterly to your inbox.

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US Healthcare: Inspire Series Contents

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International Healthcare Systems: The US Versus the World

Chris Slaybaugh, FSA, MAAA

The United States is the only industrialized country in the world that does not have Universal Health Coverage for all citizens. While the Affordable Care Act (ACA) was a step in the direction of universal coverage, as of the end of 2016, 9% of all Americans (and 12.4% of US Adults aged 18 to 64) still did not have health insurance.[1] This paper will give a high-level overview of where we are today, with a comparison to several other countries.

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[1] *https://www.cdc.gov/nchs/data/nhis/earlyrelease/insur201705.pdf*

Defining the terms: Universal Health Coverage, Single Payer, and Socialized Medicine

When debating the future of health insurance in the US, terms such as Universal Health Coverage, Single Payer, and Socialized Medicine are often used interchangeably, but they are not the same thing. The World Health Organization's definition of Universal Health Coverage is "that all people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship."[2]

Unpacking that definition, Universal Health Coverage ensures:

1. Universal access to health services
2. Health services that are of high quality
3. Receiving health services does not put people at risk of financial harm

Single payer systems are one method of achieving UHC, but not the only, and there are very few true single payer systems in the world. In a single payer system, the government pays for medical care and restricts alternative payment mechanisms for the services that it covers. Canada and Taiwan are the only 2 countries in the world with true single payer systems covering their entire populations, while within the US, Traditional Medicare is an example of a single payer system.[3]

Just as a single payer system isn't the only option for achieving UHC, so too Socialized Medicine is not the only way to achieve single payer. In addition to paying for health care, the government owns the facilities and employs the professionals in a socialized medicine system. Neither Canada nor Taiwan meets these criteria (though the UK does), and US Medicare is also not socialized medicine. However, the US itself does have a socialized medicine system in the Veterans Health Administration (VA) – all VA hospitals are owned by the government and the health care providers are all employees of the government.[4]

Universal Health Coverage Around the World

So if most other countries don't have single payer or socialized medicine, what do they have? Other systems fall in one of two broad categories:

1. Insurance Mandates – Government mandates that all citizens purchase health insurance from private or public health insurers. Often includes a requirement for a standard minimum coverage across all insurers, subsidies for low income individuals, and forbids underwriting and for-profit insurance. Some countries with insurance mandates include Germany, Japan, the Netherlands, and Switzerland.
2. Hybrid systems – Combines elements of single payer systems with private insurance mandates. Government provides a standard set of care for all citizens, with options to supplement with private insurance. Some countries with hybrid systems include Australia, France, Singapore, Sweden, and the UK.

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[2] *http://www.who.int/health_financing/universal_coverage_definition/en/*

[3] *http://www.npr.org/sections/health-shots/2016/01/22/463976098/debate-sharpens-over-single-payer-health-care-but-what-is-it-exactly*

[4] *http://www.npr.org/sections/health-shots/2016/01/22/463976098/debate-sharpens-over-single-payer-health-care-but-what-is-it-exactly*

The Commonwealth Fund regularly publishes an excellent resource that summarizes the health care systems of many countries. The most recent report in May 2017 examined the systems in 19 countries. The following draws heavily from that report, and I highly recommend reading it if you would like more detail on the systems that I touch on here.[5]

The Single Payer Systems

Canada

The Canadian healthcare system is administered by the provinces with shared funding between the provincial and federal governments. It is a single payer system in that providers offering services covered by the government program generally are not permitted to receive any private payments for those services. Physician, diagnostic, and hospital care must be covered on a first-dollar basis and providers are not permitted to bill patients for amounts over the negotiated fee schedule. Additionally, specialists are not allowed to bill private patients for providing publicly insured services – all covered care must go through the public system. However, private insurance does exist to pay for services not offered through the government plan or for some types of enhanced services.

To receive full federal funding, each province's plan must be publicly administered, comprehensive in coverage (though what is comprehensive is left largely up to the provinces to decide), universal (all citizens and legal residents must be covered), portable across provinces, and accessible (e.g., no user fees). In addition to the public program, the majority of Canadians have supplemental coverage from for-profit insurers, generally provided by an employer or a union, that covers vision, dental, prescription drugs, rehab, home health, and private rooms in hospitals.

There is roughly an even split between general practitioners and specialists, with most general practitioners operating in private practice and being paid fee-for-service while most specialists operate out of hospitals, but are not employees and are also paid fee-for-service. General practitioners operate as gatekeepers and specialists who see patients without a referral receive a reduced reimbursement. Hospitals are a mix of publicly owned and private not-for-profit organizations and operate under annual global budgets negotiated with the government.

As of 2016, total health spend in Canada was 11.1% of GDP. Approximately 70% of spend comes from public funding, 14% from out-of-pocket costs (for items such as prescription drugs, dentals, vision, etc.), and 12% from private insurance. Costs for services are managed through global budgets for hospitals, fee schedules for providers, drug formularies, and regulation of introductory prices for newly patented medicine. Utilization is also suppressed by restricting the supply of physicians and nurses through

[5] *http://www.commonwealthfund.org/~/media/files/publications/fund-report/2017/may/mossialos_intl_profiles_v5.pdf?la=en*

quotas for student admissions and by restricting investments in new capital and technology.

Taiwan

National Health Insurance (NHI) was introduced in Taiwan in 1994 and was modeled in part on US Medicare, though it covers all citizens and not just the aged and disabled. Coverage is compulsory for all citizens and foreign residents, with 99.9% of the population enrolled. Benefits are uniform and comprehensive, covering hospital care, physician care, prescriptions, and other services. Private funds may not be used to purchase services covered through NHI or to receive those services more quickly, but private insurance does exist to pay for non-covered and enhanced services. Balance billing is prohibited except for a handful of medical devices carved out by law.

Funding for NHI is split between government, employers, and the insured, with a typical employee paying 30% of the premium and low-income people paying nothing.[6] Government funding comes from general revenue plus tobacco and lottery taxes. In addition to premiums, the insured pay copays for physician care and prescriptions drugs and coinsurance for inpatient care, with these costs limited for disadvantaged populations and certain diseases/conditions. Private health insurance is available, but not permitted to cover services provided by NHI, and can also be used to provide private rooms for inpatient care.

Almost all physicians are specialists (only 5% are family medicine) and most practice in private clinics and are paid fee-for-service. Historically there has been no gatekeeper in place and physician utilization is very high relative to other countries. Hospital-based physicians are salaried employees and are eligible for productivity-based bonuses. Most hospitals are privately-run and are non-profit by law. Global budgets are in place for both physicians and hospitals who compete for patients and their slice of the budget. Extra revenue comes from providing non-NHI covered services and from copays and coinsurance.

Taiwan has a very low cost system, with 6.2% of GDP in total health spend in 2014 with 12.1% of health spend in out-of-pocket costs. Administrative costs are just over 1%. Costs are managed through global budgets, with average annual growth under 4%. To combat high utilization, additional copays have been introduced for seeking care without a referral. Capacity is constrained – there are fewer physicians and CT and MRI machines in Taiwan than other countries, though waiting lines are essentially non-existent. Every participant has a mandatory electronic card that tracks personal health information. Aggregate utilization statistics are used for planning and budgeting purposes, while individual high utilizers receive follow-up from government representatives.

The Insurance Mandate Systems

Germany

Health Insurance was first introduced in 1883 and has evolved over time to a compulsory coverage system.[7] The majority of Germans are required to purchase their insurance from 118 not-for-profit "Sickness Funds" regulated within the Statutory Health Insurance system (SHI). Self-employed and high income employees can choose to opt out of SHI and purchase Private Health Insurance (PHI) from a mix of 42 non-profit and for-profit insurers. Military, police, and other public-sector employees are covered through special programs.

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[6] *www.nhi.gov.tw/English/Content_List.aspx?n=B9C9C690524F2543&topn=46FA76EB55BC2CB8*

[7] *https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0078019/*

Premium contributions for SHI are 14.6% of wages (capped at $65K USD in 2016), shared equally between employer and employee. Contributions are pooled together and distributed to the individual Sickness Funds on a risk-adjusted basis. SHI covers physician and preventive care, hospital, mental health, dental, vision, physical therapy and rehab, prescription drugs (except where excluded by law), medical equipment, hospice and palliative care, and sick leave. There is no cost sharing for children and total annual cost sharing is capped at 2% of income.

About 11% of Germans opt for PHI, which is especially attractive to young people with high incomes as they can get more services for less premium. Participants pay a risk-adjusted premium for themselves and dependents, with risk assessed at entry and contracts then good for life. The government regulates rate increases. PHI can also be purchased as a supplement to SHI to pay for uncovered benefits, better amenities, and some cost-sharing.

Physicians who participate in SHI are required to join regional associations that contract fee-for-service reimbursement rates with the Sickness Funds. Physicians are permitted to have a max number of patients and perform a max number of services per patient. They can also supplement their income with services paid out of pocket. There is a 48%/52% split between family physician and specialists, with no gatekeeper requirement, though sickness funds are required to offer a managed care product that acts in some ways as a gatekeeper. Half of all hospitals are publicly owned, with the rest a mix of for-profit and non-profit. Hospitals and physicians are permitted to see both SHI and PHI patients, which is a distinction from most other countries.

Healthcare spend in Germany was 11.2% of GDP in 2014, with 74% of that being from public programs and 13.2% from out-of-pocket spending, mostly on nursing homes, pharmaceuticals, and medical aids. Costs are contained primarily through emphasizing quality and efficiency, with hospital payments tied to quality and reduced payments for “low-value” services. Sickness funds can compete on their ability to negotiate with providers in integrated care networks and for rebates from pharmaceutical companies.

Switzerland

Universal coverage was introduced in Switzerland through the Federal Health Insurance Law in 1996 with three goals: universal coverage with low-income subsidies, comprehensive and high quality coverage, and containment of growing health care costs. The program is administered by 26 individual cantons (similar to US states) with financing coming from general tax revenues, Mandatory Health Insurance (MHI) premiums, and contributions from social insurance related to accident, old-age, disability, and military insurance. Voluntary Health Insurance (VHI) is for-profit medically underwritten insurance available for services not covered by MHI and improved hospital amenities.

MHI is mandatory and purchased by residents from competing nonprofit insurers with the average premium in 2016 ranging by canton from $3,000 to $5,000 USD per year for the lowest deductible plan, with subsidies for low income. Premiums are redistributed between insurers on a risk-adjusted basis. MHI covers most physician and some preventive care, hospital care (with significant subsidies from the cantons), physical therapy/rehab, and mental health with a required annual deductible that can range from $235 to $1,960 USD. About 1 in 5 choose the minimum deductible plan, 1 in 7 choose a higher

deductible, and the majority of citizens choose a managed care plan that offers lower costs in exchange for accepting a gatekeeper. There is also 10% coinsurance on all services, up to an annual cap of $549 USD for adults and about half that for kids and a $12 per day charge for inpatient care.

Providers that accept MHI are not allowed to balance bill patients any amount above the fee schedule. Just under 40% of physician are general practitioners. Hospital-based specialists are usually salaried employees, but can earn extra income in private practice. Approximately half of hospital reimbursement comes from insurance, with the other half coming from canton subsidies and providing non-covered services.

At 11.1% of GDP, healthcare spending in Switzerland is second only to the US. 67.4% of spend came from public financing, and 5.7% came from out-of-pocket cost sharing. The primary mechanism for controlling costs is "regulated competition" between the insurers and providers. Despite criticism of the system's relatively high costs, global budgets are not currently being considered for managing spend.

The Hybrid Systems

England

Each of the four countries of the UK (England, Wales, Scotland, and Northern Island) have distinct but similar health systems. We focus on England here.

Healthcare in England is managed by the National Health Service (NHS). Universal coverage is available for all residents generally without cost sharing. NHS pays for preventive care, hospital care (including outpatient drugs), physician services, some dental and vision, mental health, palliative care, some long-term care, rehab, and home care, with specific coverage determined at the local level by one of 209 Clinical Commissioning Groups (CCGs). It is not a single payer system, as private insurance is available to pay for more rapid access to care provided by NHS, in particular for elective hospital procedures.

Funding for NHS comes mostly from general taxes and dedicated payroll taxes, with additional funds from copays and services provided to private patients by NHS providers. Dentistry and outpatient/prescription drugs are subject to copays, but waivers for children, seniors, the sick, and certain conditions result in nearly 90% of prescriptions being dispensed for no charge.

There is a 45%/55% split between general practitioners (GPs) and Specialists, with GPs serving as gatekeepers. Most GPs are private contractors while almost all specialists are salaried employees of NHS hospitals, though employed specialists are permitted to also practice privately. People are required to register with a local general practice, but due to capacity issues, choice is limited. Publicly owned NHS hospitals contract with the CCGs and are paid fee-for-service. Private hospitals provide services not covered by NHS and also care subcontracted by NHS where wait times are unacceptably long. Private hospital reimbursements are unregulated and ineligible for public subsidies. Approximately 10.5% of the population has private insurance to pay for faster access to elective care in private hospitals.

Total healthcare spend in England was 9.9% of GDP in 2014, with 79.5% made up of public funding and 14.8% from out-of-pocket costs. Costs are contained with a nationwide global budget that is

allocated to the CCGs. Growth in annual spend has been running about 1.2% above general inflation. Reimbursements are currently inadequate, with providers running a $5.3B deficit in FY16 that is expected to grow. These financial pressures are straining quality, with long wait times for care especially prevalent.

Singapore

Singapore's National Health Plan was established by the Ministry of Health in 1983[8] and is organized around the "3 Ms" – Medisave, MediShield, and Medifund, with a focus pairing individual responsibility with affordable care.

- Medisave is a mandatory savings account with tax exempt employee contributions and employer match.
- MediShield is an insurance plan that citizens are automatically enrolled in with premiums paid from the Medisave account and subsidies based on income and age. Catastrophic coverage only – primary and preventive care, prescription drugs, mental health, dental, and vision not covered.
- Medifund is a supplemental program for the poor that covers medical treatments based on a family's ability to pay.

In addition to the 3 Ms, there is the option to purchase for-profit Integrated Shield Plans with Medisave funds that supplement the MediShield plan and other private insurance that can be purchased with personal funds or provided by employers is available.

> "Costs are controlled primarily by encouraging market competition, with government involvement to help keep costs low."

Approximately four out of five hospitals are public with subsidies of up to 80% available. Public hospitals have four tiers of amenities, with the highest level offering private rooms and other perks, with bills not being subsidized at this level. Private hospitals offer faster service and more amenities with no public subsidization. The majority of primary care is private with some subsidized public clinics available, paid fee-for-service with no gatekeeper for specialty care.

Total healthcare spend was 4.7% of GDP in 2013, of which 69% was private spending, including out-of-pocket costs and employer health benefits. Costs are controlled primarily by encouraging market competition, with government involvement to help keep costs low. The government regulates supply of public hospitals and prices for services within those hospitals and private providers must keep prices in line if they want to compete. Public hospitals operate with an annual budget of patient subsidies. Utilization is managed with significant copays, deductibles, and restrictions on using Medisave and MediShield for certain services to discourage unnecessary treatment. Additionally, the Ministry of Health publishes prices and utilization numbers for common hospital services and procedures for easy comparison and drugs, medical supplies, equipment, and IT are purchased at a national level to help keep those costs down.

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[8] *http://www.hpm.org/Downloads/Singapore.pdf*

The American System

The United States

Rather than one system, United States citizens and residents are insured under a variety of sometimes overlapping systems. The United States is also the only developed country where a significant number of citizens are permitted to be uninsured and where a person's employment can determine whether they have insurance and what insurance they have. As of 2015, 90.9% of Americans had health insurance, with 55.7% receiving coverage through their employer, 16.3% through direct purchase, 16.3% through Medicare, 19.6% through Medicaid, and 4.7% through the military.[9] The individual sources of coverage add up to more than the total coverage because of overlaps (for example, "dual eligibles" who are enrolled in both Medicare and Medicaid).

The majority of Americans and their dependents are insured through their employer, with the employer generally bearing a significant portion of the cost. Federal law requires insurance to continue to be offered to former employees, but the entire cost is bore by the insured, who often choose to not pay the premium unless they are sick. Employer-based insurance isn't directly subsidized, but receives a "hidden" subsidy, estimated to be worth $260 billion dollars per year, due to premiums being tax exempt. This tax exemption is not available for insurance purchased in the individual market.

Title XVIII of the Social Security Act was passed in 1965 and introduced Medicare and Medicaid, which have both expanded since.[10]

- Medicare, which is funded by payroll taxes, premiums, and general tax revenues, provides coverage for people 65 and older and also those with qualifying conditions and disabilities under the age of 65. Medicare eligible people may also purchase supplemental insurance from insurance companies or heavily subsidized full-replacement insurance called Medicare Advantage.
- Medicaid is an insurance program for the poor administered by the states and funded with federal and state general revenues. Eligibility for Medicaid was significantly expanded under the Affordable Care Act in 2010 for states that chose to participate.

Besides expanding Medicaid, the Affordable Care Act (ACA) in 2010 introduced an insurance mandate and government-run insurance marketplace with subsidies for those without other coverage. It also eliminated most forms of underwriting and prohibited insurers from refusing coverage for preexisting conditions. Prior to the implementation of the ACA, the uninsured rate was 13.3%.[11]

The Veterans Health Administration (VA) provides care for nearly 9 million veterans annually. The system is an example of socialized medicine, with 1,700 hospitals, outpatient clinics, counseling centers, and long-term care facilities owned directly by the federal government and most providers employed by the government. Due to a severe limitation in resources, Congress has directed that priority in treatment is given to veterans most in need, with those with significant disabilities at the top of the list.

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[9] *https://www.census.gov/content/dam/Census/library/publications/2016/demo/p60-257.pdf*

[10] *https://www.cms.gov/About-CMS/Agency-Information/History/index.html*

[11] *https://www.census.gov/content/dam/Census/library/publications/2016/demo/p60-257.pdf*

Approximately 1/3 of doctors in the US are primary care and the rest specialists. 70% of hospital are non-profit, 15% are for-profit, and 15% are government-owned.

The United States spends far more on health care than any other country. In 2015, total spend was 17.8% of GDP, $3.2 trillion dollars, for an average of $9,990 per person.[12] Of this spend, 49% came from public sources, 39% from private insurance, and the remainder from out-of-pocket costs.

Conclusion

There is no perfect health care system. The US has some of the best doctors and hospitals in the world, for those who can afford them. The extent to which medical bills contribute to bankruptcy is hard to tease out from other factors, but even those who are skeptical of the claim that medical costs cause the majority of bankruptcies concede that they are a significant contributor.[13]

In the rest of the developed world, by contrast, medical costs are rarely or never cited as a driver behind personal bankruptcy. There are trade-offs, of course. Patients in The UK and Canada often face far longer wait times for care, particularly "elective" care, than those in the US. Providers are generally much better paid in the US, which is a major driver behind our higher costs, but it also helps prevent the strikes and demonstrations for high pay sometimes seen in Germany and elsewhere. Many Americans cringe at the idea of a government bureaucrat checking up on you if you use too much care as in Taiwan or of the government directly owning and employing most providers as in the UK.

As the debate over the future of healthcare in the US rages on, it is useful to remember that there are many ways to achieve universal coverage. Some countries – Canada and Taiwan – have developed single payer models to care for their citizens. Other countries such as Germany, Switzerland, and Singapore have shown that it is possible to have universal coverage through a combination of public funding, employer participation, and personal responsibility, while maintaining a robust competitive market of insurance payers and medical providers. None of these systems is without trade-offs, though. These various approaches can be useful for Americans to understand, not only to draw ideas from as we look to improve the healthcare system in our country, but also to see that cost-saving mechanisms and broadened coverage have consequences for other parts of the system. America needs to evaluate its own values as a nation to decide what (if any) trade-offs we are willing to tolerate in order to cover a larger percentage of our population.

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[12] *https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/downloads/highlights.pdf*

[13] *https://www.bloomberg.com/view/articles/2017-01-17/the-myth-of-the-medical-bankruptcy*

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Inspire

What Makes American Health Care Different?

David V. Axene, FSA, FCA, CERA, MAAA

Introduction

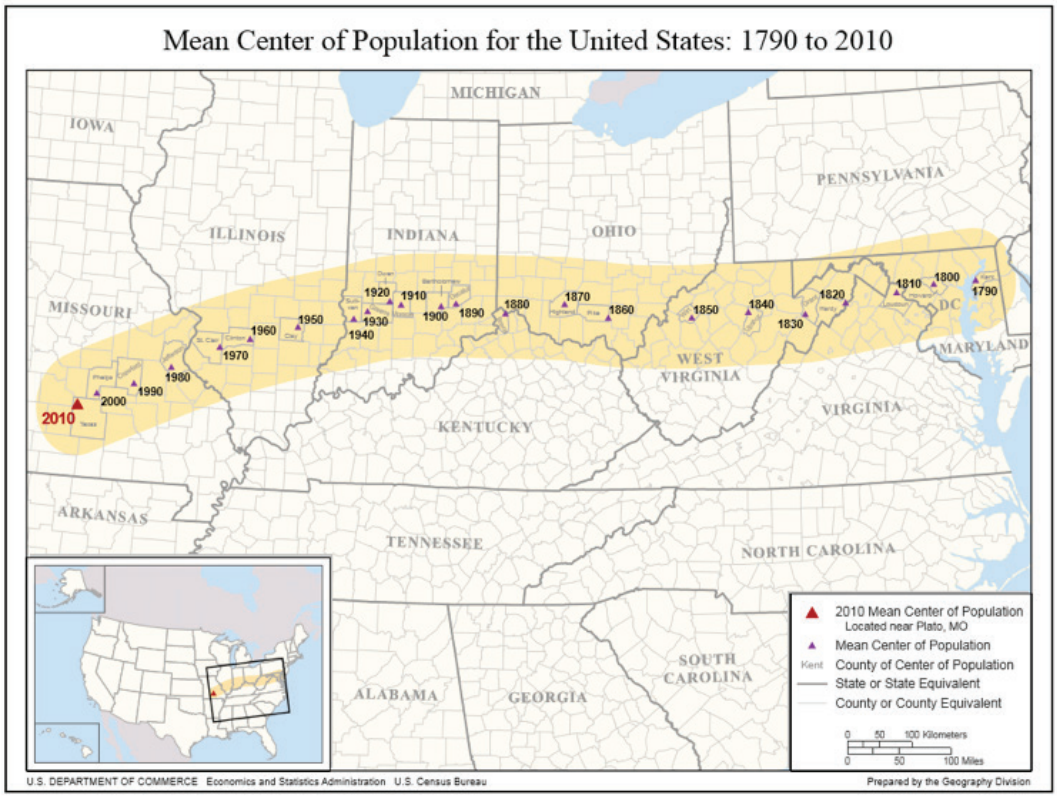
We in the United States spend a lot on health care. Whether expressed as the cost per service, the cost per person or as a percentage of the Gross Domestic Product, the high cost of health care in the United States is well documented. While solutions to this situation have been suggested for many years, the expensive reality continues.

Is it possible that unique characteristics of the American health care environment create special challenges? This article discusses several of the unique aspects of the American health system.

Geographic Diversity

The United States is a diverse country with population centers scattered throughout the country. The mean center of population for the United States currently lies in Missouri.

Exhibit 1: Mean Center of Population



As the inset map shows, this is east and south of the geographic center of the United States. The major population centers in the eastern half of the country pull it east. The major population centers in the south pull it south. More than 10% of the population is in one major southwestern state, California. Major metropolitan areas can be found throughout the country: San Francisco and Los Angeles in the southwest, Dallas and Houston in the south Midwest, Chicago in the upper Midwest, Boston and New York in the northeastern part of the country, Atlanta and Miami in the southeast. Why is this important?

More than 90% of the Canadian population lives within 100 miles of the US border. The often-touted Canadian system serves a population that is concentrated in a thin band of land just north of the US border. The US geographic realities are a consideration that can't be ignored. In a concentrated environment it is possible to have a more efficient allocation of resources. In the Canadian provinces with significant rural populations (e.g., Alberta and Saskatchewan) the provinces utilize regional health authorities to take responsibility for a specific geographic region.

American Definition of Quality

Quality is difficult to universally define. Many times people say "I know it when I see it" or more importantly "I know it when I don't see it". Over the past 15 – 20 years quality has been objectively defined, to the point that it is consistently measured across health systems. Quality metrics are the norm. One of the best definitions of quality is "providing the right service, at the right time, to the right patient as efficiently as possible". The American definition of quality usually includes a high degree of access and a significant sense of urgency.

Other countries do not associate waiting as a deterioration in quality. In fact queuing or waiting lines are accepted conditions in a health care system. The American ideal is getting their health care now, not tomorrow, not next week, or next year. Most Americans associate waiting as a reduction in quality. Health systems that require pre-authorization or approval of referrals are frequently viewed as substandard since those systems create barriers or hurdles that patients have to work through. In countries with socialized health care systems, patients regularly have to wait for care. Much of this wait is associated with fiscal limits within the system restricting the available resources. In the US the excess capacity in the system almost always provides an adequate supply of healthcare resources so the required waiting time is very limited.

The waiting line is caused by either quotas or specific budgets for specific procedures. As the patient moves up the list, they then can be scheduled for the required procedure. The presence of a waiting list or queue is a rigid form of rationing based upon a budget constraint. In the US waiting also occurs but it occurs because the physician was booked or the schedule was full. This queue is not a budget driven constraint.

The US health care system is recognized as one of the highest quality systems in the world (e.g., high cancer screening rates). Although the quality of care is generally quite high, some of the measured outcomes suggest that the US health system is not advancing as much as would be hoped for. One example of this are the efforts to eliminate breast cancer. Screening for breast cancer is higher than it has ever been, but so is the rate of breast cancer. Perhaps improved detection has identified more cases.

Freedom of Choice

Americans value freedom of choice, they like to make decisions for themselves. Americans value going where they want to get care, choosing who they want to provide that care, oftentimes deciding what care they want, and getting it when they want to get it. This has resulted in broader networks offering more choices than needed. This has resulted in higher than necessary utilization of specific services, including new technology. The need for freedom of choice has limited the effectiveness of care management programs. Freedom of choice combined with limited cost sharing results in expensive health care. One unfortunate consequence of the need for freedom of choice is the negative opinion that develops regarding any administrative process that limits freedom of choice. Programs that focus on limiting medically unnecessary care are accused of disrupting the physician/patient relationship. Unrestrained freedom of choice increases the cost of care.

Healthcare Resource Planning

In most states there is very limited overall resource planning efforts. At various times some states have implemented certificate of need programs for specific types of providers. For the most part there are no formal limits to the number of providers or types of providers. In most urban markets there is an oversupply of providers. Rural markets are often plagued with a shortage of providers. Some markets are so desperate for providers that significant compensation (i.e., above and beyond what would be considered normal) is offered in order to lure them to that specific market.

Why is this important? Healthcare tends to be a market that fails to respond to traditional supply and demand economics. In the general economy, the greater the supply, the lesser the demand and the lower the prices. In healthcare, the higher the supply, the greater the induced demand and the continuation of higher prices. Informal studies suggest that utilization levels positively correlate with supply (e.g., square root of the physician per capita ratio). One of the reasons for escalating costs is the continued over-supply of health care providers.

> “Countries with socialized health care systems are much more involved with resource planning than the United States.”

One of the best examples of effective resource planning is the approach implemented by Kaiser Foundation Health Plan in its various markets. Kaiser carefully plans the supply of professional services based upon a long-established staffing model. As the associated membership grows, they transition from a combination of “nearby owned facilities” and “rented facilities” to “owned facilities”. They carefully manage the strategic transition to a “wholly owned delivery system” and manage the resources based upon ongoing membership growth. Through this process they avoid excess capacity and as a result maintain a cost-effective delivery system.

Countries with socialized health care systems are much more involved with resource planning than the United States. The competitive nature of health care in the United States is much more focused on capturing market share than defining appropriate resources for a region. Less effective resource planning drives up the cost of care since there is a limited demand for services.

Wide Variations in Delivery System Efficiency

The efficiency of regional health care systems varies significantly from one geographic market to another. Delivery system care patterns have emerged based upon local needs, regional care practices, and the extent of provider involvement in the financing of care. Markets like Portland, OR have developed extremely efficient inpatient care patterns with a larger portion of their health care dollar going to professional providers. Other markets have emerged at the same time with much less efficient care patterns. Inpatient utilization patterns vary by more than 35% - 45%. Analyses show no clinical rationale to support the observed variation. The United States is one of the few countries exhibiting this level of variation. Experts generally concur that much of this variation is caused by personal physician preference.

Tax Sheltered Benefits

The current tax sheltered employee benefit approach emerged during the post-WWII era where employers were seeking creative ways to attract, hire and keep employees. The tax law enabled employers to write-off the cost of benefits and provide their employees a valuable tax-sheltered employee benefit. The tax law provides this favorable status only to employer sponsored programs. Individual health insurance benefit programs do not enjoy this same tax advantage. Tax reform efforts have considered eliminating this difference. Self-funded employer sponsored benefit programs, including those involving labor union negotiations (i.e., Taft-Hartley plans) are also tax advantaged.

This is an important issue when discussing transitions to alternative systems. What role will employers play? What about labor union negotiated programs? How will we unravel the tax advantaged funding of health care costs by the employer?

Diverse Insurance and Claims Administration

The employee health benefit marketplace has grown significantly with a large variety of organizations targeting the effective administration of such programs. Merger/acquisition activity has transformed the marketplace into a handful of "major players" and a large number of regional players. Third Party Administrators (TPAs) are active in the market supporting the self-funded and self-administered benefit programs. The Federal government provides government sponsored coverage for the elderly and disabled (Medicare) and lower socio-economic level beneficiaries (Medicaid). Many of these programs out-source the administration and risk taking to the private sector. Health care administration in the United States includes a significant private sector involvement. There is little uniformity between different health plans. There are limited standards to streamline the process.

Public/Private Sector Cost Shift

The US health care system incorporates a significant cost shift between the government sponsored programs and the private sector programs. The private sector pays a much higher amount for identical services than the public sector. Within the private sector, each carrier/health plan is required to negotiate payment rates which can vary substantially from one carrier to the next. The variability in reimbursement increases administrative costs for both the providers and the health plans or administrators.

Hesitancy to Declare Health Care as a Human Rights Issue

In the United States there has been a hesitancy to declare health care as a human rights issue. In Canada, the Canada Health Care Act defines five principles:

- Public Administration: All administration of provincial health insurance must be carried out by a public authority on a non-profit basis.
- Comprehensiveness: All necessary health services, including hospitals, physicians and surgical dentists, must be insured.
- Universality: All insured residents are entitled to the same level of health care.

- Portability: A resident that moves to a different province or territory is still entitled to coverage from their home province during a minimum waiting period. This also applies to residents which leave the country.
- Accessibility: All insured persons have reasonable access to health care facilities. In addition, all physicians, hospitals, etc., must be provided reasonable compensation for the services they provide.

A quick internet review will show considerable discussion defending both opinions, it is a right or it isn't a right. Dominant emerging thought focuses on what is called Triple Aim[1]. A strong focus on quality and customer satisfaction, improving the population's health status and reducing costs of care are admirable goals, but all require the definition or identification of a population. Who is the population? Is it everyone? Is it just the segment I am concerned about?

Recent health care reform efforts have focused on minimizing uninsured which was a step towards universality. Ironically the American's demand for freedom of choice also includes freedom from being told that they must buy insurance and what kind of care they should pay for.

Summary

These nine issues provide an initial list of unique characteristics of the United States health care system. When working towards solutions to resolving the high cost of care, these issues must be considered. This is not an exhaustive list, but does begin to highlight what makes American health care different.

[1] *Improving the individual experience of care; improving the health of populations; and reducing the per capita costs of care for populations.*

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Paying Healthcare Providers

The Impact of Provider Reimbursement on Overall Cost of Care and Treatment Decisions

Joshua Axene, ASA, FCA, MAAA

Introduction

How providers are paid is one of the often-discussed and often-reformed aspects of the American healthcare system. Are doctors being paid too much? Is how they are being paid incenting them to perform unnecessary services or to not give enough attention to their patients? Why can't we just pay them salaries like most of the rest of us receive? Why does provider reimbursement have to be so complicated?

In an ideal world, healthcare providers would always make the most cost-effective course of care decisions for their patients. However, provider-payment discussions aside, there are not always clear-cut decisions in healthcare. For example, if a patient comes into a physician's office with vague symptoms, there are any number of courses of action a physician could recommend, ranging from a "wait and see" approach to a "run every test we've got" approach. The right decision for any individual patient should be made through an open and honest discussion with their physician, covering their options, the patient's medical history, and any cost/benefit trade-offs. The goal of an effective provider reimbursement structure would be, most simply, to not stand in the way of a physician and a patient making the "right" healthcare decision for them in a given situation.

This article intends to discuss various reimbursement methodologies, both traditional approaches and emerging approaches, in order to highlight some of the complexities of the healthcare system that need to be considered as we work through a reform environment.

Traditional Reimbursement Models

Traditionally, there have been three main forms of reimbursement in the healthcare marketplace: Fee for Service (FFS), Capitation, and Bundled Payments / Episode-Based Payments. The structure of these reimbursement approaches, along with potential unintended consequences, are described below.

Fee for Service (FFS)

Under FFS reimbursement, a physician's revenue is based solely on what procedures they perform. Each individual "service" a patient receives would have a corresponding code with a price attached. For example, a 15-minute office consult, a tetanus shot, a urinalysis, a basic metabolic panel, all have separate codes and prices attached to them.

> "A physician might get paid three times as much to provide the exact same care to a privately insured patient than they would for a patient covered under Medicaid."

Additionally, what a healthcare provider gets paid for a particular service varies depending on the insurance of the patient receiving the care. When dealing with Medicare or Medicaid the prices per code are decided by Centers for Medicare and Medicaid Services (CMS). Commercial (or private) insurance often sets its prices per code as a percent of the Medicare price. Medicaid prices are the lowest, then Medicare, then Commercial. And so, a physician might get paid three times as much to provide the exact same care to a privately insured patient than they would for a patient covered under Medicaid.

FFS reimbursement approaches are referred to as "volume-based" reimbursement, because the primary way for a provider to increase their revenue is to increase the number of services they perform. To be reimbursed, a provider needs to show that the procedures provided are justifiable to the diagnoses

that are present. There is a potential misalignment of incentives here, where doctors can justifiably do more (and therefore make more revenue) even when the additional services might not be necessary or appropriate for the patient.

Capitation

Capitation in its simplest form is a payment a provider receives to cover all services for a specified population over a period of time. For example, a doctor's office has 100 patients, and they get paid $25 per month for each patient to cover all costs associated with those patients for the month. The amount of payment has no direct connection to the amount of services provided – one patient might incur $0 in services and another might incur $5,000, but the provider will still receive $25.

There are many different forms of capitation. Some capitation payments only cover professional fees (i.e., costs of going to a primary care doctor or specialist), while others cover all costs patients incur (hospital inpatient, outpatient, and pharmacy costs).

Additionally, there are many adjustments that can be made to the capitation payment to try to make the compensation more "fair". For example, it would not be appropriate for a doctor who services primarily Medicare patients (who are older and sicker on average) to receive the same $25 per patient a doctor who primarily services young adults would receive. This situation would create an incentive for doctors to only care for younger and healthier patients.

> "Typically, the compensation for the sickest patients is never enough to cover their full costs."

Adjustments to the capitation payment can be made based on many factors, including patient demographics (age/gender), where the patients live (service costs can vary by zip code), and the patient's health status (chronic conditions). Effectively and fully adjusting capitation payments for varying health status is a challenge, however. Typically, the compensation for the sickest patients is never enough to cover their full costs.

Different than the volume-based reimbursement structures, capitation (or fixed) reimbursement approaches allow providers to increase their revenue through an increased number of patients. If a physician gets paid $X per patient no matter what services he renders, his incentive is to get as many patients as possible into his practice, which can often infringe on the quality of care and amount of time spent with each patient.

Salaried physicians are a form of fixed compensation as well. With doctors being paid salaries, there is neither an incentive to perform as many services as possible or to get as many patients as possible, but

there is still a disconnect to the payment received (fixed salary) and the services provided. Similar to the example noted above for capitation, providers serving older/sicker populations will be paid the same to do more work. Additionally, how should salaries be adjusted year over year if the number of patients serviced or services rendered changes dramatically?

Bundled Payments / Episode-Based Payments

Bundled payments, also known as episode-based payments, are the reimbursement of health care providers on the basis of expected costs for clinically-defined episodes of care. These episodes cover a wide range of conditions from maternity care, to hip replacements, to cancer, to organ transplants. So, for example, if the expected cost for an uncomplicated hip replacement is $10,000, then a provider would be reimbursed $10,000 for every hip replacement he performs, even though some individual surgeries will be more and some will be less.

Bundled payments can be looked at as a combination of fee for service reimbursement and capitation. Providers are getting reimbursed for the various individual procedures required as a part of the entire episode of care, but only for what is expected to be required. If a provider has a more severe situation than is considered in the pricing of the episode, they will be underpaid for the episode of care. And so, as with capitation, it is important to consider various severity levels of episodes in the pricing. If severity is effectively captured in the pricing, the bundled payment approach promotes efficient care, because providers are able to increase their revenue by lowering their costs.

Bundled payments have grown in popularity throughout the implementation of ACA. They have been used as a strategy for reducing health care costs through efficiency of care. Both Medicare and Commercial payers have shown interest in bundled payments in order to reduce costs. However, there are challenges in using this reimbursement structure effectively. The development of appropriate expected costs per episode is not a simple exercise, particularly for types of conditions with wide variation in severity and cost, like cancer. Similar to the health status adjustment discussed in the capitation section, getting the cost differences right for various severities of an episode is extremely challenging. Additionally, not all care patients receive cleanly falls into a “bundle”. And, episode-based reimbursement can be more challenging to administer compared to the simpler FFS and capitation models.

Value Based Reimbursement Models

As the healthcare system continues to evolve from the more traditional payment approaches, payers are asking providers to change the way they do business to focus more on value, where value can be thought of as the intersection between cost and quality.

Value Based Reimbursement (VBR) models are intended to encourage healthcare providers to deliver the best care at the lowest cost. VBR takes the best parts of the three traditional reimbursement methods and combines them into an approach that financially rewards doctors for performing better than expected and, in some cases, punishes them for not achieving expectations.

There are two main types of VBR. A one-sided model (Gain Share) rewards providers for performing well, and a two-sided model (Risk Share) both rewards and punishes providers depending on their outcomes. Most VBR models today are Gain Share arrangements. In the simplest form, a payer would estimate how much a population of patients should cost as a target for the providers to achieve. If the average cost per patient is less than the target, the provider gets to share in the savings with the payer – for example, the provider may get 30% of the amount below the target. In a Risk Share, there is the additional element of sharing in the loss – for example, the provider may have to pay back 30% of the amount above the target. Sometimes there are quality metrics that must be met as well, in order to share in profits.

Now, in an ideal world, physicians are effectively managing their patients, even long before they develop a chronic condition or end up in the hospital. Physicians should be focused on wellness and preventive care in addition to providing the most efficient treatment options once their patients become ill. In reality, though, there are many barriers to physicians managing their patients' health optimally (including lack of motivation, lack of know-how, lack of resources, lack of information, etc.). VBR aims both to provide incentives to motivate providers and to combine resources of the provider and payer to help improve the knowledge and data aspects. Ultimately, VBR approaches are attempting to change the way provider groups do business to both lower cost of care and improve patient care management. Not every provider group can administer and/or be successful under these arrangements, though. There is a certain level of technological and clinical sophistication required as well as an openness to a new way of approaching patient care and payer collaboration.

Conclusion

The types of reimbursement outlined above are defined here in their simplest forms – there are many variations on and combinations of each that result in unique reimbursement approaches by payer, by facility/doctor, and sometimes by patient. Thinking about that dynamic from the provider's perspective, if a physician group services 100 members, they might have some patients covered by Medicaid who reimburse FFS, some under a capitation contract, others that pay a combination of bundled rates and FFS, and others still that are on a more whole-patient VBR approach. The system is complicated, both to understand and to administer.

Payers have been focused on reforming provider reimbursement to encourage doctors to make the most efficient choices for their patients (low cost / high quality). And while it is absolutely beneficial to seek reimbursement approaches that eliminate misaligned financial incentives and support providers in managing their patients' health, there is no silver bullet that will steer doctors to make the "right" choices all the time. Partly because, in healthcare, there often aren't clear "right" answers in terms of treatment. But, also because there are other elements of optimal healthcare that need to be addressed alongside provider reimbursement in order to improve America's overall health status and care costs.

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US Pharmaceutical Pricing: An Overview

Scott Fry, FSA, MAAA

Pharmaceutical pricing is a topic rife with contradictions:

- Pills that cost pennies to produce may cost thousands of dollars to purchase
- Two pills with identical ingredients, but different names, may vary in price by a factor of five
- In the United States, the price of the same drug may vary by two times or more compared to what it costs in other countries

However, these bewildering characteristics of pharmacy prices are not unexplainable. Pharmaceutical pricing is a natural consequence of the way pharmaceutical products are researched, manufactured, and paid for. Understanding the details and complexities of this pricing is a necessary first step in supporting the creation of potential cost-saving approaches. This paper will briefly explore the structure of the pharmaceutical industry, investigate the layers of pricing between manufacturers and consumers, and highlight various approaches to managing drug prices in both the United States and throughout the world. Throughout the paper, the drug Lipitor will help illuminate the path of a drug from the laboratory to the pharmacy.

Pharmaceutical Profits

Two unique aspects of the pharmaceutical industry are (1) the amount of research and development (R&D) investment and (2) the patent system. In 2016, the top 10 largest pharmaceutical companies spent just over 17% of their revenue on research.[1] This is compared to 3% in Aerospace and Defense, 9% in Computing and Electronics and 12% in Healthcare overall.[2] This huge investment in R&D is necessary for a pharmaceutical company to be able to finance the development of future drugs. During the development process, many potential drugs have ineffective clinical outcomes or serious side effects. Including the cost of drugs that were not approved, the cost of developing a single FDA-approved medication was recently estimated at $2.87 billion dollars (in 2013 dollars).[3] This large upfront outlay and considerable uncertainty in the drug development process means that a very high return is sought by investors in drug companies to compensate for these risks.

The pharmaceutical industry routinely appears at the top of "most profitable industry" lists.[4] The large profits associated with the pharmaceutical industry are also related to the second unique aspect of this sector, the patents which protect drug discoveries. The major impetus driving research and development spending is the prospect of developing a blockbuster drug (i.e., an innovative drug that treats a serious condition with a large number of patients in economically-advanced countries). Such a drug recoups its large R&D expense many times over, which then funds less-successful drugs and provides profit to drive future investments. In 2015, 12 drugs had sales of over $5 billion a year. The two most successful had sales in excess of $10 billion.[5] Patent protection ensures multiple years of exclusive access to market these medications to a large population.

Lipitor, the cholesterol medication, is an example of a blockbuster drug. It dominated drug sales between its release in 1996 till the end of its patent protection in 2011.[6] While Lipitor started early clinical trials in 1985, it wasn't available commercially until 1996.

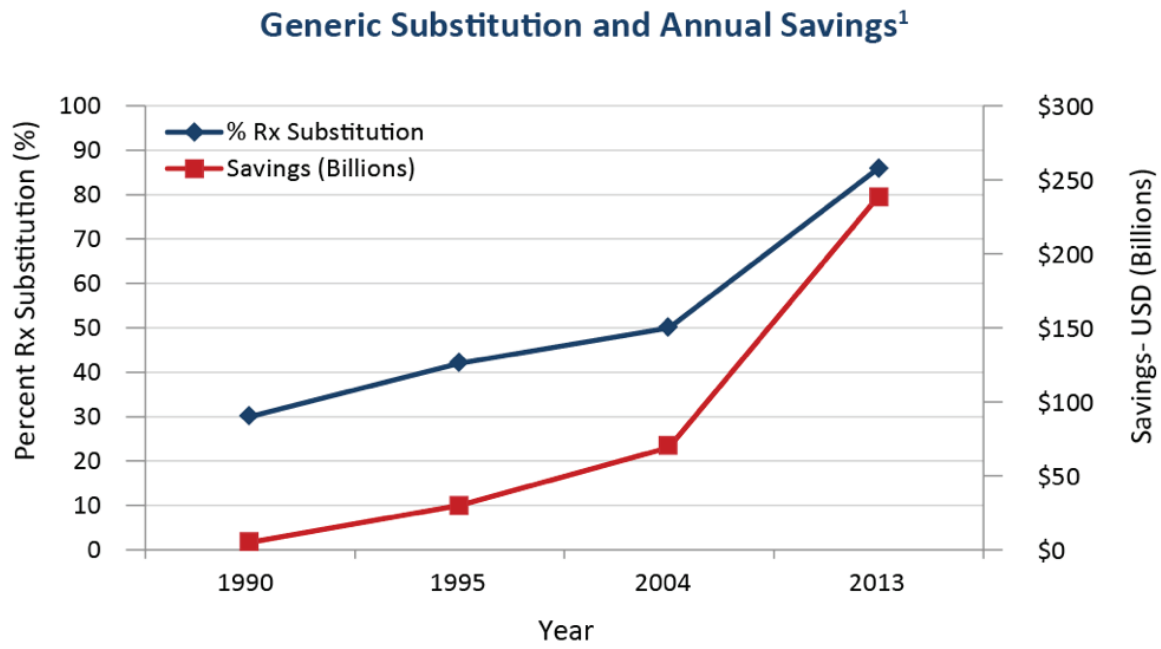
Patent protection is a central driver of pharmaceutical industry economics. In drug production, there are high initial costs to develop a unique medication, but often very low marginal manufacturing costs after

[1] *Ben Adams, Fierce Biotech, "The Top 10 pharma R&D budgets in 2016".*
[2] *Strategy&, "Comparison of R&D Spending by Regions and Industries".*
[3] *DiMasi, et. al., Journal of Health Economics, "Innovation in the pharmaceutical industry: New estimates of R&D costs".*
[4] *Liyan Chen, Forbes, "The Most Profitable Industries in 2016".*
[5] *PharmaCompass, "Top drugs by sales revenue in 2015: Who sold the biggest blockbuster drugs?"*
[6] *Associated Press, Crain's New York Business, "Lipitor becomes world's top-selling drug".*

the medication has been developed. In the absence of any patents, manufacturers would inexpensively produce any invented drug and prices would approach the costs of production. In the long run, the lack of patents would remove the incentive for pharmaceutical companies to invest in research and development and we would be limited to public funding of research and the existing drug catalog.

> The generic version of Lipitor is Atorvastatin. While manufacturing of Lipitor was controlled by Pfizer, Atorvastatin is currently manufactured by hundreds of companies worldwide.

The current pharmaceutical market structure is a combination of patent-protected brand-name drugs, where manufacturing is controlled by the firm holding the patent, and generic drugs, where the exclusive patent has expired and any manufacturer meeting minimum requirements may produce the drug. Over time, the number of generic medications has increased as more and more popular brand name drugs lose their patent protection. The following graph shows the rapid increase in the percent of prescriptions filled with generic drugs over time.[7]



1. Annual generic utilization and savings data compiled from IMS Health, the Generic Pharmaceutical Association, and the Congressional Budget Office.

[7] *Stephen Ostroff, M.D., US Food & Drug Administration, "Building a Modern Generic Drug Review Process".*

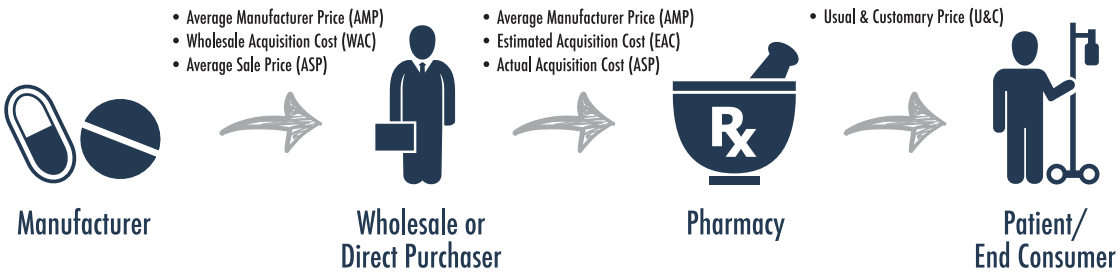
Pharmaceutical Pricing Life Cycle

In discussing the structure of the pharmaceutical industry above, frequent reference is made to drug prices, suggesting that there is a single "price" for a drug that is known by all participants. The reality of drug pricing is that there are many different prices depending on who is buying, who is selling, and when and where the transaction takes place. The range of different prices paid in the market helps identify the many players beyond the manufacturer and final consumer.

The major purchasers of drugs from manufacturers are not patients or pharmacies but wholesalers. While major pharmaceutical companies are often well-known brands (Johnson & Johnson, Pfizer, Merck) the biggest wholesalers are rarely known by the public (AmerisourceBergen, Cardinal Health, etc.). Wholesalers account for 85% to 90% of drug manufacturer revenues and purchase drugs directly from the manufacturers for sale to pharmacies, hospitals, physician offices and stand-alone clinics.[8] The price wholesalers pay to purchase drugs from manufacturers is called the Average Manufacturer Price (AMP) or Wholesale Acquisition Cost (WAC).[9]

The next stage in the drug distribution pipeline is the sale of pharmaceuticals from wholesalers to retailers. Focusing on pharmacies that sell directly to consumers, the price that retailers pay is often known as the Actual Acquisition Cost (AAC). The AAC is typically based on the WAC plus a markup (often 10-15% on branded drugs and higher on generics). Average Wholesale Price (AWP) is another benchmark for the price pharmacies pay wholesalers. AWP is a universal standard in pharmaceutical pricing and is typically collected and published by companies who collate drug pricing data.

The last step is getting medications into the hands of consumers. This is handled through several chain and local retail pharmacies as well as an increasing number of mail and specialty pharmacies. The retail pharmacy market in the US is largely dominated by chain pharmacies;. In 2014 the top three pharmacy chains (Walgreens, CVS Health and Rite Aid) accounted for over 75% of the market share.[10] An increasing volume of drugs are being dispensed through the mail order channel, especially with the expansion of specialty drug utilization. The price of retail medications to consumers is the "Usual and Customary" (U&C) price, which includes the cost of the drug (AAC) plus the pharmacy's markup, the pharmacy typically also receives a dispensing fee of $1-$3 per prescription.[11] The image below shows the various prices encountered between the manufacturer and the final consumer.[12]



[8] *MDM, "2016 MDM Market Leaders | Top Pharmaceuticals Distributors".*
[9] *Laura Coe, Society of Actuaries, "Prescription Drug Pricing".*
[10] *Drug Channels, "2014's Top Retail Pharmacy Chains, According to Drug Store News".*
[11] *Laura Coe, Society of Actuaries, "Prescription Drug Pricing".*
[12] *Joey Mattingly, U.S. Pharmacies, "Understanding Drug Pricing".*

The Role of Insurers and Pharmacy Benefit Managers

An area of pharmacy pricing not addressed above is the role of insurers and pharmacy benefit managers (PBMs) in drug purchasing and pricing. Typically, consumers who have pharmacy insurance coverage pay a copay or a percent of a drug's cost and the remainder is covered by their insurance. The proportion of pharmacy costs covered by insurance is often lower than for other medical services, but it has risen in recent years, especially for costly specialty medications. Insurers entered the pharmaceutical market to use their market power to reduce the prices they pay for drugs. Over time, though, many insurers have outsourced this role to PBMs, which negotiate drug prices on behalf of insurers and large employers.

PBMs work on behalf of their clients to lower the prices paid for pharmaceuticals. They interact in the pharmaceutical market through two primary paths: price negotiation and formulary design. The first part of price negotiation is reducing the prices paid at the pharmacy through discounts. PBMs aggregate the purchasing power of multiple insurers and payers to negotiate better discounts with pharmacies than insurers could achieve on their own. The PBMs may also own or contract with mail-order pharmacies that offer even deeper discounts.

Pricing Example - Brand

Lipitor (Bottle of 30, 10mg, circa 2011)	
AWP	$120
Brand Discount	20%
Dispensing Fee	$2
Cost at Pharmacy	$120 * (1-20%) + $2 = $98
Member Copay	$30
Rebate	$12
Cost to Insurer	$98 - $30 - $12 = $56

Pricing Example - Generic

Atorvastatin (Bottle of 30, 10mg, circa 2016)	
AWP	$100
Generic Discount	80%
Dispensing Fee	$2
Cost at Pharmacy	$100 * (1-80%) + $2 = $22
Member Copay	$5
Rebate	$0
Cost to Insurer	$22 - $5 - $0 = $17

While discounts reduce the initial price paid at the pharmacy, rebates earn money back after drugs have been sold and consumed. Drug rebates are negotiated directly with manufacturers on brand medications by PBMs. They often total 10% or more of the price of branded drugs. Manufacturers pay rebates to earn access and to reward volume. Access means that a PBM lists a medication on their formulary as a "preferred" brand drug, meaning it costs less to the consumer and will be more likely to be prescribed by physicians. Volume rebates are additional rebates paid by the manufacturer if a PBM sells more of their brand drug than similar alternatives. A decade ago many PBMs provided their services for a nominal fee and earned most of their money through rebates. Today, most PBMs charge higher upfront fees and pass-thru rebate payments to the insurer.

Insurers and PBMs offer a range of services beyond price negotiations. They also work on formulary design (the list of drugs covered by an insurance plan) and cost saving programs. Programs include compliance programs to ensure pills are taken regularly and prescriptions filled promptly, generic substitution to recommend generic versions of brand drugs, and polypharmacy, which focuses on safety for patients taking a large number of medications.

Pharmaceutical Pricing Abroad

The pharmaceutical industry is a truly international industry with drug research and development, manufacturing, and distribution occurring across national borders. The US drug market is far and away the most valuable in terms of revenues due to the US's large population and high per-capita GDP. The following table shows the value of the top 10 pharmaceutical markets, measured by revenues in US dollars (USD) for 2015.[13] The relative size of drug markets also reflects different healthcare practices and drug price controls in each country.

Rank	Country	Sales 2015 (billions, US$)	% Growth over 2014
1	United States	423.0	11.5
2	China*	78.9	5.1
3	Japan	73.1	5.9
4	Germany	39.2	4.2
5	France	32.1	0.3
6	Italy	26.9	13.2
7	United Kingdom	25.6	9.9
8	Spain	20.3	15.7
9	Brazil**	19.5	14.3
10	Canada	19.2	6.0
	Top 10 pharmaceutical markets	**757.6**	**9.4**

In the United States, the FDA is responsible for approving new medications. Pharmaceutical companies must submit extensive documentation and research supporting safety and efficacy to have a drug approved. The FDA does not, however, consider whether a drug is reasonably priced compared to drugs in the same therapeutic class or existing medical treatments. In many European countries, drug approval is a two-step process, with initial approval based on safety and efficacy and a second step that considers the drug's cost effectiveness compared to other available medications and treatments.

When appraising the landscape for drug sales, manufacturers consider not only where to set prices in each country, but the size of markets and prices across the entire world. Drug manufacturing requires huge upfront research costs and relatively low marginal production costs. Manufacturing firms need to make enough money, in aggregate, to cover initial research costs, but the marginal cost they charge only needs to be enough to cover production. This means that lower income countries can often purchase drugs for 1/10th or less of the cost of high income countries. This is a boon for many lower-income

[13] *IMShealth, "Top Pharmaceutical Markets Worldwide, 2015".*

countries, but leads manufacturers to price discriminate across markets and may lead to a sense that some markets are subsidizing others.

Drug prices may also vary across industrialized Western countries. A study of drug price differences across nations carried out by Kanavos and Vandoros in 2011 found that brand drug prices did appear higher in the United States than in European countries, but that the difference was lower than that found in prior studies.[14] In most other countries with socialized health insurance systems, there is some level of drug price negotiation at the national level. Germany allows drug companies to set their own initial prices but may set maximum prices for patent-protected drugs, use reference prices for drugs in a therapeutic class, require initial use of alternate treatments or deny reimbursement of "inefficient drugs".[15] In the United Kingdom, the National Institute for Health and Care Excellence (NICE) determines both the clinical value of a drug and its cost effectiveness. Only drugs meeting minimum cost effectiveness requirements are reimbursed by the National Health System, meaning drugs that don't meet this requirement are essentially unavailable to the public.[16] In Canada, a range of price management tools are available. Drugs are initially categorized as "Category 1: a new drug product that is an extension of existing or comparable dosage form of an existing medicine; Category 2: the first drug to effectively treat a particular illness or that provides a substantial improvement over existing drug products; Category 3: a new drug or dosage form of an existing drug that provides moderate, little, or not improvement over existing drugs."[17] Drugs are then assessed as to whether their prices are "excessive", existing drugs are limited to an annual CPI (Consumer Price Index) increase, new drugs in categories 1 and 3 must be within the range of existing drug prices in their therapeutic class and the price of breakthrough drugs is based on a reference to the price in other countries.

Controlling Prices in the US: Options

How can the US decrease drug prices? One frequently-cited idea is to allow importation of inexpensive drugs from Canada. Many individuals have driven over the border to purchase cheaper drugs in Canada and even made online purchases from Canadian pharmacies. In individual cases, this certainly saves money, but as a national strategy it would be difficult for the United States to process its drug purchases through a country 1/9th the size. The likely response by drug manufacturers would be to limit drug production and sales to Canada or to raise prices in Canada to make up for the lost revenue. Either case would likely hurt Canadian consumers and could lead to the passage of laws in Canada outlawing the exportation of drugs to the United States.

What if the United States instituted its own Canada-style drug price controls at a national level? With almost 50% of the international market, the US could certainly lower drug prices by leveraging its market power. As the largest market and a relatively high-priced market, the US likely supplies even more than 50% of total pharmaceutical profits. As these profits are reduced through drug negotiations, the long-term return to drug research and development would decrease leading to corresponding decreases in investment. This would reduce the rate of new drug breakthroughs throughout the entire world.

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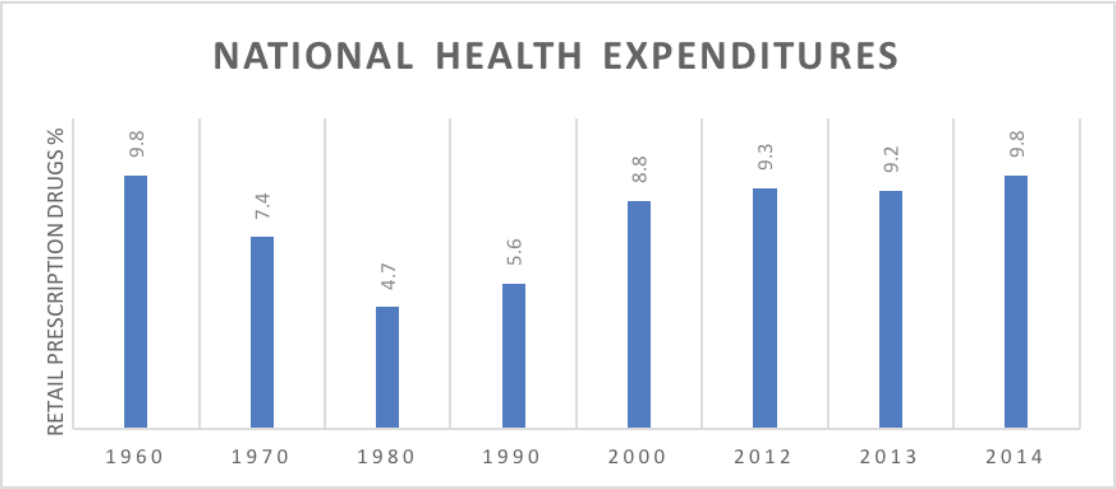
[14]Kanavos & Vandoros, Health Econ Policy Law, "Determinants of branded prescription medicine prices in OECD countries".

[15]Busse, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, "Health care systems in transition: Germany".

[16]Cancer Research UK, "How NICE makes decisions".

[17]Devidas Menon, HealthAffairs, "Pharmaceutical Cost Control In Canada: Does it Work?"

What should the US do? How can payers control drug prices over time without the US shouldering an outsize portion of the cost of drug development and without decreasing investment in drug breakthroughs? The first issue is to assess the size of the problem, while recent drug trends have been higher than medical trends, in the long run the proportion of US health spending dedicated to pharmaceuticals has remained relatively constant (see chart below).[18]



To search for effective methods to control pharmaceutical costs we should look at what has found success in other countries and the methods successful PBMs are currently pursuing:

- Encouraging/mandating generic substitution.
- Tying the cost of new drugs in existing therapeutic classes to the drugs already being sold (referencing pricing).
- Comparing the cost of novel drugs to the cost of existing medical treatments for those conditions.
- Negotiating rebates or agreements from manufacturers that limit the growth rate of drug prices over time.
- Establishing a pathway for effective biosimilars to be approved as specialty drugs lose patent protection.
- Investigating outcomes-based payment arrangements for costly specialty drugs.
- Boosting competition for generic drug production.

Conclusion

Managing drug costs over time is a complex task that touches issues that run the gamut from increasing drug prices, generic drug shortages, long-term research and development, and national drug pricing policy. Any approach to improving the value of health expenditures spent on medications must consider the structure of the pharmaceutical industry, the history of health insurance in the US and the international market for drug development and manufacturing. Focusing on methods that have been effective internationally and within US markets may help control drug prices in the US and ensure a robust pharmaceutical market for the future.

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[18]CDC, Health, United States, 2015, "Table 94: National health expenditures, average annual percent change, and percent distribution, by type of expenditure: United States, selected years 1960-2014".

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The Health Insurance Premium Dollar: Who Gets What?

Tim Smith, ASA, MAAA

Introduction

In today's health care arguments about lowering costs, it is sometimes forgotten that insurance premiums are set based on the underlying cost of health care. Other than the portion (<20%) needed to cover insurance administration, taxes, commissions, and profit, the remaining 80%+ of the cost of healthcare itself goes to the hospitals, physicians, drug manufacturers, and other providers in the health care space.

For a premium reduction to occur, the cost of care either needs to shift away from the insurance premium back to the consumer, or these players that make up the premium dollar – insurers, hospitals, physicians, drug manufactures – need to cost less.

According to the Centers for Disease Control and Prevention (CDC), total U.S. healthcare spend in 2014 exceeded $3 trillion dollars. The portion of this care covered under a typical health insurance policy has remained consistent over the past 50+ years at almost 70%. The major components of health insurance spend – hospitals, physicians, and drug companies – have consistently shared the same proportion of the health care pie, despite significant efforts over the past 30 or so years to move healthcare out of the hospital and into the professional office setting.

Total Healthcare Spend by Service Type: 1960 & Today
cdc.gov data

	1960	2014	Annual Trend
Total Health Care Spend *in billions $*	$27.2	$3, 031.3	
% within typical insurance cost	68.0%	68.9%	
hospital portion	33.1%	32.1%	
professionals, including home/DME	25.0%	27.0%	
prescription drug	9.9%	9.8%	
Census Population	180M	320M	
PMPM	**$8.56**	**$543.54**	**8.0%**

This 8% average annual total health care trend over the past 50+ years has led to the United States spending a higher % of GDP on health care than any other country. Today's health insurance purchasers (i.e., the government, employers, and individual consumers), often need to give up other spending to continue to fund their health care and health insurance needs. The government's reaction has been to use their purchasing power to limit publicly funded trends (i.e., Medicaid and Medicare) to lower levels, but as a result, the commercial market, made up of employers and individual consumers, has experienced trends even greater than this 8% average.

This article looks at the major players whose combined spend makes up the majority of today's health insurance premium. Once we understand all stakeholders are working hard to maintain current revenues and margins, we can understand how difficult it is to reduce insurance premiums. If health care costs continue at high levels it is hard for carriers to reduce premiums. While it is easy for politicians to say they will cut cost by "getting the waste out of the system", these players know that is another way of saying the system is working to find ways to pay providers less to care for their patients.

We will now look at these key players and some of challenges they are dealing with to keep their piece of the health insurance premium dollar.

Hospital Systems

Like any viable institution, hospital systems must manage their finances so they get enough revenue to at least cover their costs, and hopefully provide some margin as well. Hospitals are able to increase their margins through three basic means:

1. Filling hospital beds
2. Maximizing prices
3. Improving efficiency

One challenge that hospitals face is the inadequate reimbursement for Medicaid and other government programs. In many states, Medicaid does not reimburse hospitals enough to even cover their costs, so other products – typically commercial products – require significantly higher rates to cover these losses (i.e., required cost shift). Many hospitals also lose money on Medicare patients as reimbursement rates are controlled. A recent report by the Medicare Advisory group, MedPAC, stated that 64% of hospitals lose money at Medicare levels of reimbursement.[1] The hospital CFO looking at government business that could be as much as 60% of their hospital's revenue is obviously concerned and motivated to achieve as high of margin as possible on the non-government funded commercial business.

Raising commercial pricing is typically the most straightforward way to increase overall revenue, assuming there is no significant unfavorable impact to the hospital's volume of patients. The commercial prices a hospital is able to charge in a market are determined in large part by the market dynamics of the region in which it operates.

Hospitals have a great deal of leverage in negotiating commercial rates with insurers if they are the only facility in their region or if they have developed a reputation as "must-have" for certain services. With this leverage, a hospital can push prices as far as the insurance market will bear. Commercial reimbursement for hospitals can easily be double or triple the level that Medicare reimburses. A hospital's mission to provide reasonably priced care in the community will sometimes come into play, but that is not always the case. There is also the question of what price is reasonable.

In regions that have either competing hospitals or a single dominant insurer, though, commercial reimbursement rates are often much lower. In the first scenario, the hospitals may compete with one another, pushing down prices. In the second, the insurer has the leverage to negotiate with the hospitals and achieve lower rates.

In both of those latter scenarios, hospitals are challenged in achieving margins through higher prices, so they have to take another approach – improve efficiency of providing care. However, improving efficiency is not an easy task – it requires cutting costs (often people's jobs) and taking other difficult operational and clinical steps to offer lower-cost quality care. Where the market allows, it is often easier for a CFO to follow a strategy of demanding higher reimbursements on commercial products than attempting to improve efficiency.

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[1]Roy, A. (2011, September). MedPAC: 64% of Hospitals Lose Money on Medicare Patients. Retrieved from Forbes.com: https://www.forbes.com/sites/aroy/2011/09/21/medpac-64-of-hospitals-lose-money-on-medicare-patients/#3195215921b8

Professional Providers

Professional providers work to earn their profits in various ways, depending on their reimbursement arrangements. Typical reimbursement structures for independent physicians, not employed by a hospital system, pay physicians for every individual service they provide. In these arrangements, doctors have a financial incentive to perform more, and more complex, services even when they may not be necessary or the best option for a patient. Under reimbursement mechanisms often described as "paying for value vs. volume", physicians instead receive a budgeted amount for each patient to perform all necessary care. While these models were once popular during the rise of HMOs and are starting to make a comeback, uptake has been relatively slow and most providers still receive a majority of revenue under the "fee-for-service" model.

From a hospital's perspective, the value of a physician relationship is often tied to their ability to refer patients or steer them to their hospital. For example, physicians in specialties that fill hospital beds with high-profit procedures (e.g., neuro-surgery, cardio-thoracic surgery, etc.), especially those with the best reputations, are very attractive to hospitals. Hospitals want these surgeries to be done in their facilities so they can reap the profits from them. Stark laws (laws against self-referrals) create a challenging dynamic for these surgeons, though – it is illegal to receive compensation for a referral. Hospitals have gotten around these laws by buying the physician practices. By employing these physicians, often at escalated salaries, the hospital needs to make up for this cost elsewhere. As we saw in the previous section, these costs are often covered by increasing commercial prices for the types of surgeries noted above. Further escalation of costs occurs because employed physicians are now performing services for their patients in the higher-cost hospital setting vs. previously when much of their care could be performed in the office, or in low-cost ancillary sites. Where you receive your care has a direct and significant impact on how much that service costs. For example, you can have a colonoscopy done in a physician's office, in an ambulatory surgical center, or in an outpatient (hospital) setting – the procedure is the same, but the cost can be two or three times as much if it is performed in the hospital.

> "Where you receive your care has a direct and significant impact on how much that service costs."

Insurance Distribution Channels

The health insurance distribution channel includes health insurers themselves and those involved in the sales of their products (primarily insurance brokers and employee-benefit consultants). These payers and sellers often make their earnings as a percent of the healthcare premiums being charged. So as these health insurance premiums have increased at an 8% clip over the last 50+ years, so has the revenue and income of many of those involved in the distribution of health insurance. Without market pressures from other insurance companies or pushback from regulators or large employers, there is no inherent incentive for insurers to lower their prices or manage cost trends.

In a region with multiple insurers but little or no hospital competition, I often see a pattern where the hospital has normalized their insurance contracts to a point where every insurer pays a similar rate. Insurers are satisfied with this, because even though the rates may be relatively high compared to those in competitive hospital markets, at least the insurer is not at a disadvantage to their insurance competitors. And hospitals are satisfied, because as government payers continue to ratchet down reimbursement, they can go to their commercial insurers to help make up the difference, promising similar rate increases for all insurance competitors to keep the playing field level. But health insurance consumers are hurt, because insurance prices in these regions are often the highest in the country.

Large Employers

So how do purchasers in the commercial market continue to pay these increased prices each year? Increasingly, the answer for the individual consumer is that they can't. Without the government assistance through today's health care reform, many would not be able to afford their insurance coverage. But what about employers? While some small businesses have discontinued coverage for their employees and sent them off to the individual exchanges, most large employers continue to provide their employees with health insurance coverage. And many of these employers still demand robust benefits for their employees along with a wide choice of providers in the network – there is a general unwillingness to burden their employees with the inconvenience of a limited network for the sake of saving money on insurance premiums.

> "Without the government assistance through today's health care reform, many would not be able to afford their insurance coverage."

This unwillingness or perceived inability by large employers to demand lower health care trends has put them in a position of being bystanders to the rest of the market forces in play. The various market environments described in the previous sections show that costs and prices are absolutely influenced by the negotiating leverage various players have. Large employers could insert themselves into that dynamic by using their purchasing power to demand lower-cost benefit structures or narrow network products that achieve a pricing advantage. Particularly in markets with robust hospital and insurer competition, if employers were willing to burden their employees with a narrow network product, we could see greater movement towards optimal efficiency in hospitals and their network of physicians and ancillary providers. Those systems that can achieve the highest efficiency will receive a greater percentage of the available patients and their health care spend, and maintain a greater percentage of their margins.

In markets without hospital competition, unfortunately, things are more complicated. Regional employers would need to demand the premiums that exist in the highly efficient markets, or move their operations to one of the more efficient regions. This, of course, is more complicated and will only occur over a longer timeframe.

Conclusion

This article describes the key players that make up the health care, and health insurance premium, dollar. In today's environment of health care reform and debate over prices, it can often get lost that premiums are made up of the revenues and margins that many different players in the health care space rely on. For health insurance premiums to go down, either the consumer needs to pick up a greater percentage of the overall tab, or one of these players needs to take less. And these players are not likely in a position where they want to take less, so they look for all ways possible to protect their revenues and margins.

We see in today's regulated worlds of Medicaid and Medicare that the government has set prices at a level where hospitals and other providers are unable to achieve positive margins, so they look to the less regulated commercial market to make up the difference. This pushes up commercial premiums. One of the key commercial insurance consumers is large employers. Especially in regions with competing health systems, large employers could create benefit designs that narrow networks and encourage lower cost care. While these changes may lead to an inconvenience to some of their employees, the resulting market dynamic can lead to hospitals systems improving their efficiency and providing lower costs in the region, and ultimately lead to lower premiums.

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Optimizing Healthcare Financing in Free Market Economies

Greg Fann, FSA, FCA, MAAA

Most observers would agree that the United States economy is largely composed of free market transactions. This generally means that prices for goods and services are determined by supply and demand with little interference from government forces. The US is certainly not a pure free market or capitalist system, as various regulations at the state and federal levels influence the operation of various markets.

The arena of healthcare presents some unique challenges for policymakers. Constructing and tailoring an economic system that reaps the rewards of free market systems (innovation, aligned incentives, continuous improvement) while recognizing the emotional and ethical nature of healthcare delivery requires striking a delicate balance. This challenge is aggravated by influential stakeholders who largely disagree on both desired priorities and the impact of various healthcare policies, and often have financial stakes or other biases shaping their views. Recently, the dialogue has become openly rancorous with bold accusations implying nefarious motives of other stakeholders. The focus of this paper is to discuss the uniqueness of healthcare delivery in a free market environment, highlight various perspectives, and provide some principles and insights regarding solutions to accumulated problems and current challenges.

Healthcare in the Marketplace: Different than other goods and services

In a civil and empathetic society that values human life above all else, it is impossible to properly value a life-saving treatment. Ethical and financial considerations conflict when decisions are required to choose performance of heroic, untested, and expensive procedures. In these scenarios, who should be granted decision-making authority? Who should be obligated to pay for these services? Should the payer determine which services should be performed? What role should the government play, if any?

As this article is being written, a high-profile story of a dying British infant is circulating around the world and generating significant debate. His parents are advocating an experimental treatment in the US; they have found a doctor willing to perform it, and have offered to pay for it themselves (partially through raised donations). It's hard to argue, absent obvious cruelty, that parents do not have the best interests of their children in mind or that they should not have the freedom to purchase unconventional services and explore different healthcare solutions. Would anyone deny them the right to this experiment when there is no other life-saving alternative? Should the same choice then be made available for families that are not well-financed? If lines are not drawn, at some point we eventually run out of "other people's money". These ethical/financial dilemmas that exist today will become even more prominent in the US as the population ages and new, expensive, technologies rapidly increase our ability to prolong life.

The ability of healthcare delivery to improve life and save lives in some circumstances places healthcare in a different category than other goods and services. There are constant reminders that healthcare is different, and that it is perhaps inhumane to view healthcare through a market-oriented lens. At the same time, many of the advances in healthcare have spurred from free market innovation. This innovation has benefited the world, even economies without free markets. New cures and progress from experimental treatments are difficult to attain in government financed systems with strict protocols, prescribed procedures, and limited budgets.

The US leads the world in medical and pharmaceutical breakthroughs, and Americans are the first to benefit from new treatments. Unfortunately, we also pay significantly higher prices. High prices are combined with overutilization of services due to improper incentives in the health system, resulting in the primary recognized and discussed problem of today: the high cost of health insurance.

As most of the healthcare delivery in the US is financed through various types of insurance mechanisms, the remainder of this article focuses on the free market challenges related to health insurance and the unintended consequences of insurance regulation.

Health Insurance Overview: Different than other insurance products

Insurance, in general, is a financial services product that allows individuals, groups of individuals, or corporate entities to exchange some known amount of money (i.e., insurance premium) for the guarantee of compensation for some future unknown loss (i.e., insurance claim). The specific dynamics of different types of insurance can vary greatly, however.

For example, automobile insurance and health insurance share some of the same basic operating principles, but there are very important differences between the two that create unique challenges for each industry to be able to effectively regulate and price the products in a fair and equitable way. Automobile insurance products provide the insured with financial coverage in the case that their car is damaged in a collision or by some other means (i.e., collision coverage) or that their car causes harm to themselves, another person(s), or other property (i.e., liability coverage). Most states require automobile owners to purchase minimum levels of liability coverage (or prove that they are able to finance the risk themselves), but none require the purchase of collision coverage.

There are many different levels of coverage and cost-sharing for the different types of automobile insurance products, which a car owner can then select based on their own financial situation and risk-averseness (i.e., no one plans to have a car accident – but some would rather pay a higher known price upfront than risk a larger payment if an accident were to happen). These policies have clear maximum limits to what is covered in various situations. If a car accident occurs, the insurance company assesses the damage and identifies responsible parties, and then the insurance policy covering the responsible party will pay according to the limits and cost sharing that they purchased. If an uninsured car causes an accident, the owner of that car must pay for any repairs or liability out of their own pocket.

Premiums for automobile insurance are, in simple terms, based on average expected costs over a population of people who have insurance. The frequency of car accidents does not change significantly over time, nor has the cost of cars increased at significant rates, which has led to relatively stable average premium increases on car insurance over time. There is some differentiation in premiums based on age and other factors that have been correlated with higher frequency of accidents; ratable factors vary based on state regulation. Competitive pressures have led to a very competitive market in the automobile insurance industry.

Health insurance is a slightly more complicated coverage with some important nuances. First of all, the individual who is covered under a health insurance policy is not always the one who selected or purchased that policy. In the US, many citizens get their insurance through their employer. The employer reviews various benefit options and insurance products and selects one on behalf of all of their employees. Insured employees are often not clear on the benefits they have or what limits there are to their coverage. Even when an individual is the one selecting and purchasing benefits, the details of a health insurance policy are quite complex and it is often unclear what is/isn't covered for the many different types of medical services.

Additionally, there is an element of known future costs in healthcare. Some of us know that we will incur costs in the future, whether because we take a medication regularly, have a chronic condition that requires regular care, or are expecting a baby. Insurers do not have all of the information the insureds do as to known future claims – they must rely on looking at historical averages.

Also, in health insurance there is no assessment of "fault" when it comes to treatment. In auto insurance, if an accident is not considered to be your fault, you typically do not have to pay (unless the at-fault party is uninsured). With healthcare, there is no assessment one way or the other as to why a condition came about, only that it needs to be treated and whether or not you have coverage for that treatment.

Another important difference is the handling of the uninsured population. In automobile insurance, most states require a minimum amount of liability coverage, to make sure that if "un-ignorable" costs arise from an accident (for example, significant public property damage or personal injury), there is some coverage in place to pay for those costs. In health insurance, if someone without insurance coverage requires medical attention, they receive medical attention. If they cannot pay for their care, the costs fall to the system itself to absorb (which ends up being pushed back onto consumers as increased provider prices, which then result in higher premiums).

> "High costs create some questions around what should be covered under a health insurance policy and what should be left for a consumer to pay for themselves."

Finally, healthcare is very expensive and many Americans would have difficulty paying for even moderate courses of treatment without insurance. These high costs create some questions around what should be covered under a health insurance policy and what should be left for a consumer to pay for themselves. Some argue that health insurance should be used for catastrophic coverage only, but often even basic service, such as having a baby, can be much too costly for families to afford. On top of those concerns, some use of the healthcare system (e.g., diagnostic and preventive care) should be encouraged in order to potentially reduce the probability or cost of future health events. With catastrophic coverage only, many individuals would forgo the beneficial usage of the system.

This high cost and broad coverage of healthcare directly necessitate high health insurance premiums. And due to the nature of health – that getting sick is often out of our control – there is a lot of sensitivity around what's "fair" in terms of who pays what premium. Is it fair for healthy individuals to pay very low premiums and sick individuals to pay very high premiums? What if the sick individuals were born with expensive genetic conditions (i.e., are sick through no fault of their own)? What about the individual making poor lifestyle choices resulting in higher than average healthcare costs? These questions are often the focal point of what healthcare legislation tries to influence.

Impact of Insurers on Free Market Dynamics

A downside of using insurance to fund virtually all medical cost (absent cost-sharing) is that it ultimately raises costs by insulating consumers from medicine's real prices. Elisabeth Rosenthal, MD, editor in chief of Kaiser Health News cites "the very idea of health insurance" in being partially culpable for the high cost of healthcare, acting as a middleman that blinds the true healthcare consumer from the costs of the services they are consuming.[1] Consumer insulation from prices creates more demand for healthcare services (because they feel cheap to the patient), at times wastefully, which leads to price increases.

Rosenthal also argues that regulation of insurer profits can actually produce the opposite of the intended effect. Minimum Loss Ratio rules, which essentially limit the amount of profit and non-claim expenses an insurer can have relative to the premiums they charge, were enacted with the idea that reducing profit percentages would then reduce insurance premiums. Instead, the regulation created an incentive for insurers to "increase the size of the pie."[2] In other words, if an insurer was previously able to make 10% on a $100 premium ($10), after regulation limited their profits to 5%, they could make up the difference by charging a $200 premium instead (numbers are hypothetical for illustration only). And while insurers cannot easily double their prices, they are a critical party in negotiating prices with hospitals and physician offices. This incentive to increase premiums potentially conflicts, then, with their desire to negotiate lower prices (and thus lower cost). This view is not widely held in the insurance industry, but it does highlight potential unintended consequences of insurance market regulation.

Additionally, it is interesting to note the price changes over time of medical services that are not generally covered by insurance (i.e., services that do not have price insulation). Consumers have much more "skin in the game" and shop wisely for services such as Lasik eye surgery and cosmetic medicine. Not only have prices dropped for these services over the past 10 – 15 years, but customer service generally receives higher marks as providers are focused on demonstrating value for the purchased services. Although Lasik eye surgery might not be considered an "essential" health service to the average individual, this example shows that increased price consciousness might create a similar outcome for other services. Not all health services will benefit from this transparency (emergency services where there is no time to shop around, or some of the more "invaluable" services such as cancer treatment), but price insulation absolutely dilutes cost as a consideration for patients/consumers in choosing their care.

Federal Health Insurance Regulation: A look back

The challenge of effectively addressing the high cost of healthcare has been highlighted by the federal legislative responses over the past decade. The originally enacted federal solution, the Patient Protection and Affordable Care Act (ACA) reflects the first significant federal attempt to regulate the commercial market. While the legislation was comprehensive and impacted all markets, it primarily attempted to reduce the number of uninsured individuals by offering new and expanded federal funding to the individual and Medicaid markets. Essentially, the ACA provided various levels of financial support depending on age, income, and geographic-specific premium levels, for individuals to purchase their own insurance policies.

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[1] *"An American Sickness", p. 14, Elisabeth Rosenthal, 2017*

[2] *"An American Sickness", p. 20, Elisabeth Rosenthal, 2017*

At the same time, the ACA removed or altered some of the rating variables in the insurance system. Under ACA, insurance companies could no longer:

- Charge gender-specific premiums (based on cost curves, women were historically charged more than men at younger ages and less than men at older ages)
- Charge as much as was needed to be profitable for older members (highest vs. lowest age adjustment could only vary by a factor of 3 whereas costs are typically 5-7 times different)
- Adjust premiums based on health status (there are extreme differences in costs for healthy individuals vs. those with chronic conditions)
- Deny coverage because of pre-existing conditions

From an insurance company's perspective, these regulations limited their ability to appropriately match up revenue to costs for their insured population,[3] creating new challenges in the marketplace. These newly mismatched insurance prices disrupted normal market forces around the purchase of insurance. Young and healthy individuals were now being charged prices much higher than they felt they should be, based upon their personal use of the system – the insurance product then became one of low value for them. Alternatively, older and/or sicker individuals were paying much less than they were costing – the insurance product was of extreme value to them.

> "One of the key assumptions the ACA legislation made in order to operate successfully was that enrollment would reflect a reasonable demographic balance."

The moral and political appropriateness of insurance premium subsidization can be debated, but it is difficult to disagree that the result of this regulation created a dynamic where lower-cost individuals saw less value in the insurance product than they did before, causing many of them opt out of purchasing it altogether, largely independent of their income. One of the key assumptions the ACA legislation made in order to operate successfully was that enrollment would reflect a reasonable demographic balance. Specifically, the architects of the ACA legislation projected that the age 18-34 population would need to represent 40% of the market for the market to function effectively. However, due to the loss of value described above and a too-weak mandate for coverage, the 18-34 proportion has hovered around 26-28%.

Federal Health Insurance Regulation: A look forward

The results of the 2016 elections put Republicans in full control of the White House and both houses of Congress, albeit without a filibuster proof majority in the Senate. This change allowed for a serious but measured response to repeal the ACA and replace it with a more flexible, market-oriented alternative. Several pre-election proposals have been compared to the ACA, focused on the impacted rate changes

[3]A risk adjustment system was implemented to attempt to assuage concerns and offset resulting distortions. While this impacts the revenue that insurers receive, it does not adjust the prices that consumers pay.

by age and income levels.[4] One of these proposals, authored by former representative Tom Price, now the Secretary of Health and Human Services, was closely modeled in the American Healthcare Act (AHCA) passed by the House of Representatives on May 4, 2017. The legislation provided age-based tax credits to most enrollees in the individual market as opposed to the ACA's income-based credits, meaning that the financial assistance individuals receive in purchasing health insurance is fixed based on their age (which is correlated to their cost) and not scaled based on income or geographic premium levels.

Interestingly and surprisingly, the early versions of the Better Care Reconciliation Act (BCRA) in the Senate did not follow the AHCA direction and largely maintained the ACA framework and its income-based subsidies. Notwithstanding the larger changes in the structure and amounts of Medicaid federal funding, the primary BCRA reforms to the ACA are in the form of:

- Rating age bands more aligned with actual costs (i.e., giving insurers back the ability to charge premiums by age that more appropriately match to average costs)
- State waiver flexibility expanding the bounds of Section 1332[5] (essentially gives states the ability to waive some of the rules imposed by the ACA under certain conditions and develop their own more state-specific healthcare solutions)

In effect, many of the challenges in ACA markets would remain if the BCRA is passed in its current form. The Republicans in the House and the Senate have been criticized for not having a solution ready with seemingly having years to prepare for this opportunity. The nature of the legislation[6] suggests that the technical characteristics of individual market behavior is challenging to grasp. The complications suggest the need for expert review of how regulatory changes to health insurance markets elicit free market responses.

Conclusion

Healthcare delivery and the associated financing is complex, involves human well-being, and potentially human life. It simply cannot be viewed through a purely free market lens. The role of the insurer as a middleman between the consumer and the provider of healthcare services stifles some of the free market impacts, both because consumers are often unaware and thus unmotivated by the actual price of care and because insurance companies are profit-driven corporations that will find ways to maximize their revenue in any regulatory environment.

Legislation crafted with a blindness of free market principles and the role of the insurer often will generate results that were not in line with the initial intent – for example, Minimum Loss Ratio laws. At a minimum, policymakers should consult with unbiased market experts to understand the implications of their various proposals. Will they truly accomplish what they are intended to accomplish? Unbiased reviews of this type would be valuable for all healthcare stakeholders to understand – without this expert assessment, the complexity of the healthcare system lends itself to a potential situation in which we move forward with broad-reaching popular provisions without a solid understanding of what the aftermath would be for our health insurance system and our country.

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[4] "ASOPs, Antiselection, Affordability, and ACA Alternatives" - Health Watch, October 2016 www.soa.org/sections/health/health-newsletter/

[5] "Section 1332 Waivers: Coming Soon to a State Near You?" - Health Watch, May 2016 www.soa.org/sections/health/health-newsletter/

[6] Some commentators have suggested that the preservation of the ACA framework is necessary for parliamentary procedures to qualify as a reconciliation bill. The evaluation of parliamentary rules is outside the scope of this article.

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The Role and Application of Health Care Best Practices

John Price, FCA, MAAA

This article provides a broad assessment of the role of Best Practices involving four key elements of successful healthcare outcomes:

1. Cost of health care
2. Clinical
3. Patient education and care experience
4. Health care provider education and experience

Such key elements are among the primary contributors to the improvement of population health (i.e., health outcomes for a population of people).

Throughout our country's healthcare history neither single payer nor private payer fee-for-service models have demonstrated effective results to acceptably manage the high costs and inefficiencies of our fragmented health care system. Traditional Medicaid and Medicare single-payer models have tried and missed more than succeeded, as evidenced in part by (1) Medicaid's transition to outsourcing insurance coverage to private payers in order to capitalize on their care management cost saving abilities, and (2) Medicare's inability to keep annual growth to their target sustainable growth rate. Many private payers (insurers) also recognize the challenge but have not yet demonstrated clearly sustainable community-wide improvements in Best Practices based on continuing higher premiums overall.

Vertically integrated health care systems (i.e., hospital/physician integration) have demonstrated a degree of success. However, challenges remain because they are more broadly embedded in the national economics, clinical practices, and business practices of the health care industry, which underscores the broad range of issues needing to be addressed beyond any one payer model.

Unless a payer model is integrally designed and enabled to take on the challenge of creating aligned and effective incentives at both micro- and macro- levels for all health care stake holders regionally and nationally (private insurers, state and federal government, hospital systems, professional providers, drug companies, and patients), it appears unlikely to make large scale sustainable improvements in population health. This article does not propose a specific payer model solution, but rather focuses on the role that Best Practices can play in contributing to better healthcare outcomes regardless of what payer model is in place. For any payment models that exist in the future it is critically important that the models are sensitive to and enable the continuous improvement of Best Practices. To be successful, effective and sustainable payer models may also need enabling legislation to further the ongoing improvement of all aspects of Best Practices.

With the above comments as a backdrop, following are key outcome elements that when combined is integral to the concept of Best Practices:

Cost of Health Care - An overview of determinants

The costs to provide health care services and products by health care institutions and professionals can be defined in different ways:

- The actual costs of a health care provider to deliver services and products
- A provider's commonly billed charges for services and products
- The contractual price the health care provider has agreed to charge, either pursuant to a third party payer's contract (insurer) or government program i.e., Medicare, Medicaid, etc.)
- The sum of health insurance premiums plus patient cost sharing (copays, deductibles, and coinsurance %) required under an insurance policy or health plan

- Additionally, related to health care costs are the Affordable Care Act's individual income tax charged due to gaps an individual's qualified health coverage, and the individual income tax credits for those with lower qualifying household income.

Emphasis in this article is on the contractual prices health care providers have agreed to accept as full payment or what a healthcare provider gets paid in total for rendering a specific medical service, which can vary greatly depending on who receives that service. Examples:

- The type of insurance coverage a patient has and what price his/her insurance company negotiated with the provider for that service; not addressed here are the various approaches to paying providers for services
- The price level for healthcare is determined for Medicaid and Medicare by state and federal governments
- For commercial insurance, price setting is much more complicated, but not always independent of the government-determined rates
- Not addressed in this article: how health insurance premiums and cost sharing generally follow health care provider costs and other economic variables such per capita income, the unemployment rate, labor force supply/need, and covered population health status or risk.

Macro level dynamics also affect commercial prices and unit cost efficiency. Oversupply of a community's health care resources can tend to raise commercial prices unlike traditional economic rules of supply and demand. For example, an oversupply of healthcare resources (i.e., physicians) in a community can actually tend to raise prices. One instance is when a capital-intensive resource expands faster than the demand for that resource (think, growing number of doctor's offices or outpatient facilities with new technology). In this case, the price-per-service needed to maintain that resource must increase in order to recoup fixed costs spread over fewer uses.

A similar dynamic occurs when a capital intensive resource becomes prematurely obsolete before its useful life ends, such as when new technologies disrupt older technologies before their fixed costs have been recouped, causing additional financial burden on the cost of the newer technology. The emergence in past years of improved imaging technology and equipment is an example. The newer technology may also be inherently more expensive to provide, even if not in over supply or burdened with recovery of prior operating losses from the older displaced resource. This situation becomes increasingly more common as our society makes continual and significant technological advances.

Another macro-level burden that increases unit price per service is government programs or payers who do not pay for their share of actual costs, such as Medicaid programs and patients typically without health insurance or the financial means to fully pay for the medical services received. To the extent health care providers incur such financial shortfalls unit costs, and therefore price per service, do increase for the remaining commercial patient base.

To illustrate: A hypothetical medical procedure costs a hospital $1,000 to perform. There are six patients and incurs $6,000 in costs. One patient is covered under Medicaid, which pays the hospital $700 for the procedure. One patient is covered under Medicare, which pays the hospital $1,000 for the procedure. One patient has no insurance and can only pay $100 for the procedure. The total financial shortfall is $1,200. In order for the hospital to cover its overall costs, it must charge each of the three remaining commercial patients a higher price of $1,400 per procedure to recover all its expenses. Insurer provider negotiated prices, and therefore, premiums are directly impacted by such economic issues.

One further macro-level burden is the extent to which an entire population is not covered by adequate health insurance; premiums are necessarily elevated due to spreading health care costs over a smaller base of covered individuals. This dynamic occurs when significant numbers of healthier individuals (i.e. typically have lower medical costs than average) are not covered by adequate health insurance, increasing the average cost per remaining covered person.

There are microeconomic factors that impact prices as well. Regional market dynamics impact the leverage that hospitals, provider groups and insurers/health plans have in price negotiations. But not to be overlooked are the actual operational costs and financial incentives of all stakeholders. Highly efficient care (i.e., where higher quality medical care meets lower costs) along with improvements in the prevention and effective management of diseases do result in lower prices. Well-managed vertically integrated health care organizations are one example.

The remainder of this article discusses how integrated data resources including clinical, provider, patient, and price data can improve stakeholders' knowledge to move our population continuously toward higher efficiency.

The Value of Clinically Integrated Data

There is a high value in developing population-wide, continuously updated, longitudinal clinical databases accessible to medical professionals and researchers by patient cohorts, symptoms, diagnoses, treatments, patient compliance, clinical results, etc. across a broad spectrum of diseases. Such data can be continuously updated in real time using technological applications such as electronic institutional records transmitted over the Electronic Data Interchange (EDI), electronic medical records under commonly defined data elements and system interoperability.

Performance reports could be generated periodically from such a database to inform health care professionals and organizations regarding their comparative performance across several measures throughout the continuum of care. Reports can highlight changes over time as well as comparative differences with peers and other health care institutions. When such data are integrated with relative cost measures and patient perceptions, a more complete picture of health care would become available than exists currently at a population level. From such periodic performance reports health care professionals and institutions could quickly identify opportunities for improving clinical results, the care process, costs, and patient satisfaction, compliance and education. Longitudinally, performance results from a provider's prior initiatives can be observed and compared to peer performance.

An example of valuable integrated performance reporting is the opportunity for a physician or medical group to observe and compare their patients' clinical outcomes for a chosen disease, like diabetes, linking A1C test results with patient satisfaction and comments, maintenance drug compliance, and total cost per patient. The physician could then compare such results with prior periods, before any new protocols had been implemented, to assess effectiveness, or compare results with peer groups' outcomes ranked by performance results to identify improvement opportunities.

When such data are integrated with relative cost measures and patient perceptions, a more complete picture of health care would become available to stakeholders than exists currently at a population level. If key performance measures were then linked to financial incentives, providers would have additional motivation and support to improve clinical service quality, reduce unnecessary variation in the care process, improve patient satisfaction, and ultimately, the cost of care. Effective incentive measures would need to be developed carefully to provide equity among providers and properly account for inherent conditions and circumstances that inappropriately bias the performance results. One example is the availability of highly efficient specialty providers accessible within a community.

The Value of Patient Education and Care Experience

A key element in Best Practices is recognizing the role patients play in maintaining or improving their health status to the extent possible by:

- Learning and living a healthy lifestyle
- Helping to achieve optimum clinical outcomes by complying with clinical regimens when needed in the course of treating or managing diseases
- Providing timely feedback to health care professionals and institutions regarding their care experience.

When fully engaged, patients can positively affect clinical service quality and clinical outcomes, which, in turn, helps to manage the cost of healthcare. While being fully engaged is a personal responsibility, health plans and health care providers can enhance population and patient engagement. For example, health plans may provide incentives like member education programs in disease prevention and management (when indicated) and cost sharing incentives in the course of care (particularly when managing chronic diseases) such as waiving copays for diabetic supplies, equipment and periodic tests. Health care providers and institutions can be better informed when there is an opportunity to interact.

To fully realize the benefits of population and patient engagement, there needs to be a continuous collection of population-wide data around patients' understanding/expectations, self-reported health status, impressions and satisfaction with their care experience, exchanges and communications with their health care professionals, experience with service quality and personal perceptions of clinical quality, etc. collected selectively over time. When surveying patient experience for consistency and accuracy, it's critical that questionnaires are completed at appropriate times following care, like immediately for impressions of service quality and at prescribed intervals following a surgical procedure.

Such information, integrated with clinical and cost data noted above, can provide valuable insights to inform and improve patient education and expectations, patient compliance with medical advice and instructions, satisfaction with clinical service quality and personal perceptions of clinical quality. An example is to understand how well medical staff explained needed follow up care to a patient along with the patient's compliance and any unfavorable side effects. Armed with such ongoing information, health care providers can develop a more thorough knowledge of what and how to improve many aspects of clinical service quality, clinical outcomes, patient education and expectations, and ultimately, costs.

The Value of Health Care Provider Education and Experience

Beyond supporting efforts to manage health care more efficiently, integrated population-wide databases can be used to:

- Monitor and improve evidence based medical knowledge
- Improve service quality and patient experience
- Reduce unnecessary variation in care processes and cost outcomes

> "Comparative analyses can provide a knowledge base to update and inform clinical and cost education efforts of the health care provider community."

Using such data in ongoing comparative analyses can provide an ever-expanding knowledge base (managed by appropriate stakeholders) to update and inform clinical and cost education efforts of the health care provider community. Such efforts are usually limited to the more advanced vertically integrated health care systems and payers, often involving only specific provider groups, and are usually focused on a few higher cost target diseases. A broader application can benefit more people at a faster pace than the present. An example is the opportunity for physician to observe and respond to ongoing population-wide outcomes for diseases of interest compared to peers or the physician's own outcomes compared to prior periods. In essence a population can be served better for more diseases by an ongoing process that provides comprehensive information across the continuum of care.

Conclusion

Integrating clinical records, patient perceptions, and prices population-wide would be a major undertaking if multiple payers were included, requiring funding and incentives for the stakeholders to participate. Patient data would need to be de-identified to protect individual privacy. Price data are very sensitive information and would need to be reduced to an indexing scale across the continuum of care to be useful yet protect proprietary information. To gain acceptance by the health care provider communities, key data elements and performance reports' contents and formats need to be designed with mutual agreement among the stakeholders and an ongoing process of data validation

implemented. Other logistic challenges would need to be solved in such a process, but would appear feasible with adequate funding and incentives for stakeholders. Short of a multi-payer integrated database inclusive of the key outcomes, individual payers may take on the challenges of a more comprehensive information process to help inform and improve key outcome measures such as clinical quality, service quality, provider education and cost awareness, patient education and satisfaction, and the cost of health care.

This article is intended to educate all interested readers, appeal to stakeholders and all who can influence key aspects of health care and the financing needed to enable and/or build broader population based processes of integrated health care data, analysis and education. By doing so, they can help make continuous population-level improvements in the key outcomes a reality.

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Inspire

The Critical Role of the Patient-Physician Relationship

Richard Liliedahl, MD and Oscar Lucas, ASA, MAAA, FCA

"The importance of an intimate relationship between patient and physician can never be overstated, because in most cases an accurate diagnosis, as well as an effective treatment, relies directly on the quality of this relationship".[1]

Introduction

Over the years, payers and regulators have tried any number of provider reimbursement arrangements, incentive programs, quality bonuses, etc. with the goal of steering physicians to make the most cost-effective healthcare decisions for their patients.

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[1]*Hellín, T. (2002). The physician–patient relationship: recent developments and changes. Haemophilia.*

Yet most of the systems and strategies put into place with the intent of managing or manipulating the healthcare decision-making process have not succeeded – why not?

Healthcare decision making is complex – there are rarely black and white / right and wrong answers. Fostering a quality relationship between a patient and a physician is fundamental to a successful healthcare system because that's where the decisions are made. In discussions between a patient and his physician, data is gathered (medical history, symptoms, concerns), diagnoses are made, treatment plans are developed, support and information is provided, personal situations and values are considered, etc.

This article looks more deeply at the components of a successful patient/physician relationship (PPR) and how to address some of the challenges that exist in fostering those components.

Components of a Successful PPR

A number of forces, both technological and social, have evolved the PPR in recent years, presenting both challenges and opportunities. Up until the last 20-30 years, a paternalistic PPR was fairly typical, where the physician's role was seen as "doing to" or "telling" and the patient's role was that of "following". However, in more recent years, with the introduction of the internet the widespread availability of clinical articles and other on-line advice, a more informed and autonomous patient has emerged, seeking, desiring and often demanding a more collaborative PPR.

Within this new collaborative culture, the key elements of a successful PPR are:

1. A payment structure with limited impact on provider decision making
2. Access to comprehensive information on the patient
3. Physician knowledge/expertise to diagnose and treat/refer
4. Trust and open communication
5. Focused time

While advancing technology, access to information, and patient engagement has created a number of opportunities for improved care, a number of challenges have also arisen.

Physician-side Challenges

With rising healthcare costs, multiple players trying to get providers to manage care at lower cost, and "enlightened" patients among other things, physicians are facing increasingly complex challenges as they try to treat their patients. While a doctor may know what an ideal PPR looks like, any number of issues can make that difficult to foster.

- Lack of patient face-time due to other responsibilities
- Lack of actionable information on their patients
- Mixed and/or misaligned financial incentives
- Informed, empowered, and demanding patients

Allocation of Physician Time

AIM study published in 2016 reports Ambulatory Physicians spend only 27.0% of time in direct clinical face time with patients compared to 49.2% spent on EMR and desk work.[2] A few drivers include:

- ***Onerous record keeping for doctors*** – resulting from various insurer pre-approval and review requirements. In the current free market system, every insurer has approached their pre-approval process (i.e., the information required from a provider office) and their copay/deductibles for the patient in a different way. They may also use different criteria or guidelines for their decision making as well as different formularies. Their forms, requirements, methods for records from the provider office vary greatly so on the provider's office is forced to work with a myriad of systems.
- ***Electronic Medical Records (EMR)*** – While EMR are a tool of great potential, they are still an evolving technology and can require a great deal of time getting used to as practices transition from paper record-keeping to entirely electronic.
- ***Secondary responsibilities during a patient visit*** – Including secondary conversations with family members, waiting for phone calls regarding the patient, management of office staff.

Actionable Information

Physicians receive a lot of information from insurers, pharmaceutical companies, patients, etc. And, as more payers are partnering with providers in managing their patients' care, physicians are faced with myriad different definitions of quality, measurements of success, and structures of reports that are intended to help them improve their results. By necessity, most have learned to filter out reports with data that cannot be acted upon to provide higher quality or more cost-effective care. Sorting through pages and pages of reporting to find useful results is a time waste for physicians, and so oftentimes even helpful reports are simply ignored.

Some insurers are working towards providing truly actionable information to physicians by concisely relating their report findings to a clinical action that will help the doctor in making care decisions. For example, letting a physician know that one of his patients recently had an ER visit and should be followed-up with. This data can be challenging to provide, however, largely because much of the information needs to be real-time. By the time insurance companies receive the information that a patient has had an ER visit, the reasonable follow-up period has passed.

Mixed Financial Incentives

How physicians are reimbursed can impact the treatment decisions a physician is incented to make, which affects the value of the care that is provided and the trust relationship between patient and physician. For example, historically, most physicians were paid on what is known as a Fee-for-Service (FFS) basis. That is, each time any service was performed, the physician was paid – more services, more pay. The patient needs to be able to trust the physician to do what is best for them (more is not necessarily better), not what will result in the most revenue.

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[2]*Christine Sinsky, M., Lacey Colligan, M., Ling Li, P., Mirela Prgomet, P., Sam Reynolds, M., Lindsey Goeders, M., . . . George Blike, M. (2016). Allocation of Physician Time in Ambulatory Practice: A Time and Motion Study in 4 Specialties. Annals of Internal Medicine.* Retrieved from annals.org

With rising healthcare costs, other reimbursement methods have been tried in an attempt to manage overall population costs and improve quality. These methods often include incentive payments to the physician for achieving cost and quality targets for a member population. These mixed financial incentives may call into question the physician's priority to their patient versus the member population or their overall revenue.

The result may be an erosion of trust in the PPR. One way this trust can be improved is simply by disclosing to the patient any incentive arrangements that might be perceived as interfering with treatment decisions.[3] Another is for payers and regulators to work to develop reimbursement approaches that are largely neutral to physician decision-making.

The Informed, Empowered Patient

The internet has proved valuable in making high quality health information available to nearly everyone. Additionally, we are an increasingly drug-fixated society where we want to take a pill to fix our problems, and we are constantly being inundated with information on available drugs or other treatment options. Patients increasingly trust what they see on TV/online or hear about through friends more than they trust their doctor.

One resulting challenge, however, is that much available information is unfiltered and may be intended for audiences with the medical and/or analytic skillset to understand it in its intended context. As a result, physicians may spend significant patient time clarifying or otherwise putting into perspective a patient's latest self-diagnosis relative to their individual circumstances. Informed with an open mind can be a good starting point for any PPR discussion, but unbending self-diagnosis or desire for a specific treatment creates a unique challenge for physicians.

Patient-side Challenges

Looking at the other side of the PPR, there are many dynamics of the current healthcare environment that create challenges for patients as well.

- Complex benefit design
- Narrow network limiting provider choice
- Unrealistic expectations
- Lack of motivation to make lifestyle changes

Complex benefit design

The insurer-insured relationship is typically based on a complex legal contract between the parties. Even well-written documents can be intimidating to the insured hoping to understand the ins and outs of their coverage. This complexity can lead to confusion regarding what is covered, what approval if any is required, and what the resulting cost will be. The physician is often caught in the middle of any misunderstanding, impacting the quality of the PPR. Additionally, recommended treatments may not align with what is affordable for the patient, which can be difficult to assess prior to receiving the bill.

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[3] *Mark A. Hall, E. D. (2002). How Disclosing HMO Physician Incentives Affects Trust. HealthAffairs*

More progressive insurers and health plans have created tools for members to use in projecting out of pocket costs for defined episodes of care. As these tools mature, patients will be able to better understand their options for treatment relative to the benefits they have.

Narrow Network Limiting Provider Choice

In an effort to keep healthcare costs affordable, insurers may create limited access networks based on cost and quality characteristics of the included providers. The resulting challenge to insureds is that their long-term primary or specialty care provider is not part of the network and hence no longer a financially viable choice. As a result, long standing patient/physician relationships may be severed as the patient is required to establish a new set of physician relationships.

Unrealistic Expectations

Physicians have long been held by society in high esteem. Unfortunately, this can result in unrealistic expectations regarding what can be delivered in every case.

Lack of Motivation

Many treatment plans doctors provide are comprised at least partially of patient lifestyle changes. While few would argue the value of making healthier nutritional choices, quitting smoking, or increasing physical activity, these types of changes are difficult to make. Change requires motivation, support, accountability, knowledge, and time. While doctors can provide some support, accountability, and knowledge, only the patient herself can commit to making the necessary changes.

Best Practice PPR Case Study

Despite numerous challenges in building strong PPRs in today's healthcare environment, a number of health plan systems have managed to excel in adapting new technology and other creative solutions to improve the relationship between their physicians and patients. We have selected Kaiser Permanente (Kaiser) to illustrate as what we believe is an example of best practice in the industry today. In California alone, Kaiser has over 8 million members, meaning their PPR success has been on a large-scale basis.

Kaiser has demonstrated the ability to effectively manage its members' costs, deliver high quality care, and keep its premiums below other commercial carriers in CA. A published comparative study[4] of Kaiser's California member population to that the British National Health Plan (NHP), found that:

- Kaiser was able to provide care to its members at a monthly cost per member similar to that of the NHP.
- Kaiser members experience more comprehensive and convenient primary care services and much more rapid access to specialist services and hospital admissions than NHP members.
- Age-adjusted rates of use of acute hospital services in Kaiser were one-third of those in the NHS.

The Kaiser system equips the patient and physician in a way that leads to more informed decision-making from both sides. Providers have access to an EMR within each exam room, allowing them instant access to the patient's complete clinical record and current preventive care needs. They also have the ability to

[4]Feachem, R. G., Sekhri, N. K., & White, K. L. (2002). Getting more for their dollar: a comparison of the NHS with California's Kaiser Permanente. The BMJ.

order necessary tests during the visit and review any pertinent care guidelines to support making optimal treatment decisions. The Kaiser system also allows communication to continue outside the exam room because of the email access the patient has to the physician. Additionally, from a patient's perspective, the Kaiser patient portal allows them to do things like review pre-op directions online, review their personal preventive care needs, access their physician as needed, review their own EMR, etc.

Here is an example of how an appointment under this kind of a system might go:

A 65-year-old male with neck pain makes an appointment with his physician by telephone. Before the appointment, he receives an email reminding him to bring his old records and that he needs a flu shot. The man keeps his appointment and during the office visit has an x-ray done, which is discussed with the physician who reviews his films online digitally. During the visit, he also discusses his cholesterol and asks his physician about taking about statins. The physician retrieves the Kaiser guideline for using statins and tells the patient it is not indicated. The office sets up a physical therapy appointment for the patient for his neck pain and reminds him that he did not keep his DEXA scan appointment. He also gets a flu shot before he leaves the office. At the end of the visit all this information is completed in the EMR and available online.

This system is not perfect but has gone a long way to improving the relationship between the provider and patient and relationship between the two. The improved, informed relationship results in decreased costs and value to the patient.

Conclusion

The patient/physician relationship is a critical factor in the delivery of high quality, cost-effective healthcare. The PPR can be improved with the mutual effort of not only patients and providers, but also payers and regulators.

To-date, most efforts by payers and regulators have focused solely on the provider reimbursement component of the PPR. However, there are improvements to be made on the other aspects as well – information, expertise, communication, trust, and time. Investments in technology, sharing of best practices and care management guidelines, minimizing administrative burdens on physicians, supporting a culture of wellness, among many other things can help support the entirety of the PPR.

5 Key Components of an Effective PPR

1. Invisible payment structure
2. Access to patient information
3. Knowledge to diagnose and treat
4. Trust and open communication
5. Focused time

As we move forward seeking solutions to America's healthcare system challenges, addressing all five of these elements to create an effective patient/physician relationship is a core component of any solution.

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Inspire

The Chronic Disease Burden

Joan Barrett, FSA, MAAA

Introduction

Today most health care discussions focus on health care reform with an emphasis on financing and access. Few will disagree, though, that healthcare costs in the United States are an increasingly costly burden. A key contributing factor to those rising costs is often ignored in reform discussions: the impact of chronic diseases.

In 2010, 75% of US healthcare spending was for the direct care of chronic diseases[1] like heart disease, cancer, diabetes and pulmonary diseases like COPD and asthma. Although some of the risk factors for chronic diseases, like aging and genetics, cannot be changed or modified, others, like smoking and obesity, can be modified. Americans are able to reduce our overall healthcare costs by reducing these risk factors. For example, studies indicate that a 5% decrease in obesity rates could result in savings over $29 billion.[2] While the ultimate responsibility for the diagnosis, treatment, and prevention of disease lies with the patient and his or her doctor, there are several third party and public health organizations providing valuable support to these efforts. It is expected that the 2018 budget for one of the key third parties, the Department for Health and Human Services, will be significantly reduced.[3]

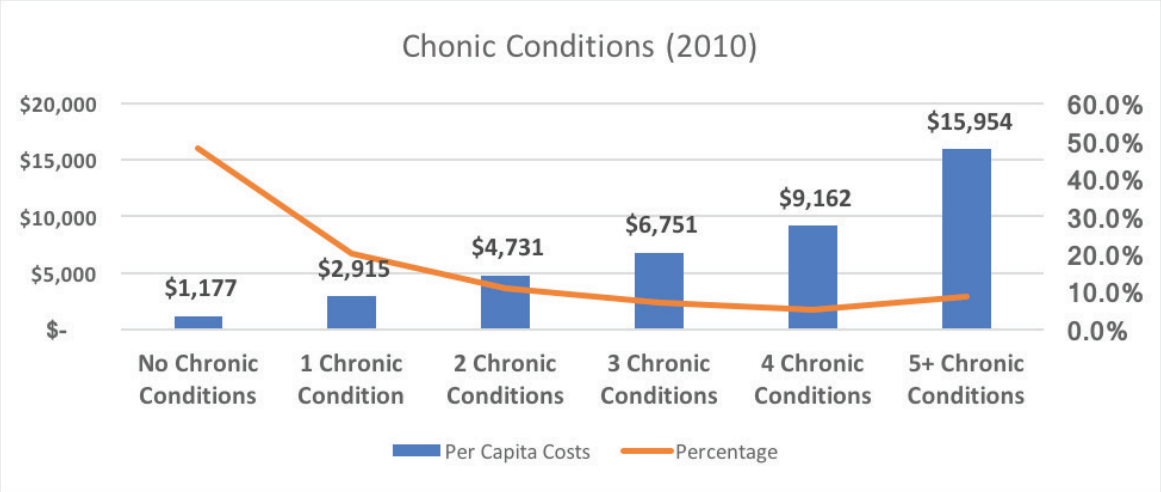
This article further explores the impact of chronic diseases on the healthcare landscape in the United States, discussing the key modifiable risk factors and opportunities for prevention and improved care management.

The Cost and Prevalence of Chronic Diseases

Half of all Americans have at least one chronic disease, like diabetes, cancer and heart disease, and almost a third have more than one condition. For adults, the most prevalent condition is heart disease. For children, the most common conditions are asthma and allergies.[4]

The average healthcare cost per person varies by the number of chronic conditions the person has, as shown below in Table 1 below. The average cost for a person with just one chronic condition is over twice as high as person with no chronic conditions, and the average cost for a person with 5 or more conditions is over 13 times as high.[5]

Table 1



[1] *AHRQ, https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/prevention-chronic-care/decision/mcc/mccchartbook.pdf*
[2] *http://www.ncsl.org/research/health/diseases-and-conditions/obesity.aspx*
[3] *HHS, https://www.hhs.gov/about/budget/fy2018/budget-in-brief/index.html*
[4] *AHRQ, https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/prevention-chronic-care/decision/mcc/mccchartbook.pdf*
[5] *Ibid*

People with 5 or more conditions account for less than 9% of the population, but nearly 35% of total costs.[6]

The burden of chronic diseases goes far beyond the direct amounts spent on these diseases. In the U.S., 7 out of every 10 deaths are caused by chronic diseases each year.[7] Additionally, there are indirect costs through lost productivity and unmeasurable losses in the quality of life and the ability to perform activities of daily living like bathing and eating.

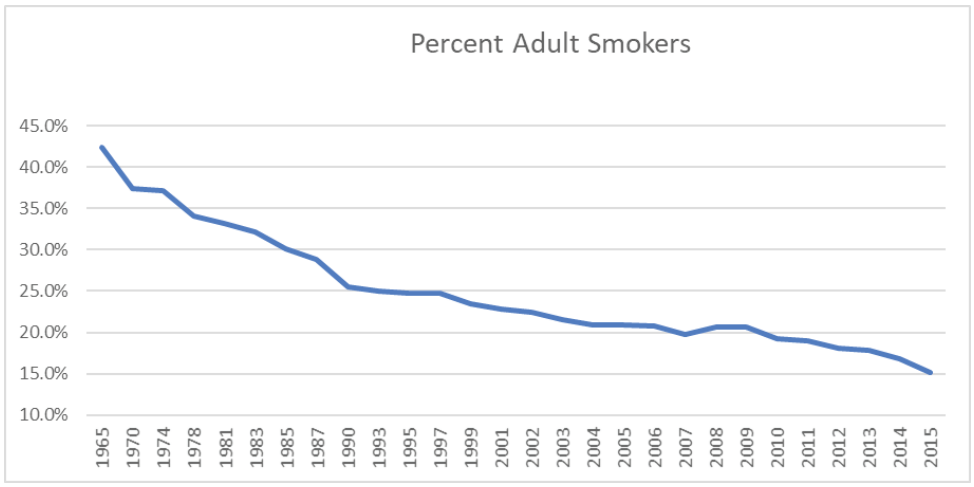
Modifiable Risk Factors

Risk factors are conditions or lifestyle choices that make a person more likely to develop a disease or to develop complications from a disease. Some risk factors for chronic diseases, like aging and family history, cannot be changed or modified. There are, however, a small set of modifiable risk factors largely responsible for many chronic conditions.

Smoking

Smoking is the modifiable risk factor that has received the most attention over the last 50 years. This push began in 1964 when the Surgeon General released a report on the dangers of smoking. As a result of this report, and a follow-up report on the dangers of second-hand smoke, there was a huge push to reduce the number of smokers. Efforts included ads on the danger of smoking sponsored by both governmental organizations, like the Centers for Disease Control and Prevention (CDC) and non-governmental organizations (NGOs) like the American Heart Association and the American Cancer Society. Eventually, these efforts were supplemented with health-plan sponsored smoking cessation programs and a variety of legislative actions like smoke-free buildings, cigarette taxes, and banning cigarette ads on television. As Table 2 below shows, these programs have been successful in reducing the number of smokers. In 1965, 42.4% of all adults were smokers. Today that number is 15.1% – a 64% drop.[8]

Table 2



[6] *Ibid*

[7] *https://www.cdc.gov/chronicdisease/overview/index.htm*

[8] *https://www.cdc.gov/tobacco/data_statistics/tables/trends/cig_smoking/index.htm*

Although these results are impressive, smoking is still a major problem in the United States:

- Cigarette smoking is still the leading cause of preventable diseases and deaths in the United States. About 480,000 deaths each year are attributed to cigarette smoking, which equates to roughly 1 in every 5 deaths.[9]
- On average, people who have never smoked live a decade longer than smokers.
- The estimated economic costs attributable to smoking and exposure to tobacco smoke is approaching $300 billion annually, with direct medical costs of at least $130 billion and productivity losses of over $150 billion.[10]
- Smoking causes colorectal and liver cancer and increases the failure rate of treatment for all cancers.[11]

There are some concerns that evidence-based, proven tobacco control interventions, like hard-hitting media campaigns and excise taxes, are underutilized. In addition, several new end-game strategies, like reducing the nicotine yield to non-addictive levels, have been proposed to help reduce smoking rates even further. Yet, these two strategies would require legislative changes.

"This increase in obesity rates has taken place in spite of the fact that, as with smoking, there are many community outreach programs in place throughout the country."

Obesity

Over the past decade, another risk factor, obesity, has also received a lot of attention. Obesity is a proven risk factor for type 2 diabetes, heart disease, hypertension and some types of cancer. Currently, estimates for the costs associated with obesity range from $147 billion to $210 billion per year. In addition, it is estimated that obesity costs employers about $506 per year for each obese employee due to absenteeism and loss of productivity.[12]

Unlike smoking, though, obesity prevalence rates continue to rise as shown in Table 3.[13] This increase has taken place in spite of the fact that, as with smoking, there are many community outreach programs in place throughout the country.

[9] *https://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/index.htm*

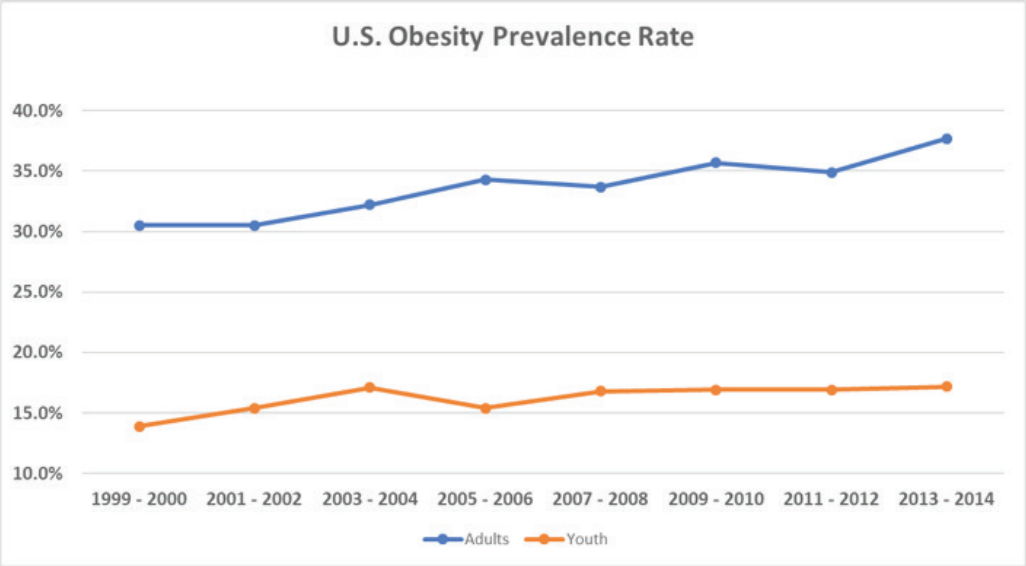
[10] *https://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/index.htm*

[11] *https://www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf*

[12] *https://www.cdc.gov/chronicdisease/overview/index.htm*

[13] *https://www.cdc.gov/nchs/data/databriefs/db219.pdf*

Table 3



In part, this impact difference is because obesity is caused by a combination of factors, including behavior, genetics, and socio-economic factors. Also, community outreach programs, are typically educational in nature: they create awareness of a problem, like obesity, and they provide valuable nutritional information. However, there is much more involved in making long-term behavioral changes than simply being aware of the problem. Once someone is motivated to make healthy changes, they need support, encouragement, and accountability, all of which are provided through community channels (whether community is family-based, employer-based, church-based, government-based, etc.). Many employers, especially those with over 200 employees, now offer employee wellness programs to provide support and, in some cases, financial incentives.[14] Although there is considerable debate on the effectiveness of these programs, one reputable study showed that for every $0.50 spent on a lifestyle management program, the return on investment was $6.00 per member per month.[15]

Legislative activities also play a role. Many countries, as well as a few U.S. localities, now tax sugary drinks in an effort to curb obesity. According to a World Health Organization report, a tax of 20% on sugary drinks can lead to a reduction in consumption of around 20%.[16]

Disease Management

Early detection of chronic illnesses can make a considerable difference in the resulting costs, both from a personal and a dollar perspective. For example, treatment of early stage breast cancers costs about $11,000 but breast cancers diagnosed at a later stage average around $140,000 in costs. But, even after a chronic condition has been diagnosed, lifestyle factors can help to slow the progression of the illness and minimize complications. Regular office visits and tests are scheduled to make sure the patient stays on track with their overall treatment plans.

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[14] *http://www.kff.org/health-costs/report/2016-employer-health-benefits-survey/*

[15] *http://www.rand.org/content/dam/rand/pubs/research_briefs/RB9700/RB9744/RAND_RB9744.pdf*

[16] *http://apps.who.int/iris/bitstream/10665/250303/1/WHO-NMH-PND-16.5-e*

Historically, insurers and other entities providing health coverage have provided considerable support to the patient and to the doctor to manage the care of chronic illnesses, including:

- Disease management programs that provide individuals at risk with education and other support need to prevent a disease or minimize complications
- Low cost-sharing provisions on medications and other services with a proven record of keeping a condition under control
- Reimbursement methods that reward providers based on outcomes and quality, not just on service provided
- Care coordination programs designed to minimize inpatient length-of-stays and re-admissions

The clinical community is also actively working on improving chronic disease management by developing optimal treatment guidelines using evidence-based medicine. In addition, they are looking for new technologies that help to enhance quality of care and/or reduce cost, such as:

- 3-D mammography designed to reduce the number of false positives and missed breast cancers
- Telemonitoring techniques for real-time testing for biometrics like blood pressure. These will allow professionals to detect problems as they occur and allow for necessary care.
- 3-D organ printing which should reduce both costs of organ transplants and waiting times.

We can also expect to see a number of new, albeit costly, drugs in the market place to improve outcomes for chronic diseases. For example, there is a new drug, pembroluzimab, which is effective in treating cancer if genetic testing reveals defects in so-called mismatch repair genes. However, this drug is expected to cost around $100,000 per year per patient.[17]

Public Health Support

Historically, the Department of Health and Human Services (HHS) has played a key role in controlling diseases in general. For example, the Centers for Disease Control and Prevention (CDC) has coordinated efforts to reduce factors at both the individual level, by providing health care interventions, and at the population level, by promoting policies and environments that promote health. In addition, the CDC has provided a surveillance system used to track results. Another important agency is the National Institutes of Health (NIH), which performs original research and coordinates many of the efforts to define clinical guidelines.

Currently, the 2018 HHS budget is expected to be cut by about 18%. Although a thorough review of the budget is out-of-scope for this article, it does appear that additional money will be going to states as part of block grants. Specifically, the CDC is allocating $500 million to America's Health Block Grant Program, which is designed to increase flexibility for state and tribal efforts to fight chronic disease.[18]

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[17] *https://www.cdc.gov/chronicdisease/overview/index.htm*

[18] *https://www.cdc.gov/budget/documents/fy2018/fy-2018-cdc-budget-overview.pdf*

It may take several years before the impact, if any, of these funding changes on the chronic disease burden will be known. We do know, however, that several NGOs are stepping up their efforts to combat chronic diseases. For example, the American Diabetes Society is actively promoting increased spending by both the federal government and private organizations (such as the biotechnology industry) in order to reduce costs related to diabetes care.[19]

Conclusion

Clearly, chronic condition diseases significantly contribute to the ever-increasing US healthcare costs. There could be substantial savings to the American system if we reduce the prevalence and complications of these illnesses through some combination of prevention and disease management. This will not be easy. There are many players involved, including the clinical and scientific community, state and federal governments, NGOs, and, most importantly, individuals.

[19] *http://main.diabetes.org/dorg/PDFs/american-diabetes-association-strategic-plan-2017-2020.pdf*

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