The Innovator’s Prescription
A Disruptive Solution for Health Care

THE SUMMARY IN BRIEF

The American health care system is in critical condition. Each year, fewer Americans can afford it, fewer businesses can provide it for their people and fewer government programs can promise it for future generations.

Harvard Business School’s Clayton M. Christensen — author of the bestseller The Innovator’s Dilemma — examines the health care industry through the lenses of general models of managing innovation that have emerged from 20 years of study.

Christensen applies the principles of disruptive innovation to the broken health care system with two pioneers in the field — Dr. Jerome Grossman and Dr. Jason Hwang. Together, they examine a range of symptoms and offer solutions that can improve health care and make it affordable.

The authors suggest what needs to be changed in the American health care system in order to facilitate the necessary transformations from which we can all benefit.

This summary describes real innovation at work that’s sure to spark debate — and much-needed change for a healthier future.

IN THIS SUMMARY, YOU WILL LEARN:

• How “precision medicine” reduces costs and makes good on the promise of personalized care.

• How three enabling building blocks — a technology, a business model and a disruptive value network — create disruption.

• How disruptive business models improve quality, accessibility and affordability by changing the ways hospitals and doctors work.

• How patient networks enable better treatment of chronic diseases.

• How employers can change the roles they play in health care to compete effectively in the era of globalization.
Introduction

In 1970, the cost of health care in the United States accounted for approximately 7 percent of gross domestic product (GDP). In 2007, it accounted for 16 percent of America’s GDP. Normally, we view it as good news when an industry gains “share of wallet” in such a manner because it indicates that enterprises are making products or services that customers value and seek to purchase. At one level, therefore, we ought to be treating the fact that Americans are spending more of their income on health care as good news. They value good health. They’re certainly better off spending it on health than on many other diversions. But at another level this news is terrifying. Here are just four frightening factors:

1. The growth in health care spending in the United States regularly outpaces the growth of the overall economy. Over the last 35 years, while the nation’s spending on all goods and services has risen at an average annual rate of 7.2 percent, the amount spent on health care has grown at a rate of 9.8 percent. As a consequence, an increasing proportion of Americans simply cannot afford adequate care. Many efforts to contain overall costs have the effect of making care inaccessible on a convenient and timely basis for all of us — even for those who can pay for it.

2. Second, if federal government spending remains a relatively constant percentage of GDP, the rising cost of Medicare within that budget will crowd out all other spending except defense within 20 years.

3. The third factor that engenders fear is that the burden of covering the costs of health care for employees, retirees and their families is forcing some of America’s most economically important companies to become uncompetitive in world markets. Health care costs add over $1,500 to the cost of every car our automakers sell, for example.

4. The fourth frightening factor, about which few people are aware, is that if (state and local) governments were forced to report on their financial statements the liabilities they face resulting from contractual commitments to provide health care for retired employees, nearly every city and town in the United States would be bankrupt. There is no way for them to pay for what they are obliged to pay, except by denying funding for schools, roads and public safety, or by raising taxes to extreme levels.

Health care is a terminal illness for America’s governments and businesses. We are in big trouble.

The Role of Disruptive Technology

There will be three phases of disruptive business model innovation in health care, which together hold the potential to reduce costs by between 20 percent and 60 percent, depending on the situation — while at the same time improving the quality and efficacy of care received.

The first phase will entail carving hospitals apart, cre-
The Technological Enablers of Disruption

Technological enablers form the backbone of disruptive business models. These technological or methodological enablers allow the basic problems in an industry to be addressed on a smaller scale, with lower costs and with less human skill than historically was needed. These technologies sometimes come from years of work in corporate research and development (R&D) labs. Others are licensed or bought, and, on occasion, technology can be repurposed from an entirely different industry.

The healthcare industry is awash with new technologies — but the inherent nature of most is to sustain the current way of practicing medicine. However, the technologies that enable precise diagnosis and, subsequently, predictably effective therapy are those that have the potential to transform health care through disruption.

The term “technology” that is used here might refer to a new piece of machinery, a new production process, a mathematical equation or a body of understanding about a molecular pathway. However, at the heart of this evolution of work is the conversion of complex, intuitive processes into simple, rules-based work, and the handoff of this work from expensive, highly trained experts to less costly technicians.

The Present and Future of Precision Medicine

There are three prominent implications of the fact that scientific progress in imaging, molecular medicine and biochemistry has long been shifting diseases along the spectrum from intuitive toward precision medicine.

First, research that enables precision diagnosis should take highest priority for funding by entities such as the National Institutes of Health. This includes basic science research, which naturally leads to future technologies that enable precision care, such as the investments made in the Human Genome Project, which led to the spin-off of many critically important developments in medicine.

Diagnosis will become one of the most profitable parts of the value chain for pharmaceutical companies. Researchers who focus their research and development energies will find that creating the precise diagnostics that fuel the growth of precision medicine will be most profitable in the future.

The second implication is that regulatory bodies, such as the FDA in the United States, need to change their posture about the role of clinical trials in research toward precision medicine.

The third implication is that health care executives need to aggressively couple the development of business model innovations with the progress that diseases are making along the spectrum from intuitive to empirical to precision medicine.

Disrupting the Hospital Business Model

Why are hospitals so costly? The organizational paradigm of the general hospital coalesced in an age of intuitive medicine. The entire hospital was essentially a solution shop. But today’s hospitals are substantially differ-
As technological and scientific progress enabled standardized processes and treatments for precise diagnosed disorders, hospitals commingled value-adding process and solution shop activities within the same institution — resulting in some of the most managerially intractable institutions in the annals of capitalism.

**The Solution Shop Model.** The solution shop activities within a hospital are generally those involved in diagnosing patients’ problems. This requires centralized laboratories filled with the most advanced instruments to analyze blood and tissue samples, and a radiology department with the most sophisticated imaging technologies. The typical general hospital’s solution shop is set up to tackle any disorder in any part or system with the body. To deliver on this promise, a good general hospital must have one of every type of diagnostic equipment, and at least one physician from every subspecialty on staff.

**The Value-adding Process Model.** Value-adding process activities comprise the other business model in a general hospital. Their value proposition addresses fixing problems after definitive diagnoses have been made such as hip and knee replacement surgeries, coronary artery bypass and angioplasty procedures, and surgical repairs of cataracts and hernias.

When the same hospital seeks to fulfill these two very different value propositions, the consequent mandate for two types of business models creates extraordinary internal incoherence. The resources and the essential nature of the processes inherent in the two business models are different. So are their profit formulas.

Solution shops need to get paid on a fee-for-service basis. Their fees cannot be based on outcomes. In contrast, value-adding process businesses can routinely sell their outputs for a fixed price, and they can guarantee their results.

Hospitals need to deconstruct their activities operationally into the two different business models: solution shops and value-adding process activities. This can be done by creating a hospital-within-a-hospital, or by building distinct facilities.

Only when an organization’s resources, processes and profit model are focused around a job-to-be-done can they be integrated in a correct and optimized way that does the job as perfectly as possible.

What does this mean for general hospitals? We will need fewer of them as the disruptive solution shops and value-added process (VAP) clinics grow. As they do so, the surviving general hospitals will no longer be able to offer their low-volume, nonstandard solution shop services at prices that are subsidized by high-volume work.

Achieving these disruptive changes to our hospital system will be extraordinarily complicated. Pricing, performance and quality data need to be coupled with incentives for patients and physicians alike to make optimal decisions and trade-offs.

**Disrupting the Business Model of the Physician’s Practice**

The disruption of professions is a natural and necessary step in making an industry’s products and services more affordable and accessible. The business models of physician practices will evolve disruptively.

Just as hospitals have commingled two fundamentally incompatible business models, most physicians’ practices have done the same thing — combining assorted functions meant to serve distinct areas of intuitive medicine, precision medicine, chronic disease management, and wellness and prevention. For the sake of quality and cost, these have to be separated in order to integrate optimally, and then they need to be disrupted.

Nurse practitioners (and other physician extenders) practicing in retail clinics, should disrupt the precision medicine portion of the physician’s practice. The job to be done in these instances typically is: “As quickly and conveniently as possible, please confirm my hypothesis of the disorder and prescribe a remedy.” Where the functions in a doctor’s office are disjointed because of their conflated business models, retail clinics can integrate the steps in this process in a way that optimizes the fulfillment of this particular job, consistently within 15 minutes or less with no waiting.

The second major change in the primary care physician’s practice will be transfer of the ongoing oversight of patients with behavior-intensive diseases to entities with a network facilitator business model. This includes networks of professionals who assist in disease management, which are structured to profit from keeping chronically ill people well. Other parts of this work will be handed off to networks of patients and their families through which patients help each other live with their chronic diseases.

Ongoing wellness examinations, which include prevention and early detection, are often the portal through which referrals to specialists occur. These exams will remain in the province of primary care physicians, even as the treatment of rules-based disorders and the oversight of many chronic diseases get peeled away from the practices of primary care physicians.
However, primary care physicians will then disrupt the specialists’ solution shops, propelled by technology that enables economical on-site testing and imaging, and online diagnostic road maps that integrate large bodies of research to bring more and more diagnostic capabilities to primary care physicians.

**Disruptive Solutions for the Care of Chronic Disease**

Ninety million Americans currently have chronic conditions, such as diabetes, hypertension, arthritis and dementia. Chronic disorders account for three-quarters of direct medical care costs in the United States. Any program for resolving our runaway health care costs that does not have a credible plan for changing the way we care for the chronically ill can’t make more than a small dent in the total problem.

The care of chronic disease needs to be divided into two different “businesses.” The first is a business of diagnosis and prescription, the second is a type of business that can help patients adhere to the prescribed therapy. And there’s a handoff between the two that needs to be managed as well. Some entity needs to be sure that patients don’t fall through this crack.

A significant portion of the cost of caring for chronic disease arises because the patients have been misdiagnosed and treated with medications that are not effective for them. Although some of these misdiagnoses can be traced to actual medical error, for many others the culprit is business model error. Because so many of these diseases arise at a multi-avenue intersection of several different systems of the body in the realm of intuitive medicine, a single specialist often will not have the perspective required to get the right answer.

Simply passing the patient off to another subspecialist with a comparably specialized perspective doesn’t solve the problem of interdependencies. It’s not the doctors’ fault. It’s the fault of the business models in which they’ve been asked to work.

Business model innovation can improve the effectiveness and cost of diagnosis and treatment.

**Business Models for Diagnosing and Prescribing Treatment for Chronic Disease**

There are precious few coherent solution shops, like National Jewish, Mayo Clinic and Cleveland Clinic, that have reliable processes for integrating the multiple relevant disciplines required to diagnose and recommend solutions for many intuitive chronic diseases. These are the chronic diseases that, through lack of clarity in diagnosis and treatment, necessitate a multidisciplinary solution shop. (Examples include Lupus, Alzheimer’s, Parkinson’s, infertility and epilepsy.)

In contrast to the task with intuitive ones, the diagnosis for rules-based chronic diseases usually can be competently managed by an individual caregiver. (Examples include type I diabetes, osteoporosis, myopia, HIV and hypertension.) The business model to diagnose and arrive at a course of therapy for rules-based diseases exists: It is the traditional physician’s practice. In fact, the rules for many of these diseases are now so widely accepted that diagnosis and prescription can be handed off to nurse practitioners without compromise in outcomes.

For many acute diseases, the problem is diagnosed and a therapy is devised and applied. But for chronic illnesses, diagnosis and prescription is only the start. Patients then need to adhere to the recommended therapy — hourly, daily, monthly and often for the rest of their lives. The business models that can profitably and effectively help patients succeed with these challenges are very different from those designed to diagnose and devise the original treatment plan.

**Disease Management and Integrated Fixer-Fee Providers**

In the past, the physicians’ practices that, by default, were the ones we’ve counted on to police adherence to prescribed therapy weren’t motivated to do it because they simply couldn’t make money doing it. There are two business models that can make money by keeping patients healthy: disease management companies, like OptumHealth and Healthways, and integrated fixer-fee provider...
companies, like Kaiser Permanente and Geisinger.

The fact that these (and the few others like them) care for only a fraction of patients with diseases whose consequences are deferred means there is an extraordinary opportunity for employers and insurers to guide more of their employees and members who need this type of oversight into the reach of the businesses that can provide it.

Integrating to Make It Happen

In areas where an integrated fixed-fee (IFF) provider aggressively uses disruptive business models to provide better care at lower cost, they will prosper and overall health care costs will drop without a compromise in quality or convenience of care. This is because quality comes from correct integration, and lower costs come from low overheads that are enabled by focus.

Major employers who choose not to integrate into the provision of first-level care for employees and their families will take a significant role in orchestrating the emergence of a disruptive health care value network — through a few high-impact policy changes.

For example, if it is correct that a significant portion of the cost of chronic care is spent on therapy for misdiagnosed variations of intuitive chronic diseases, major employers that have the scope will send more patients with these conditions to coherent solution shops — thereby fostering their establishment and helping to define their economic value. They will increasingly contract with professional network companies, such as Healthways or OptumHealth. And more employers will encourage employees who need certain procedures to utilize VAP clinics, retail clinics and medical tourism destinations whenever one of those disruptive delivery models offers the optimum route of care.

As the disruptive value network becomes established, employees of small businesses, the self-employed and the uninsured poor — most of whom are largely neglected by the current value network — will then be able to avail themselves of this system, from which higher quality, lower cost, more conveniently accessible health care will be available.

Disrupting the Reimbursement System

When employers began to pay for low-priced, predictable, recurrent health care events, it was a tax-advantaged form of employee compensation. When insurance companies lumped that benefit together with true insurance in “comprehensive health plans,” however, they lumped a sensible, value-creating insurance product with a reimbursement service that actually destroys economic value because of its administrative overhead.

Just as mutually incompatible business models within hospitals need to be teased apart in order to appropriately price the services of solution shops and value-adding process businesses, these mutually incompatible health insurance and reimbursement products need to be separated so they create rather than destroy economic value. This is the rationale behind the unbundled pairing of high-deductible insurance (HDI) and health savings accounts (HSA) that more and more companies are offering their employees. Unbundling comprehensive health plans into these constituent parts is one of the most important reforms to be made in health care.

Where employers cannot or choose not to link their employees into an integrated health system that uses capitation and is aggressively implementing disruption, an HDI-HSA plan will be a necessary element of the new disruptive value network that major employers will need to orchestrate.

Just as certain employers have created incentives for accumulating retirement savings by matching, dollar-for-dollar, employees’ contributions to their 401(k) accounts, governments could do the same with HSAs — matching by formula contributions that low-income citizens make to their HSAs. In addition, by fostering low-cost disruptive business models, such as retail clinics and patient networks, that can be paired with payment mechanisms, such as joint-contribution HSAs, governments can make a significant dent in the persistent problem called the “uninsured poor.” The solution for the uninsured poor isn’t just to help them afford health care. It must also make care affordable.

The Future of the Pharmaceutical Industry

The disruptive transformations in health care will profoundly affect the structure of the pharmaceutical industry — posing extraordinary managerial challenges to the leaders of these companies.

The disruptive threat to pharmaceutical companies, a “supply chain disruption,” is already under way in the industry. Many of the vertically integrated pharmaceutical companies that have long dominated the business began actively outsourcing many of their functions to specialist companies, ranging from the discovery and
development of new drugs, to the administration of clinical trials, to manufacturing.

The driver of this disruption is the same as the one that drives “market tier” disruption. The leaders improve their profitability by getting out of the least profitable of their activities, while focusing investments on the most profitable. The disruptive entrants, by inheriting the activities cast off by the incumbent leaders, improve their profitability by taking on more and more of the value-adding activities the leaders are “outsourcing.”

Little by little, the industry-leading companies do less and less, and their suppliers do more and more — until the leaders have liquidated their business models. Companies that initially specialized as recipients of outsourcing contracts have expanded their scope to encompass most of the industry’s value chain.

Once dis-integration has occurred, the stage in the value chain where attractive profits can be earned shifts. The ability to make attractive profits typically centers at the stage in an industry’s value chain whose technology determines overall system performance. As disruption occurs, this stage typically is the enabling technology inside the product.

In pharmaceuticals, this suggests that in the future, activities that link precise diagnostics with predictably effective therapeutics will become the center of industry profitability.

Future Directions for Medical Devices and Diagnostic Equipment

Today, thanks to scanners using computer-aided tomography (CT) and positron emission tomography (PET), magnetic resonance imaging (MRI) machines and ultrasonic and fluoroscopic “movies” of organs as they function, doctors can see with remarkable clarity what is going on inside of us. Most surgeries today occur after imaging technologies have given a definitive diagnosis of the problem to be repaired.

The blessings indeed have been costly — but they need not continue to be so. There is a path for innovators in the MDDE industry to make their miracles affordable and even more broadly accessible.

Executives in this industry can use two “growth compasses” to find their way to the next waves of growth in their markets.

- Decentralization. To economize on the scarcity of money and skills, activity in the industry becomes centralized — meaning we must take the problems we’re trying to resolve to a central location, where people with the requisite expertise and equipment can solve them. Ultimately, however, the cost and inconvenience of these centralized solutions creates the impetus for disruptive innovators to find ways that decentralize the ability to solve these problems. When this is accomplished, rather than taking our problems to the center to be addressed, technologically advanced solutions go to where the problems are.

- The Commoditization of Expertise. We will get growth and affordability in health care not by replicating the expertise of today’s physicians in the form of new physicians. We will get it by embodying their expertise in devices and equipment, so expertise becomes widely available, more affordable and much easier to obtain.

Convenience and Cost

If innovators in the medical devices and diagnostic equipment industries aggressively pursue the second and third waves of growth in their industries by transforming products and services that are now expensive and centralized into ones that are progressively more affordable, portable and “idiot-simple,” consumers will happily pay out of their own pockets to monitor their own health; self-diagnose when things go wrong; and receive an ever larger portion of their care from nurses and primary care physicians, in venues that are closer to home.

The Future of Medical Education

The mix of health care professionals we will need in the future is different than the mix we have at present. We’ll need more primary care doctors and fewer specialists as more and more disorders move from the intuitive toward the precision end of the spectrum of medical practice, and as Internet-based decision tools bring the diagnostic capabilities of the world’s best specialists into the offices of general physicians.

Furthermore, much of the work that general physicians do today will be taken over by nurse practitioners, physician assistants and medical technicians — suggesting that we need to train more of these professionals as well.

Regulatory Reform

There are eight regulations or other mechanisms of influence that need to be changed in order to facilitate the necessary transformations. They are:

1. The National Institutes of Health (NIH)
needs to create a different methodology for evaluating research proposals that draw upon multiple disciplines. Otherwise, the peer review process will continue to push medical science into increasingly narrow silos of knowledge, and we will fail to capture the novel approaches and discoveries that only come from the intersections of different points of view.

2. The formulas by which the Centers for Medicare & Medicaid Services (CMS) and private insurers determine the prices they will pay for services need to be replaced. Prices that reflect true value and actual cost must be allowed to emerge, as pure solution shops, value-added process clinics and facilitated networks contract for business directly with employers and patients.

3. Reimbursement policies that unintentionally encourage disciplined price maintenance among competitors by rewriting prices based upon lowest-in-market rates each year must be discontinued. If health plans independently negotiate prices with suppliers and focused providers, overall pricing in the market will fall, not rise.

4. Because inconvenience and cost make health care inaccessible to the uninsured poor, the obligation of providers to provide uncompensated care should be eliminated. In its place, governments should mandate, with subsidies when necessary, the purchase of high-deductible health insurance and the use of health savings accounts by those who are now classed as poor and uninsured. At the same time, governments must foster not just a financial safety net, but expand the safety net of providers to include conveniently located retail clinics staffed by adequately trained nurse practitioners and dental technicians that are convenient, affordable and accessible to everyone.

5. FDA clinical trials processes need to be redefined, when necessary, as research trials. At the same time, drug makers should be encouraged to define the scope of clinical trials according to the molecular definition of the disease, and not necessarily by organ system or symptom of disease.

6. The focus of regulations, such as licensure and certification, needs to keep pace with technological change and scientific progress. When care is in the realm of intuitive medicine, the focus should be on accrediting people. As care moves through empirical medicine toward precision medi-

cine, the focus should shift to accrediting processes and, ultimately, to guaranteeing outcomes.

7. The economists who advise deregulators need to abandon the simple, century-old, one-dimensional axis that pictures competition on one end and monopoly on the other. Rather, it is a particular type of competition — disruptive innovation — that will predictably bring significantly lower costs to health care. As soon as technological progress enables it, regulators must facilitate disruption. This is what will make health care affordable and accessible.

8. Employers need to be allowed to create financial incentives for healthy behavior. By illustration, they should be allowed to shift their contributions between high-deductible insurance and health savings accounts for individual employees as data on healthy or unhealthy behavior indicate that the long-term costs of insuring an employee are changing.

Epilogue

The need to transform expensive, complicated products and services into ones that are higher in quality, lower in cost, and more conveniently accessible is a challenge that is not unique to health care.

Disruptive technologies and business models have been the mechanisms that brought affordability, consistent quality, and convenient accessibility to most facets of our society. In industry after industry disruption has made obsolete the trade-off that previously forced a choice between quality and affordability. It delivers both.

The health care industry is horrifically complicated. But in its essential elements, health care isn’t substantially different from other industries that have already been transformed through disruption.

RECOMMENDED READING LIST

If you liked The Innovator’s Prescription, you’ll also like:

1. The Innovator’s Solution by Clayton Christensen. Christensen’s earlier work began his exploration of disruptive innovation. This book is an essential look into the author’s research.

2. The Granularity of Growth by Patrick Viguerie, Sven Smit and Mehrdad Baghai. Help your organization maintain growth with the detailed approach offered in this volume.

3. Wikinomics by Don Tapscott and Anthony D. Williams. This bestseller addresses how the Internet’s social network offers new, decentralized ways to produce content, goods, services and profit.