

HEALTHCARE **DISRUPTED**

Next Generation Business Models
and Strategies



Advance
Excerpt
from
Forthcoming
Book, out in
March

JEFF ELTON and ANNE O'RIORDAN

WILEY

Praise for *Healthcare Disrupted*

“A confluence of scientific, economic, social, and technological forces is compelling changes throughout the healthcare industry. *Healthcare Disrupted* offers an in-depth examination of the current state of this industry and of strategies that will emerge to maximize value for providers, payers, industry, and—most importantly—patients. I particularly appreciated the descriptions of the four business models likely to emerge: Lean Innovators, Around-the-Patient Innovators, Value Innovators, and New Health Digitals. *Healthcare Disrupted* is an inspirational call-to-action for everyone associated with healthcare, especially the innovators who will develop the next generation of therapeutics, diagnostics, and devices.”

—Bob Horvitz, Ph.D., David H. Koch Professor of Biology, MIT;
Nobel Prize in Physiology or Medicine

“During a time of tremendous change and uncertainty, *Healthcare Disrupted* gives executives a framework and language to determine how they will evolve their products, services, and strategies to flourish in an increasingly value-based healthcare system. Using a powerful mix of real world examples and unanswered questions, Elton and O’Riordan lead you to see that ‘no action’ is not an option—and push you to answer the most important question: ‘What is your role in this digitally driven change and how can your firm can gain competitive advantage and lead?’”

—David Epstein, Division Head, Novartis Pharmaceuticals

“In the rough and tumble shakeout of the healthcare industry, the search for new business models and an understanding of emerging models is critical for patient outcomes to catch up with scientific progress. Elton and O’Riordan in their new book bring some great new insights into this arena that have broad implications for thinking about healthcare globally.”

—Trevor Mundel, M.D. and Ph.D., President of Global Health
at the Bill & Melinda Gates Foundation

“In a time of dizzying change across all fronts: from biology, to delivery, to the use of big data, *Health Disrupted* captures the impact of these forces and thoughtfully develops new approaches to value creation in the healthcare industry. A must-read for those who strive to capitalize on change and reinvent the industry.”

—Deborah Dunsire, M.D., President and CEO,
FORUM Pharmaceuticals

“While no one can definitively say how healthcare will look 10 years from now, Elton and O’Riordan go a long way to provide insights into the changes underway and the likely innovations that will characterize the future of healthcare. A good read for anyone worried about tomorrow’s healthcare and what can be done now to prepare for that future.”

—Cuong Do, Executive Vice President,
Global Strategy, Samsung

This book comes at a perfect time, as science and technology have never been so rich to address the disrupted healthcare environment. Anyone active in healthcare, any patient, and any future patient (that means all of us!) should read this book and reflect on how they contribute to build a system aligned on delivering superior value to patients by innovation, incentives, systems, and communications.

—Roch Doliveux, Honorary CEO, UCB

“*Healthcare Disrupted* reveals how seismic shifts in healthcare delivery will significantly improve patient and economic outcomes. It gives companies options for how to adapt and stay relevant in the new age of digital medicine and outlines four new business models that can drive growth and performance. This is a ground-breaking book.”

—Clive A. Meanwell, M.D. and Ph.D., CEO, The Medicines Company

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This excerpt is from advance uncorrected page proofs. Please do not quote for publication without checking against the finished book. While this excerpt does not yet contain the sources for the footnotes, the final hardcover version available in March 2016 will have completed footnotes.

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**Next Generation Business
Models and Strategies**

JEFF ELTON and ANNE O'RIORDAN

WILEY

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Cover design: Wiley

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Published by John Wiley & Sons, Inc., Hoboken, New Jersey.

Published simultaneously in Canada.

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Library of Congress Cataloging-in-Publication Data:

Names: Elton, Jeff, author. | O'Riordan, Anne, author.

Title: Healthcare disrupted: next generation business models and strategies / Jeff Elton and Anne O'Riordan.

Description: Hoboken, New Jersey: John Wiley & Sons, Inc. [2016], | Includes index.

Identifiers: LCCN 2015041521 (print) | LCCN 2015042198 (ebook) |

ISBN 9781119171881 (cloth: alk. paper) | ISBN 9781119171898 (epdf) |

ISBN 9781119171904 (epub)

Subjects: | MESH: Health Care Sector--trends. | Medical Informatics--trends.

| Models, Economic. | Organizational Innovation. | Quality Improvement--trends.

Classification: LCC RA971.3 (print) | LCC RA971.3 (ebook) | NLM W 74.1 | DDC 362.1068--dc23

LC record available at <http://lcn.loc.gov/2015041521>

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

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Preface

There are more than 7 billion people in the world, and the population is aging in almost every major region. Healthcare costs in most countries are rising faster than gross domestic product (GDP). Prevailing approaches to healthcare reward volume (of sales, of procedures, of patients treated) over positive outcomes or positive changes to health system performance. At the same time, awareness of the importance of health to national economic productivity and long-run performance around the world has never been so acute. Governments, institutions, companies, and individuals are feeling pressure to redress the balance of health, responsibility, and outcomes and to ensure that all constituents play a productive part.

And we have a tremendously exciting opportunity.

In the coming 3, 5, or 10 years, we can dramatically improve patient care around the world. Through profound commitments to collaboration and disruption along nontraditional lines, we can improve the standard of care on a global scale. New targeted therapeutics, smart diagnostics, advanced informatics, and digital technologies promise to redefine

healthcare as less reactive and dependent on traditional facilities and acute interventions, and rather as proactive management of health. Rapidly developing economies and countries will meet critical healthcare needs more efficiently and effectively. More people will stay healthy for longer periods of time, avoiding hospital stays and readmissions at a much greater rate. Well-developed healthcare systems will definitively move toward the practice of precision medicine, where the focus is truly on the patient, and where a variety of forms of information and evidence are brought to bear in real time to tailor treatment approaches. These systems will also raise expectations—and standards—around the world of what healthcare can and should be.

Seismic shifts in the healthcare industry have already begun. For the first time, we are seeing large-scale collaboration across industry boundaries. Providers, pharmaceutical companies, medical device organizations, payers, nurses, caregivers, health care personnel (HCP), patients, citizens, wellness companies, and technology disrupters are joining forces in new and innovative ways—all centered around driving the health and wellness outcomes that are critical for long-term economic sustainability. And positive catalysts abound, including advances in science, the evolution and availability of genomic, health, and lifestyle data, and the abundance of technology solutions coming to the market every day to help us monitor, measure, and adjust our habits to improve our health and the outcomes of treatment.

In fact, a confluence of forces—economic, social, and technological—are compelling changes to everyone’s “job” in healthcare in the years to come: individuals, health providers, health insurers, policy makers, regulators, therapeutics innovators, app developers, digital infrastructure providers, and more, with no exceptions.

The question is: What “whole” will we make of all of these changes? Right now, we are seeing the outlines of new, very performance- and value-focused business and operating models form. These emerging models are more than promising; healthcare with higher value and impact is at stake—healthcare that can better contribute to the quality of patients’ lives, and the productivity of companies and countries. But their success—analogue to thriving and leading through the digital disruptions that have reshaped far-flung industries such as media, entertainment, financial services, insurance, photography, telecommunications, transportation, and lodging—isn’t guaranteed.

To harness their potential, executives, boards, and industry leaders will need to understand the implied redefinitions of markets, the evolution of services-centric approaches, and the parameters of new outcomes- and value-centric performance models, as well as the fundamental impacts of these models on their organizations.

We wrote this book to recognize and acknowledge this catalytic moment, and to predict and discuss the potential business models that can and should evolve. We realize that no models have yet been carved in stone—and for many, the delineation lines drawn in the new business models will not be as clear and succinct as those we lay out in the coming chapters. But with a more comprehensive grasp of the fast-changing context in which they work, and the capabilities they need to excel, we believe that readers will be able to develop strong, forward-thinking, and flexible strategies for their organizations that will enable them to transform (or invent) themselves effectively. We believe they will be able to become leaders of a new era in healthcare, and vastly improve an ecosystem that is only just beginning to take shape. In doing so, they will set the new foundations of healthcare; as these foundations solidify, they will become the vanguard on which all other aspects of the industry will build.

Our primary focus throughout this book is the evolution necessary in the pharmaceutical, biopharmaceutical, device, and diagnostics fields and the new digital healthcare disruptors that are propelling change and paving the way for entirely new operating models. We recognize that all other players—providers, payers, HCPs, and other healthcare-related institutions throughout the world—also need to change. Through the lens of the organizations featured in this book, other stakeholders in the world of healthcare will also be able to see their own roles and choices more clearly.

In other words, we purposefully include a broad view: In the first part of the book, Chapters 1 and 2, we describe the tsunami of change going on in the sector as a whole and outline the most important strategic questions facing all types of participants in the sector. In Part II, we describe four distinct business models that are coming into focus in the pharmaceutical, biopharmaceutical, medical device, and digital health technologies fields—the result of legacy companies' transformative efforts, start-up ventures, and also the expansion of established, successful businesses from other fields that now see healthcare as a very attractive new market. In the final chapters, we provide a new framework for industry partnerships and

collaboration, the new requirements of value-centric solutions, and how to build the talent and performance systems for these new outcomes and value-focused organizations. We close with a view to the future, reconsidering the basis for how valuations have shifted from disruption in other industries and summarizing the fundamental questions any leadership team, board, or analyst of markets needs to be asking.

We can achieve a best-case scenario for healthcare in the future. But only if all of the healthcare industry's stakeholders—including patients—understand the forces that are driving healthcare's changing ecosystem, and the strategic challenges, opportunities, and business models that are emerging as a result.

And only if we are able to work together proactively to create the future.

Acknowledgments

Discussing the topic of healthcare disruption in any meaningful, purposeful way requires significant input from a multiplicity of sources—on the industry, on the structure and organization of companies, and on the scale and influence of change, from the macroeconomic through the social, scientific, and technological, to the core of how a patient reacts, interacts, and operates with the entire system. It is a task that cannot be addressed without a significant wealth of experience and help. Our research and work have hugely benefited from a global network of colleagues dedicated to the healthcare industry. It has been challenged, informed, and enriched by our clients, by our experienced research team, and by industry thought leaders, and further shaped by our own interactions with the healthcare system as patients, parents, and caretakers.

We are privileged to have such an incredible global network of people, experiences, and capabilities to draw upon to complete this work. There

are also some key people without whom this book would not have been possible.

We wish to thank our Accenture global project team, led by Katherine (Kate) Gordon Murphy, including Jennifer Garland, Phil Davis, Nick Vigil, and Andrea Alary. Kate in particular has worked tirelessly to advance the research for this book, and the company's work in advanced patient pathways strategies, real-world clinical analytics, and advanced patient care management services.

Our Accenture colleagues in this area are pioneers who truly place the patient at the center of all they do. While the list is long, we would like to give a special acknowledgment and thanks to Sander van Noordende, James Crowley, Andrea Brueckner, Thomas Schwenger, Arjun Bedi, Narendra Mulani, Jeffrey Russell, Ken Munie, Jasper Putlitz, M.D., Shawn Roman, Tony Romito, Gayle Sirard, Arda Ural, Ph.D., Jan Ising, Josh Miller, David Champeaux, M.D., Michael Lamoureux, Ben Gross, Ph.D., Cecil Lynch, M.D., Dennis Urbaniak, Eva Wiedenhoeft, Alison Goodrich, Craig Oates, and Mark Fisher. Their collective experience represents over 500 years of work dedicated to health and life sciences clients around the globe—helping them to rethink, reshape, and restructure their companies to deliver better patient and economic outcomes. Their insights and experiences have been invaluable to the concepts, observations, and hypotheses expressed in this book.

Accenture's CEO advisory committee was a testing ground for many of the ideas contained herein and for that we give special thanks to Fred Hassan, Deborah Dunsire, M.D., and Clive Meanwell, Ph.D. and M.D. In addition, Roch Doliveux, former CEO of UCB S.A., made significant contributions to the overarching concept of patient-centricity.

In any topic as broad and technical as "Healthcare Disrupted," it is always a challenge to communicate the key concepts successfully to a diverse audience. Here we thank Regina Maruca and Jens Schadendorf. They brought experience and knowledge of the process of writing and publishing a book that was exceptional and deeply valued.

We would like to give our warmest thanks to our families. Jeff's wife, Anne, and children, Eva and Owen, were highly engaged and shared his passion throughout, actively supporting the many evenings, weekends, and vacations allocated to this project. Anne's husband, Bradley, and her boys, Alex and Stephen, provided both encouragement and enthusiasm on a topic that they know is dear to her heart.

Finally, we are enormously grateful to our publisher, John Wiley & Sons, and in particular to Richard Narramore, who approached this project with enthusiasm, commitment, and a clarity of purpose that was a persistent guide.

—Jeff Elton, Ph.D., *Boston, MA, USA*
Anne O’Riordan, *Hong Kong, PRC*

Introduction

There have been only a few times over the past 100 years when leading companies delivering fundamental products and services have been challenged just to survive. The challenges they've faced have usually involved one or a combination of major technological shifts, government or other regulatory changes, new economic models, and disruptive competition. Some have made it; some haven't. Only a few have managed to hold on to their leadership status.

Think of Kodak and Polaroid in photography and imaging, Digital Equipment and Data General in computing, Nokia and BlackBerry in mobile phones, and Blockbuster video stores for home entertainment, to name a few of the most visible. The one-two punch of digital photography and smartphones with advanced cameras turned wet-chemistry photography into a niche field. Personal computers that could access greater power through the combination of advanced graphical interfaces and Internet connectivity sidelined mid-range and mainframe computer companies. Google's Android and Apple's iOS mobile operating systems,

integrated app stores, plus content partners' own ecosystems upended the order of things in mobile handsets. Deregulation, competition from cable infrastructure operators, and the rise in popularity of mobile devices and the Internet as a means of communication forced the transformation of local landline and long-distance services. And Netflix developed an Internet delivery model that, together with other types of delivery systems, hit video stores where it hurt; then streaming did most of them in.

Importantly, during these times, we also saw a personal computer company with modest market share, Apple, and an Internet search engine company, Google (now Alphabet), become the highest value enterprises in the world in terms of market capitalization. These companies took the throw-weight of all the aforementioned disruptions and collapsed distinctions between communications, entertainment, work, and commerce, providing ranges of solutions and convenience others did not foresee. Together they transformed the medium, mechanisms, and economics of personal relationships, where we worked, how we consumed entertainment, and the music industry. We welcomed the changes, and they emerged as winners.

Healthcare is on the brink of a similarly monumental change. “Brink” might not even be a strong enough word; the disruptions are already underway. We wrote this book after two years of research to capture this point in time and give executives across pharmaceutical, biopharmaceutical, medical device, medical diagnostics, and health services companies an opportunity to step back and see the big picture. We wrote it to help them understand the changes that are coming and position their companies to use those changes as building blocks for new and successful strategies. To that end, we frame key trends and offer options for new business models that can drive growth and performance. Ultimately, our goal is to advance a productive discussion about how all stakeholders in healthcare (the aforementioned types of companies, plus regulators, insurers, healthcare providers, and individuals) can take on new roles to drive better health for patients and add value to the healthcare system overall.

THEN, NOW, AND POTENTIAL

Consider some of the newfound abilities and possibilities that are changing our expectations—as policy makers, as executives, as individuals, and

as populations—of what “care” can and should be, and how it should be financed.

We used to think of “evidence” of effectiveness as meaning the results of clinical trials and post-approval studies that took years to progress.¹ *Now, through digitally gathered real-world data, we can gain that evidence at population scale in hours, days, or weeks at most.*^{2,3}

Pharmaceutical and device (life sciences) companies used to put their products out on the market and wonder why results in the actual clinical settings were different from what they expected. *Now, with the ability to track activities and outcomes in almost real time, they can identify the factors in people’s lives that influence the effectiveness of treatment approaches and therapeutic products. They can see the extent to which extenuating circumstances (such as gaps in treatment, non-adherence to dietary and activity modifications) influence outcomes. As a result, they can contemplate new strategies that might include filling those gaps for patients.*

Providers used to see patients in offices or facilities designed for the purpose, and after an examination or a procedure, tell patients what to do, and then, barring emergency, wait until the next scheduled check-in to learn how their treatment plans were working out. *Now they can extend their involvement with patients beyond the office, hospital, or clinic, track progress in real time, and adjust treatments as necessary along the way.*⁴

From Inputs to Outcomes

Now, in other words, we’re seeing an emerging rationale for moving from an input-based approach (inputs being patients seen, or drugs and devices sold) to an output-based approach (outputs being patients’ best possible health outcomes) to healthcare. In the literature of economics, there is a strong distinction between payment that is based on input and payment based on output.⁵ When payment is based on inputs, there is a built-in adverse incentive to “shirk,” that is, to do as little as possible and receive the same compensation. When payment is based on outputs, the incentive is to optimize productivity and maximize “system” benefits.

In Europe, for example, we’re seeing a move toward “value-based reimbursement,” where the health authorities and providers are being

asked to balance the needs of the system as a whole with the treatment they are providing to the individual. The idea is to assess the healthcare industry on its ability to provide the greatest possible benefit to a population against a set of resource constraints. Variants of that approach are going into place in the United States as part of the Affordable Care Act (ACA) and supporting legislation.

Meanwhile, in the same spirit, we're seeing payers moving into the direct provision of care, technology companies spinning out of provider systems, technology companies connecting remote clinical monitoring technologies together as a service, and medical device companies providing direct patient care management services. We're seeing health providers manage financial risk, make tradeoffs among the services they offer, and pursue payment through "alternative" or outcomes-based approaches. Each of these entities is working together with other partners to create, advance, or deliver their services. The relationships are extending back from early drug discovery, right through clinical development, to commercialization and patient end-use.

Power to the Patient

Unsurprisingly, the patient's power as a consumer is also evolving. One hundred years ago, healthcare was largely inaccessible to most people even in the wealthiest economies. Sixty years ago, we created mandates and public institutions that ensured some measure of access to the majority of people in the United States and Europe. Over the course of the past 50 to 60 years, healthcare unions, private employers, states, and countries have ensured increasing access. Regulations and programs for reimbursement, professional credentialing and guidelines, institutional licensure, and product approvals have focused on institutions and health professionals—ensuring access to a safe and efficacious service for citizens and employees as a "benefit." Now, we're entering a time when the priorities of the individual patient with a specific disease or health condition can drive a real determination of value in therapies (drugs and combinations thereof), interventions, and services. The patient is taking on more direct responsibility for outcomes, viewing them from a new vantage point as beneficiary *and* active customer. Healthcare is pivoting to the patient.

EMERGING MODELS

Is it any wonder that new business models with fundamentally different economics are forming and solidifying, setting precedents and standards for others to follow and try to surpass? Already we see this happening beyond isolated use cases. We are seeing a bifurcation of strategies and business models between those catering to the needs of the mass market and those focused on serving niche groups/disease areas. In addition we see disruptors—those companies leveraging new technologies and new science to cut across traditional industry processes to make a step change in how healthcare is delivered and patient outcomes are affected.

For example, we're seeing players that are driving value by bringing the good science developed over the past 20 years to the market in the most efficient way possible. These *Lean Innovators*, many built on the chassis of a generics company, are arriving with extremely efficient, world-class manufacturing and supply chains. They have an eye for acquisition and aspirations of rapid growth, and they will challenge incumbents and the cost structures, productivity, and operating models of the past.

We are also seeing *Around-the-Patient Innovators*—companies (or divisions) that are bringing the latest scientific insights and a focus on the most devastating of patient diseases to bear to advance new specialty therapeutics and complementary product and service offerings.

Embracing outcomes as their strategic center, *Value Innovators*, a third model, will define and differentiate themselves on integrated, digitally enabled services that include remote sensors, devices, and centrally located clinical staff. These organizations will focus on improving patient and clinical outcomes on a broad scale; and they will be willing to tie economics of their business to their ability to achieve patient outcomes and system efficiencies in how healthcare resources are deployed.

Finally, we're seeing the fast rise of *New Health Digitals*, companies that most likely grew and evolved outside of healthcare and life sciences, that see this sector as a natural sector for their relationships, partnerships, infrastructure, performance systems, and capabilities. We are only just beginning to gain a sense of these organizations' interests, models, and influence. But it is clear that their economics—driven by global scale, vast ecosystems of devices and applications, broad developer communities, and the cloud—will provide some solutions at orders of magnitude with less cost and greater capability.

Four models are clearly emerging, but likely we will see more. Even as we put the final touches on this manuscript, technological advances continue to astound us and foreshadow breakthrough opportunities in medicines, treatment, and business models. In August 2015, for example, the U.S. Food and Drug Administration (FDA) approved the first 3D-printed drug, Spiritam, developed by the U.S.-based pharmaceuticals company Aprelia. Used in treatments for people who suffer from epilepsy, Spiritam is made by layering powdered medicine with liquid to create a pill that dissolves almost instantly when taken with just a sip of water.

The initial hope is that by making the pill easier to swallow, more patients will be inclined to stay the course with their treatment. But the implications of the technology are potentially far greater. We can envision localized manufacturing “to order” in the dosage form best suited for an individual patient. We can envision therapeutic combinations required for the management of a specific patient’s comorbidities coming together in a single dose to aid compliance and lower medication errors.^{6,7,8} It would not be inconceivable to see an “Amazon-like” entity—streamlining ordering and manufacturing processes, and delivering within hours—disrupting traditional retail pharmacies, pharmaceutical generics, therapeutics distributors, and patient adherence services. Could an enterprise that doesn’t actually own any assets be a future “Uber” of retail pharmacy and generics manufacturing? Yes, it could.

DISRUPTING AND RESHAPING RESPONSIBLY

We approached this book as professionals with a goal of supporting the healthcare industry’s evolution toward a more effective state. But healthcare is very personal. And so throughout the process of writing this book, we’ve found ourselves reflecting on and talking about the implications of these changes for our families and ourselves—and for those populations with the highest unmet needs. We have come to the conclusion that executives in healthcare, life sciences, and new health-focused technology companies will need courage to shape the healthcare environment and transition successfully—courage that will take different forms as they explore business and operating models that go far beyond their companies’ traditional products, technologies, or services.

They will need to work through questions of privacy and use of broad sources of data for the benefit of the patient—advancing a new level of

trust and operating competence. They will need to resolve all dilemmas—ethical or financial—in favor of their responsibilities to patients. They will need to take the high road, versus a defensive posture, with regulators as rightfully representing the interest of patients in the way that only health providers previously could. Collaborations founded on trust and courage may even prove to be as important as having economic fundamentals and a “winning” business model.

Executives, managers, team leaders, and associates at all levels will also need courage to break down organizational barriers within their organizations and to act as integrators. They won’t necessarily be shipping products, but rather they will be integral to producing product and service packages of value, and interacting directly with patients, health providers, and others. They will need courage to help patients connect the dots and resolve the gaps and deficiencies that limit outcomes. Managers, and those with expertise in one or another area, will have to think differently, broadening their horizons in order to work well with people and organizations that have never before been partners, with new immediate priorities.

There is a real opportunity here to shape the future, rather than be shaped by it. In order to take advantage of this opportunity, though, more than a few people will have to move fast and far out of their comfort zones. Building a strong foundation for a healthcare system that works as well as we can imagine will take more than safe strategies and test-the-water approaches.

This isn’t about responding to a shifting environment by making incremental strategic changes. It isn’t even about reacting to growth, cost pressures, and/or a significant change in competitive dynamics. This is about determining the role their organizations will play in a broadly defined industry that is rethinking how it creates and rewards value, and even what “value” means. It is about planting a flag and taking a stand when the stakes are high and the ground beneath your feet is moving so rapidly it seems out of focus.

PART

I

THE TSUNAMI OF CHANGE

Chapter 1

Why and How the Healthcare Industry Is Changing So Rapidly

The collective throw-weight of socio-economic and policy changes, technological advances, and structural shifts has primed the healthcare industry for upheaval and disruption—and presented an incredible opportunity to advance the standard of care worldwide.

Over the past several decades, as the healthcare industry (including providers, payers, life science companies, health services companies, and other ancillary businesses) has grown in size and complexity, choices regarding patient care have often become entangled in a myriad of objectives and controls. To survive and thrive, healthcare-related companies and organizations have focused increasingly on individual objectives—the products companies on product sales, the healthcare delivery organizations on providing services at the right price point, the payers on actuarial modeling. And somewhere in the mix, the common goal of achieving the best outcomes for the patient and overall value for the healthcare system was diminished.

But that's all changing. There have been periods throughout economic history where a confluence of policy, technological, and industry structural changes has created a foundation for upheaval and disruption—times where

opportunistic strategies have offered handsome near-term rewards, where new entrants have had the potential to be the better operators, and where consolidations and integrated approaches have created unprecedented opportunities. Healthcare is in one of those periods now. And in 10 to 15 years, it will function fundamentally differently than it currently does. Value, defined anew, will increasingly be the metric that matters as healthcare pivots back to the patient in extraordinarily new and different ways.

* * *

The world changed, and healthcare—broadly speaking—did not. Like all good catalytic circumstances, this one offers to healthcare the opportunity to leapfrog and make fundamental and sweeping changes that will sustain for years to come. As a result, many of us who work in, with, and around the industry now find ourselves simultaneously playing catch-up and looking forward with a new sense of responsibility to ensure that those without care can access it, to build strength into our national health systems, and to see that healthcare truly re-emerges as patient-responsive, responsible, and centric. We're directly confronting the companies and business models we've built or built upon, and we're defining what worked, what did not work, and what will work in the future. We are also comparing where healthcare stands relative to other industries that have transformed themselves in recent years.

But we're doing all of this under increasing pressure.

The global population is expected to increase by 1 billion by 2025. By then, more than 500 million people will be over the age of 50. Projections from a variety of sources (including the United Nations and the World Health Organization) report that by that same year, 70 percent of all illnesses will be chronic diseases. Overall we are living longer, living with an increasing amount of chronic and comorbid illnesses, and doing so regardless of what country or region of the world we are living in.

We're also spending more money. In developed countries such as the United States and Germany, where the aging workforce is a key driver of rising healthcare costs, spending on healthcare ranges from 11 to 18 percent of gross domestic product (GDP). In recently developed countries such as China and Brazil, it is between 5 and 10 percent. Overall healthcare spending will be doubling from an aggregate \$8.4 trillion in 2015 to \$18.3 trillion in 2030 with an estimated lost productivity from chronic diseases alone of \$47 trillion over the same period. As Figure 1.1 shows, all of the world's major healthcare systems face enormous cost pressures and potential productivity losses.

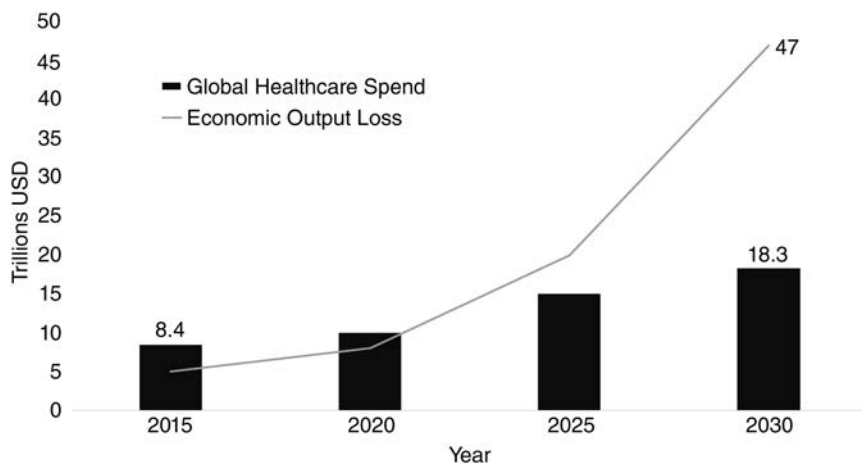


FIGURE 1.1 Global Healthcare Spend and Value of Lost Output Opportunities

Source: WHO Global Health Data Repository, *World Healthcare Outlook*, Economist Intelligence Unit; <http://www.eiu.com/industry/Healthcare> and <http://apps.who.int/gho/data/node.main>.

OPPORTUNITIES

We may be behind the curve and facing unprecedented challenges, but there are also considerable forces pushing us forward.

One piece of good news is that concurrent with (and perhaps as a result of) aging populations and the prevalence of chronic disease, many markets have seen a significant rise in “health consciousness,” which is framing new opportunities for companies to develop (and do very well selling) entire lines of consumer goods and services that facilitate health and wellness.

These offerings increasingly leverage disruptive digital forces that are a key enabler of the changes we are witnessing. Some of them, for example, built into wearable technologies (e.g., watches and activity monitors) and even mobile phones offer customers unprecedented capability to track and store health data. And so the manufacturers of these devices and their digital ecosystems (e.g., app stores) are thus increasingly bringing the healthcare system right to patients—changing the nature of how the healthcare system understands and interacts with patients, and making healthcare look more and more like a consumer market.

Other digital data—from electronic medical records (EMRs) and personalized genomic information, to lifestyle and personal health data—along with the ability to analyze that data, represent another revolutionary force driving unprecedented insights and facilitating scientific breakthroughs in the development of new drugs and therapeutic services.

Healthcare is relatively nascent in its ability to use these data, whereas consumer markets, financial services, and other areas are highly advanced. But that imbalance itself is revealing pockets of opportunity. While external macroeconomic and demographic trends shape the healthcare environment, internal market forces are taking advantage of these trends to change every aspect of how the healthcare market operates and serves patients.

THE SIGNS OF CHANGE

Disruptive indicators lead the way in all major marketplace changes, and we're seeing them now in healthcare. For example:

An unprecedented number of mergers and acquisitions (M&A) have taken place recently in the pharmaceutical and medical device fields. In 2014 alone in those fields, there was \$438 billion worth of M&A activity.¹ A similar trend is evident among payers. Traditional private health insurers are increasingly aware of their own modest scale; in the United States even the largest private health insurers cover only 10 to 15 percent of prospective individuals, a small proportion by any industrial standards. This awareness is driving meta-scale combinations, which will in turn accelerate the pace of healthcare innovation through applications of large-scale, real-world health claims data sets.^{2,3}

New business models are emerging, and they're breaking old boundaries. Traditionally, there were three distinct types of healthcare players: health providers (delivering treatment and services), health manufacturers (pharmaceutical and medical device companies), and health payers (insurers). However, the traditional lines of distinction among different types of companies are blurring. Device companies are transforming into service entities, providing catheterization lab management services and focusing on the remote management of specific patient populations. Pharmaceutical companies are focusing on service. Providers are extending services beyond their traditional regimens into home care and post-discharge monitoring. Additionally, we're seeing new types of *collaborative pairings*—medical device companies with pharmaceutical firms, digital technology companies

with pharmaceutical firms, payers with providers, payers with digital technology companies, and so forth, for example, Novartis co-investing with Qualcomm, or Humana's acquisition of Concentra.⁴

New players are making noise and resetting expectations of what's possible. Chief among these are influential consumer digital technology companies that bring new capabilities to the table and offer new forms of partnership. Apple Inc., for example, has launched an app that provides a network for the sharing of health information between its vast consumer base and researchers interested in large-scale data sets.⁵ Additionally, Google Inc.'s partnership with AbbVie Inc. promises to yield \$1.5 billion in research activity around developing solutions for age-related illnesses.⁶

And all of these changes are taking place against a backdrop of full-fledged industry reform.

A CLOSER LOOK AT HEALTHCARE REFORM

Admittedly, we're taking a rapid tour through the foundations of disruption in the healthcare industry. However, current reform efforts warrant a slight slowdown and a closer look.

Reform, in this context, refers to a broad set of sweeping changes that are needed to solve problems that cannot be solved by tuning or tweaking existing policies and incentives. Industry reform generally occurs in areas where there is significant government oversight and where that oversight forms the "rules of engagement" for industry players. While undoubtedly a simplification, two examples demonstrate the point: Campaign finance rules and banking have each been reformed—the first to limit and enable sources of influence and the second to create agencies and new rules to limit broad risks to the national economy and to protect the financial interests of individuals.^{7,8}

The fundamental problem compelling reform efforts in healthcare was (and still is) that the value created—for patients, for providers, for payers—did not (and still does not) align with spending levels. The industry has for years increased expenditures without improving returns to health—paying for procedures done, but not for what those procedures are supposed to accomplish.

In the United States, the Netherlands, Germany, and many other locations, this approach is known as *fee-for-service*, and it utilizes tables of codes, procedures, and treatment groupings to determine how much is

paid for what is done. Healthcare providers are thus given incentives to do “more” in the most acute setting and with the most skilled clinical personnel, in order to “code” as highly as they can in order to optimize revenues. And manufacturers selling therapeutics, devices, and diagnostics are motivated to encourage key decision makers at provider and payer organizations to get their products and services used or prescribed as often as possible.

With these incentives, and without an efficient market for value in terms of outcomes, healthcare costs over the past decade and more rose faster than general inflation.⁹ It’s true that the fee-for-service approach originated during a period when we needed more healthcare capacity—more facilities, more physicians, and more allied healthcare professionals, all of whom were tasked with providing healthcare to a growing private workforce of increasingly skilled workers. However, once a capacity threshold had been reached and the value of pure supply had diminished, the industry missed a chance to transition to an output-based system.^{10,11}

Failed Healthcare Fixes

Not that no one tried. There have in fact been valiant attempts to reform key aspects of the fee-for-service, pay for input model. The 1980s, for example, witnessed the development of implemented diagnosis-related groups (DRGs), which classified hospital procedures into tightly related sets of activities that could be assigned a single price or payment. The idea was that the costs of treatment for a particular diagnosis would follow standards derived from historical aggregate analyses. If a drug or treatment was not related to the specific procedure or group under consideration, it would be challenged when submitted for reimbursement, potentially not reimbursed, or reimbursed at a lower level. DRGs did slow the cost trend and lowered some costs of patients’ initial visits, but they also created adverse incentives that compelled providers to discharge patients too quickly; they had no quality criteria assigned to the care delivered; and they allowed hospitals and physicians to be paid for additional outpatient visits and readmissions associated with the original DRG-defined care provided. And so, unintentionally, DRGs resulted in increasing numbers of patients being readmitted or having extensive follow-up care.

In the United States, the 1990s saw another attempt: capitation. Since fee-for-service provided incentives to do more, capitation capped the amount reimbursed for specific procedures, like coronary artery bypass graft or the normal delivery of a newborn. But clinical care ended up being more complicated than the system could support. Comparable populations in different regions could have different acuities and therefore different risks. The system encouraged focusing on specific procedures for higher volumes, market share, and positive margins, often limiting reimbursement for, and de-emphasizing, routine or preventative care. The model also saw different private insurers implementing their own capitation approaches that often expected providers to differentiate their care based on who was paying—something that not only proved difficult to do but also was inadvisable for the sake of quality and consistency.

Other attempts to introduce cost containment and discretionary measures also failed. Some countries chose to implement policies that restricted access, creating queues or waiting periods to constrain demand.¹² Some created councils or committees to approve or deny access to expensive procedures or medicines.¹³ Some limited the approval or commercial availability of therapeutics, technologies, or procedures they did not want to, or had no ability to, pay for. Some set limits on their healthcare spend to a percentage of GDP and then put mechanisms into place to force tradeoffs.¹⁴ Others created technology assessment groups to place a value on new therapeutics, diagnostics, and interventional devices as the basis for their availability and reimbursement.¹⁵ Nevertheless, most of these approaches ultimately failed, serving only to control the rate of increase in aggregate spending, but not to improve overall productivity, efficiency, or population outcomes.¹⁶

REAL REFORM: WHY THIS TIME WILL BE DIFFERENT

The weight of the fee-for-service model has become too much to bear, and everyone knows it. We have seen increasing, broad awareness of the fact that the model is deeply flawed and we now know that no mere modification will yield a different outcome. But we have also seen technology advance to open up other possible solutions.

Consider: In order to make payments on the basis of inputs (treatments offered, procedures performed, actions taken), a healthcare system—a provider treating a patient and seeking reimbursement from an insurer—needed only to have administrative support for scheduling and coding,

and an accounting capability to track the costs and charges incurred for specific patients and specific procedures.

For payment based on outputs or patient value (best possible health achieved) and system value (effective treatments at efficient costs), that system would have needed to be able to measure clinical outcomes realized—and that capability, until recently, was not part of most hospital, health, or enterprise-resource-planning systems.

Now, it is. Now, it is possible to collect data on the clinical activities of healthcare, the health status of a patient pretreatment, and the change in health status after treatment. These data, captured through EMRs, are enabling reform efforts to create standards for how care is administered and outcomes captured. In addition, using publicly available data, analysts, academics, and other parties can calculate the health status of a patient population and assess the health risks of the individuals within it.¹⁷ And so for the first time, it is possible to set the foundations for a healthcare market focused on output and value.

Global Healthcare Reforms Ensure the Move from Volume to Value

Reform efforts are taking these advances as motivation and as fuel.

In the United States, for example, several new initiatives have been implemented as part of healthcare reform. These include: financial incentives to health providers to achieve meaningful use (a certain standard of improvement in quality, safety, and efficiency and efficacy of care) of EMR technology under the HITECH Act¹⁸; Patient Centered Medical Homes (PCMHs) and accountable care organizations (ACOs) that provide integrated models of care within specific regions and for specific populations of patients; Shared Savings programs created as part of the Affordable Care Act (ACA); quality reporting on care providers and physicians; and the Center for Medicare and Medicaid innovation to pilot different quality and outcomes reimbursement models within regions and targeted populations of patients. Many of these programs assume an increasing level of private sector engagement and co-investment in order to move toward an outcomes- and value-based system.^{19,20}

Figures 1.2 and 1.3 illustrate how these programs will progress, strongly de-emphasizing the Fee-for-Service (FFS)–based models in favor

	Category 1: <i>Fee for Service—No Link to Quality</i>	Category 2: <i>Fee for Service—Link to Quality</i>	Category 3: <i>Alternative Payment Models Built on Fee-for-Service Architecture</i>	Category 4: <i>Population-Based Payment</i>
Description	Payments are based on volume of services and not linked to quality or efficiency.	At least a portion of payments vary based on the quality or efficiency of healthcare delivery.	Some payment is linked to the effective management of a population or an episode of care. Payments still triggered by delivery of services, but opportunities for shared savings or two-sided risk.	Payment is not directly triggered by service delivery so volume is not linked to payment. Clinicians and organizations are paid and responsible for the care of a beneficiary for a long period (e.g. ≥ 1 year.)
Medicare FFS	<ul style="list-style-type: none"> Limited in Medicare fee for service Majority of Medicare payments now are linked to quality 	<ul style="list-style-type: none"> Hospital value-based purchasing Physician value-based modifier Readmission/hospital acquired condition reduction program 	<ul style="list-style-type: none"> Accountable care organizations Medical homes Bundled payments Comprehensive primary care initiative Comprehensive ESRD Medicare – Medicaid financial alignment initiative fee-for-service model 	<ul style="list-style-type: none"> Eligible Pioneer accountable care organizations in 3–5 years

FIGURE 1.2 Payment Taxonomy Framework

Source: <https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets-items/2015-01-26-3.html>.

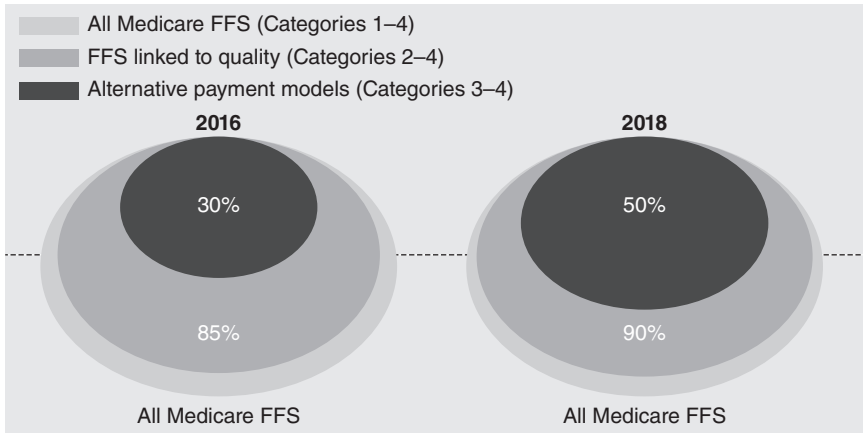


FIGURE 1.3 Target Percentage of Medicare FFS Payments Linked to Quality and Alternative Payment Models in 2016 and 2018

Source: <https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2015-Fact-sheets-items/2015-01-26-3.html>.

of those that rely on alternative payments (payment linked to an outcome but still provided with provision of clinical services) and population-based assessments (linked to a real-world measurable population outcome).²¹

By 2018, in fact, these performance-based reimbursement mechanisms are anticipated to comprise 50 percent or more of payments made by Medicare. (Medicare accounts for 50 percent or more of the payments made in a variety of major chronic and acute chronic diseases, such as cardiovascular, neurodegenerative, and certain cancers.) This is why we strongly believe that the U.S. market will increasingly tilt toward a value basis for pricing therapeutics, devices, and care services.

This shift also opens up more opportunities for sharing risk and delivery models for advanced clinical services that involve remote management and monitoring of higher cost and higher risk patient populations. Also, many of these initiatives increasingly focus on patient involvement, engagement, and responsibilities. The Physician Quality Reporting System and Meaningful Use initiatives, for example, are penalty- and incentive-based programs that focus on adherence to

required standards—emphasizing consistency of infrastructure and quality control.

But the real changes in the United States will occur through the broader implementation of the accountable care organizations (ACOs). At its essence, the ACO integrates acute or inpatient health providers with outpatient and physician office-based care under a common set of criteria for quality and cost defined for a population. Shared savings and shared benefits are realized by achieving or exceeding specific population health targets. By adding risk and care coordination as additional requirements for fund allocations, the ACOs are the bridge from the fee-for-service foundation of the old healthcare system to the value-based system of the future. The first 27 ACO Shared Savings Programs were launched in April 2012 and their initial progress to goals was reported in late 2014. While only a modest beginning, ACOs were shown to reduce Medicare expenditure within the first year of their operation.²²

As Figure 1.4 shows, many U.S. institutions are using an approach to operationalizing value-based care that focuses on three distinct elements: Population Management, Affordability, and Patient Experience. In doing so, they are trying to shift their operating focus from volume to health at the population and personal level, and to system-wide efficiency.²³

Dr. Vivek Murthy, MD, Surgeon General of the United States, has been candid about his hopes for reform: “My overarching goal is to get every individual, every institution and every sector . . . to ask themselves the question [of] what they can do to improve the health and the strength of our nation,” he said in an interview with the *Washington Post*, published in April 2015. “The health challenges that we face right now are too big to be solved by the traditional health sector alone. . . .”

Murthy went on to note, “Many of the patients that I [have seen] come in with illnesses and conditions that were preventable. And that’s not an experience that’s unique to me. Doctors all across the country, nurses across the country, share similar stories of feeling a great deal of sadness when they see the pain and the suffering that patients and their families go through, and realize that if we had a system that could care for people better, that was actually more focused on prevention than our current system, that we may be able to prevent a lot of the illness, the suffering and the health care costs that we see in our current world.”²⁴

Population Management	Affordability	Patient Experience
<ul style="list-style-type: none"> • Focus on inclusive understanding of health; collaboration • Beyond inpatient and acute care <ul style="list-style-type: none"> ◦ Preventive care ◦ Chronic care • Population health and outcomes analysis <ul style="list-style-type: none"> ◦ Utilization and medical cost predictive modeling ◦ Condition identification and risk stratification ◦ Outcomes performance measurement ◦ Wellness and prevention • Care transition/redesign • Innovation/mobile health <ul style="list-style-type: none"> ◦ Texts, Internet, Telehealth 	<ul style="list-style-type: none"> • Medical-population cost management <ul style="list-style-type: none"> ◦ Reduce PMPM ◦ Avoidable episodes of care ◦ Actuarial tools • Revenue/technology opportunities <ul style="list-style-type: none"> ◦ Quality, P4P ◦ HIT (EMR, other) ◦ Market share ◦ Patient base • Operational efficiency/cost <ul style="list-style-type: none"> ◦ Admin costs ◦ Manage risk-sharing agreements (ACO, PCMH, bundled payments) • Nontraditional revenue streams • Compliance and penalties • Utilization, Disease, Case Management • Complex Care Management • End of Life/Hospice 	<ul style="list-style-type: none"> • Quality • Home based or close to home services • Patient engagement <ul style="list-style-type: none"> ◦ Self-management • Patient satisfaction/retention • Patient-centered care • Care continuity • Patient adherence <ul style="list-style-type: none"> ◦ Medication ◦ Programs ◦ Support network • Self and home care • Patient access enhanced <ul style="list-style-type: none"> ◦ Multi-channel communications • patient engagement, remote monitoring, and remote care coordination

FIGURE 1.4 Value-Based Care

Source: Derived from the Institute for Healthcare Improvement <http://www.ihl.org/engage/initiatives/tripleaim/pages/default.aspx>.

Reform in Socialized Medicine Systems

Meanwhile, in socialized medicine systems throughout Europe, Japan, and China (post the 2009–2011 Healthcare Reform), where access to health systems for the broad population is a fundamental element of constitutional right, the push is to increase efficiency and effectiveness.

In Europe, for example, the clear trend is toward population- or value-based reimbursement. Europe has a high proportion of seniors relative to other geographies, with a quarter of its population expected to be over age 60 by 2020, with chronic diseases affecting a third of its population. Comparatively, constrained national budgets meant annual health spending actually decreased slightly (0.6 percent) between 2009 and 2012, and there will be an estimated shortage of 1 million healthcare workers by 2020. These opposing trends are compelling healthcare payers to find new approaches to continue to meet the healthcare needs of their citizens.

Their efforts had slow starts, as they wrestle with key issues such as data privacy, funding levels, and the balance between public and private care. And all of these initiatives have required multifaceted changes spanning technology, cultural, and care management processes.

Nonetheless, health authorities across different countries are now experimenting with several alternative models and relationships. These range from regional pilots to full-scale transformations of healthcare delivery models—such as creating virtual care centers that provide remote delivered services to patients with multiple conditions while maintaining them at home.

According to a 2013 European Commission survey, in fact, three countries (the Netherlands, Denmark, and the United Kingdom) have succeeded in digitizing over 80 percent of their patient health records and, while challenges continue to be addressed, that achievement has supported country-wide efforts to pilot models focused on patient outcomes and care coordination. Denmark has been a leader in the use of new digital approaches, including remote monitoring, video consults and remote conferencing (including translation), and photo exchange. In Denmark, for example, new models of diabetes care have used these systems to support incentivizing GPs to coordinate care or to bundle payments to “care groups.”

The United Kingdom, meanwhile, has emphasized more stringent and transparent measurement of healthcare outcomes and linked these

explicitly to assessing pilots in new delivery models (e.g., technologically enabled remote engagement and consults) deployed by NHS providers and private care providers as well. In the United Kingdom, 2012 legislation allows “any qualified provider” (NHS or private) to respond to tenders or be reimbursed by NHS-set tariff, with contracting generally focused on care in specific specialties (e.g., radiology/diagnostic imaging, orthopedics, ophthalmology). Large tenders included £800m for elder care and £1.2bn for cancer care. Of these NHS contracts about 6 percent of its budget went to private companies, which won about one third of recent tenders, a major emerging change in the structure of the U.K. healthcare delivery system.²⁵

France has also been rapidly implementing major reforms. The French government views fragmented governance and misaligned policies as a root cause of the current inefficiencies and lack of a population-based healthcare focus there. To respond, the national health agency created Agence pour les Systèmes d’Information de Santé Partagés (ASIP) in 2009, an eHealth competence center,²⁶ and established tenders for five regional pilots (80m euros over three years) to develop multichannel centers to support chronically ill patients (200 to 1,000 in each region). Given the economic constraints, these tenders specifically sought new thinking on new economic models for care services that would allow them to access funding sources and partners outside the public budget.

There are also major new proposals for bundled payments for hospitals, based on the 2014 pilots in chronic renal insufficiency and radiotherapy cancer treatment. As we were writing these words, new disease management programs were being piloted on the national, regional, and local levels. These programs are driven by national reforms for digital health launching in five regions. New disease management programs will likely be developed at the regional level over the next five years.²⁷

DRG reforms are debated in the 2015 draft of France’s Social Security Financing Act. On September 24, 2015, the French Minister of Social Affairs, Health and Women’s Rights Marisol Touraine and the Secretary of State for the Budget Christian Eckert presented a draft for France’s 2016 Social Security Financing Act (Projet de Loi de Financement de la Sécurité Sociale; PLFSS) to outline a plan for the reduction of the Social Security General Scheme by EUR3 billion in 2016, increasing over time to EUR6 billion. As part of this, quality incentives are being proposed for 2016 in acute care hospitals, for nosocomial infections, re-hospitalizations, and

in-hospital drug use. Now, guidelines for new Health Technology Assessment (HTA) requirements call for significant increases in comparative or cost effectiveness for reimbursement. While these initiatives continue to be controversial, they should establish a new baseline cost remedying the budget deficit attributable to shortfalls in healthcare funding.

In Spain, little is being done at the federal level, but each state is advancing its own solution to cost and capacity constraints and population health, increasingly emphasizing risk-sharing agreements that allow for non-compensation for ineffective interventions or treatments. Most solutions and new structures there are being implemented regionally.²⁸

The Basque Country provides a good example of one micro-region's unique initiatives. This area has one of the highest proportions of elderly in Europe, and 80 percent of patient encounters with the public health system are related to chronic diseases. Unsustainable estimates of future health spending drove the Basque Country health department to seek a comprehensive change to its approach to population health management, ultimately launching 14 strategic initiatives to reshape its system to better support patients with chronic diseases. The effort is ongoing, but services provided by the O-sarean²⁹ Multichannel Health Service Centre since 2009 have begun to reverse the historical upward trends in healthcare spending in the area. These efforts are helping patients stay informed, and increasing homecare almost 50 percent through a revolutionary and well-received telemedicine program, ultimately leading to \$55 million in savings through 52,000 fewer hospital stays in the region between 2009 and 2011.

Other areas continue to lay digital foundations to catalyze the evolution of their healthcare as well. Certain regions in Italy have been tendering for solutions ranging from population analytics to designing and delivering patient clinical treatment pathways with the goal of better managing both patient outcomes and the allocation of healthcare resources. The Trento province in particular has been a leader in eHealth solutions and is using its digital care platform, TreC (Cartella Clinica del Cittadino), to support pilots in remote monitoring and self-management of patients in oncology, diabetes, hypertension, and youth asthma.

In Sweden, where new medical technologies have to be funded out of existing hospital budgets, registries³⁰ serve as vehicles for value-based incentives,³¹ and novel programs in value-based reimbursement are underway in major regions. For example, in Stockholm, the County

Council and the Karolinska Institute (a major academic and regional care center) are working together to align healthcare infrastructure, capacity, and payment models to advance the health of the population and to more efficiently allocate spending to the areas of greatest need.³²

In some areas, such as in the United Kingdom and some Spanish regions, hospital systems with incentives to reduce unplanned readmissions have made strides in improving their effectiveness around patient discharge and remote monitoring. For example, La Fe Hospital in Valencia partnered with Accenture having been leading the way in a clinical trial to validate the potential impact to patient outcomes and budget savings of a multi-chronic disease patient care management program. The trial resulted in a 65 percent reduction in costs and 80 percent reduction in participants' annual days in the hospital. Other hospitals in France and Italy have sent out confidential tenders to develop better programs to manage chronically ill patients.

Germany, too, has been contemplating changes. The primary focus there has been on stemming the rising costs associated with immigration and an aging population. In 2010, the public health insurance system projected a deficit of €9 billion for the upcoming year. The CDU-FPD political coalition passed the GKV-Finanzierungsgesetz for insurance reform and the Arzneimittelmarktneuordnungsgesetz (AMNOG) for pharmaceutical reform, both of which went into effect in early 2011. The GKV-Finanzierungsgesetz leaves the insurance system generally intact, altering the financing ratios for public health insurance (Gesetzliche Krankenversicherung, GKV) and implementing measures incentivizing competition to hold down the costs of private insurance. Meanwhile, the AMNOG focuses on cost containment of pharmaceuticals by leveraging the purchasing and tendering scale of the Krankenkassen.

Different Stages of Evolution in Top Markets

Countries across the globe are at different stages of evolution in the movement from no coverage to universal coverage governed by traditional instruments such as drug approval, discounting, and cost control, toward integrated systems held accountable for outcomes.³³ These renovations of the healthcare payment system and a move toward outcomes-based reimbursement are propelling the industry forward and forcing a rethink of the core business models that serve this industry.

This time efforts can be, and are, aimed at addressing the underlying problem with the healthcare ecosystem overall. This time reform and disruption will work together to shift the basis for payment *from inputs to outcomes realized* and effect on the healthcare system. As socioeconomic pressures increase, as science continues to break new boundaries, and as the new breed of patient-consumers demands higher levels of integrated services and capabilities, the availability of data—genomic, lifestyle, medical, clinical, and scientific—coupled with the methods of using and analyzing that data will compel and enable us all to challenge the traditional norms, satiate needs, and address the rising cost-of-care crisis.

FROM REACTIVE TO PROACTIVE

The move to value- and outcomes-based compensation changes the way the healthcare system positions itself with respect to the patient. Whereas to a large extent, today's healthcare system is reactionary, giving us the health services that result from our persistence, our phone calls, our queuing, our waiting in waiting rooms, and our calls to healthcare insurers, tomorrow's system can be a force for health maintenance and health solutions.

ACO entities in the United States and new public policy in various European countries act as an essential support to the health of specific patient populations within defined services regions. This provides them with the financial means and incentive to focus on maintaining patient health. With the ubiquity of the electronic medical record and technologies, such as the Health Information Exchanges (HIEs) in many countries, there is now the ability to pull data together on individual patients, confederate those data together, develop a picture of a population of patients, and then identify the needs of the individual patient relative to the goals of the overall population.³⁴

In the United States, for example, it is anticipated that close to 95 percent of all patients and patient encounters will be captured in the various physicians' offices, ambulatory facilities, and acute hospitals as part of mechanisms integrated into healthcare reform legislation, incentives, and penalties. To date, more than \$20.9 billion in Medicare EHR Incentive Program payments have been made between May 2011 and July 2015, highlighting the influence and impact this is having on practices and available infrastructure.³⁵ Based on that assessment,

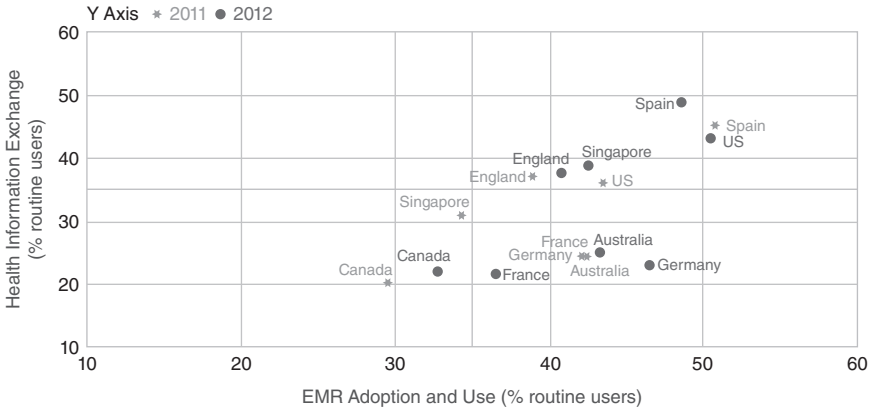


FIGURE 1.5 Countries Are Showing Increases in Connected Health Maturity across Both HIE and EMR

Source: Accenture Doctors Survey, “Connected Health Maturity Index: Total Doctors, 2011–2012.” Accenture analysis from the Doctors Survey: https://www.accenture.com/us-en/~media/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Industries_11/Accenture-Doctors-Survey-US-Country-Profile-Report.pdf#zoom=50; and <https://www.accenture.com/us-en/insight-digital-doctor-is-in.aspx>.

messages and requests can be sent to that patient’s personal care physician and medical practice with specific guidance. In turn, the patient can receive notifications about vaccinations, nutritional counseling, or a request for a formal assessment of the effectiveness of specific chronic disease management therapeutics. There are comparable scenarios for proactive management of more acute patients or patients who are more ill. (Figure 1.5 shows the impressive rate of increase in EMR usage even in 2012.)

Insurers are also becoming active in the area of prevention, doing their part to keep costs under control. Discovery Health, a South Africa–based health insurer, has deployed proactive “Vitality” programs across the United Kingdom, Africa, and Asia that offer loyalty rewards to citizens who eat healthy foods, exercise regularly, and provide links to their Fitbit™ data to demonstrate those healthy habits. The insurer offers lower premiums as incentives for demonstrated healthy behaviors; it also offers rewards on a weekly and monthly basis. While the ultimate goal is to

reduce policy payouts, the result is a more health-conscious population focused on prevention rather than cure.

And critically, the pharmaceutical, biopharmaceutical, medical device, and medical diagnostics companies have an unprecedented opportunity to enable and effect change. In fact, these organizations may hold a critical link between what can be and what will be.

With the external environment changing at an accelerating pace, many organizations are seeing core elements of their operating models diminish in effectiveness, or even begin to act as barriers to strong performance. Nearly every major pharmaceutical, biopharmaceutical, medical device, and medical diagnostic company has the opportunity and responsibility to overhaul its strategy, defining its own future paths on multiple dimensions, and developing coherent responses to the powerful rising trends and focus on better patient and economic outcomes as the new currency.

About the Authors

Jeff Elton, Ph.D., is a Managing Director in Accenture Strategy, and Global Lead of Accenture Predictive Health Intelligence and Accenture Intelligent Patient Solutions, which are focused on advancing real-world analytics and the next generation of business models for healthcare organizations and companies.

Currently a board member of the Massachusetts Biotechnology Council, Jeff has more than 25 years of experience as a global executive and consultant in the healthcare and life sciences field.

Prior to Accenture, Jeff was Senior Vice President of Strategy and Global Chief Operating Officer at Novartis Institutes of BioMedical Research, Inc., founding CEO of an oncology molecular diagnostics and therapeutic pathways company, and founding board member and senior advisor to several early-stage biotechnology companies focused on curing a single



disease or on platform technologies focused on curing or facilitating treatment of diseases including Parkinson's, diabetes, and various forms of cancer.

He has also been a partner with McKinsey & Company and adjunct faculty in health sector management at Boston University's Questrom School of Business. Jeff has a Ph.D. and an MBA from The University of Chicago, Booth School of Business.



Anne O'Riordan is the Global Industry Senior Managing Director of Accenture Life Sciences. Based in China since 2007, she has worked throughout Europe, the United States, and Asia for the past 25 years, helping pharmaceutical, medical technology, and consumer health companies rethink, reshape, and restructure their businesses to deliver better patient outcomes. Specifically, her work has included the transformation of both front and back offices including business and IT strategy, sales and marketing optimization, manufacturing and laboratory process, organization and systems change, R&D transformation, business process outsourcing, application outsourcing, and infrastructure transformation on a global, regional, and local level. Over the past 15-plus years she has published numerous articles on business transformation in the life sciences industry.

Anne has been the global lead of Accenture's Life Sciences business since March 2012. From 2009 to 2012, she led the Life Sciences practice for Accenture in Asia. Before and during that period, from 2006 to 2012, she was the global growth and strategy lead for Accenture's Products Operating Group, a role that involved setting the business strategy, executing mergers and acquisitions, and setting up an internal innovation capability to incubate new business services. Prior to living in Asia, Anne was based in London for nine years and led Accenture's European Health and Life Sciences practice. Anne also spent eight years working with pharmaceutical companies in the U.S. marketplace. She has been a member of the Products Operating Group board since 2006.

Anne has a BSc in Biotechnology as well as a postgraduate degree in financial accounting and management information systems (MIS).

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Nobel Prize in Physiology or Medicine

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—**Deborah Dunsire**, M.D., President and CEO, FORUM Pharmaceuticals

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ISBN 978-1-119-17188-1



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