OPERATIONS MANAGEMENT IN HEALTHCARE

STRATEGY AND PRACTICE

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We dedicate this book to our families for their patience and loving support, and to the many outstanding healthcare professionals with whom we have had the honor of working and who continue to inspire.
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FOREWORD

Some say that healthcare used to be simple and ineffective and relatively safe, but now it is complex, effective, and potentially dangerous. But, that doesn’t mean that today’s healthcare professionals—clinicians and administrators—are left without levers for success. Corinne Karuppan, Nancy Dunlap, and Michael Waldrum, in this artfully accessible textbook, provide a comprehensive and diverse conceptual overview of these levers and reinforce key foundational concepts with an interesting variety of examples, vignettes, and practical problems. Few textbooks give readers both timely thinking about healthcare operations skills and competencies and ideas about how to successfully enact these practices in healthcare delivery organizations (HDOs). Even fewer textbooks are written in such an engaging and readable way so as to provide insight to a wide range of healthcare delivery professionals ranging from executives, leaders, and administrators to clinicians and others on the front lines of care. It is rare to find thought leaders who have studied these issues first hand and have successfully put these ideas into practice. It is rare to find thought leaders who deeply understand the intricacies of healthcare operations and who are committed to making it better. Quality, efficiency, effectiveness, and reliability are no longer elusive goals that HDOs aspire to—they are essential in today’s competitive healthcare environments.

CHANGE NEVER STARTS BECAUSE IT NEVER STOPS

One of this book’s most important contributions is to highlight that although healthcare is undergoing rapid change, the potential for unexpected surprises and untoward consequences remains constant. HDOs are complex systems—inherently and unavoidably hazardous by their own nature. Healthcare, relatively speaking, is a low-reliability industry and is undergoing tremendous social pressure for improvement. In fact, one of the more troubling facts about medical harm is that most mishaps and errors are an indigenous feature of a dynamic, uncertain, and oftentimes vague unfolding work process. Pursuing excellence in healthcare delivery requires the ability to develop sound operations and manage for unexpected surprises. Highly reliable performance, performance that is both safe and high quality, should be the goal. Highly reliable organizations are sensitive to and constantly adjust to small cues or mishaps that, if left unaddressed, could accumulate and interact with other parts of the system, resulting in larger problems. By constantly adapting, tweaking, and solving small problems as they crop up throughout the system, organizations prevent more widespread failures.
Foreword

ANTICIPATION AND RESILIENCE

The authors’ perspective early on in the book is that developing a highly reliable organization that can deliver on the promise of quality care necessarily requires a clear strategy and excellent operations. Strategy plays a key role in coloring and shaping how HDOs view and attempt to enact their futures. Excellent operations require a clear understanding of the nature of the work and how it is accomplished; they also require that organizational members use the tools of science and technology to anticipate and identify the events and occurrences that must not happen, identify all possible causal precursor events or conditions that may lead to them, and then create means for avoiding them. Repeated high performance then is achieved by a lack of unwanted variance in performance (e.g., by doing things just this way through a set of strategies, operating procedures, and routines). The most highly reliable HDOs are obsessed with a logic of anticipation—as demonstrated throughout this textbook—using the most up-to-date analytical tools and methodologies to better anticipate and control the behavior of organizational members to perform effectively and efficiently. Anticipation removes uncertainty and reduces the amount of information that people have to process. It also decreases the chances of memory lapses, judgment errors, or other biases that can contribute to mishaps and failures, provides a pretext for learning, protects individuals against blame, discourages idiosyncratic informal modifications that are not widely disseminated, and provides a focus for any changes and updates in procedures. Anticipation is crucial. But as the authors point out, existing procedures cannot handle what they don’t anticipate. Anticipation is only part of the story. To be truly reliable in the face of unexpected surprises, in addition to their focus on efficient and effective practices, the most highly reliable organizations go a step further. They develop their capabilities for resilience.

Resilience is a capability to respond flexibly in real time, reorganizing resources and taking actions to maintain functioning despite unforeseen surprises, variations, or peripheral failures. It requires organizational mindfulness, a concept discussed in the final chapter of the book. Mindfulness is the capability to become alert and aware of emerging details (such as errors, mishaps, discrepancies) and the associated capability to act swiftly and wisely in response to those details. As the authors carefully highlight in the last chapter, these abilities are generally traced to dynamic organizing around a set of five principles. The hallmark of a highly reliable organization is not that it is error-free but that errors don’t disable it.

BUILDING A CULTURE OF QUALITY AND RELIABILITY

You often hear people in healthcare say: “If we only had a better culture, care around here would be safer and of higher quality.” It is hard to judge the validity of these claims because they are often vague and
they rarely point to one specific thing that is wrong. Changing culture is a long, hard road. And as scholars of organizational culture know, you never start with the idea of changing culture. You start with the issue the organization is facing. You dig down to better understand the problems. What are people doing that you do not want them to do? What are they not doing that you want them to do? Why is this the case? To change culture you have to start by solving the operational problems in front of you. When you get people behaving in new ways, a new culture begins to emerge. The culture takes the form of a new set of expectations and standards (norms) and a new urgency that people live up to them. People act their way into new values, beliefs, attitudes, and habits. Broadly speaking, effective cultures are enabled by organizational leaders through their actions and the operating management systems they create; they are enacted by organizational members when they use existing tools and technologies and put the organization’s operational policies and procedures into practice; and they are continually elaborated, made stronger, and more effective over time as people reflect on performance and other feedback indicative of how things are going. The beauty of this book is that it shows what it takes to build a culture of quality and high reliability, and it also shows how to do it. The guidance provided by Karuppan, Dunlap, and Waldrum on how to accomplish this is invaluable.

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PREFACE

Healthcare organizations are the most complex form of human organization we have ever attempted to manage.

—Peter Drucker

The speed of change in healthcare is unprecedented. New technologies, genetic therapies, and scientific discoveries are transforming the way we care for patients. At the same time, care processes in the exceedingly complex world of healthcare are being reworked. More than ever, those working in this field need to develop the skills to manage operations, acquire the ability to adapt, and the agility to navigate in the new environment. This book is written for anyone working, or aspiring to work, in a healthcare organization. As a result, it addresses the learning needs of a very diverse market: business students enrolled in curricula that emphasize healthcare (undergraduate and graduate levels), healthcare administration/public health students (undergraduate and graduate levels), nursing students (undergraduate and graduate levels), medical students and clinicians, allied health professionals, and administrators.

WHAT IS THE PURPOSE OF THIS BOOK?

Facing pressures to rein in their costs, improve quality, and sustain revenue streams, healthcare organizations have had to rethink the way they deliver care. This is where operations management (OM)—the art and science of making products or providing services—plays an important role. It imparts the knowledge and skills to create value along the care continuum. This book is therefore about how to manage healthcare operations. It combines clinicians’ and administrators’ viewpoints to provide a common platform and framework for building competitive advantage through superior operations.

A strategic perspective is taken by achieving excellence in the four competitive priorities of an operations strategy: quality, cost, on-time and fast delivery, and flexibility. The competitive priorities should not be pursued in isolation. They are indeed interrelated, with excellent quality laying the foundation for performance in the other competitive priorities, and with targeted improvement initiatives having synergistic effects. After reading this book, you will have developed a conceptual mental model of healthcare operations in which all concepts and tools fit together. You will recognize the dangers of pursuing local optimization and appreciate the benefits of aligning the entire operations system with the business strategy. To bring the cultural context to life, we engage you with a series of short stories showcasing the struggles of a fictitious healthcare organization, Bradley Park Hospital (BPH), as it embarks on its journey to becoming a highly reliable organization.
WHAT IS UNIQUE ABOUT THIS BOOK?

The approach taken in this book is very “hands-on.” Not only should you learn the concepts and tools, but you should also be able to apply them in a variety of contexts. As a result, the tools are presented using step-by-step instructions and are fully integrated with the chapter materials. Most of our students have felt that they were able to use these decision aids on the job right away.

To promote learning and reflection on important topics, the book includes the following features:

- **Mind mapping** to integrate all concepts along the competitive priorities. Mind maps are used throughout the book. An example of a mind map is shown here:

```
Quality
Voice of customer

Quality tools

Voice of process

Responsiveness
Ease of making appointment
Reliability
Communication
Empathy
Courtesy
Tangibles

Quality

House of quality

Improvement

Structure

Process

Outcomes

Tangibles

Quality tools

Cost

Tool

Delivery

Flexibility
```

- Use of **icons** to represent the competitive priorities and tool coverage. These icons are placed in the margins to highlight concepts/tools that support competitive priorities.

- Development of an extensive **tool kit**, which is summarized as a table at the end of several chapters and displayed in its entirety in the last chapter.
• Emphasis on measurement and tracking progress by constructing **dashboards** for each competitive priority.

• **Interactive short stories** that involve Bradford Park Hospital are included. Each chapter begins with a performance problem that gets resolved as the protagonists learn to use the chapter material to make the right decisions. The chapter material and the story are intermixed, and the reader is asked to reflect on the issues confronting the characters in the story and propose solutions.

• **Frequently asked questions:** In several chapters, we present boxed features (LET’S TALK!) with our answers to frequently asked questions.

• **Boxed features** (OM in practice!) with real-world implementations of the various concepts and tools covered in the book.

• **Definitions of key terms appear in margins.**

• Different types of **problems/exercises:**
  
  o **WHAT DO YOU REMEMBER?** This section includes basic questions about the material covered in the chapter.
  
  o **SOLVE BPH’S PROBLEMS.** Discuss/solve various problems faced by BPH. These types of exercises are conducive to group/class discussions. Numerous problems involving quantitative decision making are provided in this section. Several data sets similar to those found in an actual hospital are provided in an electronic format to facilitate analysis.
  
  o **THINK OUTSIDE THE BOOK!** This section includes high-level exercises, such as literature reviews, research, essays, field work, projects, team collaboration ideas, and so on.

**HOW IS THIS BOOK ORGANIZED?**

The book is organized in six parts, with a special emphasis on the competitive priorities:

1. **Getting Organized to Pursue Excellence in Healthcare Delivery**
   
   This part covers a brief history of healthcare, the challenges it faces today, and the role of operations in overcoming these challenges. It describes the process of strategy development and functional strategy alignment with the business strategy. As the journey to operations excellence proposed in this book requires launching a series of improvement projects, the concepts and techniques of project management are also addressed here.
2. **Competing on Quality**
   In this section, we cover methodologies, tools, and techniques central to quality improvement. Quality is defined by the customer. Although there are several different customers in healthcare, the ultimate customer is the patient. Patients’ perceptions of quality (the “voice of the customer”) are translated into objective process metrics (the “voice of the process”) using a framework called the “house of quality.” Total quality management, Lean, and Six Sigma principles are described along with tools and statistical process control techniques to uncover problems, direct improvements, and monitor performance.

3. **Competing on Delivery**
   In this section, we build on the quality gains made by a healthcare organization to develop the capabilities necessary to be responsive to patients’ needs. As delays can be life threatening, timeliness is of paramount importance in healthcare. Process analysis and design principles pave the way for a smooth flow of patients, supplies, and information along the care continuum. Techniques to determine optimal capacity levels and to formulate patient-centric schedules are presented.

4. **Competing on Cost**
   As organizations start to provide the right service at the right time, they learn to purge costly waste and expand their efficiencies outside the organization, along the supply chain. This part begins with the tools and techniques to develop accurate forecasts of demand. These forecasts help determine the correct quantity and timing of orders to avoid shortages and excess inventories of critical supplies, both of which can be costly. The importance of selecting the right supplier(s) and establishing mutually beneficial relationships with them is emphasized. A review of cost-accounting principles is provided, and the operations professionals’ influence on cost containment is explained.

5. **Competing on Flexibility**
   The business environment constantly changes. So does the patient mix. Healthcare organizations must be agile enough to respond to change (and even anticipate it!) with little or no penalty in terms of cost, time, and quality. This section explores the multiple facets of flexibility and its drivers. It also highlights the role of technology in facilitating the flow of consistent information about different patients and their care across different providers and organizations.
6. **Connecting the Concepts and Reaping the Rewards**

The final section covers the completion of a successful journey to operations excellence. It mentions the merits of accreditation, but urges organizations to go beyond meeting the standards to become a *highly reliable organization*. The Malcolm Baldrige National Quality Award framework is described, and all the concepts of this book are mapped onto the framework. We connect all the concepts covered in the book, culminating with the development of a comprehensive mind map.

**WHAT SUPPLEMENTAL MATERIALS ARE INCLUDED?**

- Instructor's manual (teaching tips, answers to end-of-chapter questions and problems, answers to discussion questions at the end of Bradley Park Hospital short stories, several project ideas and team assignments, and recommended cases to complement the chapters)
- Test bank (true–false and multiple-choice questions, short answers and problems)
- PowerPoint presentations
- Video tutorials for some of the tools
- Excel files for most problems covered in the chapter materials
- The ExtendSim simulation software is used in two chapters of the book (see inside cover for coupon code to obtain ExtendSim Student version for 10% of list price). ExtendSim models used in this book are available in electronic format.
- Data sets for statistical process control and queuing simulation

**Qualified instructors can obtain all supplemental materials by e-mailing textbook@springerpub.com.**

Your concerns and opinions matter to us! Please contact Corinne Karuppan (ckaruppan@missouristate.edu) to let her know how we can serve you better.
OPERATIONS MANAGEMENT
IN HEALTHCARE
PART I

Getting Organized to Pursue Excellence in Healthcare Delivery
CHAPTER 1
HEALTHCARE: PAST, PRESENT, AND FUTURE

INTRODUCTION AND LEARNING OBJECTIVES

The desire to reform healthcare in the United States is nothing new. Since the early 1900s, the issues of rising medical costs, insufficient health insurance coverage, and disparity in quality care have been the subjects of countless debates. The purpose of this book is certainly not to delve into the politics of healthcare reform, but rather to provide a constructive framework to improve patients’ health through better healthcare operations. To improve, it is necessary to take stock of where we are now and how we got here. This chapter, therefore, covers a short history of healthcare in the United States and presents the challenges of today and tomorrow. It provides an overview of the field of operations management and of its unique contributions to overcoming these challenges.

Finally, this first chapter introduces you to a fictional hospital, Bradley Park Hospital (BPH), whose journey from predicament to success will highlight the lessons of failure, the dynamics of decision making, and the rewards of teamwork. After reading this chapter, you will be able to:

1. List the main events that have shaped healthcare reform over the past century
2. Identify the challenges healthcare faces today
3. Describe operations management and a productive system
4. Identify the inputs and outputs of a healthcare productive system
5. Identify the decisions that operations management professionals make
6. Explain key terms
7. Understand how this textbook is organized
THE PAST: EARLY 20TH CENTURY TO PRESENT

Much has been written about the ills of healthcare organizations, but before we embark on our journey to treat them, we need to understand the events that shaped the environment in which providers operate today. Until the beginning of the 20th century, healthcare was essentially primitive, and medical remedies were quite eccentric: goat glands, electromagnetic bathing fluids, snake oil liniments, and other potions that cured nothing (Box 1.1). Fortunately, this type of care was cheap. In 1900, the cost of healthcare for the average resident in the United States was $5.00 a year, which is equivalent to about $135 today. Medical colleges did exist, but clinical instruction was provided in under-equipped facilities, was limited in scope, and largely ignored scientific research. By the end of the century, science had taken over, modern medicine was born, and organization for a better healthcare system began. A brief history of the U.S. healthcare system is presented in Table 1.1.

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**BOX 1.1 – DID YOU KNOW?**

**Vin Mariani—Coca Wine**

Angelo Mariani, a French chemist, read a paper on the effects of coca and started marketing a “tonic” made from red wine laced with coca extract. To export his wine and compete with other coca drinks sold in the United States, Mariani increased the coca content from 6 mg per fluid ounce to 7.2 milligrams. The elixir was claimed to boost one’s health and vitality. Queen Victoria, Popes Leo XIII and Saint Pius X, Thomas Edison, and Ulysses Grant drank the beverage and publicly endorsed it (Vin Mariani Winery, 2007–2008).

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**TABLE 1.1 – Brief History of the U.S. Healthcare System**

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Time</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Founding of the American Medical Association (AMA)</td>
<td>1847</td>
<td>• Pushed for medical scientific research and improvement of medical education</td>
</tr>
</tbody>
</table>
| Birth of modern medicine       | Early 1900s| • Standards for medical licensure  
|                                |            | • Standards for hospitals  
|                                |            | • Government regulation of pharmaceuticals                             |
| Birth of health insurance      | 1920–1939  | • The Baylor Plan: prepaid program similar to health insurance  
|                                |            | • Farmers’ Union Cooperative Health Association is the first health maintenance organization  
|                                |            | • No national health insurance program, but private plans gain popularity |

(continued)
TABLE 1.1 – Brief History of the U.S. Healthcare System (continued)

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Time</th>
<th>Events</th>
</tr>
</thead>
</table>
| Growth and progress        | 1940–1969    | • Numerous medical and technological breakthroughs: widespread use of penicillin, polio vaccine, pacemakers, first heart transplant, electronic medical records (EMRs)  
                             |              | • Expansion of private insurance                                         
                             |              | • Creation of Medicare and Medicaid programs providing healthcare coverage for the elderly and for the poor, blind, and disabled |
| Looming crisis and rise of HMOs | 1970–1989  | • New diseases emerge                                                  
                             |              | • Fragmented, inefficient system                                        
                             |              | • Rising costs create serious concerns                                  
                             |              | • Expansion of HMOs and changes in payment systems to control costs      |
| Toward universal healthcare | 1990s–to date| • Pharmaceutical companies’ direct-to-consumer advertising, greater use of expensive technologies, and higher demand for drugs and medical services contribute to unsustainable cost increases  
                             |              | • Significant proportion of U.S. population cannot afford health insurance  
                             |              | • Sustainability of Medicare program is questioned                      
                             |              | • Quality of care is questioned                                         
                             |              | • Enactment of the Patient Protection and Affordable Care Act (PPACA): Everyone must be insured or pay a penalty; measures to control costs and improve quality are enforced |

Early 1900s: The Establishment of Standards and Regulations

BOX 1.2 – WORDS OF WISDOM

“Medical ethics, as a branch of general ethics, must rest on the basis of religion and morality” (Code of Medical Ethics, AMA, 1847, p. 83).

Nathan Smith Davis established the AMA in 1847 for the purpose of improving medical education in the United States. AMA’s ambitious goals included the advancement of the science of medicine, the improvement of standards for medical education, the development of a program of medical ethics, and the improvement of the public’s health (Box 1.2). The founding meeting welcomed 250 delegates from 28 states (AMA, 2010). In the early 1900s, the AMA became a dominant national force with about 70,000 physician members, marking the beginning of “organized medicine.” It created the Council on Medical Education to develop standards for medical licensure. Concurrently, Abraham Flexner, an expert on educational practices, wrote a report that prompted the elimination of proprietary schools and established
the biomedical model as the gold standard of medical training (Flexner, 1910). The American College of Surgeons was also active in setting standards for quality care. In 1917, it developed the Minimum Standard for Hospitals and started on-site inspections the next year. This program was the precursor of hospital accreditation. It is thus no wonder that U.S. hospitals began to modernize and use the latest scientific breakthroughs to improve the quality of care (Silverman & Danner, 2000).

The early 1900s also saw the beginning of government regulation of pharmaceutical companies. In 1906, the Pure Food and Drug Act required them to be truthful in their product labeling, and Congress authorized the random sampling of specimens for misbranding and adulteration (Swann, 2001).

To gain the political support of the working class, governments in other developed countries had enacted some sort of social insurance program protecting individuals against the loss of wages during sickness. Progressive reformers in the United States also called for similar protection, but their efforts were thwarted by influential interest groups (physicians, labor, insurance companies, and businesses), fragmented support for social legislation, and the entry of the United States into World War I (Palmer, 1999; Public Broadcasting Service, 2010).

1920–1939: Birth of Health Insurance

The war and improved quality in healthcare increased the demand for services, resulting in higher costs and heightened interest in medical insurance. In 1929, the surge in unpaid medical bills led Baylor Hospital in Dallas, Texas, to institute a prepaid program considered to be the first example of health insurance in the United States. Shortly thereafter, the Farmers’ Union Cooperative Health Association was formed. This pioneering health maintenance organization offered its members comprehensive healthcare. All members paid a flat fee irrespective of their use of the program (Goodridge & Arnquist, 2009). The Great Depression of the 1930s encouraged many other hospitals to follow suit, resulting in more widespread use of prepaid health plans. Not only did these plans protect individuals, but they also gave providers a stable source of income during these difficult economic times (Zhou, 2009). As the healthcare debate shifted toward the cost of medical care, the Committee on the Cost of Medical Care—funded by philanthropic organizations—recommended the creation of community medical centers and the expansion of voluntary, as opposed to compulsory, insurance schemes. The AMA condemned the report for its endorsement of socialized medicine (Box 1.3); (Palmer, 1999; Public Broadcasting Service, 2010).

**Health Maintenance Organization (HMO)**
A type of insurance plan that limits coverage to care from doctors contracting with the HMO.

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**BOX 1.3 – WORDS OF WISDOM**

In this atmosphere, the national health insurance program, which was initially proposed for inclusion in the Social Security Act of 1935, was never seriously discussed for fear that it would threaten the passage of the entire legislation. The proposed National Health Act of 1939 failed to pass as well, but private hospital insurance plans gained popularity (Goodridge & Arnquist, 2009; Public Broadcasting Service, 2010). Around the same time, Congress required that drugs be certified as safe by the Food and Drug Administration before they could be marketed (Swann, 2001).

1940–1969: Growth and Progress

The 1940s witnessed several important developments in healthcare. During World War II, penicillin became available in quantities sufficient to treat Allied soldiers and significantly reduce the incidence and severity of infections (Oatman, 2005). At the end of the war, mass production and lower costs increased its availability to the public (Grossman, 2008).

At the same time, Congress expanded access to healthcare through widespread hospital construction, especially in rural areas, and prohibited discrimination based on race, religion, or nationality. Competing for a limited supply of workers, American employers started offering health benefits, which could be part of collective bargaining. In the early 1950s, it was estimated that 77 million Americans had some form of private insurance (Goodridge & Arnquist, 2009). In the 1950s and 1960s, important medical advances in illness treatment and prevention took place: the polio vaccine (1952), the cardiac pacemaker (1952), coronary angiography (1958), artificial placenta (1961), the measles vaccine (1964), and the first heart transplant (1967), to name a few. In 1951, the American College of Physicians, the American Hospital Association, the AMA, and the Canadian Medical Association joined the American College of Surgeons to create the Joint Commission on Accreditation of Hospitals (JCAH), whose main purpose was to provide voluntary accreditation. Another breakthrough was the advent of electronic medical records. In the early 1960s, Dr. Lawrence L. Weed described the concept of an automated system to store and organize patient medical records. He believed the system would facilitate retrieval of patient information for prompt and accurate decision making, as well as sharing of information among specialists, ultimately resulting in more effective care. A team of physicians and information technology experts at the University of Vermont worked on this concept and delivered the Problem-Oriented Medical Record (POMR) system to the Medical Center Hospital of Vermont in 1970. During the same time period, the Mayo Clinic was also pursuing the development of EMRs (Gungor, 2011).

Although quality improved, spiraling hospital costs made it difficult for the unemployed and the elderly to afford insurance, ultimately leading to the Social Security Amendments of 1965 and the creation of the Medicare and Medicaid programs (Centers for Medicare & Medicaid Services, 2009). Medicare provided healthcare coverage for people aged
65 years and older, and Medicaid was designed to care for the most vulnerable citizens—long-term care for the aged, and healthcare for the blind, disabled, and poor mothers and children. These programs were designed to be “fee-for-service,” which means that each visit or test is paid for separately from a fee schedule. Only hospitals accredited by the JCAH were “deemed” to be in compliance with the Medicare Conditions of Participation and could participate in the Medicare and Medicaid programs.

At the end of the 1960s, growing pains surfaced. The proportion of physician specialists had increased to 69%, intensifying a primary care physician (PCP) shortage (Public Broadcasting Service, 2010). Other areas of concern included the increasing number of unnecessary and expensive tests, disparities of healthcare quality across the United States, a demand for healthcare outstripping supply, greater burden on taxpayers, and inefficiency in hospital administration and facility utilization (Schmeck, 1968).

**1970–1989: Looming Crisis and Rise of HMOs**

During the 1970s, increases in the number of medical schools and their enrollments assuaged the problem of physician shortages. However, the ratio of specialists to PCPs remained high. Although this ratio was unequally distributed across the country, some saw the abundance of qualified specialists as necessary to deal with the ills of a changing society: increase in venereal diseases and drug addiction, as well as emergence of new diseases, such as Legionnaires’ disease and AIDS.

Coverage of these issues in the media kept the population interested in health issues. Boosted by inflation in the economy and growing hospital expenses and profits, the average healthcare expenditures per American more than doubled over the decade. In the search for solutions, the organization of the healthcare system emerged as a culprit. The conglomeration of vast hospital systems, pharmaceutical companies, insurers, and government programs was uncoordinated. This fragmentation engendered a myriad of inefficiencies, such as duplication of technologies, paperwork, and services. Despite agreement that access to affordable healthcare was jeopardized, neither President Nixon’s nor Senator Ted Kennedy’s plans for national health insurance mustered enough political support to get passed. However, federal support for pilot HMO projects and regulation of benefit (including health) plans offered by employers (Employee Retirement Income Security Act—ERISA) were passed into law.

In the 1980s, further expansions of healthcare protection included the compulsory screening and stabilization of all emergency room patients, and under the Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1985, employees who lost their jobs had the option to keep their group health plan for up to 18 months. Healthcare became increasingly privatized as corporations started integrating decentralized healthcare units into a system. As costs continued their uncontrollable ascent, Medicare adopted the diagnosis-related group system, which reimburses hospitals a set amount for treatment of a disease or condition, as insurance companies started denouncing excesses in

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**Fee-for-Service (FFS)**
A payment system in which providers are paid separately for each service (office visit, test, or procedure) they perform.

**Diagnosis-Related Group (DRG)**
A system that classifies hospital cases into groups (e.g., appendectomy) and sets payment rates based on the diagnosis.

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the FFS method of payment to doctors (Goodridge & Arnquist, 2009; Public Broadcasting Service, 2010; Rosenthal, Berndt, Donohue, Frank, & Epstein, 2002). Many physicians started joining HMOs and were paid salaries. To control costs, these HMOs directed patients away from hospitals and to physicians’ offices and ambulatory care centers for an expanding number of services (Coombs, 2005). Although the concept of HMOs capping payments was good in that it incentivized providers to care for patients in the most cost-effective ways, quality issues and denial of some procedures by the HMOs caused concern in some patients, who feared they were getting inferior medical care. Many HMOs ceased to exist.

1990s–to Present: Moving to Comprehensive Reform

**BOX 1.4 – WORDS OF WISDOM**

“Economic goods that can be valued in monetary terms are not the only kinds of good that we value having. Providing certain important goods like healthcare to all members of society has its own value” (Institute of Medicine [IOM], 2003, p. 11).

In the 1990s, President Bill Clinton proposed to reform the U.S. healthcare system with universal healthcare funded through expanded competition among private insurers in a regulated market. Partisan politics, concerns about the cost of the program, a lack of transparency by the administration, and an influential lobby put an end to the effort. During the decade, with new drugs available to treat more conditions, pharmaceutical companies’ spending on direct-to-consumer advertising and promotion to healthcare professionals surged, leading to a dissemination of more information, as well as an increase in demand, and therefore in health expenditures. The growing use of more expensive technology became another source of rising costs. For example, the use of MRI procedures increased by more than 50% between 1993 and 1999. At the end of the 20th century, the number of uninsured Americans had reached 44 million, or 16% of the population. In addition, the spectrum of the baby boomers’ upcoming retirement had started looming, causing individuals to question the sustainability of the Medicare program. To make matters worse, the high costs of healthcare were not commensurate with its quality. In 1999, the IOM sent shockwaves when it released a report placing the number of annual deaths resulting from preventable medical errors between 44,000 and 98,000 (IOM, 1999). A 2000 report by the WHO supported these findings by ranking the U.S. healthcare system 37th out of 191 national healthcare systems (WHO, 2000).

The growth of healthcare costs accelerated during the 2000s, with an increase from 13% of gross domestic product (GDP) in 2000 to 17.9% in 2010. During the Great Recession of 2008–2009, the dismal economy and high rate of job losses contributed to individuals losing their healthcare
coverage. By 2009, the number of uninsured Americans was 49 million (U.S. Census Bureau, 2011). These conditions, along with a Congress slightly more favorable to reform, paved the way for President Obama to sign the Patient Protection and Affordable Care Act—shortened to the Affordable Care Act—into law on March 23, 2010. It was the largest expansion of healthcare regulation and coverage since the implementation of Medicare and Medicaid in 1965. The law required all citizens to be covered by health insurance (private or government programs), obligated insurance companies to cover all applicants (regardless of preexisting conditions), and provided assistance for the purchase of health insurance through tax subsidies for eligible participants. Provisions within the ACA included inducements for the states to expand Medicaid to all Americans under the age of 65 years with incomes at or below 133% of the federal poverty level. Initially, the law put federal funding at risk for states opting to forgo Medicaid expansion. In 2012, the U.S. Supreme Court ruled that this practice would be illegal, which made Medicaid expansion optional for each state (Hansen, 2014). Nevertheless, by early 2015, the rate of uninsured U.S. adults had dropped to a historic low of 12.9%, and 16.9 million people had gained coverage (Carman, Eibner, & Paddock, 2015; J. Levy, 2015).

The law also included measures designed to improve the quality and delivery of care: free prevention services, better coordination of patient care through transition programs for seniors and bundled payments, quality reporting, payments based on value and not volume, and so forth. The Congressional Budget Office projected that the ACA would decrease future governmental healthcare expenditures, but the ACA’s budgetary effects are dependent on a myriad of factors (e.g., new regulations, state of the economy, changes in the tax code), making it impossible to assess the net effect of the law over an extended period of time (Congressional Budget Office, 2014). It is also fair to say that the ACA introduced a new series of regulations in one of the industries that was already highly regulated (Box 1.5). Since the ACA was signed into law, there have been ongoing political and legal battles to overturn or revise it. As of 2015, none of these activities has been successful in bringing about substantive change to the law. Despite the battles, there is general consensus that transformation of the U.S. healthcare industry is needed. This consensus is driven by acceptance that the U.S. healthcare system has challenges that make the status quo unacceptable and unsustainable.

**Affordable Care Act (ACA)**

A law that requires all citizens to be covered by health insurance and obligates insurance companies to cover all applicants, regardless of preexisting conditions.

**BOX 1.5 – DID YOU KNOW?**

**The Rise of Regulations**

For more than a century, federal and local governments have enacted laws and regulations covering all aspects of the complex and fragmented components of the healthcare industry. These regulations govern issues such as how patients are treated and transferred (Emergency Medical Treatment and Active Labor Act [EMTALA]), how hospitals

(continued)
interact with their physicians (Stark law), how health information is protected (Health Insurance Portability and Accountability Act [HIPAA]), how delivery organizations provide care and are reimbursed (Centers for Medicare & Medicaid Services [CMS], ACA), how information technology is overseen (Health Information Technology for Economic and Clinical Health Act [HITECH Act]), and so forth. The Joint Commission has expanded its survey process to non-hospital-based services. Many payers now require accreditation as a condition for reimbursement.

Despite the legitimate justification for reforms and regulations, reform is significantly modified by the political process. This has led to a piecemeal approach, fragmentation of efforts, and increased complexity. The growth in regulations has been likened by some to a hidden tax that costs billions (Conover, 2004). In this environment, it is largely incumbent on the individual communities to persuade state and local policymakers to provide some regulatory flexibility allowing creative solutions to be implemented. For example, the Arkansas state legislature passed exemptions from legal and financial requirements for collaboratives developing community-based health plans (The National Policy Consensus Center, 2004).

THE PRESENT: CHALLENGES

How “toxic” is the combination mentioned by Porter and Teisberg in Box 1.6? How high are the costs? How inconsistent is the quality? How untimely and limited is access to services? These are legitimate questions that need to be answered before offering solutions.

How High Are the Costs?
At approximately $9,000 per capita, the United States spends more on healthcare than any other industrialized country (Figure 1.1). Total healthcare expenditure reached $2.9 trillion in 2013, or 17.4% of the GDP (Centers for Disease Control and Prevention, 2015). These numbers are projected to increase to $4.6 trillion and 19.8%, respectively, by 2020 (CMS, 2012a, 2013). The growth in expenditures is driven by several factors, including the greater use of expensive healthcare technologies, trauma and injuries in young people, the aging of overweight Americans, rising drug costs, and waste.
Healthcare Technologies

The United States is a wealthy nation that can afford to spend money (and it does!) on healthcare technologies (Kaiser Family Foundation, 2012b). Several healthcare economists have claimed that the use of new medical technologies and increased use of older ones contribute between 40% to 50% of the increase in healthcare costs. If so, technology would be a primary target for cost containment (Smith, Newhouse, & Freeland, 2009). This is a difficult argument to make. Technological innovation has been heralded as a source of pride for the United States for decades. Patients want it, doctors acquire the skills to use it, and the industry that produces it posts enviable earnings. On the political side, both conservatives and liberals oppose controlling these costs, either because they see it as a threat to market freedom or because they value boundless scientific progress (Callahan, 2008).

Expenditures in health information technology have increased at a fast pace as well. In 2009, the Health Information Technology for Economic and Clinical Health Act provided incentive payments to adopt electronic health records and achieve “meaningful use.” This intent was strengthened in the ACA of 2010. As a result, providers, payers, and physician groups are investing billions of dollars in healthcare information technology (HIT). Early cost–benefit analyses suggested that HIT was having a positive impact on effectiveness and efficiency (Buntin, Burke, Hoaglin, & Blumenthal, 2011). More recent studies show a more disappointing performance of health IT as a result of sluggish adoption of health IT systems coupled with

Meaningful Use
A set of standards defined by the CMS that regulates the use of electronic health records and allows providers to earn incentives by meeting preestablished criteria.

Note: Per capita health expenditures are for 2013, except Australia for which 2012 data are the latest available. Chart uses purchasing power parities to convert data into U.S. dollars.
In a nutshell, advances in both medical technology and health IT have obvious benefits but are plagued by implementation problems and are costly.

**Trauma and Injuries in Young People**

A study by the IOM and the National Research Council found that deaths before the age of 50 years account for approximately two thirds of the difference in life expectancy between males in the United States and males in 16 other developed countries, and about one third of the difference for females. The countries in the analysis included Canada, Japan, Australia, France, Germany, and Spain. Car accidents, gun violence, and drug overdoses were major contributors to years of life lost by Americans younger than age 50 years. Traumatic brain injury is a leading cause of death and lifelong disability among this age group. For a survivor, the lifetime cost can reach $4 million (Brain Injury Alliance of Utah, 2016).

**Aging of Overweight Americans**

The first wave of baby boomers turned 65 in 2010. Along with older Americans, they account for the greatest proportion in healthcare spending. With age comes a greater number of diseases and therefore a growing demand for healthcare services. Some of the most common health issues among the elderly are heart disease, diabetes, arthritis, dementia, and respiratory problems. These are chronic conditions that require long-term care and are therefore costly to treat. However, an aging demographic by itself does not explain the vast differences in healthcare spending between the United States and other industrialized countries. In fact, the U.S. population is relatively young compared to those in the industrialized countries listed in Figure 1.1. In Germany and Japan, more than 20% of the population was 65 years and over in 2009, compared to only 13% in the United States (Squires, 2012). The higher spending for older adults in the United States can be attributed to the higher prevalence of obesity among this group. About 35% of adults aged 65 years and over are obese (Fakhouri, Ogden, Carroll, Kit, & Flegal, 2012). Healthcare costs for overweight elderly are 6% to 17% higher than for those within a normal weight range (Yang & Hall, 2008). Medical progress has enabled the system to treat many of the chronically ill who might have otherwise died years ago, but this progress will not solve Medicare’s troubles unless similar leaps are made on the prevention of chronic diseases in the first place (Kaiser Family Foundation, 2012b; S. Levy, 2013; Pittman, 2012).

**Rising Drug Costs**

In 2009, drug manufacturers started raising their prices at the fastest rate seen in years in order to boost their profits before Congress passed the ACA as a means of curbing spending (Wilson, 2009). In reality, prices have been rising ever since. In 2012, drug prices rose at twice the inflation rate, both as a result of high research and development costs and advertising expenses. These steep increases have offset the savings
associated with the greater use of generic drugs (Cauchon, 2013). With increased demand from the newly insured post-ACA, spending growth is expected to intensify to 8.8%, and then to 6.6% per year from 2015 to 2021 (CMS, 2012a).

Waste

It is estimated that about 20% of the total health expenditures originate from various inefficiencies such as unnecessary treatments, poor care coordination, administrative complexity (Box 1.7), and fraud and abuse. Unnecessary treatments and tests—overuse—are the major culprits in wasteful spending and have prompted the creation of the Choosing Wisely® initiative to reduce overuse. Leading medical societies participated in this effort and released lists of tests and procedures that are sometimes unnecessary.

Chronic medical conditions often involve multiple illnesses with multiple needs across care delivery sites. Poor coordination of patient transfers may have cost between $25 billion and $45 billion in unnecessary spending in 2011 as a result of avoidable readmissions, complications, and test duplications. Differences in computer systems, lack of accountability for failing to send inpatient records to outpatient physicians upon discharge, and payment policies that do not encourage team collaboration for patient care are mainly to blame. The ACA has several provisions to alleviate these problems: increased Medicare reimbursements for performance measures addressing discharge, 1% reimbursement penalties to hospitals with high readmission rates, and increased use of EMRs to facilitate care coordination among providers (Health Policy Brief, 2012a).

**BOX 1.7 – WORDS OF WISDOM**

“On an average day in 1968, U.S. hospitals employed 435,100 managers and clerks to assist the care of 1,378,000 inpatients. By 1990, the number of patients had fallen to 853,000, while the number of administrators has risen to 1,221,600” (Hurley, 1993, p. 58).

The administrative complexity of the U.S. healthcare system further exacerbates the inefficiencies discussed earlier. It is rooted in (Ivey, 2006):

- A mix of multiple payers and quasicustomized insurance products with different coverage structures, deductibles, and copayments. For a provider, negotiating a contract with an insurer or plan sponsor consumes an average of 5.5 hours. For a large medical group handling more than 100 contracts, this could result in several hundred million dollars in annual costs.

- A plurality of payment mechanisms making it difficult for the provider to standardize its claim filing procedures: capitation
(monthly payment allocated to patient), FFS (number of services performed), DRG (payment based on a set of services associated with a diagnosis), per diem payment (payment made by payer for each day patient spends at the hospital) schemes, and so forth.

- The coexistence of multiple standards for coding, prescribing medicine, credentialing, quality metrics, and so on. Not only does this create confusion, but it also results in errors and duplication of work.
- Federal and state regulations which create a complex and costly administrative burden that costs billions (Conover, 2004).

**Fraud** involves deceit and misrepresentation to obtain something of value without being entitled to it. Examples include knowingly billing for services or supplies not provided, altering claims, and kickbacks. **Abuse** occurs when providers or suppliers follow improper practices that result in unnecessary costs or payments, such as misusing codes on claims, overcharging for services or supplies, and billing for medically unnecessary treatments or procedures (see “overuse” discussed earlier; CMS, 2012b). No one knows how much fraud and abuse in healthcare actually cost. In 2011, fraud and abuse resulted in Medicare and Medicaid payments in excess of $98 billion (Berwick & Hack Barth, 2012). Both programs process millions of claims each day and strive for rapid reimbursements at the expense of claim inspection. This situation makes them easy prey to fraud and abuse. Under the ACA, CMS is better equipped to prevent fraud from both providers and enrollees: One automated system detects dubious claims, another screens out ineligible providers or suppliers before they are enrolled or validated, and a bidding program for suppliers of medical equipment establishes a higher standard for entry (Health Policy Brief, 2012b).

We often say that we get what we pay for, implying that there is a positive correlation between costs and quality. As the United States ranks on top as far as healthcare costs are concerned, you would therefore expect the same for quality. Unfortunately, the facts paint a different picture, as explained in the next section.

**How Inadequate Is the Quality?**

Despite the large expenditures for healthcare, there is wide recognition of a “quality crisis.” In 2006–2007, the United States had the highest mortality rate amenable to healthcare among 16 high-income nations (Doe, 2009; Nolte & McKee, 2011). The Commonwealth Fund’s national scorecard (2011) indicated that in the area of quality, the United States scored an average of 75 compared to 100, the benchmark set by top performers domestically and abroad. Notable quality indicators used in this report were effectiveness, safety, coordination, and patient centeredness (Figure 1.2).
Effectiveness
The provision of services based on scientific knowledge to all who could benefit; doing it right the first time.

Effectiveness

With an emphasis on public reporting, the country has made progress in the control of chronic conditions, such as blood pressure, in hospitals’ use of evidence-based treatments for heart conditions and pneumonia, and in the prevention of surgical infections. Unfortunately, there remain deficiencies in the areas of primary and mental care. In 2008, too few adult Americans received the proper immunizations, cancer screenings, and blood pressure and cholesterol tests. In some states, only 40% of young children received all recommended immunizations against transmittable diseases (The Commonwealth Fund, 2011). As for mental health, more than one third of adults and 40% of children did not receive the care they needed. The lack of mental health services has even resulted in prisons sometimes being used as the largest mental health providers in their states (O’Shea, 2012). The ACA attempted to remedy some of these problems by requiring that, in 2010, new insurance plans cover 16 preventive services for adults, 22 specifically for women, and 27 for children without requiring copayments or deductibles (HealthCare.gov, 2010). By forbidding the exclusion of people with preexisting conditions and allowing young people to remain on their parents’ health insurance, it also allowed access to mental health services that might have otherwise been denied (Friedman, 2012).

Disparities in effectiveness often follow racial and ethnic lines. In general, minorities receive lower quality care and experience worse outcomes than do their White counterparts, even after controlling for factors such as insurance coverage, socioeconomic status, and comorbidities (IOM, 2002). The reasons for these disparities are multifaceted, but limited English proficiency, lack of access to care in general and to minority healthcare providers in particular, and prevalence of chronic conditions appear to be big contributors. Further
disparities are observed with respect to income, age, location, gender, disability status, and sexual orientation. Not only do disparities in healthcare end up costing the economy an excess of $300 billion annually (LaVeist, Gaskin, & Richard, 2009), but they also impede improvements in overall healthcare quality and population health. As our society becomes more diverse, it is imperative that disparities be addressed seriously. Provisions of the ACA target disparity problems by expanding vulnerable populations’ access to care, promoting cultural competence in healthcare settings, and funding disparity research efforts (Kaiser Family Foundation, 2012a).

Safety

Since the IOM’s (1999) report, To Err Is Human, patient safety has been a priority in healthcare. Nevertheless, the incidence of medical errors remains high, with an updated estimate placing the annual number of deaths associated with preventable harm in hospitals between 210,000 and 400,000 (James, 2013). Pressure ulcers, postoperative infections, and persistent pain following back or leg surgeries are associated with the most frequent errors and are among the costliest to treat (Van Den Bos et al., 2011). Also common are adverse drug events (prescription of contraindicated drugs and/or poor monitoring) and the unwarranted use of antibiotics. Yet, of all the adverse medical events, almost one half are preventable (de Vries, Ramrattan, Smorenburg, Gouma, & Boermeester, 2008).

Given the stakes and the potential for improvement, there have been several initiatives to increase patient safety. Most notably, the Institute for Healthcare Improvement (IHI) launched The 100,000 Lives Campaign in 2005 with the ambitious goal to prevent 100,000 avoidable inpatient deaths over an 18-month period. Hundreds of healthcare organizations joined the effort, and the results beat expectations with approximately 122,300 lives saved (Box 1.8). The success of the initiative prompted the IHI to follow up with The 5 Million Lives Campaign (Institute for Healthcare Improvement, 2006). Whether the campaign reached its objective of saving 5 million lives remains unclear. What is certain, however, is that it provided a blueprint for ongoing improvements in reducing harm to patients.

**BOX 1.8 – WORDS OF WISDOM**

“The names of the patients whose lives we save can never be known. Our contribution will be what did not happen to them” (Donald M. Berwick, MD, MPP; Institute for Healthcare Improvement [n.d., p. 1]).

Coordination

Care coordination is not a measure of quality per se, but it is a determinant of quality. Earlier, we mentioned that poor care coordination resulted in costly inefficiencies. It also has detrimental effects on quality. The fragmented care delivery system, the lack of...
communication among providers across and within sites, and payment structures unfavorable to coordinated care cause complications, treatment delays, drug overdoses or interactions, and lack of follow-ups, discharge plans, and medication reviews (California Healthcare Foundation, 2007). There have been several initiatives to improve care coordination. Most rest on the strengthening of primary care, whereby a physician, physician assistant, or nurse practitioner provides ongoing care to patients and coordinates their care according to a preestablished service plan (Craig, Eby, & Whittington, 2011).

**Patient Centeredness**

**Patient centeredness** “encompasses qualities of compassion, empathy, and responsiveness to the needs, values, and expressed preferences of the individual patient” (IOM, 2001, p. 48). A major component of patient centeredness is clear communication. It is vital that the provider understands and addresses the patient’s needs and that the patient understands the provider’s diagnosis and recommendations for treatment. According to The Commonwealth Fund’s report (2011), U.S. providers’ performance on listening to patients, communicating with them, and respecting their opinions was 25% lower than the benchmark. Differences in language, culture, and levels of patients’ health literacy, which are prominent in a melting pot like the United States, may explain the score gap. Nevertheless, convincing evidence that patient centeredness improves patients’ health status and reduces costs by minimizing the overuse of medical care makes progress in this area an imperative (Berry, Seiders, & Wilder, 2003; Stewart et al., 2000). As a result, the ACA established the Patient-Centered Outcomes Research Institute (PCORI) to sponsor clinical effectiveness research with a patient-centeredness perspective (Selby, Beal, & Frank, 2012). Its purpose is to study treatments, outcome preferences, and information needs for different patient populations.

In the next decade, multiple initiatives will seek progress on effectiveness, safety, coordination, and patient centeredness. Their success will be linked to patients’ timely access to care itself.

**How Untimely Is Access?**

We all think of timeliness in terms of time spent waiting in a doctor’s office or in the emergency department of a hospital as not being too long. However, timeliness also means that the intervals between the identification of a medical problem and the specific tests or treatment needed are done promptly. In an international survey of patients and PCPs in seven industrialized countries, the U.S. healthcare system ranked fifth overall in timeliness of care, behind the Netherlands, Germany, New Zealand, and the United Kingdom (Davis, Schoen, & Stremikis, 2010). Although insured patients have rapid access to specialists, they—as well as the uninsured—have more difficulty getting timely appointments with PCPs, especially after hours.

Timeliness of care is so closely related to quality of care that the IOM included it in its list of six objectives for quality improvement (IOM, 2001). Indeed, timeliness of care determines many health outcomes.
The mortality and long-term disability from a stroke is influenced by the time from the onset of symptoms to implementation of successful therapy (Schellinger & Warach, 2004). Similarly, the time to care for patients with heart attacks, trauma, and severe infections may determine whether the patient lives or dies (Houck & Bratzler, 2005). Even timeliness of outpatient care may govern the outcome from many chronic conditions. A popular model of access to care (Penchansky & Thomas, 1981) identifies five primary dimensions of access: availability, acceptability, affordability, accommodation, and accessibility.

**Availability**

**Availability** refers to the supply of providers in relation to the demand for their services. Shortages of providers certainly limit access. Health professionals shortage areas (HPSAs) are “designated as having shortages of primary medical care, dental or mental health providers” (Health Resources and Services Administration, 2013; http://datawarehouse.hrsa.gov/tools/analyzers/hpsafind.aspx). In 2013, there were approximately 5,900 primary care HPSAs, 4,600 dental HPSAs, and 3,800 mental HPSAs across the United States. The shortage/access problem is especially persistent in rural counties, where the supply of healthcare providers is the lowest, with less than half the number of PCPs per 100,000 people than in urban areas. By expanding coverage to millions of new American patients, the ACA may well exacerbate the impact of the shortage, at least in the short run. The Act includes legislation to improve access to oral care for children and to mental health services, to expand primary care residency programs, to add a significant number of new providers, and to increase the number of community health centers. It also promotes the use of nurse practitioners, physician assistants, and dental therapists for basic services. However, given the long time span needed to train new healthcare professionals, the imbalance between demand and supply is likely to increase before slowly subsiding (Childress, 2012; Cullen, Ranji, & Salganicoff, 2011).

**Acceptability**

According to Dillip et al. (2012), acceptability is the neglected dimension of access to healthcare. **Acceptability** represents “the relationship of clients’ attitudes about personal and practice characteristics of providers to the actual characteristics of existing providers, as well as to provider attitudes about acceptable personal characteristics of clients” (Penchansky & Thomas, 1981, p. 129). As such, it captures the notion of fit between patients and providers. It could involve insurance acceptability issues and/or negative perceptions related to the patient–provider interaction. Many factors affect these perceptions: gender, ethnicity, values, healthcare facility type or neighborhood, and so on. Lack of acceptability is a prevalent barrier to access among some racial minority groups as well as sicker, low-income individuals between the ages of 26 and 54 (Kullgren, McLaughlin, Mitra, & Armstrong, 2012). The ACA attempts to remedy this issue by requiring that healthcare facilities and providers be consistent with medical ethics and various cultural traditions (Gable, 2011). It funds projects aimed at improving
quality of care and outcomes through an integration of race, culture, and language into the health system structure. It also introduces incentives for improving diversity among healthcare professionals and developing cultural competence within the workforce (Andrulis, Siddiqui, Purtle, & Duchon, 2010).

**Affordability**

Affordability refers to patients’ ability to pay for healthcare services, which is tied to their insurance status. Lack of insurance or high out-of-pocket expenses are often cited as the most important reasons for untimely access to care. Even insured patients may find their access to services constrained by the design of their insurance plan. The cost of coverage is commensurate with the cost of healthcare. In other words, it is extremely high. As a result, plans with limited benefits as well as high deductibles and copayments have become commonplace. Patients covered by such plans are known as “underinsured” and, to a lesser extent, face similar barriers to access as do the uninsured.

This is true for both patients with private or public coverage. In fact, compared to individuals with private insurance, Medicaid beneficiaries face more barriers to timely primary care and use the emergency department more often for routine care. This is partly the result of PCPs’ reluctance to see Medicaid patients because the program used to reimburse them about 59% of the amount paid for Medicare patients. Provisions of the ACA mandated an increase in Medicaid payments to Medicare levels. The match was to incentivize PCPs to accept the millions of new patients the Act would add to the Medicaid program. However, the success of this rate increase is far from certain. First, the program’s provision sunset in 2015, which created uncertainty about future reimbursement levels. Second, it excluded nurse practitioners, whose presence in primary care delivery is expected to increase significantly. Whether nurse practitioners will be willing to treat more Medicaid patients at the low rate cannot be taken for granted (Cheung, Wiler, Lowe, & Ginde, 2012).

**Accommodation and Accessibility**

Accommodation involves patients’ perceptions of the ease with which they can schedule and obtain care on a timely basis and at their convenience. Accessibility refers to the geographical proximity of the healthcare facility and easy access by transportation. Long waiting times, lack of transportation to get to a doctor’s appointment, difficulty in making appointments and/or taking time off work, and other responsibilities are all major hindrances to getting timely care. These issues were highlighted in a report from the Centers for Disease Control and Prevention (CDC; Gindi, Cohen, & Kirzinger, 2012), which indicated that 79% of the adults aged 18 to 64 had visited the emergency room because of lack of access to other providers. The main reasons were (a) the doctor’s office was not open, (b) there was no other place to go where they lived, (c) the emergency room was the closest provider, and (d) they thought only a hospital could help them. As mentioned before, the ACA attempts to increase the supply of
providers in medically underserved areas, but it will take time for these provisions to have an impact on accessibility. As for accommodation, much of the improvement depends on the management of the providers’ facilities. The average patient’s wait time to see a provider is 22 minutes, and patient satisfaction decreases substantially for each 5 minutes of waiting time. Solutions include better scheduling through (a) the addition of “catch-up slots,” (b) leaving a large portion of the schedule open for same-day appointments rather than overbooking far in advance, (c) studying the volume of patients throughout the year to identify patterns, (d) measuring the time elapsed between patient arrival and departure to identify bottlenecks, (e) conducting follow-ups via phone, e-mail, or video chat, and (f) preregistering on the phone or online, rather than at the provider’s facility (Beck, 2010).

The current crisis faced by the U.S. healthcare system requires sweeping solutions from its major stakeholders. Patients must be more actively involved in their health and well-being. Policymakers must create an environment favorable to the pursuit of uniform quality and cost control. Providers must reevaluate their ways of delivering care and strive for both effectiveness (doing it right the first time) and efficiency (doing it with minimum waste of time and resources). Insurers must acknowledge and support providers’ performance. Change will not happen overnight. In fact, it might be overly optimistic to believe that all parties will synchronize their efforts and develop congruent plans in the near future. Currently, the best hopes for improvement lie with providers because they are the best positioned to critically analyze their operations and steer them on the path to excellence. What does it take to get there? And what do we mean by operations? These questions are the basic premises of this book.

WHAT IS OPERATIONS MANAGEMENT?

Operations, in general, represent the core activities of an organization. They are what the business is essentially about. What is the first thing that comes to your mind when you hear “General Motors”? They make cars. The post office? It delivers mail and packages. A hospital? It provides healthcare to patients. Of course, these different organizations provide a variety of other services. For example, General Motors is involved in parts service and sales as well as financing. These are support services that complement the core activities. They enhance the core offering and make it a more attractive “package” to customers. Similarly, a health system may offer health plans, provide education, and fund research and development projects. Again, these are complementary services that enrich the core of healthcare delivery.

Without demand (sales) and its fulfillment (operations), there would simply be no business. Therefore, sales and operations are considered the “life lines” of the business. This paramount role played by operations in a business organization makes the quality of their management a prerequisite to survival and competitiveness.

So, what does managing operations entail? Operations management (OM) is the practice of designing, running, and controlling the most
effective and efficient systems for the production of products or provision of services. A productive system involves the transformation of inputs into outputs of greater value (Figure 1.3). An efficient transformation is achieved when the output is produced with the least amount of resources and waste. In a way, operations management is the “black box”—or management of the transformation process—that can unlock excellence in care delivery. Nevertheless, the use of OM is still a novelty in the healthcare industry (Box 1.9).

The operations manager is the professional who understands and applies the knowledge and tools of operations management to transform inputs into outputs. This is a vital and important discipline with high stakes. For example, no one disputes that Toyota had established itself as a leader in automotive quality in the 1980s and 1990s. Toyota had well-trained employees, the latest equipment, a reputation for managerial excellence, extensive capital, and so on. Yet, several of its vehicles produced in 2007–2009 were subject to one of the biggest car recalls in automotive history because of faulty window switches. The source of the problem: an operations decision to share components on a wide range of vehicles for greater economies of scale. The same pertains
to healthcare. At Johns Hopkins Hospital, one of the most renowned hospitals in the world with the best trained clinicians and state-of-the-art medical technologies, the 10-day rate of central line infections used to be 11%. It remained high until Dr. Peter Pronovost, one of the intensive care unit physicians, created new operational procedures. He developed a checklist that included all steps to prevent infections and granted nurses the authority to intervene if physicians missed a step on the checklist. The rate dropped to zero (Gawande, 2007).

To ensure that the transformation processes are carried out to produce the desired outputs, data collection at various stages of the healthcare delivery process should take place. These measurements (feedback) should be gauged against preestablished standards to determine whether corrective action is needed at the input and/or transformation process levels (Figure 1.3). For example, patients’ complaints about long wait times in the emergency department may lead to changes in triage procedures and reallocation of resources. Similarly, poor utilization of hospitalists’ time during their rounds may result in floor redesign to minimize steps between patient rooms.

**The Ubiquity of Operations Management**

The physiological transformation process involving the care of a sick patient is supported by a myriad of other transformation processes throughout the healthcare organization: registering patients, ordering medical supplies and storing them, billing, filing insurance claims, training employees, preparing financial statements, archiving medical records, housekeeping, and so on (Figure 1.4). Every activity in a business organization is part of a process, which should be designed and managed to deliver value to its customer. Therefore, whether or not you plan to work in the field of operations management, there is a compelling reason to learn more about it. Because it permeates all

![FIGURE 1.4 – Processes in a hospital.](image-url)

Adapted from Amberg and Graber (1996).
areas of a business, operations management can be the key to reducing fragmentation among the various parts of a business and offering a unified “way of doing things” that is both customer focused and efficiency driven. Therefore, knowledge of operations management provides a broad perspective of the organization that facilitates collaboration and cooperation. For example, rifts between physicians and administrators are quite common as physicians often view administrators’ cost-cutting initiatives as threats to the quality of care. The modern operations management approach called “Lean” (covered in Chapter 6) has been a catalyst as it positions error reduction (better quality) and smarter process design as major drivers of cost reduction. This approach brings both groups together. As highlighted in Box 1.10, physicians subscribe to it when they see that it provides opportunities for better patient care; administrators appreciate its emphasis on waste elimination.

**BOX 1.10 – OM IN PRACTICE!**

The Virginia Mason Production System

In 2001, Virginia Mason Medical Center (VMMC) in Seattle, Washington, formed a physician compact listing the physicians’ and organization’s new goals: becoming the quality leader through patient-centered care and evidence-based practice, emphasizing teamwork, and embracing change. To achieve these goals, they turned to the Toyota Production System (TPS). Toyota and VMMC essentially wanted the same things: a customer focus, the pursuit of perfection, and a dedication to good employee relations.

After seeing TPS in action in Japan, they began envisioning the Virginia Mason Production System (VMPS) modeled after Toyota’s. To encourage the staff to participate in process improvements, they guaranteed that no layoffs would occur as a result of newly found efficiencies. They implemented value-stream mapping to chart various processes and identify waste. This was the first step undertaken in the rapid process improvement workshops geared toward eliminating waste, improving processes, increasing efficiency, and improving productivity in a given unit. They organized the workplace according to the 5S system (sort, simplify, sweep, standardize, and self-discipline) to “unclutter” the system and improve the visibility of potential problems. They implemented the 3P system (production, preparation, process) to redesign the layout according to flow. All employees were encouraged to participate in the “every day Lean idea system” to reduce waste in their jobs and create value for the patient. The patient safety alert (PSA) system was inspired by Toyota’s andon cords to stop the line when a serious mistake had occurred. Similarly, PSA empowered front-line employees to signal when a mistake had occurred or a safety problem had emerged, leading to the resolution of the problem onsite. Finally, they instituted the use of bundles or checklists to prevent infections or improve care.

The adaptation of TPS into VMPS was heralded as a success in terms of cost savings and quality improvement. Now legendary, VMMC’s practices have been copied by hospitals across the country.
Decision Making in Operations Management

At the highest level, a vice president of operations is concerned with scanning the environment, developing an operations strategy (the long-term direction of the operations function), and monitoring the operations function’s performance in achieving its strategic goals. At the lower levels, OM professionals make decisions directly related to the production of goods or the provision of services (Slack, Chambers, & Johnston, 2010). These decisions involve:

- WHAT needs to be done?
- WHY does it need to be done?
- WHO needs to do it?
- WHEN does it need to be done? How often? In what sequence?
- WHERE should it be done?
- HOW should it be done? What are the best methods to deliver the service(s)? What equipment should be used?
- HOW MUCH does it cost? What is the amount of resources needed?

Several alternatives are available for these decisions, and none emerge as the clear choice in all situations. Rather, the OM professional has to consider the internal constraints in the organization, as well as the repercussions that one informed decision has on another. For instance, deciding to use robot-like hydrogen peroxide vaporizers to disinfect hospital rooms would help destroy superbugs, but the devices cost more than $40,000 (Johns Hopkins Medicine, 2012), which limits their adoption rate across the country. Table 1.2 displays a vast range of decisions, from strategic to tactical, that vice presidents of operations and OM professionals make to ensure the competitiveness of a healthcare organization.

### TABLE 1.2 – Operations Decisions

<table>
<thead>
<tr>
<th>Examples of Operations Management Decisions</th>
<th>Operations Management Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do healthcare organizations use operations to build a competitive advantage?</td>
<td>Healthcare operations strategy</td>
</tr>
<tr>
<td>How does one plan major changes in &quot;the way of doing things&quot;? Who should be involved? How do we prevent failure?</td>
<td>Project management</td>
</tr>
<tr>
<td>How do we measure quality? When and how do we conduct inspections? What tools do we use to monitor quality performance? What do we do when we detect problems?</td>
<td>Quality management and statistical process control</td>
</tr>
<tr>
<td>How do we know that our processes can meet our objectives? How do we reduce variation in performance? Where can we eliminate waste?</td>
<td>Six Sigma and Lean</td>
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</table>

(continued)
TABLE 1.2 – Operations Decisions (continued)

<table>
<thead>
<tr>
<th>Examples of Operations Management Decisions</th>
<th>Operations Management Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do we measure costs? How do we compute value? How do we control costs without affecting quality?</td>
<td>Cost management</td>
</tr>
<tr>
<td>What is the demand for healthcare services? How do we make sure that supplies are available to cover the demand without inflating costs? Which suppliers are we going to select?</td>
<td>Managing the supply chain</td>
</tr>
<tr>
<td>How do we design processes that add value and ensure a smooth flow? Do we need to change the layout of our facility? What are the cost savings?</td>
<td>Process analysis and design</td>
</tr>
<tr>
<td>How much workforce do we need to meet the demand for our services? How much will it cost?</td>
<td>Balancing demand and capacity</td>
</tr>
<tr>
<td>When and how do we schedule work? How about patients?</td>
<td>Scheduling</td>
</tr>
<tr>
<td>How do we adopt to expected or even sudden changes? What are the limitations?</td>
<td>Designing flexible systems</td>
</tr>
<tr>
<td>How can IT improve healthcare operations? Will it support decision making effectively? What are the costs versus benefits?</td>
<td>IT/operations integration</td>
</tr>
</tbody>
</table>

PURPOSE AND FOCUS OF THIS BOOK

It is hoped that you now have a better glimpse of the issues faced by the U.S. healthcare system: spiraling costs, disappointing overall quality performance, limited access, a complex regulatory environment, unfavorable population demographics, and shortages of PCPs and nurses. If you are in the healthcare field, you must deal with these seemingly insurmountable problems and contribute to the solution. The rest of this book is devoted to equipping you with the knowledge and tools necessary to use operations as a strategic competitive weapon. An operations strategy is based on four competitive priorities: quality, cost, fast or on-time delivery, and flexibility. The main modules of this book cover these four competitive priorities. Whenever we discuss them, you will see their respective icons in the margins. You first learn the importance of setting quality as an initial priority in designing an operations system for a healthcare organization. Based on the customer’s perceptions of healthcare quality, you develop internal quality indicators that will be used to assess performance. In order to improve, you must be able to measure processes and outcomes and use performance metrics to show progress over time. And as performance is never perfect, you will learn various methods and techniques to improve it. You will be surprised to find out that as you strive to improve customers’ satisfaction, you can also make operations more efficient: less waste, better layout, and fewer delays! Many concepts are interconnected—quality affects cost, cost affects flexibility, and so forth. In order to show that a concept or tool discussed in a given chapter impacts a concept discussed in another chapter, we use visuals called “mind maps.” A mind map is a diagram used to represent ideas or
concepts and shows how they relate to each other (Buzan, Griffiths, & Harrison, 2012). You will see that approaching problems in operations management is not a linear process. Instead, solutions must draw on many different concepts simultaneously. The mind maps illustrate how concepts and tools are linked together. Some of the concepts covered in the book may seem abstract at first. We thought that they would make more sense if they were presented in a work context. Meet the employees of Bradley Park Hospital! Because operations management depends on working with people, the personal and cultural challenges that you will face must be anticipated. The story about the trials and successes of a fictional hospital (Bradley Park Hospital) introduces you to some common situations that you will encounter. You will see how the employees use chapter materials to solve problems day after day. We did not want you to believe that their achievements were purely fictional. In every chapter, you will also discover how healthcare organizations in the real world have implemented OM solutions.

BRADLEY PARK HOSPITAL 1.1

Mike Chambers had been an effective leader in the city of Bradley Park. He had been highly active in community activities and had recently retired from running a successful manufacturing plant. Under his leadership, the auto parts manufacturing plant had grown significantly. He was well respected by many, including the board members of the Bradley Park Hospital (BPH). Mike had served on the board of the hospital for the last 5 years and was committed to his role in the governance of this important institution. He had the calling to help the hospital after supporting his brother through his battle with cancer 10 years earlier. His brother had not survived, but he saw how special the caring of healthcare providers could be to patients and family. He deeply respected the doctors and nurses and sought to help BPH be a valued resource in the community.

BPH was the first hospital in the area, but 3 years ago Madison Hospital was built down the road. Madison had newer facilities and was known for innovative care. BPH had started to struggle, particularly after the pipe manufacturing plant closed last year. In this town of 300,000 people, the unemployment rate had increased to 12%, and all of the industries were pushing to move to managed care to reduce their healthcare costs.

It all seemed to be happening so fast. Just last week at the BPH board meeting, Tom, the chief executive officer (CEO), had acted normally and given a number of reports. There were no indications of any problems, and the reports seemed to be generally favorable. So when Mike got the call that Tom had suddenly resigned along with the chief financial officer (CFO) and that they had left town, Mike was very confused and concerned.

In the emergency board meeting that Friday afternoon, there were few answers and a lot of speculation. What was known was that Francine Sutton, the respected chief nursing officer, was running the hospital and needed help. It was also clear that BPH needed an executive with leadership experience. There was no time to waste, for the staff would soon learn of Tom’s sudden departure, and uncertainty would permeate the organization. They needed someone to
quickly step in, sort things out, prioritize issues, and build the plan for the future. Mike was asked to take the lead.

Mike was flattered, but uncertain and perplexed. He had the leadership experience, maturity, and dedication. That was clear to everyone. In addition to that, he had been on the BPH board of directors for 5 years and had also served on their finance committee. He had some knowledge of the organization. Surely he could run a 450-bed community hospital and associated clinics that had revenues that were half those of the company he recently ran. What could be that different from running a manufacturing company? After much discussion, it was reasoned that with his business skills matched to Francine’s understanding of care delivery, Mike could be successful in helping BPH move forward.

Mike became convinced. Why not? he reasoned. He had the calling to help, was respected, had Francine’s and the board’s support, and had the time. Could healthcare be that different anyway? He agreed to assume the CEO position starting Monday. What could go wrong?

SUMMARY
This chapter reviewed the history of healthcare and healthcare reform in the United States. This reform was driven primarily by quality, costs, and access concerns. These concerns were multifactorial and complex, but you learned that OM professionals can be instrumental in improving healthcare. Their expertise enables them to design processes for better, faster, and more cost-effective care delivery. Finally, you were given an overview of this book’s organization and were introduced to Bradley Park Hospital.

KEY TERMS

<table>
<thead>
<tr>
<th>Health maintenance organization (HMO)</th>
<th>Abuse</th>
<th>Accommodation</th>
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</thead>
<tbody>
<tr>
<td>The Joint Commission (TJC)</td>
<td>Effectiveness</td>
<td>Accessibility</td>
</tr>
<tr>
<td>Fee-for-service (FFS)</td>
<td>Safety</td>
<td>Operations</td>
</tr>
<tr>
<td>Diagnosis-related group (DRG)</td>
<td>Coordination</td>
<td>Operations management</td>
</tr>
<tr>
<td>Affordable Care Act (ACA), The Act</td>
<td>Patient centeredness</td>
<td>Efficiency</td>
</tr>
<tr>
<td>Meaningful use</td>
<td>Availability</td>
<td>Productive system</td>
</tr>
<tr>
<td>Overuse</td>
<td>Acceptability</td>
<td>Mind map</td>
</tr>
<tr>
<td>Fraud</td>
<td>Affordability</td>
<td></td>
</tr>
</tbody>
</table>
WHAT DO YOU REMEMBER?

1. Over the years, what have been the largest obstacles to healthcare reform? Explain.
2. Select five major events that shaped healthcare in the 20th century and describe them.
3. What are the major challenges for U.S. healthcare today?
4. What are the main factors responsible for high costs today?
5. What are the roots of the administrative complexity of the U.S. healthcare system?
6. How is the performance of the U.S. healthcare system in terms of effectiveness, safety, coordination, and patient centeredness? How do the ACA and other initiatives propose to alleviate some of these problems?
7. What do we mean by operations? What is operations management?
8. Operations strategy is based on four competitive priorities. What are they?
9. Give examples of inputs in healthcare. What are the three common types of processes? What are the outputs?
10. What are the decisions typically made by OM professionals?
11. When looking at the issues that have contributed to the increase in healthcare costs in the United States, list the one(s) that is (are) under the influence of operations management.

THINK OUTSIDE THE BOOK!

1. The term socialized medicine has been overused and misused. Research the term and provide some needed clarification about its meaning. Do you know of any industrialized country that provides socialized medicine?
2. Select a piece of healthcare legislation that was passed in the last 10 years. What are its benefits to society? What are its unintended drawbacks?
3. Go to www.YouTube.com. Select an interesting video (e.g., NEJM Roundtable: The Cost of Healthcare, Part 1) on one of the topics covered in this chapter. Analyze the strengths and weaknesses of the main arguments.
4. Look at the timeline for healthcare reform provided in The New York Times: www.nytimes.com/interactive/2009/07/19/us/politics/20090717_HEALTH_TIMELINE.html?_r=1&. Explore the history of a healthcare topic (e.g., regulation of pharmaceuticals, medical informatics, or healthcare litigation) and develop an online timeline with text, pictures, and articles such as the one presented in The New York Times.
5. Read Box 1.5. In your opinion, what are the pros and cons of healthcare regulation?

6. Read Box 1.9. To what extent do you think OM tools and concepts are appropriate for healthcare? Are there limitations?

7. Read this editorial by Drs. Boyer and Pronovost:
   What do they believe operations management can contribute to healthcare? Do you agree or disagree? Support your answers.

**REFERENCES**


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CHAPTER 2

STRATEGY

BRADLEY PARK HOSPITAL 2.1

Brent Greg, the new chief financial officer of Bradley Park Hospital knocked on the door. “Come in,” said a voice.

Brent walked in. “Wow, you look rough! Have you been here all night?” Brent asked. “No, couldn’t sleep very well and came in early.” Mike Chambers, the chief executive officer, was wearing a rumpled shirt and sitting at his desk, which was cluttered with papers and empty coffee cups. “These numbers that you gave me yesterday look terrible. Our financial condition is bad enough, but look at patient satisfaction. It is the worst in the state! And this quality report. . . I am just embarrassed.” Brent’s brow furrowed. “What can we do? The payers are starting to pay based on quality and when these patient satisfaction scores get out, who will come to us when they can go to Madison Hospital down the street? Our weak financial condition means we cannot invest in fancy technology or new facilities. What are we going to do?”

“I am not sure yet,” Mike replied. “But I can tell you one thing. We are not giving up! We need a plan. And we need it fast!”

How should Mike Chambers approach this problem? What would you do first?

INTRODUCTION AND LEARNING OBJECTIVES

Corporate strategy is typically concerned with (a) the various types of business units in which the corporation or health system decides to operate, (b) the allocation of resources among those business units, and (c) the coordination of the various business strategies to achieve overall cohesiveness (Grant, 2009; Box 2.1). The business units under the umbrella of the health system are hospitals, clinics, hospices, pharmacies, and so on. They develop their own strategies—business strategies—which describe their long-term plans to compete in an industry, or business line, in accordance with the direction set by the corporate strategy. Concurrently, the various functions (i.e., marketing, operations, finance, information technology [IT], and human resources [HR]) of the business units formulate strategies that are aligned with the business strategy (Figure 2.1).
Because the focus of this book is on the operations function, the scope of this chapter is limited to the development of the operations function’s strategies that are consistent with the business strategy. After reading this chapter, you will:

1. **Understand the process of developing a business strategy**
2. **Be able to identify the factors that influence business strategy development and to perform a SWOT analysis**
3. **Know the role of the different functional areas within an organization**
4. **Understand how functional areas interrelate**
5. **See how the operations function’s strategy supports the business strategy and contributes to creating a competitive advantage**
6. **Know the four competitive priorities and understand the importance of each one**

---

**BOX 2.1 – WORDS OF WISDOM**

“Strategy is the result of choices executives make, on where to play and how to win, to maximize long-term value” (Favaro, Rangan, & Hirsh, 2012; http://www.strategy-business.com/article/cs00002).
7. Know how to evaluate an operations strategy
8. Distinguish between order winners and qualifiers

HOW ARE BUSINESS STRATEGIES FORMULATED?

A business strategy focuses on what business units need to do to compete in the marketplace (Vadarajan & Clark, 1994). It specifies the game plan the business has selected to maximize its long-term value to customers, and it outlines the resource deployments necessary to “win the game.” Executives do not select the courses of action articulated in the strategy in a vacuum. They are derived from a rigorous process; a full discussion of strategy development is beyond the scope of this text. However, it is important to understand the basic framework used to develop strategies. It usually starts with a deep understanding of the organization and the environment in which it conducts business. This process is known as a SWOT analysis (Humphrey, 2005).

SWOT Analysis

A SWOT analysis identifies the business’s internal strengths (S) and weaknesses (W) and evaluates the environmental opportunities (O) and threats (T; Figure 2.2 offers some examples). Its objective is to leverage the business’s internal capabilities and to benefit from market opportunities while mitigating external threats. This matching procedure helps the firm evaluate the viability of various strategies and position itself favorably in the marketplace. An internal audit of the firm helps identify its capabilities and deficiencies in terms of facilities, workforce, technology, managerial talent, culture, and so on. This assessment spans all the functional areas of the firm and requires a great deal of objectivity. The internal assessment culminates with a clear understanding of the organizational strengths and weaknesses (the S and W). An environmental scan helps the firm gauge external forces over which it has no or limited control. The intent of this scan is to identify opportunities (the O) to gain competitive advantage and identify threats (the T) that should be mitigated (see some examples in Figure 2.2). These external forces are (a) the customers, (b) the legal/political environment, (c) the economy, (d) societal trends, (e) the competition, and (f) suppliers of goods and knowledge services. Let us look at the environment in more detail.

The Customers

For a healthcare provider, the customers include patients (the people accessing health services) and payers (the entities that pay for or reimburse the cost of health services, i.e., public and private insurers, third-party administrators, health plan sponsors, and self-paying patients).

Patients. Patients’ characteristics, such as demographics (age, ethnicity, gender, past illnesses, marital status, socioeconomic status, geographic

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location, etc.) and psychographics (personal beliefs, values, knowledge about disease, attitudes toward health services, etc.) influence their healthcare needs and therefore shape the demand for services (Andersen & Newman, 2005). For example, consider a market with a large proportion of low-income patients. These people may have more restricted access to care and therefore resort to the use of more expensive resources for care (e.g., emergency room). This leads to higher costs and lower revenue for the provider.

Payer Mix

The share of revenue that comes from public insurers, private insurers, and self-paying individuals.

Payers. The payer mix is essentially the share of revenue that comes from public insurers, private insurers, and self-paying individuals (Wall, 2010). Public and private insurers account for the majority of payers. The payers’ relative strengths and the number of insured within each insurance program dictate the reimbursement for services rendered. For over a decade, the largest private health insurers have engaged in the fierce acquisition of their smaller counterparts. This sustained consolidation has undermined competition and created numerous geographic pockets of payer dominance. Dominant payers are in excellent negotiating positions and therefore able to demand substantial discounts from providers. Dominant employers and/or their unions have also put pressure on providers to give considerable discounts for services (PHCS Savility, 2008). Finally, Medicare and Medicaid reimbursements have shrunk, further eroding providers’ revenue streams. When fully implemented under the Affordable Care Act (ACA), the health insurance exchanges will further intensify competition among payers with the offering of a variety of competing health plans.

The Legal/Political Environment

Legal/political factors include the laws and regulations at the national and local levels that govern healthcare. At the national level, the Centers for Medicare & Medicaid Services (CMS) impose data submission requirements from all providers treating Medicare and Medicaid patients. Some states may mandate approval of facility projects (i.e., Certificate of Need). In those instances, providers must justify the need for planned facilities and gain state approval. This process can be politically contentious and lead to delays and increased costs for executing the strategy. An example of local regulation would be the Health Care Security Ordinance in San Francisco, which provides greater access to the city’s uninsured residents. It requires that large- and medium-sized employers contribute a minimum amount per hour to healthcare for their employees (San Francisco Department of Public Health, 2015).

The Economy

Economic forces deal with the supply and demand for labor, the unemployment rate, inflation, interest rates, and so on. These forces influence the volume and type of services rendered, as well as their cost and the revenue they generate. For instance, the persistently weak
economy during the Great Recession contributed to the loss of jobs and health insurance coverage. According to the Gallup–Healthways Well-Being Index, the percentage of U.S. citizens without health insurance coverage increased to 17.7% in 2011 (Mendes, 2012). Some of the repercussions included a drop in the use of routine medical care and elective procedures, the elimination of community-based public health programs, including prevention services by cash-strapped states, and an increase in the demand for psychiatric and public hospital emergency care by patients with little or no ability to pay (Abramson, 2009). These conditions strained the resources of many safety net providers and therefore restricted their strategic choices as they struggled to make the investments necessary for future growth. Another example of economic forces influencing strategic choices would involve the ability to access needed capital. In times of economic prosperity, capital markets often loosen their restrictions, making it easier to borrow the capital needed to execute a strategy.

**Societal Trends**

Societal forces can have a significant impact on healthcare. Rapid growth of the fast food industry, aging of the population, greater public awareness of mental health issues, evolving attitudes toward plastic surgery, increased availability of healthcare-related information on the Internet, and so on, influence the growth—and decline—of some healthcare services and require providers to adapt quickly. For instance, if a hospital serves a region known to be “retirement friendly,” its strategy may emphasize the expansion of geriatric care services. Likewise, cell phones’ ever greater role in people’s lives may lead a hospital to emphasize easy access to medical records via mobile devices.

**The Competition**

The competitive landscape is determined by the type and number of care providers who serve the same market. Competition among providers is sometimes viewed as an opportunity for improving quality while controlling costs (Porter & Teisberg, 2004). Others argue that competition may result in overcare or in the underutilization of resources, both of which contribute to increasing costs. Basically, no one knows how much competition is appropriate in the healthcare sector and to what extent it is a threat or opportunity (Dash & Meredith, 2010). Threats and opportunities are contingent upon market size and type. In a small community, the market entry of a new provider of specialized services for which demand is low (e.g., bariatric surgery) will constitute a major threat for the existing provider(s). On the other hand, it may have little or no impact in a large city with a significant obese population. As a general rule, a competitive analysis would uncover competitors’ strengths and weaknesses. Competitors’ weaknesses can then be exploited to secure a market advantage, whereas their strengths signal the need to improve or look for another market niche.
Suppliers of Goods and Knowledge Services

New drugs, new technologies, new equipment, new medical supplies and devices, and new therapies present new opportunities for improved diagnoses and treatments, improved coordination of care, increased revenue, and lower cost. The opposite is also true. New drugs may be less effective than older ones (Vastag, 2012), new devices may present risks of injury and are recalled (Villaraga, Guerin, & Wood, 2009), and new technologies may actually increase costs while not improving revenue. The financial impact of investing in new technologies is highly dependent on the technology and the payer environment in which the organization operates. There is no consensus on the impact of new products and supplies on healthcare costs and quality. What is certain is that the American public strongly equates innovation and technology with progress and often creates the demand for new products they have seen advertised on TV or on the Internet. Providers, therefore, face the dilemma of balancing the dual pressures of (a) patients and vendors urging them to be on the cutting edge and (b) payers forcing them to remain conservative by placing limits on reimbursements.

FIGURE 2.2 – Examples of strengths, weaknesses, opportunities, and threats.
BRADLEY PARK HOSPITAL 2.2

“That was a great meeting, Mike,” said Francine Sutton, chief nurse of Bradley Park Hospital, turning to Mike Chambers as she was leaving the strategic planning meeting with her nursing supervisors. “The SWOT analysis helped me understand what challenges we are facing, both internally and externally, but it also supported my belief that we have real strengths and opportunities. If we all work toward the common goal, we can make Bradley Park a truly great hospital!”

<table>
<thead>
<tr>
<th>BPH SWOT Analysis</th>
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<tbody>
<tr>
<td><strong>INTERNAL</strong></td>
</tr>
<tr>
<td><strong>Strengths</strong></td>
</tr>
<tr>
<td>• Strong primary care network coordinated with clinicians in 20 specialties</td>
</tr>
<tr>
<td>• Close proximity of clinics and hospital</td>
</tr>
<tr>
<td>• Lab and advanced imaging onsite</td>
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<tr>
<td>• Talented administrative leaders</td>
</tr>
<tr>
<td>• New CEO with fresh ideas</td>
</tr>
<tr>
<td>• Comprehensive IT infrastructure</td>
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<tr>
<td><strong>EXTERNAL</strong></td>
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<tr>
<td><strong>Opportunities</strong></td>
</tr>
<tr>
<td>• Partnerships with outside physicians</td>
</tr>
<tr>
<td>• Governmental pressures for new care models requiring multispecialty clinicians</td>
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<tr>
<td>• Cutbacks at smaller hospitals and physician groups</td>
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<tr>
<td><strong>NEGATIVE</strong></td>
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<td>• Cutbacks at smaller hospitals and physician groups</td>
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**Generic Business Strategies**
After conducting a SWOT analysis, the organization must take a more focused look at the competition, exploit its own strengths, determine which weaknesses can be overcome, formulate its vision, and maneuver for a competitive position. This exercise leads to the formulation of feasible business strategies that improve the chances of gaining and/or sustaining market dominance and assuring financial success.
All strategic choices determine the position of the business unit relative to its competitors. There are several classification schemes used to describe these positioning strategies. The two most common typologies are discussed here.

Miles and Snow (1978) and Porter (1980) have proposed typologies of business-level strategies that are now well established in practice and in the literature. Porter focuses on the goal of the organization and the actions it takes to produce value greater than that offered by the competition. Value is the health outcome achieved per dollar spent (Porter & Lee, 2015). Miles and Snow focus on the internal capabilities (structure, processes, and resources) management intends to use to achieve a particular strategy. In order to capitalize on their respective strengths and create a more comprehensive framework, these two approaches have been combined (Olson, Slater, & Hult, 2005; Walker & Ruekert, 1987). The ensuing hybrid typology comprises four positioning strategies:

1. **Prospectors**
   - Prospectors focus on innovation and early market entry. These are typically decentralized organizations that rely on the creativity of numerous specialists in the organization to produce breakthroughs.

2. **Analyzers**
   - Analyzers promptly release improved or cheaper versions of the product/services introduced by prospectors. They also defend their established position in existing markets.

3. **Low-Cost Defenders**
   - Low-cost defenders must achieve high quality at the lowest overall costs. They rely on centralized decision making to achieve efficiency through standardized practices and cost control.

4. **Differentiated Defenders**
   - Differentiated defenders concentrate on premium services or products to appeal to customers who are willing to pay higher prices. They are usually decentralized organizations that empower decision making at the customer interface.

It is important to note that few organizations adopt a strictly pure strategy. Many times, there will be “spillovers” from one to the other. For instance, some services in an organization primarily described as a low-cost defender may innovate, whereas some of the services offered by a differentiated defender may be of low cost and high quality. In Table 2.1, we provide examples of healthcare organizations and the markets they might serve.
TABLE 2.1 – Business Strategies for Selected Healthcare Organizations

<table>
<thead>
<tr>
<th>Business Strategy</th>
<th>Healthcare Organization</th>
<th>Market</th>
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<tbody>
<tr>
<td>Prospector</td>
<td>Cleveland Clinic</td>
<td>In 2000, the Cleveland Clinic founded Cleveland Clinic Innovations. This organization’s use of the health system’s research in medical technology to create new companies has earned it a top spot in the entrepreneurial field. Examples of projects include the development of new ophthalmology diagnostic technology and the expansion of technology for orthopedic surgery. It has filed for more than 1,600 patents (Tribble, 2012).</td>
</tr>
<tr>
<td>Analyzer</td>
<td>Geisinger Health System</td>
<td>Geisinger cardiac surgeons identified practices from nationally published guidelines for patients undergoing cardiopulmonary bypass surgery. They standardized this practice, achieved a lower cost, and provided a 90-day “warranty” on the service (Abelson, 2007).</td>
</tr>
<tr>
<td>Low-Cost Defender</td>
<td>Denver Health</td>
<td>Denver Health serves a very large population of Medicaid patients. In 2005, it adopted the Lean strategy for reducing waste and continuous improvement as it redesigned patient care. Denver Health has reaped financial benefit while achieving high quality scores (Auge, 2010).</td>
</tr>
<tr>
<td>Differentiated Defender</td>
<td>Mayo Clinic</td>
<td>Mayo Clinic offers busy executives an efficient, cost-effective way to manage their health. Thousands of executives from around the world come to the clinic to have a comprehensive evaluation and thorough screening in a luxurious setting (Mayo Foundation for Medical Education and Research, 2012).</td>
</tr>
</tbody>
</table>

BOX 2.2 – OM IN PRACTICE!

Bumrungrad International Hospital: Prospector, low-cost defender, or differentiated defender?

Bumrungrad is a 554-bed hospital with over 30 specialty centers and 55 subspecialties in Bangkok, Thailand. It cares for over 1 million patients annually, including 400,000 international patients from 190 countries. Its vision is simple and appealing: “World Class Medicine; World Class Service.” To achieve this vision, Bumrungrad employs over 1,200 full-time and consultant physicians, many of whom are board certified in the United Kingdom, Australia, Singapore, Japan, Germany, and the United States. Nurses are recertified every five years. Many of the staff members speak English, and there are over 58 interpreters to assist patients. It boasts the latest technologies (fully integrated health system, pharmacy robot, online medical imaging, lab automation, etc.) in state-of-the-art facilities. By hospital standards, inpatient accommodations look more like luxury hotel suites, or extended-stay residences, than hospital rooms. Their families are offered a wide range of international dining options. Bumrungrad is accredited by The Joint Commission International, the international branch of The Joint Commission here in the United States. Based on the 2009 reader survey of the Asian Wall Street Journal, it is the sixth most admired Thai company overall and the second most admired in terms of quality. In 2009, it received a Thailand’s Top 10 Most Innovative Companies award. Its decentralized management structure encourages training and development for various categories of staff, leading to their awards for Best Practice Workplace on Labor Relations (continued)
BRADLEY PARK HOSPITAL 2.3

Mike smiled and turned toward Brent Greg. “We made a lot of progress today. It really became clear through the discussion that the best business strategy is to be the low-cost defender. But to do that, we need to get our house in order, improve our quality, and lower our costs. Our advantage over our competition is that we have a large number of physicians’ offices located close to the hospital and we have an integrated IT system. This will allow us to make decisions more rapidly and push our plans more effectively. Madison Hospital is a strong innovator, so we don’t want to go there. We do not have the financial resources to modernize drastically and compete with them. Until we streamline our processes, we can’t even take their innovations and implement them here in a cost-effective way.”

“We now need to get down to the specific details. As soon as our strategic plan is fleshed out, we will get the board involved. Change this significant is going to be tough. There will be physicians who resist some of the changes, and in this community, they wield a lot of power. I need to be sure that the board is behind me as we develop a plan. We must also be sure that the physicians give input and clearly understand what we are doing and why.”

Based on its SWOT analysis, is BPH’s decision to position itself as a low-cost defender the right one? What other information would be required to make that decision? Would your analysis change if Madison Hospital were not in the area?

FUNCTIONAL STRATEGIES

In the previous section, you learned about the development of a business strategy. The question now is, “How do you execute the business strategy?” All strategic choices involve decisions about resource allocation and initiatives. This section tackles these resource issues by showing the importance of engaging the various functional areas of the organization (operations, finance, marketing, HR, and IT) in the successful implementation of the business strategy.
“Functional strategies [describe] how the different functions of the business support the corporate and business strategies” (Ritson, 2008, p. 19).

Functional strategies are designed to support the business strategy (see Figure 2.1; Box 2.3). Although the business strategy specifies WHAT to do to beat the competition, the functional strategies focus on HOW to do so. For example, to implement its business strategy successfully (see Box 2.2), Bumrungrad Hospital needs to have the appropriate functional strategies in place to finance its projects, to recruit competent personnel from chefs to surgeons who are board certified in Western countries, to establish protocols for safety and superior customer service, to maintain electronic medical records to facilitate postoperative care in the patient’s country of residence, and to advertise its services through a network of medical facilitators around the world. A lack of fit between the WHAT and the HOW will hinder the implementation of the business strategy and will potentially cripple performance, resulting in organizational failure (White, 1986). Indeed, the various functions within an organization play a vital role in executing the business strategy. These roles are defined here.

**Operations**

The operations function represents the core essence of the business. In a healthcare organization, the core activities of the business involve the treatment of patients. Successfully managed operations transform inputs into outputs that have value for these customers. Managing these transformations is the job of the operations manager. The operations manager makes decisions in the following areas: design of the processes needed to create services (Chapter 7), quality improvement and assurance (Chapters 4, 5, and 6), facility layout and expansion (Chapters 7 and 13), supply chain management (Chapter 11), resource utilization (Chapter 8), and scheduling (Chapter 9). Decisions must be coordinated across these domains of operations to ensure that the transformation of inputs into outputs is both effective and efficient. Many of the decisions are made in collaboration with the managers of the other functions. Let us take a quick look at the roles of these other functions.

**Finance**

In the healthcare industry, the finance function typically covers accounting and financial management. Traditional accounting activities include tracking revenue and expenses tied to the operations, resources, and financing of the organization in order to produce statements (income statement, balance sheet, statement of cash flows) about the organization’s financial performance. Financial management focuses on this financial information to make decisions regarding the procurement of capital and its effective use (Gapenski, 2009). OM professionals interact extensively with the finance function. They provide data regarding resource utilization, purchasing, and inventory; they also
submit capital budgeting requests, as well as capacity expansion plans. The finance function supplies Operations with budgets, cost analyses, and capital investment decisions (Russell & Taylor, 2014). As we have discussed, one of the primary objectives of operations management is efficiency, a goal that makes it imperative for the operations and finance functions to interact effectively and support one another.

**Marketing**

According to the American Marketing Association (2007), “Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large.” These endeavors are realized through the 4 Ps: product, price, place, and promotion. The creation of value is achieved by providing the right product (or service) at the right price. The delivery of value deals with the place where the service is delivered. Communication manages the promotion of the service (Kotler, Shalowitz, & Stevens, 2008). The concepts of value creation and delivery underscore the tight linkages between Operations and Marketing. Marketing provides Operations with an assessment of customers’ perceptions, unmet needs in the market, and demand forecasts for various services. Customers’ requirements will serve as Operations’ blueprint for the design of value-added processes. In turn, Operations will inform Marketing of its operating capabilities, output rates, and capacity so that Marketing can promote services effectively and develop its own strategies. Therefore, ongoing interaction between Operations and Marketing is vital.

**Human Resources**

HR balances the needs of the organization and those of its employees. This department plays a major role in the recruitment, selection, training and development, retention, and compensation of the workforce. HR works closely with Operations to acquire and/or develop a pool of employees whose skill set matches Operations’ requirements for performing value-added processes. Furthermore, HR ensures that the organization is managing its human resources in a way that complies with federal and state laws. HR further supports Operations by communicating organizational goals, values, policies, and procedures to employees. Compliance can be achieved through incentives such as financial reward and recognition. Finally, HR provides Operations with cost (training and hiring/layoff) information and labor market trends so that human resources can be deployed and managed effectively.

**Information Technology**

IT is responsible for managing the data and technology infrastructure. Usually, this includes managing the applications and their associated databases, security protocols, and the various information technologies used to run the business of healthcare. The IT function must ensure that providers have timely and accurate information to accomplish their work. The role of IT in healthcare has been elevated in the ACA, with several provisions emphasizing the importance of a
close IT–Operations collaboration: Use of healthcare data to improve quality, efficiency, and outcomes (Lipowicz, 2010).

**STRATEGY ALIGNMENT**

As you can see from the earlier discussion, there needs to be coordination among the functional areas in order to set and execute functional strategies. Additionally, business and functional strategies must be aligned. Ideally, the alignment of a business strategy and functional strategies is the result of both a top-down and a bottom-up approach. Developing a business strategy with no timely concern for its functional support will either doom its implementation or, at the very least, delay it significantly. For example, if the business strategy involves the acquisition of a new patient registration system, IT’s involvement should be sought to ensure that the new system is compatible with the existing IT infrastructure. Similarly, establishing functional priorities that do not promote the business strategy will have limited impact. For instance, if the vice president of clinical excellence commits significant resources to improving patient flow in the hospital’s oncology department while ignoring the plan to host the department in a new cancer center currently under construction, then time, effort, and money will be wasted. Both top-down and bottom-up approaches are required simultaneously, and their effective fusion depends on transparent communication and coordination.

Figure 2.3 summarizes the business strategy development process we have described so far. The healthcare business unit performs a

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**FIGURE 2.3 – Strategy development process.**

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**ENVIRONMENTAL SCAN**

- Customers
- Legal/political environment
- Economy
- Competition
- Societal trends
- Suppliers

**Opportunities and threats**

**INTERNAL AUDIT**

- Labor skills
- Facilities
- Equipment and technologies
- Leadership
- Managerial talent
- Financial resources, etc.

**Strengths and weaknesses**

**BUSINESS STRATEGY**

- Prospector
- Analyzer
- Low-cost defender
- Differentiated defender

**FUNCTIONAL STRATEGIES**

- Operations
- Finance
- Marketing
- Human resources
- Information technology
SWOT analysis to help identify prospective strategies. The potential courses of action are further evaluated through the ability of the various functional resources to support them. Top management (CEO and other senior-level executives) eventually selects the strategy that provides the best fit between the opportunities in the environment and the organization’s strengths and functional support. Clearly, all functional strategies are equally important. However, as our focus is on operations, the rest of this chapter deals with operations strategy only.

**OPERATIONS STRATEGY**

You may wonder whether the term *operations strategy* is actually an oxymoron. After all, how can healthcare operations, which involve the day-to-day activities related to the creation of healthcare services, be strategic? This apparent contradiction stems from the association between two words that are phonetically similar, yet semantically different: *operations* and *operational* (Slack, Chambers, & Johnston, 2010). As mentioned in Chapter 1 and in this chapter, operations are really what the business is about. Their scope spans all the areas of a healthcare organization involved in the design, control, and improvement of the business processes associated with care delivery. These areas include quality management, resource allocation, layout design, supply-chain management, and so on, which are critical to the success of the business strategy and require long-term, high-level decision making. On the other hand, the term *operational* often denotes routine, short-term activities that occur where services are rendered. All the business functions—finance, marketing, HR, IT, and operations—develop and implement strategic plans. They also perform operational tasks.

Remember that the purpose of the business strategy is to pursue a successful differentiation of its products or services from its competitors’. It is therefore market driven. An operations strategy supports the business strategy. It specifies HOW the operations function plans to align its resources (facilities, people, equipment, technology, and supply networks) with the demands of the business strategy (Waters, 2006). In short, it is the blueprint for achieving competitiveness through superior operations.

**Evaluation of an Operations Strategy**

We evaluate an operations strategy in terms of its *consistency* and its *contribution* to creating a competitive advantage (Hayes, Pisano, Upton, & Wheelwright, 2005). **Consistency** relates to an operations strategy’s ability to fit (a) the business strategy, (b) the other functional strategies, and (c) itself! As we saw earlier, in addition to supporting the business strategy, the operations strategy must conform to the strategies formulated by the other core functions of the organization and be coherent. For instance, if there is a freeze on training (HR), there is no point in Operations’ launching a Six Sigma program, which will
require extensive staff development. In the same vein, it may not be prudent for Operations’ goals to contradict themselves, for example, by targeting substantially lower lab turnaround times while decreasing staffing levels in the lab.

In order to be effective, an operations strategy must also produce a distinctive competitive advantage. Using Hill’s (2000) conceptualization of operations strategy, we can view it as a set of operations-oriented strategic priorities (competitive priorities) that help increase market share by “winning orders.” In a healthcare environment, “winning orders” means attracting patients and health insurers to consume your services instead of your competitors’. The competitive priorities are: quality, cost, delivery, and flexibility (Figure 2.4).

- **Quality**: Competing on quality means accomplishing better patient outcomes (clinical and experiential) than those produced by your competition.
- **Cost**: Competing on cost refers to the ability to offer services at lower prices than those charged by the competition.
- **Delivery**: Competing on delivery refers to the ability to provide services on time (on-time delivery) or to deliver the services faster (fast delivery) than the competition.
- **Flexibility**: Competing on flexibility refers to the ability to respond to changes with minimal penalties and uniform outcomes for services.

The importance of these concepts will be explored further in the following sections.

![Figure 2.4 - Competitive priorities in operations strategy.](image)
COMPETING ON QUALITY

Facts

In Chapter 1, we mentioned the high incidence of medical errors. How can they possibly occur in a country where the best-trained health professionals, the most sophisticated technologies, and the most up-to-date facilities are available? The unfortunate death of 18-month-old Josie King may help us answer this question. Josie was admitted at Johns Hopkins Hospital after suffering first- and second-degree burns. She recovered promptly and her burns healed well. Two days before her release from the hospital, she died of severe dehydration. What happened? In the first episode of “Remaking American Medicine” (Christopher, Eisen, & Shaffer, 2006), Josie’s poignant story highlights a lack of communication between nurses and physicians, a disregard for her parents’ involvement in her care, and uncoordinated processes. All these errors were preventable and yet they occurred in one of the best hospitals in the world. After Josie’s death, her mother launched a crusade to improve patient safety and collaborated with Johns Hopkins and other hospitals to find solutions (Box 2.4).

BOX 2.4 – OM IN PRACTICE!

Josie King Foundation Programs at Johns Hopkins

Patient Safety Program

• Staff is educated in the science of safety.
• Front-line caregivers are encouraged to detect problems and raise their concerns freely.
• Senior management must provide rapid and meaningful feedback.
• Staff is engaged in problem solving and makes recommendations regarding the allocation of resources necessary to solve the problems.
• Accountability is increased to prevent harm.

Pediatric Rapid Response Teams

• Creation of a Pediatric Rapid Response Team that arrives at the patient’s bedside within minutes
• Regular review of causes, management, outcomes, and prevention of cardiopulmonary arrests of children treated at Johns Hopkins
• Ongoing data collection to assess cardiopulmonary arrests
• System in place to report assessment results to Pediatric Advisory Cardiopulmonary Resuscitation committee and to the Children’s Center Pediatrician-in-Chief and Physician Advisor
• Parent-initiated Pediatric Rapid Response Team calls, that is, parents have the ability to “pull the cord” when they feel the patient is not receiving proper attention or are concerned about his or her condition (i.e., Condition Help, also known as “Condition H”).
OM Initiatives
Patient safety and effective care are definitely within the scope of operations strategy. To improve patient safety, the Institute of Medicine (1999, p. 2) suggests the design of a health system that “makes it harder . . . to do something wrong and easier . . . to do something right.” This statement suggests that process redesign or reengineering might be the key to ensuring a care delivery process that minimizes medical errors and optimizes clinical outcomes. Such a process often minimizes handoffs, that is, the number of steps in the process. Why? At each step of a process, there is an opportunity to make an error. The lower the number of steps, the fewer the opportunities for error.

Competitiveness
Excellent performance in clinical care in general, and patient safety in particular, boosts a healthcare organization’s reputation and improves its standing relative to its competitors. Other quality attributes, such as well-designed and maintained facilities, prompt service, responsive staff, and effective communication, shape the patient’s experience. A first-class experience drives patient loyalty, which in turn improves competitiveness through repeat business. Finally, the ability of a healthcare provider to produce excellent patient outcomes—clinical and experiential—may increase reimbursement.

Porter’s perspective (Box 2.5) is strongly anchored in the OM tradition, which views quality as a means to decrease the costs associated with poor performance, such as rework, retesting, scrapped supplies, litigation, lower reimbursements from Medicare, and so on. Ultimately, superior value wins orders and leads to greater competitiveness. Besides improving quality, are there other ways to reduce costs? The answer is provided in the next section.

BOX 2.5 – LET’S TALK!

<table>
<thead>
<tr>
<th>Your words</th>
<th>. . . and ours</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Is healthcare quality expensive?”</td>
<td>“Well, let us try to answer this question with another. What attributes do you consider when you shop?”</td>
</tr>
</tbody>
</table>
| “I try to balance the quality of the product with its cost.”               | “Exactly! You search for VALUE. Remember that in our discussion on business strategies, Porter stressed customer value. The notion of value actually captures the relationship between cost and quality: $Value = \frac{\text{Quality}}{\text{Cost}}$. Value = Health outcome per $ spent (Porter’s definition) To improve value, you can increase quality, or decrease cost, or do both. Porter recommends doing both. He argues that the best way to decrease costs is to drive quality up!” }
COMPETING ON COST

Facts
According to the 2014 National Survey of Employer-Sponsored Health Plans (Mercer, 2014), the average health benefit cost per employee was $11,204 in 2011. Rising healthcare costs have put tremendous pressure on employers to shop for competitive healthcare plans. Mercy Hospital in Springfield, MO, has been able to meet their needs. Mercy contracts either with insurers or directly with self-insured, large employers. In the latter case, the annual cost of health benefits per employee has remained very stable. Over the years, costs for three of the major employers have remained rather stable and well below the national average. Although several market forces influence healthcare costs, Mercy attributes some of its success to its care management and various operations programs.

OM Initiatives
Mercy strives to achieve efficiency at multiple levels of the care delivery process. Through its Nurse-on-Call program, patients call and describe their symptoms to a nurse who will direct them to the emergency department (ED), refer them to an urgent care facility, or simply schedule an appointment with a physician. This early triage reduces the incidence of costly ED visits. Mercy also works with employers to emphasize preventive care not only to improve patient health, but also to intervene before conditions become serious and require expensive procedures and treatments. Furthermore, the deployment of process improvement projects to improve the quality of care has contributed to a reduction in waste (errors, complications, rework, transfers, etc.), which has the dual benefit of improving Mercy’s operational efficiency and controlling healthcare costs for patients and their employers. Finally, Mercy’s supply chain division, “Resource Optimization and Innovation (ROi),” has helped streamline and integrate the supply chain for all Mercy hospitals by eliminating non-value-added steps along the supply chain; consolidating purchasing, inventory management, and distribution; negotiating directly with manufacturers and eliminating third-party distributors; revamping and continuously improving medication administration processes; and repackaging pharmaceuticals and supplies (e.g., 20 pairs of gloves out of a box of 200) to deliver exactly what is needed while taking advantage of volume purchasing. All these initiatives are guided by a unifying principle: improve patient care (Moore, 2009).

Competitiveness
What are the benefits? Because of their lower costs, efficient care providers improve their financial position in several ways. They can increase their profit margins even when their prices are on par with their competitors. They can also increase their market share by attracting
third-party payers with reduced prices. Finally, they are less threatened by the lower Medicare reimbursements for a growing elderly population because they have a better understanding and mastery of cost-control mechanisms (Arnst, 2010). In Mercy’s case, its visibility and reputation were enhanced when ROi was ranked the number 2 global supply chain in the Gartner Healthcare Supply Chain Top 25 (Blake et al., 2011) listing. More important, it was able to market a lower utilization of high-cost services to employers and insurers while ensuring quality care. Its reputation for high quality combined with attractive pricing has contributed to its designation as one of the six centers of excellence where Wal-Mart employees can undergo some procedures away from home, with no co-pays or deductibles (American Medical News, 2012).

**COMPETING ON DELIVERY**

**On-Time Delivery**

On-time delivery is simply the ability to keep your promise to deliver a product or service on time. Setting an appointment carries the tacit understanding that all parties involved are responsible for showing up on time. The basic expectation is just adherence to an agreed-upon time.

**Facts**

Disruptions in delivery reliability lead to higher costs and a decrease in customer satisfaction, which can lead to a decline in revenue. Failure to serve the customer can undermine the viability of the business enterprise as a whole. This is what happened at the University of Alabama (UAB) Hospital in 2004 after moving into a state-of-the-art facility with 40 new operating rooms (ORs). The facility came with new capacity and technology, but the procedures to schedule cases, educate staff, and assure that specific instruments were available prior to opening the new ORs were deficient. These problems led to high error rates for instrument trays, delays in first-case starts, increased time between cases, and extension of operating schedules into the night. In addition, there was decreased employee satisfaction, high turnover, and lower patient satisfaction. This threatened the viability of the OR operations as a whole. Can you imagine being scheduled for a needed surgery and thinking that it would take place somewhere around 9 a.m. and then waiting much of the day to enter at 5 p.m.?

**OM Initiatives**

In order to improve the delivery reliability of the ORs, a number of management interventions were simultaneously implemented at UAB. These included an improved scheduling process, the launch of an OR block release policy, mandatory staff training, central sterile process improvements with reengineering of case-cart management, the mandatory implementation of the National Patient Safety Goals, and the establishment of defined performance measurements and reporting.
processes. In addition, a new role was defined, “Surgeon of the Day,” for someone who works to resolve conflicts and assure that patient needs are met in a timely fashion throughout the day.

**Competitiveness**

Once the issues that threatened the reliability of UAB’s ORs were addressed, first-case start time improved from 23% to 63% compliance, turnover time improved (adding 27 hours of OR capacity a month), and the number of cases extending to after hours decreased. Additionally, nursing turnover decreased, the vacancy rate went from around 40% to less than 10%, and instrument tray errors plummeted. All these improvements in on-time delivery enabled a significant growth in services, improved financial performance, and better safety and customer satisfaction (Heslin et al., 2008).

Just like a kept promise, on-time delivery is pretty much expected from the concerned parties. Therefore, delivery reliability may not necessarily improve a provider’s competitive advantage, but it can certainly make its business uncompetitive when it is lacking!

**FAST DELIVERY**

**Facts**

Esmin Green had been in the waiting room of the psychiatric emergency department of Kings County Hospital Center for almost 24 hours before she collapsed and died on the floor. An autopsy revealed that the cause of death was pulmonary embolism, which often results from a blood clot forming in the legs and traveling to the lung (Meisel & Pines, 2008).

Unfortunately, Esmin Green is not alone. According to research from Press Ganey, almost 400,000 patients waited for 24 hours or longer in the ED in 2009 (Rice, 2011). Patients who wait for long periods of time may die in the ED or, exasperated by the long wait, may leave before seeing a physician and die at home or have their condition worsen.

**OM Initiatives**

Many emergency rooms have taken steps to reduce wait times in the ED and speed up delivery. These steps often include process redesign (triage and split flow), simplification (fewer steps), facility redesign (separating patients based on acuity), and better match between capacity and demand (avoiding boarding practices, i.e., leaving admitted patients in the ED until inpatient beds become available), which all lead to a smoother patient flow and lower lead times.

**Competitiveness**

In many cases, such as emergencies, fast delivery or the ability to deliver the service promptly (ideally faster than the competition) improves the competitive position. Scottsdale Healthcare in Arizona gained competitive advantage by updating the estimated times at its four emergency departments every 3 minutes. These estimates are posted
on an electronic billboard outside each hospital and on their Web sites (Yoshino, 2009). Such improvements not only have the potential to save lives and increase patient satisfaction, but they also boost revenue by reducing the number of patients who will leave if they have to wait too long.

COMPETING ON FLEXIBILITY

Facts
Healthcare operates in a highly dynamic environment. Technologies, clinical procedures, and the demand for services change at a quick pace. Internally, patient conditions are in flux as well. A patient may require general care one day and intensive care the next. To accommodate these changes, the universal bed care delivery model has become increasingly popular. It allows patients to stay in one room irrespective of their changing needs during their entire hospital stay. This means that the room must be designed for a multitude of options ranging from critical care to family visitation. In these acuity-adaptable rooms, there must be space for medical equipment, caregivers, patient ambulation, and visitors. In some hospitals, the nursing staff is cross-trained to provide both intensive care and recovery care (Brown, 2007). Providence Regional Medical Center designed the Cyambaluk Medical Tower with flexibility in mind. Two floors are dedicated to invasive procedures with rooms that can be used as ORs, cath labs, or interventional radiology. Every other wing has acuity-adaptable patient rooms, and some of these rooms can be converted from private to semiprivate, and vice versa (Simmons, 2011).

OM Initiatives
A strategically flexible business unit must be supported by flexible organizational functions, such as operations. In turn, Operations needs to develop the capabilities to cater to a diverse patient and case mix (mix flexibility); to handle fluctuating volumes of patients (volume flexibility); and to pioneer treatments, procedures, or processes (innovation flexibility). Instrumental to these capabilities are the ability to change processes (process flexibility) and the acquisition of flexible resources (labor, equipment, facility flexibility) that can handle a variety of situations (see Chapter 13).

The case of Providence Regional Medical Center demonstrates that an innovative facility redesign with flexible resources enables a rapid adjustment to different types of patients. This design enables the provider to meet a variety of patient needs in a single facility without incurring the costs of building multiple wards, wings, or even facilities for specific conditions or treatments. By eliminating multiple handoffs, these designs also have the potential to simplify patient flow and improve the continuity of care and the comfort of patients whose evolving needs require prompt adjustments to new levels and types of care. The business units investing in such flexible facilities organize their resources around the patient rather than
processes. They believe that their patient-centered focus will increase their competitive advantage on multiple fronts: costs, outcomes, speed, and satisfaction.

**Competitiveness**

As emphasized in the SWOT analysis section, the environment in which a business operates is dynamic, and businesses that can quickly accommodate, or even anticipate, change are better positioned to improve or maintain their competitiveness. The adaptive response should be quick, inexpensive, and have little or no impact on the quality of outcomes. In other words, a flexible business unit must accommodate a wide variety of patients with unique needs, but without compromising efficiency and effectiveness. This challenge will place even more pressure on the operations function to continually manage its processes for optimal quality, timely delivery, and cost. The implication is that excellent performance on all competitive priorities is expected. Is it plausible? Let us explore this issue in the next section.

**THE CUMULATIVE MODEL**

In operations, there was a long-held belief of trade-offs among the competitive priorities (Skinner, 1966). This is especially true in healthcare. Cost cutting is often seen as a threat to the quality of clinical outcomes. In fact, many healthcare professionals claim that the U.S. healthcare system is costly because it is “the best in the world.” There is a sound logic behind the high-cost–high-quality paradigm. Employing surgeons with outstanding track records, using the latest and most sophisticated equipment and technologies, acquiring premium supplies, continuously developing the skills of the nursing and support staff, and so on, should, in theory, yield the best possible outcomes. By the same token, cost savings that threaten the quality of these inputs would likely jeopardize the quality of the outputs.

Now, let us reflect for a while. When discussing quality as a competitive priority, we said that improving quality could actually lower the costs of rework, inventory, litigation, poor resource utilization, and so on. The Institute of Medicine’s (2012) report, *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*, further supports this relationship. It explores the potential to attack the higher costs associated with increasingly complex medical care. Opportunities resulting from increased computational power, connectivity allowing for improved dissemination of information, progress in organizational capabilities, and patient empowerment are now present to help improve the quality of care while reining in the costs.

We also said that improving quality through a simplification of processes with fewer handoffs improved patient flow and rapid response to evolving needs (on-time and fast delivery). Then we discussed that the businesses with excellent performance on cost, quality, and delivery were best positioned to adapt to the rapid changes required by a dynamic environment (flexibility). There appears to be
a synergistic effect among all the competitive priorities. This was first noticed by Nakane (1986), who realized that world-class manufacturers excelled in all competitive priorities. He also established a sequence. World-class companies should first devote their efforts to achieving excellence in quality, then to delivery, cost, and flexibility. Others (Ferdows & De Meyer, 1990; Noble, 1995) came up with a different sequence, but there was a consensus that quality was the building block of outstanding performance in all dimensions. Therefore, improving quality in order to decrease costs made sense, but not vice versa. This practice of pursuing all competitive priorities, starting with quality, is known as the cumulative model.

Nevertheless, the companies that excelled at everything also distinguished themselves by “beating the competition” or differentiating themselves on one or several dimensions. Hill (2000) captured this phenomenon in his distinction between “order winners” and “order qualifiers.” Order winners are literally the competencies that enable the business to win orders or customers, that is, the competencies on which a particular business’s performance outclasses that of the competition. On the other hand, order qualifiers merely qualify the business to be competitive in the marketplace, that is, performance on these competencies is on par with that of the competition. Let us take fast delivery, for example. If the ER’s average wait is 3 hours at Hospital X, and this wait is comparable to the wait in the other ER departments in town, fast delivery is a qualifier for Hospital X. If its average waiting time is only 2 hours compared to the competition’s 3 hours, then it is an order winner. Now, let’s say that Hospital X averages wait times of 4 hours or more, then it no longer meets the threshold for competitiveness and risks losing—as opposed to winning—some market share to its competitors. For this reason, you should never underestimate the significance of order qualifiers.

It is therefore very important for a care provider to continuously monitor its performance on the various competitive priorities in order to take quick action if needed. The balanced scorecard and dashboards assume this tracking task.

HOW ARE WE DOING? MEASURING PERFORMANCE

Balanced Scorecard
In order to assess whether the organization is on track to meet its strategic objectives, the organization must have an effective performance measurement system. The balanced scorecard provides a balanced view of organizational performance (Box 2.6). It allows for monitoring of different performance metrics—often called key performance indicators—simultaneously from four different angles: the organization’s ability to (a) create value for its customers, (b) manage its internal processes to meet customers’ expectations, (c) innovate and improve, and (d) generate financial growth and strength (Kaplan & Norton, 1992, 1996). Note that the balanced
scorecard reflects the collaboration of all functional areas on overall performance. For example, creating value for customers requires Marketing’s input regarding patients’ wants and needs. Likewise, HR promotes a culture of innovation and improvement through employee selection, training, and development. Operations relies on Marketing’s and HR’s contributions to design, manage, and control the processes that enable the creation of value and lead to financial performance (Figure 2.5). In a sense, Operations measures take precedence in a balanced scorecard because they focus on the “doable,” and are therefore action oriented. The scorecard brings people together to understand what is strategically important and, therefore, connects the business strategy with the functional strategies.

<table>
<thead>
<tr>
<th>Financial perspective</th>
<th>Customer perspective</th>
</tr>
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<tbody>
<tr>
<td>• Shareholder value</td>
<td>• Client service</td>
</tr>
<tr>
<td>• Growth</td>
<td>• Quality (VOC)</td>
</tr>
<tr>
<td>• Profit</td>
<td>• Value</td>
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<tr>
<th>Process perspective</th>
<th>Innovation and learning perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Quality (VOP)</td>
<td>• Change</td>
</tr>
<tr>
<td>• Cycle time</td>
<td>• Training and development</td>
</tr>
<tr>
<td>• Efficiency</td>
<td>• Research</td>
</tr>
</tbody>
</table>

**FIGURE 2.5 – Balanced scorecard.**
VOC, voice of the customer; VOP, voice of the process.

The balanced scorecard has evolved over the past few decades and has seen significant adoption within the healthcare industry. At a minimum, it is used as a monitoring system to track progress and watch areas that need improvement. It can even be linked to a personnel performance review system and tied to pay or incentives. In its fullest form, the balanced scorecard is a strategy management tool used for mapping functional activities and resources to the business strategy.
Scorecards/Dashboards

The balanced scorecard emphasizes the multifunctional nature of strategy deployment. It involves a collection of scorecards, also called strategic dashboards, from each functional area. The terms “scorecard” and “dashboard” tend to be used interchangeably. To maintain a consistent and unified strategy at various levels of the organization, dashboards or scorecards cascade down from strategic to operational performance (Eckerson, 2006).

1. Strategic dashboards monitor the achievement of strategic objectives in each functional area (e.g., readmission rate for quality; average cost per discharge for cost). They emphasize performance management and the actions necessary to accomplish long-term goals through coordination and collaboration.

2. Tactical dashboards track specific departmental measures (e.g., survival rate for hip fractures, same-day breast cancer surgery cancellation rate). They focus more on analysis (time series, segmentation, prediction, forecasting, modeling, etc.) than on performance management.

3. Operational dashboards track real-time data in specific processes (e.g., lab turnaround time, current ED occupancy). They emphasize monitoring and signal alerts for quick intervention.

There are hundreds of measurements that determine your car’s functioning and performance. Nevertheless, only a few critical gauges are displayed: speedometer, tachometer, fuel, temperature, and oil pressure. The same is true for a scorecard or dashboard: it only displays the “vital few” measurements that are the strongest indicators of performance. Table 2.2 depicts a strategic dashboard for Operations (process perspective). As we cover the competitive priorities in more detail throughout the rest of the book, we disaggregate the dashboard to the tactical and operational levels.

BRADLEY PARK HOSPITAL 2.4

“Let’s get down to business,” Mike Chambers stated at the quarterly meeting of the board. “Bradley Park could be in trouble if we don’t start to do things differently. Since coming to Bradley Park, the management team has analyzed our business based on the four competitive priorities—cost, quality, timeliness, and flexibility. We want to excel in all of these areas, but we are currently not doing well in any.

“In addition, we just got the details of how the government is going to start paying us for quality and value. The private insurers are following suit. We analyzed our patient satisfaction and quality measurements and if we don’t improve, and improve quickly, our revenue will be cut by millions of dollars. We can’t handle that!”
### TABLE 2.2 – Strategic Dashboard for Operations

<table>
<thead>
<tr>
<th>Measures</th>
<th>FYTD Actual</th>
<th>FY Target</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUALITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality index</td>
<td>1.07</td>
<td>0.95</td>
<td>1.21</td>
<td>1.32</td>
<td>0.95</td>
<td>0.87</td>
<td>1.02</td>
<td>1.12</td>
<td>1.00</td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td>3.5</td>
<td>4.5</td>
<td>3.9</td>
<td>3.7</td>
<td>3.5</td>
<td>3.6</td>
<td>3.2</td>
<td>3.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Hospital-acquired conditions per 1,000 discharges</td>
<td>141</td>
<td>135</td>
<td>145</td>
<td>143</td>
<td>140</td>
<td>138</td>
<td>142</td>
<td>138</td>
<td>140</td>
</tr>
<tr>
<td>All-cause, 30-day readmission rate</td>
<td>11.4%</td>
<td>&lt; 11%</td>
<td>12</td>
<td>12</td>
<td>11</td>
<td>9</td>
<td>12</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td><strong>COST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost per adjusted patient/day ($)</td>
<td>18,123</td>
<td>18,000</td>
<td>18,290</td>
<td>18,380</td>
<td>18,140</td>
<td>18,090</td>
<td>18,059</td>
<td>18,000</td>
<td>17,900</td>
</tr>
<tr>
<td>Productivity index (%)</td>
<td>90</td>
<td>97</td>
<td>87</td>
<td>88</td>
<td>90</td>
<td>92</td>
<td>95</td>
<td>89</td>
<td>90</td>
</tr>
<tr>
<td>Occupancy rate (%)</td>
<td>68</td>
<td>85</td>
<td>72</td>
<td>67</td>
<td>58</td>
<td>62</td>
<td>69</td>
<td>73</td>
<td>72</td>
</tr>
<tr>
<td>Supply cost per adjusted patient day ($)</td>
<td>2646</td>
<td>2500</td>
<td>2821</td>
<td>2721</td>
<td>2528</td>
<td>2562</td>
<td>2762</td>
<td>2621</td>
<td>2508</td>
</tr>
<tr>
<td>Inventory turns</td>
<td>3.4</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>DELIVERY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average length of stay (ALOS)—inpatient</td>
<td>3.8</td>
<td>3.7</td>
<td>3.8</td>
<td>4.4</td>
<td>4.1</td>
<td>3.9</td>
<td>3.6</td>
<td>3.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Extended stay of more than 5 days</td>
<td>113</td>
<td>85</td>
<td>105</td>
<td>107</td>
<td>115</td>
<td>131</td>
<td>108</td>
<td>100</td>
<td>123</td>
</tr>
<tr>
<td>Extended stay of more than 20 days</td>
<td>14</td>
<td>12</td>
<td>8</td>
<td>19</td>
<td>15</td>
<td>12</td>
<td>16</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td><strong>FLEXIBILITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-trained nurses (%)</td>
<td>14.3</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Bed turnover rate admit/discharge/transfer percentage (%)</td>
<td>78</td>
<td>80</td>
<td>76</td>
<td>75</td>
<td>77</td>
<td>77</td>
<td>78</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>2-hour discharge rate (%)</td>
<td>34</td>
<td>75</td>
<td>30</td>
<td>34</td>
<td>40</td>
<td>36</td>
<td>28</td>
<td>32</td>
<td>37</td>
</tr>
</tbody>
</table>

- RED FLAG! Needs improvement.

FYTD, fiscal year to date.

The board members were quiet as they looked over the spreadsheet that had been handed out. Finally, John McManus, a long-time board member and community leader, spoke up. “This is concerning. Mike, I thought we were doing well financially and taking good care of our patients. What is going on?”

“John, the world is changing. Healthcare costs too much, and consumers are demanding more convenience. Patients now have a choice as to where they can go, and Madison Hospital, down the road, has a billboard touting their quality.
We are starting to lose patients and doctors. Bradley Park Hospital is stuck in an old model where the focus is on our convenience, not the patient’s. When our revenues are dependent on patient satisfaction and quality measures, we won’t be in business if things don’t change. That is the reason I am scheduling a board retreat to talk about healthcare quality.”

Joanne Frank, a new board member, spoke up. “Mike, I certainly don’t want to be argumentative, but don’t you think we need to focus on our finances, and not quality? I know quality is important, but as I read this spreadsheet, you need money first. And what does the board know about quality?”

“Joanne, if we can improve our quality, I know that that our revenue will improve,” Mike responded. “In this environment, the reverse won’t work. And I need the board to hold us all accountable for improving our quality. Our hospital needs the institutional will to execute big changes. I need to have us all on the same page and I need you to support our initiatives. Some physicians or community members may not like some of the changes we make. We may need you to help run interference for me!”

Q Why do you think that by addressing quality issues, you can positively impact the financial situation at Bradley Park Hospital? Why is Mike Chambers not attacking the other competitive priorities?

SUMMARY

In this chapter, you have learned about the development of a business and operations strategy. The development of a business strategy rests on a careful assessment of a business’s strengths (S) and weaknesses (W) in order to respond to the opportunities (O) and the threats (T) presented by the environment. Based on this SWOT analysis, the business or healthcare organization elects one of the following strategic paths: being (a) a prospector, (b) an analyzer, (c) a cost defender, or (d) a differentiated defender. Another factor to this selection process is the feasibility of the functional strategies necessary to support the strategic choice. In order to ensure the success of a business strategy, the marketing, operations, finance, HR, and IT functions must be able to support the strategic direction of the firm. For operations, building a strategic advantage means developing superior operations in terms of their ability to compete on the bases of quality, cost, on-time or fast delivery, and flexibility. World-class healthcare organizations are able to compete on all four competitive priorities (Figure 2.6). However, research has shown that achieving quality first paves the way for excellence on cost, delivery, and flexibility. In other words, quality is the building block for overall superiority. Developing and tracking performance metrics in the four competitive priorities is vital to the effective execution of the operations strategy.
**KEY TERMS**

- **Corporate strategy**: Low-cost defenders, Competitive priorities
- **Business strategy**: Differentiated defenders, Competing on quality
- **SWOT analysis**: Operations function, Competing on cost
- **Internal audit**: Finance function, Competing on delivery
- **Environmental scan**: Marketing function, Competing on flexibility
- **Payer mix**: HR function, Cumulative model
- **Value**: IT function, Order winners
- **Prospectors**: Operational, Order qualifiers
- **Analyzers**: Consistency of operations strategy, Balanced scorecard

**TOOLS USED IN THIS CHAPTER**

**TOOL** | **PURPOSE**
---|---
SWOT analysis | Approach used to identify the business’s internal strengths (S) and weaknesses (W) and to evaluate the environmental opportunities (O) and threats (T). Its objective is to leverage the business’s internal capabilities and to benefit from market opportunities while mitigating external threats.
### TOOL | PURPOSE
---|---
Balanced scorecard | Visual tool that provides a balanced view of organizational performance with key performance indicators.

### WHAT DO YOU REMEMBER?

1. What is a SWOT analysis? Give examples of S, W, O, and T.
2. What are the external forces that impact a healthcare business unit? Explain how they help shape a business strategy.
3. Describe the four generic business strategies mentioned in this chapter.
4. What are an organization’s functional areas?
5. Why are the various functions important in the formulation of a business strategy?
6. Describe the strategy development process.
7. Explain the interface between Finance and Operations, Marketing and Operations, HR and Operations, and IT and Operations.
8. What are the four competitive priorities that help an organization compete through superior operations? Briefly explain each one.
9. What is the difference between on-time and fast delivery?
10. Describe the cumulative model.
11. Discuss the difference between an order winner and an order qualifier. Use an example for illustration.
12. What is a balanced scorecard and why is it important?
13. What are the three types of dashboards?

### THINK OUTSIDE THE BOOK!

1. Select a major hospital in your city/region. Identify the external forces impacting this hospital’s strategy and performance.
3. Based on its prospectus, Bumrungrad’s strategy is to compete as a differentiated defender. Do you agree? (bh.listedcompany.com/misc/DEBENTURE/20120124-BH-prospectusNo01-2011-EN.pdf)
4. Go to these two Web sites: (a) video.hbs.edu/videotools/play?clip=rhc_faq073 and (b) video.hbs.edu/videotools/play?clip=rhc_faq071. Do you agree that increasing quality is the best way to decrease cost?
5. Watch the following PBS video: “Money and medicine” (http://www.pbs.org/video/2283573727). Describe how Intermountain Healthcare and the UCLA Medical Center tried to improve quality while cutting costs.

6. Develop more Key Performance Indicators to include in the strategic dashboard presented in Figure 2.6.

REFERENCES


