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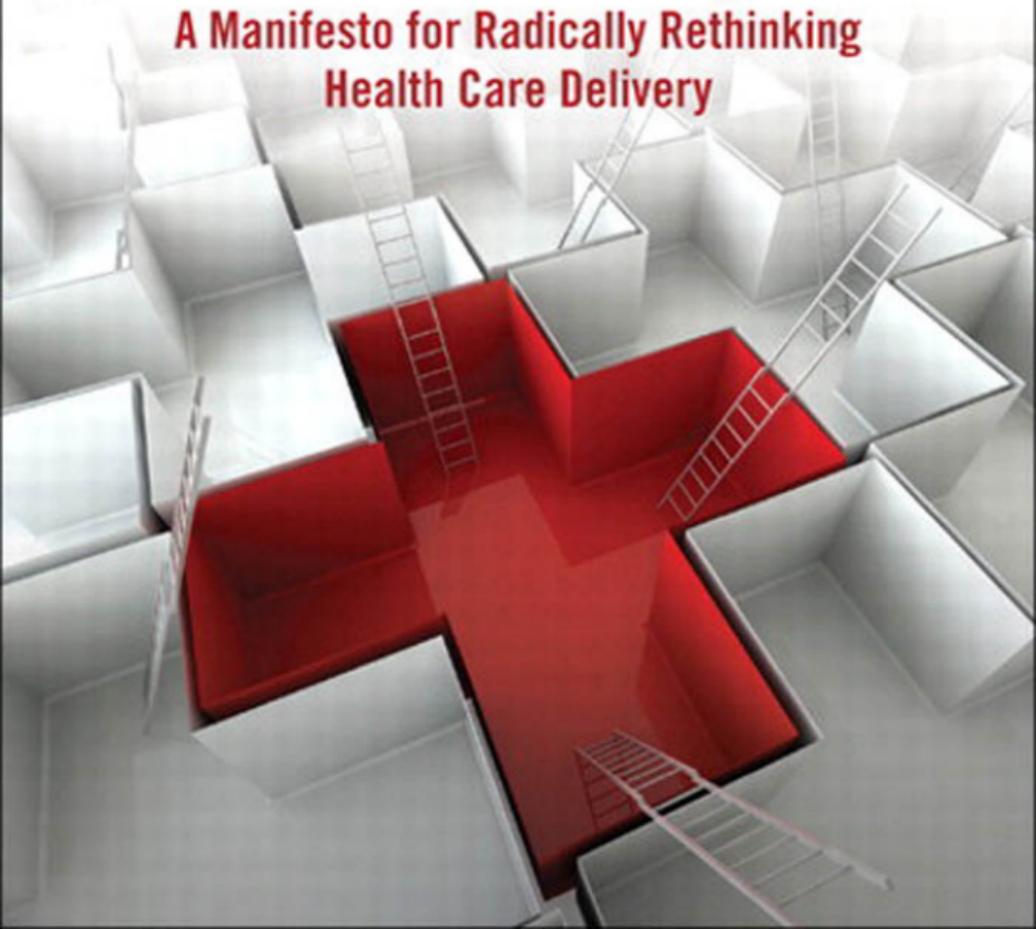
Author of *Reengineering the Corporation*, a *New York Times* Bestseller
with more than 3 million copies sold

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REENGINEERING HEALTH CARE

**A Manifesto for Radically Rethinking
Health Care Delivery**



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INTRODUCTION

Imagine a world in which the delivery of health care is of the highest quality and so efficient that it is affordable to every person—and government. Today, that world seems distant, but not because of lack of progress in the diagnosis and treatment of illness and disease. Science and technology are enabling new cures and techniques at a rate never experienced before. The world we seek is beyond our reach because the work of delivering health care has not kept pace with advances in science and technology.

When you consider that most of us spend half of our waking lives performing something called “work,” you’d think we would be really good at it, right?

Well, half right. And the missing half explains why so much of even our most advanced toil is often inefficient and hence ineffective.

Examples abound, but this book focuses on an industry and calling crucial to the well-being of everyone—health care. Inefficient and ineffective health care can take its toll in human lives while also devouring our personal and national wealth and resources.

Inefficient and ineffective health care can take its toll in human lives while also devouring our personal and national wealth and resources.

Not long ago, America's health caregivers began addressing the complex issue of patient records—all the vast, painstakingly recorded details that are supposed to help doctors diagnose and prescribe. With great fanfare, hospitals and physicians slowly began using computers to keep track of those records. Their accomplishment was hailed as the start of a new era of efficiency and safety in health care delivery.

But as I write, a team of Harvard researchers studying 3,000 hospitals across the United States has determined that electronic health recordkeeping has not been widely adopted. And where computerization is being used, it has proven far less beneficial to patient care than expected. In fact, it sometimes complicates and even diminishes care by flooding nurses and physicians with information that takes providers away from their patients while raising privacy concerns that are both real and imagined. Not long ago, I heard the head of nursing at a large hospital take up the subject at a leadership meeting. “We came here to care for patients,” she said, “but now we spend more time pushing paper and sitting in front of computer screens.”

Computers aren't the problem. Technology can indeed work wonders in improving health care delivery. The problem lies in the application of

technology and, more basically, in the way in which the work of health care delivery has been organized.

This crucial issue of how to improve work performance in all kinds of fields has obsessed me for more than two decades. It started in 1988 when my associate, the late Michael Hammer, and I had a life-changing experience: We visited Toyota. We already knew that the Japanese automaker had developed unique methods that dramatically improved operations. But we discovered something more—Toyota was already far more efficient than its U.S. rivals. (This was years before the company's unfortunate quality problems. The recent breakdowns remind us that even high-performing enterprises must remain vigilant in their quest for efficiency and effectiveness. It's a lesson that applies equally to health care, as you will see in the pages ahead.)

We realized that, unlike Toyota, many large companies had allowed their work to become fragmented, overly specialized, and compartmentalized. One insurance company we visited took 24 days to issue a simple policy, a job that required only 10 minutes of actual work! It turned out that this one 10-minute piece of paperwork had to crawl through 17 different departments, most of which added no value whatever to the process.

Mike and I were trained as engineers. We thought work should be an efficient progression of connected tasks that produced a worthwhile product or service. We wanted companies to run like well-tuned engines—no sputtering, coughing, or failing, unlike so many companies we knew of.

We searched for a new way of doing work that would achieve two goals at once—increase a company's efficiency while improving the quality of its products and services. We cast aside the notion of work as a collection of independent tasks. We thought related tasks should be combined as discrete processes, each of which delivered a valuable output. For instance, sales and marketing departments should stop acting separately and, instead, join forces in a larger process called “new customer acquisition.” Similarly, everyone with a separate hand in developing products should pool with all other developers in a single process called “new product launch.”

Together, Mike and I wrote *Reengineering the Corporation: A Manifesto for Business Revolution*. I am both humbled and proud to say that the book is still in print in more than 20 languages. And I believe the idea of redesigning work is even more important and powerful today. Technological advances, especially the Internet and the proliferation of smart

mobile devices, enable enterprises to go even further in work redesign, reaching new levels of efficiency and performance.

REENGINEERING: RX FOR HEALTH CARE DELIVERY

For years, I have pondered why reengineering, has not been widely applied to health care. As an engineer and consultant observing clinicians at work, I see a series of delivery processes waiting to be organized for maximum effectiveness. Each process is typically discrete; it consists of specific activities and has an overall input and output. But these health care processes are hardly arranged in the most effective possible sequences. In fact, they are rife with opportunity for a redesign to maximize their quality, safety, convenience, and cost of delivery.

Yes, we have made amazing progress in the diagnosis and treatment of illness and disease over the past 50 years. But not enough has changed in the processes of delivering health care.

At a meeting of hospital executives not long ago, I listened to a discussion of ways to improve an error rate of 2 percent in giving patients the correct medication. I was alarmed—2 percent, for a pill

that might kill? Why not zero errors? I became even more concerned when someone pointed out that the near-miss error rate was closer to 11 percent. What accounted for the 9 percentage-point differential? I asked. The answer: vigilant nurses who recognized—in time—that someone had inadvertently selected the wrong medication for a patient's condition. How could such a thing happen? One of the executives handed me a couple of handwritten orders, scrawled by doctors in a hurry. The cliché about doctors' writing held true. They were unreadable.

Many hospitals already require doctors to enter all prescriptions electronically, but that is only the first step in addressing this broken and potentially deadly task. A single hospital may administer hundreds of thousands of medication dosages each year and, as you will read in the pages to come, each dose administered can involve dozens of steps. The opportunity for error is plain to see, with or without electronic entry. The solution is to rethink and reengineer the work.

THE CULTURE OF HEALTH CARE

You might fairly ask whether reengineering can be applied to health care delivery. After all, the concept

has come out of business management, while health care has a culture all its own.

My answer has two parts: First, I firmly believe that reengineering could and should be applied to any kind of work, from factory production to health care, and even the writing of prose. Second, I both recognize and admire the culture of health care, particularly as it's practiced by clinicians. They come to work not only to "do no harm," as Hippocrates prescribed, but to use their knowledge for actually doing good.

I also believe that critics, sometimes physicians themselves, can be harsh in their assessment of how medical practitioners do what they do. "Physicians just don't think that way" was a sentiment we heard more than once in interviewing people for this book.

Well, physicians aren't the only ones who find it difficult to conceive or understand the processes that make up their work. I've met many business executives who were equally flummoxed when it came to understanding the design of work and process. And why should they? It is a matter of training, not of culture. Physicians, like many business managers in the past, have been trained to accomplish what they have to accomplish independently, not in teams. The problem arises

because health care delivery today demands teamwork.

But I have no doubt that physicians are capable of changing how they do what they do, as well as their behaviors. I've seen it in many health care settings across the country. As the examples in this book illustrate, it's all about socialization, education, and training.

The high sense of purpose that infuses clinicians' work is, in my estimation, the motivating force for reengineering health care delivery. I am convinced that clinicians will be guided by their larger mission. They will listen carefully, reconsider how they are doing their work now, and thoroughly study any changes that can help them do even more good.

ABOUT HARRY

I knew from the start that I would need expert help in carrying the message of reengineering to hospitals and clinicians. I would need a gifted partner well acquainted with health care delivery and all possible ways this unique kind of work might be redesigned.

I am privileged to have Dr. Harry Greenspun join me as co-author of this book. His background and

experience make him the ideal bridge between the world of business and the culture of health care.

After receiving his bachelor's degree from Harvard and his medical degree from the University of Maryland, Harry completed his training and served as Chief Resident at Johns Hopkins. He then practiced as a cardiac anesthesiologist in community hospitals and academic medical centers. He has been an educator and a consultant with special expertise in information technology and health care policy, and has served as chief medical officer for major corporations. Early in his career, he founded a company that tracked clinical outcomes in cardiac surgery.

Harry is now the Chief Medical Officer at Dell Inc. and is an active member of multiple forums working on national health care reform. At Dell, he engages with health care providers—both hospitals and physicians—that are adopting new technologies to improve the delivery of care. Harry brings real experience and expertise to health care reengineering and truly understands the opportunity cost of doing nothing.

Upon meeting other physicians, often men and women with international reputations for excellence, Harry likes to ask how do we know if we are being

good doctors? As they ponder this question, Harry's friends recognize that there are few objective measures. The point he's making is that in most parts of this country and around the world, physicians have few valid ways to benchmark their performance against that of their peers or any other clear standard.

Through decades of malpractice litigation, expert witnesses have regularly established when the "standard of care" has been violated. Yet, there are few examples of excellence. Hospitals, large practices, health plans, and medical societies often collect and analyze data for quality improvement, but the results are typically designed to raise providers to some acceptable minimum standard of care or to root out outliers.

When rigorous quality reporting and transparency efforts are established, Harry says, the results are often enlightening, sometimes revealing that a reputedly high-quality organization is, in fact, quite mediocre, an emperor without clothes, so to speak.

As a doctor himself, Harry has always strived to practice good medicine, but his report card was based on what he considered to be weak indicators—referrals to friends and requests from surgeons to assist in particularly challenging cases. But he says

he could never be sure whether he was a really gifted anesthesiologist or just an average or lucky one who was easy to work with and had a good bedside manner.

Harry rightly determined that if we accept that doctors are practicing medicine without knowing whether they are actually doing a good job—and we know through the examples highlighted in this book that doctors are capable of performing at a much higher level of safety, efficiency, and effectiveness—a disturbing picture emerges: In our current state, doctors may be practicing not only at a substandard level compared to their peers; they may be practicing at a level far below what their own capabilities enable.

Those individuals and organizations that complain about the hassle, expense, and upheaval caused by launching a reengineering effort should consider the opportunity cost. Is the detriment to your patients, practices, and peers worth the delay? Harry and I would both agree that the answer is a definite “no.” And we believe that reengineering presents an opportunity for physicians to practice at a level to which they aspire.

As this book unfolds, you will discover that reengineering health care will require changes both

to the work performed and to traditional patterns of behavior. In our desire to gain and hold your attention, Harry and I may raise our voices from time to time. But we do so with the greatest respect for those on the frontlines of health care delivery. You will see examples drawn from organizations large and small, many well known, others less so. We hope our efforts will make a serious contribution to your work.

—*Jim Champy*

CHAPTER 1

**WHY REENGINEER
HEALTH CARE?**

Health care costs too much and achieves too little for one profound reason—it is tremendously inefficient. And because of that inefficiency, quality issues abound.

Some view improving efficiency in health care as simply getting doctors to see more patients each hour. Our view is different. In these pages, we present the stories of ingenious people and organizations, large and small, that have found ways to do the job better. They have reduced tensions and improved communication among medical team members, enormously improving performance. They have reprioritized the physician's day, leaving more time for patients. They have engaged patients along a continuum of care across a fragmented system. And they have made the delivery of care safer.

What these pioneers also have in common is an approach to their work known as reengineering, a term that entered the business lexicon after *Reengineering the Corporation* was published in 1993. It ignited a widespread movement to improve the way work is performed by businesses. In essence, reengineering sees work not as a series of separate tasks to be individually optimized, but as groupings of interconnected processes to be reassessed and reinvented *in toto*.

The book formally defined reengineering as “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed.” Four words—fundamental, radical, dramatic, and process—are the keys to reengineering.

Fundamental refers to how work is performed and the basic questions that need to be asked: Are the underlying assumptions about the design of work still valid? Have advances in science and technology enabled work to be performed in new, more effective ways?

Radical means going beyond superficial changes in the way things are being done. You need to ask whether old structures and operating assumptions are diminishing the quality and service being delivered by your enterprise. Do you need to go back to your original roots to rethink how work should be done?

Dramatic tells you that reengineering isn't about marginal or incremental improvements. Sometimes an enterprise—or an entire industry—requires something more than piecemeal change. Has your organization reached a point where it's survival or

efficacy is threatened in a way that only wholesale change can fix?

Finally, process refers to a group of activities that uses one or more kinds of input to create an output a customer values. In health care, the customer might be a patient, a clinician, or the entity paying for the care.

For the past 20 years, enterprises have relied on reengineering, or reengineering-like thinking, to achieve success. Companies as diverse as Texas Instruments, Campbell Soup, and Wal-Mart have successfully reengineered. The methodologies and techniques may vary in name, but they all share the same ambition for dramatic improvement in the performance of work by focusing on process.

Observers of health care agree that a compelling case exists for radical improvement and dramatic change in care delivery. So for the purposes of this book, we suggest a more appropriate definition of reengineering: The radical improvement of health care delivery processes to enhance quality and dramatically lower costs, while also greatly expanding patient accessibility to that improved care.

Implicit in this definition is our belief that more efficient and safer delivery will automatically lead to sharply reduced costs. More to the point, without reengineering, we don't see how any economy will ever be able to afford health care for all of its citizens.

Reengineering must be done, and it must be done by clinicians. No angel of government, even under the auspices of "national health care reform," can reduce the cost and improve the quality of health care without the work and leadership of clinicians. It's time for all clinicians—physicians, nurses, technicians, physician assistants, and pharmacists—to assume their rightful role in directing change.

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By and large, health care has evaded both the rigors and rewards of reengineering. But there is no reason why that state of affairs should continue. Health care is ripe for reengineering, and signs point to adoption of those principles in certain segments of medical practice.

DRAMATIC CHANGE IS POSSIBLE

Meet Geisinger Health System, a 93-year-old network of three hospitals and an insurance company based in Danville, Pennsylvania. Geisinger recruited its CEO, Dr. Glenn Steele, a surgeon and oncologist, from the University of Chicago medical faculty in 2003. Ahead of many health care institutions, Geisinger was open to change, and having its own hospitals and health-insurance plan made it ideal for controlled experiments with a reengineering concept now known as ProvenCare.

The problem at hand was the huge variation in care that comes with dividing patient responsibility among multiple specialists. Since doctors use different protocols and possess different communication skills, patient outcomes were unpredictable. The variations increased relapses, which, in turn, caused more readmissions and drove up patient costs.

Starting with coronary-artery bypass surgery, a common, well-studied procedure with repeatable, refineable processes, Steele and seven cardiothoracic surgeons focused on how to solve the care-variation problem. They first decided to

consider the work of a bypass as a process, then they developed a master list of 40 essential steps in patient treatment, ranging from initial visit to discharge. The individual treatment steps were well-known, of course; the new wrinkle was the innovative way in which Steele and his team chose to consider each step as part of a larger process, and to make sure that all steps got done every time.

To make this happen, ProvenCare provides bonuses for doctors who follow the established, written protocol. Those who see good reason to skip a step (very few have) must explain why in the patient's record. The ultimate goal is to confirm that no step has been forgotten, whether applied or not.

Preliminary studies show that ProvenCare's coronary bypass program significantly reduces hospital stays, patient bills, and readmission rates. Geisinger has now applied the approach to other procedures, including hip replacement, cataract surgery, and diabetes management.

But while there's no doubt that meticulous use of well-designed checklists can and does improve health care delivery, that's only one facet of what's needed to reengineer care as a whole. The breakthroughs we cite in the pages ahead, coupled with our analyses and comments, are organized to

illustrate the three main pillars of our approach: technology, process, and people. Let's take each in turn.

- ▶ *Technology.* In any science-based enterprise, technological developments offer daily opportunities for redesigning work. Do you automatically consider technological solutions to the problems you find in delivering health care? Are you monitoring new technology for developments that might enhance performance in your hospital or practice? How do you find new technology that will mesh with your total system to work efficiently? Are you doing enough to reduce risks? Are you prepared to install the best available systems for fast, reliable communication among doctors, nurses, and administrators—and to make sure that they fit with the redesigned work of your organization? How far along are you in developing electronic health care records?
- ▶ *Process.* Whether or not new technology is applied, an organization's work is best understood as a collection of processes. What's the best technique for determining which processes need improvement? Once identified, how do you develop a strategy for getting the results you desire? How should work be reordered? Which frontline employees—nurses, administrative staff, doctors—should play

what roles? How and to whom should changes be introduced, and should they be carried out sequentially or simultaneously?

- ▶ *People.* No process can work properly without people trained as a team to execute. Are existing relationships within your organization helpful or harmful to high performance? What programs are needed to prepare doctors and nurses for change? Are you open to listening to your people's criticisms of new methods and to support innovations designed to adapt to the real world? How do you develop leaders in hospitals or practices who will accept, strengthen, and maintain new standards?

Of course, people, process, and technology do not exist in isolation. The interfaces among them can either enhance or detract from the overall performance of an organization and the ultimate outcome and experience of the patient.

But before we begin detailed descriptions of pioneering programs focused on technology, processes, and people, let's meet a health care reformer whose reengineering achievements integrate all three approaches. Chapter 2 tells the story of Zeev Neuwirth, one of this country's most persistent and productive innovators in health care delivery.

INDEX

A

Ackerman Institute for the Family, 29
Activate Healthcare, 125, 126
adoption times in process improvements, 103-105
adverse drug events (ADEs), 146-153
Advocate Medical Group, 122
American Society of Health-System Pharmacists (ASHP), 153
Atrius Health, 125
attention to detail (electronic health records example), 82-84

B-C

behavior, changing. *See* people development
Blue Cross/Blue Shield of Massachusetts, 50
Brennan, Michael D., 98
“burning platform,” 203
Bush administration, electronic health records initiatives, 89
California Pacific Medical Center (CPMC), 113, 171
Camenga, Cathy, 113, 114, 115
Cardwell, Terri, 151
champions, identifying (electronic health records example), 76-77
Chang, Florence, 64, 68, 70, 75, 78, 83, 87-88
checklists. *See* implementation checklists
Chicago Police Department, 122

chronic-disease management. *See* disease management

clinicians

- choosing reengineering starting point, 197-199
- design/implementation (electronic health records example), role in, 71-76
- people development, role in, 142-143
- productivity levels, protecting, 79-82
- qualities required for reengineering efforts, 213-214
- reengineering, role in, 19
- visits in workplaces, 122-128

cloud computing, 91

communication, 27, 73, 163, 175

complexity management (patient safety example), 179-182

computerized physician order entry (CPOE), 176

continuous optimization (electronic health records example), 86-88

continuum of care, managing, 119-128

costly health care, choosing reengineering starting point, 193-197

CPMC (California Pacific Medical Center), 113, 171

CPOE (computerized physician order entry), 65-66, 176

culture of health care, 7-9

culture of safety, developing, 182-185

cytology lab tests, improvements, 54-55

D

Davidson, Lisa, 35

Dell Inc., 10

disease management, 115-119, 195-197
doctors. *See* clinicians
documentation, 177
drug interactions, 172. *See also* medication
management example (people development)
dysfunction, as opportunity for improvement,
189-190

E

economy, effect on patients and clinicians, 202
educating patients, 111-115
Eglitis, Dagmar, 37
EHR. *See* electronic health records example
Eisenberg, Matthew, 72-79, 83, 87
electronic health records example, 63-88
attention to detail, 82-84
champions, identifying, 76-77
clinicians' role in design/implementation, 71-76
continuous optimization, 86-88
guiding principles, 69-71
implementation, single versus phased, 85-86
national system, 89-92
preparation stage, 67-69
productivity levels, protecting, 79-82
project-management methodologies, 77-79
training, 84-85

F-G

feedback in process improvements, 110-111
Forsyth Medical Group, 170
fragmentation of health care, 201

Fritz, Robert, 34
future leaders, role in people development, 155-165

Geihlsler, Debra, 98, 119-128, 201
Geisinger Health System, 20-22
government, role in health care reform, 210-213
Greenspun, Harry, 9-13
group patient appointments, 128-135
guiding principles (electronic health records example), 69-71

H

Hammer, Michael, 4-5
handwashing, 171-172
Harvard School of Public Health, 35
Harvard University, 10
Harvard Vanguard Medical Associates, 125
 inspiration from others' success, 143-146
 Lead Project, 50-52
 people approach to reengineering, 34-42, 155-165
 process approach to reengineering, 43-50
health care culture, 7-9, 50-58
Healthcare Information and Management Systems Society (HIMSS), 61
health care reform. *See also* reengineering
 government role in, 210-213
 ideal system, described, 214-216
 insurance role in, 210-213

HealthOne, 124
high-cost areas, choosing reengineering starting point, 193-197
HIMSS (Healthcare Information and Management Systems Society), 61

Holland, Nan, 149, 150
Huntington Memorial Hospital, 63

|

ideal health care system, described, 214-216
implementation checklists
 people development, 165-167
 process improvements, 135-139
 reengineering, 204-207
 technology improvements, 92-95
implementation, single versus phased, 85-86
inspiration from others' success, 143-146
insurance companies, role in health care
 reform, 210-213
iterative changes in process improvements, 107-111

J-K

Johns Hopkins, 10

Knight, Tom, 104, 170-185
 complexity management, 179-182
 culture of safety, developing, 182-185
 patient safety example, choosing reengineering
 starting point, 190-193
 technology improvements, 170-178
Knosp, Michael, 37, 42

L

Lawler, Noelle, 37, 42
Lawson-Baker, Scharmaine, 60-61
Leadership Academy example (people
 development), 155-165

LEAD Project, 50-52
Lenox Hill Hospital ER example, 29-34
Lindsey, Gene, 51, 55
locations for patient care, changing, 119-128
Lohnes, Maggie, 61-66, 76, 80-81, 84, 89, 153-155

M

Mayo Clinic example (iterative changes), 108-111
medication management, 146-153, 172, 180-182.
See also patient safety example
Meenan, David, 37, 42
Mercy Health System, 120-121
**Methodist Hospital System example (patient safety),
 170-185**

- complexity management, 179-182
- culture of safety, developing, 182-185
- technology improvements, 170-178

Montori, Victor M., 98, 109
Mount Sinai Medical Center, 26
**MultiCare Health System (electronic health records
 example), 61-88**

- attention to detail, 82-84
- champions, identifying, 76-77
- clinicians' role in design/implementation, 71-76
- continuous optimization, 86-88
- guiding principles, 69-71
- implementation, single versus phased, 85-86
- preparation stage, 67-69
- project-management methodologies, 77-79
- training, 84-85

N

- National Committee for Quality Assurance, 171**
- national electronic health records system, 89-92**
- Neuwirth, Zeev, 26-58, 129, 133, 134, 135. *See also***
 - Harvard Vanguard Medical Associates**
 - inspiration from others' success, 143-146
 - Lenox Hill Hospital ER example, 29-34
 - orthopedic productivity example, 100-103
 - reengineering in health care culture, 50-58
- Novant Health, 146-153**
- nurses, role in people development, 153-155**

O-P

- Obama administration, electronic health records initiatives, 90**
- objectives, setting, 207**
- orthopedic productivity example (scale of process changes), 100-103**
- patient-care locations, changing, 119-128**
- patient education, 111-115**
- patient feedback in process improvements, 110-111**
- patient safety example, 170-185**
 - choosing reengineering starting point, 190-193
 - complexity management, 179-182
 - culture of safety, developing, 182-185
 - technology improvements, 170-178
- patients' perspective, choosing reengineering starting point, 199-202**
- Pegus, Cheryl, 117-119, 196-197**
- people development, 23**
 - clinicians' role in, 142-143
 - future leaders, role of, 155-165

- Harvard Vanguard Medical Associates Kenmore center example, 34-42
- implementation checklist, 165-167
- inspiration from others' success, 143-146
- medication management example, 146-153
- nurses, role of, 153-155
- pharmacists, medication management example (people development), 146-153**
- physicians. *See* clinicians**
- point-of-care information, 178**
- preparation stage (electronic health records example), 67-69**
- problem-solving in process improvements, 105-107**
- process improvements, 18, 22**
 - chronic-disease management, 115-119
 - Harvard Vanguard Medical Associates Kenmore center example, 43-50
 - implementation checklist, 135-139
 - iterative changes, 107-111
 - Methodist Hospital System example (patient safety), 179-182
 - patient-care locations, 119-128
 - patient education, 111-115
 - problem-solving versus systemic changes, 105-107
 - quick results versus long adoption times, 103-105
 - scale of, 99-103
 - shared appointments, 128-135
- process maps, creating, 204-207**
- productivity levels, protecting (electronic recordkeeping example), 79-82**
- project-management methodologies (electronic health records example), 77-79**
- ProvenCare, 20-21**

Q-R

qualities required for reengineering efforts, 213-214

“quality rounds” (Methodist Hospital System example), 177

quick results in process improvements, 103-105

reengineering. *See also* health care reform

choosing starting point, 188-204

clinicians' workload, 197-199

high-cost areas, 193-197

patients' perspective, 199-202

pragmatic decision-making, 203-204

risky areas, 190-193

elements in, 22-23

explained, 16-19

Geisinger Health System example, 20-21

health care culture and, 7-9, 50-58

implementation checklist, 204-207

need for in health care industry, 6-7

process improvements. *See* process improvements

qualities required for, 213-214

technology improvements. *See* technology improvements

Tom Knight example, 170-185

complexity management, 179-182

culture of safety, developing, 182-185

technology improvements, 170-178

Zeev Neuwirth example, 26-58

Lenox Hill Hospital ER example, 29-34

people approach to reengineering, 34-42

process approach to reengineering, 43-50

Reengineering the Corporation: A Manifesto for Business Revolution (Champy and Hammer), 5, 16
 risky areas, choosing as starting point, 190-193

S

Safe Med, 146-153
 safety example. *See* patient safety example
 scale of process improvements, 99-103
 shared patient appointments, 128-135
 Shaw, George Bernard, 142
 Southwest Airlines, 199
 SPARC program (Mayo Clinic) example (iterative changes), 108-111
 starting point for reengineering efforts, choosing, 188-204

- clinicians' workload, 197-199
- high-cost areas, 193-197
- patients' perspective, 199-202
- pragmatic decision-making, 203-204
- risky areas, 190-193

 Steele, Glenn, 20
 super-ordinate qualities, required for reengineering efforts, 213-214
 Svenson, Joanne, 37
 SymCare Personalized Health Solutions, 117-119, 196
 systemic changes in process improvements, 105-107

T

technology improvements, 22, 60-95

- avoiding failure risk, 181-182
- implementation checklist, 92-95

- Methodist Hospital System example (patient safety), 170-178
- MultiCare Health System example (electronic health records), 63-88
 - attention to detail*, 82-84
 - champions, identifying*, 76-77
 - clinicians' role in design/implementation*, 71-76
 - continuous optimization*, 86-88
 - guiding principles*, 69-71
 - implementation, single versus phased*, 85-86
 - preparation stage*, 67-69
 - productivity levels, protecting*, 79-82
 - project-management methodologies*, 77-79
 - training*, 84-85
- national electronic health records system, 89-92
- Scharmaine Lawson-Baker example, 60-61
- ThedaCare**, 144-146
- Thomas, Jack**, 193
- Toussaint, John**, 145
- Toyota**, 4
- training (electronic health records example)**, 84-85
- Tufts University**, 29

U-Z

- University of Maryland**, 10
- University of Pennsylvania School of Medicine**, 26
- U.S. Veterans Administration**, 106-107
- Veterans Administration Hospital (Bronx, NY)**, 26
- Veterans Administration (U.S.)**, 106-107
- Whitworth, Jennifer**, 37
- work, improving performance**, 4-6
- workplace, physician visits in**, 122-128