

VALUE BY DESIGN

Developing Clinical
Microsystems to
Achieve Organizational
Excellence

EUGENE C. NELSON • PAUL B. BATALDEN
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EDITORS

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VALUE BY DESIGN



VALUE BY DESIGN

**Developing Clinical
Microsystems to Achieve
Organizational Excellence**



**EUGENE C. NELSON
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Foreword by Elliott S. Fisher

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FOREWORD

Elliott S. Fisher

The problems confronting the U.S. health care system are widely recognized: a rising burden of chronic disease;¹ limited capacity to deliver safe, reliable, and effective care (even when the evidence for specific treatments is strong);^{2,3} fragmented and poorly coordinated patient care that is frequently impersonal, insensitive to socioeconomic, cultural or ethnic contexts, and poorly aligned with patients' preferences;⁴ and rising costs that threaten individual, corporate, and government budgets.^{5,6}

As our recognition of the scope of the problems has grown, so has our understanding of the underlying causes of these problems. Although some of the responsibility for poor care rests with our still inadequate health insurance coverage, most policy experts recognize that expanding insurance coverage will do little to address the underlying causes of poor quality and rising costs that afflict even those with excellent insurance. The critical underlying causes include:

- Unclear Aims: failure to be clear about the aims of health care (Is health care a commodity and thus just about making money? Or about better care and better health?);
- Limited Information: inadequate information systems and inadequate information on the risks and benefits of common treatments and the performance of local health systems and providers;
- Disorganized Care: a fragmented and disorganized delivery system that is limited in its capacity to learn or to measurably improve care;

- Flawed Incentives: a payment system that reinforces fragmentation and fosters little or no accountability for the quality and costs of care.

The United States now has an unprecedented opportunity to address these problems. The National Priorities Partnership, a broad multistakeholder coalition including all the major federal health agencies, employers, provider organizations, and consumer groups, has achieved consensus on aims, making explicit the need to improve care, improve health, and reduce costs.⁷ The American Reinvestment and Recovery Act (2009) made major policy and funding commitments to improving health information systems, performance measures, and comparative effectiveness research. And the recently passed Affordable Care Act (2010) includes numerous provisions intended to foster delivery system and payment reform. These include: the requirement that the Secretary of Health and Human Services develop a national quality strategy; the creation of a new Center for Medicare and Medicaid Innovation to identify, develop, and test new models of care and payment; authorization and funding to test a broad array of pilot programs (ranging from use of decision-aids to support informed patient choice to the creation of “Health Innovation Zones”); and the creation of a new payment model under Medicare (Accountable Care Organizations) under which physician groups and other providers can take responsibility for defined populations—and be rewarded financially for improving quality and lowering costs. These provisions will set in motion a marked change in the organizational structure, performance measures, and payment methods of the U.S. health care system.

The success of reform, however, will depend upon whether clarity of aims or changes in organization, policy, and payment methods can lead to actual improvements in the health and function of patients, in their experiences of the

care, and in the affordability of health care. Policy alone can't change practice: health care professionals must change how they care for patients. The success of reform thus depends upon changes at the front lines of practice—where patients are touched by their clinicians—and in the organizations and systems that support those frontline clinicians.

This book is essential reading for everyone who wants to improve the care that they provide, whether a nurse in the emergency room frustrated by patient flows, a physician in a small office practice trying to improve care for diabetic patients, or a leader of a major health system considering how to become an Accountable Care Organization.

The authors build on decades of work applying scientific principles of improvement to health care and add a key insight drawn from the research of James Brian Quinn:⁸ value in health care is produced in small functional units—clinical microsystems—where one or more health professionals work with patients (and their families) to produce a specific health outcome. Microsystems have clinical aims (effective treatment of primary care patients with diabetes), business aims (maintaining income, covering expenses), and shared technology and information. Most importantly, microsystems have inputs, processes, and outputs (including clinical outcomes) that allow their performance to be measured and improved.

Building on this conceptual foundation, the authors describe how health professionals can work with patients, families, and team members within a microsystem to systematically improve performance. The first half of the book focuses on general principles: the theory of microsystems (Chapter 1); engaging patients as partners (Chapter 2); improving reliability (Chapter 3); creating the needed information environment (Chapter 4); and developing plans for how patients traverse a microsystem

(Chapter 5). The next four chapters describe specific examples across the care continuum. Finally, Chapter 10 provides a spectacular discussion of how health care leaders can build effective, high-performing delivery systems on the foundation of high functioning clinical microsystems.

Better value is what we badly need in health care. *Value by Design* can help us get there.

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PREFACE: IMPROVEMENT AT THE FRONT LINE OF CARE

- Discussion of health care reform has grown ubiquitous in our nation's and states' capitals, in our newspapers, on our television, on the Internet, at the office water cooler, and, of course, within our homes. There is good reason for such discussion and for the deep concerns that prompt it: whether we are employers, politicians, payers, patients, families, or health care professionals, we are also participants in a health care system that too often fails to deliver the quality, safety, and *value* of care we individually and collectively require. But although government policies, community resources, and payer pressures will increasingly shape a health care environment that is more conducive to quality improvement and value creation, the great share of this improvement work must occur at the front line of health care itself in what we call the clinical microsystems, the place where patients, families, and caregivers actually meet. Within these microsystems, clinical needs are most directly linked to clinical resources. Within these microsystems, quality, efficiency, timeliness, service excellence, and innovation can (and must) be built into frontline work processes themselves. The following principles promote quality within clinical microsystems: active attention to quality, safety, and value is no longer an option in health care, but an imperative.
- Quality must be delivered to the right person *by* the right person, at the right place, and at the right time every time.
- Safety must be conceived not merely as a priority in health care design, but as a precondition or prerequisite.
- Value, which can be described as the relationship of quality and safety and outcomes divided by costs over

time, requires that we direct our attention to continual removal of unnecessary costs and to using work processes that are (in this era of necessarily limited economic resources) not only effective but also optimally efficient.

Moreover, we must not be content in modern health care to guarantee only clinical quality or only safety or only patient satisfaction or only cost reduction. Instead we must design and manage health systems that are capable of achieving all of these goals all of the time. We will need to do this, finally, in a manner that also increases pride and joy in work of physicians, nurses, and all health professionals who, for the most part, entered this line of work because they wanted to help people and to make a difference.

We have written this book, *Value by Design*, to offer specific guidance on building and improving clinical microsystems. We direct our attention especially to the front line of care because this is where clinical service is actually rendered, success is measured, health care teams learn from experience and modify their work appropriately, patients and families develop their loyalty to the health care system, and patients hopefully recover, maintain, or even generate health. The clinical microsystem is the locus of value creation in health care.

The timing of this book's publication is fortuitous. We believe a *cultural shift* is taking place in the health care quality and safety movement. Until recently, this field was led by a small and tightly linked community of authors and leaders who knew each other well. Only a limited number of high-quality publications were circulated, and new events and developments were communicated quickly and easily among thought leaders in the field and among their colleagues, associates, and acquaintances. This small community was richly connected by shared interests and by collaborative projects and friendship networks that created

a generative and enabling context and a fidelity to shared principles, concepts, and methods. The focus of work was on patients, populations, and health professionals.

More recently, however, the culture of the quality movement has shifted. Robust demonstrations of health care improvement are now widely dispersed across multiple sites that are delivering care, conducting research, and educating the next generation of health professionals. Multiple journals and scores of Web sites and blogs now address questions of quality and safety. These provide myriad portals into numerous topics, themes, and programs, both nationally and internationally. Although the primary focus remains on patients, populations, and health professionals, active efforts now align health care delivery with public and community health promotion. Keeping up-to-date in this burgeoning field requires a vigilance that may not be attainable among even well-intended quality practitioners.

We believe the time is therefore right to consolidate, in a single volume, some of what we have learned about *what works* to improve value in health care. We wish to explore durable concepts and methods that have proven useful to clinical microsystems endeavoring to effect meaningful change in diverse real-world settings. We wish to share, as well, a practical framework that has successfully stimulated learning and improvement in microsystem participants and in students who aspire to enter the growing community of quality leaders and practitioners.

The Dartmouth Institute's Clinical Microsystems Course

In a sense, we (Batalden and Nelson) have been working on this book for more than fifteen years. In 1994 Paul Batalden left the Hospital Corporation of America (HCA) to

rejoin forces with Eugene Nelson, who had moved from HCA to Dartmouth in 1992. Dartmouth Medical School's Center for the Clinical Evaluative Sciences (now the Dartmouth Institute for Health Policy and Clinical Practice), under the leadership of Jack Wennberg and Gerry O'Connor, had begun a novel master's degree program to prepare health professionals in health policy, epidemiology, biostatistics, and quality improvement. Dartmouth recruited Batalden to lead the new quality improvement track in the master's degree program and to develop a core curriculum on the fundamentals of modern improvement in health care. The capstone course in this quality track that provides both the content and the structure of our present book was formally named "Continually Improving the Health and Value of Health Care for a Population of Patients: The Design and Improvement of Clinical Microsystems." Offered initially in 1995 and every spring since that time, the *Microsystems Course* (as it is less formally known) remains popular among graduate students, health care administrators, and experienced health care professionals.

The Microsystems Course continues to evolve as new insights are gained and as new applications of modern improvement in health care are tested (and found to work) in the real world. Marjorie Godfrey joined the faculty team in 1999 and has developed numerous useful tools (many of which are featured in this book's action guides) to guide clinical microsystems in the hands-on work of practice self-assessment and change. More recently, Tina Foster and Joel Lazar have joined the core group as well, and have helped further align course principles with the experiential realities of patients, families, and frontline caregivers. The course's theoretical and practical underpinnings come from many sources, with special debt to W. Edwards Deming, James Brian Quinn, Kerr White, Karl Weick, Edgar Schein, Donald Berwick, and Tom Nolan. As time has passed and knowledge

has grown, the Dartmouth-based group has authored numerous journal articles on clinical microsystems and a book titled *Quality by Design: A Clinical Microsystems Approach*.

The present book, however, represents our first effort to organize our capstone course material into a single volume for both teaching and value improvement purposes. *Value by Design: Developing Clinical Microsystems to Achieve Organizational Excellence* may be used either as a textbook in health courses like our own, or as a practical guide in the real-world improvement of health care. Because (as we discuss in greater detail in Chapter One) the functions of better patient outcomes, better professional development, and better systems improvement are inextricably linked, we hope and expect our book will serve both purposes simultaneously.

Organization of the Microsystems Course

The Microsystems Course is based on action-learning methods, skips back and forth from classroom to real-world clinical programs and clinical units, and is outrageously fun to teach. Our own course has thirty to forty students each spring and is made up of an almost equal mix of physicians, nurses, mid-career health professionals, and recently graduated undergraduates. Students organize themselves into teams of three or four; each team is then matched with a particular real-world clinical microsystem that becomes the locus of action-learning throughout the semester. The ten or so clinical microsystems are selected from the surrounding region and are picked to represent different parts of the health care continuum. Our most recent year's sites (2009) included a family practice, a general internal medicine clinic, a pediatric surgery program, an