

Managing Patient Flow in Hospitals

Strategies and Solutions

Second Edition



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Foreword by **Susan Dentzer**



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Introduction

Eugene Litvak, Ph.D.

Emergence of Patient Flow Management

If 10 years ago or so you had searched for “patient flow” on the Web, you would probably have received 100 or so URLs. Today this number exceeds 300,000. The burgeoning growth in interest in patient flow, as also seen in the emergence of a large literature, reflects widespread recognition that it is a critically important aspect of the health care delivery system in the United States and indeed throughout the world. The reasons for this interest are well known—crowded emergency departments (EDs) and excessive patient waiting times there and elsewhere, limited access to care, heavy workloads for nurses and other staff, scarce health care workforce resources, and skyrocketing health care costs. The importance of patient flow cannot be overestimated, especially in light of the current push for health care reform in the United States, because only by addressing patient flow issues can we simultaneously improve the quality and reduce the cost of health care.

The Institute for Healthcare Improvement has played a pioneering role in promoting and disseminating innovations in patient flow management.¹ The U.S. General Accountability Office, the investigative arm of the U.S. Congress, gave a strong boost to recognition of the importance of the patient flow concept in two

reports, the first issued in 2003² and the second in 2009.³ The more recent report indicates, for example, that the average wait time to see a physician for emergent patients was 37 minutes, more than twice as long as recommended, and that a lack of access to inpatient beds reflects competition between hospital admissions from the ED and scheduled admissions for elective surgeries. Yet it is The Joint Commission’s accreditation standards that are likely the most important factor in the emergence of patient flow as an urgent concern in the health care industry. The Joint Commission’s Leadership standard for managing patient flow (now Standard LD.04.03.11⁴) issued in 2004, called on hospital leaders to “develop and implement plans to identify and mitigate impediments to efficient patient flow”⁵(p. 14) throughout the hospital. Elements of performance for the Leadership standard specify, for example, that the hospital has processes that support the flow of patients throughout the hospital and uses measures of specified components of the patient flow process to assess and improve patient flow management.⁴

Purpose of This Book

This book, *Managing Patient Flow in Hospitals: Strategies and*

Solution, second edition, is a complete revision of its predecessor, *Managing Patient Flow: Strategies and Solutions for Addressing Hospital Overcrowding*.⁶ Building on the growth of theory and practice in the intervening five years, this new book provides hospitals with scientifically grounded methods to optimally manage patient flow.

Overview of Content

This book, as described by Susan Dentzer in the *Foreword*, provides a combination of literature syntheses, tools and methods, illustrative vignettes, and real-life case studies. Two of the five tutorials—Chapters 1 and 2—describe the problem of patient flow and the impact of patient flow issues on staff and patients.

The assessment and improvement strategies presented in Chapters 3 and 4 provide detailed guides on how to conduct a comprehensive assessment of patient flow and on how to use the results to identify strategies to better manage patient flow. These strategies are based on variability methodology (VM), a nonproprietary methodology developed and field tested by the authors. As Vaswani et al. state in Chapter 4, “Eliminating variability where you can and optimally managing it when you can’t eliminate it is the fundamental starting point of optimally managing patient flow.”^(p. 60) Chapter 5 provides an inventory of “the right data, measures, and analyses” on which to base measurement and improvement. Accuracy of operational data is as critical to patient flow management as is accuracy of clinical data to patient care management. The readers will find some overlap among the chapters, particularly Chapters 3–5, which reflects the interrelated nature of the issues and methods at hand and the fact that most of the content represents the authors’ collaborative work at the Boston University Program for Management of Variability in Health Care Delivery (MVP). This work is being further developed by four of these five authors at the newly created Institute for Healthcare Optimization (see <http://www.ihoptimize.org>). Chapter 4 provides a scientific yet very practical step-by-step guide to re-engineering patient flow. As noted in the chapter, implementing the recommendations is predicated on a hospital’s resources for operations data analysis, clinical expertise, and organizational change management. Attempts to “make things easier” by not sufficiently addressing one of these components are to be discouraged—for example, as in designating an operating room for unscheduled surgeries without ensuring the availability of surgeons.

Finally, Chapters 6–8 provide detailed case studies that illustrate how three hospitals have used the measures and strategies depicted in Chapters 3–5 to successfully improve patient flow.

Who Should Read This Book?

This book will help anyone who leads or is otherwise involved in his or her hospital’s efforts to improve efficiency and the flow of patients, such as the chief executive officer, chief operating officer, chief medical officer, and chief financial officer; as well as medical officers, nursing leaders, board members; medical officers; physicians, nurses, and other clinicians; quality, process improvement, and productivity managers; emergency department, surgery, critical care, and inpatient unit managers; and medical directors. Yet although this book draws on theory and practice as applied to hospitals, the patient flow management methods and tools could also be adapted to ambulatory care organizations and any other nonhospital setting. After all, all health care organizations face the challenge of balancing capacity and demand at every step in the care delivery process.

Reflections

Is reading this book *sufficient* to manage patient flow in a hospital? The answer is no. Nor would a single book enable one to become a mathematician. Is this book *necessary* for you to read if your area of expertise is patient flow—or, say, emergency nursing, finance, or quality of care—or if you are a busy health care executive or unit manager? Absolutely! Applying the patient flow management methods and tools described in this book can help to ensure that patients receive timely, high-quality care; to streamline busy EDs or ICUs; to improve nursing workloads; and to safeguard the organization’s overall financial “health.” These methods and tools can address patient flow problems across a wide range of settings, such as for-profit and not-for-profit hospitals and academic and community hospitals. Yet this is not a “one-size-fits-all” book. Before applying the specified strategies and solutions, conduct a comprehensive assessment to determine the unique nature of the patient flow problems at your own organization. Nor should you adopt solutions without careful consideration. For example, if you were the operating room (OR) manager or chief of surgery in a single-OR, 50-bed hospital, you would not want to reengineer your OR. Your main objective would be to investigate the source of your elective admissions, smooth these admissions, and then calculate the number of beds needed for your unscheduled medical admissions—as opposed to, say, the approach pursued by a large hospital such as Cincinnati Children’s Hospital Medical Center (Chapter 6).

The issues discussed in this book are particularly important today as we grapple with the dilemma of how to improve access to care while simultaneously reducing health care costs. Unless we give up one of these goals, the only solution is to improve the

efficiency of the health care delivery system so that it can serve more people with existing resources. Because efficiency depends in part on efficient management of patient flow, this book should contribute to solving the health care dilemma.

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References

1. Institute for Healthcare Improvement: *Optimizing Patient Flow: Moving Patients Smoothly Through Acute Care Settings*. IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement, 2003 (available on www.IHI.org; accessed Sep. 8, 2009).
2. U.S. General Accountability Office: *Hospital Emergency Departments: Crowded Conditions Vary Among Hospitals and Communities*, Mar. 2003. <http://www.gao.gov/new.items/d03460.pdf> (accessed Sep. 8, 2009).
3. U.S. General Accountability Office: *Hospital Emergency Departments: Crowding Continues to Occur, and Some Patients Wait Longer Than Recommended Time Frames*, Apr. 2009. <http://www.gao.gov/new.items/d09347.pdf> (accessed Sep. 8, 2009).
4. The Joint Commission: *2009 Comprehensive Accreditation Manual for Hospitals: The Official Handbook*. Oakbrook Terrace, IL: Joint Commission Resources, 2008.
5. The Joint Commission: New Leadership standard on managing patient flow for hospitals. *Joint Commission Perspectives* 24:13–14, Feb. 2004.
6. The Joint Commission: *Managing Patient Flow: Strategies and Solutions for Addressing Hospital Overcrowding*. Oakbrook Terrace, IL: Joint Commission Resources, 2004.