

Cambridge University Press

978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management

Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III

Frontmatter

[More Information](#)

Operating Room Leadership and Perioperative Practice Management

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

Cambridge University Press

978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management

Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III

Frontmatter

[More Information](#)

Operating Room Leadership and Perioperative Practice Management

Edited by

Alan David Kaye MD, PhD

Louisiana State University Health Science Center, New Orleans, LA

Richard D. Urman MD, MBA

Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Charles J. Fox, III MD

Louisiana State University Health Sciences Center, Shreveport, LA

Managing Editor:

Elyse M. Cornett, PhD

LSU Health Shreveport, Shreveport, LA, USA



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom
One Liberty Plaza, 20th Floor, New York, NY 10006, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India
79 Anson Road, #06-04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.
It furthers the University’s mission by disseminating knowledge in the pursuit of
education, learning, and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781107197367
DOI: 10.1017/9781108178402

© Cambridge University Press 2019

This publication is in copyright. Subject to statutory exception
and to the provisions of relevant collective licensing agreements,
no reproduction of any part may take place without the written
permission of Cambridge University Press.

First published 2019

Printed in the United Kingdom by TJ International Ltd. Padstow Cornwall

A catalogue record for this publication is available from the British Library.

ISBN 978-1-107-19736-7 Hardback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs
for external or third-party internet websites referred to in this publication and does not
guarantee that any content on such websites is, or will remain, accurate or appropriate.

.....

Every effort has been made in preparing this book to provide accurate and up-to-date
information that is in accord with accepted standards and practice at the time of publication.
Although case histories are drawn from actual cases, every effort has been made to disguise
the identities of the individuals involved. Nevertheless, the authors, editors, and publishers
can make no warranties that the information contained herein is totally free from error, not
least because clinical standards are constantly changing through research and regulation.
The authors, editors, and publishers therefore disclaim all liability for direct or consequential
damages resulting from the use of material contained in this book. Readers are strongly
advised to pay careful attention to information provided by the manufacturer of any drugs
or equipment that they plan to use.

I dedicate this book to my wife, Dr. Kim Kaye, my son, Aaron Joshua Kaye, my daughter, Rachel Jane Kaye, and my many colleagues at LSU School of Medicine and Tulane School of Medicine in New Orleans. I am honored to be a part of your lives.

A. D. K.

I dedicate this book to my wife, Dr. Zina Matlyuk-Urman, my parents, and our daughters, Abigail Rose and Isabelle Grace; to my colleagues among physicians, nurses, and administrators at Harvard who supported my efforts in writing this book; and to my patients who I hope will be the ultimate beneficiaries of this work.

R. D. U.

I dedicate this book to my wife, Mary Beth, for her selfless devotion to our family, and to our kids, Chris, Mary Elise, Patrick, Julia, Claire, and Margaret, who enrich our lives more than we ever imagined.

C. J. F.

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

Contents

List of Contributors page ix
Foreword 1 xiii
Foreword 2 xv
Preface to the Second Edition xvii

Section 1 — Leadership and Strategy

1 **Leadership Principles** 1
Christoph Egger and Alex Macario

2 **The Path to a Successful Operating Room Environment** 17
Ross Musumeci, Alan David Kaye, Omar A. Gafur, Charles J. Fox, and Richard D. Urman

3 **Strategic Planning** 26
Michael R. Williams

4 **Decision Making: The Art and the Science** 33
Michael R. Williams

5 **Implications of Emotional Intelligence and Collaboration for Operating Room Leadership and Management** 40
Markus M. Luedi, Jonas Schnider, and Frank Stueber

6 **Operating Room Culture Change** 44
Shilpadevi Patil, Debbie Chandler, Elyse M. Cornett, and Charles J. Fox

Section 2 — Economic Considerations, Efficiency, and Design

7 **Flow Disruptions in Surgery** 51
David S. Silver and Douglas P. Slakey

8 **Influence of Operating Room Staffing and Scheduling on Operating Room Productivity** 56
Franklin Dexter and Richard H. Epstein

9 **Operations Management and Financial Performance** 78
Seth Christian

10 **Reengineering Operating Room Function** 88
Nigel N. Robertson

11 **Operating Room Design and Construction: Technical Considerations** 107
Judith S. Dahle and Pat Patterson

12 **Operating an Ambulatory Surgery Center as a Successful Business** 122
John J. Wellik

13 **Influence of Patient- and Procedure-Specific Factors on Operating Room Efficiency and Decision Making** 135
Markus M. Luedi, Thomas J. Sieber, and Dietrich Doll

14 **Operating Room Management in the Perioperative Surgical Home and Other Future Care Models** 140
Juhan Paiste, John Schlitt, and Thomas R. Vetter

15 **Non-Operating Room Locations** 147
John M. Trummel, Brenda A. Gentz, and William R. Furman

16 **Efficiency and Scheduling** 156
Brian C. Spence and William R. Furman

17 **Operating Room Budgets: An Overview** 160
Steven Boggs and Sanjana Vig

Section 3 — Surgical and Anesthesia Practice Management

18 **Preoperative Evaluation and Management** 173
Alicia G. Kalamas

Contents

19	Identifying Bottleneck Constraints to Improve the Preoperative Evaluation Process	185	Mitchell H. Tsai, Elie Sarraf, Kyle R. Kirkham, and Terrence L. Trentman
20	Anesthesia Practice Management	198	Sonya Pease
21	Defining the Anesthesia Value Proposition	213	Jody Locke
22	Anesthesia Billing, Coding, and Compliance	225	Devona Slater
23	Postanesthesia Care Unit Management: Building a Safe and Efficient Service	239	Henry Liu, Longqiu Yang, Michael Green, and Alan David Kaye
24	Pain Practice Management	248	Steven Waldman
25	Office-Based Surgery Practice	255	Jonathan P. Eskander, Cory Roberts, and Charles J. Fox
26	The Future of Perioperative Medicine	267	Michael R. Hicks and Laurie Saletnik
 Section 4 — Nursing			
27	Operating Room Metrics	275	Todd Brown
28	Operating Room Staffing Guidelines	278	Todd Brown
29	Resource Management	284	Todd Brown
 Section 5 — Safety, Standards, and Information Technology			
30	The Joint Commission, CMS, and Other Standards	289	Shermeen B. Vakharia and Zeev Kain
31	Procedural Sedation: Clinical and Safety Considerations	298	Ann Bui and Richard D. Urman
32	Medical Informatics in the Perioperative Period	309	Ori Gottlieb and Keith J. Ruskin
33	Simulation as a Tool to Improve Patient Safety	316	Valeriy Kozmenko, Lyubov Kozmenko, Melvin Wyche III, and Alan David Kaye
34	Education in Operating Room Management	322	Sanjana Vig, Steven D. Boggs, Richard D. Urman, and Mitchell H. Tsai
35	Organizations Dedicated to and Current Overview of Enhanced Recovery After Surgery	333	Bret D. Alvis, Adam B. King, Matthew D. McEvoy, and Jesse M. Ehrenfeld
36	Checklist Utility in the Perioperative Care Environment	341	Blas Catalani and Ezekiel B. Tayler
37	Anesthesiology Disaster Management and Emergency Preparedness	348	Ezekiel B. Tayler, Blas Catalani, Jill Cooley, and Chris Sharp
38	Novel Technology for Patient Engagement	356	Matthew B. Novitch, Peter A. Gold, Aiden Feng, and Mark R. Jones
<hr/>			
		<i>Index</i>	365

Contributors

Bret D. Alvis, MD
Nashville Veterans Affairs Medical Center, Nashville,
TN, USA

Steven D. Boggs, MD, MBA
The University of Tennessee College of Medicine,
Memphis, TN, USA

Todd Brown, RN, MBA
Director Alvarez & Marsal/Adjunct Professor
at IUPUI, Indianapolis, IN

Ann Bui, MD
Oakland Medical Center, Department of
Anesthesiology, 2nd Floor, 3600 Broadway
Oakland, CA, USA

Blas Catalani, MD, MPH
University of Tennessee Health Science Center,
Memphis, TN, USA

Debbie Chandler, MD
LSU Health Shreveport, Shreveport, LA, USA

Seth Christian, MD, MBA
Perioperative Management Fellow, Department
of Anesthesiology, Tulane University School of
Medicine, New Orleans, LA, USA

Jill Cooley, MD
University of Tennessee Health Sciences Center,
Department of Anesthesiology, Memphis, TN, USA

Elyse M. Cornett, PhD
LSU Health Shreveport, Shreveport, LA, USA

Judith S. Dahle, MS, MSG, RN
Senior Clinical Director – Perioperative Services,
OR Efficiencies Perioperative Consulting Team,
OR Efficiencies LLC, Naples, FL

Franklin Dexter, MD, PhD
University of Iowa, Iowa City, IA, USA

Dietrich Doll, MD, PhD
St. Marienhospital Vechta, Vechta, Germany

Christoph Egger, MD, MBA, FACHE
Klinik Beau-Site, Bern, Switzerland

Jesse M. Ehrenfeld, MD, MPH
Vanderbilt University Medical Center, Nashville,
TN, USA

Richard H. Epstein, MD, CPHIMS
University of Miami, Coral Gables, FL, USA

Jonathan P. Eskander, MD, MBA
Department of Anesthesiology, LSU Health
Shreveport, Shreveport, LA, USA

Charles J. Fox, MD
Louisiana State University Health Sciences Center,
Shreveport, LA, USA

William R. Furman, MD, MMHC
Surveyor, The Joint Commission,
Oakbrook Terrace, IL, USA

Aiden Feng, MD, MBA
Brigham and Women's Hospital, Boston, MA, USA

Omar A. Gafur, MD
Instructor of Anesthesiology, Boston University
School of Medicine

Brenda A. Gentz, MD
University of Arizona, Tucson, AZ, USA

Peter A. Gold, MD
Northwell Health Orthopedic Institute, Great Neck,
NY, USA

Ori Gottlieb, MD, FASA
Associate Professor of Anesthesia & Critical Care,
Department of Anesthesia & Critical Care,
University of Chicago, Chicago, IL

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

Contributors

Michael Green, DO

Drexel University College of Medicine,
Philadelphia, PA, USA

Michael R. Hicks, MD, MBA, MHCM, FACHE

University of North Texas Health Science Center,
Fort Worth, TX, USA

Mark R. Jones, MD

Beth Israel Deaconess Medical Center, Boston,
MA, USA

Zeev Kain, MD, MBA

University of California School of Medicine,
Irvine, CA, USA

Alicia G. Kalamas, MD

Medical Director, Preoperative Clinic and Associate
Clinical Professor, Department of Anesthesia and
Perioperative Care, University of California, San
Francisco, CA, USA

Alan David Kaye, MD, PhD

Louisiana State University Health Science Center,
New Orleans, LA, USA

Adam B. King, MD

Nashville Veterans Affairs Medical Center, Nashville,
TN, USA

Kyle R. Kirkham, MD, FRCPC

University of Toronto, ON, Canada

Lyubov Kozmenko, BSN

LSU School of Nursing Faculty, Acting Director
of the Simulation Center, LSU School of Medicine,
New Orleans, LA, USA

Valeriy Kozmenko, MD

Department of Anesthesiology, LSU School
of Medicine, New Orleans, LA, USA

Henry Liu, MD

Drexel University College of Medicine,
Philadelphia, PA, USA

Jody Locke, MA

Anesthesia Business Consultants,
Jackson, MI, USA

Markus M. Luedi, MD, MBA

Bern University Hospital Inselspital, Bern,
Switzerland

Alex Macario, MD, MBA

Stanford University School of Medicine,
Stanford, CA, USA

Matthew D. McEvoy, MD

Nashville Veterans Affairs Medical Center,
Nashville, TN, USA

Ross Musumeci, MD, MBA

Anaesthesia Associates of MA, Assistant Professor
of Anesthesia, Boston University School of Medicine,
Boston, MA, USA

Matthew B. Novitch, BS

Medical College of Wisconsin, Wausau, WI, USA

Juhan Paiste, MD, MBA

University of Alabama at Birmingham School of
Medicine, Birmingham, AL, USA

Shilpadevi Patil, MD

LSU Health Shreveport, Shreveport, LA, USA

Pat Patterson, BA

Editor, OR Manager Newsletter, Rockville, MD, USA

Sonya Pease, MD, MBA

Chief Medical Officer, TeamHealth Anesthesia,
Knoxville, TN, USA

Cory Roberts, BS

Medical Student, Tulane School of Medicine,
New Orleans, LA

Nigel N. Robertson, MB, ChB, FANZCA

Staff Specialist Anesthesiologist, Auckland
City Hospital, Auckland, New Zealand

Keith J. Ruskin, MD

Professor of Anesthesiology and Neurosurgery,
Yale University School of Medicine,
New Haven, CT, USA

Laurie Saletnik, RN, DNP

Johns Hopkins Hospital, Baltimore, MD, USA

Elie Sarraf, MD

University of Vermont College of Medicine,
Burlington, VT, USA

John Schlitt, MD

Capitol Anesthesiology Association,
Austin, TX, USA

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

Contributors

Jonas Schnider, MD, MBA

Bern University Hospital Inselspital, Bern,
Switzerland

Chris Sharp, MD

University of Tennessee Health Sciences Center,
Department of Anesthesiology, Tennessee TN

Thomas J. Sieber, MD, MBA

Kantonsspital Graubunden, Chur, Switzerland

David S. Silver, BS

Medical Student, Tulane School of Medicine,
New Orleans, LA

Douglas P. Slakey, MD, MPH

Regents Professor and Chairman of Surgery,
Department of Surgery, Section of General Surgery,
Tulane Medical Center Surgery & GI Clinic,
New Orleans, LA

Devona Slater, CHC, CMCP, CHA

ACE President & Sr. Compliance Auditor,
Anesthesia & Pain Management Compliance
Auditors, KS, USA

Brian C. Spence, MD, MHCDS

Dartmouth Geisel School of Medicine,
Lebanon, NH, USA

Frank Stueber, MD

Bern University Hospital Inselspital,
Bern, Switzerland

Ezekiel B. Tayler, DO

Main Line HealthCare ICU Intensive Medicine,
Philadelphia, PA, USA

Terrence L. Trentman, MD

Mayo Clinic, Phoenix, AZ, USA

John M. Trummel, MD

Dartmouth Geisel School of Medicine,
Lebanon, NH, USA

Mitchell H. Tsai, MD, MMM

University of Vermont College of Medicine,
Burlington, VT, USA

Richard D. Urman, MD, MBA

Brigham and Women's Hospital, Harvard Medical
School, Boston, MA, USA

Shermeen B. Vakharia, MD, MBA

University of California School of Medicine,
Irvine, CA, USA

Thomas R. Vetter, MD, MPH

Dell Medical School at the University of Texas at
Austin, Austin, TX, USA

Sanjana Vig, MD, MBA

University of California, San Diego, CA, USA

Steven Waldman, MD, JD

Clinical Professor of Anesthesiology, University
of Missouri at Kansas City School of Medicine,
Kansas City, MO, USA

John J. Wellik, CPA, MBA

Senior Vice President, Chief Administrative Officer,
United Surgical Partners International, Inc.,
Addison, TX, USA

Michael R. Williams, DO, MD, MBA

Chief Executive Officer, Hill Country Memorial,
Fredericksburg, TX, USA; Executive Vice
President, AnesthesiaCare, an EmCare Affiliate,
Dallas, TX, USA

Melvin Wyche III, MD

Director of Simulation and Assistant Professor,
Department of Anesthesia, LSU School of Medicine,
New Orleans, LA, USA

Longqiu Yang, MD

Huangshi Central Hospital, Huangshi Shi, Hubei
Province, China

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

Foreword 1

Evolution describes our past. Revolution defines our future. Surgical services are in a period of revolutionary change, and financial and operational efficiency will remain important. However, it is no longer sufficient to simply refine our current processes. We must reengineer our models, designing toward our future of bundled care, shared risk, and value-based payments to determine our success.

We must also look outside of our traditional temporal and geographic boundaries. The days when a surgical encounter is viewed as an event in isolation must be put behind us. To maximize the value provided to our patients, we will include preconditioning efforts prior to surgery, and examine the longer-term outcomes and effects of our actions during the perioperative and recovery periods. Through integrating multidisciplinary teams into the entire care process, we will draw on the unique talents and knowledge of each group, maximizing safety, efficacy, and patient satisfaction.

Expanding our geography will ensure that our patients receive care in the most convenient and

cost-effective location. Ambulatory, office-based, and nontraditional procedural locations such as radiology and gastroenterology suites are experiencing increasing demands for service. Applying the knowledge held by experts in OR suite management will be critical for the success of these areas.

This textbook highlights processes, techniques, and expert knowledge to prepare today's and tomorrow's leaders for these challenges. Only through exemplary leadership will we be able to realize the success which is critical for our sustained vision of providing excellence to the patients we serve.

Paul St. Jacques, MD

*President, Association of Anesthesia Clinical
Directors (AACD)*

*Quality and Patient Safety Director,
Department of Anesthesiology,
Vanderbilt University Medical Center,
The Vanderbilt Clinic,
Nashville, TN*

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

Foreword 2

Healthcare delivery, surgery, anesthesia, and operating rooms (ORs) have all undergone astonishing changes in the past decades. Coupled with scientific advancement, all areas of medicine now recognize the importance of providing cost-effective care. For this reason, it is somewhat surprising that a standardized curriculum has not been developed for anesthesia residents and anesthesiologists who are interested in leading and managing operating suites. Individuals wanting to assume leadership in these areas must have specialized knowledge over unique areas of finance, operations, management, legal issues, and electronic records. This second edition of *Operating Room Leadership and Perioperative Practice Management* by Drs. Kaye, Fox, and Urman goes a long way in bridging

this gap. The standardization of an essential corpus of knowledge that should be mastered for OR leadership will be another step in this process. The International Consortium on OR Management, Education and Training (iCORMET) fully supports such steps and commends the authors of this volume.

Steven D. Boggs, MD, MBA

President, iCORMET,

Steven Dale Boggs, MD, FASA, MBA

Professor and Chair

Department of Anesthesiology

The University of Tennessee College of Medicine

Memphis, TN

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

Preface to the Second Edition

With the operating room (OR) and practice management science constantly evolving, we undertook a laborious task of writing a second edition to this already popular textbook. We changed the title of the book to reflect the inclusion of topics related to perioperative practice management, adding topics that are important for anesthesiologists, surgeons, nurses, and administrators. Thus this new edition is now entitled *Operating Room Leadership and Perioperative Practice Management*. We hope that you find the additional topics useful in your daily clinical practice or administrative activities, especially given the constantly evolving regulatory and payer environments and published research. We have significantly updated and expanded each section of the book, with an emphasis on areas such as leadership training, teamwork, and OR culture change; perioperative surgical home; non-OR locations; efficiency, scheduling, and budgeting; anesthesia practice management and post-anesthesia care unit. Three chapters speak exclusively about nursing, education, and checklists.

We believe that our book currently represents the only up-to-date, evidence-based text that encompasses the “A to Z” of OR management: metrics, scheduling, human resource management, leadership principles, economics, quality assurance, recovery, information technology, ambulatory practice, and topics specific to surgeons, anesthesiologists, and pain service providers.

Years ago, the OR stood alone, and little attention was given to the perioperative period. This is because until the 1980s the OR generated large profits, despite its inefficiencies. Thus, hospital administrators allowed it a great deal of autonomy. However, today’s administrators realize that, although the OR is typically one of the biggest sources of revenue for a hospital, it is also one of the largest areas of expense. This, coupled with increasing requirements for cost containment in healthcare and a demand for accountability to the federal and state governments, insurance

companies, hospital administrators, surgeons, and patients, has magnified the need for an effective and efficient perioperative process. While there was little centralized leadership in the perioperative period of the past, perioperative management is now a critical feature of successful hospitals.

As mentioned above, today’s perioperative practice of medicine has evolved significantly and is now influenced by a vast array of factors, both medical and administrative. Because of this, knowledge of hospital economics and administration, OR mechanics and metrics, preoperative patient optimization strategies, human resources, financial planning, governmental policy and procedures, and clinical perioperative management is necessary in order to succeed. A good management team must bring together these diverse components to maximize productivity. Today there are more regulations, quality measures, and outcome expectations, which push innovation and result in additional burdens and challenges for hospitals. The need for this expensive technology, to compete with other hospitals, forces reform and new thoughts for traditional ways of the past. Staffing ratios, preoperative visits, and postoperative care will be highly scrutinized financially, while clinical and administrative “multitasking” is now expected. Putting an emphasis on quality data definition and collection, leadership style, simulation, and OR design will lead to the creation of a more productive and efficient perioperative process.

We should not lose sight of the fact that the OR is where miracles happen every single day through teamwork, natural talent, hard work, and empathy. From all of this, we create game-changing and life-altering experiences for patients. Without effective and efficient leadership from all areas – nursing, administration, surgery, and anesthesia services – we are doomed to fail. Let us also remember that all of us will be patients one day, and so let us strive to make a first-class OR in the best interests of everyone.

Cambridge University Press
978-1-107-19736-7 — Operating Room Leadership and Perioperative Practice Management
Edited by Alan David Kaye , Richard D. Urman , Charles J. Fox, III
Frontmatter
[More Information](#)

Preface to the Second Edition

As we have observed from our real-life experiences collectively accumulated over the past three decades, the science of perioperative patient care is constantly evolving. This speaks to the enormous complexities in all aspects of management and development of a winning OR. We applaud all the authors for their hard work and dedication. Their chapters give a practical insight into creating a successful perioperative program.

We all face challenges in the OR environment. We hope the ideas and practical solutions discussed in this expanded second edition will benefit any stakeholder in

administration, surgery, anesthesia, or nursing services, as we all do our best to move forward into the future.

Alan D. Kaye, MD, PhD
New Orleans, LA

Richard D. Urman, MD, MBA
Boston, MA

Charles J. Fox III, MD
Shreveport, LA