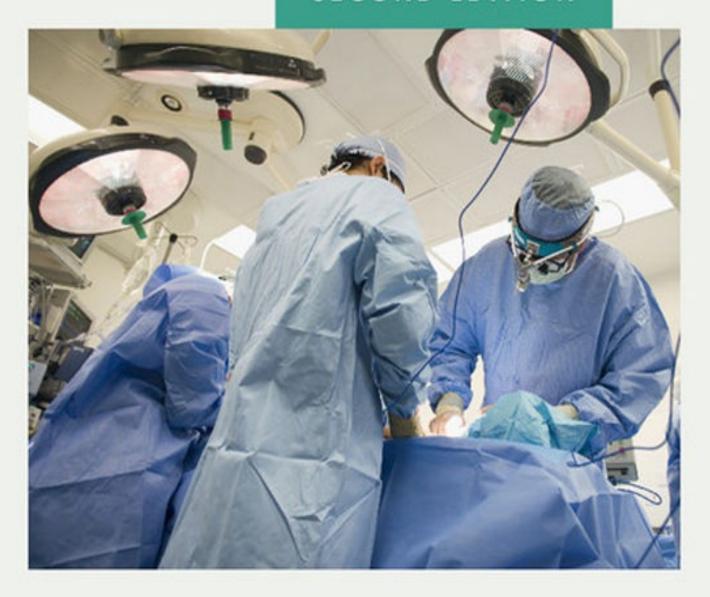
SECOND EDITION



Operating Room Leadership and Perioperative Practice Management

Edited by

Alan D. Kaye, Richard D. Urman and Charles J. Fox, III OPERATING ROOM LEADERSHIP AND PERIOPERATIVE PRACTICE MANAGEMENT

OPERATING ROOM LEADERSHIP AND PERIOPERATIVE PRACTICE MANAGEMENT

Second Edition

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





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 2012, 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 2012 by Cambridge University Press

This edition 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.

Contents

List of Contributors

Foreword 1

Foreword 2

Preface to the Second Edition

Section 1 Leadership and Strategy

1 Leadership Principles

Christoph Egger and Alex Macario

2 The Path to Successful Operating Room Environment

Ross Musumeci, Alan David Kaye, Omar A. Gafur, Charles J. Fox, and Richard D. Urman

3 Strategic Planning

Michael R. Williams

4 Decision Making: The Art and the Science

Michael R. Williams

<u>5</u> Implications of Emotional Intelligence and Collaboration for Operating Room Leadership and Management

Markus M. Luedi, Jonas Schnider, and Frank Stueber

6 Operating Room Culture Change

Shilpadevi Patil, Debbie Chandler, Elyse M. Cornett, and Charles J. Fox

Section 2 Economic Considerations, Efficiency, and Design

7 Flow Disruptions in Surgery

David S. Silver and Douglas P. Slakey

8 Influence of Operating Room Staffing and Scheduling on Operating Room Productivity

Franklin Dexter and Richard H. Epstein

9 Operations Management and Financial Performance

Seth Christian

10 Reengineering Operating Room Function

Nigel N. Robertson

11 Operating Room Design and Construction: Technical Considerations

Judith S. Dahle and Pat Patterson

12 Operating an Ambulatory Surgery Center as a Successful Business

John J. Wellik

13 Influence of Patient- and Procedure-Specific Factors on Operating Room Efficiency and Decision Making

Markus M. Luedi, Thomas J. Sieber, and Dietrich Doll

14 Operating Room Management in the Perioperative Surgical Home and Other Future Care Models

Juhan Paiste, John Schlitt, and Thomas R. Vetter

15 Non-Operating Room Locations

John M. Trummel, Brenda A. Gentz, and William R. Furman

16 Efficiency and Scheduling

Brian C. Spence and William R. Furman

17 Operating Room Budgets: An Overview

Steven Boggs and Sanjana Vig

Section 3 Surgical and Anesthesia Practice Management

18 Preoperative Evaluation and Management

Alicia G. Kalamas

19 Identifying Bottleneck Constraints to Improve the Preoperative Evaluation Process

Mitchell H. Tsai, Elie Sarraf, Kyle R. Kirkham, and Terrence L. Trentman

20 Anesthesia Practice Management

Sonya Pease

21 Defining the Anesthesia Value Proposition

Jody Locke

22 Anesthesia Billing, Coding, and Compliance

Devona Slater

23 Postanesthetic Care Unit Management: Building a Safe and Efficient Service

Henry Liu, Longqiu Yang, Michael Green, and Alan David Kaye

24 Pain Practice Management

Steven Waldman

25 Office-Based Surgery Practice

Jonathan P. Eskander, Cory Roberts, and Charles J. Fox

26 The Future of Perioperative Medicine

Section 4 Nursing

27 Operating Room Metrics

Todd Brown

28 Operating Room Staffing Guidelines

Todd Brown

29 Resource Management

Todd Brown

Section 5 Safety, Standards, and Information Technology

30 The Joint Commission, CMS, and Other Standards

Shermeen B. Vakharia and Zeev Kain

31 Procedural Sedation: Clinical and Safety Considerations

Ann Bui and Richard D. Urman

32 Medical Informatics in the Perioperative Period

Ori Gottlieb and Keith J. Ruskin

33 Simulation as a Tool to Improve Patient Safety

Valeriy Kozmenko, Lyubov Kozmenko, Melvin Wyche III, and Alan David Kaye

34 Education in Operating Room Management

Sanjana Vig, Steven D. Boggs, Richard D. Urman, and Mitchell H. Tsai

35 Organizations Dedicated to and Current Overview of Enhanced Recovery After Surgery

Bret D. Alvis, Adam B. King, Matthew D. McEvoy, and Jesse M. Ehrenfeld

36 Checklist Utility in the Perioperative Care Environment

Blas Catalani and Ezekiel B. Tayler

37 Anesthesiology Disaster Management and Emergency Preparedness

Ezekiel B. Tayler, Blas Catalani, Jill Cooley, and Chris Sharp

38 Novel Technology for Patient Engagement

Matthew B. Novitch, Peter A. Gold, Aiden Feng, and Mark R. Jones

Index

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

Surveyer, The Joint Commission, Oakbrook Terrace, IL, USA

Aiden Feng, MD, MBA

Brigham and Women's Hospital, Boston, MA, USAOmar A. Gafur, MDInstructor 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 Anestheisa & Critical Care, University of Chicago, Chicago, IL

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 Schoool 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

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 Graubuenden, 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

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 costeffective 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

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, MBAProfessor and ChairDepartment of AnesthesiologyThe University of Tennessee College of MedicineMemphis, TN

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.

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 applied 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, PhDNew Orleans, LARichard D. Urman, MD, MBABoston, MACharles J. Fox III, MDShreveport, LA

Section 1

•

Leadership and Strategy

1

Leadership Principles

Christoph Egger and Alex Macario

Contents

Evolution of Leadership

Significance of Leadership for Healthcare Organizations

Challenges of OR Leadership

Game Theory in the OR context

Conclusion

References