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Surgery

Basic Science and
Clinical Evidence

SECOND EDITION

 Springer

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Second Edition

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Basic Science and Clinical Evidence

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Edited by

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To our families

Preface

When the first edition of *Surgery: Basic Science and Clinical Practice* published, evidence-based medicine principles were just starting to be embraced by the surgery community. Our second edition comes at a critical time in surgical care when surgeons are expected to use the best available evidence to support their every day decisions in patient care, citing critical scientific evidence to support their decisions. No longer is it acceptable to simply say, "We do it this way because we always do it this way." The practice of surgery has evolved from *considering* the principles of evidence-based medicine to actively incorporating those principles into practice. We have taken great care to ensure that *Surgery* meets the needs of both students and clinicians, providing the scientific background, the clinical decision-making skills, and the surgical techniques to provide the best possible patient care.

For this new edition, the editorial board has recruited a new member of the team. In order to provide the necessary emphasis on trauma and critical care, we asked Dr. Philip S. Barie to work with Dr. Stephen F. Lowry to thoroughly expand and improve those topics. The reader will quickly see the added depth and scope of coverage—a marked improvement over the previous edition. We have thoroughly revised every chapter and sharpened the focus on our evidence-based approach, including EBM tables and enhanced figures in every chapter. New chapters discuss transfusion therapy, intraabdominal and nosocomial infections, severe sepsis and shock, mechanical ventilation, imaging in critical care patients, burns and inhalation injury, vascular trauma, traumatic injury of the spine, and surgical rehabilitation. We have identified particular patient populations that require specialized care, including the elderly, neonates, children, and obese patients. We also discuss the needs of pregnant and immunocompromised patients, who require variations in surgical management and care. These chapters are well-illustrated and packed with important evidence to allow enlightened choices.

We have included new chapters on vascular access for dialysis, chemotherapy and nutritional support, thoracic infections, and video-assisted thoracic surgery. The transplant section has been brought up to date and expanded to include transplantation of the intestine. Fundamentals of cancer genomics and proteomics and fundamentals of cancer cell biology and molecular targeting are essential to changes in cancer patient care and treatment, so we have expanded those topics in the oncology section. Finally, there is a new section on biomaterials, energy transfer, and robotics that provide the busy practicing surgeon with new methods and innovative perspectives for modern surgical care. In summary, the book has been thoroughly updated with recent advances in both scientific evidence and clinical practice, including 28 new chapters discussing exciting new areas in surgery. We have focused on current references and evidence to give the reader the most up-to-date information possible.

We hope you will agree that this book, with its consistent and long-established EBM focus, is different from other surgical textbooks. The contributing authors are all clinically active experts who have written comprehensive, current chapters. We believe the chapters on emerging topics strike a balance describing both the current status of practice and the possibilities on the horizon. The chapters have been carefully edited to provide a smooth, readable text. As in previous editions, the evidence-based tables provide information that is consistently formatted and carefully rated, based on the quality of the study design and conduct.

We will soon be embracing the changes in both learning and practice brought on by the ubiquity of computers in medicine. In addition to the print version of this book, we will bring together the timely content of journal articles with the authoritative content of a traditional textbook. At our soon-to-be launched web portal, users will be able to call up topics by book chapter, by general subject, or through a search function. (Similarly, journal readers will be able to access the content of *Surgery* when reading articles in a linked journal.) From this portal, users can navigate easily and seamlessly between book chapters, journal articles, and, where available, video clips. An online image library, references linked to online databases with full text retrieval (when available), and related clinical and biomedical data will also be available. In addition, an e-book version of *Surgery: Basic Science and Clinical Evidence* is now available, in combination with the print book or as a stand-alone digital resource.

In short, *Surgery: Basic Science and Clinical Evidence* continues to be different and exciting. We have strived to combine the past and present, with an optimistic eye to the future. *Surgery* represents the state of the art and science of the full range of surgical practice as we now know it. We hoped to expand on our past success and create a key reference source for residents and students. We hope readers are as excited about this edition as we are and we invite you to send your comments. Please let us hear from you, as we want to update the book frequently, continuing to improve upon it and make it more reader friendly. We wish you good reading.

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This book is dedicated to all who thirst for knowledge, and strive to improve the care of the surgical patient.

Philip S. Barie, MD, MBA

The untiring support and encouragement of my wife, Monika Bollinger is gratefully acknowledged. I sincerely appreciate the superb work of each author who contributed to the transplantation section and especially the participation of my former colleagues and trainees, Drs. Duane Davis, Douglas Farmer, Bob Harland, Allan Kirk, Stuart Knechtle, Christine Lau, Brian Lima, and Betsy Tuttle-Newhall.

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