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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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Jeffrey A. Norton, MD

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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Contents

Preface	vii
Acknowledgments	ix
Contributors	xix
Evidence-Based Tables	xxxiii

Section One Fundamentals of Surgical Care

1	Origins of Modern Surgery	3
	<i>Ira M. Rutkow</i>	
2	Evidence-Based Surgery	21
	<i>Robin S. McLeod</i>	
3	Cell Structure, Function, and Genetics	37
	<i>Siobhan A. Corbett and Ramsey A. Foty</i>	
4	Mediators of Inflammation and Injury	75
	<i>Stephen F. Lowry, Edward Lin, and Steve E. Calvano</i>	
5	Substrate Metabolism	101
	<i>Edward Lin and Stephen F. Lowry</i>	
6	Nutrition	111
	<i>Kenneth A. Kudsk and Danny O. Jacobs</i>	
7	Perioperative Fluids and Electrolytes	139
	<i>Avery B. Nathens and Ronald V. Maier</i>	
8	Hemostasis and Coagulation	149
	<i>Marcel Levi and Tom van der Poll</i>	
9	Transfusion Therapy	167
	<i>Lena M. Napolitano</i>	
10	Wounds: Biology, Pathology, and Management	191
	<i>H. Peter Lorenz and Michael T. Longaker</i>	
11	Diagnosis and Treatment of Infection	209
	<i>David L. Dunn</i>	
12	Infections of Skin and Soft Tissue	237
	<i>Philip S. Barie and Soumitra R. Eachempati</i>	
13	Intraabdominal Infections	259
	<i>Michael A. West and Michael B. Shapiro</i>	

14	Nosocomial Infections	273
	<i>Pamela A. Lipsett</i>	
15	Severe Sepsis and Septic Shock	287
	<i>Steven M. Opal</i>	
16	Shock and Resuscitation	305
	<i>Avery B. Nathens and Ronald V. Maier</i>	
17	Perioperative Management	323
	<i>Philip S. Barie</i>	
18	Anesthesia	353
	<i>Joseph D. Tobias and Russell Wall</i>	
19	Management of Perioperative Pain	381
	<i>Susannah S. Wise</i>	
Section Two Biology and Practice of Trauma and Critical Care		
20	Development of Trauma and Critical Care	397
	<i>G. Tom Shires[†]</i>	
21	Trauma Systems, Triage, and Disaster Management	403
	<i>Jeffrey Hammond</i>	
22	Monitoring of Cardiovascular and Respiratory Function	409
	<i>Philip S. Barie and Soumitra R. Eachempati</i>	
23	Imaging of the Critically Ill Patient	423
	<i>Amy D. Wyrzykowski and Grace S. Rozycki</i>	
24	Risk Prediction, Disease Stratification, and Outcome Description in Critical Surgical Illness	433
	<i>John C. Marshall</i>	
25	Burns and Inhalation Injury	447
	<i>Roger W. Yurt</i>	
26	Traumatic Brain Injury	461
	<i>Kyle Chapple and Roger Hartl</i>	
27	Trauma to the Torso	471
	<i>Deborah M. Stein and Thomas M. Scalea</i>	
28	Trauma to the Pelvis and Extremities	505
	<i>Dean G. Lorich, Michael J. Gardner, and David L. Helfet</i>	
29	Vascular Trauma	521
	<i>Peter P. Lopez and Enrique Ginzberg</i>	
30	Traumatic Injury of the Spine	545
	<i>Justin F. Fraser, John Boockvar, and Roger Hartl</i>	
31	Multiple Organ Dysfunction Syndrome	563
	<i>Donald E. Fry</i>	
32	Mechanical Ventilation	577
	<i>David J. Dries and John F. Perry, Jr.</i>	

[†]Deceased

33	Renal Replacement Therapy	597
	<i>John C.L. Wang, Roxana M. Bologna, and Stuart D. Saal</i>	
34	Open Abdomen.	613
	<i>Claudia E. Goettler and Michael F. Rotondo</i>	
35	Principles of Surgical Rehabilitation	631
	<i>Michael W. O'Dell and Tammy Noren</i>	
Section Three Care of Unique Populations		
36	Pediatric Surgery	649
	<i>Russell K. Woo and Craig T. Albanese</i>	
37	Surgery in the Immunocompromised Patient	697
	<i>John Mihran Davis and Kathleen King Casey</i>	
38	Evidence-Based Bariatric Surgery	709
	<i>John Morton</i>	
39	Surgical Care of the Pregnant Patient	729
	<i>Erika J. Lu and Myriam J. Curet</i>	
40	Palliative and End-of-Life Care	737
	<i>Sharon M. Weinstein and Olivia Walton</i>	
Section Four Gastrointestinal and Abdominal Surgery		
41	History of Surgery of the Gastrointestinal Tract.	743
	<i>Sean J. Mulvihill and Haile T. Debas</i>	
42	Assessment of Acute Abdominal Symptoms.	759
	<i>William P. Schechter</i>	
43	Principles of Minimally Invasive Surgery	771
	<i>Theodore N. Pappas and Alison M. Fecher</i>	
44A	Esophagus: Benign Diseases of the Esophagus	791
	<i>C. Daniel Smith and David A. McClusky III</i>	
44B	Malignant Tumors of the Esophagus.	827
	<i>Gail Darling</i>	
45	Stomach and Duodenum	841
	<i>Robert E. Glasgow and Michael D. Rollins</i>	
46	Pancreas	875
	<i>Robert E. Glasgow and Sean J. Mulvihill</i>	
47	Biliary System.	911
	<i>Hobart W. Harris</i>	
48	Liver	943
	<i>Courtney Scaife</i>	
49	Small Intestine	963
	<i>Richard A. Hodin and Jeffrey B. Matthews</i>	
50	Appendix.	991
	<i>David Soybel</i>	

51	Colon, Rectum, and Anus	1011
	<i>Mark L. Welton, Andrew A. Shelton, George J. Chang, and Madhulika G. Varma</i>	
52	Spleen	1111
	<i>Alan T. Lefor and Edward H. Phillips</i>	
53	Hernias and Abdominal Wall Defects	1133
	<i>Daniel J. Scott and Daniel B. Jones</i>	
 Section Five Endocrine Surgery		
54	History of Endocrine Surgery	1181
	<i>Jeffrey A. Norton</i>	
55	Parathyroid	1189
	<i>Matthew B. Bloom and Jeffrey A. Norton</i>	
56	Thyroid	1211
	<i>Ronald J. Weigel</i>	
57	Adrenal	1229
	<i>Robert Udelsman</i>	
58	Neuroendocrine Tumors of the Pancreas and Gastrointestinal Tract and Carcinoid Disease	1249
	<i>David A. Peterson, James P. Dolan, and Jeffrey A. Norton</i>	
59	Multiple Endocrine Neoplasia.	1285
	<i>Terry C. Lairmore</i>	
 Section Six Vascular Surgery		
60	History of Vascular Surgery.	1299
	<i>Jesse E. Thompson</i>	
61	Pathobiology of Vascular Disease	1317
	<i>Bryan W. Tillman and Randolph L. Geary</i>	
62	Cerebrovascular Disease	1337
	<i>Peter L. Faries, Sheela T. Patel, and K. Craig Kent</i>	
63	Diseases of the Thoracic Aorta	1359
	<i>Marineh Yagubian and Thoralf M. Sundt</i>	
64	Diseases of the Great Vessels and the Thoracic Outlet	1375
	<i>Spencer J. Melby and Robert W. Thompson</i>	
65	Abdominal Aortic Aneurysms	1397
	<i>B. Timothy Baxter and Brad A. Winterstein</i>	
66	Arterial Disease of the Lower Extremity	1413
	<i>Michael A. Golden</i>	
67	Venous Disease and Pulmonary Embolism	1429
	<i>Gregory L. Moneta and Mathew I. Foley</i>	
68	Vascular Access for Dialysis, Chemotherapy, and Nutritional Support	1457
	<i>R. Randal Bollinger and Stuart J. Knechtle</i>	

Section Seven Thoracic Surgery

69	History of Cardiac Surgery	1471
	<i>Larry W. Stephenson</i>	
70	Preoperative and Postoperative Care of the Thoracic Surgery Patient	1481
	<i>Jessica Scott Donington</i>	
71	Lung Neoplasms.	1491
	<i>Frank C. Detterbeck, Scott N. Gettinger, and Mark A. Socinski</i>	
72	Thoracic and Pulmonary Infections	1525
	<i>Frank A. Baciewicz, Jr.</i>	
73	Video-Assisted Thoracic Surgery	1535
	<i>Matthew J. Schuchert, James D. Luketich, and Hiran C. Fernando</i>	
74	Pleura: Anatomy, Physiology, and Disorders.	1551
	<i>Joseph S. Friedberg and John C. Kucharczuk</i>	
75	Mediastinum.	1571
	<i>Mark I. Block</i>	
76	Congenital Heart Disease	1601
	<i>Carl L. Backer and Constantine Mavroudis</i>	
77	Adult Heart Disease.	1621
	<i>Todd K. Rosengart, William de Bois, Edgar Chedrawy, and Malica Vukovic</i>	
78	Cardiac Replacement Therapy	1669
	<i>Benjamin C. Sun</i>	

Section Eight Transplantation Surgery

79	History of Clinical Transplantation	1681
	<i>Thomas E. Starzl</i>	
80	Immunology of Transplantation	1705
	<i>Allan D. Kirk and Eric A. Elster</i>	
81	Rejection	1737
	<i>J. Richard Thistlethwaite and David Bruce</i>	
82	Principles of Organ Preservation.	1747
	<i>Brian Lima and J.E. Tuttle-Newhall</i>	
83	Kidney Transplantation	1759
	<i>Stuart J. Knechtle</i>	
84	Pancreas and Islet Transplantation.	1773
	<i>Robert C. Harland and Marc R. Garfinkel</i>	
85	Liver Transplantation	1787
	<i>Douglas W. Hanto, Scott R. Johnson, Seth J. Karp, and Khalid Khwaja</i>	
86	Transplantation of the Intestine	1827
	<i>Fady M. Kaldas and Douglas G. Farmer</i>	
87	Lung Transplantation.	1839
	<i>Christine L. Lau, G. Alexander Patterson, and R. Duane Davis</i>	

88	Heart Transplantation	1861
	<i>Catherine Sudarshan, Daniel Kreisel, and Bruce R. Rosengard</i>	
 Section Nine Cancer Surgery		
89	History of Surgical Oncology	1889
	<i>Walter Lawrence, Jr.</i>	
90	Genetics of Cancer	1901
	<i>John E. Phay and Jeffrey F. Moley</i>	
91	Fundamentals of Cancer Genomics and Proteomics	1925
	<i>Jimmy C. Sung, Alice Y. Lee, and Timothy J. Yeatman</i>	
92	Fundamentals of Cancer Cell Biology and Molecular Targeting	1933
	<i>Steven N. Hochwald, David Bloom, Vita Golubovskaya, and William G. Cance</i>	
93	Immunology of Cancer	1947
	<i>Craig L. Slingluff, Jr.</i>	
94	Principles of Cancer Surgery	1965
	<i>John H. Donohue</i>	
95	Radiation as an Adjunct to Surgery	1985
	<i>Barbara-Ann Millar and Laura A. Dawson</i>	
96	Benign and Malignant Diseases of the Breast	2005
	<i>Helen A. Pass</i>	
97	Melanoma and Other Cutaneous Malignancies	2037
	<i>Vernon K. Sondak, Eric H. Jensen, and Kim A. Margolin</i>	
98	Soft Tissue Sarcoma	2061
	<i>Peter W.T. Pisters</i>	
99	Gastrointestinal Stromal Tumors	2087
	<i>Jason S. Gold and Ronald P. DeMatteo</i>	
100	Head and Neck Malignancies	2097
	<i>Jeffrey S. Moyer and Carol R. Bradford</i>	
101	Surgical Emergencies in the Cancer Patient	2117
	<i>Jeffrey J. Sussman</i>	
102	Nutritional Care of Cancer Patients	2123
	<i>David A. August and Maureen B. Huhmann</i>	
103	Regional Therapy of Cancer	2151
	<i>Douglas L. Fraker</i>	
 Section Ten Associated Disciplines		
104	Urology	2175
	<i>Joseph C. Presti, Jr.</i>	
105	Gynecology	2197
	<i>Hillary B. Boswell, Janet S. Rader, and David E. Cohn</i>	

106	Neurosurgery	2217
	<i>Philip Starr</i>	
107	Orthopaedic Surgery	2233
	<i>David W. Lowenberg and Andrew Fang</i>	
108	Plastic Surgery	2263
	<i>W. Thomas Lawrence and Adam Lowenstein</i>	

Section Eleven Modern Practice of Surgery

	Technology, the Surgeon, and Surgical Innovation	2289
	<i>Michael E. Gertner and Thomas Krummel</i>	
109	Biomaterials and the Evolution of Hernia Repair I: The History of Biomaterials and the Permanent Meshes	2291
	<i>Raul A. Cortes, Edward Miranda, Hanmin Lee, and Michael E. Gertner</i>	
110	Biomaterials and the Evolution of Hernia Repair II: Composite Meshes	2305
	<i>Raul A. Cortes, Edward Miranda, Hanmin Lee, and Michael E. Gertner</i>	
111	Biomaterials and the Evolution of Hernia Repair III: Biologically Derived Prosthetic Meshes	2317
	<i>Raul A. Cortes, Edward Miranda, Hanmin Lee, and Michael E. Gertner</i>	
112	Injectable Biomaterials in Surgery	2325
	<i>Bilal Shafi, Carlos Mery, Gary Binyamin, Joseph Knight, and Michael E. Gertner</i>	
113	Energy Transfer in the Practice of Surgery	2345
	<i>James Wall and Michael E. Gertner</i>	
114	Robot-Assisted Surgery: Technology and Current Clinical Status	2355
	<i>Russell K. Woo, David A. Peterson, David Le, Michael E. Gertner, and Thomas Krummel</i>	
	Index	2373

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