
The ASCRS Textbook of Colon and Rectal Surgery

Scott R. Steele • Tracy L. Hull
Neil Hyman • Justin A. Maykel
Thomas E. Read • Charles B. Whitlow
Editors

The ASCRS Textbook of Colon and Rectal Surgery

Fourth Edition



Editors

Scott R. Steele
Department of Colorectal Surgery
Cleveland Clinic
Cleveland, OH
USA

Tracy L. Hull
Department of Colorectal Surgery
Cleveland Clinic
Cleveland, OH
USA

Neil Hyman
University of Chicago Medical Center
Chicago, IL
USA

Justin A. Maykel
Department of Surgery
University of Massachusetts Medical School
Worcester, MA
USA

Thomas E. Read
Division of Gastrointestinal Surgery
University of Florida
Gainesville, FL
USA

Charles B. Whitlow
Department of Colon and Rectal Surgery
Ochsner Clinic
New Orleans, LA
USA

This work contains media enhancements, which are displayed with a “play” icon. Material in the print book can be viewed on a mobile device by downloading the Springer Nature “More Media” app available in the major app stores. The media enhancements in the online version of the work can be accessed directly by authorized users.

ISBN 978-3-030-66048-2 ISBN 978-3-030-66049-9 (eBook)
<https://doi.org/10.1007/978-3-030-66049-9>

© Springer Nature Switzerland AG 2022

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

Drs. Steele, Hull, Hyman, Maykel, Read, and Whitlow and their respective chapter authors are to be congratulated on the successful completion of the fourth edition of *The ASCRS Textbook of Colon and Rectal Surgery*. This edition is greatly enhanced with new authors for each chapter reflecting international experts in the treatment of colorectal disease, expansion of online videos, and a continued emphasis on algorithms and evidence-based recommendations. This edition also serves as the first step in expansion to an online modular platform, facilitating dynamic updates of content.

The ASCRS Textbook of Colon and Rectal Surgery is unique. The concept of a definitive text for state-of-the-art information for all health professional learners and practitioners, including residents in training in colon and rectal surgery as well as fully trained surgeons in practice, was conceived, implemented, and supported by the American Society of Colon and Rectal Surgeons in 2007. It was the recognition of an idea initially conceived by Bruce Wolf, co-implemented by Jim Fleshman, and fully supported by the ASCRS Executive Council. All chapters have been extensively referenced, authoritatively written and illustrated, and have included ASCRS clinical practice guidelines. The success of the first edition led to second and third editions in 2011 and 2016. With the rapid expansion of knowledge, technology, and techniques, each edition has been meticulously and thoroughly updated to reflect state-of-the-art, evidence-based practice. The editors have been continuously refreshed just like the content to keep the book fresh and contemporary. With the fourth edition, the torch has been picked up and carried by each group of editors since the inception.

The textbook remains fully supported and endorsed by the American Society of Colon and Rectal Surgeons: the work is a product of and for the Society, owned by our society with all proceeds flowing back to the Education Fund of the society to continue to support a long-term commitment of the organization to the lifelong education not just of colon and rectal surgery trainees but all clinicians.



Patricia L. Roberts, MD
Burlington, MA



Theodore J. Saclarides, MD
Chicago, IL



Anthony Senagore, MD
Holland, MI



Michael J. Stamos, MD
Irvine, CA

Preface

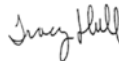
One given definition of the word *textbook* is “a book used as a *standard* work for the study of a particular subject.” Our collective goal for the fourth edition of *The ASCRS Textbook of Colon and Rectal Surgery* was to make this volume *the standard* for the study of colon and rectal surgery, providing a valuable resource for surgeons and health care providers at all stages of their career caring for patients with colorectal disease. This edition provides all newly written chapters, organized around the “pillars” of colorectal disease: perioperative (including endoscopy); anorectal disease; benign disease (including inflammatory bowel disease); malignancy; pelvic floor disorders; and a “miscellaneous” section that covers aspects both inside and beyond the operating room.

Colon and rectal surgery is in a golden age; our special skills and expertise are highly valued by patients and colleagues alike. Colon and rectal training programs continue to thrive, attracting the very best and brightest surgery residents – they are the rock stars of their generation! We hope this textbook will also expose the many critical gaps in our knowledge base and inspire the next generation to answer them through thoughtful and high-level scientific inquiry.

Finally, we would like to thank our Developmental Editor Elektra McDermott for her extraordinary efforts and thoroughness in overseeing and ensuring its timely completion, along with each chapter author and coauthor(s) for their devotion to this task and to the mission of the ASCRS. We are deeply indebted to our teachers and mentors, who have been our heroes and generously shared their knowledge, experience, and enthusiasm over the years. We devote this edition to our trainees, whose energy, intellectual curiosity, and commitment to excellence drive us every day to be better. Pass it forward!



Scott R. Steele, MD, MBA
Cleveland, OH, USA



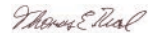
Tracy L. Hull, MD
Cleveland, OH, USA



Neil Hyman, MD
Chicago, IL, USA



Justin A. Maykel, MD
Worcester, MA, USA



Thomas E. Read, MD
Gainesville, FL, USA



Charles B. Whitlow, MD
New Orleans, LA, USA

Contents

Part I Perioperative/Endoscopy

1	Anatomy and Embryology of the Colon, Rectum, and Anus	3
	Joseph C. Carmichael and Steven Mills	
2	Colonic Physiology	29
	Glenn T. Ault and Jennifer S. Beaty	
3	Anorectal Physiology	41
	Pasithorn A. Suwanabol and Scott E. Regenbogen	
4	Endoscopy	51
	Matthew D. Zelhart and Brian R. Kann	
5	Endoscopic Management of Polyps and Endolumenal Surgery	79
	William Forrest Johnston and Emre Gorgun	
6	Preoperative Evaluation in Colorectal Patients	95
	Ron G. Landmann and Todd D. Francone	
7	Optimizing Outcomes with Enhanced Recovery	121
	Julie Thacker and Nancy Morin	
8	General Postoperative Complications	141
	Daniel I. Chu and David J. Maron	
9	Anastomotic Construction	157
	H. David Vargas and David A. Margolin	
10	Anastomotic Complications	189
	Charles M. Friel and Cindy J. Kin	

Part II Anorectal Disease

11	Hemorrhoids	209
	Jennifer S. Davids and Timothy J. Ridolfi	
12	Anal Fissure and Anal Stenosis	231
	V. Liana Tsikitis and Slawomir Marecik	
13	Cryptoglandular Abscess and Fistula	249
	Eric K. Johnson and Greta Bernier	
14	Rectourethral and Complex Fistulas: Evaluation and Management	271
	Jan Rakinic and W. Brian Perry	
15	Rectovaginal Fistula	281
	Brooke H. Gurland and Jon D. Vogel	

16	Pilonidal Disease and Hidradenitis Suppurativa	293
	Anuradha R. Bhama and Bradley R. Davis	
17	Dermatology and Pruritus Ani	311
	Konstantin Umanskiy and Evangelos Messaris	
18	Sexually Transmitted Infections of the Colon and Rectum	323
	Michelle Cowan and Andrew T. Schluskel	
19	Anal Intraepithelial Neoplasia	343
	Wolfgang B. Gaertner and Mukta K. Krane	
Part III Malignant Disease		
20	Anal Cancer	357
	Dana R. Sands and Najjia N. Mahmoud	
21	Presacral Tumors	375
	Scott R. Kelley and Eric J. Dozois	
22	Sporadic and Inherited Colorectal Cancer: How Epidemiology and Molecular Biology Guide Screening and Treatment	397
	Sean C. Glasgow and Karin M. Hardiman	
23	Management of Malignant Polyps	413
	Dennis Yang and Mark H. Whiteford	
24	Colorectal Cancer: Preoperative Evaluation and Staging	429
	Amanda V. Hayman and Carol-Ann Vasilevsky	
25	Colon Cancer Surgical Treatment: Principles of Colectomy	451
	Evie H. Carchman and Matthew F. Kalady	
26	Rectal Cancer: Neoadjuvant Therapy	463
	Steven R. Hunt and Matthew G. Mutch	
27	Rectal Cancer: Local Excision	479
	John R. T. Monson and Rebecca Hoedema	
28	Rectal Cancer: Nonoperative Management	491
	Julio Garcia-Aguilar and Rodrigo Oliva Perez	
29	Proctectomy for Rectal Cancer	509
	John Migaly and Eric G. Weiss	
30	Colorectal Cancer: Postoperative Adjuvant Therapy and Surveillance	529
	David A. Kleiman and David W. Larson	
31	Colorectal Cancer: Management of Distant Metastases	547
	Traci L. Hedrick	
32	Locally Recurrent Rectal Cancer	561
	Michael J. Solomon	
33	Appendiceal Neoplasms	577
	Sanda A. Tan and Luca Stocchi	
34	Gastrointestinal Stromal Tumors, Neuroendocrine Tumors, and Lymphoma	587
	Karim Alavi and Marylise Boutros	
35	Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy	605
	Michael A. Valente and Brendan John Moran	

36 Colorectal Cancer: Minimally Invasive Surgery	619
Antonino Spinelli	
37 Minimally Invasive Complete Mesocolic Excision with Extended Lymphadenectomy for Colon Cancer	643
Patricia Sylla	
Part IV Benign Colorectal Disease	
38 Colonic Diverticular Disease	665
Jason F. Hall and Willem A. Bemelman	
39 Large Bowel Obstruction	681
Daniel L. Feingold and Fergal J. Fleming	
40 Lower GI Hemorrhage	699
Mehraneh D. Jafari and Joshua I. S. Bleier	
41 Endometriosis	715
Heidi Chua and Michael J. Snyder	
42 Benign Colorectal Disease Trauma of the Colon and Rectum	729
Reza Askari, Ali Salim, and Matthew Martin	
43 Inflammatory Bowel Disease: Pathobiology	743
Benjamin D. Shogan and Pokala Ravi Kiran	
44 IBD Diagnosis and Evaluation	751
Mantaj S. Brar and Helen MacRae	
45 Medical Management of Ulcerative Colitis	765
Amy L. Lightner and Scott A. Strong	
46 Medical Therapy for Crohn's Disease	781
Radhika K. Smith and Stefan D. Holubar	
47 Anorectal Crohn's Disease	799
Emily Steinhagen and Andrea Chao Bafford	
48 Crohn's Disease: Surgical Management	813
Lisa M. Cannon and Alessandro Fichera	
49 Ulcerative Colitis: Surgical Management	835
Karen N. Zaghiyan and Phillip R. Fleshner	
50 Complications of the Pelvic Pouch	851
Jean H. Ashburn and David W. Dietz	
51 Infectious Colitis	865
Craig A. Reickert and Maher A. Abbas	
52 Clostridium difficile Infection	879
Ian M. Paquette and David B. Stewart	
53 Radiation, Microscopic, and Ischemic Colitis	893
Jamie A. Cannon and Gregory D. Kennedy	
54 Intestinal Stomas	907
Michael F. McGee and Peter A. Cataldo	
55 Abdominal Wall Reconstruction and Parastomal Hernia Repair	947
Clayton C. Petro, Ajita Prabhu, and Michael J. Rosen	

Part V Pelvic Floor Disorders

56 Functional Disorders After Colorectal Surgery/IBS	963
Hiroko Kunitake and Kyle Staller	
57 Common Tests for the Pelvic Floor	979
Amy J. Thorsen and Leslie Roth	
58 Evaluation of Constipation and Treatment of Abdominal Component	995
Kelly A. Garrett and James W. Ogilvie Jr	
59 Treatment of Difficult/Obstructive Defecation	1007
Massarat Zutshi and Lucia Camara Castro Oliveira	
60 Rectal Prolapse	1019
Margarita Murphy and Sarah A. Vogler	
61 Fecal Incontinence: Evaluation and Treatment	1035
Giovanna da Silva and Anders Mellgren	
62 Low Anterior Resection Syndrome (LARS)	1047
Liliana Bordeianou and Craig A. Messick	
63 Sexual Function After Colorectal Surgery in Women	1055
Deborah S. Keller and Jenny Alex Ky-Miyasaka	
64 Male Genitourinary Dysfunction as a Consequence of Colorectal Surgery	1067
Nathalie Mantilla and Shane McNevin	
65 Middle and Anterior Pelvic Compartment: Issues for the Colorectal Surgeon	1077
Danielle Patterson, Susan L. Gearhart, and Elisa Birnbaum	

Part VI Miscellaneous

66 Pediatric Colorectal Disorders	1089
Erin A. Teeple and Kenneth S. Azarow	
67 Considerations for Geriatric Patients Undergoing Colorectal Surgery	1105
Nicole M. Saur and Kirsten Bass Wilkins	
68 Healthcare Economics	1117
Walter R. Peters and Teresa deBeche-Adams	
69 Ethical Considerations (Conflict of Interest, Surgical Innovation, and End of Life)	1127
W. Donald Buie and Anthony R. MacLean	
70 Welcome to Litigation	1139
Dennis K. Ames	
71 Quality	1161
Elizabeth C. Wick and David A. Etzioni	
72 Practice Management	1171
Jennifer D. Rea and Jeffrey L. Cohen	
Index	1189

Contributors

Editors

Scott R. Steele, MD Department of Colorectal Surgery, Cleveland Clinic, Cleveland, OH, USA

Tracy L. Hull, MD Department of Colorectal Surgery, Cleveland Clinic, Cleveland, OH, USA

Thomas E. Read, MD Division of Gastrointestinal Surgery, University of Florida, Gainesville, FL, USA

Neil Hyman, MD Division of Gastrointestinal Surgery, University of Chicago Medical Center, Chicago, IL, USA

Justin A. Maykel, MD Department of Surgery, University of Massachusetts Medical School, Worcester, MA, USA

Charles B. Whitlow, MD Department of Colon and Rectal Surgery, Ochsner Clinic, New Orleans, LA, USA

Authors

Maher A. Abbas, MD King's College Hospital, Dubai, UAE

Karim Alavi, MD, MPH University of Massachusetts Medical School, Department of Surgery, Division of Colon and Rectal Surgery, Worcester, MA, USA

Dennis K. Ames, JD Medical Malpractice Trial Attorney, Santa Ana, CA, USA

Jean H. Ashburn, MD Wake Forest Baptist Health, Department of Surgery, Winston-Salem, NC, USA

Reza Askari, MD Division of Trauma, Burns, Surgical Critical Care and Acute Care Surgery, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

Glenn T. Ault, MD, MEd University of Southern California – Keck School of Medicine, Department of Surgery, Division of Colorectal Surgery, Los Angeles, CA, USA

Kenneth S. Azarow, MD Oregon Health Sciences University, Department of Surgery, Portland, OR, USA

Andrea Chao Bafford, MD University of Maryland School of Medicine, Department of Surgery, Baltimore, MD, USA

Jennifer S. Beaty, MD Associate Dean for Graduate Medical Education, Des Moines University Medicine and Health Sciences, Des Moines, IA, USA

Willem A. Bemelman, MD, PhD Amsterdam University Medical Centre, Location Meibergdreef, Department of Surgery, Amsterdam, Netherlands

Greta Bernier, MD UW Medicine – Valley Medical Center, Department of Surgery, Renton, WA, USA

Anuradha R. Bhama, MD Department of Colon and Rectal Surgery, Cleveland Clinic, Cleveland, OH, USA

Elisa Birnbaum, MD University of Colorado Anschutz Medical Center, Department of Surgery, Aurora, CO, USA

Joshua I. S. Bleier, MD University of Pennsylvania, Perelman School of Medicine, Department of Surgery, Philadelphia, PA, USA

Liliana Bordeianou, MD, MPH Harvard Medical School, Colorectal Surgery Program at the Massachusetts General Hospital, Massachusetts General Hospital, Department of Surgery, Boston, MA, USA

Marylise Boutros, MD Jewish General Hospital, Division of Colorectal Surgery, Montreal, QC, Canada

Mantaj S. Brar, MD, MSc GradStat Mount Sinai Hospital, Department of Surgery, University of Toronto, Toronto, ON, Canada

W. Donald Buie, MD, MSc Foothills Medical Center, Departments of Surgery and Oncology, University of Calgary, Calgary, AB, Canada

Jamie A. Cannon, MD University of Alabama Birmingham Medical Center, Department of Surgery/Gastrointestinal Section, Birmingham, AL, USA

Lisa M. Cannon, MD University of Rochester Medical Center, Department of Surgery, Division of Colon and Rectal Surgery, Rochester, NY, USA

Evie H. Carchman, MD University of Wisconsin, Department of General Surgery, Madison, WI, USA

Joseph C. Carmichael, MD Division of Colon and Rectal Surgery, University of California, Irvine, Department of Surgery, Orange, CA, USA

Peter A. Cataldo, MD Larner College of Medicine at the University of Vermont, Department of Surgery, Burlington, VT, USA

Heidi Chua, MD Mayo Clinic School of Medicine, Department of Colon and Rectal Surgery, Rochester, MN, USA

Daniel I. Chu, MD University of Alabama at Birmingham, University Hospital, Department of General Surgery-Gastrointestinal Division, Birmingham, AL, USA

Jeffrey L. Cohen, MD, CPE Hartford HealthCare, Hartford, CT, USA
University of Connecticut, Hartford, CT, USA

Michelle Cowan, MD University of Washington, Department of Surgery, Seattle, WA, USA

Giovanna da Silva, MD Cleveland Clinic Florida, Department of Colorectal Surgery, Weston, FL, USA

Jennifer S. Davids, MD University of Massachusetts Memorial Medical Center, Department of Surgery, Worcester, MA, USA

Bradley R. Davis, MD, MBA Department of Surgery, Atrium Health, Charlotte, NC, USA

Teresa deBeche-Adams, MD Center for Colon & Rectal Surgery at Florida Hospital East, Orlando, FL, USA

David W. Dietz, MD University Hospitals, Case Western Reserve University School of Medicine, Department of Surgery, Division of Colorectal Surgery, Cleveland, OH, USA

Eric J. Dozois, MD Mayo Clinic, Division of Colon and Rectal Surgery, Rochester, MN, USA

David A. Etzioni, MD, MSHS Mayo Clinic, Department of Surgery, Phoenix, AZ, USA

Daniel L. Feingold, MD Division of Colorectal Surgery, Rutgers University, Department of Surgery, New Brunswick, NJ, USA

Alessandro Fichera, MD Colon and Rectal Surgery, Baylor University Medical Center, Department of Surgery, Dallas, TX, USA

Fergal J. Fleming, MD, MPH University of Rochester Medical Center, Department of Surgery, Rochester, NY, USA

Phillip R. Fleshner, MD Cedars Sinai Medical Center, Department of Surgery, Los Angeles, CA, USA

Todd D. Francone, MD, MPH Department of Surgery, Division of Colon and Rectal Surgery, Massachusetts General Hospital, Boston, MA, USA

Charles M. Friel, MD University of Virginia Medical Center, Department of Surgery, Charlottesville, VA, USA

Wolfgang B. Gaertner, MD, MSc Division of Colon and Rectal Surgery, University of Minnesota – M Health, Minneapolis, MN, USA

Julio Garcia-Aguilar, MD, PhD Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, NY, USA

Kelly A. Garrett, MD Weill Cornell Medicine – New York Presbyterian Hospital, Department of General Surgery, Section of Colon and Rectal Surgery, New York, NY, USA

Susan L. Gearhart, MD, ME HP Johns Hopkins Institutions, Department of Surgery, Baltimore, MD, USA

Sean C. Glasgow, MD Washington University School of Medicine, Department of Surgery, St. Louis, MO, USA

Emre Gorgun, MD Cleveland Clinic, Department of Colorectal Surgery, Cleveland, OH, USA

Brooke H. Gurland, MD Stanford Medical Center, Department of General Surgery, Stanford, CA, USA

Jason F. Hall, MD, MPH Section of Colon and Rectal Surgery, Boston Medical Center, Department of Surgery, Boston, MA, USA

Karin M. Hardiman, MD, PhD University of Alabama at Birmingham, Department of Surgery, Birmingham, AL, USA

Amanda V. Hayman, MD, MPH Division of Gastrointestinal & Minimally Invasive Surgery, The Oregon Clinic, Portland, OR, USA

Traci L. Hedrick, MD, MSc University of Virginia Health, Charlottesville, VA, USA

Rebecca Hoedema, MD, MS Spectrum Health, Department of Colon and Rectal Surgery, Grand Rapids, MI, USA

Stefan David Holubar, MD, MS Cleveland Clinic, Department of Colon and Rectal Surgery, Cleveland, OH, USA

Steven R. Hunt, MD Washington University School of Medicine, Department of Surgery, St. Louis, MO, USA

Mehran D. Jafari, MD University of California – Irvine, Department of Surgery, Orange, CA, USA

Eric K. Johnson, MD Department of Colon and Rectal Surgery, Cleveland Clinic, Cleveland, OH, USA

William Forrest Johnston, MD Ochsner Clinic, Department of Colon and Rectal Surgery, New Orleans, LA, USA

Matthew F. Kalady, MD Department of Surgery, Division of Colon and Rectal Surgery, The Ohio State University, Columbus, OH, USA

Brian R. Kann, MD Ochsner Health, Department of Colon and Rectal Surgery, New Orleans, LA, USA

Deborah S. Keller, MS, MD University of California Davis Medical Center, Division of Colorectal Surgery, Department of Surgery, Sacramento, CA, USA

Scott R. Kelley, MD Mayo Clinic, Division of Colon and Rectal Surgery, Rochester, MN, USA

Gregory D. Kennedy, MD, PhD University of Alabama Medical Center, Department of Surgery, Birmingham, AL, USA

Cindy Kin, MD, MS Stanford University, Department of Surgery, Stanford, CA, USA

Pokala Ravi Kiran, MBBS, MS (Gen Surg), MSc (EBM) Division of Colorectal Surgery, New Presbyterian Hospital/Columbia University Medical Center, New York, NY, USA

David A. Kleiman, MD, MSc Lahey Hospital and Medical Center, Department of Colon and Rectal Surgery, Burlington, MA, USA

Mukta K. Krane, MD University of Washington, Department of Surgery, Seattle, WA, USA

Hiroko Kunitake, MD, MPH Department of General and Gastrointestinal Surgery, Massachusetts General Hospital, Boston, MA, USA

Jenny Alex Ky-Miyasaka, MD, PhD Mount Sinai Hospital, Department of Surgery, New York, NY, USA

Ron G. Landmann, MD Section of Colon and Rectal Surgery, Baptist MD Anderson Medical Center, Department of Surgery, Jacksonville, FL, USA

David W. Larson, MD, MBA Mayo Clinic, Department of Surgery, Rochester, MN, USA

Amy L. Lightner, MD Cleveland Clinic, Department of Colorectal Surgery, Cleveland, OH, USA

Anthony R. MacLean, MD Foothills Medical Center, Department of Surgery, University of Calgary, Calgary, AB, Canada

Helen MacRae, MA, MD Mount Sinai Hospital, Department of Surgery, University of Toronto, Toronto, ON, Canada

Najjia N. Mahmoud, MD Division of Colon and Rectal Surgery, University of Pennsylvania, Department of Surgery, Philadelphia, PA, USA

Nathalie Mantilla, MD Rush University, Cook County Health, Department of Colon and Rectal Surgery, Chicago, IL, USA

Slawomir Marecik, MD Advocate Lutheran General Hospital, Park Ridge, IL, USA
University of Illinois at Chicago, Chicago, IL, USA

David A. Margolin, MD Ochsner Clinic Foundation, Ochsner Clinical School, University of Queensland, Department of Colon and Rectal Surgery, New Orleans, LA, USA

David J. Maron, MD, MBA Cleveland Clinic Florida, Department of Colorectal Surgery, Weston, FL, USA

Matthew Martin, MD Scripps Mercy Hospital, Uniformed Services University of the Health Sciences, San Diego, CA, USA

Michael F. McGee, MD Northwestern University Feinberg School of Medicine, Department of Surgery, Division of Gastrointestinal Surgery, Chicago, IL, USA

Shane McNevin, MD Providence Sacred Heart, Spokane, WA, USA

Anders Mellgren, MD, PhD Division of Colon & Rectal Surgery, University of Illinois Chicago, Chicago, IL, USA

Evangelos Messaris, MD, PhD Beth Israel Deaconess Medical Center, Harvard Medical School, Department of Surgery, Boston, MA, USA

Craig A. Messick, MD The University of Texas MD Anderson Cancer Center, Department Surgical Oncology, Houston, TX, USA

John Migaly, MD Division of Surgical Oncology, Section of Colorectal Surgery, Duke University School of Medicine, Durham, NC, USA

Steven Mills, MD Division of Colon and Rectal Surgery, University of California, Irvine, Department of Surgery, Orange, CA, USA

John R. T. Monson, MD Digestive Health and Surgery Institute, AdventHealth, Center for Colon and Rectal Surgery, Orlando, FL, USA

Brendan John Moran, M.Ch., FRCS, FRCSI (Gen) Peritoneal Malignancy Institute, Basingstoke and North Hampshire Hospital, Department of General and Colorectal Surgery, Basingstoke, UK

Nancy Morin, MD SMDB Jewish General Hospital, McGill University, Department of Surgery, Division of Colorectal Surgery, Montreal, QC, Canada

Margarita Murphy, MD East Cooper Medical Center, Department of Surgery, Mount Pleasant, SC, USA

Matthew G. Mutch, MD Washington University School of Medicine, Department of Surgery, St. Louis, MO, USA

James W. Ogilvie Jr, MD, MS Spectrum Health, Michigan State University, Department of Colorectal Surgery, Grand Rapids, MI, USA

Lucia Camara Castro Oliveira, MD, PhD Anorectal Physiology Department and Colorectal Surgery, Hospital Casa de Saude Sao Jose and CEPAMED, Department of Colorectal Surgery, Rio de Janeiro, Brazil

Ian M. Paquette, MD University of Cincinnati College of Medicine, Department of Surgery – Colon and Rectal Surgery, Cincinnati, OH, USA

Danielle Patterson, MD, SM Johns Hopkins Medical Institutions, Department of Gynecology and Obstetrics, Baltimore, MD, USA

Rodrigo Oliva Perez, MD, PhD Angelita and Joaquim Gama Institute, Beneficencia Portuguesa de Sao Paulo, Alemao Oswaldo Cruz, Department of Surgical Oncology, Sao Paulo, Brazil

W. Brian Perry, MD Audie L. Murphy VA Medical Center, Department of Surgery, San Antonio, TX, USA

Walter R. Peters Jr, MD, MBA Baylor Scott and White Health, Dallas, TX, USA

Clayton C. Petro, MD Cleveland Clinic, Department of General Surgery, Cleveland, OH, USA

Ajita Prabhu, MD Cleveland Clinic, Department of Surgery, Cleveland, OH, USA

Jan Rakinic, MD Southern Illinois University School of Medicine, Department of Surgery, Springfield, IL, USA

Jennifer D. Rea, MD Colorectal Surgical and Gastroenterology Associates, Department of Colorectal Surgery, Lexington, KY, USA

Scott E. Regenbogen, MD, MPH University of Michigan, Division of Colorectal Surgery, Department of Surgery, Ann Arbor, MI, USA

Craig A. Reickert, MD Wayne State University, Department of Colon and Rectal Surgery, Detroit, MI, USA

Timothy J. Ridolfi, MD, MS Medical College of Wisconsin, Division of Colorectal Surgery, Department of Surgery, Milwaukee, WI, USA

Michael J. Rosen, MD Cleveland Clinic Center for Abdominal Core Health, Cleveland Clinic, Department of Surgery, Cleveland, OH, USA

Leslie Roth, MD Brown University, Rhode Island Hospital, Department of Surgery, Providence, RI, USA

Ali Salim, MD Division of Trauma, Burns, Surgical Critical Care and Acute Care Surgery, Brigham and Woman's Hospital, Harvard Medical School, Boston, MA, USA

Dana R. Sands, MD Cleveland Clinic Florida, Department of Colorectal Surgery, Weston, FL, USA

Nicole M. Saur, MD University of Pennsylvania, Division of Colon and Rectal Surgery, Department of Surgery, Philadelphia, PA, USA

Andrew T. Schlussel, DO Madigan Army Medical Center, Department of Surgery, Tacoma, WA, USA

Benjamin D. Shogan, MD University of Chicago, Department of Surgery, Chicago, IL, USA

Radhika K. Smith, MD Washington University in St. Louis, Department of Surgery, St. Louis, MO, USA

Michael J. Snyder, MD McGovern School of Medicine, Department of Surgery, Houston, TX, USA

Michael J. Solomon, MB BCH(Hons), BAO, MSc DMEDSC Royal Prince Alfred Hospital, Department of Colorectal Surgery, Sydney, NSW, Australia

Antonino Spinelli, MD, PhD Department of Biomedical Sciences, Humanitas University, Milan, Italy

IRCCS Humanitas Research Hospital - Division of Colon and Rectal Surgery, Milan, Italy

Kyle Staller, MD, MPH Division of Gastroenterology, Massachusetts General Hospital, Boston, MA, USA

Emily Steinhagen, MD University Hospitals Cleveland Medical Center, Case Western Reserve University School of Medicine, Department of Surgery, Cleveland, OH, USA

David B. Stewart, MD Southern Illinois University School of Medicine, Department of Surgery, Springfield, IL, USA

Luca Stocchi, MD Mayo Clinic Florida, Department of Surgery, Division of Colorectal Surgery, Jacksonville, FL, USA

Scott A. Strong, MD Northwestern University, Department of Surgery, Chicago, IL, USA

Pasithorn A. Suwanabol, MD, MS University of Michigan, Division of Colorectal Surgery, Department of Surgery, Ann Arbor, MI, USA

Patricia Sylla, MD Department of Surgery, Division of Colon and Rectal Surgery, Icahn School of Medicine at Mount Sinai, Mount Sinai Hospital, New York, NY, USA

Sanda A. Tan, MD, PhD West Florida Healthcare, Department of Surgery, University of Central Florida, Pensacola, FL, USA

Erin A. Teeple, MD Nemours/AI Dupont Hospital for Children, Department of Surgery, Wilmington, DE, USA

Julie Thacker, MD Department of Surgery, Duke University School of Medicine, Durham, NC, USA

Amy J. Thorsen, MD Colon and Rectal Surgery Associates, Minneapolis, MN, USA

V. Liana Tsikitis, MD, MBA, MCR Oregon Health and Science University, Department of General Surgery, Division of Gastroenterology, Portland, OR, USA

Konstantin Umanskiy, MD University of Chicago, Department of Surgery, Chicago, IL, USA

Michael A. Valente, DO Cleveland Clinic, Department of Colorectal Surgery, Cleveland, OH, USA

H. David Vargas, MD Ochsner Clinic Foundation, Department of Colon and Rectal Surgery, New Orleans, LA, USA

Carol-Ann Vasilevsky, MD Jewish General Hospital, Department of Surgery, Montreal, QC, Canada

Jon D. Vogel, MD University of Colorado, Aurora, CO, USA

Sarah A. Vogler, MD, MBA Cleveland Clinic, Department of Colorectal Surgery, Cleveland, OH, USA

Eric G. Weiss, MD Cleveland Clinic Florida, Department of Colorectal Surgery, Weston, FL, USA

Mark H. Whiteford, MD Colon and Rectal Surgery, The Oregon Clinic, Providence Portland Medical Center, Providence Cancer Institute, Gastrointestinal and Minimally Invasive Surgery Division, Portland, OR, USA

Elizabeth C. Wick, MD University of California, San Francisco, Department of Surgery, San Francisco, CA, USA

Kirsten Bass Wilkins, MD Associated Colon and Rectal Surgeons, PA, Edison, NJ, USA

Dennis Yang, MD University of Florida, Department of Gastroenterology, Gainesville, FL, USA

Karen N. Zaghiyan, MD Cedars Sinai Medical Center, Department of Surgery, Los Angeles, CA, USA

Matthew D. Zelhart, MD Department of Surgery, Tulane University School of Medicine, New Orleans, LA, USA

Massarat Zutshi, MD Cleveland Clinic, Department of Colorectal Surgery, Digestive Disease and Surgery Institute, Cleveland, OH, USA