Contributors, v
Preface, xi

PART ONE
Basic Principles, 1

Chapter 1
The Segmental Approach to Congenital Heart Disease, 3
CATHERINE A. NEILL, MD, W. REID THOMPSON, MD, and PHILIP J. SPEVAK, MD

Chapter 2
Cardiovascular Physiology and Shock, 17
DAVID EPSSTEIN, MD, and RANDALL C. WETZEL, MBBS, MBA

Chapter 3
Regulation of Pulmonary Vascular Resistance and Blood Flow, 73
LYNN D. MARTIN, MD, DANIEL NYHAN, MD, and RANDALL C. WETZEL, MBBS, MBA

Chapter 4
Renal Function and Heart Disease, 113
BARBARA A. FIVUSH, MD, ALICIA M. NEU, MD, RULAN PAREKH, MD, MS, LYNN G. MAXWELL, MD, LORRAINE C. RACUSEN, MD, JEANNETTE R.M. WHITE, MD, PhD, and DAVID G. NICHOLS, MD, MBA

Chapter 5
Splanchnic Function and Heart Disease, 131
DAVID G. NICHOLS, MD, MBA, DYLAN STEWART, MD, ANTONIO DE MAIO, PhD, and CHARLES N. PAIDAS, MD, MBA

Chapter 6
Cerebral Function and Heart Disease, 143
ROBERT CHARLES TASKER, MD, MBBS

Chapter 7
Pharmacology of Cardiovascular Drugs, 173
SARAH TABBUTT, MD, PhD, MARK A. HELFAER, MD, and DAVID G. NICHOLS, MD, MBA
Chapter 16
Heart and Lung Transplantation, 405
PAUL M. KIRSHBOM, MD, J. WILLIAM GAYNOR, MD, and
THOMAS L. SPRAY, MD

PART THREE
Equipment and Techniques, 425

Chapter 17
Noninvasive Diagnosis of Congenital and
Acquired Pediatric Heart Disease, 427
PHILIP J. SPEVAK, MD, and LAUREEN M. SENA, MD

Chapter 18
Diagnostic and Therapeutic Catheterization, 463
MARTIN P. O’LAUGHLIN, MD, PC, and RICHARD E. RINGEL, MD

Chapter 19
Perioperative Monitoring, 479
LAURA A. HASTINGS, MD, EUGÉNIE S. HEITMILLER, MD, and
DANIEL NYHAN, MD

Chapter 20
Cardiopulmonary Bypass in Infants
and Children, 507
JAMES JAGGERS, MD, and ROSS M. UNGERLEIDER, MD

Chapter 21
Mechanical Circulatory Support in
Infants and Children, 529
TOM R. KARL, MD, MS, PAUL M. KIRSHBOM, MD, and
STEPHEN B. HORTON, PhD, CCP (Aus), CCP (USA)

Chapter 22
Nursing Care of the Child with Congenital Heart
Disease, 545
PATRICIA A. KANE, MSN, CPNP,
COLEEN ELIZABETH MILLER, RN, MS, PNP,
JUDITH A. ASCENZI, RN, MSN, and
DOROTHY G. LAPPE, RN, MS, MBA

PART FOUR
Congenital Heart Defects, 559

Chapter 23
Perioperative Management of Patients with
Congenital Heart Disease: A Multidisciplinary
Approach, 561
LAURA IBSEN, MD, IRVING SHEN, MD, and
ROSS M. UNGERLEIDER, MD

Chapter 24
Atrial Septal Defects and Ventricular Septal
Defects, 579
J. MARK REDMOND, MD, FRCSI, and ANDREW J. LODGE, MD
Chapter 25

Atrioventricular Septal Defects, 593
SHAUN P. SETTY, MD, and IRVING SHEN, MD

Chapter 26

Left Ventricular Outflow Tract Obstruction, 609
JAMES D. ST. LOUIS, MD, and JAMES JAGGERS, MD

Chapter 27

Coarctation of the Aorta and Interrupted Aortic Arch, 625
LAURA A. HASTINGS, MD, and DAVID G. NICHOLS, MD, MBA

Chapter 28

Mitral Valve Diseases, 649
JOHN J. NIGRO, MD, MS, ROBERT D. BART, MD, and VAUGHN A. STARNES, MD

Chapter 29

Aortopulmonary Septal Defects and Patent Ductus Arteriosus, 663
CHARLES D. FRASER, JR., MD

Chapter 30

Anomalous Origin of the Coronary Arteries, 675
CHARLES D. FRASER, JR., MD

Chapter 31

Persistent Truncus Arteriosus, 689
JAMES D. ST. LOUIS, MD

Chapter 32

Total Anomalous Pulmonary Venous Return, 699
PETER MARK, TRINKAUS, MD, ALLAN J. HORDOF, MD, ANNE M. MURPHY, MD, and WILLIAM J. GREELEY, MD, MBA

Chapter 33

Transposition of the Great Arteries and the Arterial Switch Operation, 715
TOM R. KARL, MD, MS, and PAUL M. KIRSHBOM, MD

Chapter 34

Double-Outlet Right Ventricle and Double-Outlet Left Ventricle, 731
W. REID THOMPSON, MD, DAVID G. NICHOLS, MD, MBA, PHILIP J. SPEVAK, MD, and ROSS M. UNGERLEIDER, MD

Chapter 35

Tetralogy of Fallot With and Without Pulmonary Atresia, 755
STEVE DAVIS, MD

Chapter 36

Pulmonary Atresia with Intact Ventricular Septum, 767
DAVID P. BICHELL, MD
Chapter 37

**Ebstein's Malformation**, 777
ROBERT D. BART, MD, ROSS MACRAE BRENNER, MD, PhD,
and VAUGHN A. STARNES, MD

Chapter 38

**Single-Ventricle Lesions**, 789
BRADLEY S. MARINO, MD, MPP, MSCE, GIL WERNOVSKY, MD,
and WILLIAM J. GREELEY, MD, MBA

Chapter 39

**Tricuspid Atresia**, 799
JOSEPHINE M. LOK, MD, PHILIP J. SPEVAK, MD,
and DAVID G. NICHOLS, MD, MBA

Chapter 40

**Hypoplastic Left Heart Syndrome**, 823
JAMES M. STEVEN, MD, MS, BRADLEY S. MARINO, MD, MPP, MSCE,
and DAVID R. JOBES, MD

Chapter 41

**Separating the Circulations: Cavopulmonary Connections (Bidirectional Glenn, Hemi-Fontan) and the Modified Fontan Operation**, 845
BRADLEY S. MARINO, MD, MPP, MSCE, THOMAS L. SPRAY, MD,
and WILLIAM J. GREELEY, MD, MBA

**PART FIVE**

**Medical Conditions**, 869

Chapter 42

**The Critical Appraisal and Use of Evidence about Therapy**, 871
BRIAN W. McCRINDLE, MD, MPH, FRCPC
Chapter 43

Pulmonary Hypertension, 885
ARThUR J. SMéRLING, MD, CHARLES L. SCHLEIEN, MD, and ROBYN J. BARST, MD

Chapter 44

Inflammatory Heart Disease, 899
JOSEPH D. TOBIAS, MD, JAYANT K. DESHPANDE, MD, MPH, JAMES A. JOHNS, MD, and DAVID G. NICHOLS, MD, MBA

Chapter 45

Infective Endocarditis, 927
FRANK E. BERKOWITZ, MBBCH, MPH

Chapter 46

Syndromes and Congenital Heart Defects, 951
ANNE M. MURPHY, MD, CATHERINE A. NEILL, MD, and AARON L. ZUCKERBERG, MD

Chapter 47

Heritable Heart Disease as Part of Multisystem Illness, 973
DAVID G. NICHOLS, MD, MBA

Chapter 48

Cardiomyopathy, 981
KATHERINE BIAGAS, MD, and DAPHNE T. HSU, MD

Index, 995