

CONTENTS

Contents

VOLUME 1

PART 1

THE FIELD OF NEONATAL-PERINATAL MEDICINE

1	Growth Of Neonatal-Perinatal Medicine: A Historical Perspective	2
	TONSE N. K. RAJU	
2	Epidemiology for Neonatologists.....	16
	MICHELE C. WALSH • AVROY A. FANAROFF • ANDREA N. TREMBATH	
3	The Organization of Perinatal Services.....	20
	MICHELE C. WALSH • AVROY A. FANAROFF	
4	Medical Ethics in Neonatal Care	24
	JONATHAN M. FANAROFF	
5	Legal Issues in Neonatal-Perinatal Medicine	41
	JONATHAN M. FANAROFF • ROBERT TURBOW	
6	Evaluating and Improving the Quality and Safety of Neonatal Intensive Care.....	59
	JOCHEN PROFIT • HENRY C. LEE • JEFFREY B. GOULD • JEFFREY D. HORBAR	
7	Simulation in Neonatal-Perinatal Medicine.....	89
	LOUIS P. HALAMEK	
8	Coding and Reimbursement: Principles and Practices.....	98
	GILBERT I. MARTIN • RICHARD MOLTENI • STEPHEN A. PEARLMAN	
9	Practicing Evidence-Based Neonatal-Perinatal Medicine.....	105
	SUZANNE M. LOPEZ • KATHLEEN A. KENNEDY • JON E. TYSON	
10	Perinatal and Neonatal Care in Developing Countries.....	111
	DHARMAPURI VIDYASAGAR • ANIL NARANG	

PART 2

THE FETUS

11	Genetic Aspects of Perinatal Disease and Prenatal Diagnosis.....	130
	KOMAL BAJAJ • SUSAN J. GROSS	
12	Perinatal Imaging.....	147
	STUART C. MORRISON • NOAM LAZEBNIK • NANCY E. JUDGE	
13	Estimation of Fetal Well-Being.....	181
	DAVID N. HACKNEY	
14	Surgical Treatment of the Fetus.....	196
	COREY W. IQBAL • SHINJIRO HIROSE • HANMIN LEE	
15	Adverse Exposures to the Fetus.....	211
	ALISON J. FALCK • SANDRA M. MOONEY • CYNTHIA F. BEARER	
16	Intrauterine Growth Restriction.....	227
	KARA L. CALKINS • SHERIN U. DEVASKAR	
17	Developmental Origins of Adult Health and Disease.....	236
	SHERIN U. DEVASKAR • KARA L. CALKINS	

PART 3**PREGNANCY DISORDERS AND THEIR IMPACT ON THE FETUS**

18	Hypertensive Disorders of Pregnancy.....	250
	ARUN JEYABALAN	
19	Diabetes Mellitus During Pregnancy	265
	ISAAC BLICKSTEIN • SHARON PERLMAN • YENON HAZAN • CHANI TOPF-OLIVESTONE • ERIC S. SHINWELL	
20	Obstetric Management of Prematurity.....	271
	KARA BETH MARKHAM • AVROY A. FANAROFF	
21	Fetal Effects of Autoimmune Disease	304
	ISAAC BLICKSTEIN • SMADAR FRIEDMAN	
22	Obstetric Management of Multiple Gestation and Birth.....	312
	ISAAC BLICKSTEIN • ERIC S. SHINWELL	
23	Post-Term Pregnancy.....	321
	ISAAC BLICKSTEIN • ORNA FLIDEL RIMON	
24	Immune and Nonimmune Hydrops Fetalis.....	327
	JOSHUA D. DAHLKE • EVERETT F. MAGANN	
25	Amniotic Fluid Volume	340
	ELIZABETH A. DUBIL • EVERETT F. MAGANN	
26	Chorioamnionitis.....	355
	RICHARD POLIN • TARA M. RANDIS	
27	Placental Pathology	365
	RAYMOND W. REDLINE	

PART 4**THE DELIVERY ROOM**

28	Anesthesia for Labor and Delivery	374
	MCCALLUM R. HOYT • ELAINE MARIE PAGES-ARROYO	
29	Physical Examination of the Newborn	391
	TOM LISSAUER	
30	Birth Injuries.....	407
	HENRY H. MANGURTEL • BHAGYA L. PUPPALA • PREETHA A. PRAZAD	
31	Congenital Anomalies.....	436
	ADITI S. PARikh • ANNA L. MITCHELL	

PART 5**RESUSCITATION OF THE NEWBORN**

32	Overview and Initial Management of Delivery Room Resuscitation.....	460
	JAY P. GOLDSMITH	
33	Role of Positive Pressure Ventilation in Neonatal Resuscitation	471
	LOUISE OWEN • PETER DAVIS • ARJAN B. TE PAS • COLIN J. MORLEY	
34	Oxygen Therapy in Neonatal Resuscitation	482
	MAXIMO VENTO	
35	Chest Compression, Medications, and Special Problems in Neonatal Resuscitation	489
	MYRA WYCKOFF • JAY P. GOLDSMITH	

PART 6**THE PHYSICAL ENVIRONMENT IN NEONATAL CARE**

36	The Thermal Environment of the Intensive Care Nursery.....	502
	JOHAN AGREN	
37	The Sensory Environment of the Intensive Care Nursery.....	513
	ROBERT D. WHITE	

38 Design Considerations of the Intensive Care Nursery	516
ROBERT D. WHITE • MICHELE C. WALSH	

PART 7**PROVISIONS FOR NEONATAL CARE**

39 Biomedical Engineering Aspects of Neonatal Cardiorespiratory Monitoring.....	522
JULIANNE M. DI FIORE	
40 Diagnostic Imaging of the Neonate.....	536
DAYNA M. WEINERT • CLAUDIA MARTINEZ-RIOS	
41 Anesthesia in the Neonate.....	559
JOHN E. STORK	
42 The Late Preterm Infant.....	577
ASHWIN RAMACHANDRAPPAN • LUCKY JAIN	
43 Nutrient Requirements and Provision of Nutritional Support in the Premature Neonate.....	592
BRENDA B. POINDEXTER • RICHARD A. EHRENKRANZ	
44 Fluid, Electrolytes, and Acid-Base Homeostasis.....	613
KATHERINE MACRAE DELL	

PART 8**SUPPORT FOR THE FAMILY**

45 Normal Mother-Infant Attachment.....	632
A. REBECCA BALLARD	
46 Attachment Challenges with Premature or Sick Infants.....	636
A. REBECCA BALLARD	
47 Parental Mental Health Issues.....	639
SUSAN HATTERS FRIEDMAN	
48 Care of the Long-Stay Infant and Parents	642
FRANCES THOMSON-SALO	

PART 9**DEVELOPMENTAL PHARMACOLOGY**

49 Principles of Drug Use in the Fetus and Neonate.....	648
JACQUELYN D. MCCLARY	
50 Principles of Drug Use During Lactation.....	660
JACQUELYN D. MCCLARY	
51 Pharmacokinetics in Neonatal Medicine	665
KELLY C. WADE	
52 Enhancing Safe Prescribing in the Neonatal Intensive Care Unit.....	676
MATTHEW J. MAUGHAN	
53 Infants with Antenatal Exposure to Drugs.....	682
MARK L. HUDAK	

PART 10**THE IMMUNE SYSTEM**

54 Developmental Immunology.....	696
JOHN T. BENJAMIN • OLACHI J. MEZU-NDUBUISSI • AKHIL MAHESHWARI	
55 Postnatal Bacterial Infections	734
ETHAN G. LEONARD • KATHERINE DOBBS	

56	Perinatal Fungal and Protozoal Infections	751
	DAVID A. KAUFMAN • PAOLO MANZONI	
57	Perinatal Viral Infections	782
	JILL E. BAILEY • BLANCA E. GONZALEZ	
	Index.....	II

VOLUME 2

PART 11

THE CENTRAL NERVOUS SYSTEM

58	Normal and Abnormal Brain Development	836
	PIERRE GRESSENS • PETRA S. HÜPPI	
59	White Matter Damage and Encephalopathy of Prematurity.....	866
	PETRA S. HÜPPI • PIERRE GRESSENS	
60	Intracranial Hemorrhage and Vascular Lesions in the Neonate.....	886
	LINDA S. DE VRIES	
61	Hypoxic-Ischemic Encephalopathy.....	904
	FLORIS GROENENDAAL • LINDA S. DE VRIES	
62	Seizures in Neonates	927
	MARK S. SCHER	
63	Hypotonia and Neuromuscular Disease in the Neonate	950
	NANCY BASS • TIMOTHY E. LOTZE • GEOFFREY MILLER	
64	Disorders in Head Shape and Size	964
	SHENANDOAH ROBINSON • ALAN R. COHEN	
65	Myelomeningocele and Related Neural Tube Defects	990
	SHENANDOAH ROBINSON • ALAN R. COHEN	
66	Hearing Loss in the Newborn Infant.....	993
	BETTY VOHR	
67	Assessment and Optimization of Neurobehavioral Development in Preterm Infants.....	1001
	LIISA LEHTONEN	
68	Early Childhood Neurodevelopmental Outcomes of High-Risk Neonates	1018
	DEANNE E. WILSON-COSTELLO • ALLISON H. PAYNE	
69	Role of Imaging in Neurodevelopmental Outcomes of High-Risk Neonates	1032
	SUSAN R. HINTZ	

PART 12

THE RESPIRATORY SYSTEM

70	Lung Development and Maturation.....	1042
	SUHAS G. KALLAPUR • ALAN H. JOBE	
71	Assessment of Neonatal Pulmonary Function	1060
	JULIANN M. DI FIORE • WALDEMAR A. CARLO	
72	Respiratory Distress Syndrome in the Neonate	1074
	JENNIFER A. WAMBACH • AARON HAMVAS	
73	Assisted Ventilation and Its Complications.....	1087
	STEVEN M. DONN • SUNIL K. SINHA	
74	Neonatal Respiratory Disorders.....	1113
	MOIRA A. CROWLEY	
75	Neonatal Apnea and the Foundation of Respiratory Control	1137
	MARY ELAINE PATRINOS	
76	Upper Airway Lesions in the Neonate.....	1147
	TODD D. OTTESON • JAMES E. ARNOLD	

77	Bronchopulmonary Dysplasia in the Neonate	1157
	EDUARDO H. BANCALARI • MICHELE C. WALSH	
78	Therapy for Cardiorespiratory Failure in the Neonate.....	1170
	MOIRA A. CROWLEY • EILEEN K. STORK	

PART 13**THE CARDIOVASCULAR SYSTEM**

79	Cardiac Embryology.....	1188
	MICHIKO WATANABE • JAMIE WIKENHEISER	
80	Pulmonary Vascular Development	1198
	ROBIN H. STEINHORN	
81	Genetic and Environmental Contributions to Congenital Heart Disease	1210
	ANNA L. MITCHELL • CHRISTOPHER S. SNYDER	
82	Prenatal Diagnosis of Congenital Heart Disease.....	1215
	JAMES STRAINIC • CHRISTOPHER S. SNYDER	
83	Patent Ductus Arteriosus	1223
	WILLIAM E. BENITZ	
84	Congenital Defects of the Cardiovascular System.....	1230
	RAVI ASHWATH • CHRISTOPHER S. SNYDER	
85	Cardiovascular Problems of the Neonate.....	1250
	MANISH BANSAL • CHRISTOPHER S. SNYDER	
86	Disorders of Cardiac Rhythm and Conduction in Newborns	1259
	BRYAN CANNON • OLEG KOVALENKO • CHRISTOPHER S. SNYDER	
87	Principles of Medical and Surgical Management of the Neonate	1275
	JAMES ADAM HILL • PETER C. KOURETAS	

PART 14**THE BLOOD AND HEMATOPOIETIC SYSTEM**

88	Hematologic and Oncologic Problems in the Fetus and Neonate	1294
	YASER DIAB • LORI LUCHTMAN-JONES	
89	Blood Component Therapy for the Neonate.....	1344
	ROSS M. FASANO • MARIAM SAID • NAOMI L. C. LUBAN	

PART 15**THE GASTROINTESTINAL TRACT**

90	Development of the Neonatal Gastrointestinal Tract	1364
	ROBERT L. PARRY	
91	Gastroesophageal Reflux and Gastroesophageal Reflux Disease in the Neonate.....	1371
	ANNA MARIA HIBBS	
92	Disorders of Digestion in the Neonate.....	1379
	CATHERINE LARSON-NATH • BHASKAR GURRAM • GISELA CHELIMSKY	
93	Selected Gastrointestinal Anomalies in the Neonate.....	1395
	ROBERT L. PARRY	
94	Neonatal Necrotizing Enterocolitis.....	1423
	MICHAEL CAPLAN	

PART 16**METABOLIC AND ENDOCRINE DISORDERS**

95	Disorders of Carbohydrate Metabolism in the Neonate.....	1434
	SHERIN U. DEVASKAR • MEENA GARG	

96	Disorders of Calcium, Phosphorus, and Magnesium Metabolism in the Neonate	1460
	STEVEN A. ABRAMS • DOV TIOSANO	
97	Thyroid Disorders in the Neonate	1490
	JANET CHUANG • IRIS GUTMARK-LITTLE • SUSAN R. ROSE	
98	Disorders of Sex Development.....	1516
	SAREEA AL REMEITHI • DIANE KATHERINE WHERRETT	
99	Inborn Errors of Metabolism.....	1553
	ARTHUR B. ZINN	

PART 17

NEONATAL JAUNDICE AND LIVER DISEASE

100	Neonatal Jaundice and Liver Diseases.....	1618
	MICHAEL KAPLAN • RONALD J. WONG • ERIC SIBLEY • DAVID K. STEVENSON	

PART 18

KIDNEY AND URINARY TRACT

101	The Kidney and Urinary Tract of the Neonate.....	1676
	BETH A. VOGT • KATHERINE MACRAE DELL	

PART 19

THE SKIN

102	The Skin of the Neonate.....	1702
	STEVEN B. HOATH • VIVEK NARENDRAN	

PART 20

THE EYE

103	Examination and Common Problems of the Neonatal Eye	1734
	FARUK H. ÖRGÉ • FLORIN GRIGORIAN	
104	Retinopathy of Prematurity	1767
	YE SUN • ANN HELSTRÖM • LOIS E. H. SMITH	

PART 21

NEONATAL ORTHOPEDICS

105	Musculoskeletal Disorders in Neonates	1776
	RAYMOND W. LIU • GEORGE H. THOMPSON	
106	Bone and Joint Infections in Neonates.....	1784
	ALLISON GILMORE • GEORGE H. THOMPSON	
107	Congenital Abnormalities of the Upper and Lower Extremities and Spine	1789
	JOCHEN P. SON-HING • GEORGE H. THOMPSON	

APPENDIXES

Appendix A	Therapeutic Agents	1810
	JACQUELYN D. MCCLARY	
Appendix B	Tables of Normal Values	1817
	MARY L. NOCK	
Appendix C	Schedule for Immunization of Preterm Infants.....	1837
	JILL E. BALEY	
Index	11