

# Contents

## Volume 1

<b>Part I General</b> .....	<b>1</b>
<b>1 Embryology of Congenital Malformations</b> .....	<b>3</b>
Dietrich Kluth and Roman Metzger	
<b>2 The Epidemiology of Birth Defects</b> .....	<b>35</b>
Edwin C. Jesudason	
<b>3 Prenatal Diagnosis of Congenital Malformations</b> .....	<b>49</b>
Tippi C. MacKenzie and N. Scott Adzick	
<b>4 Fetal Counseling for Congenital Malformations</b> .....	<b>65</b>
Kokila Lakhoo	
<b>5 Anatomy of the Infant and Child</b> .....	<b>83</b>
Mark D. Stringer	
<b>6 Perinatal Physiology</b> .....	<b>103</b>
Carlos E. Blanco and Eduardo Villamor	
<b>7 Fetal Surgery</b> .....	<b>115</b>
Aliza M. Olive, Aimee G. Kim, and Alan W. Flake	
<b>8 Specific Risks for the Preterm Infant</b> .....	<b>137</b>
Emily A. Kieran and Colm P. F. O'Donnell	
<b>9 Pediatric Clinical Genetics</b> .....	<b>149</b>
Andrew J. Green and James J. O'Byrne	
<b>10 Transport of Sick Infants and Children</b> .....	<b>167</b>
Julia Zimmer and Prem Puri	
<b>11 Pediatric Respiratory Physiology</b> .....	<b>181</b>
Bettina Bohnhorst and Corinna Peter	
<b>12 Pediatric Cardiovascular Physiology</b> .....	<b>201</b>
Albert P. Rocchini and Aaron G. DeWitt	
<b>13 Pediatric Hepatic Physiology</b> .....	<b>219</b>
Mark Davenport and Nedim Hadzic	

<b>14 Metabolism of Infants and Children</b> .....	231
Faraz A. Khan, Jeremy G. Fisher, Eric A. Sparks, and Tom Jaksic	
<b>15 Fluid and Electrolyte Balance in Infants and Children</b> .....	245
Joseph Chukwu and Eleanor J. Molloy	
<b>16 Vascular Access in Infants and Children</b> .....	263
Hiroki Nakamura, Rieko Nakamura, and Thambipillai Sri Paran	
<b>17 Nutrition in Infants and Children</b> .....	273
Agostino Pierro and Simon Eaton	
<b>18 Access for Enteral Nutrition</b> .....	287
Julia Zimmer and Michael W. L. Gauderer	
<b>19 Tracheostomy in Infants</b> .....	311
Martin Lacher, Jan-Hendrik Gosemann, and Oliver J. Muensterer	
<b>20 Pediatric Airway Assessment</b> .....	329
Eimear Phelan and John Russell	
<b>21 Stomas of Small and Large Intestine</b> .....	339
Andrea Bischoff and Alberto Peña	
<b>22 Preoperative Assessments in Pediatric Surgery</b> .....	351
Linda Stephens and John Gillick	
<b>23 Principles of Pediatric Surgical Imaging</b> .....	375
David Rea, Clare Brenner, and Terence Montague	
<b>24 Hematological Problems in Pediatric Surgery</b> .....	387
Ciara O'Rafferty and Owen Patrick Smith	
<b>25 Surgical Safety in Children</b> .....	411
George G. Youngson and Craig McIlhenny	
<b>26 Anesthesia and Pain Management</b> .....	427
Aidan Magee and Suzanne Crowe	
<b>27 Immunology and Immunodeficiencies in Children</b> .....	443
Saima Aslam, Fiona O'Hare, Hassan Eliwan, and Eleanor J. Molloy	
<b>28 Sepsis</b> .....	461
Scott S. Short, Stephanie C. Papillon, and Henri R. Ford	
<b>29 Principles of Minimally Invasive Surgery in Children</b> .....	477
Steven Rothenberg and Samiksha Bansal	
<b>30 Innovations in Minimally Invasive Surgery in Children</b> .....	487
Todd A. Ponsky and Gavin A. Falk	

<b>31</b>	<b>Fast-Track Pediatric Surgery</b> .....	505
	M. Reismann and Benno Ure	
<b>32</b>	<b>Ethical Considerations in Pediatric Surgery</b> .....	513
	Jacqueline J. Glover and Benedict C. Nwomeh	
<b>33</b>	<b>Childhood Obesity</b> .....	529
	Regien Biesma and Mark Hanson	
<b>34</b>	<b>Surgical Problems of Children with Physical Disabilities</b> ...	541
	Casey M. Calkins and Keith T. Oldham	
<b>35</b>	<b>Clinical Research and Evidence-Based Pediatric Surgery</b> .....	559
	Dennis K. M. Ip, Kenneth K. Y. Wong, and Paul Kwong Hang Tam	
<b>36</b>	<b>Tissue Engineering and Stem Cell Research</b> .....	577
	Paolo De Coppi	
<b>37</b>	<b>Patient- and Family-Oriented Pediatric Surgical Care</b> .....	593
	Katelynn C. Bachman, Ronald C. Oliver, and Mary E. Fallat	
<b>38</b>	<b>Surgical Implications of Human Immunodeficiency Virus Infection in Children</b> .....	603
	Alastair J. W. Millar, Jonathan Karpelowsky, and Sharon Cox	
<b>Part II Newborn Surgery: Head and Neck</b> .....		<b>615</b>
<b>39</b>	<b>Choanal Atresia</b> .....	617
	Eimear Phelan and John Russell	
<b>40</b>	<b>Macroglossia</b> .....	625
	Abdulrahman Alshafei and Thambipillai Sri Paran	
<b>41</b>	<b>Pierre Robin Sequence</b> .....	631
	Udo Rolle, Aranka Ifert, and Robert Sader	
<b>42</b>	<b>Lymphatic Malformations in Children</b> .....	641
	James Wall, Karl Sylvester, and Craig Albanese	
<b>43</b>	<b>Stridor in the Newborn</b> .....	649
	Sam J. Daniel	
<b>Volume 2</b>		
<b>Part III Newborn Surgery: Esophagus</b> .....		<b>659</b>
<b>44</b>	<b>Esophageal Atresia</b> .....	661
	Michael E. Höllwarth and Holger Till	
<b>45</b>	<b>Congenital Esophageal Stenosis</b> .....	681
	Masaki Nio, Shintaro Amae, and Motoshi Wada	

<b>46</b>	<b>Esophageal Duplication Cyst</b> .....	691
	Dakshesh Parikh and Melissa Short	
<b>47</b>	<b>Esophageal Perforation in the Newborn</b> .....	705
	David S. Foley	
<b>Part IV</b>	<b>Newborn Surgery: Chest</b> .....	<b>713</b>
<b>48</b>	<b>Congenital Airway Malformations</b> .....	715
	Richard G. Azizkhan	
<b>49</b>	<b>Vascular Rings</b> .....	733
	Benjamin O. Bierbach and John Mark Redmond	
<b>50</b>	<b>Pulmonary Air Leaks of the Neonate</b> .....	751
	Prem Puri and Jens Dingemann	
<b>51</b>	<b>Chylothorax and Other Pleural Effusions in Neonates</b> .....	761
	Richard G. Azizkhan	
<b>52</b>	<b>Congenital Malformations of the Lung</b> .....	775
	Keith T. Oldham and Kathleen M. Dominguez	
<b>53</b>	<b>Congenital Diaphragmatic Hernia</b> .....	797
	Julia Zimmer and Prem Puri	
<b>54</b>	<b>Extracorporeal Membrane Oxygenation for Neonatal Respiratory Failure</b> .....	817
	Jason S. Frischer, Charles J. H. Stolar, and Ronald B. Hirschl	
<b>Part V</b>	<b>Newborn Surgery: Gastrointestinal</b> .....	<b>827</b>
<b>55</b>	<b>Pyloric Atresia and Prepyloric Antral Diaphragm</b> .....	829
	Girolamo Mattioli and Sara Costanzo	
<b>56</b>	<b>Infantile Hypertrophic Pyloric Stenosis</b> .....	841
	Takao Fujimoto	
<b>57</b>	<b>Gastric Volvulus</b> .....	855
	Alan E. Mortell and David Coyle	
<b>58</b>	<b>Gastric Perforation</b> .....	865
	Adam C. Alder and Robert K. Minkes	
<b>59</b>	<b>Duodenal Obstruction</b> .....	875
	Yechiel Sweed and Alon Yulevich	
<b>60</b>	<b>Malrotation</b> .....	897
	Augusto Zani and Agostino Pierro	
<b>61</b>	<b>Congenital Hyperinsulinism</b> .....	905
	Augusto Zani and Agostino Pierro	

<b>62</b>	<b>Jejunioileal Atresia and Stenosis</b> .....	913
	Alastair J. W. Millar, Alp Numanoglu, and Sharon Cox	
<b>63</b>	<b>Colonic and Rectal Atresias</b> .....	925
	Tomas Wester	
<b>64</b>	<b>Duplications of the Alimentary Tract</b> .....	935
	Mark D. Stringer	
<b>65</b>	<b>Mesenteric and Omental Cysts</b> .....	955
	Suzanne Victoria McMahon, Dermot Thomas McDowell, and Brian Sweeney	
<b>66</b>	<b>Necrotizing Enterocolitis</b> .....	963
	Stephanie C. Papillon, Scott S. Short, and Henri R. Ford	
<b>67</b>	<b>Meconium Ileus</b> .....	973
	Pietro Bagolan, Francesco Morini, and Andrea Conforti	
<b>68</b>	<b>Meconium Peritonitis</b> .....	993
	Jose L. Peiró and Emrah Aydin	
<b>69</b>	<b>Neonatal Ascites</b> .....	1003
	Elke Zani-Ruttenstock and Augusto Zani	
<b>70</b>	<b>Hirschsprung's Disease</b> .....	1011
	Prem Puri, Christian Tomuschat, and Hiroki Nakamura	
<b>71</b>	<b>Hirschsprung-Associated Enterocolitis</b> .....	1031
	Farokh R. Demehri, Ihab F. Halaweish, Arnold G. Coran, and Daniel H. Teitelbaum	
<b>72</b>	<b>Variants of Hirschsprung Disease</b> .....	1045
	Prem Puri, Jan-Hendrik Gosemann, and Hiroki Nakamura	
<b>73</b>	<b>Anorectal Malformations</b> .....	1059
	Andrea Bischoff, Belinda Hsi Dickie, Marc A. Levitt, and Alberto Peña	
<b>74</b>	<b>Congenital Pouch Colon</b> .....	1087
	Amulya K. Saxena and Praveen Mathur	
<b>75</b>	<b>Congenital Segmental Dilatation of the Intestine</b> .....	1099
	Yoshiaki Takahashi, Yoshinori Hamada, and Tomoaki Taguchi	
<b>76</b>	<b>Short Bowel Syndrome</b> .....	1107
	Michael E. Höllwarth	
<b>Part VI Newborn Surgery: Liver and Biliary Tract</b> .....		<b>1125</b>
<b>77</b>	<b>Biliary Atresia</b> .....	1127
	Mark Davenport and Amy Hughes-Thomas	

<b>78 Congenital Biliary Dilatation</b> .....	1145
Atsuyuki Yamataka, Geoffrey J. Lane, and Joel Cazares	
<b>Part VII Newborn Surgery: Anterior Abdominal Wall Defects</b> ...	<b>1165</b>
<b>79 Omphalocele</b> .....	1167
Jacob C. Langer	
<b>80 Gastroschisis</b> .....	1177
Marshall Z. Schwartz and Shaheen J. Timmapuri	
<b>81 Omphalomesenteric Duct Remnants</b> .....	1189
Kenneth K. Y. Wong and Paul Kwong Hang Tam	
<b>82 Conjoined Twins</b> .....	1197
Juan A. Tovar	
<b>Part VIII Newborn Surgery: Spina Bifida and Hydrocephalus</b> ...	<b>1211</b>
<b>83 Spina Bifida and Encephalocele</b> .....	1213
Jonathan R. Ellenbogen, Michael D. Jenkinson, and Conor L. Mallucci	
<b>84 Hydrocephalus</b> .....	1237
Jonathan R. Ellenbogen, J. Kandasamy, and Conor L. Mallucci	
<b>Part IX Newborn Surgery: Long-Term Outcomes in Newborn Surgery</b> .....	<b>1257</b>
<b>85 Long-Term Outcomes in Newborn Surgery</b> .....	1259
Risto J. Rintala, Mikko P. Pakarinen, and Antti Koivusalo	
<b>Index</b> .....	1291