CONTENTS

PART 1: INFECTIOUS DISEASES AND IMMUNOLOGY

1. **Dengue Fever** **1**
Harmesh S Bains, Hitesh Dhawan
Epidemiology 1; Etiology 2; Pathophysiology 2; Symptoms 3; New (2009) Dengue Case Classification 5; Laboratory Investigations 5; Treatment 7; Monitoring 8; Prognosis 9; Prevention 9

2. **Complicated Malaria** **12**
Shripad Jahagirdar, Satish Tiwari
Clinical Manifestations 13; Differential Diagnosis 15; Laboratory Diagnosis 15; Management 16; Prevention 21; Recent Studies 22

3. **Tuberculosis: Current Concepts in Diagnosis and Management** **26**
Sudhir Mishra, Ramani Ranjan
Diagnosis 27; Investigations 28; Treatment 34

4. **Influenza: What is Special in Children?** **43**
Suraj Gupte, Novy Gupte, Gloria Evert
Special Features in a Nutshell 44; High-risk Children 44; Etiologic Virus 45; Epidemiologic Characteristics 46; Pathogenesis 47; Clinical Manifestations 47; Diagnosis 48; Prevention 49; Management 52; Complications 54; Prognosis 55

5. **Approach to a Child with Primary Immunodeficiency Disorder** **58**
Lalitha Kailas
Basics of Immunology 59; Clinical Presentation 60; Approach to Diagnosis 67; Clinical Evaluation 69; Laboratory Evaluation 70; Treatment 72; Prenatal Diagnosis 74; Prognosis 74

PART 2: NEUROLOGY

6. **Cerebral Palsy** **77**
L Ranbir Singh
Epidemiology and Etiology 77; Clinical Manifestations 79; Comorbidities 79; Classifications 80; Diagnosis 82; Management 82; Prevention 85

7. The Ketogenic Diet **88**
Gouri Rao Passi, Sarita P Verma
History 89; What is Ketogenic Diet? 89; Possible Mechanisms of Action 90; Indications 91; Contraindications 92; Execution of the Diet 92; Complications 93; Efficacy 94; Variants of the Ketogenic Diet 95; Positive Effects Other than Seizure Control 95; Indian Data 95; Controversies and Future Trends 96

PART 3: GASTROENTEROLOGY AND HEPATOLOGY

8. Celiac Disease: Issues and Concerns **99**
Sakshi Karkra, Neelam Mohan
Sementics/Definitions 99; Epidemiology 100; Ethnicity 102; Pathophysiology 102; Clinical Features 104; Diagnosis 105; Differential Diagnosis 108; Complications 109; Management 110; Newer Management Strategies 112

9. Revisiting Hepatitis B **115**
Suraj Gupte, Shahida Afroz, Utpal Kant Singh
Historical Aspects 116; Global Burden 116; Burden in India 117; Etiologic Virus 118; Transmission and Spread 119; Natural History and Course 120; Factors Affecting the Natural Course 121; Pathophysiology 121; Serological Markers 121; Clinical Manifestations 124; Complications 125; Diagnosis 125; Differential Diagnosis 126; Management 126; Prevention 128; Prognosis 129

10. Hepatocyte Transplantation **132**
Neelam Mohan, Deepak Goyal
Advantages 133; Indications 133; Isolation of Human Hepatocytes 133; Evaluation of Hepatocyte Quality 134; Cryopreservation 135; Sites of Hepatocyte Engraftment and Clinical Transplantation 136; Cell Loss Immediately after Transplantation 137; Immunosuppresion 137; Alternative Cell Sources 137; Techniques to Improve Liver Engraftment 138

11. Nonalcoholic Fatty Liver and Steatohepatitis **141**
Neelam Mohan, Ahmar Shamim
Epidemiology 142; Etiology 142; Pathogenesis 142; Clinical Features 146; Diagnosis 146; Imaging 147; Liver Histology 147; Natural History 148; Treatment 148

PART 4: NUTRITION-RELATED DISORDERS

12. Pediatric Obesity **153**
Pratibha Kale, Satish Tiwari
Definition 153; Classification 154; Epidemiology 154; Etiopathogenesis 155; Comorbidity 157; Assessment and Evaluation 158; Management 159; Prevention 163

13. Severe Acute Malnutrition **167**
BP Karunakara, Sangeetha Shenoy
Magnitude of the Problem 168; Etiologic Considerations 169; Human Immunodeficiency Virus (HIV), Tuberculosis and SAM 169; Screening for SAM 169; Treatment 170; Prevention 177

14. Vitamin D Deficiency and Childhood Diseases **182**
BP Karunakara, Manjunath Mallikarjuna Nagalli
Background and Physiology 183; Sources of Vitamin D 183; Blood Levels of Vitamin D 184; Global Burden of Vitamin D Deficiency and Insufficiency 184; Vitamin D Deficiency and Childhood Illnesses 185; Revised Guidelines for Recommended Dietary Allowance of Vitamin D 189; Prevention of Nutritional Vitamin D Deficiency 189

PART 5: NEPHROLOGY

15. Pediatric Acute Kidney Injury **195**
Madhuri Kanitkar, Ranjith Nair
Definition 196; Etiology 197; Epidemiology 199; Neonatal Acute Kidney Injury (AKI) 199; Pathogenesis-What's New? 201; Diagnosis — Role of Biomarkers 202; Management 204; Treatment 206; Long-term Outcomes 209

16. Urinary Tract Infection **216**
Anil Bajaj, Satish Tiwari
Definition 216; Epidemiology 217; Etiology 217; Pathogenesis 217; Risk Factors 217; Classification and Clinical Features 218; Complications 219; Diagnosis 219; Differential Diagnosis 220; Treatment 221; Prevention of Recurrent UTI 225; Prognosis 227

17. Idiopathic Steroid-resistant Nephrotic Syndrome: Trends in Management **230**
P Anil Kumar
Definitions 231; Investigations 231; Treatment 232

PART 6: HEMATOLOGY

18. Sickle Cell Disease **245**
Anupam Sachdeva, Vasant Chinnabhandar, Nita Radhakrishnan
Pathophysiology 246; Sickle Cell Trait 249; Laboratory Diagnosis 250; Newborn Screening for Sickle Cell Disease 252; Clinical Features and their Specific Management 253; Role of Splenectomy 264; Vaccinations in SCD 264; Long-term Follow Up 264; Surgery In Children With SCD 264; Newer Therapeutic Modalities 266; Future Directions 268

19. Thalassemia Syndromes **274**
Anupam Sachdeva, Aditya Kumar Gupta, Nita Radhakrishnan
History 275; Structure of Human Hemoglobin 275; The β Thalassemias 275; Other β-Thalassemia Variants 281; The α-Thalassemias 283; Clinical Presentation 284; Management of Thalassemias 285

PART 7: CHILD-CENTRIC INITIATIVES

20. National Child Health Programs **297**
E Venkata Rao, Sandhya Gupta
Historical Background of Health Programs 298; Legal Provisions by the State 299; Developmental Programs 303; Nutritional Programs 309; Health Programs 312

PART 8: CARDIOLOGY

21. Rheumatic Fever and Rheumatic Heart Disease **323**
Anil Grover, Vinod Kumar, Rajesh Vijayvergiya
Pathogenesis 324; Diagnosis and Clinical Features 327; Differential Diagnosis 331; Difficulties in Diagnosis 332; Role of Echocardiography in Resolving Some Issues 333; Epidemiology 335; Treatment 335; Prevention 338; The Way Out 343

PART 9: EMERGENCIES

22. Neonatal Resuscitation Guidelines: What is New? **347**
R Praveen, Daljit Singh, Uma Raju
Initial Rapid Assessment 348; Concept of Golden Minute 348; Initial Steps 348; State of Oxygenation 350; Positive-Pressure Ventilation (PPV) 351; Endotracheal Tube Placement 352; Medications 353; Induced Therapeutic Hypothermia 353;

Guidelines for Withholding and Discontinuing Resuscitation 353; Structure of Educational Programs to Teach Neonatal Resuscitation 354

23. Dermatological Emergencies **356**
Anjul Dayal, K Srikanth
Staphylococcal Scalded Skin Syndrome (SSSS) 357; Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) 359; Necrotizing Fasciitis 361; Purpura Fulminans 362; Pemphigus Vulgaris 364

24. Status Epilepticus **368**
L Ranbir Singh
Epidemiology, Etiology and Outcome 369; Classification and Clinical Features 370; Pathophysiology 371; Consequences 372; Investigations 373; Treatment 374; Prognosis 378; Future Directions 378

25. Intracranial Hypertension **384**
Anjul Dayal
Physiology of Intracranial Pressure 385; Neuroimaging 387; Neurologic Intensive Care Monitoring 387; General Care to Minimize Intracranial Hypertension 388; Algorithm of Management of Increased Intracranial Hypertension 389; Role of Surgery 392

26. Intravenous Fluid Therapy for Critically-ill Children in Pediatric Intensive Care Unit **395**
BP Karunakara, Namratha Upadhya
Physiology of Fluid Balance 396; Indications for Fluid Therapy 399; Traditional Approach to Fluid Therapy and its Limitations 400; Current Evidence on Fluid Therapy 402; Fluid Therapy in Special Situations 404

PART 10: CHILD PSYCHIATRY

27. Sleep Disorders in Children and Adolescents **409**
Gagan Hans
Electrophysiology of Sleep 410; Normal Sleep Requirements in Different Age Groups 411; Classification of the Sleep Disorders 412; Sleep Disorders Common in Children and Adolescents 415; Evaluation of Sleep Disorders: A Concluding Note 423

28. Eating Disorders **426**
Rachana Pole, GK Vankar
Eating Disorders in Children and Adolescents 427; Screening for Eating Disorders 427; Specific Eating Disorders 428; Assessment 438; Management 438

PART 11: PEDIATRIC PHARMACOTHERAPY

29. Adverse Drug Reactions **445**
KE Elizabeth, Gibby Koshy
Definitions 445; Adverse Drug Reactions in Children/Adults: Differences 446; Rationale 447; Types/Classification 447; Mechanisms of Adverse Drug Reactions in Children 448; Epidemiology 449; Risk Factors for Adverse Drug Reactions 449; Adverse Drug Reactions in Neonates 449; Detection of Adverse Drug Reactions/Monitoring 450; Reporting 450; Yellow Card System 450; Causalty Assessment for Adverse Drug Reactions 451; Genetics of Adverse Drug Reactions 452; Management 452; Anticancer Drugs and Adverse Drug Reactions 453; Commonly Used Drugs and Adverse Drug Reactions 453; Vaccines and Adverse Reactions 454

30. Probiotics: Concepts, Concerns and Controversies **458**
Novy Gupte, Suraj Gupte, Fatima Quereshi
Background 459; Historical Aspects 460; Probiotics and Allied Organisms 460; Specificity of Probiotics in Disease States 462; Dosage Schedule 463; Probiotics in Gastrointestinal Disorders 463; Probiotics in Nongastrointestinal Disorders 467; Recommendations on Therapeutic Effectiveness 469; Safety Issues and Adverse Drug Reactions 470; Current Status in India 470

31. Newer Antibiotics for Vancomycin-resistant *Staphylococcus aureus* and Other Pathogens **474**
Novy Gupte, Suraj Gupte
Linezolid (Zyvox, Zyvoxid, Linospan) 475; Dalbavancin (Cubicin) and Oritavancin 476; Tigecycline (Tygacil) 477; Telithromycin (Ketek) 477; Fifth-generation Cephalosporins 478

Index *483*