Contents

SECTION 1: Infectious Diseases

1. **Amoebiasis** 1
KVGK Tilak
• History 1 • Epidemiology 1 • Taxonomy 1 • Pathogenesis and Pathology 1 • Clinical Manifestations 2 • Complications 2 • Diagnosis 2 • Treatment 3 • Drainage 3 • Prevention 3

2. **Indian Guidelines and Protocols: Malaria** 4
BN Mohapatra, CBK Mohanty
• Treatment of Uncomplicated *Plasmodium Falciparum* Malaria 4 • Treatment of Uncomplicated *Plasmodium* • *Vivax* Malaria 4 • Treatment of Severe *Plasmodium Falciparum* Cases 4 • Treatment of Severe Malaria Due to *Plasmodium Vivax* or Mixed Malarial Infection 4 • Treatment of Severe *Plasmodium Falciparum* Malaria Cases in Pregnancy 5 • Chemoprophylaxis 5

3. **Indian Scenario of Elimination of Lymphatic Filariasis** 6
Suma TK
• Disability Caused by Lymphatic Filariasis 6 • Why Lymphatic Filariasis should be Eliminated? 7 • Global Program for Elimination of Lymphatic Filariasis 7 • Present Scenario of Lymphatic Filariasis Elimination in India 7

4. **Human Trypanosomiasis in India: Is it an Emerging New Zoonosis?** 10
Prashant P Joshi
• Human Trypanosomiasis 10 • Animal Trypanosomiasis 10 • Atypical Human Trypanosomiasis Due to Animal Trypanosomes: A New Form of Human Trypanosomiasis 10 • Challenges 13

5. **Melioidosis: The Great Mimicker** 14
R Chandni
• Background and History 14 • Epidemiology 14 • Clinical Manifestations 14 • Diagnosis and Differential Diagnosis 15 • Treatment 16 • Prognostic Factors and Outcome 16 • Prevention 17

6. **Scrub Typhus** 19
V Ramasubramanian, P Senthur Nambi
• Introduction and History 19 • Pathogen 19 • Epidemiology 19 • Clinical Features 20 • Diagnosis 20 • Specific Tests 21 • Treatment 21 • Mortality in Scrub Typhus 21 • Prevention 21

7. **Indian Guidelines for the Diagnosis and Management of Human Leptospirosis** 23
S Shiva Kumar
• Guidelines for Clinical and Laboratory Diagnosis of Human Leptospirosis 23 • Guidelines for Management of Human Leptospirosis 27

8. **Chikungunya: Indian Guidelines and Protocols** 30
R Sajith Kumar
• Clinical Manifestations during the Acute Phase 30

9. **Swine-origin Influenza A (H1N1) Virus: An Update** 34
Isaac Christian Moses
• Emergence of Influenza A (H1N1) Viruses from Birds and Swine into Humans 34 • Clinical Features of Swine Influenza 34 • Case Definitions 35 • Diagnosis 36 • Treatment 36 • Prevention 37 • Vaccine Prophylaxis 37 • Management of the Contacts 37 • Notification 37

10. **Recent Evidences in the Management of Nosocomial Infections** 39
NK Soni, Vishal Wadhwa, Kush Ohri
• Epidemiology 39 • Sources of Nosocomial Infection 39 • Changes in Microbial Flora 39 • Types of Nosocomial Infection 39 • Changes in the Distribution of Infection Sites 39 • Distribution of Pathogens in Specific Sites 39 • Strategies for Management of Nosocomial Infection 40 • Principles of Empiric Therapy 40 • Specific Empiric Situations 40 • Initial Antibiotic Therapy 40 • Therapeutic Strategies of Documented Nosocomial Infection 40 • Antibiotic Therapy in Selected Nosocomial Infections 40 • Prevention Strategies 42

11. **Approach to the Patient with Fever of Unknown Origin** 44
V Shantaram, AMVR Narendra
• Definition and Classification 44 • Prevalence and Causes of Fever of Unknown Origin 44 • Nizam Institute of Medical Sciences (NIMS) Experience 44 • Diagnostic Approach and Clinical Perspective 45 • Treatment of Fever of Unknown Origin 47

12. **Fever in the Immunocompromised Host** 48
Mangesh Tiwaskar
• The Immune System 48 • History and Physical Examination 49 • Diagnostic Tests 50 • Blood Cultures 50 • Biopsies 50 • Radio-imaging 50 • Differential Diagnosis 50 • Other Causes of Immunodeficiency 50 • Geriatric Patients 50 • The Patient with Granulocytopenia 51 • Empirical Antibiotic Therapy in Intensive Care Units 51 • Common Pathogens 52 • Confusing Patients: Occult Immunocompromise and Infection without Fever 52

13. **Atypical Mycobacterial Infection** 53
Debasis Chakraborty, Shankha S Sen
• Classification of Nontubercular • Mycobacteria 53 • Epidemiology 53 • Pathogenesis 53 • Clinical Presentation 54 • Treatment 56

SECTION 2: HIV

14. **HIV/AIDS in India: Journey So Far and the Road Ahead** 57
BB Rewari
• Introduction and Global Scenario 57 • HIV In India—History and our Response 57 • Current Status and Achievements of AIDS Program in India 58 • Challenges and Road Ahead 61 • Road Ahead and Conclusion 62

15. **Burden of Opportunistic Infections in HIV/AIDS Patients in the Highly Active Antiretroviral Therapy Era: A Regional Institute of Medical Sciences, Imphal Perspective** 63
S Bhagyabati Devi, Robinson Ningshen, Arvind G
• Materials and Methods 63 • Results and Observations 63 • Discussion 65

16. **Human Immunodeficiency Virus and Pregnancy** 67
PK Agrawal, Vishal Parmar
• Mode of Transmission 67

SECTION 3: Hypertension

17. **Practical Guidelines for Hypertension Management** 69
NR Rau, Satish K Nayak
• Assessment of a Patient with Hypertension 69 • Assessment for Target Organ Damage 69 • Role of ABPM and Home Blood Pressure Monitoring 69 • Home Blood Pressure Assessment 70 • Management 70

18. Does Your First Line Antihypertensive Reduce Death?—The Untold Story of the Renin-Angiotensin-Aldosterone System Blockers **74**
JS Bhuvaneswaran
• Blood Pressure Levels versus Choice of Treatment 74 • Optimal Treatment Strategies for Hypertension 74 • The Story of Renin-Angiotensin-Aldosterone System Blockers 74 • Different Mechanisms of Action between ACEI and ARBS: Could be the Reason? 75

19. Choosing a Diuretic in Hypertension: To Follow Instinct or Evidence **78**
Tiny Nair
• The Legacy: One of the Earliest Effective and Well Tolerated Treatments for Hypertension 78 • Guidelines: What do they say about Diuretics? 78 • The Purpose: Objective of Hypertension Management 78 • Diversity in Unity: Are all Diuretics Same? 78 • Hard Talk: Literature Review of Hydrochlorothiazide 78 • Look Alike or New Contenders: The Thiazide-Like Diuretics 79 • What is New: Latest Guidelines and the Implications 79

20. Sex and Hypertension **81**
AK Pancholia
• What is Sexual Dysfunction? 81

21. Interventions in Hypertension **90**
Ajay Kumar Mahajan, Anuj A Sathe, Anup R Taksande
• Theories of Renovascular Hypertension 90 • Fibromuscular Dysplasia 91 • Renal Sympathetic Denervation and its Role in Resistant Hypertension 91 • Coarctation of Aorta 91 • Takayasu's Aortoarteritis (Nonspecific Aortoarteritis) 93 • Baroreflex Activation Therapy 93

SECTION 4: Cardiology

22. Lead aVR: The Neglected Lead **96**
M Chenniappan
• Electrocardiographic Significance of aVR 96

23. Exploring Pathophysiology of Acute Coronary Syndrome for Novel Biomarkers **105**
Vinod K Shah, Kavita K Shalia
• Pathophysiology of Acute • Coronary Syndrome 105 • Current Practice of Diagnostic Biomarkers in ACS 105 • In Search for Novel Cardiac Biomarkers of ACS 106

24. Critical Analysis of Various Drugs Used for Thrombolytic Therapy in Acute Myocardial Infarction **109**
Gurpreet Singh Wander, Shibba Takkar Chhabra
• History of Thrombolytic Agents 109 • Thrombolytic Agents in Acute Myocardial Infarction: Classification and Mechanism of Action 109 • Limitations of Thrombolysis 113 • Effect of Fibrinolytic Therapy on Mortality 115 • Choice of Agent 115 • Intracoronary Thrombolytic Therapy 115 • Recommendations 115

25. Newer Advances in Coronary Intervention **117**
G Sengottuvelu
• Optical Coherence Tomography in Cath Lab 117 • Fractional Flow Reserve 118 • Dedicated Bifurcation Stent Technology 119 • Newer Devices in Primary Angioplasty in Acute Myocardial Infarction 119 • "Absorb" Bioresorbable Vascular Scaffold 120

26. Advances in Management of Heart Failure and What can we do in India? **122**
KM Cherian, AG Narayanaswamy
• Management Strategies 122 • Pharmacogenetics 123 • Metabolic Modulators 123 • Cardiac Resynchronization Therapy 123 • Implantable Cardioverter Defibrillator 123 • Myocardial Repair and Regeneration 123 • Assist Devices 124 • Total Artificial Heart 124 • Surgical Management of Heart Failure 124 • Heart Transplantation 124 • What can we do in India? 124

27. Pulmonary Arterial Hypertension **126**
Gandharba Ray, L Ravi Kumar
• Pathology and Pathogenesis 126 • Classification 126 • Diagnosis 127 • Detection Assessment 127 • Essential Tests 127 • Contigent Tests 127 • Prognostic Factors Assessment 127 • Treatment Goals 128

28. Cardiac Issues with Noncardiac Surgery **131**
A Kader Sahib
• Preoperative Evaluation 131 • Pharmacological Intervention 132

29. Infective Endocarditis: Indian Scenario **135**
Rajeev Gupta
• Types of Infective Endocarditis 135 • Epidemiology: Current Indian Scenario 135 • Diagnosis: Current Status 136 • Molecular and Serological Tests 136 • Serology 137 • Molecular Techniques 137 • Indian Scenario 138 • Treatment 138 • Prophylactic Therapy: Current Scenario 140 • Future Perspective 141

30. Understanding Cardiomyopathy: Practical Guidelines **142**
Asha Moorthy, Jain T Kallarakkal
• Hypertrophic Cardiomyopathy 142 • Restrictive Cardiomyopathy 144 • Idiopathic Dilated Cardiomyopathy 144

31. Contemporary Management of Sudden Cardiac Death **147**
SN Narasingan
• Definition of Sudden Cardiac Death 147 • Etiology of Sudden Cardiac Death 147 • Beta-Blockers and Prevention of Sudden Cardiac Death 149 • Prevention of Ventricular Arrhythmias and Sudden Cardiac Death 149 • Role of Upstream Therapy in the Prevention of Sudden Cardiac Death 149

SECTION 5: Diabetology

32. The Double Burden of Tuberculosis and Diabetes in India **152**
A Muruganathan, Vijay Viswanathan
• Burden of Tuberculosis in India 152 • Diabetes Epidemic—Risk Factor for Tuberculosis 152 • Recent Indian Study on Diabetes Mellitus Prevalence among Tuberculosis Patients 153 • Pathophysiology Behind Diabetes Mellitus-Tuberculosis Association 153 • Reverse Relationship—Tuberculosis as a Risk Factor for Diabetes Mellitus and its Complications 153 • Treatment Outcomes of Tuberculosis among Diabetic Subjects 153 • Mortality Rate due to Tuberculosis—Comparison between Diabetic and Nondiabetic Subjects 154 • Presentation of Tuberculosis and X-ray Findings in Diabetic Subjects 154 • Anticipated Practical Challenges 154

33. Clinical Approach to Diabetes in the Young in India **156**
V Mohan, A Amutha, H Ranjani, RM Anjana, Ranjit Unnikrishnan
• Types of Diabetes in the Young in India 156 • Maturity–onset Diabetes of the Young 157 • Fibrocalculous Pancreatic Diabetes 158 • Gestational Diabetes Mellitus 158 • Endocrine Diabetes 158 • Algorithm for Differential Diagnosis of Diabetes in Youth in India 158 • Treatment and Management of Diabetes in the Young 158

34. Diabetes Prevention: Translating Science into Practice **162**
Mayur Patel
• Approach for the Prevention of Diabetes 162 • New Approaches in the Prevention of Diabetes 162

35. Guidelines on Inpatient Management of Hyperglycemia **164**
Sukhminderjit Singh Bajwa, Manash P Baruah, Sanjay Kalra, Mukul Chandra Kapoor
• Need for Indian/Asian Guidelines 164 • Guidelines for Glycemic Control 164 • Monitoring of Blood Glucose 166 • Special Populations 166

36. Addressing the Glucose Triad for Comprehensive Glycemic Control **170**
Binayak Sinha
• The Importance of Lowering HbA_{1c} 170 • Postprandial Glucose Excursions and Glycemic Variability 170 • Managing the Glucose Triad 172

37. Hemoglobin A_{1c}: Consensus and Controversy **174**
Anil Kumar Virmani
• What is HbA_{1c}? 174 • HbA_{1c} as a Diagnostic Criterion 175 • HbA_{1c} for Monitoring of Glycemic Control 175 • Indian Scenario 176

38. Stress Hyperglycemia **178**
Anand Moses
• Mechanism 178 • Clinical Forms of Stress-induced Hyperglycemia 178 • Stress-induced Hyperglycemia in Diabete Mellitus 178 • Clinical Management of Stress-induced Hyperglycemia 179 • Stress Hyperglycemia and Undiagnosed Diabetes in the Hospital Setting 180 • Acute Coronary Syndromes 180 • Acute Stroke 180 • Cardiac Surgery 180 • Critical Care Setting 180

39. Latent Autoimmune Diabetes in Adults **182**
Banshi Saboo
• Epidemiology of Lada 182 • Lada and Genetic Factors 182 • Lada and Immune Change 183 • Lada and Metabolic Changes 183 • Diagnosis of Lada 183 • Therapeutic Implications 184

40. Type 2 Diabetes in India: Challenges and Possible Solutions **186**
Ambady Ramachandran, Ananth Samith Shetty, Arun Nanditha, Chamukuttan Snehalatha
• Scenario in India 186 • Delayed Diagnosis of Diabetes 188 • Awareness about Diabetes and Other Noncommunicable Diseases among the Public 188 • Limited Health Care Facilities 188 • Cost of Diabetes Management 189 • Suboptimal Diabetes Control and Rising Rate of Diabetes Complications 189

41. Hypoglycemia and its Impact in Diabetes **191**
SM Sadikot
• Diabetic Retinopathy 191 • Diabetic Nephropathy 191 • Impact of Hypoglycemia on the Quality of Life 192

42. Suggested Protocols for Self-Monitoring of Blood Glucose in India **194**
Ranjit Unnikrishnan, V Mohan 194
• Concept of Glycemic Variability 194 • Benefits and Uses of Self-Monitoring of Blood Glucose 194 • Who should do Self-Monitoring of Blood Glucose? 194 • How often should One Perform Self-Monitoring of Blood Glucose? 194 • Using Self-Monitoring of Blood Glucose in Clinical Practice 196

43. Continuous Glucose Monitoring System **198**
Johny Jose Kannampilly
• What is Continuous Glucose Monitoring? 198 • Basics of Continuous Glucose Monitoring 198

44. Diagnosis and Management of Gestational Diabetes Mellitus: Indian Guidelines **201**
Seshiah V, Sahay BK, Das AK, Balaji V, Siddharth Shah, Samar Banerjee, A Muruganathan, Rao PV, Ammini A, Shahsank R Joshi, Sunil Gupta, Sanjay Gupte, Hema Divakar, Sujata Misra, Uday Thanawala, Vitull K Gupta, Navneet Magon
• Epidemiology 201 • Screening and Diagnosis 201 • Management of Gestational Diabetes Mellitus 202 • Follow-up of Gestational Diabetes Mellitus 203

45. Economic Burden of Diabetes **205**
Jitendra Singh
• Global Scenario 205 • The Economic Burden in India 206

46. National Recommendations: Psychosocial Management of Diabetes in India **209**
Sanjay Kalra, GR Sridhar, Yatan Pal Singh Balhara, Rakesh Kumar Sahay
• General Issues 209 • Psychological Assessment and Management 210 • Social Assessment and Management 212 • Conflict of Interest 213

47. Anesthesia in Diabetic Patients **215**
G Vijayakumar
• Preoperative Management 215 • Intraoperative Management 217 • Postoperative Management 217

48. Infections in Diabetes Mellitus **218**
BK Sahay
• Diabetes and Tuberculosis 219 • Skin and Soft Tissue Infections 219 • Emphysematous Cholecystitis 220 • Diabetes and Malaria 220 • Treatment Aspects 220

49. Need for National Guidelines for Diabetes and Related Disorders **221**
Usha Shrivastava, Anoop Mishra
• Available Guidelines 221 • Need for National Guidelines 221 • Special Points for Guidelines 222 • Evolution Process 222

50. Delivering an Effective Foot Care for People with Diabetes **223**
Vijay Viswanathan

51. Indian National Consensus Group: National Guidelines on Initiation and Intensification of Insulin Therapy with Premixed Insulin Analogs **227**
Ashok Kumar Das, Binode Kumar Sahay, V Seshiah, V Mohan, A Muruganathan, Ajay Kumar, Vijay Viswanathan, CR Anand Moses, Banshi Saboo, Sarita Bajaj, Sanjay Kalra, AG Unnikrishnan, Manash P Baruah, Samit Ghosal, Awadhesh Kumar Singh, Muralidhar S Rao, Ranjit Unnikrishnan, S Nallaperumal, JS Kumar, V Balaji, Arthur J Asirvatham, Bipin Kumar Sethi, Rakesh Kumar Sahay, T Dhinakaran, Shailaja Kale, M Shanmugavelu and others on behalf of INCG Group
• Methodology 229 • Integral Ethnopharmacy and Insulin Therapy 229 • Glycemic Parameters 230 • Nonglycemic Parameters 232 • Indications in Special Populations 232 • Guidance for Therapy in Type 2 Diabetes Mellitus 233 • Guidelines for Use of Premixed Insulin Analogs during Fasting 234

52. Biopharmaceuticals and Biosimilars: A Consensus Statement **237**
Seshiah V, Das AK, Sethi BK, Moses CRA, Kumar A, Viswanathan V, Joshi SR, Balaji V, Sahay RK, Kalra S, Saboo B, Singh AK, Ghosal S, Zargar AH, Muruganathan A
• Biopharmaceuticals and Biosimilars 237 • Complex Issues 238 • Regulatory Standards for Biosimilar Products 239 • A Proposed Approach 239

SECTION 6: Gastroenterology

53. Indian Guidelines and Protocols: Hepatitis B **242**
AC Anand, Pankaj Puri
• Epidemiology of Hepatitis B Virus in India 242 • Transmission of Hepatitis B Virus in India 242 • Natural History of Hepatitis B Virus Infection 242 • Guidelines for Management of Hepatitis B Virus 243 • Nucleoside/Nucleotide Analogs 244 • Special Considerations and Implications for Management of HBV in Indian Scenario 244

54. What is New in Hepatology? **246**
Natarajan Ravendhran
• Hepatitis B 246 • Chronic Hepatitis C 246 • Hepatocellular Carcinoma 246

55. Guidelines for Assessment and Management of Nonalcoholic Fatty Liver Disease in Indians **248**
Shivaram Prasad Singh, Manas Kumar Panigrahi
• Natural History 248 • Pathogenesis 248 • Nonalcoholic Fatty Liver Disease • Burden in India 248 • Diagnosis 249 • Management 250 • Pharmacotherapy 251 • Dos and Don'ts for Patients with Nonalcoholic Fatty Liver Disease 251

56. Irritable Bowel Syndrome: The Indian Scenario **255**
Rajesh Upadhyay, Aesha Singh
• Indian Perspective 255 • Epidemiology 255 • Etiology 255 • Evaluation 256 • Treatment 257 • Prognosis 258

57. Prebiotics and Probiotics: A Critical Analysis **259**
Vijay Prakash
• Prebiotics 259 • Probiotics 259

58. Nonvariceal Upper Gastrointestinal Bleed **263**
Divij Mehta, Ajay Kumar
• Resuscitation and Risk Assessment 263 • Clinical Predictors of Increased Risk for Rebleeding or Mortality 263 • Endoscopy 263 • Endotherapy 264 • Acid Suppression Medication 265 • Second-look Endoscopy 265 • Rebleeding 266 • Nonsteroidal Anti-inflammatory Drugs and Antiplatelets 266

59. Management of Acute Pancreatitis: Indian Guidelines and Protocols **267**
Rakesh K Tandon
• Assessment of Severity 267 • Classification of Acute Pancreatitis 268 • Treatment 268

60. Management Strategies in Chronic Pancreatitis **271**
Vinita Chaudhary, Surinder Singh Rana, Chalapathi Rao, Deepak Kumar Bhasin
• Clinical Signs and Symptoms 271 • Complications 271 • How to Diagnose Chronic Pancreatitis? 271 • Treatment of Chronic Pancreatitis and its Complications 272 • Control of Abdominal Pain 272 • Chronic Pancreatitis and Pancreas Divisum 273 • Management of Complications of Chronic Pancreatitis 273 • Endocrine and Exocrine Insufficiency 274

61. Hope at the End of the Tunnel **277**
TS Chandrasekar, BJ Gokul, TC Vivek Sandeep

62. Capsule Endoscopy: Newer Vistas **283**
VG Mohan Prasad
• Indications of Capsule Endoscopy 283 • Discussion 283 • CapsoCam SV1 in a Patient with Crohn's Disease 284 • Recent Advances 284

SECTION 7: Endocrinology

63. Guidelines for Management of Thyroid Nodules in Adults: Towards a Consensus **286**
Unnikrishnan AG
• Defining the Thyroid Nodule and its Epidemiology in India 286 • Deciding the Nodules Requiring Evaluation 286 • Clues from the Clinical Assessment 286 • The Best Possible Tests to Consider during Evaluation 287 • Palpation-Guided FNAB versus Ultrasound-Guided FNAB 287 • A Simplified Algorithm 287 • Treatment of Thyroid Nodules 287 • Nonsurgical Treatment of Thyroid Nodule 288 • Thyroid Nodule Management in Special Situations 288 • Expectations from Future Modalities 288

64. Hypothyroidism: Treatment Issues **290**
RV Jayakumar
• Etiology of Hypothyroidism 290 • Chronic Autoimmune Thyroiditis or Hashimoto's Thyroiditis 290 • Clinical Features of Hypothyroidism 290 • Laboratory Investigations 291 • Management 291 • Subclinical Hypothyroidism 292 • Pregnancy, Fertility and Hypothyroidism 292 • Hypothyroidism, Dyslipidemia and Cardiovascular Risk 292

65. Cushing's Syndrome: Challenges in Diagnosis and Management **293**
KJ Shetty, R Spurgeon
• Etiology and Pathophysiology 293 • Clinical Features 293 • Investigation of Patients with Suspected Cushing's Syndrome 294 • Investigating the Cause of Cushing's Syndrome 294 • Imaging in Cushing's Syndrome 295 • Management of Cushing's Syndrome 296

66. Hirsutism: Indian Scenario **298**
AR Vijaya Kumar, VR Thilagavathy, Pavan Soleti
• Epidemiology/Demography 298 • Physiology of Hair Growth/Pathogenesis 298 • Hormonal Influence 299 • Etiology 299 • Clinical Evaluation 300 • Imaging 300 • Treatment 300

67. Pituitary Incidentalomas **302**
Nihal Thomas, Dukha Bandhu Naik
• Radiographic Anatomy 302 • Classification 302

68. Endocrine Emergencies **308**
Shyam Kalavalapalli
• Myxedema Coma 308 • Thyroid Storm 308 • Acute Adrenal Insufficiency 308 • Pituitary Apoplexy 309 • Pheochromocytoma Crisis 309 • Acute Hypercalcemia 309 • Acute Hypocalcemia 309

69. Algorithmic Approach for the Diagnosis of Polyuria **311**
RVSN Sarma
• Water Metabolism 311 • Hypothalamic Pituitary Endocrine Axis 311 • Polyuria 312

SECTION 8: Reproduction and Sexual Medicine

70. Female Sexual Dysfunction: Indian Scenario **314**
Navneet Magon, Monica Chauhan, Bharti Kalra
• Definitions and Classifications 314 • Etiopathogenesis 315 • Evaluation 315 • Philosophy of Management: Indian Scenario 316 • Prerequisites 317 • History Taking 317 • Nonpharmacological Therapy 318 • Specific Disorders: Principles of Management 318 • Community Awareness 319

71. Sexual Health at 40 **320**
Deepak K Jumani
• Genetic Basis of Aging and Neurodegeneration 320 • Psychological Impact of Aging and Sexual Health 320 • Endogenous Sex Hormones and Metabolic Syndrome 320 • Androgen Deficiency, Aging and Male Sexual Health 320 • The Impact of Aging on Sexual Function and Sexual Dysfunction in Women 321

72. Andropause: The Missing Health **323**
Uttam Kumar Paul, Anup Kr Bhattacharyya, Salil Kumar Pal
• History 323 • Pathophysiology 323 • Other Factors Contributing to Symptoms of Andropause 324 • Symptoms Associated with Andropause 324 • Treatment of Andropause 324

73. Medical Management of Male Infertility **327**
RK Sahay, J Nagender Reddy
• Epidemiology 327 • Trends in Male Infertility 327 • Etiology 327 • Evaluation 327 • Standard Semen Analysis 328 • Treatment 328

SECTION 9: Women's Health Care

74. Innovations to Implementation: Initiatives that have Made an Impact **331**
Hema Divakar

75. Women's Health in Ramadan **332**
Sarita Bajaj, Afreen Khan
• Pregnancy and Ramadan 332 • Lactation and Ramadan 333 • Health Implications of Fasting during Ramadan 333

SECTION 10: Hematology

76. Cerebral Vein Thrombosis **335**
PK Sasidharan
• Pathogenesis 335 • Causes and Risk Factors 336 • Clinical Features 337 • Diagnosis 338 • Management and Outcome 339 • Case History 1 340 • Case History 2 340

77. Methemoglobinemia: A Reappraisal with an Indian Perspective **344**
SV Ramanamurty
• Synonyms 344 • Historical Aspects 344 • Epidemiology 344 • Indian Perspective 344 • Normal Biochemistry 345 • Methemoglobin 345 • Chemistry and Genetics 345 • Classification of Methemoglobinemia 345 • Epilogue 348

78. Indian Guidelines for Febrile Neutropenia **350**
Madhuchanda Kar, Roy Rakesh
• Why is Febrile Neutropenia Important? 350

79. Diagnosis and Management of Acute Myeloid Leukemia **354**
Vikram Mathews
• Clinical Presentation and Diagnosis 354 • Treatment of Newly Diagnosed Acute Myeloid Leukemia 355

80. Recent Advances in Diagnosis and Management of Multiple Myeloma: An Update **360**
PS Ghalaut, Soumik Chaudhuri, Ragini Singh
• Monoclonal Gammopathy of Unknown Significance 360 • Plasmacytoma 360 • Asymptomatic Myeloma 360 • Types of Paraproteins in Multiple Myeloma 361 • Clinical Features 361 • Staging of Multiple Myeloma 361 • Investigations and Monitoring 361 • Treatment of Multiple Myeloma 361 • Novel Agents in Multiple Myeloma 362 • Treatment of Relapsed Disease 364 • Supporive Therapy in Multiple Myeloma 364 • Newer Therapies 364 • Experience with Multiple Myeloma at Postgraduate Institute of Medical Sciences, Rohtak, Haryana 364

81. Indian Guidelines and Protocols in Oncology: Solid Tumors and Hematological Malignancies **366**
Purvish M Parikh
• Epidemiological Background 366 • Concept about Indian Guidelines 367

82. Aplastic Anemia, Apoptosis and Telomeres: Insight into Missing Link and Clinical Implications **372**
Sudhir Mehta, Sandhya Gulati, Nidhi Sharma
• Epidemiology 372 • Pathophysiology 372 • Pilot Study of Telomerase Mutations in Aplastic Anemia 374 • Methodology and Experimental Design 374 • Deoxyribonucleic Acid Extraction 374 • Results 375 • Discussion 376 • Future Aspects 377

SECTION 11: Therapeutics

83. The Chennai Declaration: A Call to Action! **378**
A Muruganathan
• Aim of the "Roadmap Meeting" and "Chennai Declaration" 378 • Executive Summary of "The Chennai Declaration" 378 • Where does the Roadmap Head? 379

84. Roadmap: To Tackle the Challenge of Antimicrobial Resistance **380**
Abdul Ghafur, Vidyalakshmi PR, Priyadarshini Kannaian, A Muruganathan
• Tackling Antimicrobial Resistance—The Indian Perspective: Dr Dilip Mathai, President, Clinical Infectious Diseases Society 380 • Dr Arjun Srinivasan, Associate Director for Health Care Associated Infection Prevention Programs, Centers for Disease Control and Prevention 380 • UK Approach to Antimicrobial Stewardship: Dr Dilip Nathwani, Chair, European Study Group on Antibiotic Policies (ESGAP) and Scottish Antimicrobial Prescribing Group (SAPG) 381 • Tackling Resistance: Initiatives in the Pacific Region—David Paterson, Consultant in Infectious Diseases, Australia 381 • European Initiatives to Control Antibiotic Use and Resistance: Herman Goossens, Chair of the Technical Advisory Committee of the EAAD (European Antibiotic Awareness Day), ECDC (European CDC) 381 • Apocalypse Delayed? Lessons from Asia: Paul Ananth Tambyah, National University of Singapore 381 • Role of National Accreditation Board of Hospitals in Tackling Resistance—Dr Sanjeev Singh, Member, Technical Committee and Chairman, Research Committee, Nabh 381 • World Health Organization Representative—Dr Anuj Sharma 382 • Role of Microbiology Laboratory and Microbiologists in Tackling Antimicrobial Resistance: Dr Arti Kapil, Professor, Department of Microbiology, AIIMS, New Delhi, Indian Association of Medical Microbiologists (IAMM) Representative 383 • Panel Discussion 1 383 • Panel Discussion 2 383 • Panel Discussion 3 383

85. Targeted Nanomedicine and Smart Drugs **385**
Mukesh Doble
• Various Polymers 385 • Preparation of Polymerics Nanoparticles for Drug Delivery 385 • Computer-aided Molecular Modeling Studies 386

86. Newer Anti-TB Drugs and Drug Delivery Systems **388**
Alladi Mohan, D Prabath Kumar, J Harikrishna
• Antituberculosis Drug Pipeline 388 • Newer Antituberculosis Drug Delivery Systems 390 • Future Prospects 391

87. Clinical Trials to Clinical Practice: Role of Sulfonylureas in Today's Practice **393**
Brij Mohan Makkar, Deepak Gupta, Ajay Gainda
• Efficacy of Sulfonylureas 393 • Issues with Sulfonylurea Usage 393 • Beta-cell Exhaustion 393 • Hypoglycemia 395 • Body Weight Gain 396 • Selectivity 396 • Mortality Risk 396 • Translating Evidence into Clinical Practice 396 • Recommendations from Apex Organizations 397

88. Evolution of Gliptins over the Last 5 Years **399**
Apurba Kumar Mukherjee
• Historical Perspective: Incretin Discovery, Trial and Error and "Rediscovery" 399 • Evolving Recent Data on the Clinical Efficacy of Gliptins 400 • Evolution of the Idea of Gliptin Use in Special Populations 401 • Combination Therapy 401 • Safety 401 • Present Recommendations 401

89. Differentiating Incretin-based Therapies: Progress and Promise of GLP-1 Receptor Agonists **405**
Ajay Kumar
• Advantages of Incretin-based Therapies 405 • Incretin Mimetics/Analogs 406 • Exenatide QW (Exenatide Long-acting Release) 406 • Incretin Analogs and Body Weight 407 • Incretin Analogs and Cardiovascular Outcomes 407 • Concerns with Incretin-based Therapies 407

90. Oral Anticoagulants: Current Indian Scenario **410**
Gopalakrishnan S, Srinivasan Narayanan
• Indications for Oral Anticoagulation in the Present Scenario 410 • Oral Anticoagulant Drugs Commonly Used in India 410 • Newer Oral Anticoagulants on the Anvil 410 • Issues in Oral Anticoagulant Therapy Peculiar to India 411 • What are the Issues with Warfarin Dosing in the Indian Population? 412 • Warfarin in Pregnancy: The Indian Scenario 412 • What is the Role of Newer Anticoagulants in the Indian Scenario? 412 • Will the Newer Agents Completely Replace Warfarin? 413

91. Antioxidants are Useful **414**
Jayanta K Panda, Rudrasish Samal
• Reactive Oxygen Species 414 • Antioxidant Protection 414 • Dietary Antioxidants 414 • Phytonutrients 414 • Endogenous Antioxidants 415 • Oxidative Stress 415 • Oxidative Stress and Human Disease 415 • Conditions Associated with Oxidative Damage 415 • Mitochondria and Oxidative Stress 416 • Importance of Balance 416

SECTION 12: Toxicology

92. Indian Guidelines and Protocols: Bee Sting **417**
Tarun Kumar Dutta, V Mukta
• Entomology of Bees 417 • Venom Allergens 417 • Allergic Reactions to Hymenoptera Venom 417

93. Scorpion Envenomation: What is New? **421**
B Rama Chandra Reddy
• Scorpion Venom Biology 421 • Epidemiology 421 • Clinical Features 422 • Management 422 • Local Treatment 422 • Treatment of Shock 422 • Treatment by Prazosin 422 • Advanced Supportive Management 423 • Specific Treatment by Antivenom 423 • Other Measures 423

94. Snake Bite: Indian Guidelines and Protocol **424**
Surjit Singh, Gagandip Singh
• Snakes of India 424 • First Aid 424 • Snake Bite Treatment Protocol 424 • Follow-up 426

95. Current Concepts in the Management of Organophosphorus Compound Poisoning 427
V Palaniappen
• Goals of Treatment 427 • What is the Comparative Effect of Atropine and/or Glycopyrrolate in the Treatment of Organophosphate Poisoning? 428 • Does Administration of Oximes in Organophosphate Poisoning Improve Health Outcomes? 428 • Does Administration of Fresh Frozen Plasma Leads to Improvement in Health Outcomes in Organophosphate Poisoning? 431 • Does Early Enteral Feeding Improve Health Outcomes in Organophosphate Poisoning? 431 • Does Clonidine Improve Health Outcome in Organophosphate Poisoning? 431 • Does Charcoal-based Gastric Decontamination Improve Health Outcomes in Organophosphate poisoning? 431 • Does Gastric Lavage Improve Health Outcomes in Organophosphate Poisoning? 431 • Does Alkalinization Improve Health Outcomes in Organophosphorus Poisoning? 432 • Carry Home Messages 432

SECTION 13: Rheumatology

96. Fibromyalgia: Does it Exist? If so, What is the Management? 434
V Nagaraajan
• Recent Concepts in Pathophysiology 434 • Cognitive Dysfunctions in Fibromyalgia 436 • Imaging in Fibromyalgia 436 • Differential Diagnosis 436 • Management 437 • Prognosis 437

97. Monitoring of Patients on Disease-modifying Antirheumatic Drugs 439
Ved Chaturvedi
• Monitoring of Nonbiologic DMARDs 439 • Relative Efficacy and Toxicity of DMARD 441 • Treatment Strategies and Combination Therapy 441 • Monitoring of Biologics 442

98. Gout in Indian Scenario 444
Arup Kumar Kundu
• Epidemiology 444 • Gout: Clinical Spectrum 444 • Indian Study with Some Positive Information 447 • Follow-up 447 • Recent Advances in Treatment 447

99. Redefining Lupus in 2012 449
Subramanian Shankar, Maj Abhishek Pathak
• Introduction: The Circular Argument 449 • Classification versus Diagnostic Criteria 449 • Pitfalls/Unmet Needs 449 • Redefining Lupus in 2012 450

100. Scleroderma: From Therapeutic Nihilism to Therapeutic Optimism 452
Satyabrata Ganguly, Rajan Palui
• Drugs that Prevent Vascular Damage 452 • Suppression of Autoimmunity and Inflammation 452 • Agents to Inhibit Fibrosis 453 • Future Therapy 453

SECTION 14: Immunology

101. Adult Immunization 456
Asha N Shah
• Adult Vaccination 456 • Newer Vaccines in the Pipeline 456

102. Travel Immunizations 462
Lavanya Nutankalva
• Mandatory Vaccines 462 • Recommended Vaccines 462 • Precautions in Special Populations 463 • Malaria Prophylaxis 463 • Rabies Prophylaxis 463 • Routine Immunizations 463

SECTION 15: Pulmonology

103. Therapeutic Options for Uncontrolled Asthma 464
Agam Vora
• Burden from Poor Control 464 • Relevant Factors for Modification of Control 465 • Brittle Form of Asthma 466 • Therapeutic Approaches 467

104. Sleep Disordered Breathing Disorders 473
Surendra K Sharma, Kriti Khanna, Abhishek Sharma
• Epidemiology 473 • Assessment of Sleepiness 474 • Treatment 476

105. Management of Tuberculosis: Indian Guidelines 479
Kuldeep Singh Sachdeva
• Diagnosis of Tuberculosis 479 • Treatment of Tuberculosis 479

106. Pulmonary Manifestations of Tropical Parasitic Diseases 484
Gursaran Sidhu
• Pulmonary Amebiasis 484 • Pulmonary Leishmaniasis 484 • Pulmonary Malaria 484 • Pulmonary Toxoplasmosis 485 • Pulmonary Babesiosis 485 • Helminthic Parasites 485

107. Uncommon Presentations of a Common Disease: Tuberculosis 490
VP Gopinathan
• Clinical Profile 490 • Case Records of Uncommon Clinical Profile 490

108. Pulmonary Thromboembolism: Indian Scenario 493
BNBM Prasad
• Case Studies 493 • Magnitude of the Problem 495 • Risk Factors 495 • Pathophysiology 495 • Diagnoses 496 • Treatment 498 • Prognosis 499 • Prevention 500 • Questions and Answers 500

109. Diagnosis and Management of Interstitial Lung Disease 503
Kesavan Kutty
• Diagnostic Evaluation of Interstitial • Lung Disease 503 • Pulmonary Function Testing/Arterial Blood Gases 503

110. Nanotechnology at Work: Photocatalytic Oxygenation of Blood 505
Paul Ramesh T, Subrahmanyam A, Albert Jayakumar
• Clinical Background 505 • Principle of Photocatalysis 505

111. High Altitude Mountain Sickness 507
Vinay K Rampal
• Effects of Altitude 507 • Acute Mountain Sickness 507 • High Altitude Cerebral Edema 509 • High Altitude Pulmonary Edema 509 • Chronic Mountain Sickness 509 • Thrombosis 510 • Cold Injury 510

SECTION 16: Neurology

112. Cerebrospinal Fluid: A Physician's Perspective 511
PK Maheshwari, A Pandey
• Lumbar Puncture 511

113. Clinical Approach to a Patient with Headache 514
Gurubax Singh, Pritam Gupta, Ankur Gupta, Manoj Khanal
• Clinical Approach 514 • Classification of Headache (By International Headache Society) 515 • Red Flag Symptoms 515 • Treatment Approaches in Headache 515

114. Practical Approach to the Diagnosis and Management of Insomnia 519
SN Arya, K Rajiv, R Singh
• Pathophysiology 519 • Types of Insomnia 519 • Diagnostic Paradigm 520 • Management 521 • Other Drugs Used for Insomnia 522 • Other Therapies 522

115. Differential Diagnosis and Evaluation of Sleepiness 524
Debajyoti Bhattacharyya, Madhu Sudan Barthwal, Chandan Dev Singh Katoch, Puneet Saxeena
• Quantifying Sleepiness 524 • Factors Affecting Sleepiness 525 • Evaluating the Sleepy Patient 525

116. Indian Guidelines on Epilepsy 527
Mrinal Kanti Roy, Dhiman Das
• Why do we Need Indian Guidelines? 527 • Defining Epilepsy 527 • Diagnosing Epilepsy 527 • Classification 528 • Investigations 528 • Treatment 528 • Treatment in Special Situations 530 • Surgery in Epilepsy 531 • Medically Intractable Epilepsy 531

117. Convulsive Status Epilepticus: Treatment **533**
JMK Murthy
• Incidence 533 • Etiology 533 • Treatment 533

118. Neuroleptic Malignant Syndrome **538**
Gautam Bhandari
• Pathophysiology 538 • Pathogenesis of Neuroleptic Malignant Syndrome at Cellular Level 539 • Risk Factors 539 • History and Clinical Features 539 • Diagnostic Criteria 540 • Investigations 540 • Differential Diagnosis of Neuroleptic Malignant Syndrome 541 • Treatment 541 • Pregnancy and Neuroleptic Malignant Syndrome 541 • Prognosis 541

119. A Clinical Approach to Tremor **543**
Dilip Kumar Jha, Anupam Kumar Singh
• Classification 543 • Tremor Syndromes 543 • Diagnostic Approach 544 • Treatment 546

120. Multiple Sclerosis: Indian Perspective **547**
Salil Gupta, AK Tewari, Velu Nair
• Prevalence of Multiple Sclerosis in India 547 • Treatment 549

121. Intensive Care Unit-Acquired Paresis: Spectrum of Neuromyopathies **552**
Mathew Alexander
• History 552 • Epidemiology 552 • Spectrum of Critical Illness Weakness 553 • Diagnostic Criteria for Critical Illness Polyneuropathy 553 • Diagnostic Criteria for Critical Illness Myopathy 553 • Critical Illness Neuromyopathy 553

122. Managing Critically Ill Patients with AIDP: Relevance of International Guidelines to Indian Scenario **556**
B Vengamma
• Epidemiology 556 • Clinical Manifestations 557 • Critical Care Concerns 557 • Utility of International Guidelines on Diagnosis 558 • Treatment 558

123. Stroke Prevention in Atrial Fibrillation: What is New? **562**
Prafulla G Kerkar, Srivallabh Karlekar, Vinay Jaiswal
• Risk Stratification and Bleeding Risk Assessment: What is New? 562 • Need for a Novel Oral Anticoagulant 562 • So What is New on the Horizon? 563 • Patient Values and Preferences 565 • Place in Therapy 565

124. Parkinson's Disease: Medical Management **566**
N Balamurugan, M Vivekanandan
• Parkinsonism and Parkinson's Disease 566 • Prevalence of Parkinsonism in India 566 • Differentiating Parkinson's Disease and Other Causes of Parkinsonism 566 • Early Diagnosis of Parkinsonism 567 • Animal Models of Parkinsonism 567 • Levodopa and Motor Complications 567 • Dopa Agonists: When and to Whom? 568 • Role of Anticholinergic Drugs in Parkinson's Disease 569 • Role of Amantadine in Parkinson's Disease 569 • Importance of Individualizing Therapy 569

125. Management of Neurogenic Pain: Indian Perspectives **570**
K Bhanu, K Bharani, LA Ravi, AV Srinivasan
• Pathophysiological Mechanisms 570 • Diagnosis 571 • Management of Pain 571 • Evidence-based Recommendations for Pharmacological Management of Pain 571 • Recent Advances 572

126. Brain Failure: Some Lessons **574**
K Srinivasan
• Amnesia—Memory Failure 574

SECTION 17: Nephrology

127. Urinalysis in Clinical Practice **576**
Sekhar Chakraborty
• Specimen Collection and Handling 576 • Routine Urinalysis 576 • Chemical Composition of the Urine 577 • Microscopic Examination of the Spun • Urinary Sediment 580

128. Acute Glomerulonephritis: Evidence-based Management **586**
MR Mazumder
• Clinical Presentation 586 • Diagnosis 586 • Kidney Disease Improving Global Outcomes (KDIGO) 586 • General Management of Glomerulonephritis 586 • Minimal Change Disease 587

129. Acute Renal Failure in India **590**
N Mohandas
• Acute Diarrheal Disease with Acute Renal Failure 590 • Malaria 590 • Leptospirosis Acute Renal Failure 591 • Snakebite Renal Failure 591 • Wasp Bite Acute Renal Failure 591 • Obstetric Renal Failure 592 • Chemical Toxins and Drugs 592 • Management 592

130. Chronic Kidney Disease: Current Status, Challenges and Management in India **593**
Ilangovan Veerappan, Georgi Abraham
• Chronic Kidney Disease: A Public Health Problem 593 • Preventing Chronic Kidney Disease, End-stage Renal Disease, Premature Death 593 • Challenges in Chronic Kidney Disease Management in India 595 • Renal Replacement Therapy Facilities 595 • Renal Transplantation 595 • Tamil Nadu Model of Deceased Donor Transplantation 596 • Government Support for Renal Transplantation 596

131. Emerging Biomarkers of Kidney Injury **598**
AM Bhagwati
• Role of Biomarker in Acute Kidney Injury 598 • Characteristics of an Ideal Biomarker for Acute Kidney Injury 598 • Neutrophil Gelatinase-Associated Lipocalin 598 • NGAL as a Predictor of Development of Acute Kidney Injury 599 • Cystatin C 600

132. Cardiorenal Syndrome: An Overview **601**
NP Singh, Anish Kumar, Taposh Sarkar
• Cardiorenal Connection 601 • Epidemiology 601 • Pathophysiology 601 • Diagnosis 601 • Cardiorenal Syndrome: Classification and Management 602 • Future Directions in Treatment of Cardiorenal Syndrome 604

133. Fluid Therapy in Medical Disorders **605**
Sanjay Pandya
• Why Patients Need Intravenous Fluid Therapy? 605

134. Newer Insight in the Management of Hyponatremia: Role of Aquaretics/Vaptans **609**
Mujahid Beg
• Clinical Features 609 • Diagnostic Approach and Causes of Hyponatremia 609 • Conventional Treatment of Hyponatremia and its Disadvantages 609 • Role of Vaptans/Aquaretics in Management of Hyponatremia 610 • Role of Vaptans in Syndrome of Inappropriate Antidiuretic Hormone Secretion 611 • Role of Vaptans in Congestive Heart Failure 611 • Role of Vaptans in Cirrhosis 611 • Other Vaptans 611

SECTION 18: Metabolic Disorders

135. Inborn Errors of Metabolism: Disorder of Adults? **613**
Kothiwale VA, Varun Kumar B
• Classification 613 • Clinical Manifestations 614 • Diagnosis and Management 614

136. Vitamin D Treatment Guidelines **619**
Michael F Holick
• Definition of Vitamin D Deficiency and Insufficiency 619 • Association Studies Related to Noncalcemic Health Benefits of Vitamin D 620 • Mechanisms for Noncalcemic Benefits of Vitamin D 621 • Vitamin D Deficiency Pandemic 621

137. Short Stature: Evaluation and Management **626**
Preetam Nath, Jitendra Kumar, SK Hammadur Rahman, Madhukar Rai
• Indian Scenario 626 • Causes of Short Stature 626 • Prenatal Causes 627 • Postnatal Causes 627 • Skeletal Dysplasias 628 • Assessment of a Child with Short Stature 628 • Investigations 629 • Management 630

SECTION 19: Nutrition

138. Diet as Medicine 632
Sonia Arora, Vitull K Gupta, Meghna Gupta
• Diet as Medicine: An Overview 632 • "Diet as Medicine" Goes Far Beyond Eating Well to Stay Healthy 632 • Therapeutic Foods: Let Your Diet be Your Medicine 632 • Diet and Nutrients in Disease Management 633 • Diet as Medicine: Beyond the Appropriate Pharmacological Management 633 • Recommendations of "Diet as Medicine" for Individuals as Opposed to Populations 634

139. Methylcobalamin Versus Cyanocobalamin 635
Y Bhasker
• Metabolism of Cobalamin 635 • Indian Scenario 635 • Absorption 635 • Causes of Cobalamin Deficiency 636 • Our Experience 636 • Data of a Few Cases 636 • Cobalamin Malabsorption in Elderly 636 • Messages 636

140. Cooking Oils in Health and Disease 638
Shilpa Joshi, Shashank R Joshi
• Fat Basics 638 • Oils 638 • Partially Hydrogenated or Trans Fatty Acids 639 • Unsaturated Fatty Acids 640 • Cholesterol 641 • Choosing the Right Oil 642 • Quantity of Oil 642 • Oil Usage 642 • Visible and Invisible Fats 642 • Why Blends are Needed? 643

141. Nutrition in ICU: An Overview 646
Ketan K Mehta
• Basis of Nutritional Support 646 • Issues in Nutrition 646 • What Guidelines are Available? 646 • Nasogastric Route Problems 646 • Nutritional Care Plan 646 • Nutritional Requirements 646 • Complications of Enteral Nutrition 647 • Contraindications to Enteral Feeding 647 • Complications of Total Parenteral Nutrition 647 • Early versus Late Enteral Nutrition 647 • Supplemented Nutrition 647

142. Genetically Modified Foods: Impact on Human Health—Boon or Bane? 650
Anupam Prakash
• Historical Perspective and Genesis 650 • Definition and Concept of Genetically Modified Foods 650 • Global Perspective 651 • Benefits of Genetically Modified Foods 651 • Genetically Modified Foods-related Decisions in India 652

SECTION 20: Legal Medicine

143. Ethics in Legal Issues: Do's and Don'ts 654
TN Ravisankar

144. Landmark Judgments Relating to Medilaw 656
B Cheran
• Standard of Care as Fixed by Law 656 • Doctor should only Prove that he had not done any Wrong 656 • Patient is the Priority—Not Money or Prior Commitment of the Doctor 657 • Informed Consent—Important to Know 657 • Caution to Hospital Laboratories 658

SECTION 21: Medical Education

145. Empowering Doctors for the Twenty-First Century by Education 659
Balakrishnan (Kichu) R Nair AM

146. Major Reforms in Medical Education for an Interdependent World of 21st Century 660
Pradeep Mishra

SECTION 22: General

147. The Whole Patient and not Part of Him or Her in Clinical Examination 663
KV Thiruvengadam

148. My Tryst with Experience-based Medicine 664
GS Sainani
• General Examination 664 • Experience-based Medicine versus Evidence-based Medicine 666 • Doctor-Patient Relationship 666 • How to Create Confidence in Your Patient 666 • Litigation Phobia 666 • Profit-based Medicine 666 • Providence-based, Prophet-based or God-based Medicine 666 • Be a Clever and Smart Physician 666 • Should we Trust Evidence-based Medicine for every Patient? 666 • What is the Best Way of Practice? 666

149. Hippocratic Oath: Revisiting in the Present Medical Scenario 668
Mukti Bhatnagar, Abhishek Gupta
• The Hippocratic Oath: Historical Aspects 668 • Proposal 669

150. A Sound Mind in a Body: How True is it? Can Doctors Play an Effective Role in this? 670
Ashutosh Ojha
• Introduction: Definitely Yes 670 • Depression and Physical Health 670 • Feeling Happy and Being Healthy 670 • Stress Response 670

151. Who will Care for the Doctor's Health? 674
Surendra Daga
• Doctors' Physical Health 674 • Problem Related to the Doctors Health 674 • Doctor Health Maintenance Behavior 674 • Psychological Disease 675 • Cancer Screening 675 • Need of the Day 675

152. Computer-related Illnesses and Facebook Syndrome: What are they and How do we Tackle them? 676
Vitull K Gupta, Sonia Arora, Meghna Gupta
• Physical Illnesses 676 • Sociability and Interpersonal Relations 677 • Facebook Syndrome 678

153. Global Warming: Impact on Global Health and on the Indian Health Scenario in Particular 680
Maheshwari S, Basavaraj GT
• Effects of Global Warming on the World and Global Health 680 • Health Effects of Global Warming: Hardest on Poor Nations 680 • Effects of Global Warming on India and Indian Health 681 • Global Responsibilities of Developed and Developing Nations 682 • Individual People can Make a Difference 682

154. Medical Tourism: Will this Help India's Health? 683
T Ravikumar
• What is Medical Tourism? 683 • Why India? 683 • Real Scenario in India 683 • What are the Obstacles? 684 • Who is Promoting? 684 • What are Required? 685

155. Future of Small Hospitals in India 686
Anand Kate

156. Diversity of Culture: Its Influence on Health Care (Indian Scenario) 688
V Venugopal
• Cultural Diversity/Deviation from Traditional Customs on Health: Current Indian Scenario 688

157. Use of Smartphones and its Applications in Medical Practice 689
SV Kulkarni, Chitra S Kulkarni, Om S Kulkarni, Aditya S Kulkarni
• Basics of Technology 689 • Real Life Scenario and Difficulties 689 • Which Phone to Have? 689 • How it Works—What is an Application? 689 • Utility in OPD Services Outfields 690 • Role in Hospital While Examining Patients 690 • Information at Point of Care 690 • Indian Software and Applications Scenario 690 • Value for our Patients 690 • Concerns 690 • Get Tuned to the Future 690 • Glimpse of Future 691

158. Role of Physician in an Era of Superspecialization 692
Prabhu Ethiraj
• Physician 692 • Challenges to Global Community (Disease Burden) 692 • WHO 2010: Mortality Data 692 • Challenges in India 692 • Communicable Diseases 692 • Noncommunicable Diseases 693 • Health Care Delivery and Human Resources 693 • Concept of Superspeciality/Subspeciality 693 • Role of Physician in Modern Era 693 • Suggestions 694 • Physician as Community Leader in Health Care 694

159. Quo Vadis Medicine… The Road Ahead for Physicians **695**
E Prabhu
• A Short History of Medicine 695 • Executive Summary 695 • What makes Physicians Special? 695 • What are the Changing Paradigms? 695 • How was the Road Traversed? 696 • Who are our Collaborators? 696 • Why Personalized Medicine? 698 • Where are we Headed? 698

160. Chronic Fatigue Syndrome: A Review **699**
DJ Borah
• History 699 • Incidence 699 • No Consensus on Nomenclature 699 • Clinical Spectrum 699 • Pathophysiology 701 • Diagnosis and Differential Diagnosis 701 • Management 701 • Prognosis 702 • The Future 702

161. Modern Medicine… Hope Or Hype **703**
Anil Chaturvedi
• Risks of Too Many Tests 704

162. Effective Utilization of Web Search Engines: An Approach for Medical Practitioners **706**
RP Pareek
• Internet, the Worldwide Web and Search Engines 706 • Approaching the Web: Where to Look and How? 707

163. Emerging Role of High-Tech Medicine **711**
Asif Hasan, Muhammad Uwais Ashraf
• Limitations of Clinical Medicine 711 • High-tech Procedures 711

164. India Needs Clinical not the High-Tech Medicine **716**
Jotideb Mukhopadhyay, Anup Sarkar, Apratim Chatterjee
• The Science and Art of Diagnosis 716 • Importance of Clinical Skill 716 • Diagnostic Studies 717

165. Approach to Low Back Pain **719**
Vikram A Londhey
• Basics of Low Back Pain 719 • Clinical Features 719 • Investigations 720 • Treatment 720

SECTION 23: Molecular Medicine

166. Advances in Genomics and Proteomics: Their Role in Future of Molecular Medicine **724**
Harsha Gowda
• Prenatal Screening 724 • Newborn Screening 724 • Presymptomatic Gene Testing 724 • Diagnostic Testing 724 • Pharmacogenomics 725

167. Molecular Medicine Demystified **726**
Nikhil Moorchung
• Chromosome 726 • Deoxyribonucleic Acid Structure 727 • Polymerase Chain Reaction 727 • Microarrays 727 • Sequencing 727 • Epigenetics and Epigenome 728 • Microribonucleic Acids 728 • Fluorescent *in Situ* Hybridization 729 • Comparative Genomic Hybridization 729

SECTION 24: Radiology and Nuclear Medicine

168. Changing Strategy in the Management of CAD with Cardiac SPECT and PET Myocardial Perfusion Studies **730**
BR Mittal
• Basis of Stress Radionuclide Cardiac Imaging 730 • Assessment of Myocardial Viability 732

169. Empowering the Physicians with Radioisotopes in Clinically Challenging Situations **734**
Shrikant Solav

170. Empowerment of Physicians to Evaluate the Molecular Dynamics in the Body with Single-Photon Emission Computed Tomography and Positron Emission Tomography **736**
PK Pradhan, S Jain

171. Cutting Edge 3 Tesla Cardiac MRI: How can it Benefit to Patients and Physicians? **742**
Alpa Hemant Bharati, Suleman A Merchant
• Ischemic Heart Disease and Ischemic Cardiomyopathy 742 • Nonischemic Cardiomyopathies 742 • Arrythmogenic Right Ventricular Dysplasia 744 • Drug-induced Cardiomyopathy 745 • Infective Diseases of the Heart and Pericardium 746 • Storage Disorders and Iron Overload 747 • Cardiac and Paracardiac Tumors 747 • Valvular Heart Disease 748 • The Future 748

SECTION 25: Surgery

172. Guidelines for Bariatric (Metabolic) Surgery for Indian Population **750**
P Praveen Raj, C Palanivelu
• Why are Asians Peculiar? 750 • Body Mass Index Criteria for Asians 750 • Bariatric/Metabolic Surgery in India 750 • Mechanisms of Surgical Control of Diabetes 750 • Guidelines for Surgery for the Asia-Pacific 751

173. The Growing Threat of Chronic Venous Disease **753**
Prakash Ramamoorthy
• Presentations of Venous Disease 753 • Risk Factors for Varicose Veins 754 • Risk Factor for Developing Deep Vein Thrombosis 754 • Investigations 754 • CEAP Classification (American Venous Forum 1994) 755 • Treatment of Varicose Veins 755 • Treatment of Deep Vein Thrombosis 755 • Problems Peculiar to Indian Scenario 755

174. Strategies to Reduce the Risk of Breast Cancer **757**
Karthik Ghosh, Amit Ghosh
• Breast Cancer Risk Factors 757 • Strategies for Reducing Breast Cancer Risk 757

175. Role of Physician in Surgical Sepsis **760**
S Asokan
• Initial Assessment and Resuscitation 760 • Hemodynamic Stabilization 760 • Antibiotic Therapy 760 • Diabetic Control 761 • Acute Lung Injury/Respiratory Dysfunction 761 • Cardiac Dysfunction 761 • Acute Kidney Injury 761 • Source Control in Severe Surgical Sepsis 761 • Nutritional Support 761 • Deep Vein Thrombosis Prophylaxis 761 • Stress Ulcer Prophylaxis 762 • Blood Product Administration 762 • Recent Advances 762

SECTION 26: Geriatrics

176. Treatment of Sepsis and Related Syndromes in the Elderly: Indian Scenario **763**
Yadati Sathyanarayana Raju
• Sepsis and Related Syndromes: Definitions 763 • Indian Scenario 766

177. Health Issues in Geriatrics **767**
Santosh B Salagre
• Epidemiology 767 • Physiological Changes in Elderly 767 • Specific Health Issues in Geriatrics 767 • Screening for Health Issues in Geriatrics 769 • Preventive Interventions in Elderly 769 • What Needs to be done in Indian Scenario? 770

SECTION 27: Case Studies

178. An Interesting Case of Orange Colored Sweat **771**
SS Lakshmanan
• Case Report 771 • Discussion 771 • Differential Diagnosis 772 • Investigations 772 • Coming Back to the Case 773 • We can Sweat in Different Colors 774

179. Interesting Cases: Discussion **775**
Sudha Vidya Sagar

180. Endocrine Pictorial Continuing Medical Education **779**
Suresh Damodaran

SECTION 28: Quiz Program

181. Clinical Pearls **788**
Sandeep P Tamane
• Critical Illnesses Related to Pregnancy: A Nightmare for Physicians!!!! 794

SECTION 29: Miscellaneous

182. Empowering Environment **798**
T Geetha
• Definition of Environmental Health 798 • What is Empowering Environment? 798 • Why do we talk so much about the Environment, Which is a Natural Part of our Being? 798 • Deterioration of the Macro Environment and its Effects 798 • Relevance of Biodiversity to Health 799 • Events Related to the Destruction or Denigration of the Macro Environment 799 • Environmental Issues in India and How she Proposes to Empower 800 • Doctors, Health Parameters, Pharmaceuticals and the Environment 800 • Environmental Issues but Sadly Neglected 801 • Empowering Environment: The Contributors and the Lessons to be Learnt 801 • Programs to Address the Cause of Malnutrition 801 • Doctors, Environment, Empowerment, Roles and Responsibilities 802

183. Space Medicine **803**
AS Mohan
• Humans in Space Environment 803 • Physiological Issues 804

184. Sarcoidosis: An Update on Recent Advances **806**
Ghanshyam Pangtey, Gunjan Agarwal
• History and Definition 806 • Epidemiology 806 • Etiopathogenesis 806 • Clinical Features 808 • Management 808 • Treatment 811 • Approach to a Patient with Pulmonary Sarcoidosis 813

185. Xenoestrogens: The Curse of Civilization **816**
VN Mishra
• Effect of Xenoestrogens on Aquatic Life Systems 816 • Mechanism of Action of Xenoestrogens 817 • Sources of Xenoestrogens 817 • Households Cleaners and Nonstick Kitchen Wares 817 • Harmful Effects of Xenoestrogens on Human Race 817 • Xenoestrogens and Cancerous Illnesses 817 • Xenoestrogens and Neuropsychiatric Development 818 • Xenoestrogen and Fertility 818

Index *821*