Pediatric Critical Care: The Discipline

1. History of Pediatric Critical Care Medicine

2. High-Reliability Pediatric Intensive Care Unit: Role of Intensivist and Team in Obtaining Optimal Outcomes

3. Critical Communications in the Pediatric Intensive Care Unit

4. Professionalism in Pediatric Critical Care

5. Leading and Managing Change in the Pediatric Intensive Care Unit

6. The Evolution of Critical Care Nursing

7. Fostering a Learning Health Care Environment in the Pediatric Intensive Care Unit

8. Challenges for Pediatric Critical Care in Resource-Poor Settings

9. Public Health Emergencies and Emergency Mass Critical Care

10. Lifelong Learning in Pediatric Critical Care

II. Pediatric Critical Care: Tools and Procedures

11. Essential Concepts in Clinical Trial Design and Statistical Analysis

12. Prediction Tools for Short-Term Outcomes Following Critical Illness in Children

13. Pediatric Transport

14. Pediatric Vascular Access and Centeses

15. Ultrasonography in the Pediatric Intensive Care Unit

III. Pediatric Critical Care: Psychosocial and Societal

16. Patient- and Family-Centered Care in the Pediatric Intensive Care Unit

17. Pediatric Critical Care Ethics

18. Ethical Issues Around Death and Dying

19. Palliative Care in the Pediatric Intensive Care Unit

20. Organ Donation Process and Management of the Organ Donor

21. Long-Term Outcomes following Critical Illness in Children

22. Burnout and Resiliency

IV. Pediatric Critical Care: Cardiovascular

23. Structure and Function of the Heart

24. Regional and Peripheral Circulation

25. Endothelium and Endotheliopathy

26. Principles of Invasive Cardiovascular Monitoring

27. Assessment of Cardiovascular Function

28. Cardiac Failure and Ventricular Assist Devices

29. Echocardiographic Imaging

30. Diagnostic and Therapeutic Cardiac Catheterization

31. Pharmacology of the Cardiovascular System

32. Cardiopulmonary Interactions

33. Disorders of Cardiac Rhythm

34. Shock States

35. Pediatric Cardiopulmonary Bypass

36. Critical Care After Surgery For Congenital Heart Disease

37. Pediatric Cardiac Transplantation

38. Physiologic Foundations of Cardiopulmonary Resuscitation

39. Performance of Cardiopulmonary Resuscitation in Infants and Children

V. Pediatric Critical Care: Pulmonary

40. Structure and Development of the Upper Respiratory System

41. Structure and Development of the Lower Respiratory System

42. Physiology of the Respiratory System

43. Noninvasive Respiratory Monitoring and Assessment of Gas Exchange

44. Overview of Breathing Failure

45. Ventilation/Perfusion Inequality

46. Mechanical Dysfunction of the Respiratory System

47. Diseases of the Upper Respiratory Tract

48. Pediatric Acute Respiratory Distress Syndrome and Ventilator-Associated Lung Injury

49. Acute Viral Bronchiolitis

50. Asthma

51. Neonatal Pulmonary Disease

52. Pneumonitis and Interstitial Disease

53. Diseases of the Pulmonary Circulation

54. Mechanical Ventilation and Respiratory Care

55. Noninvasive Ventilation in the Pediatric Intensive Care Unit

56. Extracorporeal Life Support

57. Pediatric Lung Transplantation

VI. Pediatric Critical Care: Neurological

58. Structure, Function, and Development of the Nervous System

59. Critical Care Considerations for Common Neurosurgical Conditions

60. Neurological Assessment and Monitoring

61. Neuroimaging

62. Coma and Depressed Sensorium

63. Intracranial Hypertension and Monitoring

64. Status Epilepticus

65. Anoxic Ischemic Encephalopathy

66. Pediatric Stroke and Intracerebral Hemorrhage

67. Central Nervous System Infections and Related Conditions

68. Acute Neuromuscular Disease and Disorders

69. Acute Rehabilitation and Early Mobility in the Pediatric ICU

VII. Pediatric Critical Care: Renal

70. Renal Structure and Function

71. Fluid and Electrolyte Issues in Pediatric Critical Illness

72. Acid-Base Balance in Critical Illness

73. Tests of Kidney Function in Children

74. Glomerular Tubular Dysfunction and AKI

75. Pediatric Renal Replacement Therapy in the Intensive Care Unit

76. Pediatric Renal Transplantation

77. Renal Pharmacology

78. Hypertensive Urgencies and Emergencies

VIII. Pediatric Critical Care: Metabolic and Endocrine

79. Cellular Respiration

80. Biology of the Stress Response

81. Inborn Errors of Metabolism

82. Genetic Variation in Health and Disease

83. Molecular Mechanisms of Cellular Injury

84. Endocrine Emergencies

85. Diabetic Ketoacidosis

IX. Pediatric Critical Care: Hematology and Oncology

86. Structure and Function of the Hematopoietic Organs

87. The Erythron

88. Hemoglobinopathies

89. Coagulation and Coagulopathy

90. Thrombosis in Pediatric Critical Care

91. Transfusion Medicine

92. Hematology and Oncology Problems

93. Critical Illness in Children Undergoing Hematopoietic Progenitor Cell Transplantation

X. Pediatric Critical Care: Gastroenterology and Nutrition

94. Gastrointestinal Structure and Function

95. Disorders of the Gastrointestinal System

96. Acute Liver Failure

97. Hepatic Transplantation

98. Acute Abdomen

99. Nutrition of the Critically Ill Child

XI. Pediatric Critical Care: Immunity and Infection

100. Innate Immunity

101. Adaptive Immunity

102. Critical Illness and the Microbiome

103. Congenital Immunodeficiency

104. Acquired Immune Dysfunction

105. Immune Balance in Critical Illness

106. Pediatric Rheumatic Disease

107. Bacterial and Fungal Infections

108. Life-Threatening Viral Diseases and Their Treatment

109. Healthcare-Associated Infections

110. Pediatric Sepsis

111. Multiple Organ Dysfunction Syndrome

XII. Pediatric Critical Care: Environmental Injury and Trauma

112. Bites and Stings

113. Hyperthermic Injury

114. Hypothermic Injury

115. Drowning

116. Burn and Inhalation Injury

117. Evaluation, Stabilization, and Initial Management after Trauma

118. Traumatic Brain Injury

119. Pediatric Thoracic Trauma

120. Pediatric Abdominal Trauma

121. Child Abuse

XIII. Pediatric Critical Care: Pharmacology and Toxicology

122. Principles of Drug Disposition

123. Molecular Mechanisms of Drug Action

124. Adverse Drug Reactions and Drug-Drug Interactions

125. Principles of Toxin Assessment and Screening

126. Toxidromes and Their Treatment

XIV. Pediatric Critical Care: Anesthesia Principles in the Pediatric Intensive Care Unit

127. Airway Management

128. Anesthesia Effects on Organ Systems

129. Anesthesia Principles and Operating Room Anesthesia Regimens

130. Malignant Hyperthermia

131. Neuromuscular Blocking Agents

132. Sedation and Analgesia

133. Tolerance, Dependency, and Withdrawal

134. Delirium

135. Procedural Sedation for the Pediatric Intensivist

XV. Pediatric Critical Care: Board Review Questions

136. Board Review Questions