

Pediatric Learning Solutions

Pediatric Learning Solutions' Course Alignment with Neonatal CCRN® Exam Content Outline

The following Pediatric Learning Solutions courses align to focus areas of the Neonatal CCRN® Exam Content Outline. These courses equip candidates with the foundational knowledge necessary to approach the Neonatal CCRN® exam with confidence. Go to the [Association of Critical-Care Nurses](#) site for more information on the CCRN Exam.



Clinical Judgement

Pulmonary

Pediatric Assessment: Acute Respiratory Distress Syndrome

- ✓ Introduction to Arterial Blood Gas Interpretation
- ✓ Understanding Abnormal Blood Gases
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation
- ✓ Management of the Difficult Airway
- ✓ Advanced Concepts in Respiratory Physiology
- ✓ Mechanical Ventilation: Introduction to Pediatric Practices
- ✓ High-Frequency Ventilation
- ✓ Preventing Ventilator-Associated Pneumonia
- ✓ Caring for a Child with a Tracheostomy
- ✓ Neonatal Respiratory Distress Syndrome

Acute Respiratory Failure

- ✓ Introduction to Arterial Blood Gas Interpretation
- ✓ Understanding Abnormal Blood Gases
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation
- ✓ Management of the Difficult Airway
- ✓ Advanced Concepts in Respiratory Physiology
- ✓ Mechanical Ventilation: Introduction to Pediatric Practices
- ✓ High-Frequency Ventilation
- ✓ Neonatal Respiratory Distress Syndrome
- ✓ Introduction to ECMO
- ✓ Caring for a Child with a Tracheostomy

Acute Respiratory Infection (e.g., pneumonia)

- ✓ Neonatal Sepsis
- ✓ Meconium Aspiration Syndrome
- ✓ Mechanical Ventilation: Introduction to Pediatric Practices
- ✓ High-Frequency Ventilation
- ✓ Preventing Ventilator-Associated Pneumonia

Air-leak Syndromes

- ✓ Neonatal Respiratory Distress Syndrome
- ✓ Pneumothorax in the Neonate
- ✓ Meconium Aspiration Syndrome
- ✓ Nursing Management of Chest Tubes
- ✓ Cardiovascular Laboratory Procedures: Diagnostic and Intervention

Apnea of Prematurity

- ✓ Apnea of Prematurity
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation

Aspiration

- ✓ Meconium Aspiration Syndrome
- ✓ Neonatal Sepsis

Bronchopulmonary Dysplasia

- ✓ Bronchopulmonary Dysplasia
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation
- ✓ Neonatal Nutrition

Congenital Anomalies

- ✓ Comprehensive Assessment of the Neonate
- ✓ Congenital Diaphragmatic Hernia
- ✓ Esophageal Atresia and TE Fistula
- ✓ Gastroschisis and Omphalocele
- ✓ Management of the Difficult Airway
- ✓ Maternal Factors Affecting the Newborn
- ✓ Esophageal Atresia and TE Fistula

Failure to Wean from Mechanical Ventilation

- ✓ Advanced Concepts in Respiratory Physiology
- ✓ Mechanical Ventilation: Introduction to Pediatric Practices
- ✓ High-Frequency Ventilation
- ✓ Preventing Ventilator-Associated Pneumonia
- ✓ Caring for a Child with a Tracheostomy
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation

Meconium Aspiration Syndrome (MAS)

- ✓ Meconium Aspiration Syndrome
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation
- ✓ Mechanical Ventilation: Introduction to Pediatric Practices
- ✓ High-Frequency Ventilation
- ✓ Introduction to ECMO
- ✓ Cardiovascular Laboratory Procedures: Diagnostic and Intervention
- ✓ Vasoactive Medications

Persistent Pulmonary Hypertension of the Newborn (PPHN)

- ✓ Persistent Pulmonary Hypertension of the Newborn (PPHN)
- ✓ Extrauterine Life: Assessment of the Neonate's Transition
- ✓ Extrauterine Life: Fetal to Neonatal Circulation
- ✓ High-Frequency Ventilation
- ✓ Advanced Concepts in Respiratory Physiology
- ✓ Mechanical Ventilation: Introduction to Pediatric Practices
- ✓ High-Frequency Ventilation
- ✓ Introduction to ECMO
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation
- ✓ Vasoactive Medications

Pulmonary Hypertension

- ✓ Persistent Pulmonary Hypertension of the Newborn (PPHN)
- ✓ Extrauterine Life: Assessment of the Neonate's Transition
- ✓ Extrauterine Life: Fetal to Neonatal Circulation
- ✓ Maternal Factors Affecting the Newborn
- ✓ Advanced Concepts in Respiratory Physiology
- ✓ Mechanical Ventilation: Introduction to Pediatric Practices
- ✓ High-Frequency Ventilation
- ✓ Introduction to ECMO
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation
- ✓ Vasoactive Medications

Thoracic Surgery

- ✓ Congenital Heart Disease: Acyanotic Defects
- ✓ Congenital Heart Disease: Cyanotic Defects
- ✓ Congenital Diaphragmatic Hernia
- ✓ Esophageal Atresia and TE Fistula
- ✓ Nursing Management of Chest Tubes
- ✓ Preventing Surgical Site Infections

Transient Tachypnea of the Newborn (TTN)

- ✓ Transient Tachypnea of the Newborn
- ✓ Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation
- ✓ Comprehensive Assessment of the Neonate
- ✓ Extrauterine Life: Assessment of the Neonate's Transition
- ✓ Extrauterine Life: Fetal to Neonatal Circulation
- ✓ Maternal Factors Affecting the Newborn

Cardiovascular

Cardiac Surgery

- ✓ Congenital Heart Disease: Overview
- ✓ Congenital Heart Disease: Acyanotic Defects
- ✓ Congenital Heart Disease: Cyanotic Defects
- ✓ Introduction to Hemodynamic Monitoring
- ✓ Vasoactive Medications
- ✓ Introduction to ECMO
- ✓ Nursing Management of Chest Tubes
- ✓ Cardiovascular Laboratory Procedures: Diagnostic & Interventional
- ✓ Preventing Surgical Site Infections
- ✓ Dysrhythmias

Structure and Function of the Heart

- ✓ Electrophysiology
- ✓ The Cardiac Monitor
- ✓ Lines, Waves and Segments
- ✓ Analyzing the ECG Rhythm Strip
- ✓ Sinus Rhythms
- ✓ Atrial Arrhythmias
- ✓ Junctional Arrhythmias
- ✓ Ventricular Arrhythmias
- ✓ Atrioventricular Arrhythmias
- ✓ Channelopathies
- ✓ Temporary Pacemakers
- ✓ Permanent Pacemakers and ICDs

Structural Heart Defects

- ✓ Congenital Heart Disease: Overview
- ✓ Congenital Heart Disease: Acyanotic Defects
- ✓ Congenital Heart Disease: Cyanotic Defects
- ✓ Extrauterine Life: Assessment of the Neonate's Transition
- ✓ Extrauterine Life: Fetal to Neonatal Circulation
- ✓ Maternal Factors Affecting the Newborn
- ✓ Congestive Heart Failure
- ✓ Introduction to Hemodynamic Monitoring
- ✓ Vasoactive Medications
- ✓ Introduction to ECMO
- ✓ Cardiovascular Laboratory Procedures: Diagnostic & Interventional
- ✓ Persistent Pulmonary Hypertension of the Newborn (PPHN)

Musculoskeletal/Neurology/Psychosocial

Musculoskeletal

- ✓ Infections:
 - ✓ Comprehensive Assessment of the Neonate
 - ✓ Neonatal Sepsis
- ✓ Osteopenia
 - ✓ Neonatal
 - ✓ Nutrition

Neurology:

- ✓ Birth Injuries
- ✓ Maternal Factors Affecting the Newborn
- ✓ Intracranial Pressure Monitoring
- ✓ Hypoxic Ischemic Encephalopathy

Brain Death

- ✓ Hypoxic Ischemic Encephalopathy
- ✓ Organ and Tissue Donation: The Gift of Life
- ✓ Intracranial Pressure Monitoring

Congenital Neurologic Abnormalities (e.g., AV malformation, myelomeningocele, encephalocele)

- ✓ Neonatal Cranial Hemorrhage
- ✓ Hydrocephalus
- ✓ Maternal Factors Affecting the Newborn
- ✓ Craniotomy

Encephalopathy

- ✓ Neonatal Sepsis
- ✓ Meningitis and Encephalitis
- ✓ Intracranial Pressure Monitoring

Hemorrhage (ICH, IVH, subarachnoid)

- ✓ Neonatal Cranial Hemorrhage
- ✓ Intracranial Pressure Monitoring
- ✓ Craniotomy

Hydrocephalus

- ✓ Hydrocephalus
- ✓ Intracranial Pressure Monitoring
- ✓ Craniotomy

Neurologic Infectious Disease (e.g., viral, bacterial, fungal)

- ✓ Neonatal Sepsis
- ✓ Meningitis and Encephalitis

Neurosurgery

- ✓ Hydrocephalus
- ✓ Intracranial Pressure Monitoring
- ✓ Craniotomy

Seizure Disorders

- ✓ Status Epilepticus
- ✓ Neonatal Seizures

Behavioral/Psychosocial

- ✓ Agitation
 - ✓ Maternal Factors Affecting the Newborn
 - ✓ Pediatric Restraint and Seclusion
 - ✓ Neonatal Pain Assessment and Management
 - ✓ Neonatal Abstinence Syndrome
- ✓ Developmental Delays
 - ✓ Developmental Care of the Newborn
- ✓ Failure to Thrive
 - ✓ Nutrition in the Critically Ill Child
 - ✓ Neonatal Nutrition
 - ✓ Pediatric Nutritional Overview
 - ✓ Congestive Heart Failure
 - ✓ Bronchopulmonary Dysplasia
- ✓ Stress in Extremely Low Birth Weight Infants
 - ✓ Developmental Care of the Newborn
 - ✓ Neonatal Pain Assessment and Management
- ✓ Substance Dependence or Abuse
 - ✓ Maternal Factors Affecting the Newborn
 - ✓ Neonatal Abstinence Syndrome

Endocrine/Hematology/Gastrointestinal/Renal/Integumentary

Endocrine

- ✓ Hyperglycemia
 - ✓ Glucose Homeostasis in the Neonate
 - ✓ Diabetes Insipidus and SIADH
 - ✓ Maternal Factors Affecting the Newborn
- ✓ Inborn Errors of Metabolism
 - ✓ Metabolic Disorders of the Newborn
 - ✓ Comprehensive Assessment of the Neonate
- ✓ Neonatal Hypoglycemia
 - ✓ Metabolic Disorders of the Newborn
 - ✓ Glucose Homeostasis in the Neonate
 - ✓ Maternal Factors Affecting the Newborn

Hematology/Immunology

- ✓ Anemia/Anemia of Prematurity
 - ✓ Anemia and Polycythemia in the Neonate
 - ✓ Disseminated Intravascular Coagulation
- ✓ Coagulopathies (e.g., ITP, DIC, HIT)
 - ✓ Disseminated Intravascular Coagulation
 - ✓ Thrombocytopenia: ITP and HIT/T
- ✓ Immune Deficiencies
 - ✓ Neonatal Sepsis
- ✓ Hyperbilirubinemia
 - ✓ Hyperbilirubinemia
 - ✓ Anemia and Polycythemia in the Neonate
 - ✓ Blood Exchange Transfusion
 - ✓ Leukopenia
 - ✓ Neonatal Sepsis

- ✓ Rh/ABO incompatibilities, hydrops fetalis
 - ✓ Anemia and Polycythemia in the Neonate
 - ✓ Maternal Factors Affecting the Newborn
 - ✓ Hyperbilirubinemia
 - ✓ Blood Exchange Transfusion
 - ✓ Congestive Heart Failure
- ✓ Thrombocytopenia
 - ✓ Disseminated Intravascular Coagulation
 - ✓ Neonatal Sepsis
 - ✓ Blood Exchange Transfusion
 - ✓ Thrombocytopenia: ITP and HIT/T

Gastrointestinal

- ✓ Bowel Infarction/Obstruction/Perforation
 - ✓ Necrotizing Enterocolitis
 - ✓ Gastroschisis and Omphalocele
 - ✓ Neonatal Sepsis
- ✓ Gastroesophageal reflux
 - ✓ Neonatal Nutrition
 - ✓ Nutrition in the Critically Ill Child
 - ✓ Esophageal Atresia and TE Fistula
- ✓ GI Abnormalities (e.g., omphalocele; gastroschisis, volvulus, imperforate anus, Hirschsprung disease, malrotation, intussusception)
 - ✓ Comprehensive Assessment of the Neonate
 - ✓ Gastroschisis and Omphalocele
 - ✓ Congenital Diaphragmatic Hernia
 - ✓ Necrotizing Enterocolitis
- ✓ GI Surgeries
 - ✓ Gastroschisis and Omphalocele
 - ✓ Congenital Diaphragmatic Hernia
 - ✓ Esophageal Atresia and TE Fistula
 - ✓ General Post-Op Care of the Transplant Patient
 - ✓ Preventing Surgical Site Infections
- ✓ Malnutrition and Malabsorption
 - ✓ Neonatal Nutrition
 - ✓ Nutrition in the Critically Ill Child
 - ✓ Necrotizing Enterocolitis
- ✓ Necrotizing Enterocolitis
 - ✓ Necrotizing Enterocolitis
 - ✓ Neonatal Nutrition
 - ✓ Disseminated Intravascular Coagulation
 - ✓ Neonatal Sepsis

Multisystem

Asphyxia

- ✓ Acute Respiratory Distress Syndrome
- ✓ Hypoxic Ischemic Encephalopathy
- ✓ Maternal Factors Affecting the Newborn

End of Life

- ✓ Care of the Dying Child: Care Issues
- ✓ Care of the Dying Child: Grief
- ✓ Care of the Dying Child: The Dying Process
- ✓ Health Care Advance Directives: Communicating Wishes
- ✓ Organ and Tissue Donation: The Gift of Life

Renal/Genitourinary

- ✓ Acute Kidney Injury, Failure, Acute Tubular Necrosis
 - ✓ Renal Failure in the Pediatric Patient
 - ✓ Hemodialysis
 - ✓ Continuous Renal Replacement Therapy
 - ✓ Neonatal Pharmacokinetics
- ✓ Renal/GI Infections
 - ✓ Neonatal Sepsis
 - ✓ Comprehensive Assessment of the Neonate
- ✓ Life-threatening Electrolyte Imbalances
 - ✓ Neonatal Nutrition
 - ✓ Fluid and Electrolytes Management:
 - Laboratory Assessment
 - Physical Assessment
 - Physiological Differences
 - Replacement Therapy
 - Water Intoxication and Fluid Shift
- ✓ Polycystic Kidney Disease
 - ✓ Renal Failure in the Pediatric Patient

Integumentary

- ✓ IV Infiltration
 - ✓ Neonatal Skin Care
 - ✓ Pediatric Peripheral IV Care & Management
 - ✓ Management of PIV Complications in the Pediatric Patient
- ✓ Wounds (surgical)
 - ✓ Neonatal Skin Care
 - ✓ Preventing Surgical Site Infections
 - ✓ Introduction to Pediatric Pressure Injuries
 - ✓ Pressure Injuries in the Pediatric Population: Staging and Care
 - ✓ Pressure Injury Staging Assessment

Healthcare-associated Infections (CLABSI, CAUTI, VAP)

- ✓ Preventing Catheter-Associated Urinary Tract Infections (CAUTI)
- ✓ Preventing Central Line-Associated Bloodstream Infections (CLABSI)
- ✓ Preventing Surgical Site Infections
- ✓ Preventing Ventilator-Associated Pneumonia
- ✓ Central Lines in the Neonate

Hypotension

- ✓ Vasoactive Medications

Infectious Diseases (MDROs; influenza)

- ✓ Management of MDROs in the Health Care Setting (Clinical)
- ✓ Tuberculosis
- ✓ Neonatal Sepsis

Life-threatening Maternal-Fetal Complications

- ✓ Maternal Factors Affecting the Newborn
- ✓ Anemia and Polycythemia in the Neonate

Low Birth Weight/Prematurity

- ✓ Comprehensive Assessment of the Neonate
- ✓ Retinopathy of Prematurity
- ✓ Neonatal Nutrition

Multi-organ Dysfunction Syndrome (MODS)

- ✓ Neonatal Sepsis

Pain

- ✓ Neonatal Pain Assessment and Management
- ✓ Pain Management: Assessment of Pain
- ✓ Pain Management: Non-Pharmacological Therapies in the Management of Pediatric Pain
- ✓ Pain Management: Pain Pathophysiology
- ✓ Pain Management: Pharmacological Management of Pediatric Pain
- ✓ Procedural Sedation in the Pediatric Patient

Palliative Care

- ✓ Care of the Dying Child: Care Issues
- ✓ Care of the Dying Child: Grief
- ✓ Care of the Dying Child: The Dying Process
- ✓ Family-Centered Care in the NICU

Sepsis Continuum (SIRS, sepsis, severe sepsis, septic shock)

- ✓ Neonatal Sepsis
- ✓ Pediatric Sepsis
- ✓ Care of the Pediatric Patient in Shock
- ✓ Blood Exchange Transfusion

Shock States (distributive, hypovolemic)

- ✓ Care of the Pediatric Patient in Shock
- ✓ Introduction to ECMO

Sleep Disruption

- ✓ Developmental Care of the Newborn

Thermoregulation

- ✓ Thermoregulation of the Newborn Infant
- ✓ Neonatal Skin Care

Toxin/Drug Exposure

- ✓ Pediatric Toxicology Exposure
- ✓ Neonatal Pharmacokinetics
- ✓ Neonatal Abstinence Syndrome

Professional Caring and Ethical Practice

Advocacy/Moral Agency

- ✓ Introduction to Ethics
- ✓ Family-Centered Care in the NICU
- ✓ Therapeutic Relationships and Professional Behavior

Caring Practices

- ✓ Introduction to Ethics
- ✓ Family-Centered Care in the NICU

Clinical Inquiry

- ✓ Introduction to Research Ethics

Collaboration

- ✓ Building Effective Teams
- ✓ Clinical Delegation
- ✓ Coaching
- ✓ Empowering Teams
- ✓ Giving and Receiving Feedback
- ✓ Therapeutic Relationships and Professional Behavior

Response to Diversity

- ✓ Introduction to Workplace Diversity
- ✓ Family-Centered Care in the NICU

Facilitation of Learning

- ✓ Precepting Adult Learners
- ✓ Preceptor Roles and Responsibilities

Systems Thinking

- ✓ Building Effective Teams
- ✓ Empowering Teams

Other related and supporting PLS Content

Patient Care

- ✓ Assessment of the Critically Ill Child
- ✓ Blood and Blood Components Administration
- ✓ Blood Transfusion Reaction
- ✓ Caring for the Complex Patient