



## Pediatric Learning Solutions

*A clinical education program exclusively for pediatric professionals*

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

**Pediatric Learning Solutions' course alignment with Pediatric CRRN® Exam Content Outline.** (Note: PLS Courses are in *italics* under topic area)

### **I. Clinical Judgment**

#### **A. Cardiovascular**

##### 1. Cardiac Infection and Inflammatory Diseases

*PLS Courses:*

*Acquired Heart Disease*

*Congestive Heart Failure*

*Introduction to Hemodynamic Monitoring*

*Cardiovascular Laboratory Procedures: Diagnostic and Interventional*

*Vasoactive Medications*

*Introduction to ECMO*

*General Post-Op Care of the Transplant Patient*

##### 2. Cardiac Malformations

*PLS Courses:*

*Congenital Heart Disease: Overview*

*Congenital Heart Disease: Acyanotic Defects*

*Congenital Heart Disease: Cyanotic Defects*

*Cardiovascular Laboratory Procedures: Diagnostic and Interventional*

*Introduction to Hemodynamic Monitoring*

*Vasoactive Medications*

*Introduction to ECMO*

*General Post-Op Care of the Transplant Patient*

##### 3. Cardiac Surgery

*PLS Courses:*

*Congenital Heart Disease: Overview*

*Congenital Heart Disease: Acyanotic Defects*

*Congenital Heart Disease: Cyanotic Defects*

*Introduction to Hemodynamic Monitoring*

*Vasoactive Medications*

*Introduction to ECMO*

*General Post-Op Care of the Transplant Patient*

*Nursing Management of Chest Tubes*

##### 4. Cardiogenic Shock

*PLS Course:*

*Caring for the Pediatric Patient in Shock*

*Introduction to Hemodynamic Monitoring*

*Vasoactive Medications*

*Introduction to ECMO*

5. Cardiomyopathies
  - PLS Courses:*
  - Acquired Heart Disease*
  - Cardiovascular Laboratory Procedures: Diagnostic and Interventional*
  - Introduction to Hemodynamic Monitoring*
  - Vasoactive Medications*
  - Introduction to ECMO*
  - General Post-Op Care of the Transplant Patient*
  
6. Cardiovascular Catheterization
  - PLS Course:*
  - Cardiovascular Laboratory Procedures: Diagnostic and Interventional*
  
7. Dysrhythmias
  - PLS Courses:*
  - 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*
  
8. Heart Failure
  - PLS Courses:*
  - Congestive Heart Failure*
  - Introduction to Hemodynamic Monitoring*
  - Vasoactive Medications*
  - Introduction to ECMO*
  
9. Hypertensive Crises
  - PLS Courses:*
  - Pulmonary Arterial Hypertension*
  - Introduction to Hemodynamic Monitoring*
  - Vasoactive Medications*
  
10. Myocardial Conduction System Defects
  - PLS Courses:*
  - Acquired Heart Disease*
  - Arrhythmia Recognition Series*
    - *Atrial Arrhythmias*
    - *Junctional Arrhythmias*
    - *Ventricular Arrhythmias*
    - *Atrioventricular Arrhythmias*
    - *Channelopathies*

11. Obstructive Shock

*PLS Courses:*

*Caring for the Pediatric Patient in Shock*  
*Introduction to Hemodynamic Monitoring*  
*Vasoactive Medications*  
*Introduction to ECMO*

12. Vascular Occlusion

*PLS Courses:*

*Acquired Heart Disease*  
*Cardiovascular Laboratory Procedures: Diagnostic and Interventional*

**B. Respiratory**

1. Acute Pulmonary Edema

*PLS Courses:*

*Acquired Heart Disease*  
*Acute Respiratory Distress Syndrome*  
*Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation*  
*Introduction to Arterial Blood Interpretation*  
*Understanding Abnormal Blood Gases*  
*Advanced Concepts in Respiratory Physiology*  
*Mechanical Ventilation: Introduction to Pediatric Practices*  
*High-Frequency Ventilation*  
*Preventing Ventilator-Associated Infections*  
*Congestive Heart Failure*  
*Lower Airway Disease*  
*Status Asthmaticus*  
*Pediatric Burns*  
*Pediatric Drowning*

2. Acute Pulmonary Embolus

3. Acute Respiratory Distress Syndrome (ARDS)

*PLS Courses:*

*Acute Respiratory Distress Syndrome*  
*Introduction to Arterial Blood 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 Infections*  
*Caring for the Pediatric Patient in Shock*  
*Caring for a Child with a Tracheostomy*

4. Acute Respiratory Failure

*PLS Courses:*

*Acute Respiratory Distress Syndrome*

- Introduction to Arterial Blood 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 Infections*  
*Caring for the Pediatric Patient in Shock*  
*Status Asthmaticus*  
*Introduction to ECMO*  
*Caring for a Child with a Tracheostomy*
5. Acute Respiratory Infection  
*PLS Courses:*  
*Acute Respiratory Distress Syndrome*  
*Lower Airway Diseases*  
*Neonatal Sepsis*  
*Pediatric Sepsis*  
*Caring for the Pediatric Patient in Shock*
6. Air-leak Syndromes  
*PLS Courses:*  
*Neonatal Respiratory Distress Syndrome*  
*Pneumothorax in the Neonate*
7. Apnea of Prematurity  
*PLS Courses:*  
*Apnea of Prematurity*  
*Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation*  
*Neonatal Respiratory Distress Syndrome*  
*Neonatal Sepsis*
8. Aspiration  
*PLS Courses:*  
*Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation*  
*Meconium Aspiration Syndrome*
9. Chronic Pulmonary Conditions  
*PLS Course:*  
*Bronchopulmonary Dysplasia*  
*Cystic Fibrosis*  
*Lower Airway Disease*  
*Status Asthmaticus*  
*Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation*  
*Caring for a Child with a Tracheostomy*
10. Congenital Airway Malformations  
*PLS Courses:*  
*Congenital Diaphragmatic Hernia*  
*Esophageal Atresia and TE Fistula*

*Gastroschisis and Omphalocele  
Management of the Difficult Airway*

11. Failure to Wean from Mechanical Ventilation

*PLS Courses:*

*Advanced Concepts in Respiratory Physiology  
Mechanical Ventilation: Introduction to Pediatric Practices  
Caring for a Child with a Tracheostomy*

12. Pulmonary Hypertension

*PLS Courses:*

*Pulmonary Arterial Hypertension  
Persistent Pulmonary Hypertension of the Newborn*

13. Status Asthmaticus

*PLS Course:*

*Lower Airway Disease  
Status Asthmaticus  
Basic Principles of Oxygen Therapy, Specialty Gases and Noninvasive Ventilation*

14. Thoracic and Airway Trauma

*PLS Course:*

*Pediatric Thoracic Trauma  
Management of the Difficult Airway*

15. Thoracic Surgery

*PLS Courses:*

*Congenital Heart Disease: Acyanotic Defects  
Congenital Heart Disease: Cyanotic Defects  
General Post-Op Care of the Transplant Patient  
Nursing Management of Chest Tubes*

**C. Endocrine/Hematology/Gastrointestinal/Renal/Integumentary**

1. Endocrine

a. Adrenal Insufficiency

b. Diabetes Insipidus

*PLS Course:*

*Diabetes Insipidus and SIADH*

c. Diabetic Ketoacidosis

*PLS Course:*

*Diabetic Ketoacidosis*

d. Diabetes Mellitus

*PLS Courses:*

*Diabetes Mellitus*

e. Hyperglycemia

*PLS Courses:*

*Diabetes Mellitus*

*Diabetes Insipidus and SIADH*

- f. Hypoglycemia  
*PLS Courses:*  
*Diabetes Mellitus*
  - g. Inborn Errors of Metabolism  
*PLS Course:*  
*Metabolic Disorders of the Newborn*
  - h. SIADH  
*PLS Course:*  
*Diabetes Insipidus and SIADH*
2. Hematology/Immunology
- a. Anemia  
*PLS Course:*  
*Anemia and Polycythemia in the Newborn*
  - b. Coagulopathies (e.g., ITP, DIC, HIT)  
*PLS Course:*  
*Disseminated Intravascular Coagulation*  
*Thrombocytopenia: ITP and HIT/T*
  - c. Immune Deficiencies  
*PLS Course:*  
*Diabetes Mellitus*  
*Metabolic Disorders of the Newborn*  
*Pediatric Sepsis*
  - d. Myelosuppression (e.g., thrombocytopenia, neutropenia)  
*PLS Course:*  
*Disseminated Intravascular Coagulation*  
*Blood Administration: Exchange Transfusion*  
*Thrombocytopenia: ITP and HIT/T*
  - e. Oncologic Complications  
*PLS Course:*  
*Oncologic Emergencies*
  - f. Sickle Cell Crisis  
*PLS Course:*  
*Sickle Cell Crisis*
  - g. Transfusion Reactions  
*PLS Courses:*  
*Blood Transfusion Reaction*
3. Gastrointestinal
- a. Abdominal Compartment Syndrome  
*PLS Course:*

*Abdominal Emergencies  
Pediatric Abdominal Trauma*

- b. Abdominal Trauma  
*PLS Course:  
Pediatric Abdominal Trauma*
  - c. Bowel Infarction/Obstruction/Perforation  
*PLS Course:  
Abdominal Emergencies*
  - d. Gastroesophageal reflux  
*PLS Course:  
Nutrition in the Critically Ill Child*
  - e. GI Hemorrhage  
*PLS Course:  
Abdominal Emergencies  
Pediatric Abdominal Trauma*
  - f. GI Surgeries  
*PLS Courses:  
Abdominal Emergencies  
Gastroschisis and Omphalocele  
Congenital Diaphragmatic Hernia  
General Post-Op Care of the Transplant Patient*
  - g. Liver Disease and Failure  
*PLS Courses:  
Liver Transplant  
General Post-Op Care of the Transplant Patient*
  - h. Malnutrition and Malabsorption  
*PLS Courses:  
Nutrition in the Critically Ill Child  
Neonatal Nutrition  
Pediatric Nutrition Overview*
  - i. Necrotizing Enterocolitis (NEC)  
*PLS Courses:  
Necrotizing Enterocolitis*
  - j. Peritonitis  
*Abdominal Emergencies  
Pediatric Abdominal Trauma*
4. Renal/Genitourinary
- a. Acute Kidney Injury (AKI)  
*PLS Courses:  
Renal Failure in the Pediatric Patient  
Hemodialysis  
Continuous Renal Replacement Therapy*

- b. Chronic Kidney Disease (CKD)  
*PLS Courses:*  
*Renal Failure in the Pediatric Patient*  
*Hemodialysis*  
*Peritoneal Dialysis*  
*General Post-Op Care of the Transplant Patient*
- c. Hemolytic Uremic Syndrome
- d. Kidney Transplant  
*PLS Courses:*  
*Renal Failure in the Pediatric Patient*  
*General Post-Op Care of the Transplant Patient*
- e. Life-threatening Electrolyte Imbalances  
*PLS Courses:*  
*Fluids and Electrolytes Imbalance: Dehydration*  
*Fluids and Electrolytes: Laboratory Assessment*  
*Fluids and Electrolytes: Physical Assessment*  
*Fluids and Electrolytes: Physiological Differences*  
*Fluids and Electrolytes: Replacement Therapy*  
*Fluids and Electrolytes: Water Intoxication and Fluid Shift*
- f. Renal and Genitourinary Infections  
*PLS Courses:*  
*Pediatric Assessment: The Genitourinary System*  
*Preventing Catheter-Associated Urinary Tract Infections*
- g. Renal and Genitourinary Surgery  
*PLS Courses:*  
*Pediatric Assessment: The Genitourinary System*  
*General Post-Op Care of the Transplant Patient*
- 5. Integumentary
  - a. IV Infiltration  
*PLS Courses:*  
*Pediatric Peripheral IV Care & Management*  
*Management of PIV Complications in the Pediatric Patient*
  - b. Pressure Injury  
*PLS Courses:*  
*Introduction to Pediatric Pressure Injuries*  
*Pressure Injuries in the Pediatric Population: Staging and Care*  
*Pressure Injury Staging Assessment*
  - c. Skin Failure (e.g., hypoperfusion)  
*PLS Courses:*  
*Care of the Pediatric Patient in Shock*
  - d. Wounds



*PLS Courses:*  
*Preventing Surgical Site Infections*  
*Pediatric Burns*

**D. Musculoskeletal/Neurology/Psychosocial**

1. Musculoskeletal
  - a. Compartment Syndrome  
*PLS Courses:*  
*Pediatric Orthopedic Trauma*
  - b. Musculoskeletal Surgery  
*PLS Courses:*  
*Pediatric Orthopedic Trauma*
  - c. Musculoskeletal Trauma  
*PLS Courses:*  
*Pediatric Orthopedic Trauma*
  - d. Rhabdomyolysis
2. Neurological
  - a. Acute Spinal Cord Injury  
*PLS Courses:*  
*Pediatric Spinal Column/Cord Injuries*
  - b. Agitation  
*PLS Courses:*  
*Anxiety and Obsessive-Compulsive Disorders (OCD)*  
*Attention-Deficit/Hyperactivity Disorder (ADHD)*  
*Autism Spectrum Disorder (ASD)*  
*Care of the Pediatric Patient with Suicidal Ideation*  
*Caring for the Behaviorally Challenged Patient*  
*Crisis Prevention through Verbal and Nonverbal De-escalation Strategies*  
*Effective Use of Psychotropic Medications in the Prevention and Management of Disruptive Behavior*  
*Oppositional Defiant Disorder (ODD)*  
*Pediatric Mood Disorders*  
*Pediatric Restraint and Seclusion*  
*Psychotic Disorders*  
*Trauma-Informed Practice: Concepts, Goals and Key Principles*  
*Implementing Trauma-Informed Sensitive Practice*  
*Trauma- and Stressor-related Disorders*
  - c. Brain Death  
*PLS Courses:*  
*Pediatric Traumatic Brain Injury*  
*Intracranial Pressure Monitoring*  
*Organ and Tissue Donation: The Gift of Life*
  - d. Congenital Neurologic Abnormalities  
*PLS Course:*  
*Hydrocephalus*

*Neonatal Cranial Hemorrhage  
Craniotomy*

- e. Delirium  
*PLS Courses:  
Sedation and Analgesia in the ICU*
- f. Encephalopathy  
*PLS Courses:  
Meningitis and Encephalitis  
Intracranial Pressure Monitoring*
- g. Head Trauma  
*PLS Courses:  
Pediatric Traumatic Brain Injury  
Intracranial Pressure Monitoring  
Craniotomy  
The Deadly Triad of Trauma*
- h. Hydrocephalus  
*PLS Course:  
Hydrocephalus*
- i. Intracranial Hemorrhage  
*PLS Course:  
Neonatal Cranial Hemorrhage  
Intracranial Pressure Monitoring  
Craniotomy  
Pediatric Stroke*
- j. Neurogenic Shock  
*PLS Course:  
Care of the Pediatric Patient in Shock*
- k. Neurologic Infectious Disease  
*PLS Course:  
Meningitis and Encephalitis*
- l. Neuromuscular Disorders
- m. Neurosurgery  
*PLS Courses:  
Craniotomy  
Pediatric Traumatic Brain Injury*
- n. Pain (acute, chronic)  
*PLS Courses:  
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  
Pain Technologies: PCA & Epidural Analgesia  
Procedural Sedation in the Pediatric Patient*

- o. Seizure Disorders  
*PLS Courses:*  
*Status Epilepticus*  
*Neonatal Seizures*
  - p. Space-occupying Lesions  
*PLS Courses:*  
*Craniotomy*  
*Intracranial Pressure Monitoring*
  - q. Spinal Fusion
  - r. Stroke  
*PLS Course:*  
*Pediatric Stroke*
  - s. Traumatic Brain Injury  
*PLS Courses:*  
*Pediatric Traumatic Brain Injury*  
*Intracranial Pressure Monitoring*  
*Craniotomy*
3. Behavioral and Psychosocial
- a. Abuse and Neglect  
*PLS Course:*  
*Child Abuse and Neglect*  
*Intimate Partner Violence*  
*Trauma-Informed Practice: Concepts, Goals and Principles*  
*Implementing Trauma-Informed Sensitive Practice*
  - b. Post-Traumatic Stress Disorder (PTSD)  
*PLS Courses:*  
*Trauma-Informed Practice: Concepts, Goals and Key Principles*  
*Implementing Trauma-Informed Sensitive Practice*  
*Trauma- and Stressor-related Disorders*  
*Care of the Pediatric Patient with Suicidal Ideation*  
*Crisis Prevention through Verbal and Nonverbal De-escalation Strategies*  
*Effective Use of Psychotropic Medications in the Prevention and Management of Disruptive Behaviors*  
*Pediatric Restraint and Seclusion*  
*Anxiety Disorders and Obsessive-Compulsive Disorder*
  - c. Post-Intensive Care Syndrome (PICS)  
*PLS Courses:*  
*Trauma-Informed Practice: Concepts, Goals and Key Principles*  
*Implementing Trauma-Informed Sensitive Practice*  
*Trauma- and Stressor-related Disorders*
  - d. Self-Harm  
*PLS Courses:*  
*Care of the Pediatric Patient with Suicidal Ideation*  
*Anxiety and Obsessive-Compulsive Disorders (OCD)*  
*Pediatric Mood Disorders*

- e. Suicidal Ideation and Behavior
  - PLS Courses:*
  - Care of the Pediatric Patient with Suicidal Ideation*
  - Caring for the Behaviorally Challenged Patient*
  - Crisis Prevention through Verbal and Nonverbal De-escalation Strategies*
  - Effective Use of Psychotropic Medications in the Prevention and Management of Disruptive Behaviors*
  - Pediatric Mood Disorders*
  - Psychotic Disorders*
  - Trauma and Stress-related Disorders*
  - Trauma-Informed Practice: Concepts, Goals and Key Principles*
  - Implementing Trauma-Informed Sensitive Practice*

## **E. Multisystem**

1. Acid-Base Imbalance
  - PLS Courses:*
  - Introduction to Arterial Blood Interpretation*
  - Understanding Abnormal Blood Gases*
  - Advanced Concepts in Respiratory Physiology*
  - The Deadly Triad of Trauma*
2. Anaphylactic Shock
  - PLS Courses:*
  - Care of the Pediatric Patient in Shock*
3. Death and Dying
  - PLS Courses:*
  - 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*
4. Healthcare-associated Conditions (e.g., VAE, CAUTI, CLABSI)
  - PLS Courses:*
  - Preventing Catheter-Associated Urinary Tract Infection (CAUTI)*
  - Preventing Central Line-Associated Bloodstream Infections (CLABSI)*
  - Preventing Surgical Site Infections*
  - Preventing Ventilator-Associated Infections*
5. Hypovolemic Shock
  - PLS Courses:*
  - Care of the Pediatric Patient in Shock*
6. Post-Transplant Complications
  - PLS Courses:*
  - Liver Transplant*
  - General Post-Op Care of the Transplant Patient*

7. Sepsis  
*PLS Courses:*  
*Pediatric Sepsis*  
*Care of the Pediatric Patient in Shock*  
*Neonatal Sepsis*
8. Submersion Injuries  
*PLS Course:*  
*Pediatric Drowning*
9. Hyperthermia and Hypothermia  
*PLS Course:*  
*Care of the Pediatric Patient in Shock*  
*The Deadly Triad of Trauma*
10. Toxic and Drug Exposure  
*PLS Course:*  
*Pediatric Toxicology Exposure*  
*Blood Administration: Exchange Transfusion*

## **II. Professional Caring and Ethical Practice**

1. Advocacy/Moral Agency  
*PLS Courses:*  
*Introduction to Ethics*  
*Family-Centered Care in the ICU*  
*Therapeutic Relationships and Professional Behavior*
2. Caring Practices  
*PLS Courses:*  
*Introduction to Ethics*  
*Family-Centered Care in the ICU*
3. Response to Diversity  
*PLS Course:*  
*Introduction to Workplace Diversity*
4. Facilitation of Learning  
*PLS Courses:*  
*Precepting: Adult Learners*  
*Precepting: Preceptor Roles and Responsibilities*
5. Collaboration  
*PLS Courses:*  
*Building Effective Teams*  
*Clinical Delegation*  
*Coaching*  
*Empowering Teams*  
*Giving and Receiving Feedback*  
*Therapeutic Relationships and Professional Behavior*

6. Systems Thinking  
*PLS Courses:*  
*Building Effective Teams*  
*Empowering Teams*  
*Introduction to Finance*

7. Clinical Inquiry  
*PLS Course:*  
*Introduction to Research Ethics*

**Other related and supporting PLS content:**

**Patient Care**

*Assessment of the Critically Ill Child*  
*Blood Administration: Administration of Blood and Blood Components*  
*Blood Administration: Blood Components*  
*Caring for the Complex Patient*