The rotation in the Pediatric Critical Care Medicine is intended to promote the compassionate, effective, and developmentally appropriate assessment and treatment of critically ill children by enhancing the residents’ knowledge of physiology, pharmacology and evidence based medicine.

PART I: PATIENT CARE AND MEDICAL KNOWLEDGE

GOAL: The ongoing acquisition of knowledge regarding established and evolving biomedical, clinical and cognate sciences, with the resultant application of that knowledge to the compassionate, age appropriate, and effective treatment of critically ill children

OBJECTIVES:

1. Resuscitation and Stabilization:
   - Understand the basic principles and perform appropriate steps in resuscitation and stabilization, with particular reference to airway management and pharmacology.
   - Function appropriately in patient resuscitation and stabilization as a member of the critical care team.

2. Information Gathering:
   - Perform an appropriate problem-oriented history and physical examination
   - Explain the indications and limitations of laboratory and radiologic study abnormalities in the context of disease-specific pathophysiology and formulate a plan for therapeutic intervention, when appropriate

3. Common signs and symptoms: (see table 1):
   - Rapidly recognize signs and symptoms indicating the onset of life-threatening events in children.
   - Formulate an age-appropriate differential diagnosis with appropriate prioritization
   - Discuss the indications for admission to, and discharge diagnosis from, the PICU, including indications for emergent intervention and stabilization prior to transport to the PICU.
   - Formulate and execute a plan of assessment and management based on physiology, pathophysiology, pharmacology and evidence based guideline.

4. Common conditions: (see table 2):
   - Discuss the pathophysiologic basis of the disease process or injury
Discuss disease specific considerations for resuscitation, stabilization, continued evaluation and management.
Understand the potential complications and consequences of the disease and various treatment options; evaluate prognosis.

5. Monitoring and therapeutic modalities:
- Describe the indications for monitoring of central venous pressure, arterial blood pressure and intracranial pressure and appropriately interpret the results.
- Integrate physiologic and pathophysiologic principles to determine appropriate use of common therapies (oxygen administration, positive pressure ventilation, analgesia, sedation, enteral and parenteral nutrition, blood product transfusions, vasoactive medications), monitor their effects and describe potential complications.

6. Management and decision making:
- Develop and maintain a detailed list of tasks with accurate prioritization.
- Coordinate with multiple consultants involved in the care of the patient.
- Coordinate orderly transfer of care under another provider when PICU care is no longer required.
- Recognize the limit’s of one’s knowledge, skills, and tolerance for stress levels.

7. Medical ethics and legal issues:
- Discuss concepts of futility, withdrawal and withholding of care.
- Define brain death.
- Describe hospital policy on “Do Not resuscitate” order.

PART II: INTERPERSONAL AND COMMUNICATION SKILLS

GOAL: Understand and demonstrate effective communication and interpersonal skills with parents, patients and professional associates.

OBJECTIVES:

1. Develop and maintain a therapeutic and ethically sound relationship with patients and their families.
2. Listen effectively.
3. Elicit and provide information using effective nonverbal, informative, interrogative, and writing skills.
4. Communicate and work effectively with other residents, attendings, consultants, nurses and ancillary staff as part of the critical care team.
5. Communicate effectively with surgeons and subspecialists whose patients are being managed in the PICU.
6. Communicate frequently and effectively with referring and primary care physicians
7. Consistently maintain accurate, timely and legally appropriate medical records.

PART III: PROFESSIONALISM

GOAL: Understand and demonstrate commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to a diverse patient population.

OBJECTIVES:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supercedes self-interest; accountability to patients, society and the profession and a commitment to excellence and on-going professional development
2. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent and clinical practices
3. Demonstrate sensitivity and responsiveness to patients’ culture, age, gender and disabilities.

PART IV: TEACHING METHODS

To achieve the objectives of the Pediatric Critical Care rotation, the resident physician will participate in the following educational activities:

1. Teaching rounds:
   a. Prior to the start of daily teaching rounds, it is expected that the resident will:
      i. Examine each patient
      ii. Collect and review all bedside data
      iii. Review all radiographic studies
      iv. Develop a concise, system-based treatment plan.
   b. Teaching rounds will start at 0800 am daily and will continue until all patients have been discussed

2. Critical Care teaching conference:
   a. Formal didactic teaching conferences will be held as part of the core curriculum schedule of the pediatric residency program and will include the following topics:
      i. Mechanical ventilation
      ii. Liver failure
      iii. Sedation, analgesia and muscle relaxation
iv. Intracranial pressure monitoring/head injury
v. Shock states
vi. Renal failure
vii. Nutrition
viii. Ethics in the intensive care unit
ix. Acute lung injury/ARDS

b. Each resident will be given a binder with pertinent articles to the Pediatric Intensive care Unit
c. 3/ week, the resident team along with the attending will have a 30 minutes talk on a PICU topic related to current patient population.
### Table 1: Signs and symptoms:

1. **Cardiovascular:**
   - a. Bradycardia
   - b. Tachycardia
   - c. Hypertension
   - d. Hypotension
   - e. Dysrhythmias
   - f. Poor capillary perfusion
   - g. Cardiopulmonary arrest

2. **Respiratory:**
   - a. Tachypnea
   - b. Dyspnea
   - c. Apnea
   - d. Cyanosis/hypoxemia
   - e. Increased Work of Breathing
   - f. Decreased air movement
   - g. Stridor
   - h. Wheezing
   - i. Pulmonary edema

3. **Neurologic:**
   - a. Altered mental status
   - b. Seizures
   - c. Encephalopathy
   - d. Altered thermoregulation
   - e. Decorticate/decerebrate posturing
   - f. Acute paresis
   - g. Coma

4. **Renal:**
   - a. Anuria
   - b. Hematuria
   - c. Oliguria
   - d. Polyuria

5. **Hematologic:**
   - a. Petechiae
   - b. Purpura
   - c. Anemia
   - d. Neutropenia
   - e. Thrombocytopenia

6. **Gastrointestinal:**
   - a. Abdominal distnesin
   - b. Hematemesis
   - c. Hematochzia
   - d. Melena
   - e. Peritoneal signs
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<tr>
<th>Table 2: Common conditions:</th>
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<tr>
<td><strong>General:</strong></td>
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<tr>
<td>Submersion injury</td>
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<td>Burns</td>
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<td>Intoxication</td>
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<tr>
<td><strong>Cardiovascular:</strong></td>
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<tr>
<td>Congestive heart failure</td>
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<tr>
<td>Cardiogenic shock</td>
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<tr>
<td><strong>Respiratory:</strong></td>
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<tr>
<td>Acute Respiratory Distress Syndrome</td>
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<tr>
<td>Respiratory distress/failure</td>
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<tr>
<td>Status asthmaticus</td>
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<tr>
<td>Upper airway obstruction</td>
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<tr>
<td><strong>Neurologic:</strong></td>
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<tr>
<td>Acute head injury</td>
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<tr>
<td>Increased intracranial pressure</td>
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<tr>
<td>Cerebral edema</td>
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<td>Status epilepticus</td>
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<tr>
<td><strong>Hematologic:</strong></td>
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<tr>
<td>Disseminated Intravascular coagulation</td>
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<td><strong>Gastrointestinal:</strong></td>
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<td>Gastrointestinal bleeding</td>
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<td>Abdominal Trauma</td>
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<td>Acute abdomen</td>
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<td><strong>Infectious Diseases:</strong></td>
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<td>Sepsis</td>
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<td>Septic shock</td>
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<td>Toxic shock syndrome</td>
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<td>Meningitis</td>
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<td>Encephalitis</td>
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<td><strong>Fluids, electrolytes and metabolic:</strong></td>
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<tr>
<td>Dehydration</td>
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<tr>
<td>Hypovolemic shock</td>
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<tr>
<td>Diabetic ketoacidosis</td>
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<td>Syndrome of Inappropriate antidiuretic hormone</td>
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<td>Diabetes insipidus</td>
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