



# Edward Via College of Osteopathic Medicine

4<sup>th</sup> Year Clinical Rotation: Pediatric Critical Care Medicine  
MED 8200: Medical Selective Clinical Rotation I

## COURSE SYLLABUS

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### Chairs

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### I. Rotation Description

Students will develop understanding and knowledge in the recognition and management of medical, surgical, and behavioral problems of infants, children and adolescents in the critical care setting.

### II. Rotation Goals

- a. Perform directed, pertinent history and physical examination with age appropriate differential diagnosis
- b. Identify indications for admission to and discharge from the PICU
- c. Identify common causes of acute deterioration in previously stable patient
- d. Demonstrate ability to resuscitate, stabilize and prepare the distressed patient for transfer to pediatric intensive care and to function as part of team during a code in PICU
- e. Specific required skills include:
  1. Perform age-appropriate history and physical examination, including APGAR scores, physical or sexual abuse screening
  2. Observe/assist in resuscitation of newborns, infants and children
  3. Observe/assist in maintaining open airway through bag-mask or tracheal intubation
  4. Observe/assist in cardioversion
  5. Observe/assist in establishing vascular access
  6. Perform or assist lumbar puncture and interpretation of results
  7. Calculate maintenance and replacement fluid and electrolyte requirements
  8. Observe/assist in pleurocentesis and chest tube placement

### III. Rotation Design

The Pediatric Critical Care Medicine rotation occurs in pediatric and community hospitals involved in the inpatient care of pediatric patients.

### IV. Credits

4 week course = 4 credit hours

### V. Suggested Textbook and References

- a. Marcadante KJ. Nelson Essentials of Pediatrics. 6th Ed (2011), Chapters 38-46, pp 141-165
- b. Tschudy MM, Arcara KM. The Johns Hopkins Hospital. The Harriet Lane Handbook. Mosby Elsevier, 19<sup>th</sup> Ed (2011). Chapters 1-4, pp 3-113
- c. Kliegman RM. Nelson Textbook of Pediatrics. 19th Ed (2011), Chapters 60-71, pp 275-375
- d. Nichols DG. Roger's Textbook of Pediatric Intensive Care. Lippincott Williams & Wilkins; Fourth edition 2008.
- e. Fuhrman BP. Fuhrman & Zimmerman's Pediatric Critical Care: Expert Consult Premium Edition - Enhanced Online Features and Print. Mosby Elsevier; Fourth edition 2011.
- f. King C. Textbook of Pediatric Emergency Procedures. Lippincott Williams & Wilkins; Second edition 2007.

### VI. Course Grading/Requirements for Successful Completion of the Pediatric Critical Care Medicine Rotation

- a. Attendance according to VCOM and preceptor requirements
- b. Preceptor Evaluation at end-of-rotation

Grading policies, academic progress, and graduation requirements may be found in the *College Catalog and Student Handbook* at: <http://www.vcom.vt.edu/catalog/>.

### VII. Clinical Performance Objectives

The end-of-rotation evaluation for this rotation will be completed by your preceptor and is based on clinical core competencies. These core competencies reflect student performance in 6 key areas: communication, problem solving, clinical skills, medical knowledge, osteopathic medicine and professional and ethical considerations. Your end-of-rotation evaluation from your preceptor will be based directly on your performance in these 6 core competencies as described below.

- a. Communication - the student should demonstrate the following clinical communication skills:
  1. Effective listening to patient, family, peers, and healthcare team
  2. Demonstrates compassion and respect in patient communications
  3. Effective investigation of chief complaint, medical and psychosocial history specific to the rotation
  4. Considers whole patient: social, spiritual & cultural concerns
  5. Efficiently prioritizes essential from non-essential information
  6. Assures patient understands instructions, consents & medications

7. Presents cases in an accurate, concise, well organized manner
- b. Problem Solving – the student should demonstrate the following problem solving skills:
1. Identify important questions and separate data in organized fashion organizing positives & negatives
  2. Discern major from minor patient problems
  3. Formulate a differential while identifying the most common diagnoses
  4. Identify indications for & apply findings from the most common radiographic and diagnostic tests
  5. Identify correct management plan considering contraindications & interactions
- c. Clinical Skills - the student should demonstrate the following problem solving skills:
1. Assesses vital signs & triage patient according to degree of illness
  2. Perform good auscultatory, palpatory & visual skills
  3. Perform a thorough physical exam pertinent to the rotation
- d. Osteopathic Manipulative Medicine - the student should demonstrate the following skills in regards to osteopathic manipulative medicine:
1. Apply osteopathic manipulative medicine successfully when appropriate
  2. Perform and document a thorough musculoskeletal exam
  3. Utilize palpatory skills to accurately discern physical changes that occur with various clinical disorders
  4. Apply osteopathic manipulative treatments successfully
- e. Medical Knowledge – the student should demonstrate the following in regards to medical knowledge:
1. Identify & correlate anatomy, pathology and pathophysiology related to most disease processes
  2. Demonstrate characteristics of a self-motivated learner including demonstrating interest and enthusiasm about patient cases and research of the literature
  3. Are thorough & knowledgeable in researching evidence based literature
  4. Actively seek feedback from preceptor on areas for improvement
  5. Correlate symptoms & signs with most common diseases
- f. Professional and Ethical Behaviors - the student should demonstrate the following professional and ethical behaviors and skills:
1. Is dutiful, arrives on time & stays until all tasks are complete
  2. Consistently follows through on patient care responsibilities
  3. Accepts & readily responds to feedback, is not resistant to advice
  4. Assures professionalism in relationships with patients, staff, & peers
  5. Displays integrity & honesty in medical ability and documentation

6. Acknowledges errors, seeks to correct errors appropriately
7. Is well prepared for and seeks to provide high quality patient care
8. Identifies the importance to care for underserved populations in a non-judgmental & altruistic manner

g. Osteopathic Manipulative Medicine Components

Students must be familiar with the OMM didactic and workshop requirements for their OMS-4 year as described in the Osteopathic Manipulative Medicine website.

## VIII. Curriculum

- a. Be able to recognize, evaluate, diagnose, and manage common problems and disorders encountered in the pediatric intensive care unit, including the prompt recognition, resuscitation, and stabilization of critically ill pediatric patients:
  1. Cardiovascular emergencies including shock, dysrhythmias, congestive heart failure, pulmonary edema, hypertensive crises, and cardiomyopathies (includes the ability to effectively use anti-arrhythmic therapies and interventions and inotropic/pressor medications)
  2. Respiratory conditions such as acute respiratory failure, status asthmaticus, near drowning, upper airway obstruction, and ARDS (includes airway management, mechanical ventilation, the interpretation of arterial blood gases, and the effective use of other respiratory therapeutic interventions such as nitric oxide, ECMO, and bronchoscopy )
  3. Renal failure, severe dehydration, severe electrolyte imbalances and acid-base disorders (includes the indications for and limitations of dialysis)
  4. Neurological (including CNS) disorders such as hypoxic encephalopathy, coma and other altered mental status, delirium, head trauma, cerebral edema, intracranial hypertension, status epilepticus, meningitis and encephalitis, and life-threatening neuromuscular weakness.
  5. Metabolic, toxic, and endocrine disorders such as DKA and other acidotic states, nonketotic hyperosmolar coma, hypoglycemia, thyroid storm, adrenal crisis, SIADH, & diabetes insipidus.
  6. Toxicologic emergencies such as common intoxications, ingestions and poisonings.
  7. Hematologic emergencies such as sickle cell crises (e.g. acute chest syndrome), disseminated intravascular coagulopathy and other life-threatening bleeding diatheses, and severe hemolytic disorders, and oncologic. emergencies such as tumor lysis syndrome, airway compression, and intra-cranial or spinal cord compression (includes the ability to effectively use appropriate diagnostic testing and imaging)

8. Infections such as sepsis, epiglottitis, meningitis and encephalitis, and life-threatening progression of disorders such as endocarditis, pneumonia, AIDS, nosocomial infections, and necrotizing fasciitis (includes the ability to effectively use antibiotics and appropriate diagnostic testing)
  9. Gastrointestinal conditions such as intractable GI bleeding, stress ulceration, abdominal trauma, hepatic failure, severe pancreatitis, severe enterocolitis and toxic megacolon, and GI obstruction
  10. Surgical conditions such as trauma patients (especially multiorgan trauma), complicated appendicitis, and the acute abdomen (includes post-surgical and post-traumatic care)
  11. Conditions such as shock (all causes, including hypovolemic, septic, toxic, cardiogenic), and shaken- baby syndrome (including head injury).
- b. Identify the indications for and the appropriate interpretation of physiologic monitoring such as basic cardiorespiratory monitoring and telemetry, central venous pressure and pulmonary artery pressure measurements, and intracranial pressure measurements
  - c. Be able to effectively use therapies frequently needed in critically ill patients (includes an understanding of the pertinent physiology/ pathophysiology, indications of the therapy, how to monitor its effect and potential complications of the therapy), such as:
    1. Oxygen administration by cannula, masks, hood
    2. Positive pressure ventilation
    3. Mechanical ventilation modalities and management
    4. Analgesics, sedatives, and paralytic agents
    5. Parenteral nutrition
    6. Blood and blood product transfusions
    7. Vasoactive drugs (pressors and inotropes)
  - d. Understand most effective manner to seek consultation and which cases are most appropriate for consultation or management
  - e. Demonstrate sensitivity and skill in dealing with the unique problems involved in the care of children with multiple problems or chronic illness, as well as dealing with death and dying in the PICU setting