

**Course: Pediatric Cardiac Critical Care (CICU) PED 1224**

Department:	Pediatrics
Course:	Pediatric Cardiac ICU 1224
Faculty Coordinator:	Dr. Daniel Stromberg
Hospital:	Children's Medical Center
Periods offered:	All
Length	4 weeks
Max no. of students:	1
Fax:	214-456-6446
First Day Contact:	Attending or CICU Fellow 214-456-2033
First Day Time:	7:30 a.m.
First Day Place:	CMC CICU, 2 <sup>nd</sup> floor
Prerequisites:	3 <sup>rd</sup> year Peds. Clerkship

**I. Course Objectives:**

Students will be integral members of a team providing comprehensive pediatric cardiac critical care to ill neonates, infants, and children. Each student will be assigned 1-2 patients, and will have the primary responsibility for these patients under the supervision of a CICU faculty member.

**II. Course Goals and Objectives:** (based on ACGME competencies for resident education and modified for medical student education)

Patient Care

Students, together with supervising faculty must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

Objectives: Students are expected to

- Gather essential and accurate information about their patients. *Examples: history, intercurrent problems, physical examination, results of pertinent laboratory tests and data from physiologic monitors.*
- Together with the CICU attending and fellow/nurse practitioner, make informed recommendations about diagnostic and therapeutic interventions. *Example: Determine the need for echocardiography or cardiac catheterization in patients with congenital heart disease.*
- Together with the CICU attending and fellow/nurse/practitioner, communicate the plan of care to parents. *Example: Explain the timing of surgery for a child with congenital heart disease.*
- Work with health care professionals, including those from other disciplines, to provide patient-focused care, and develop/carry out patient management plans.

*Examples: Initiating respiratory care or mechanical ventilation, inotropic support, arrhythmia therapy, nursing/physical therapy.*

### Medical Knowledge

Students must demonstrate knowledge about established biomedical and clinical sciences and the application of this knowledge to patient care.

Objectives: Students are expected to

- Learn the indications and physical assessment skills required for determining the need for cardiac intensive care unit admission and treatment.
  
- Develop the skills required to assimilate and critically evaluate historical, physical, physiologic, and laboratory data, and to present these data in an organized and prioritized manner.
  
- Attempt interpretation of all data pertinent to the patient's cardiac function, through development of the following skills:
  - Focused physical examination – recognition of signs of congestive heart failure, cyanosis, and arrhythmias.
  - Recognition of the pathophysiologic effects of shunt lesions, pulmonary hypertension, valvar obstructions, and myocardial dysfunction.
  - Interpretation of chest roentgenograms to identify cardiac enlargement, characteristic cardiac silhouettes, and abnormal pulmonary markings.
  - Interpretation of electrocardiographic tracings with reference to rhythm abnormalities, pediatric myocardial ischemia, etc.
  - Interpretation of the hemodynamic findings of a cardiac catheterization report.
  - Interpretation of the findings of an echocardiography report.
  
- Develop an understanding of the natural history of various forms of congenital heart disease and the indications for cardiac surgery and/or catheter intervention.
  
- Develop a pathophysiology based understanding of common congenital heart lesions and conditions, including but not limited to:
  - Atrial septal defect
  - Ventricular septal defect
  - Atrioventricular canal
  - Patent ductus arteriosus
  - Tetralogy of Fallot
  - Hypoplastic left heart syndrome / single ventricle physiology
  - Cardiac tamponade
  - Post-cardiopulmonary bypass SIRS
  - Myocarditis / cardiomyopathy
  - Ventricular tachycardia
  - Supraventricular tachycardia
  - Cardiopulmonary interaction

- Gain a basic understanding of the preoperative and postoperative management and stabilization of children with critical heart disease. Treatment modalities to which students will be exposed include:
  - PGE infusion
  - Inhaled nitric oxide
  - Temporary pacing
  - Mechanical ventilation (and cardiopulmonary interaction)
  - Inotropic support
  - Sedation and pain control
  - Nutritional support
- Gain experience in dealing with the family, social, economic, and ethical issues related to critical cardiac illness in childhood.

#### Practice-Based Learning and Improvement

Students must be able to assimilate scientific evidence and improve their patient care practices.

Objectives: Students are expected to

- Locate and assimilate evidence from scientific studies related to their patients' health problems. *Example: trials of therapy for congestive heart failure.*
- Use information technology to manage information, access on-line medical information; and support their own education. *Example: use electronic medical record to access laboratory and physiologic information.*

#### Interpersonal and Communication Skills

Students must be able to demonstrate interpersonal and communication skills that result in effective information exchange with CICU team members and patients and their families.

Objectives: Students are expected to

- Communicate effectively during rounds.
- Explain complex treatments to parents without medical jargon.

#### Professionalism

Students must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

Objectives: Students are expected to

- Demonstrate respect, compassion, integrity; a responsiveness to the needs of patients and their families that supersedes self-interest; accountability to patients and the profession; and a commitment to excellence and on-going professional development. *Example: willingness to seek additional patients for evaluation.*

- Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care and confidentiality of patient information.
- Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.

### III. **Methods of Instruction:**

#### A) **Didactic** (schedule, topic, faculty)

- Monday: 9:00 am Cardiac Multidisciplinary Inpatient Conference
- Tuesday: 8:15 am PICU Research Conference  
3:00 pm PICU Integrative Physiology Conference
- Wednesday: 12:00 PICU conference (case conference, etc.)
- Thursday: 7:30 am Cardiology Research/Clinical Conference  
5:00 pm Cardiac Surgery Peer Review Conference

#### B) **Clinical schedule**

- Students are expected to arrive at latest by 7:00 am in order to be prepared for 8:00 am rounds with the CICU faculty.
- Afternoon rounds generally occur between 4:00-5:00 pm and are conducted by the on-call CICU fellow.
- Students are expected to take call every 4<sup>th</sup> night.

#### C) **Student responsibilities** (and to whom accountable)

- Evaluate patients, present to attending, and follow assigned patients until discharge.
- Students are expected to take primary responsibility for their patients with supervision by the resident, fellow and faculty member.

### IV. **Method of Evaluation of Students:**

Pass-fail grades; there are no examinations. Evaluations of the student by the faculty will be based on achievement of the stated objectives of the course. This will be assessed by the student's preparation, fund of knowledge, participation in rounds, and participation on call.