

Rotation: Cardiovascular Intensive Care Unit (CVICU)

Director: Dr. John McPherson

Faculty: Drs. Julie Damp, Pete Fong, Joseph Fredi, John McPherson, Lisa Mendes, Robert Piana, Mark Robbins, David Zhao

Duty Hours: Mon – Fri, 7 AM to 8 PM, 8 PM to 9 AM, and as mandated by the ACGME work hour guidelines

Learning Objectives

Cardiovascular Intensive Care Unit: Patient Care

Objective	Teaching Methods	Assessment Methods
1. Obtain a complete medical history, including review of patient medical records, and perform an accurate physical examination with an emphasis on cardiac findings.	Clinical Teaching, Clinical Experiences, Performance Feedback	Direct Observation, evaluations, Feedback from staff
2. Recognize the signs and symptoms of aortic stenosis, aortic regurgitation, mitral stenosis, mitral regurgitation, tricuspid regurgitation, acute pulmonary edema, and congestive heart failure.	Clinical Teaching, Clinical Experiences, Performance Feedback	
3. Document complete and accurate history and physical examinations and progress notes with an emphasis on cardiovascular disease.	Performance Feedback	
4. Develop complete problem lists, differential diagnoses and management plans for patients with suspected acute cardiac syndromes.	Clinical Teaching, Clinical Experiences, Performance Feedback	
5. Effectively evaluate and treat patients with acute myocardial infarction, acute coronary syndromes, congestive heart failure, acute valvular heart disease, and common cardiac arrhythmias.	Clinical Teaching, Clinical Experiences, Performance Feedback	
6. Effectively manage acute cardiogenic shock with	Clinical Teaching, Clinical Experiences,	

<p>the use of intra-aortic balloon pumps and mechanical assist devices.</p> <p>7. Perform and accurately interpret cardiac echocardiograms, cardiac stress tests, and coronary angiograms.</p> <p>8. Interpret data from cardiovascular laboratory tests, electrocardiograms, bedside telemetry, and hemodynamic monitoring and implement therapies based on the results.</p> <p>9. Evaluate and treat patients who have undergone interventional cardiovascular procedures.</p> <p>10. Effectively manage patients who are mechanically ventilated.</p> <p>11. Perform bedside diagnostic and therapeutic procedures such as central venous line placement, arterial line placement, pulmonary arterial catheter placement, temporary pacemaker placement, and intra-aortic balloon pump placement.</p> <p>12. Effectively perform CPR and advanced cardiac life support.</p> <p>13. Implement therapeutic hypothermia in patients with out of hospital cardiac arrest.</p> <p>14. Assist and educate patients and their families with preventive measures for cardiovascular disease related to diet, physical activity, and smoking cessation.</p> <p>15. Counsel patients and their families in end-of-life issues and palliative care.</p>	<p>Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p> <p>Clinical Teaching, Clinical Experiences, Performance Feedback</p>	
---	--	--

	Experiences, Performance Feedback	

Cardiovascular Intensive Care Unit: Medical Knowledge

Objective	Teaching Methods	Assessment Methods
1. Critically evaluate current medical information and scientific literature related to acute cardiovascular disease.	Clinical Teaching, Didactics, Independent Reading	Direct Observation, evaluations, Feedback from staff
2. Understand the pathophysiology of acute myocardial infarction, acute coronary syndromes, congestive heart failure, cardiogenic shock, and common cardiac arrhythmias.	Clinical Teaching, Didactics, Independent Reading	
3. Recognize the clinical manifestations of acute cardiovascular conditions commonly seen in the coronary intensive care unit.	Clinical Teaching, Didactics, Clinical Experiences	
4. Understand the physiologic principles and clinical indications of invasive hemodynamic monitoring.	Clinical Teaching, Didactics, Clinical Experiences	
5. Develop and demonstrate in-depth knowledge of anticoagulant and antiplatelet mechanisms of action and their indications for use in the treatment of acute coronary syndromes.	Clinical Teaching, Didactics	
6. Develop and demonstrate in-depth knowledge of the diagnosis and management of acute ischemic heart disease, severe hypertension, acute congestive heart failure, atrial fibrillation, ventricular tachycardia, heart block, and congenital heart disease.	Clinical Teaching, Didactics, Clinical Experiences	
7. Develop and demonstrate in-depth knowledge of		

<p>the principles, indications for, interpretation of, and complications of electrocardiography, rhythm monitoring, cardiac stress testing, echocardiography, electrophysiologic studies, cardiac catheterization, and coronary angiography.</p> <p>8. Develop and demonstrate in-depth knowledge of the principles, indications for, and complications of percutaneous coronary intervention, coronary artery bypass grafting, cardiac valve repair and replacement, and extracorporeal cardiac support devices.</p> <p>9. Develop and demonstrate in-depth knowledge of the assessment of cardiovascular risk and the strategies used in secondary prevention.</p>	<p>Clinical Teaching, Didactics, Clinical Experiences</p> <p>Clinical Teaching, Didactics, Clinical Experiences</p> <p>Clinical Teaching, Didactics, Independent Reading</p>	

Cardiovascular Intensive Care Unit: Professionalism

Objective	Teaching Methods	Assessment Methods
<p>1. Interact professionally and appropriately with patients, families, and members of the health care team.</p> <p>2. Acceptance of professional responsibility as the primary physician caring for the patients under the care of the CVICU team.</p> <p>3. Appreciation of the social context of illness.</p> <p>4. Understanding the role of ethicists and palliative care consultants in decisions regarding appropriateness of resuscitation and end-of-life</p>	<p>Clinical Experiences, Role Models</p> <p>Clinical Experiences, Role Models</p> <p>Clinical Teaching, Clinical Experiences, Didactics, Role</p>	<p>Direct Observation, evaluations, Feedback from staff</p>

care.	Models	
5. Demonstrate compassion and respect for others, including patients from a diverse cultural, social, and religious backgrounds	Clinical Experiences, Role Models	Direct Observation, evaluations, Feedback from staff

Cardiovascular Intensive Care Unit: Interpersonal and Communication Skills

Objective	Teaching Methods	Assessment Methods
<p>1. Communicate effectively with patients and families in a stressful critical care environment.</p> <p>2. Communicate effectively with members of the health care team, including findings and diagnoses when appropriate to both patients and consulting physicians.</p> <p>3. Communicate effectively with colleagues when executing patient hand-offs.</p>	<p>Clinical Teaching, Clinical Experiences, Role Models</p> <p>Clinical Experiences, Role Models</p> <p>Clinical Experiences, Role Models</p>	<p>Direct Observation, evaluations, Feedback from staff</p>
4. Maintain timely and comprehensive medical records.	Clinical Experiences, Role Models	Direct Observation, evaluations

Cardiovascular Intensive Care Unit: Practice Based Learning and Improvement

Objective	Teaching Methods	Assessment Methods
<p>1. Identify both strengths and gaps in knowledge and expertise in the care of patients with acute cardiovascular disease.</p> <p>2. Develop real-time methods for improving</p>	<p>Clinical Teaching, Clinical Experiences, Didactics, Role</p>	<p>Direct Observation, evaluations</p>

knowledge gaps that will directly benefit patient care in the CVICU.	Models Role Models, Independent Reading	
3. Utilize information technology to effectively locate, appraise, and utilize evidence based medicine within current literature to improve patient care in the CVICU.	Clinical Teaching, Clinical Experiences, Role Models	Direct Observation, evaluations
4. Utilize quality improvement methods to implement changes within the practice environment.	Clinical Teaching, Clinical Experiences, Didactics, Role Models	Direct Observation, evaluations

Cardiovascular Intensive Care Unit: Systems Based Practice

Objective	Teaching Methods	Assessment Methods
1. Develop and demonstrate in-depth knowledge of the multidisciplinary resources available and necessary to provide optimal care of patients with acute cardiovascular disease. 2. Work effectively as a member of the health care team, including coordination of patient care with other members of the health care team.	Clinical Teaching, Clinical Experiences, Didactics, Role Models Clinical Experiences, Role Models	Direct Observation, evaluations
3. Utilize evidence-based approaches in the care of patients with acute cardiovascular disease.	Clinical Teaching, Clinical Experiences, Didactics	Direct Observation, evaluations
4. Demonstrate an understanding of cost-	Clinical Teaching,	Direct Observation,

<p>effectiveness and risk-benefit analysis and incorporate these into the care of patients with acute cardiovascular disease.</p> <p>5. Understand when to solicit advice and assistance from senior fellows, consultants, and attending physicians in the care of patients with acute cardiovascular disease.</p> <p>6. Collaborate with other members of the health care team, including residents, medical students, nurses, respiratory therapists, pharmacists, occupational therapists, physical therapists, nutritionists, patient educators, social workers, case managers, and home health care providers.</p>	<p>Didactics</p> <p>Clinical Experiences, Role Models</p> <p>Clinical Experiences, Role Models</p>	<p>evaluations</p>
<p>7. Advocate for and work towards patient safety and improved quality of care in the CVICU.</p>	<p>Clinical Teaching, Clinical Experiences, Role Models</p>	<p>Direct Observation, evaluations</p>
<p>8. Identify system errors and implement systems solutions in the CVICU patient care process.</p>	<p>Clinical Teaching, Clinical Experiences, Role Models</p>	<p>Direct Observation, evaluations</p>

Rotation Format and Responsibilities:

The Vanderbilt University Hospital Cardiovascular Intensive Care Unit (CVICU) is a 26-bed critical care unit for medical and surgical patients with acute cardiovascular disease. The CVICU rotation for Fellows involves direct, primary patient care for critically ill patients including those with indwelling pulmonary artery catheters, transvenous pacemakers, intra-aortic balloon pumps, and ventricular assist devices. Two Fellows rotate through the CVICU for one month, and performing 13-hour shifts during the day or at night, with overlap during morning work rounds. The Fellows on this rotation are responsible for running morning work rounds with the Attending Physician and Housestaff team, participating in patient management decisions, interpreting diagnostic tests, performing and supervising invasive procedures, and teaching the Housestaff and students assigned to this rotation. The Fellows will follow only the cardiology patients within the CVICU, but will be available for consultation on the post-surgical patients.

The CVICU is staffed 24 hours by two fellows alternating 13-hour shifts six days a week. Two moonlighting Fellows staff the seventh day of the week with alternating 13-hour shifts.

The CVICU rotation is staffed by an Attending, two Fellows, and 3 internal medicine residents who take Q3 in-house call. Residents remain the primary caregiver of the patients performing the majority of clinical decision making, line procedures, cross-cover, and daily work. The Fellow supervises the resident, teaches critical care issues and assists with difficult patient management. The morning/day Fellow (7:00 AM-8:00 PM) runs morning work rounds with the Attending and assists in designing the treatment plan for the patient. The evening Fellow (8:00 PM-9:00 AM) receives the patient handoffs from the day Fellow, executes any outstanding clinical plans, and oversees overnight admissions and transfers. CVICU Fellows will rotate on alternating 1-week blocks on the morning/day shift and night shift. Fellows will work six 13-hour days with a >24 hr period out of the hospital over the weekend which is covered by a cardiology Fellow moonlighter.

On weekends 24 hours from Saturday 7:00 PM until Sunday 7:00 PM is covered by a moonlighting cardiology Fellow.

The CVICU Fellow is responsible for assessing all new admissions, being available for Emergency Department (ED) assessment of critically ill cardiac patients, and assisting the cath lab and ED personnel with the management and transfer of patients with acute ST-elevation myocardial infarction (STEMI). The Fellow is also responsible for the supervision of Housestaff during all invasive procedures.

Recommended Reading:

ST-Elevation Myocardial Infarction: Guidelines for the Management of Patients with. J Am Coll Cardiol 2008;51:210-247.

Unstable Angina/Non-ST-Segment Elevation Myocardial Infarction: Guidelines for the Management of Patients With. J Am Coll Cardiol 2007;50:e1-157.

Heart Failure in Adults: 2009 Focused Update of the 2005 Guidelines for the Diagnosis and Management of. J Am Coll Cardiol 2009;54:1343-82.

Valvular Heart Disease: 2008 Focused Update Incorporated Into the ACC/AHA 2006 Guidelines for the Management of Patients With. J Am Coll Cardiol;52:e1-142.

Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death: Guidelines for Management of Patients With. J Am Coll Cardiol 2006;48:1064-1108.

Atrial Fibrillation: 2006 Guidelines for Management of Patients With. J Am Coll Cardiol 2006;48:854-906.

Therapeutic hypothermia after cardiac arrest. An advisory statement by the Advanced Life Support Task Force of the International Liaison Committee on Resuscitation. Resuscitation 57 (2003) 231-235.

Selected articles and presentations available through Knowledge Map.

Evaluation and Feedback:

- Fellows are evaluated at the end of the rotation with a competency based evaluation system
- Fellows are directly observed and given real time feedback on their performance