Coronary Care Unit Rotation
Competency Based Curriculum, Goals and Objectives
Inova Fairfax Medical Campus
Internal Medicine Residency Program

Revised May 2022

I. Educational Purpose and Goals

a. Cardiovascular disease is the leading cause of death in the United States. Residents in internal medicine should understand the principles of diagnosis and management of patients with cardiovascular diseases. The CICU rotation exposes residents to patients with a wide spectrum of critical and life-threatening cardiovascular illnesses. Residents will learn basic concepts of stabilization of critically ill patients with cardiovascular disease. Furthermore, they will understand differential diagnosis and efficient diagnostic evaluations of such patients. They will function as a member of the team to provide care for these patients.

II. Principal Teaching Methods

a. Supervised direct patient care: Resident teams will participate in daily bedside combined teaching and management rounds with a cardiologist in conjunction with either a medical hospitalist or intensivist involved in the care of the patients. Rounding will begin on the critically ill patients at 8 am until about 12 PM.. This will consist of multidisciplinary assessment of the patient in conjunction with an intensivist and any other specialist involved in the patient's care. All admissions by the residents to the CICU service will be supervised by the CICU cardiologist and an intensivist.

b. Lectures: Residents are expected to attend all CICU lectures/didactic sessions and the resident monthly meeting unless there is an intervening emergency in patient care. There will also be dedicated biweekly 45-60 minute lectures (Tuesdays and Fridays from 2-3 pm). Topics will include EKG's, management of ACS, arrhythmias, heart failure/cardiogenic shock, hemodynamics and pericardial disease Depending on the flow of the month, there may be CICU journal club in which the CICU resident will be expected to present a recent journal article from either Journal of American College of Cardiology, Circulation or New England Journal of Medicine regarding a pertinent topic in the field of cardiology.

c. Self Study: Residents are expected to read from a core CICU reading list. They are also expected to perform directed reading based on their patient's problems and disease states.

III. Educational Content

a. Disease mix: Patients with a wide variety of cardiovascular illnesses will be seen by residents on the CICU service including, but not limited to, cardiogenic shock, acute complications of MI, arrhythmias (including atrial fibrillation and ventricular tachycardia), chest pain syndromes, coronary artery disease and acute coronary syndromes, congestive heart failure, and valvular heart disease. Also, residents will have the opportunity to care for patients with pulmonary hypertension and those status post cardiac transplantation or those waiting for a cardiac transplant.

b. Patient characteristics: Inpatients at Inova Fairfax Hospital who are over 18 years old provide an ethnically diverse patient population with a broad array of common and rare diseases.

c. **Learning Venues:** Inova Fairfax Medical Campus, Cardiac Intensive Care Unit

d. Structure:

i. The rotation is a one month block with all clinical time spent in the hospital.

The team will consist of a cardiologist, - an Inova or Walter Reed cardiology fellow, – two residents and 1-3 interns from Inova Fairfax Internal Medicine Residency and Walter Reed Internal Medicine Residency

-Overnight, residents hand over patients to an APP who will then provide a sign-out to the residents in the morning. Residents do not take overnight call.

ii. Daily rounds will occur at 8:00AM on the critically CICU patients. The CICU team will consist of the cardiology attending, MCCS intensivist and two residents, two interns, and sometimes medical students.

Residents will not continue to attend their continuity clinic during this rotation. The chief resident will orient the resident to the rotation at the beginning of the block and will review the specific schedule at that time. Residents will always have four days off in a month, will not work more than 80 hours on average per week Residents will always have 10 hours free of clinical duty between working shifts.

IV. Principal Educational Materials

a. At the beginning of the rotation, the chief medical residents will provide materials, including this curriculum, and a resource list.

V. Methods of Evaluation

a. Feedback will be given to the resident throughout the rotation as appropriate. At the end of the rotation, the attending teaching faculty will complete a web-based evaluation (MedHub) of each team member and review it with the team members.

b. The residents will also evaluate faculty and the rotation in an anonymous fashion (summarized annually in a composite form to be reviewed by the program directors)

c. 360 degree evaluations will be collected as appropriate from patients and nursing staff on an annual basis

VI. Resource List

a. Harrison's Principles of Internal Medicine 18th Edition (2012)- Part 2 Section 12 Cardinal Manifestations of Disease, Chapter 12 -"Chest Discomfort." And Part 2 Section 5 Chapters 33 – 37 (Alterations in Circulatory and Respiratory Functions). Part 10- "Disorders of the Cardiovascular System."

b. **Smart Phone App**: American College of Cardiology Guideline Clinical Apps (Chol/CV Risk/HF/AF/VHD/Lifestyle/obesity/NSTEMI/Periop/Device-based therapy/SVT/DAPT)

c. ***ACC website for guidelines from the Journal of the American College of Cardiology Acute Coronary Syndromes/Revascularization***

- NEJM **Review Article: Coronary-Artery Bypass Grafting (2016). DOI: 10.1056/NEJMra1406944**
- NEJM **Review Article: Drug-Eluting Coronary Artery Stents (2013). DOI: 10.1056/NEHMra1210816**
- 2016 Duration of Dual Antiplatelet Therapy: A Systematic Review for the 2016 ACC/AHA Guideline Focused Update on Duration of Dual Antiplatelet Therapy in Patients With Coronary Artery Disease. DOI: 10.1161/CIR.0000000000000405.

- 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction. ***J Am Coll Cardiol*. 2013;61(4):e78-e140. doi:10.1016/j.jacc.2012.11.019.**
- 2013 ACCF/AHA Key Data Elements and Definitions for Measuring the Clinical Management and Outcomes of Patients With Acute Coronary Syndromes and Coronary Artery Disease. **J Am Coll Cardiol.** ***2013;61(9):992-1025. doi:10.1016/j.jacc.2012.10.005***
- 2012 ACCF/AHA Focused Update of the Guidelines for the Management of Patients With Unstable Angina/Non-ST-Elevation Myocardial Infarction (Updating the 2007 Guidelines).http://circ.ahajournals.org/content/126/7/875.full.pdf+html
- SCAI/ACC/AHA Expert Consensus Document: 2014 Update on Percutaneous Coronary Intervention Without Onsite Surgical Backup. ***Circulation.*** *2014;* ***129: 2610-2626 .***
- ACCF/SCAI/STS/AATS/AHA/ASNC/HFSA/SCCT 2012 Appropriateness Use Criteria for Coronary Revascularization Focused Update. ***J Am Coll Cardiol*. 2012;59(9):857-881. doi:10.1016/j.jacc.2011.12.001**
- 2011 CCF/AHA/SCAI Guidelines for Percutaneous Coronary Intervention. ***J Am Coll Cardiol*. 2011;58(24):e44-e122. doi:10.1016/j.jacc.2011.08.007.**
- 2011 ACCF/AHA Guideline for Coronary Artery Bypass Graft Surgery: ***J Am Coll Cardiol*. 2011;58(24):e123-e210. doi:10.1016/j.jacc.2011.08.009**

Arrhythmias/Electrophysiology

- 2012 ACC/AHA/HRS Update of the 2008 Guidelines for Device-Based Therapy of Cardiac Rhythm Abnormalities.***J Am Coll Cardiol*. 2012;60(14):1297-1313. doi:10.1016/j.jacc.2012.07.009**
- Ventricular Arrhythmias and Sudden Cardiac Death: ACC/AHA/ESC 2006 Guidelines for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death. ***J Am Coll Cardiol*. 2006;48(5):1064-1108. doi:10.1016/j.jacc.2006.07.008**
- 2014 ACC/AHA/HRS Guideline for the Management of Patients withAtrial Fibrillation: Executive Summary. **J Am Coll Cardiol.** ***2014;():. doi:10.1016/j.jacc.2014.03.021.***
- AHA/ACCF Scientific Statement on the Evaluation of Syncope. **J Am Coll Cardiol.** ***2006;47(2):473-484. doi:10.1016/j.jacc.2005.12.019***
- NEJM Clinical Practice**: Acute Pericarditis (2014). DOI: 10.1056/NEJMc1404070**
- NEJM Clinical Practice**: Infections of Cardiovascular Implantable Electronic Devices (2012). DOI: 10.1056/NEJMcp1107675**

Valvular Heart Disease

- 2014 ACC AHA Guideline for the Management of Patients with Valvular Heart Disease. ***J Am Coll Cardiol. 2014;63(22):e57-e185. doi:10.1016/j.jacc.2014.02.536***

Perioperative Care

- 2009 ACCF/AHA Focused Update on Perioperative Beta Blockade Incorporated into the 2007 ACC/AHA Guidelines on the Perioperative Cardiovascular Evaluation and Care for Noncardiac Surgery. ***Circulation. 2009;120:e169-e276.***

- ACC/AHA 2007 Guidelines on Perioperative Cardiovascular Evaluation and Care for Noncardiac Surgery: Executive Summary. **J Am Coll Cardiol. *2007;50(17):1707-1732. doi:10.1016/j.jacc.2007.09.001.***

Diagnostic Testing

- 2012 ACCF/AHA/ACP/AATS/PCNA/SCAI/STS Guideline for the Diagnosis and Management of Patients With Stable Ischemic Heart Disease. ***J Am Coll Cardiol 2012;60(24).***
- ACCF/SCCT/ACR/AHA/ASE/ASNC/NASCI/SCAI/SCMR 2010 Appropriate Use Criteria for Computed Tomography. ***Circulation.* 2010;122:e525-e555.**
- ACCF/ASNC/ACR/AHA/ASE/SCCT/SCMR/SNM 2009 Appropriate Use Criteria for Cardiac Radionuclide Imaging ***J Am Coll Cardiol 2009;53 :2201-2.***
- ACCF/ASE/ACEP/AHA/ASNC/SCAI/SCCT/SCMR 2008 Appropriateness Criteria for Stress Echocardiography: ***Circulation. 2008;117:1478-1497.***
- ACCF/ASE/AHA/ASNC/HFSA/HRS/SCAI/SCCM/SCCT/SCMR 2011 Appropriate Use Criteria for Echocardiography**.** ***J Am Coll Cardiol*. 2011;57(9):1126-1166. doi:10.1016/j.jacc.2010.11.002**

Heart Failure

- 2013ACCF/AHA Guideline for the Management of Heart Failure. ***J Am Coll Cardiol. 2013;62(16):e147-e239. doi:10.1016/j.jacc.2013.05.019.***
- The 2013 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: Executive Summary. ***J Heart Lung Transplantation 2013;32(2)***

Pulmonary Hypertension

- Current Clinical Management of Pulmonary Arterial Hypertension***. Circulation Research 2014;115:131-47.***
- 2009 ACCF/AHA Expert Consensus Document on Pulmonary Hypertension. ***J Am Coll Cardiol*. 2009;53(17):1573-1619. doi:10.1016/j.jacc.2009.01.004**

Learning Venues:

1. Direct patient care: supervised by teaching attending physician, attending cardiologist of record
2. Didactics and Small Group sessions
3. Self Study

Evaluation Methods:

A. Attending Evaluation
B. Peer Evaluation

In italics when more applicable to PGY2 and PGY3 levels

1. Patient Care

Principal Educational Goals:	**Learning**	**Evaluation Methods**
Working with the Attending Cardiologist to provide effective care for patients admitted with Cardiovascular disease	1	A-B

Improve Auscultation and Physical examination skills. Correlate the examination of patients with the results from echocardiography and cardiac catheterization.	"	A-B
Perform a focused and directed history and physical exam on a patient with acute cardiac illness	"	A-B
Teach team members how to perform a focused and directed history and physical exam on a patient with acute cardiac illness	"	A-B
Effectively respond to acute emergencies in critically ill cardiac patients (cardiogenic shock, acute complications of MI, arrhythmias)	"	A-B
Perform with aCICUracy, with regard to patient comfort, the list of required procedures	"	A-B
Know the indications, contraindications, and risks of the above procedures	1-3	A-B
Be able to manage multiple concurrent admissions within your team by triaging acute and less acute issues	1-3	A-B
Successfully manage rapid response team calls as well as MSET's in the IHVI, using ACLS protocols when indicated	"	A-B
Succinctly and aCICUrately summarize a case when calling an attending physician	"	A-B
Be comfortable asking upper level personnel for assistance when you feel that patient scenarios are out of the scope of your practice	"	A-B
Be able to judiciously order and rapidly interpret diagnostic tests	1-3	A-B
Teach the indications and interpretation of diagnostic tests to various levels of learning on the team	"	A-B
Approach patient management holistically and compassionately	1	A-B
Effectively evaluate and manage patients with acute cardiac illness	"	A-B

2. Practice-Based Learning and Improvement

Principal Educational Goals:	**Learning Venues**	**Evaluation Methods**
Identify and acknowledge gaps **in** personal knowledge and skill in the care of acute cardiac patients and cardiology	1-3	A-B
Develop real-time strategies for filling knowledge gaps that will benefit patients on the cardiology primary service	1,3	A-B
Residents will accept feedback and work to improve deficiencies.	3	A-B

3. Medical Knowledge

Principal Educational Goals:	**Learning Venues**	**Evaluation Methods**
Identify, understand, and *teach* the management of the most common cardiac conditions in hospitalized patients, including chest pain/ coronary artery disease, congestive heart failure, arrhythmia management, valvular heart disease and the evaluation of chest pain syndromes.	1-3	A-B

Understand the appropriate use and interpretation of diagnostic cardiac testing and the appropriate patient selection criteria. (ECG, exercise stress testing, myocardial scanning, echocardiography, and stress echocardiography)	"	A-B
Understand and identify the appropriate patient candidates for the various non-invasive imaging modalities and how these tests are performed. They should also understand the limitation of these procedures and their applicability in different circumstances	"	A-B
Expand clinically applicable knowledge base of the basic and clinical sciences underlying the care of patients with chest pain and acute cardiac disease	"	A-B
Understand the physiologic and pathophysiologic principles of invasive hemodynamic monitoring including indications.	"	A-B

4. Interpersonal Skills and Communication

Principal Educational Goals:	**Learning Venues**	**Evaluation Methods**
Communicate effectively with patients and families	1	A-B
Communicate effectively with physician colleagues and members of other healthcare professions to assure timely, comprehensive patient care.	"	A-B
Communicate effectively with colleagues from other services to coordinate optimal patient care	"	A-B
Understand the role of different members of the health care team	"	A-B
Show understanding of cultural and gender differences as they relate to patient preferences of treatment and evaluation	"	A-B
Interact in an effective way with members of the health care team	"	A-B
Demonstrate leadership skills during rounds	"	A-B
Concisely present a case on rounds	"	A-B

5. Professionalism

Principal Educational Goals:	**Learning Venues**	**Evaluation Methods**
Seek to excel in their clinical and scholarly work	1	A-B
Maintain a state of inquiry and actively seek out new information by reading to enhance knowledge	"	A-B
Attend and be prepared to actively participate in all conferences	"	A-B
Accept and complete all patient care responsibilities with the utmost care	"	A-B
Behave with the utmost professionalism towards patients, families, colleagues and all members of the health care team	"	A-B
Seek out, accept feedback, and work to improve deficiencies.	"	A-B
Provide feedback to the course director to improve the rotation as needed	"	A-B
Actively participate in rounds	"	A-B
Be timely to conferences and rounds	"	A-B
Treat all team members with respect	"	A-B

Understand the problem with/avoiding arrogance toward colleagues and patients	"	A-B
Attend conferences regularly	"	A-B
Approach patient care in an altruistic manner	"	A-B
Complete evaluations in a timely manner	"	A-B
Treat all patients with respect	"	A-B

6. Systems-Based Practice

Principal Educational Goals:	**Learning Venues**	**Evaluation Methods**
Understand and utilize the multidisciplinary resources necessary to care optimally for the cardiac patient	1	A-B
Understand and acknowledge the barriers to health care and adherence in your patients	"	A-B
Lead your team's evaluation of the psychological and social barriers to obtaining adequate health care	"	A-B
Collaborate with other members of the health care team to assure comprehensive care for patients with cardiac illness and complaints	"	A-B
Use evidence based, cost-conscious strategies in the care of patients with cardiac illness and complaints	"	A-B
Utilize the resources available to you to optimize medical care of your patient	"	A-B