

**Clinical Cardiology**  
**Adult Congenital Heart Disease**  
**Clinical Service**  
**(1 month)**

During this rotation, the Cardiovascular Diseases (CD) fellow functions as an independent Cardiologist. The subspecialty trainee is expected to attain competence in the diagnosis and management of adult congenital heart diseases (ACHD) in hospitalized and clinic patients, with an emphasis on anatomic diagnosis, non-invasive imaging, and management of chronic complications of these patients. Specific skills are listed below:

- 1) Diagnosis and treatment of common ACHD in hospitalized patients.
- 2) Recognition and risk assessment of simplex and complex ACHD.
- 3) Recognition of decompensated heart failure in ACHD.
- 4) Obtain basic skills required for cardiac catheterization in ACHD.
- 5) Perform and accurately interpret hemodynamic studies for the assessment of valvular heart disease, heart failure and pericardial disease.
- 6) Strategies for prevention complications associated with invasive diagnostic evaluation, therapeutic catheterization or cardiac surgery.
- 7) Recognition and management of common arrhythmias in ACHD.
- 8) Recognition, appropriate evaluation and management of valvular heart disease including:  
(a) Bicuspid Aortic valve with stenosis or insufficiency; (b) Acquired aortic valve stenosis; (c) Mitral Regurgitation due to primary valvular or ischemic heart disease; (d) Rheumatic Valvular heart disease; (e) Tricuspid valve stenosis or insufficiency (f) Pulmonary valve stenosis or insufficiency (g) Toxic valve injury (diet drug/carcinoid) and (h) endocarditis (infective, marantic, Libmann-Sachs).
- 9) Appropriate ordering and interpretation of ECG, Holter, radiographic, nuclear, laboratory, cardiac imaging examinations and tilt table testing.
- 10) Recognition and management of metabolic disease known to influence heart and vascular disease.

The CD fellow will develop expertise in the recognition, diagnosis and management of the spectrum of ACHD that occur in an adult general medical/surgical hospital. The CD fellow will become proficient in the performance of a focused cardiovascular disease history and physical examination. The CD resident will develop expertise in performing invasive diagnostic assessment of cardiovascular diseases.

The CD fellow will dedicate the majority of the time to patient care responsibilities, and will be actively and directly involved in diagnostic and therapeutic decision-making. Although assigned to a hospital-based service, the CD fellow will also see outpatients at his/her assigned continuity clinic.

In addition, CD fellows will actively participate in scheduled teaching conferences through the week that include the Noon Cardiology Conference, the core curriculum seminars, Morbidity and Mortality case presentations, Cardiology Journal Club, research conferences, and CV surgery

management conferences. Moreover, the CD fellows will be encouraged to participate, when possible, in the electrophysiology, cardiac pathology and peripheral vascular disease conferences as well as regular literature reviews and read about cardiovascular disease entities exhibited by the cases seen on the service.

The CD fellow works one on one with attending physicians on each specific rotation. Under the guidance of supervising faculty, CD fellows are responsible for evaluating assigned patients on the service during initial and follow-up care over the course of their hospitalization. The CD fellow is responsible for patient preparation for invasive procedures and follow-up assessment afterward. Internal Medicine residents, subspecialty medical students and pharmacy students may be assigned to the clinical service and will be supervised by the CD fellow. All patients are teaching patients on the inpatient services. The average daily census is typically 2-5 patients with 1-2 new patients each weekday. In the event that the service population exceeds the capacity of the CD fellow and associated residents or students, patients will be assigned a non-teaching status and cared for by the attending physician.

<b>Legend for Learning Activities</b>	
AR/FS – Attending Rounds/Faculty Supervision	JC – Journal Club
CC – Core Curriculum conferences	LR – Literature Review (independent)
DPC – Direct Patient Care	RC – Research Conference
MM – Morbidity and Mortality Conference	CAC – Cath Conference

<b>Legend for Evaluation Methods for Fellows</b>	
AE – Attending Evaluations	360° – 360° Evaluation
PDR – Program Director’s Review (twice annually)	

**Principal Educational Goals by Relevant Competency**

The educational goals and objectives for the CD fellow on this rotation are indicated for each of the six ACGME competencies in the tables below. The first column describes whether the objective is knowledge, skill and/or attitude. The third column lists the most relevant learning activities for that objective, and the fourth column indicates the evaluation methods for that objective.

**A. Patient Care**

**Goal:** CD fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of Cardiovascular diseases.

<b>Knowledge, Skills, Attitude</b>	<b>Objectives – Fellows will demonstrate the:</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
Knowledge, Skills	Ability to take a complete medical history and perform a	DPC,	AE

	careful and accurate physical examination with a cardiovascular disease focus	AR/FS	
Knowledge, Skills	Ability to write concise, accurate and informative histories, physical examinations and progress notes with a cardiovascular disease focus	DPC, AR/FS	AE
Knowledge, Skills	Ability to formulate comprehensive and accurate problem lists, differential diagnoses and diagnostic & therapeutic plans	DPC, AR/FS, CC, LR	AE, PDR
Knowledge, Skills	Ability to perform invasive diagnostic procedures with specific attention to maintaining patient comfort and safety.	DPC, AR/FS, CAC	AE, 360°
Knowledge, Skills	Ability to prescribe and appropriately utilize medical therapy for the prevention & treatment of cardiovascular disease in hospitalized patients, understanding the proper dosing and potential related adverse events and interactions	DPC, AR/FS, LR, CC, JC	AE

## B. Medical Knowledge

**Goal:** CD fellows must demonstrate knowledge about established principles and evolving science critical to the practice of infectious diseases in hospitalized patients.

<b>Knowledge, Skills, Attitude</b>	<b>Objectives – Fellows will:</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
Knowledge	Diagnose and treat common cardiovascular in hospitalized patients	AR/FS, CC, DPC, JC, LR,	AE, PDR
Knowledge	Recognition of unusual or uncommon cardiovascular diseases not typically cared for by primary care physicians.	AR/FS, CC, DPC, JC, LR, RC	AE, PDR
Knowledge	Demonstrate growing knowledge of normal and abnormal cardiac and vascular anatomy as visualized using cardiac imaging studies (angiography)	AR/FS, CAC, LR	AE
Knowledge	Demonstrate growing knowledge of normal and abnormal cardiac physiology specifically with respect to hemodynamics and their manipulation	AR/FS, LR, CAC, RC, DPC	AE
Knowledge	Demonstrate knowledge of indications and contraindications for therapeutic catheterization or surgical procedures for cardiovascular diseases	AR/FS, CC, DPC, JC, LR, RC, CAC	AE, PDR
Knowledge	Diagnosis and treatment of rhythm disturbances including appropriate referral for electrophysiological study, cardiac pacing, ICD and RFA.	AR/FS, CC, DPC, JC, LR, RC	AE, PDR
Knowledge	Recognize complications of various invasive catheter-based and cardiovascular surgical procedures, including appropriate management.	AR/FS, CC, DPC, JC, LR, MM	AE, PDR
Knowledge	Understand strategies for prevention of cardiovascular disease through medical therapy, diet and lifestyle modification.	AR/FS, ICC, CC, DPC, MLR, JC, CPC	AE, PDR
	Recognize and manage congenital and valvular heart	AR/FS, CC,	

Knowledge	disease including knowledge of diagnostic assessment, activity prescription, medical therapy and antibiotic prophylaxis.	DPC, JC, LR, RC, CAC	AE, PDR
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### C. Interpersonal Skills and Communication

**Goal:** CD fellows must demonstrate the knowledge, skills and attitudes necessary to develop and maintain appropriate interpersonal relationships and to communicate effectively with patients, families, colleagues and the public.

<b>Knowledge, Skills, Attitude</b>	<b>Objectives – Fellows will:</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
Skill	Communicate sensitively and effectively with hospitalized patients and with their families	DPC, AR/FS	AE
Skill, Attitude	Display a willingness and ability to teach medical students, pharmacy students, medical residents, nurses and ancillary service personnel	DPC, AR/FS	AE, 360°

### D. Professionalism

**Goal:** CD fellows must demonstrate the knowledge, skills, and attitudes necessary to practice professionally responsible, ethical and compassionate care in clinical cardiovascular diseases.

<b>Knowledge, Skills, Attitude</b>	<b>Objectives – Fellows will:</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
Knowledge, Skill, Attitude	Interact professionally towards patients, families, colleagues, and all members of the health care team	DPC, AR/FS	AE, PDR, 360°
Attitude	Display an appreciation of the social context of illness especially in hospitalized, critically ill patients	DPC, AR/FS, CC,	AE
Attitude	Provide mentoring and act as a role model for junior members of the care delivery team	DPC	AE
Skill	Participate in the decision for diagnostic test requests or referral for intervention reviewing the ethical aspects of that decision	DPC, AR/FS	AE
Knowledge, skill, Attitude	Fulfill all the requirements to assure the privacy and confidentiality of all the medical information of the patient.	DPC, AR/FS	AE, PDR, 360°

### E. Practice-Based Learning and Improvement

**Goal:** CD fellows must demonstrate the knowledge, skills, and attitudes necessary to initiate self-directed and independent learning. CD fellows must keep abreast of current information and practices relevant to cardiovascular disease.

<b>Knowledge, Skills, Attitude</b>	<b>Objectives – Fellows will:</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
Attitude	Demonstrate a commitment to professional scholarship through the systematic and critical perusal of relevant print and electronic medical literature, with an emphasis on the integration of basic science with clinical medicine, and evaluation of information in light of the principles of evidence-based medicine	DPC, AR/FS, LR, CAC, CC, JC, RC	AE, PDR
Skill, Attitude	Demonstrate a commitment to learning through participation in research and producing formal presentations and/or publications	CC, CAC, JR, RC	PDR
Skill, Attitude	Integrate knowledge learned through participation in ward rounds, teaching conferences and other educational activities into their practice (e.g., observation of long-term outcome of interventions and medical care applying lessons to patients with acute illness)	DPC, AR/FS, JC, RC	AE, PDR

#### **F. Systems-Based Practice**

**Goal:** CD fellows must demonstrate the knowledge, skills, and attitudes necessary to manage effectively in multiple, diverse, complex systems of care to provide effective treatment, consultation and referrals for patients.

<b>Knowledge, Skills, Attitude</b>	<b>Objectives – Fellows will:</b>	<b>Learning Activities</b>	<b>Evaluation Methods</b>
Knowledge, Skill	Demonstrate the ability to work in the outpatient clinic coordinating routine follow-up of chronic illness, evaluation and management of new cardiovascular illness and assisting in system development that ensures appropriate disease management and health maintenance practices	DPC, AR/FS, LR	AE, PDR
Skill, Attitude	Display a willingness and ability to work with catheterization laboratory staff to efficiently deliver compassionate care	DPC, AR/FS	AE, PDR, 360°
Skill, Attitude	Integrate knowledge learned through participation in ward rounds, teaching conferences and other educational activities into their practice	DPC, AR/FS	AE, PDR
Attitude	Participate in refinement of care delivery systems ensuring provision of evidence-based care (e.g., participation and refinement of STEMI protocol)	DPC, AR/FS, RC	PDR
Attitude	Consider the cost-effectiveness of diagnostic, prevention and treatment modalities when selecting such strategies for patients.	DPC, AR/FS, CAC, JC, LR, CC	AE, PE