

Cardiovascular Disease Fellowship Basic and Clinical Conference Topics

Updated 6/2021

The curriculum topics listed below incorporate required knowledge areas specified by the ACGME, suggested by COCATS, and are inclusive of the American College of Cardiology Foundation’s Competency Milestones. These specific core competencies should be attained by all general cardiology trainees and will become the normative data used for assessing the quality of the outcomes-based, specialty specific educational goals and objectives through the structure of the ACGME core competencies.

*= Introductory Topics

<p><i>Coronary Artery Disease</i></p> <ol style="list-style-type: none"> 1. Coronary Heart Disease Epidemiology 2. Metabolic Syndrome 3. Pathogenesis of Atherosclerosis 4. Endothelial Dysfunction and Coronary Artery Disease 5. Dyslipidemia, Diabetes Mellitus, Hypertension and Risk of Atherosclerosis, Novel Risk Markers of Atherosclerosis 6. Acquired and Congenital Lipid Disorders 7. Assessment of Chest pain 8. Chronic Coronary Artery Disease 9. Acute Coronary Syndrome – STEMI/Non-STEMI* 10. Acute ST Elevation Myocardial Infarction 11. Reperfusion Strategy for STEMI: Fibrinolysis vs. PCI 12. Fibrinolytic Trials in Acute MI 13. Complications of Acute ST elevation MI 14. Right Ventricular Infarction 15. Risk Stratification after MI 16. Coronary Collateral Circulation 17. Cardiac Rehabilitation 18. Coronary Artery Bypass Graft Surgery 19. Cardiac Biomarkers
<p><i>Arrhythmias and Electrophysiology, Electrocardiography and Ambulatory ECG</i></p> <ol style="list-style-type: none"> 1. Basic ECGs 2. Advanced ECGs 3. Sick Sinus Syndrome, Heart Block, BBB* 4. Injury, ischemia, Infarction – Pathophysiology* 5. EP Emergencies* 6. Cardiac Cellular Electrophysiology 7. Normal Sinus Rhythm, and Sinus Node Dysfunction 8. Reentrant Supraventricular Tachycardia 9. Wide Complex, Narrow Complex Tachycardia 10. Atrial Fibrillation, Atrial Flutter, Atrial Tachycardia – Tx., Pharm, Non-Pharm 11. Sustained and Non-sustained Ventricular Tachyarrhythmias 12. AV Dissociation and AV Heart Block 13. Indications and Limitations of Non-invasive EP Testing 14. Indications and Limitations of Invasive EP Testing 15. Indications for PPM, ICD and CRT (Trials)

16. Cardiac Channelopathies
17. Syncope
18. Sudden Cardiac Death
19. Heart Disease in Athletes
20. Drug and Electrolyte Changes

Echocardiography

1. Basics of Transthoracic Echocardiography
2. Ultrasound Physics and Artifacts
3. M-mode, Chamber Measurements*
4. Doppler Echocardiography and Color Flow Imaging and Hemodynamics
5. Transesophageal Echocardiography
6. Stress Echocardiography
7. Tissue Doppler and Strain Imaging
8. Chamber Quantification and Systolic Function and Use of Contrast Agents
9. Diastolic Function
10. Right Heart Function
11. Aortic Stenosis*
12. Mitral Regurgitation*
13. Echo and Cardiomyopathy

Heart Failure, Hypertrophic and Other Cardiomyopathies

1. Cardiovascular Reflexes and Hormones
2. Hemodynamics
3. New Onset of Heart Failure: Diagnosis and Evaluation
4. Chronic Systolic Heart Failure – pathophysiology, clinical picture, treatment
5. Chronic Diastolic Heart Failure – pathophysiology, clinical picture, treatment
6. Acute Systolic Heart Failure
7. Management of Advanced Heart Failure with Inotropes, Mechanical Therapies (LVADs) and Heart Transplantation
8. Cardiorenal Syndrome
9. Right Ventricular Failure
10. Myocarditis
11. Dilated Cardiomyopathy
12. Restrictive Cardiomyopathy including Infiltrative Cardiomyopathy
13. Hypertrophic Cardiomyopathy
14. Inherited Cardiomyopathy with Echo Features

Invasive Cardiology

1. Indications of Cardiac Catheterization
2. Diagnostic Angiographic Catheters and Engaging Vessels
3. Basics of Interventional Cardiology
4. Indication of PCI and AUC Criteria
5. Diagnostic Coronary Angiographic Views and Ventriculography
6. Normal Coronary Anatomy, Variations and Congenital Anomalies
7. Coronary Vein Anatomy
8. Coronary Artery Physiology, Intracoronary Ultrasonography, Coronary Artery Lesions and FFR
9. Principles of Radiation Safety
10. Contrast Agents and Contrast Induced Nephropathy
11. Antiplatelet Therapies in Cath Lab
12. Antithrombotic Therapies in Cath Lab
13. Right Heart Catheterization
14. Invasive Hemodynamics and Calculation of Stenotic Orifice Area and Regurgitant Lesions

15. Invasive Hemodynamics and Intracardiac Shunt, Shunt Measurements and Device Closure
16. Indications of Endomyocardial Biopsy
17. Percutaneous Mechanical Circulatory Support Devices Including Intra-aortic Balloon Pump, Impella and Tandem Heart
18. Radial Arterial Access for Cardiac Catheterization
19. Femoral Arterial Access for Cardiac Catheterization
20. Closure Devices
21. Cardiogenic Shock
22. Restriction and Constriction
23. Angiography of Peripheral Vessels (Thoracic and Abdominal)
24. Hemodynamics of HOCM and HF
25. Pericardiocentesis

Cardiac CT

1. Radiation and Radiation Safety*
2. Basics of Cardiac CT Imaging – Physics, Image Acquisition and Processing*
3. Artifacts
4. Coronary Vessels (anatomy and physiology)
5. Non-coronary Cardiac Structures and Functional Pathology
6. Non-coronary Cardiac Non-vascular Anatomy and Physiology

Nuclear Cardiology

1. Basics of Nuclear Imaging – Physics, Image Acquisition and Processing*
2. Myocardial Perfusion Imaging Tracers
3. Imaging Protocols
4. SPECT, MUGA and First Pass
5. Quality Check Issues in Nuclear Cardiology and Experience in Hot Lab
6. Appropriate Use Criteria for Myocardial Perfusion Imaging

Diseases of Heart, Pericardium and Pulmonary Vasculature

1. Systemic Disease and Heart
2. Cardiac Tumors
3. The Pericardium: Normal Anatomy and Structural Abnormality
4. Acute and Relapsing Pericarditis
5. Pericardial Effusion and Tamponade, Indications for Pericardiocentesis, Role of Echo during Pericardiocentesis
6. Constrictive Pericarditis
7. Pulmonary Embolism
8. Pulmonary Hypertension
9. Sleep Apnea and Cardiac Disease

Valvular Heart Disease

1. Aortic Stenosis including congenital anomalies
2. Mitral Stenosis
3. Acute and Chronic Aortic Regurgitation
4. Acute and Chronic Mitral Regurgitation including Mitral Valve Prolapse
5. Pulmonic and Tricuspid Valve Disease
6. Prosthetic Valve
7. Native and Prosthetic Valve Endocarditis
8. Rheumatic Valvular Heart Disease
9. Carcinoid and Drug Related Heart Disease
10. Surgery for Cardiac Valve Disease
11. Percutaneous Valvular Interventions (TAVR, Mitra clip, Melody Valve)

Vascular Disease

1. Peripheral Vascular Anatomy and Indications for Peripheral Vascular Angiography
2. Peripheral Vascular Disease
3. Cerebrovascular Disease and Carotid Stenting
4. The Aorta and Marfan/Ehlers-danlos/Turner/Loeys-dietz/Idiopathic Causes of Aortic Aneurysm/Dissection, Endovascular Approaches
5. Renovascular Disease and Renal Artery Stenting
6. Pathophysiology, Treatment and Prevention of Arterial Thrombosis
7. Venous and Lymphatic Disorders
8. Vasculitis

Congenital Heart Disease

1. Cardiac Development and Embryology
2. Simple Congenital Heart Disease
3. Complex Congenital Heart Disease

Cardiovascular Pharmacology

1. Amiodarone
2. Antiarrhythmic Drugs
3. Modulators of Renin Angiotensin System and Nitrates
4. Principles of Diuretic Usage
5. Digoxin
6. Principles of Inotropic Drugs
7. Calcium Channel Blockers
8. Beta-adrenergic Receptor Blockers
9. Lipid Lowering Agents and Lipid Lowering Clinical Trials

Miscellaneous Topics

1. Cardiovascular Examination*
2. Basics of Stress Testing*
3. Cardiopulmonary Exercise Testing
4. Cardiac Radiography
5. Hypertension: Mechanism, Diagnosis and Management*
6. Non-cardiac surgery in Patients with Heart Disease
7. Heart Disease in Women
8. Heart Disease in Elderly / Erectile Dysfunction
9. Pregnancy and Heart Disease
10. HIV Infection and Heart Disease
11. Conscious Sedation
12. Coding and Billing
13. Costs of Cardiac Care
14. Practice settings, payment groups, physician groups
15. Practice Management
16. Fatigue, Well-Being and Burnout
17. Ethics
18. Disclosure of Adverse Events