

2022 ACCP/ASHP Cardiology Pharmacy Review and Recertification Course Learning Objectives

Primary Prevention of Cardiovascular Disease and Public Health

Faculty: Johnathan D. Cicci, Pharm.D., BCPS, BCCP, CPP

Clinical Pharmacy Specialist, Cardiology

University of North Carolina Medical Center

Chapel Hill, North Carolina

Lecture time 1.5 hours

Key Words: Cardiology, Counseling Preventative Medicine, Public Health, Over-the-Counter (OTC) Products

At the end of this activity, you will be able to:

1. Identify pharmacotherapeutic agents that reduce the risk of developing cardiovascular disease (CVD).
2. Develop a treatment plan that incorporates lifestyle modifications and evidence-based pharmacotherapy to reduce the risk of an index cardiovascular event for a given patient scenario.
3. Develop a tobacco cessation treatment plan for a patient who requests assistance for a quit attempt.
4. Evaluate a given patient scenario to determine CVD risk and recommend appropriate lipid therapy.
5. Determine appropriate patients to recommend initiation of aspirin therapy for the primary prevention of CVD.
6. Counsel a patient on appropriate complementary and alternative pharmacotherapeutic agents to optimize CVD risk reduction, including vitamin D and omega-3 fatty acids.

Dyslipidemia

Faculty: Tracy E. Macaulay, Pharm.D., FCCP, FACC, BCCP

Clinical Associate Professor

University of Kentucky College of Pharmacy

Lexington, Kentucky

Lecture Time: 1.5 hours

Key Words: Cardiology, Dyslipidemia, Cardiovascular Risk

At the end of this activity, you will be able to:

1. Describe the role of cholesterol and lipoproteins in the development of atherosclerotic cardiovascular disease (ASCVD).
2. Evaluate a patient's ASCVD risk by appropriately using the 10-year ASCVD Risk Pooled Cohort Equations and optional risk enhancers.
3. Establish goals of therapy for the management of blood cholesterol, including statin intensity, and create a monitoring plan for patients receiving lipid-lowering therapies.
4. Develop an appropriate treatment regimen for patients who are statin intolerant or unable to achieve goals of therapy on maximally tolerated statin therapy, according to the 2018 Guideline on the Management of Blood Cholesterol.

5. Identify appropriate indications for the use of triglyceride-lowering therapies to manage hypertriglyceridemia.
6. Evaluate the needs of special populations (e.g., those with diabetes, older adults, those with kidney disease), and adapt treatment strategies to optimize outcomes.

Blood Pressure Management in Adult Patients

Faculty: Shannon W. Finks, Pharm.D., FCCP, BCPS, BCCP, AHSCP-CHC

Professor of Clinical Pharmacy and Translational Science

University of Tennessee College of Pharmacy

Memphis, Tennessee

Lecture Time 1.5 hours

Key Words: Cardiology, Hypertension, Hypotension

At the end of this activity, you will be able to:

1. Develop an optimal pharmacologic treatment plan for a patient with hypertension (HTN) according to practice guidelines and clinical trial evidence.
2. Demonstrate appropriate drug selection and blood pressure goals for the treatment of HTN according to concomitant conditions and compelling indications.
3. Devise an evidence-based treatment strategy for resistant HTN to achieve blood pressure goals.
4. Construct appropriate drug therapy plans for the treatment of hypotension and/or antihypertensive drug related adverse events.

Stable Atherosclerotic Disease

Faculty: Kelly C. Rogers, Pharm.D., FCCP, FACC, BCCP

Professor of Clinical Pharmacy and Translational Science

University of Tennessee College of Pharmacy

Cardiology Clinical Specialist, VAMC

Memphis, Tennessee

Lecture Time: 1.5 hours

Key Words: Cardiology, Cardiovascular Disease, Peripheral Artery Disease, Cerebrovascular Disease, Transient Ischemic Attack (TIA)

At the end of this activity, you will be able to:

1. Recommend patient-specific pharmacologic therapy for the management of stable ischemic heart disease (SIHD).
2. Differentiate between the antianginal options for a patient with refractory angina.
3. Develop an optimal pharmacologic regimen and monitoring plan for patients with peripheral arterial disease (PAD) considering individual patient symptomatology and characteristics.
4. Develop an evidence-based pharmacologic regimen for secondary prevention of ischemic stroke and transient ischemic attack (TIA).
5. Recommend risk factor modification strategies to prevent a recurrent event for patients with SIHD, PAD, and ischemic stroke/TIA.

Anticoagulation

Faculty: Paul P. Dobesh, Pharm.D., FCCP, FACC, FAHA, BCPS, BCCP

Professor of Pharmacy Practice and Science

University of Nebraska Medical Center

College of Pharmacy

Omaha, Nebraska

Lecture Time: 1.5 hours

Key Words: Cardiology, Anticoagulation, Preventative Medicine, Reversal Agents

At the end of this activity, you will be able to:

1. Recommend a patient-specific pharmacotherapy plan to reduce the risk of stroke in patients with atrial fibrillation (AF).
2. Devise an evidence-based pharmacotherapy plan for preventing and treating venous thromboembolism (VTE).
3. Analyze the need for anticoagulation in patients with AF or VTE.
4. Determine appropriate reversal strategies for patients at risk of bleeding, or actively bleeding while receiving anticoagulation therapy.
5. Determine appropriate selection and dosing of anticoagulant therapy on the basis of patient-specific factors and drug interactions.
6. Evaluate literature and clinical implications of data for patients receiving anticoagulant agents.

Arrhythmias

Faculty: Zachary R. Noel, Pharm.D., BCCP, BCPS

Assistant Professor

University of Maryland School of Pharmacy

Baltimore, Maryland

Lecture Time 1.5 hours

Key Words: Cardiology, Arrhythmias, Antiarrhythmic Agents

At the end of this activity, you will be able to:

1. Describe the principles of basic electrocardiogram (ECG) interpretation.
2. Distinguish risk factors and etiologies, clinical features, signs and symptoms, and goals of therapy of sinus bradycardia, atrial fibrillation (AF), supraventricular tachycardia (SVT) (including Wolff-Parkinson-White syndrome [WPW]), premature ventricular complexes (PVCs), and ventricular tachycardia (VT).
3. Compare and contrast appropriate pharmacologic and nonpharmacologic treatment options for the management of sinus bradycardia, AF, SVT, PVCs, and VT.
4. Compare and contrast the mechanisms of action of drugs used for ventricular rate control and conversion to and maintenance of sinus rhythm in patients with AF.
5. Recommend strategies to improve transitions of care between inpatient and outpatient settings for patients on antiarrhythmic drugs.
6. Develop evidence-based patient-specific pharmacotherapy plans for patients with symptomatic sinus bradycardia, AF, SVT (including WPW), PVCs, and VT.
7. Assess common and important drug-drug interactions and adverse effects associated with drugs used for the management of arrhythmias and their complications.

Drug-Induced Cardiovascular Disease and Drugs to Avoid in Cardiovascular Disease

Faculty: Genevieve M. Hale, Pharm.D., BCPS, BCCP, CPh

Associate Professor

Nova Southeastern University College of Pharmacy

Palm Beach Gardens, Florida

Lecture Time: 1.5 hours

Key Words: Cardiology, Cardiovascular Disease, Medication Safety

At the end of this activity, you will be able to:

1. Identify potential drug-induced cardiovascular diseases.
2. Analyze a medication list to determine causative agents for common drug-induced cardiovascular diseases.
3. Evaluate potential medications that can contribute to the development of torsades de pointes.
4. Review anticancer therapies that cause cardiovascular toxicities.
5. Evaluate patient characteristics and laboratory values to assess the risk of heparin-induced thrombocytopenia and develop an appropriate treatment plan.

Chronic Heart Failure

Faculty: Theodore Berei Pharm.D., MBA, BCPS, BCCP

Clinical Pharmacist, Advanced Heart Failure and Transplant Cardiology

University of Wisconsin Hospitals and Clinics

Madison, Wisconsin

Lecture Time: 1.5 hours

Key Words: Cardiology, Chronic Heart Failure

At the end of this activity, you will be able to:

1. Given a patient with heart failure (HF), describe the classifications, staging, clinical presentation, etiologies, and diagnostic considerations.
2. Describe the pathophysiology of HF, focusing on the role that neurohormonal and other vasoactive agents play in HF progression.
3. Given a patient with chronic HF, devise an appropriate pharmacologic and nonpharmacologic therapeutic plan, with an emphasis on guideline-directed therapy and management.
4. Given a patient with chronic HF and several comorbidities, devise an appropriate evidence-based pharmacotherapy plan addressing specific comorbidities related to HF.

Acute Decompensated Heart Failure

Lecture Time 1.5 hours

Faculty: Stormi E. Gale, Pharm.D., BCCP, BCPS

Clinical Pharmacist, Cardiology Subject Matter Expert

Novant Health Matthews Medical Center

Matthews, North Carolina

Key Words: Cardiology, Cardiovascular Disease, Heart Failure

At the end of this activity, you will be able to:

1. Classify a patient with acute decompensated heart failure (ADHF) into a hemodynamic subset based on signs/symptoms, laboratory values, and hemodynamic measures obtained via pulmonary artery catheter (PAC) monitoring.
2. Design an initial pharmacotherapeutic treatment and monitoring plan for a patient with ADHF based on hemodynamic subset.
3. Devise a modified treatment and monitoring plan in a patient with ADHF and diuretic resistance.
4. Compare and contrast the use of intravenous (IV) vasodilators and positive inotropes in the treatment of ADHF, and among the agents within each drug class.
5. List strategies for reducing the risk of heart failure (HF) readmission among patients recovering from ADHF.

Heart Transplant and Mechanical Circulatory Support

Faculty: Douglas L. Jennings, Pharm.D., FCCP, FACC, FAHA, FHSA

Associate Professor of Pharmacy Practice, Long Island University

Clinical Pharmacist, Heart Transplant and LVAD Team

New York Presbyterian Hospital Columbia University Irving Medical Center

New York, New York

Lecture Time 1.5 hours

Key Words: Cardiology, Cardiovascular Disease, Heart Failure, Transplantation

At the end of this activity, you will be able to:

1. Evaluate levels of risk in the heart transplant candidate.
2. Derive rational peri- and postoperative rejection mitigation strategies in heart transplant recipients.
3. Devise effective thromboprophylactic strategies for patients receiving percutaneous ventricular assist device support.
4. Construct safe and effective drug therapy regimens for patients receiving extracorporeal membrane oxygenation support.
5. Design effective treatment plans for patients with complications of durable left ventricular assist device therapy.

Acute Coronary Syndrome

Faculty: Nathan J. Verlinden, Pharm.D., BCPS, BCCP

Cardiology Clinical Pharmacy Specialist

Allegheny General Hospital

Pittsburgh, Pennsylvania

Lecture Time 1.5 hours

Key Words: Cardiology, Cardiovascular Disease, Advanced Cardiac Life Support, Anticoagulation

At the end of this activity, you will be able to:

1. Distinguish between reperfusion strategies for acute coronary syndrome (ACS): ST-segment elevation myocardial infarction (STEMI) and non-ST-segment elevation (NSTEMI) ACS.
2. Devise a pharmacotherapeutic treatment plan for a patient with STEMI undergoing primary percutaneous coronary intervention (PCI) and for a patient with NSTEMI-ACS undergoing an early invasive or ischemia-guided approach.
3. Differentiate between the best possible pharmacologic options for preventing thrombotic events in the acute management of ACS.
4. Analyze differences in evidence, pharmacology, pharmacokinetics, drug-drug interactions, monitoring, and adverse events between the P2Y₁₂ inhibitors and anticoagulants used in ACS management.
5. Devise an individualized evidence-based treatment plan for patients in need of secondary prevention post-ACS, including mortality-reducing therapies.

Cardiovascular Emergencies

Faculty: Steven P. Dunn, Pharm.D., FCCP, FAHA, BCCP

Lead Pharmacist, Heart & Vascular

University of Virginia Health System

Charlottesville, Virginia

Lecture Time: 1.5 hours

Key Words: Cardiology, Cardiovascular Disease, Advanced Cardiac Life Support, Emergency Medicine, Shock

At the end of this activity, you will be able to:

1. Choose appropriate management pathways/treatment for a patient with cardiac arrest according to patient presentation.
2. Differentiate between the various categories of shock.
3. Select the optimal management strategies for the various types of shock.
4. Construct a pharmacotherapy regimen for the various hypertensive crises.
5. Select an appropriate management plan for a patient presenting with acute aortic syndrome.
6. Design a pharmacotherapy plan for the management of acute ischemic stroke.

Pulmonary Arterial Hypertension

Faculty: James C. Coons, Pharm.D., FCCP, FACC, BCCP

Professor University of Pittsburgh School of Pharmacy

Clinical Pharmacist, Cardiology UPMC

Pittsburgh, Pennsylvania

Lecture Time: 1.25 hours

Key Words: Cardiology, Cardiovascular Disease, Pulmonary Hypertension

At the end of this activity, you will be able to:

1. Describe the classification of pulmonary hypertension and implications for treatment.
2. Discuss the importance of pulmonary arterial hypertension (PAH) pathobiology and the role of various pathways as treatment targets in the development of PAH-specific treatment.
3. Define treatment goals for the management of PAH.
4. Outline targeted medications for PAH, including indications, dosing, monitoring, and their place within current treatment algorithms.
5. Identify common adverse effects and drug interactions associated with PAH medications.
6. Highlight appropriate treatment approaches for the management of decompensated PAH.
7. Design a treatment plan for a patient with PAH.

Specialized Topics in Cardiovascular Disease

Faculty: Scott Bolesta, Pharm.D., FCCP, FCCM, BCPS

Associate Professor of Pharmacy Practice

Wilkes University

Wilkes-Barre, Pennsylvania

Lecture Time: 1.5 hours

Key Words: Cardiology, Cardiovascular Disease, Infectious Disease, Anticoagulation

At the end of this activity, you will be able to:

1. Recommend empiric antibiotic therapy for patients with suspected infective endocarditis (IE).
2. Develop a therapeutic plan regarding medication therapy for patients with IE or patients requiring prophylactic therapy for IE prevention.
3. Identify patients who require IE prophylactic therapy.
4. Develop a treatment plan for patients with pericarditis.
5. Recommend appropriate therapy for patients with myocarditis.
6. Plan a medication therapy regimen for patients with valvular heart disease.

Translation of Evidence into Practice

Faculty: William L. Baker, Pharm.D., FCCP, FACC, FAHA, FHFS

Associate Professor of Pharmacy Practice

University of Connecticut School of Pharmacy

Storrs, Connecticut

Lecture Time 1.5 hours

Key Words: Cardiology, Calculations, Clinical Trials, Evidence-based Medicine, Research, Statistics

At the end of this activity, you will be able to:

1. Identify different types of data (nominal, ordinal, continuous) to determine the appropriate type of statistical test (parametric vs. nonparametric).
2. Select appropriate statistical tests based on the anticipated sample distribution, data type, and study design.
3. Identify the most appropriate study design to answer a given research question.
4. Describe the key tenets of internal and external validity of cardiovascular-related trials.
5. Describe the advantages and disadvantages of surrogate and composite outcomes in cardiovascular studies.

Principles of Cardiology Pharmacy Practice Administration

Faculty: Dustin D. Spencer, Pharm.D., MBA, FCCP, BCPS, BCCP

Clinical Director, Cardiopulmonary Diseases

Cardinal Health

Martinsville, Indiana

Lecture Time: 1.5 hours

Key Words: Cardiology, Compliance, Cultural Competence, Drug Information, Food and Drug Administration, Administration, Adverse Drug Reactions, JCAHO, Law, Medication Errors, Medication Safety, Pharmacoeconomics, Quality Improvement

At the end of this activity, you will be able to:

1. Develop policies, procedures, and clinical protocols related to the medication use process.
2. Identify formulary management activities to improve the prescribing of safe, effective, and affordable treatments in an organization.
3. Describe strategies to plan for and respond safely and efficiently to drug product shortages.
4. List high-risk medications and medication-related processes that are suited for a medication use evaluation (MUE) and be capable of managing the MUE process.
5. Describe national quality initiatives and regulatory requirements aimed at improving health care delivery and patient health outcomes.
6. Review pharmacoeconomic principles and their application to patient care.
7. Compare a medication error, adverse drug event (ADE), adverse drug reaction (ADR), and preventable ADE.
8. Design an ADE reporting program, including committee structure, committee reporting mechanisms, and methods of detecting, reporting, and managing ADEs.