PURPOSE:
To guide AzPC network providers in the diagnosis and treatment of Stable Coronary Heart Disease (CHD). The goal is to prevent hospitalization and re-admission, to clinically improve symptoms, and to achieve best practice in managing CHD patients. This CPG is written based on literature by 1) Centers for Disease Control and Prevention (CDC), 2) American Heart Association (AHA)/American College of Cardiology (ACC) Guidelines for Secondary Prevention for Patients With Coronary and Other Atherosclerotic Vascular Disease: 2006 Update, 3) UpToDate: Stable Ischemic Heart Disease: Overview of Care, last updated Aug 12, 2014 and literature current through Nov 2014, and 4) 2014 AHA/ACC Guidelines for the Management of Patients with non-ST-Elevation Acute Coronary Syndromes: A report of the ACC and AHA Task Force on Practice Guidelines.

This CPG is not intended to replace a physician’s clinical medical judgment which should be based on current medical knowledge and practices.

FINDINGS:
Coronary Heart Disease (CHD) is the number one killer in the United States and worldwide. About 600,000 people die of heart disease in the United States every year—that is one in four deaths. CHD is the leading cause of death in both men and women. Coronary heart disease alone costs the United States $108.9 billion each year. This total includes the cost of health care services, medications, and lost productivity. Risk factors of CHD include a positive family history, male gender, blood lipid abnormalities, diabetes mellitus, hypertension, physical inactivity, abdominal obesity, cigarette smoking, and excessive alcohol. Smoking remains the number one preventable cause of cardiovascular disease worldwide.

RECOMMENDATIONS:
• To control and monitor signs and symptoms of CHD and provide maximum medical intervention.
• High-Risk Team, Hospitalist Team, Primary Care Physician, Case Management/Social Workers, Specialists and other ancillary services to work together with effective CHD guidelines, as reported by American Heart Association and American College of Cardiology.
ATTACHMENTS:

None.
GOAL

To provide guidelines for:

- Early and ongoing control of coronary heart disease symptoms through lifestyle management and pharmacotherapy to reduce complications, improve outcomes and life expectancy.
- Achieving optimal pharmacotherapy with minimal or no side effects
- Minimizing the need for acute services (ER encounters, urgent care, and hospitalizations)

ASSESSMENT AND DIAGNOSIS:

- **CHD** is present when a patient has one or more symptoms, signs, or complications from an inadequate supply of blood to the myocardium. This is most commonly due to obstruction of the epicardial coronary arteries due to atherosclerosis.
- **Stable CHD** if symptoms are manageable with medical or revascularization therapy.
- **Angina Pectoris** occurs when myocardial oxygen demand exceeds oxygen supply. It is considered stable when the chest discomfort is predictable and reproducible at a certain level of exertion and relieved with rest or nitroglycerin.
- **Diagnosis**: ECG, stress testing for diagnosis and prognosis.
- **hsCRP**: inflammatory marker: hs (high sensitivity) CRP levels <1, 1-3, >3 mcg/mL identify patients at low, intermediate, and high risk for future cardiovascular events, respectively.
- **Indications for coronary angiography and revascularization**: angina which interferes with patient’s lifestyle despite maximal tolerable medical therapy and patients with high risk criteria and selected intermediate-risk patients on noninvasive testing, regardless of angina severity. Can also be used for patients with atypical symptoms and equivocal findings on stress testing.
- **Coronary Angiography is the gold standard for diagnosis of coronary atherosclerosis.**
- **Doppler Echocardiogram**: Indicated in patients with prior myocardial infarction, symptoms or signs of heart failure, undiagnosed heart murmur, and/or complex ventricular arrhythmias.

RECOMMENDED THERAPIES:

- **Routine Outpatient Management**: at each visit, establish change in physical activity, change in angina symptoms, tolerance and compliance with medical program, modification of risk factors, and the development of new or worsened comorbid illnesses.
- Complete **smoking cessation** program, limit exposure to tobacco smoke; counseling, referral to programs; or pharmacotherapy.
- Prescribed **exercise program**
- **Blood Pressure Control**: as tolerated, add blood pressure medications, treating initially with beta-blockers with addition of other drugs as needed
- **Lipid Management**: Prescribe maximum dose of statin therapy tolerated.
- **Glycemic Control in diabetics**
- **Alcohol moderation**
- **Weight reduction in overweight and obese patients**: initial goal of weight loss should be to reduce body weight by 10% from baseline and with success, further weight loss can be attempted
- **Sodium reduction**
- **Dietary counseling**: emphasis on increased consumption of fresh fruits, vegetables, and low-fat dairy products.
• Stress reduction and treatment of underlying depression and anxiety.
• Annual influenza vaccine
• Pneumococcal vaccine
• Cardiac rehabilitation
• Low- and intermediate-risk patients whose symptoms are controlled on medical therapy can be managed without intervention while high risk patients or those with refractory angina should undergo coronary angiography and revascularization with either percutaneous coronary intervention (PCI) or coronary artery bypass graft surgery (CABG).

Pharmacotherapy/Antianginal therapy:
• **Beta-blockers**: first line therapy to reduce anginal episodes and improve exercise tolerance. They relieve anginal symptoms by reducing both heart rate and contractility. Also, they have been proven to prevent reinfarction and to improve survival in patients who have sustained a myocardial infarction. Do not use in vasospastic angina.
• **Calcium channel blockers** (dihydropyridine-type): these are used in combination with beta-blockers when initial treatment with beta-blockers is not successful or as a substitute for a beta-blocker when contraindicated or not tolerated. They relieve symptoms by causing coronary and peripheral vasodilatation and reducing contractility.
• **Nitrates**: sublingual nitrates are first line therapy for the treatment of acute angina symptoms. Long acting nitrates are added to beta blockers to control stable angina. In patients with exertional stable angina, chronic nitrate therapy improves exercise tolerance, time to onset of angina, and ST-segment depression during exercise testing.
• **Newer therapies**: Ranolazine, a late sodium channel blocker
• **ACE inhibitors**: does not improve angina but is recommended in subsets of patients with hypertension, diabetes mellitus, a left ventricular ejection fraction < 40%, or chronic kidney disease.
• **Aspirin**: In absence of contraindication, all patients should be treated with aspirin.
• **Clopidogrel**: alternative for patients who have aspirin allergy.

Transfer to higher level of care for Chest Pain/Acute Coronary Syndrome (ACS):
• Hallmark of ACS is sudden imbalance between myocardial oxygen consumption and demand which is usually the result of coronary artery obstruction.
• Clinical suspicion for or electrocardiographic evidence of acute myocardial ischemia or myocardial infarction (MI)
• Active persistent chest pain
• Further monitoring required, serial cardiac enzymes and ECGs
• Signs and Symptoms concerning for acute coronary syndrome: Chest Pain or discomfort, shortness of breath, upper body pain or discomfort in the arms, back, neck, jaw, or upper stomach; lightheadedness, nausea, feeling of impending doom, fatigue; diaphoresis, hypotension, S3 or S4 gallop, pulmonary crackles, or elevated jugular venous pressure; unexplained new onset or increased exertional dyspnea; signs of heart failure
• Consider atypical presentations in women, elderly, and patients with diabetes.
• Factors that increase probability of possible ACS includes older age, male gender, positive family history of CAD, and the presence of peripheral arterial disease, diabetes mellitus, renal insufficiency, prior MI, and history of previous coronary revascularization.
• Patients with suspected ACS and high-risk features should be transported to the emergency department by Emergency Medical Services.
• Post hospital patient contact should be within one week following discharge to ensure patient understanding and compliance with treatment plan.
PATIENT EDUCATION

General Counseling
- Explanation of CHD and reason for symptoms/expected symptoms
- Signs and Symptoms of ACS and what to do if they occur
- Explanation of treatment/plan of care
- Clarification of patient’s responsibilities
- Importance of cessation of tobacco use
- Role of family members or other caregivers in the treatment/plan of care
- Importance of obtaining vaccinations against influenza and pneumococcal disease
- Importance of compliance with treatment/plan of care
- Medication counseling: likely side effects, importance of compliance
- Dietary recommendations
- Activity recommendations, including cardiac rehabilitation if indicated and discussion of sexual activity

Prognosis
- Life expectancy
- Advance directives

SPECIALIST INVOLVEMENT
- Cardiology referral for complete cardiac evaluation and continued follow up
- Cardiothoracic Surgeon if recommended by cardiologist for CABG.
- Complex Care Physician for additional support in managing CHD patients