

ACTIONS	FREQUENCY
ASSESSMENT FOR HYPERTENSION	At each visit
FASTING LIPID PROFILE	At least annually
SCREENING FOR ABNORMAL GLUCOSE METABOLISM	At least every three years
FLU AND PNEUMONIA VACCINE	Annually/Initially
SMOKING CESSATION COUNSELING	Each provider visit
DEPRESSION SCREENING	At least annually
MEMBER EDUCATION	Initially/Ongoing
Low Sodium Diet in HF and Hypertension Cholesterol Management Weight Management Exercise Counseling	Initially/Ongoing
PHARMACOLOGIC THERAPY FOR HF ACE Inhibitors/ARB Beta-blockers for systolic dysfunction Aldosterone antagonist for advanced heart failure Diuretics Digoxin if systolic heart failure and continued symptoms despite optimal therapy	Initially/Ongoing
PHARMACOLOGIC THERAPY FOR CAD ACE Inhibitors/ARB Beta-blockers Aspirin Statin Nitroglycerin for patients with continued angina episodes	Initially/Ongoing
Ejection fraction	Baseline and with change in symptoms



Reference List

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- ACC/AHA Guideline Update for the Management of Patients with Chronic Stable Angina. *Circulation*, 2003; 107: 149-158.
- Heart Protection Study of cholesterol lowering with simvastatin in 20,536 high-risk individuals: a randomized placebo-controlled trial. *Lancet*. July 6, 2002. Vol 360, 7-22.
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- AHA Scientific Statement. Primary Prevention of Ischemic Stroke. *Circulation*, 2001; 103: 163-182.
- A Comparison of Rate Control and Rhythm Control in Patients with Recurrent Persistent Atrial Fibrillation. *The New England Journal of Medicine*, 2002; 347 (23): 1834.
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- U.S. Preventive Services Task Force. Guide to Clinical Preventive Services. Depression. Third Edition, 2000-2003.



Care Guide for Cardiovascular Disorders

These guidelines are intended as an educational reference and do not supercede the clinical judgment of the treating physician with respect to appropriate and necessary care for a particular patient. The clinical references from which these guidelines are taken are listed at the end of this document.

Care Guide for **CARDIOVASCULAR DISORDERS**

SUGGESTED GUIDELINES	PROCESS	IMPORTANT FINDINGS, MEASUREMENTS AND VALUES	INTERVENTIONS	FOLLOW-UP
Blood Pressure Monitoring ^{1,2,3,4}	<ul style="list-style-type: none"> Measure and manage to target BP levels. Adjust treatment as necessary, at each visit. 	<p>Blood pressure goal:</p> <ul style="list-style-type: none"> < 130/85 mm Hg and lower if tolerated for patients with CHD and HF. < 130/80 mm Hg for patients with diabetes or chronic kidney disease. < 120/80 mm Hg is optimal. 	<p>If BP elevated over pre-hypertension stage (>139) or above goal:</p> <ul style="list-style-type: none"> Lifestyle modification educate about DASH diet. Inform patient of BP goals. Encourage home self-monitoring. Pharmacology: <ul style="list-style-type: none"> For most patients, start with a low dose of a once-daily drug. Combination therapy as appropriate, and titrate dose based on age, need and response to achieve blood pressure targets. 	<ul style="list-style-type: none"> Measure and evaluate management at each visit. Assess for medication side-effects. Review home BP record.
Lipid Evaluation ⁵	<p>In all adults 20 years of age and over:</p> <ul style="list-style-type: none"> Measure fasting lipoprotein profile. <p>If fasting state not available:</p> <ul style="list-style-type: none"> Measure non-fasting TC and HDL. Proceed to fasting lipoprotein profile if TC 200mg/dL or HDL < 40 mg/dL. Assess patient risk status. Treatment decisions based on LDL-C and CHD risk. CHD risk equivalents include: <ul style="list-style-type: none"> 10-year risk > 20%. Symptomatic carotid artery disease. Peripheral arterial disease. Abdominal aortic aneurysm. Diabetes Mellitus. 	<p>Lower risk: 0-1 risk factor:</p> <ul style="list-style-type: none"> Goal – LDL-C < 160 mg/dL. <p>Moderate risk: 2+ risk factors and a 10 year risk < 10%:</p> <ul style="list-style-type: none"> Goal – LDL-C < 130 mg/dL. <p>Moderately high risk: 2+ risk factors and a 10 year risk 10 - 20%:</p> <ul style="list-style-type: none"> Goal – LDL-C < 100 mg/dL. <p>High risk: CHD or CHD risk equivalent (10 year risk > 20%):</p> <ul style="list-style-type: none"> Goal – LDL-C < 100 mg/dL. Optional – LDL-C < 70 mg/dL. <p>Very high risk: example - Diabetes and overt cardiac disease or progressive CAD despite LDL < 100:</p> <ul style="list-style-type: none"> Goal – LDL-C < 70 mg/dL. 	<ul style="list-style-type: none"> Initiate Therapeutic Lifestyle Interventions (TLC) if LDL-C ≥ 160 mg/dL. Drug therapy if ≥ 190 mg/dL. TLC if LDL-C ≥ 130 mg/dL. Drug therapy if ≥ 160 mg/dL. TLC and Drug therapy if LDL-C ≥ 130 mg/dL. TLC and Drug therapy if LDL-C ≥ 100 mg/dL. TLC and Drug therapy if LDL-C ≥ 100 mg/dL. If LDL-C is < 100 mg/dL, drug therapy is appropriate to achieve LDL-C < 70 mg/dL. 	<ul style="list-style-type: none"> After drug therapy, measure LDL-C at 6 weeks. If goal not achieved, therapy can be intensified. Re-measure LDL-C at 12 weeks and every 4 to 6 months to assess response to therapy. Monitor liver function tests before treatment with statins and periodically thereafter to assess for drug toxicity. Monitor CPK in patients with muscle discomfort.
Screening for Abnormal Glucose Metabolism ^{1,6}	<ul style="list-style-type: none"> All adults over 45 years old. Screening should be considered at a younger age or more frequently in individuals with BMI ≥ 25 kg/m² or with risk factors. History of gestational diabetes, family history of diabetes, or high triglycerides +/- low HDL-C. Screen overweight children and adolescents with risk factors. 	<ul style="list-style-type: none"> FPG ≥ 100 mg/dL. Symptoms of DM and a casual glucose ≥ 200 mg/dL. Two-hour PG ≥ 140 mg/dL during a 75gm OGTT. In the absence of unequivocal hyperglycemia with acute metabolic decompensation, these criteria should be confirmed by retesting on a different day. 	<p>If prediabetes:</p> <ul style="list-style-type: none"> Reinforce Therapeutic Lifestyle Changes (TLC). <ul style="list-style-type: none"> 7% weight loss. Control carbohydrate consumption. Exercise 150 minutes/week. <p>If diabetes:</p> <ul style="list-style-type: none"> Follow diabetes guidelines. 	<ul style="list-style-type: none"> If normal, repeat at least every three years. For high-risk patients, repeat annually.
Ischemic Heart Disease Therapy ^{7,8,9,10}	<ul style="list-style-type: none"> All patients with known coronary artery disease, stable angina, unstable angina, post-coronary intervention (PCI) or history or evidence of prior MI. 	<ul style="list-style-type: none"> Document appropriate patients on: <ul style="list-style-type: none"> Aspirin. Beta-Blockers. ACE-I or Angiotensin receptor blocker (ARB). Statins. Nitrates. Document ejection fraction (EF) in post-MI patients. 	<ul style="list-style-type: none"> Aspirin therapy – at least 81 mg daily, continue indefinitely unless contraindicated. If aspirin therapy contraindicated, Clopidogrel may be used indefinitely. Consider combination of Clopidogrel and aspirin for patients post-MI. Combination of Clopidogrel and aspirin for patients post-PCI, especially drug-eluting stent (minimum 6 months). Beta-blocker – in all patients indefinitely, especially those post-MI or post-PCI. ACE inhibitor – treat all patients indefinitely, ARB if ACE-I intolerant.** Statin – in all patients. Nitrates – for patients with continued angina episodes. 	<ul style="list-style-type: none"> Exercise testing based on risk and symptoms. Assess medication compliance and smoking cessation with each visit.
Assess Left Ventricular Function ¹¹	<ul style="list-style-type: none"> Measure EF in all patients with signs or symptoms of heart failure. 	<ul style="list-style-type: none"> Ejection fraction measurement to differentiate systolic dysfunction from other forms of heart failure. 	<ul style="list-style-type: none"> Diagnostic testing may include: <ul style="list-style-type: none"> Echocardiogram or radionuclide ventriculography. Consider stress testing to rule out ischemia. B-Type Natriuretic Peptide may be helpful to rule out HF. There is limited data to recommend BNP for serial monitoring of heart failure, or for titration of medications. 	<ul style="list-style-type: none"> Repeat assessment of EF if significant change in clinical status or if treatment has been received that might have a major effect on cardiac function.
Systolic Heart Failure ^{11,12,13,14,15}	<ul style="list-style-type: none"> Identify patients in symptomatic stages of HF. Stage B – Heart disease without symptoms of HF. Stage C – Heart disease with history or current symptoms of HF. Stage D – End-stage HF symptoms despite maximal medical therapy requiring specialized interventions. 	<ul style="list-style-type: none"> Document structural heart disease without symptoms. Document ACE inhibitor or ARB – All patients should receive an ACE I or ARB unless they have demonstrated intolerance or have a contraindication. Document intolerance to ACE inhibitor. Document Beta-blocker – All patients with stable NYHA Class I to IV should receive a Beta-blocker unless contraindicated. <ul style="list-style-type: none"> For patients with stable NYHA Class IV HF, administration of Beta-blockers can be complex, and patients should be monitored by physicians with expertise in this area. 	<ul style="list-style-type: none"> ACE inhibitors and Beta-blockers in appropriate patients; ARB only if ACE-I intolerant. ACE inhibitors/ARB – titrate to target doses used in clinical trials. ARB if allergy, cough or angioedema with ACE inhibitors.** Consider Hydralazine/Nitrate combination if ACE-I and ARB intolerant due to hypotension or renal insufficiency, or in addition to ACE-I or ARB in African American patients. Beta-blocker therapy should be initiated at low dose once patient is clinically stable and euvoletic and up-titrated slowly. Diuretics to control the fluid retention of heart failure. Aldosterone antagonist for patients with NYHA class IV HF (consider in class III). Contraindicated if K+ > 5.0 mmol/L and serum creatinine > 2.5 mg/dL. Consider Digoxin if symptomatic (class II to IV). Daily weights/dietary instruction. Cardiology referral for patients who have EF < 35% or who remain symptomatic despite basic medical therapy. 	<ul style="list-style-type: none"> Measure K+ and serum creatinine levels at least 7 and 30 days after starting aldosterone antagonist and monthly thereafter. Check renal function and serum K+ levels one to two weeks after starting ACE inhibitors and periodically thereafter. Measure K+ after change in dose of any drug that may affect potassium balance. Consider serum digoxin measurement in two to three weeks after starting new drug in elderly or in those with impaired renal function.
Diastolic Heart Failure (Preserved Systolic Function) ^{10,13}	<ul style="list-style-type: none"> Consider in patients with heart failure symptoms with preserved EF – especially in elderly patients with hypertension. 	<ul style="list-style-type: none"> Exclude other possible causes that present in similar manner. 	<ul style="list-style-type: none"> Control: <ul style="list-style-type: none"> Blood Pressure, usually with ACE-I or ARB. Ventricular rate in patients with atrial fibrillation present. Volume overload with diuretics. Emerging evidence suggests benefits of ARB in patients with preserved systolic function. 	<ul style="list-style-type: none"> Based on pharmacologic agents of choice.
Atrial Fibrillation/Flutter Management ^{16,17,18}	<ul style="list-style-type: none"> Oral anticoagulation. Rate control. Rhythm control. 	<ul style="list-style-type: none"> Document all patients with chronic or paroxysmal Atrial Fibrillation (AF). Document patients with AF at high risk for ischemic stroke. <ul style="list-style-type: none"> Prior TIA. Systemic embolus or stroke. Hypertension. Poor LV function (EF ≤ 35%). Rheumatic MV disease. Rate control or sinus rhythm. 	<ul style="list-style-type: none"> Warfarin is the preferred agent for the prevention of ischemic/embolic stroke, except in very low-risk patients: <ul style="list-style-type: none"> Age ≥ 60, with risk factors for ischemic stroke or age ≥ 75, warfarin. Age 60-74, no risk factors for ischemic stroke, warfarin or aspirin. Age < 60, no risk factors for ischemic stroke, aspirin. Antiarrhythmic drugs and/or cardioversion. 	<ul style="list-style-type: none"> For anticoagulated patients: <ul style="list-style-type: none"> Target INR 2.5 (range 2-3). At least weekly INR until stable. Monthly INR once stable. Extensive warfarin education.
Tobacco Use ^{3,8,10}	<ul style="list-style-type: none"> Smoking cessation. 	<ul style="list-style-type: none"> Document/offer treatment options if patient uses tobacco. Readiness to quit. 	<ul style="list-style-type: none"> Think: 5 As <ul style="list-style-type: none"> Ask about smoking. Advise user to quit. Assess willingness to quit. Assist user to quit (i.e.: refer to smoking cessation program and consider pharmacotherapy.) Arrange follow-up. Strongly consider use of pharmacologic adjuvants; they can double or triple smoking cessation rates. 	<ul style="list-style-type: none"> Call on quit date or within 72 hrs. to boost self-efficacy. Assess each visit: smoking status, weight gain, nicotine withdrawal symptoms.
Selective Preventive Health ^{2,3,6,19,20}	<ul style="list-style-type: none"> Aspirin therapy. Weight management. Physical activity. Substance abuse. Pneumonia – vaccination at least once as adult. Influenza – annual vaccination. 	<ul style="list-style-type: none"> Document appropriate patient on aspirin. Calculate BMI and measure waist: <ul style="list-style-type: none"> BMI Target: 18.5-24.9 kg/m². Waist Target: 35 inches for females, 40 inches for males. Assess risk to guide prescription. Assess for excessive use patterns. Document that each patient has a vaccination. If vaccination status is uncertain, vaccination is typically advisable. Document that each patient has a vaccination every year. 	<ul style="list-style-type: none"> Administer aspirin (81 mg) daily for patients at high risk for CVD. Prescribe weight management and physical activity programs. Encourage a minimum of 30 to 60 minutes of activity at least three to four times per week, as well as increasing activities of daily living. Advise medically supervised programs for moderate to high-risk patients. Refer to appropriate substance abuse program. Recommend TLC. Administer vaccine to all high-risk adults with CVD, unless contraindicated. Administer vaccine to all adults with CVD each year. 	<ul style="list-style-type: none"> Yearly. Monitor progress at each visit. Assess activity level at each visit. Assess at each visit. Document for each patient. Yearly.
Depression Screening ²¹	<ul style="list-style-type: none"> Screen for symptoms of depression. 	<ul style="list-style-type: none"> Document that each patient has been screened for symptoms of major depression over two weeks preceding visit. Coordinate care with psychiatrist or psychotherapist if involved in your patient's treatment. Consider using a patient self-rating depression scale such as the PHQ 8 or 9. 	<ul style="list-style-type: none"> Administer treatment and/or refer patients who meet criteria for depression to a behavioral specialist. Administer pharmacologic interventions as indicated: <ul style="list-style-type: none"> SSRI antidepressants are the preferred first choice since SSRIs do not have the adverse effects commonly seen with tricyclic antidepressants. 	<ul style="list-style-type: none"> Screening is suggested at subsequent visits. Evaluate response to depression treatment with three follow-up contacts in 12 weeks and adjust medication as indicated and/or confer with appropriate treating mental health specialists.
Discuss End of Life Issues	<ul style="list-style-type: none"> Discuss end of life issues during an appropriate visit. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Discuss patient's prognosis, end of life, palliative care, life supportive care, hospice, and advanced directives with patients while they are stable. 	<ul style="list-style-type: none"> Update end of life conversations yearly or more frequently as appropriate.

* Cardiovascular disorders (CVD) included in this guide relate to hypertension, coronary heart disease (CHD), heart failure (HF) and atrial fibrillation. ** There are some reports of angioedema with ARB.