

Coronary Artery Disease Clinical Practice Guidelines*

BP indicates blood pressure; CHD, coronary heart disease; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; and INR, international normalized ratio.

Risk Intervention and Goals	Recommendations
<p>Smoking</p> <p>Goal: Complete cessation. No exposure to environmental tobacco smoke.</p>	<p>Ask about tobacco use status at every visit.</p> <ul style="list-style-type: none"> • In a clear, strong, and personalized manner, advise every tobacco user to quit. • Assess the tobacco user's willingness to quit. Assist by counseling and developing a plan for quitting. • Arrange follow-up, referral to special programs, or pharmacotherapy. • Urge avoidance of exposure to secondhand smoke at work or home.
<p>B/P Control</p> <p>Goal: <140/90 mm Hg; <130/85 mm Hg if renal insufficiency or heart failure is present; or <130/80 mm Hg if diabetes is present.</p>	<p>Promote healthy lifestyle modification.</p> <ul style="list-style-type: none"> • For persons with BP of ≥ 130 mm Hg systolic or 80 mm Hg diastolic: Advocate weight reduction; reduction of sodium intake; consumption of fruits, vegetables, and low-fat dairy products; moderation of alcohol intake; and physical activity. • For persons with renal insufficiency or heart failure, initiate drug therapy if BP ≥ 130 mm Hg systolic or 85 mm Hg diastolic (≥ 80 mm Hg diastolic for patients with diabetes). • Initiate drug therapy for those with BP $\geq 140/90$ mm Hg if 6 to 12 months of lifestyle modification is not effective, depending on the number of risk factors present. • Add BP medications, individualized to other patient requirements and characteristics (e.g., age, race, need for drugs with specific benefits).
<p>Dietary Intake</p> <p>Goal: An overall healthy eating pattern.</p>	<ul style="list-style-type: none"> • Advocate consumption of a variety of fruits, vegetables, grains, low-fat or nonfat dairy products, fish, legumes, poultry, and lean meats. • Match energy intake with energy needs and make appropriate changes to achieve weight loss when indicated. • Modify food choices to reduce saturated fats (<10% of calories), cholesterol (<300 mg/d), and <i>trans</i>-fatty acids by substituting grains and unsaturated fatty acids from fish, vegetables, legumes, and nuts. • Limit salt intake to <6 g/d. • Limit alcohol intake (≤ 2 drinks/day in men, ≤ 1 drink/day in women) among those who drink.
<p>Aspirin</p> <p>Goal: Low-dose aspirin in persons at higher CHD risk (especially those with 10-y risk of CHD $\geq 10\%$).</p>	<ul style="list-style-type: none"> • Do not recommend for patients with aspirin intolerance. Low-dose aspirin increases risk for gastrointestinal bleeding and hemorrhagic stroke. Do not use in persons at increased risk for these diseases. Benefits of cardiovascular risk reduction outweigh these risks in most patients at higher coronary risk. • Doses of 75–160 mg/d are as effective as higher doses. Therefore, consider 75–160 mg aspirin per day for persons at higher risk (especially those with 10-y risk of CHD of $\geq 10\%$).

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<p>Blood Lipid Management:</p> <p>Primary goal:</p> <ul style="list-style-type: none"> LDL-C <160 mg/dL if ≤1 risk factor is present LDL-C <130 mg/dL if ≥2 risk factors are present and 10-y CHD risk is <20% LDL-C <100 mg/dL if ≥2 risk factors are present and 10-y CHD risk is ≥20% or if patient has diabetes. <p>Secondary goals (if LDL-C is at goal range): If triglycerides are >200 mg/dL, then use non-HDL-C as a secondary goal:</p> <ul style="list-style-type: none"> non-HDL-C <190 mg/dL for ≤ 1 risk factor; non-HDL-C <160 mg/dL for ≥ 2 risk factors and 10-y CHD risk ≤20%; non-HDL-C <130 mg/dL for diabetics or for ≥2 risk factors and 10-y CHD risk >20%. Other targets for therapy: triglycerides >150 mg/dL; HDL-C <40 mg/dL in men and <50 mg/dL in women. 	<p>If LDL-C is above goal range: Initiate additional therapeutic lifestyle changes:</p> <ul style="list-style-type: none"> Dietary modifications to lower LDL-C: <ul style="list-style-type: none"> <7% of calories from saturated fat, cholesterol <200 mg/d, and, if further LDL-C lowering is required, dietary options (plant stanols/sterols not to exceed 2 g/d and/or increased viscous [soluble] fiber [10–25 g/d]). Additional emphasis on weight reduction and physical activity. <p>Rule out secondary causes (liver function test, thyroid-stimulating hormone level, urinalysis).</p> <p>If LDL-C remains above goal range after 12 weeks of therapeutic lifestyle change, consider LDL-lowering drug therapy:</p> <ul style="list-style-type: none"> If ≥2 risk factors are present, 10-y risk is >10%, and LDL-C is ≥130 mg/dL; If ≥2 risk factors are present, 10-y risk is <10%, and LDL-C is ≥160 mg/dL; If ≤1 risk factor is present and LDL-C is ≥190 mg/dL. Start drugs and advance dose to bring LDL-C to goal range, usually a statin, but also consider bile acid-binding resin or niacin. If LDL-C goal not achieved, consider combination therapy (statin+resin, statin+niacin). <p>After LDL-C goal has been reached: Consider triglyceride level:</p> <ul style="list-style-type: none"> If 150–199 mg/dL, treat with therapeutic lifestyle changes. If 200–499 mg/dL, treat elevated non-HDL-C with therapeutic lifestyle changes and, if necessary, consider higher doses of statin or adding niacin or fibrate. If >500 mg/dL, treat with fibrate or niacin to reduce risk of pancreatitis. If HDL-C is <40 mg/dL in men and <50 mg/dL in women, initiate or intensify therapeutic lifestyle changes. <p>For higher-risk patients, consider drugs that raise HDL-C (e.g., niacin, fibrates, statins).</p>
<p>Physical activity:</p> <p>Goal: At least 30 min of moderate-intensity physical activity on most (and preferably all) days of the week.</p>	<ul style="list-style-type: none"> If cardiovascular, respiratory, metabolic, orthopedic, or neurological disorders are suspected, or if patient is middle-aged or older and is sedentary, consult physician before initiating vigorous exercise program. Moderate-intensity activities (40% to 60% of maximum capacity) are equivalent to a brisk walk (15–20 min per mile). Additional benefits are gained from vigorous-intensity activity (>60% of maximum capacity) for 20–40 min on 3–5 d/wk. Recommend resistance training with 8–10 different exercises, 1-2 sets per exercise, and 10–15 repetitions at moderate intensity ≥2 d/wk. Flexibility training and an increase in daily lifestyle activities should complement this regimen.

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<p>Weight Management:</p> <p>Goal: Achieve and maintain desirable weight (body mass index 18.5-24.9 kg/m²). When body mass index is ≥ 25 kg/m², waist circumference at iliac crest level ≤ 40 inches in men, ≤ 35 inches in women.</p>	<p>Initiate weight-management program through caloric restriction and increased caloric expenditure as appropriate.</p> <p>For overweight/obese persons, reduce body weight by 10% in first year of therapy.</p>
<p>Diabetes Management:</p> <p>Goals: Normal fasting plasma glucose (<110 mg/dL) and near normal HbA1c ($<7\%$).</p>	<p>Initiate appropriate hypoglycemic therapy to achieve near-normal fasting plasma glucose or as indicated by near-normal HbA1c.</p> <ul style="list-style-type: none"> • First step is diet and exercise. • Second-step therapy is usually oral hypoglycemic drugs: sulfonylureas and/or metformin with ancillary use of acarbose and thiazolidinediones. • Third-step therapy is insulin. Treat other risk factors more aggressively (e.g., change BP goal to $<130/80$ mm Hg and LDL-C goal to <100 mg/dL).
<p>Chronic Atrial fibrillation:</p> <p>Goals: Normal sinus rhythm or, if chronic atrial fibrillation is present, anticoagulation with INR 2.0–3.0 (target 2.5).</p>	<p>Irregular pulse should be verified by an electrocardiogram.</p> <p>Conversion of appropriate individuals to normal sinus rhythm.</p> <p>For patients in chronic or intermittent atrial fibrillation,</p> <ul style="list-style-type: none"> • Use warfarin anticoagulants to INR 2.0–3.0 (target 2.5). • Aspirin (325 mg/d) can be used as an alternative in those with certain contraindications to oral anticoagulation. Patients <65 years of age without high risk may be treated with aspirin.

This guideline is based upon recommendations of the American Heart Association (AHA): Guidelines for Primary Prevention of Cardiovascular Disease and Stroke: 2004 Update; ACC/AHA 2007 Guideline Update for the Management of Patients with Chronic Stable Angina; Adult Treatment Program (ATP) III Full Report (2001).

Full documentation is available at <http://circ.ahajournals.org/cgi/content/full/106/3/388/TBL2>; <http://circ.ahajournals.org/cgi/content/full/106/14/1893>; <http://www.nhlbi.nih.gov/guidelines/cholesterol/>

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**Clinical Practice Guidelines are reviewed at least every two years. Websites of nationally recognized sources from which guidelines have been adopted are reviewed regularly for changes and/or updates.*