

CVD prevention in women: A practice update

Which interventions should you consider recommending to women to reduce their risk of CVD? This comparison of the AHA's 2011 guidelines with USPSTF recommendations highlights the benefits of drawing upon both.

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Nearly 3 out of 4 (71.9%) US women (and 72.6% of men) ages 60 to 79 years have cardiovascular disease (CVD)—the leading cause of death despite marked improvement in mortality rates in the last 4 decades. In that same age group, the prevalence of cerebral vascular disease is 8.2% in women and 7.2% in men.¹

The age-adjusted death rate for all adults is 135.1 in 100,000 for coronary heart disease (CHD) and 44.1 in 100,000 for cerebral vascular disease. In 2007, CVD caused 34.5%

of deaths in women and 32.7% of deaths in men.¹

Evidence that CVD frequently manifests differently in women than in men led the American Heart Association (AHA) to issue recommendations for the prevention of CVD in women in 1999, and to follow with guidelines in 2004 and an update in 2007.²⁻⁴ However, the recommended interventions were, with a few exceptions, the same as the recommendations for men. But that's changed.

The latest update of the guidelines,

TABLE 1

AHA recommends these interventions for all women⁵

Avoid smoking (incorporates smoking prevention and cessation advice and assistance, including nicotine replacement, pharmacotherapy, and formal smoking cessation programs) and environmental tobacco smoke

Exercise (≥150 minutes of moderate exercise or ≥75 minutes of vigorous exercise per week, with additional benefit gained by more time and higher-level exercise)

Consume a healthy diet, rich in fruits and vegetables; whole-grain, high-fiber foods; and fish (at least twice a week); limit intake of saturated fat, cholesterol, alcohol, sodium, and sugar and avoid trans-fatty acids

Control your weight (maintain a BMI of <25 kg/m²)

Keep blood pressure <120/mm Hg through diet, exercise, and weight control; take medication for BP ≥140/90 mm Hg (or ≥130/80 mm Hg for women with diabetes or chronic kidney disease)

Maintain healthy lipid levels (LDL-C <100 mg/dL, HDL-C >50 mg/dL, triglycerides <150 mg/dL, and non-HDL-C [total cholesterol minus HDL] <130 mg/dL) through lifestyle and diet; consider medication for hyperlipidemia based on CVD risk and lipid levels

BMI, body mass index; BP, blood pressure; CVD, cardiovascular disease; HDL, high-density lipoprotein; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol.

TABLE 2

**CVD prevention in women:
Comparing AHA¹ and USPSTF recommendations^{5,6}**

	AHA	USPSTF
Screening for CVD risks		
Hypertension	Implied, but no specific recommendation	Recommends screening for high BP in women ≥18 y
Lipid disorders	Implied, but no specific recommendation	Recommends screening women ≥20 y for lipid disorders if they are at increased risk for CHD (evidence is stronger for women ≥45 y) No recommendation for or against routine screening for lipid disorders in women who are not at increased risk for CHD
Obesity	Implied, but no specific recommendation	Recommends screening all adult patients for obesity
Diabetes	Implied, but no specific recommendation	Recommends screening for asymptomatic adults with sustained BP (treated or untreated) >135/80 mm Hg Insufficient evidence to assess the balance of benefits and harms of screening asymptomatic adults with BP ≤135/80 mm Hg
Tobacco use	Implied, but no specific recommendation	Recommends asking all adults about tobacco use and providing tobacco cessation interventions for those who use tobacco products
Nontraditional risk factors	The role that novel CVD risk biomarkers (hs-CRP and advanced lipid testing) and imaging technologies (coronary calcium scoring assessment) is not yet well defined	Insufficient evidence to assess the balance of benefits and harms of using nontraditional risk factors* to screen asymptomatic women with no history of CHD
Screening for CVD		
Carotid artery stenosis	Not addressed, but implies it might be useful for classification	Recommends against screening for asymptomatic carotid artery stenosis in the general adult population
Peripheral artery disease	Not addressed, but implies it might be useful for classification	Recommends against routine screening for peripheral arterial disease
CHD or prediction of CHD	Not addressed, but implies it might be useful for classification	Recommends against routine screening with resting EKG, ETT, or EBCT scanning for coronary calcium for the presence of severe carotid artery stenosis or the prediction of CHD events in adults at low risk for CHD events Insufficient evidence to recommend for or against routine screening with EKG, ETT, or EBCT scanning for coronary calcium for the presence of severe carotid artery stenosis or the prediction of CHD events in adults at increased risk for CHD events
Behavioral counseling to reduce risk		
To promote physical activity	Sets physical activity targets but does not address how to achieve them	Insufficient evidence to recommend for or against behavioral counseling in primary care settings to promote physical activity

*Nontraditional risk factors included in this recommendation are high-sensitivity C-reactive protein, ankle-brachial index, leukocyte count, fasting blood glucose level, periodontal disease, carotid intima-media thickness, coronary artery calcification score on electron-beam computed tomography, homocysteine level, and lipoprotein(a) level.

AHA, American Heart Association; BP, blood pressure; CHD, coronary heart disease; CVD, cardiovascular disease; EBCT, electron-beam computed tomography; EKG, electrocardiography; ETT, exercise treadmill test; GI, gastrointestinal; hs-CRP, high-sensitivity C-reactive protein; MI, myocardial infarction; USPSTF, US Preventive Services Task Force.

	AHA	USPSTF
Behavioral counseling (continued)		
To promote weight loss	Sets ideal weight targets but does not address how to achieve them	<p>Recommends intensive counseling and behavioral interventions[†] to promote sustained weight loss for <i>obese</i> adults</p> <p>Insufficient evidence to recommend for or against the use of moderate (monthly) or low-intensity (less than once a month) counseling together with behavioral interventions to promote sustained weight loss in <i>obese</i> adults</p> <p>Insufficient evidence to recommend for or against the use of counseling of any intensity and behavioral interventions to promote sustained weight loss in <i>overweight</i> adults</p>
Tobacco use	Recommends smoking prevention and cessation advice and assistance, including nicotine replacement, pharmacotherapy, and formal smoking cessation programs	Recommends tobacco cessation interventions for those who use tobacco products
Risk-reduction interventions		
Aspirin	<p>Recommends use of aspirin in women with CHD unless it is contraindicated</p> <p>Says use of aspirin is reasonable in women with diabetes, unless it is contraindicated</p> <p>If aspirin is indicated but not tolerated, clopidogrel should be substituted.</p> <p>Aspirin may be reasonable for women <65 years for stroke prevention, but is not recommended for MI prevention.</p> <p>Aspirin can be useful for women ≥65 years if BP is controlled; benefit for stroke and MI prevention is likely to outweigh risk of GI bleeding and hemorrhagic stroke</p>	<p>Recommends the use of aspirin for women ages 55-79 years when the potential benefit of a reduction in ischemic stroke outweighs the potential harm of an increased risk of GI hemorrhage</p> <p>Insufficient evidence to assess aspirin for CVD prevention in women ≥80 years</p> <p>Recommends against the use of aspirin for stroke prevention in women <55 years</p>
Beta-carotene	Should not be used for prevention of CVD	Recommends against the use of beta-carotene supplements, either alone or in combination, for the prevention of cancer or CVD
Antioxidants and vitamins	Vitamins E, C, B6, B12, and folic acid should not be used for CVD prevention	Insufficient evidence to recommend for or against the use of supplements of vitamins A, C, or E; multivitamins with folic acid; or antioxidant combinations for the prevention of cancer or CVD
Hormonal therapy	Hormone therapy and selective estrogen-receptor modulators should not be used for CVD prevention	<p>Recommends against the routine use of combined estrogen and progestin for the prevention of chronic conditions in postmenopausal women</p> <p>Recommends against the routine use of unopposed estrogen for the prevention of chronic conditions in postmenopausal women who have had a hysterectomy</p>

[†]Defined by the USPSTF as >1 individual or group session per month for ≥3 months.

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TABLE 3

Cardiovascular disease: How the AHA classifies women's risk⁵

<p>High risk</p> <p>≥1 of the following:</p> <ul style="list-style-type: none"> Documented CVD Diabetes Chronic or end-stage renal disease 10-year predicted risk of CVD ≥10%*
<p>At risk</p> <p>≥1 of the following major risk factors:</p> <ul style="list-style-type: none"> Smoking Hypertension (BP ≥120/80 mm Hg, or treated hypertension) Hyperlipidemia (total cholesterol ≥200 mg/dL, HDL cholesterol <50 mg/dL, or treated dyslipidemia) Obesity Poor diet Physical inactivity Premature CVD in a first-degree relative (<55 years for men and <65 for women) Metabolic syndrome Subclinical atherosclerosis Poor exercise tolerance on a treadmill test Systemic autoimmune disease A history of preeclampsia, gestational diabetes, or PIH
<p>Ideal cardiovascular health</p> <p>All of the following:</p> <ul style="list-style-type: none"> Total cholesterol <200 mg/dL, untreated BP <120/80 mm Hg, untreated Fasting blood glucose <100 mg/dL, untreated BMI <25 mm/kg² Nonsmoking Healthy diet (rich in fruits and vegetables; whole-grain, high-fiber foods; and fish, especially oily fish such as salmon and mackerel, at least twice a week; with limited intake of saturated fat, cholesterol, alcohol, sodium, and sugar; and avoidance of trans-fatty acids) Physical activity (≥150 minutes per week at moderate intensity or ≥75 minutes per week at vigorous intensity)

*Calculation tools can be found at <http://hp2010.nhlbihin.net/atp/iii/calculator.asp> (for CHD) and at <http://www.westernstroke.org/PersonalStrokeRisk1.xls> (for stroke).

AHA, American Heart Association; BMI, body mass index; BP, blood pressure; CVD, cardiovascular disease; HDL, high-density lipoprotein; PIH, pregnancy-induced hypertension.

published earlier this year, focuses more on sex-based differences, with the addition of pregnancy complications as a major risk factor, for example. (See “AHA’s 2011 CVD guideline update: What’s new?” on page 425.) Highlights of the guidelines,⁵ including the recommended interventions for all women (TABLE 1) and a comparison of its recommendations with those of the US Preventive Services Task Force (USPSTF)⁶ (TABLE 2)—are detailed here.

The AHA’s assessment of risk

The new guideline update recommends assessing each woman’s CVD risk and placing her into one of 3 risk groups—high risk, at risk, and ideal cardiovascular health (TABLE 3)—then using an algorithm to determine which preventive interventions to recommend based on her risk level.

This classification approach is challenging, for several reasons. It lumps women with markedly different risk profiles into the “at risk” group, a category that will likely apply to a high proportion of women. It also appears to encourage the use of diagnostic tests for subclinical vascular disease, for which there is no evidence of effectiveness. In addition, some of the terms used in the at-risk criteria, such as “physical inactivity” and “poor diet,” are vague.

Some recommendations apply to all women, regardless of risk

The AHA recommendations for all women (TABLE 1) include smoking prevention or cessation, maintenance of optimal weight, regular physical activity, and a diet aimed at preventing CVD. The guidelines also emphasize that major CVD risks should be controlled, with either lifestyle and diet modifications (preferably) or pharmacotherapy. The aggressiveness of control targets depends on the level of risk and the presence of other risk factors.

The guidelines recommend *against* some interventions that are often used for CVD prevention, based on a high level of evidence that they are ineffective. These include estrogen or selective estrogen receptor modulators, anti-oxidant vitamins (vitamins E and C, and beta-

AHA's 2011 CVD guideline update: What's new?

The updated guidelines for prevention of CVD in women give more weight to conditions that increase risk for heart disease and stroke primarily or exclusively in women, including gestational diabetes and other complications of pregnancy, lupus, and rheumatoid arthritis. Some of the changes include:

- adding a history of preeclampsia, gestational diabetes, and pregnancy-induced hypertension as criteria for the "at risk" classification
- revising the criterion for "high risk" classification based on risk calculation to $\geq 10\%$ 10-year predicted risk of CVD (it was previously $\geq 20\%$)
- addressing the challenges of diversity, including recommendations that providers develop cultural competence and become aware of, and take steps to reduce, CVD health disparities
- redefining the lowest risk category as "ideal cardiovascular health," for women who have ideal blood pressure, cholesterol, and fasting glucose levels, and adhere to optimal life-style/behavioral recommendations.

The AHA indicates that it has changed from evidence-based to effectiveness-based guidelines;⁵ however, the practical implications within the guidelines themselves are unclear.

carotene), folic acid with or without vitamins B6 and B12, and aspirin (for CHD prevention) for healthy women <65 years old.

The AHA does not take a position for or against several diagnostic and risk classification tools because of a lack of evidence of usefulness. These include CVD risk biomarkers such as high sensitivity C-reactive protein and imaging technologies such as coronary calcium scoring assessment.

AHA and USPSTF diverge, but not by much

Screening for conditions that increase CVD risk is not explicitly addressed in the AHA guidelines. Screening is implied by the proposed classification scheme, which includes the presence or absence of smoking, obesity, diabetes, hypertension, and dyslipidemia, but there is no guidance on when to start or stop screening for these conditions. The AHA and the USPSTF diverge on screening women for dyslipidemia, with the USPSTF recommending screening for lipid disorders only in women at increased risk for CHD.

The recommendations for optimal weight and activity levels in the AHA guidelines do not include advice on how to achieve them, nor do they call for an assessment of the effectiveness of behavioral counseling in

the clinical setting. Because the USPSTF includes an assessment of, and recommendations for, asymptomatic patients in primary care settings, its recommendations do not address women with conditions such as established CVD, heart failure, or atrial fibrillation—which the AHA guidelines do.

Overall, the AHA and USPSTF agree more than they disagree, and each covers some areas that the other does not (TABLE 2). Family physicians can use the information provided by both entities to ensure that their female patients receive high-quality preventive care that will minimize their risk for CVD. **JFP**



The AHA and USPSTF diverge on screening women for dyslipidemia, with the USPSTF recommending screening for lipid disorders only in women at increased risk for CHD.

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