U.S. Preventive Services Task Force

Using Nontraditional Risk Factors in Coronary Heart Disease Risk Assessment: Recommendation Statement

▶ See related Putting Prevention into Practice on page 449.

This summary is one in a series excerpted from the Recommendation Statements released by the U.S. Preventive Services Task Force (USPSTF). These statements address preventive health services for use in primary care clinical settings, including screening tests, counseling, and preventive medications.

EB CME

This clinical content conforms to AAFP criteria for evidence-based continuing medical education (EB CME). See CME Quiz on page 389.

A collection of USPSTF recommendation statements reprinted in *AFP* is available at http://www.aafp.org/afp/uspstf.

The complete version of this statement, including supporting scientific evidence, evidence tables, grading system, members of the USPSTF at the time this recommendation was finalized, and references, is available on the USPSTF Web site at http://www.uspreventiveservicestaskforce.org/.

Summary of Recommendation and Evidence

The U.S. Preventive Services Task Force (USPSTF) concludes that the current evidence is insufficient to assess the balance of benefits and harms of using the nontraditional risk factors discussed in this statement to screen asymptomatic men and women with no history of coronary heart disease (CHD) to prevent CHD events *(Table 1)*. **I statement.**

The nontraditional risk factors included in this recommendation are high-sensitivity C-reactive protein (CRP) level, ankle-brachial index (ABI), 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.

Rationale

Importance. *CHD is the most common cause of mortality in adults in the United States. Treatment to prevent CHD events by modifying risk factors is currently based on the Framingham risk model, which sorts persons into low-, intermediate-, or high-risk groups. If the risk model could be improved, treatment might be better targeted, thereby maximizing screening benefits and minimizing harms. The most likely opportunity to improve the model is use of additional risk factors to reclassify those in the intermediate-risk group to either high or low risk.*

Detection. *There is insufficient evidence to determine the percentage of persons with an intermediate CHD risk who would be reclassified by screening with nontraditional risk factors other than high-sensitivity CRP and ABI.*

About 11 percent of men with an intermediate CHD risk would be reclassified into the high-risk category by high-sensitivity CRP screening, and about 12 percent of men would be reclassified into the low-risk category. National estimates of the number of women who would be reclassified by high-sensitivity CRP screening are not reliable because of small study samples. The available meta-analysis of individual data on ABI does not yield a clear picture on the proportion of intermediate-risk men who would be reclassified but does suggest that approximately 10 percent of women would be reclassified from intermediate to high risk of CHD.

Benefits of screening and additional risk assessment. *The evidence is insufficient to determine the magnitude of any reduction in CHD events and CHD-related deaths obtained by using nontraditional risk factors in CHD screening. This constitutes a critical gap in the evidence for benefit from screening.*

Harms of screening and additional risk assessment. *Little evidence is available to determine the harms of using nontraditional risk factors in CHD screening. Harms include lifelong use of medications without proof of benefit but with expense and potential adverse effects. Statins are the class of medication most commonly used; these medications have been demonstrated to be safe but are associated with the rare but serious adverse effect of rhabdomyolysis.*[1] *Psychological and other harms may result from being put into a higher risk category for CHD events.*

USPSTF assessment. *The USPSTF concludes that the evidence is insufficient to determine the balance between benefits and harms of using nontraditional risk factors in screening for CHD risk.*

Although using high-sensitivity CRP and ABI to screen men and women with intermediate Framingham CHD risk would reclassify some into the low-risk group and others into the high-risk group, the evidence is insufficient to determine the ultimate effect on the occurrence of CHD events and CHD-related deaths.

Table 1. Using Nontraditional Risk Factors in CHD Risk Assessment: Clinical Summary of the USPSTF Recommendation

Population	Asymptomatic men and women with no history of CHD, diabetes mellitus, or any CHD risk equivalent
I statement	No recommendation because of insufficient evidence
Risk assessment	This recommendation applies to adult men and women classified at intermediate 10-year risk of CHD (10 to 20 percent) by traditional risk factors.
Importance	CHD is the most common cause of death in adults in the United States. Treatment to prevent CHD events by modifying risk factors is currently based on the Framingham risk model. If the classification of persons at intermediate risk could be improved by using additional risk factors, treatment to prevent CHD might be targeted more effectively. Risk factors not currently part of the Framingham model (nontraditional risk factors) include high-sensitivity CRP level, ABI, 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.
Rationale for no recommendation	There is insufficient evidence to determine the percentage of intermediate-risk persons who would be reclassified by screening with nontraditional risk factors, other than high-sensitivity CRP and ABI. For persons reclassified as high risk on the basis of high-sensitivity CRP or ABI scores, data are not available to determine whether they benefit from additional treatments. Little evidence is available to determine the harms of using nontraditional risk factors in screening. Potential harms include lifelong use of medications without proven benefit, and psychological and other harms from being misclassified in a higher risk category.
Considerations for practice	Physicians should continue to use the Framingham model to assess CHD risk and guide risk-based preventive therapy. Adding nontraditional risk factors to CHD assessment would require additional patient and clinical staff time and effort. Routinely screening with nontraditional risk factors could result in lost opportunities to provide other important health services of proven benefit.
Relevant USPSTF recommendations	USPSTF recommendations on risk assessment for CHD, the use of aspirin to prevent cardiovascular disease, and screening for high blood pressure can be accessed at http://www.uspreventiveservicestaskforce.org/.

NOTE: *For the full recommendation statement and supporting documents, visit http://www.uspreventiveservicestaskforce.org/.*

ABI = ankle-brachial index; CHD = coronary heart disease; CRP = C-reactive protein; USPSTF = U.S. Preventive Services Task Force.

Clinical Considerations

Patient population. The USPSTF intends this recommendation for asymptomatic men and women with no history of CHD, diabetes mellitus, or any CHD risk equivalent.

Suggestions for practice regarding the I statement. Physicians should use the Framingham model to assess CHD risk and to guide risk-based therapy until further evidence is obtained. (See the "Other Considerations" section at http://www.uspreventiveservicestaskforce.org/uspstf/uspscoronaryhd.htm for a discussion of risk calculators.)

Because adding nontraditional risk factors to CHD assessment requires additional patient and clinical staff time and effort, routinely screening with nontraditional risk factors could result in lost opportunities for provision of other important health services of proven benefit.

Assessment of risk. This recommendation is to be used for those who fall into a 10 to 20 percent (intermediate) 10-year risk category after being screened for CHD risk by using traditional CHD risk factors. Using a risk assessment tool is a key step in managing CHD risk in patients. One validated method of assessing CHD risk is the Framingham model. Persons with a low (less than 10 percent) Framingham risk score do not benefit from aggressive risk factor modification, whereas those with a high (greater than 20 percent) Framingham risk score do benefit. Examples of persons in the intermediate-risk category include a 60-year-old man with untreated hypertension who

smokes, or a 60-year-old woman with untreated hypertension and hyperlipidemia. The current recommendation used the National Cholesterol Education Program, Adult Treatment Panel III Framingham risk calculator (http://hp2010.nhlbihin.net/atpiii/calculator.asp?usertype=prof) and does not include persons with diabetes.

Treatment. About 31 percent of asymptomatic U.S. men and 7 percent of asymptomatic U.S. women 40 to 79 years of age without diabetes will fall into the intermediate-risk category. No evidence or consensus is available about how to treat and counsel these persons.

Useful resources. Other USPSTF recommendations provide guidance for preventing CHD events.[1-5]

This recommendation statement was first published in *Ann Intern Med.* 2009;151(7):474-482.

The "Other Considerations," "Discussion," and "Recommendations of Others" sections of this recommendation statement are available at http://www.uspreventiveservicestaskforce.org/uspstf/uspscoronaryhd.htm.

The U.S. Preventive Services Task Force recommendations are independent of the U.S. government. They do not represent the views of the Agency for Healthcare Research and Quality, the U.S. Department of Health and Human Services, or the U.S. Public Health Service.

REFERENCES

1. U.S. Preventive Services Task Force. Screening for lipid disorders in adults: U.S. Preventive Services Task Force recommendation statement. Rockville, Md.: Agency for Healthcare Research and Quality; 2008. http://www.uspreventiveservicestaskforce.org/uspstf08/lipid/lipidrs.htm. Accessed January 3, 2011.
2. U.S. Preventive Services Task Force. Screening for high blood pressure: U.S. Preventive Services Task Force reaffirmation recommendation statement. *Ann Intern Med.* 2007;147(11):783-786.
3. U.S. Preventive Services Task Force. Behavioral counseling in primary care to promote a healthy diet: recommendations and rationale. *Am J Prev Med.* 2003; 24(1):93-100.
4. U.S. Preventive Services Task Force. Screening for obesity in adults: recommendations and rationale. *Ann Intern Med.* 2003;139(11):930-932.
5. U.S. Preventive Services Task Force. Behavioral counseling in primary care to promote physical activity: recommendation and rationale. *Ann Intern Med.* 2002; 137(3):205-207. ■