

Screening for Coronary Heart Disease

Your patients rely on you for accurate, up-to-date, preventive health information. This fact sheet for clinicians provides information about screening for coronary heart disease (CHD).



Should patients be routinely screened for coronary heart disease (CHD) beyond conventional CHD risk determination?

Overall, the benefits of screening with resting electrocardiography (ECG), exercise treadmill testing (ETT), or electron-beam computerized tomography (EBCT) have not been clearly demonstrated to outweigh harms.

The US Preventive Services Task Force (USPSTF) recommends AGAINST routine screening with ECG, ETT, or EBCT scanning for coronary calcium for either the presence of severe coronary artery stenosis or the prediction of CHD events in adults at low risk (10-year CHD risk < 10%) for CHD events.

- Routine screening in adults at low risk is not recommended because the evidence suggests that the harms of screening outweigh the benefits.

The USPSTF found insufficient evidence to recommend FOR or AGAINST routine screening with ECG, ETT, or EBCT scanning for coronary calcium for either the presence of severe coronary artery stenosis or the prediction of CHD events in adults at increased risk (10-year CHD risk > 15–20%) for CHD events.

- Decisions about screening in adults at increased risk should be made on a case-by-case basis after careful discussion with the patient about the risks and benefits of screening.

Screening tests for CHD should not be routinely offered to asymptomatic, low risk adults and should only be offered on a case-by-case basis to asymptomatic patients at increased risk when you judge that the benefits to the individual patient outweigh the potential harms.

How is risk for CHD traditionally determined?

A patient's 10-year risk for CHD is determined based on age, gender, and conventional CHD risk factors such as smoking, diabetes, hypertension, and dyslipidemias.

A variety of electronic or on-line risk calculators that use risk scoring algorithms derived from the Framingham Heart Study are available:

- <http://hp2010.nhlbihin.net/atpii/calculator.asp>

Simplified paper-based scoring sheets are also available:

For Men:

- <http://circ.ahajournals.org/content/vol97/issue18/images/large/hc1881494003.jpeg>

For Women:

- <http://circ.ahajournals.org/content/vol97/issue18/images/large/hc1881494004.jpeg>

Patients with a 10-year CHD risk of less than 10% are considered to be at "low" risk. The added value of novel risk factors (e.g., CRP, homocysteine) above and beyond conventional risk factors for CHD risk stratification is not yet known.

What is the rationale for NOT routinely screening low risk adults?

A screening test is routinely recommended only if:

- **Early treatment of the disease is more effective than later treatment.** This means that good studies have shown that early treatment, compared with later treatment, helps patients to live longer, live healthier, or have a better quality of life. No studies have established whether asymptomatic patients with CHD detected by screening have improved health outcomes.
- **Diagnostic workup and/or early treatment of the disease doesn't have serious risk of harms that outweigh the benefits of screening.** The diagnostic evaluation for CHD and medical and/or surgical treatment of CHD is often invasive and may result in significant harms. In patients at low risk for CHD, these harms outweigh any potential benefit of early treatment.
- **The screening test is accurate, available, and acceptable to patients. ECG, ETT, and EBCT have poor accuracy for predicting CHD events among asymptomatic adults.** Low sensitivity means that those with CHD may not be detected with these tests. Low specificity means that a significant number of patients will be "labeled" as having CHD when they don't actually have it, may receive unnecessary diagnostic evaluations, and may be subjected to overtreatment with medical/and or invasive surgical therapies that may cause significant harms.

How should providers approach screening in patients at increased risk?

The evidence is limited that screening asymptomatic adults with ECG, ETT, or EBCT results in improved patient health outcomes. While patients at higher CHD risk levels may potentially benefit more than low risk adults, the evidence is not available to determine whether this potential benefit outweighs the harms from screening. Thus, decisions about screening asymptomatic, increased risk individuals should be made on a case-by-case basis after careful discussion of the benefits and harms of screening with the patient.



Reasons to consider screening in an individual patient:

- A family history of early CHD (CHD event in first degree male relatives < 50 years or female relatives < 60 years), or
- Select occupations, such as pilots, where sudden incapacitation or sudden death may endanger the safety of others, or
- If it would lead to more aggressive management of CHD-related conditions (hypertension, diabetes, dyslipidemias, tobacco use).

How should I talk with patients about these tests?

Screening tests for CHD should not be routinely offered to asymptomatic, low risk adults. They should only be offered on a case-by-case basis to patients at increased risk when you judge that the benefits to the individual patient outweigh the harms.

Patients may ask about getting screened with these tests as a result of community health fairs, direct-to-consumer advertising, or health experiences of a friend or family member. Consider the patient's request respectfully. Discuss the patient's concerns and provide more information if needed.

Does the patient have signs or symptoms of CHD?

- If so, consider a diagnostic evaluation. Remember, screening tests are intended for asymptomatic individuals.

Does the patient have extenuating circumstances that would make him or her much more likely to benefit from CHD screening?

- If so, consider screening for this patient but only after a discussion of the risks and benefits.

Does the patient have health behaviors or other conditions that can be modified to reduce his or her CHD risk?

- If so, discuss the contribution of current behaviors to the patient's overall risk.
 - Offer help to quit smoking.
 - Offer help to increase physical activity.
 - Offer help to maintain a healthy weight.
- Regularly screen for hypertension and dyslipidemia.
- Control diabetes, hypertension, and dyslipidemia, if present.
- Consider aspirin therapy for men at increased CHD risk. See the Clinician Fact Sheet titled *Using Aspirin For the Primary Prevention of Cardiovascular Disease* for more information.
- Work with patients to increase their motivation to change, help them set goals, and learn to problem-solve as needed.



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