# Putting Prevention into Practice

***An Evidence-Based Approach***

# Risk Assessment for Cardiovascular Disease with Nontraditional Risk Factors

**Justin Mills, MD, MPH,** Medical Officer, U.S. Preventive Services Task Force Program, Agency for Healthcare Research and Quality

**Alisha Thomas, MD, MPH,** Preventive Medicine Resident, University of Kentucky

## Case Study

A 46-year-old Asian American woman with no significant medical history presents to your clinic for the first time for a pre-employment physical examination. She is concerned about her risk of cardiovascular disease (CVD) because her new job requires her to sit for long periods and she has gained 10 pounds in the past six months. She does not have a history of smoking, chest pain, or shortness of breath. She has never been diagnosed with hypertension or hypercholesterolemia, but her brother and father have both.

## Case Study Questions

**1.** Which one of the following statements accurately summarizes the U.S. Preventive Services Task Force (USPSTF) findings about adding nontraditional cardiovascular risk factors to traditional risk assessment for CVD in asymptomatic adults to prevent CVD events?

- ☐ A. The USPSTF found adequate evidence that adding nontraditional risk factors to existing CVD risk assessment models leads to reduced incidence of CVD events or mortality.
- ☐ B. The USPSTF found that adding nontraditional risk factors to existing CVD risk assessment models has no net benefit.
- ☐ C. The USPSTF concluded with moderate certainty that the net benefit of adding nontraditional risk factors to CVD risk assessment models is small.
- ☐ D. The USPSTF concluded that the current evidence is insufficient to assess the balance of benefits and harms of adding nontraditional risk factors to existing CVD risk assessment models.
- ☐ E. The USPSTF recommends against adding nontraditional risk factors to existing CVD risk assessment models because the harms outweigh the benefits.

**2.** According to the USPSTF, which one of the following tests would best assess the patient's CVD risk?

- ☐ A. Ankle-brachial index (ABI).
- ☐ B. Cardiac stress testing.
- ☐ C. High-sensitivity C-reactive protein (hsCRP) level.
- ☐ D. Serum lipid profile.
- ☐ E. Coronary artery calcium (CAC) score.

**3.** Which of the following potential harms could result from testing for nontraditional cardiovascular risk factors?

- ☐ A. Exposure to radiation.
- ☐ B. Incidental findings from radiography.
- ☐ C. Increased risk of blood clots.
- ☐ D. Further invasive testing, including angiography.

**See related** U.S. Preventive Services Task Force Recommendation Statement at https://www.aafp.org/afp/2019/0115/od1.html.

**This PPIP** quiz is based on the recommendations of the USPSTF. More information is available in the USPSTF Recommendation Statement and supporting documents on the USPSTF website (https://www.uspreventiveservicestaskforce.org). The practice recommendations in this activity are available at https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/cardiovascular-disease-screening-using-nontraditional-risk-assessment.

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CME **This clinical content** conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 86.

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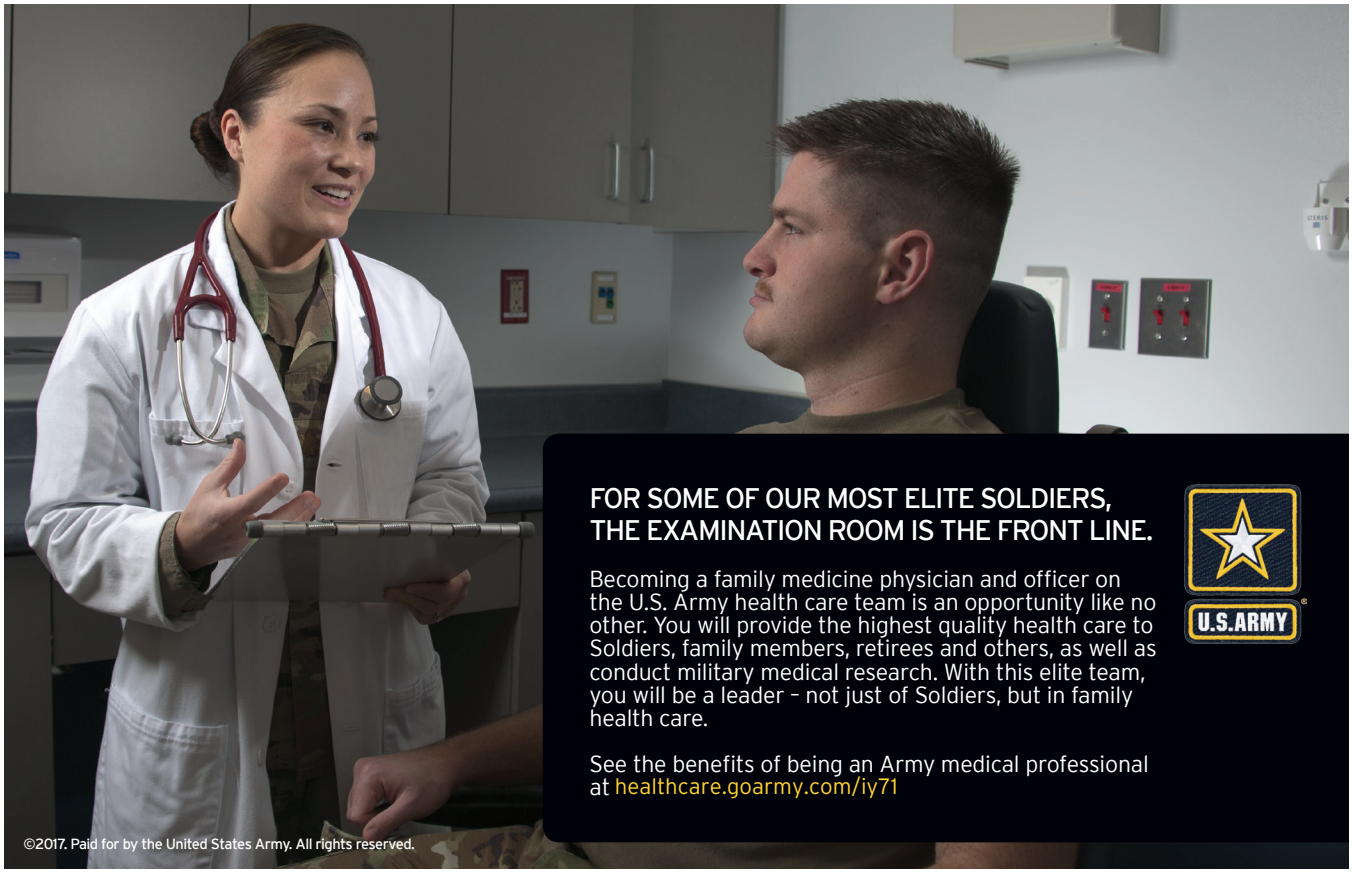
## Answers

**1. The correct answer is D.** The USPSTF found inadequate evidence to assess whether treatment decisions guided by the ABI, hsCRP level, or CAC score, when added to existing CVD risk assessment models, lead to reduced incidence of CVD events or mortality. The USPSTF found adequate evidence that harms of risk assessment and intervention are small. The USPSTF concludes that current evidence is insufficient to assess the balance of benefits and harms of adding nontraditional risk factors to existing CVD risk assessment models to prevent CVD events in asymptomatic adults.[1]

**2. The correct answer is D.** Several risk factors, such as abnormal cholesterol levels, history of smoking, diabetes mellitus, and hypertension, are associated with higher risk of CVD events and are used in traditional risk calculators such as the Framingham Risk Score and the Pooled Cohort Equations. Identification of additional or nontraditional risk factors, including the ABI, hsCRP level, and CAC score, have been proposed to improve risk prediction in asymptomatic adults but are not included in standard risk calculators such as the Framingham Risk Score and the Pooled Cohort Equations.[2]

**3. The correct answers are A, B, and D.** Testing for hsCRP level and ABI is noninvasive, and little direct harm occurs from these tests. Harms of testing for CAC score include exposure to radiation and incidental findings on computed tomography of the chest, such as pulmonary nodules, that may lead to further invasive testing and procedures. Abnormal test results may lead to further testing, procedures, and lifelong medication use without proof of benefit but with expense and potential adverse effects for the patient. Other potential harms include bleeding and increased risk of diabetes related to aspirin and statin therapy.

**The views expressed** in this work are those of the authors and do not reflect the official policy or position of the Department of Health and Human Services or the U.S. government.

## References

1. Curry SJ, Krist AH, Owens DK, et al. Risk assessment for cardiovascular disease with nontraditional risk factors: US Preventive Services Task Force recommendation statement. *JAMA*. 2018;320(3):272-280.
2. Lin JS, Evans CV, Johnson E, Redmond N, Coppola EL, Smith N. Nontraditional risk factors in cardiovascular disease risk assessment: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2018;320(3):281-297. ■