

Putting Prevention Into Practice

An Evidence-Based Approach

Statin Use for the Primary Prevention of Cardiovascular Disease in Adults

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Case Study

R.B., a 66-year-old White woman, presents for a wellness visit. R.B. has no history of cardiovascular disease (CVD); she has a 35-pack-year smoking history and has consistently elevated systolic blood pressure measurements in the 142 to 148 mm Hg range, currently managed with lifestyle modifications. She does not take any medications. R.B.'s body mass index is 25 kg per m², total cholesterol level is 180 mg per dL (4.66 mmol per L), and high-density lipoprotein cholesterol level is 50 mg per dL (1.29 mmol per L). Using the American College of Cardiology/American Heart Association Pooled Cohort Equations, you calculate R.B.'s estimated 10-year risk of an atherosclerotic CVD event to be 14.1%.

Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF) recommendation statement, is initiation of statin therapy for the primary prevention of CVD recommended for this patient?

- ☐ A. Yes; R.B. has at least one cardiovascular risk factor, and her 10-year risk of a CVD event is more than 10%.
- ☐ B. Yes; R.B. has no history of CVD, but she has at least one cardiovascular risk factor.
- ☐ C. Maybe; R.B. has no history of CVD, but her 10-year risk of a CVD event is more than 10%.
- ☐ D. No; R.B. has no history of CVD or a CVD event.
- ☐ E. No; R.B. is older than 65 years.

2. According to the USPSTF recommendation statement, if R.B. did not smoke and her medical history was otherwise the same, resulting in an estimated 10-year CVD event risk of 8%, which one of the following statements would be correct?

- ☐ A. Statin therapy is indicated because R.B.'s 10-year risk of a CVD event is more than 7.5%.
- ☐ B. Statin therapy could be offered because R.B.'s 10-year risk of a CVD event is between 7.5% and less than 10%.
- ☐ C. Statin therapy is not indicated because R.B. does not have cardiovascular risk factors.
- ☐ D. Statin therapy is not indicated because R.B.'s 10-year risk of a CVD event is not more than 10%.
- ☐ E. Statin therapy is not indicated because R.B. is older than 65 years.

See related USPSTF Clinical Summary on page 183.

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/uspstf/recommendation/statin-use-in-adults-preventive-medication>.

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A collection of Putting Prevention Into Practice published in AFP is available at <https://www.aafp.org/afp/ppip>.

CME This clinical content conforms to AAFP criteria for CME. See CME Quiz on page 127.

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3. According to the USPSTF recommendation statement, which of the following statements about statin use for the primary prevention of CVD in adults are correct?

- ☐ A. Ischemic stroke is the leading cause of cardiovascular mortality.
- ☐ B. CVD is the leading cause of morbidity and mortality in the United States.
- ☐ C. These recommendations do not apply to adults with a low-density lipoprotein cholesterol level greater than 190 mg per dL (4.92 mmol per L), known familial hypercholesterolemia, or both.
- ☐ D. Statin use reduces the risk of CVD events (e.g., myocardial infarctions, ischemic strokes) and all-cause mortality in adults 40 to 75 years of age with no history of CVD and who have one or more CVD risk factors (e.g., dyslipidemia, diabetes mellitus, hypertension, smoking).

Answers

1. **The correct answer is A.** The USPSTF recommends that physicians prescribe a statin for the primary prevention of CVD for adults 40 to 75 years of age who have one or more cardiovascular risk factors (e.g., dyslipidemia, diabetes mellitus, hypertension, smoking) and an estimated 10-year risk of a CVD event of 10% or greater (B recommendation).¹ For adults 40 to 75 years of age who have one or more cardiovascular risk factors and an estimated 10-year risk of a CVD event of 7.5% to less than 10%, the USPSTF recommends that physicians selectively offer a statin for the primary prevention of CVD (C recommendation).¹ The likelihood of benefit is smaller in individuals with a 10-year risk of 7.5% to less than 10% than in persons with a 10-year risk of 10% or greater. The USPSTF concluded that the current evidence is insufficient to assess the balance of benefits and harms of initiating a statin for the primary prevention of CVD events and mortality in adults 76 years or older (I statement).¹ All of these recommendations apply to adults 40 years or older

without a history of known CVD and who do not have signs and symptoms of CVD.

2. **The correct answer is B.** R.B. is a generally healthy White woman. She has consistently elevated systolic blood pressures (i.e., hypertension), and her updated 10-year CVD event risk falls between 7.5% and less than 10%. For patients such as R.B. in this scenario (40 to 75 years of age with one or more cardiovascular risk factors [e.g., dyslipidemia, diabetes, hypertension, smoking] and an estimated 10-year risk of a CVD event of 7.5% to less than 10%), the USPSTF recommends that physicians selectively offer a statin for the primary prevention of CVD (C recommendation).¹

3. **The correct answers are B, C, and D.** CVD is the leading cause of morbidity and mortality in the United States, with coronary heart disease being the leading cause of death, accounting for 43% of CVD-related deaths in 2019.² Statin use reduces the risk of CVD events (e.g., myocardial infarctions, ischemic strokes) and all-cause mortality in adults 40 to 75 years of age with no history of CVD and who have one or more CVD risk factors (e.g., dyslipidemia, diabetes, hypertension, smoking). These recommendations do not apply to adults with a low-density lipoprotein cholesterol level greater than 190 mg per dL or known familial hypercholesterolemia because these populations are at very high risk for CVD. Considerations on the use of statins in these populations can be found in other organizations' guidelines.

The views expressed in this work are those of the authors and do not reflect the official policy or position of the Uniformed Services University of the Health Sciences, the Department of Defense, or the U.S. government.

References

1. Mangione CM, Barry MJ, Nicholson WK, et al. Statin use for the primary prevention of cardiovascular disease in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2022;328(8):746-753.
2. Chou R, Cantor A, Dana T, et al. Statin use for the primary prevention of cardiovascular disease in adults: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2022;328(8):754-771. ■