

# Putting Prevention into Practice

## *An Evidence-Based Approach*

### Screening for Osteoporosis to Prevent Fractures

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#### Case Study

A 57-year-old postmenopausal woman comes to your clinic for a wellness visit. She has no significant medical problems. She broke her left forearm as a child by falling out of a tree but has had no other fractures. She currently smokes one pack of cigarettes per day, rarely drinks one glass of red wine with dinner, and is sexually active with her wife.

#### Case Study Questions

1. Based on the U.S. Preventive Services Task Force (USPSTF) recommendations on screening for osteoporosis to prevent fractures, which one of the following is an appropriate next step for this patient?

- A. She should be screened with a bone mineral density examination.
- B. She should be evaluated with a risk assessment tool to determine her need for a bone mineral density examination.
- C. She should not be screened with a bone mineral density examination because she is younger than 65 years.
- D. She should not be screened with a bone mineral density examination because she has no risk factors for an osteoporotic fracture.

2. Which of the following statements about screening for osteoporosis with bone measurement testing are correct?

- A. Most treatment guidelines recommend using central dual-energy x-ray absorptiometry (DXA) to define osteoporosis and as the treatment threshold to prevent osteoporotic fractures.
- B. Central DXA, peripheral DXA, and quantitative ultrasonography carry risks of radiation exposure.
- C. Quantitative ultrasonography evaluates peripheral sites and is capable of determining bone mineral density.
- D. There is limited evidence that repeating bone measurement testing four to eight years after initial screening has no benefit in predicting fractures.

**See related** U.S. Preventive Services Task Force Recommendation Statement at <https://www.aafp.org/afp/2018/1115/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/osteoporosis-screening1>.

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**CME** This clinical content conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 568.

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## PUTTING PREVENTION INTO PRACTICE

**3.** The patient asks whether her generally healthy 65-year-old brother, who is also your patient, should be screened for osteoporosis. Based on the USPSTF recommendation, should he be screened?

- A. Yes, if he had a previous fracture, because the USPSTF found convincing evidence that screening in this population provides a substantial net benefit.
- B. Yes, if he is taking aromatase inhibitors, because the USPSTF found adequate evidence that screening in this population provides a moderate net benefit.
- C. No, because he is younger than 70 years and there is adequate evidence that harms from screening in this population outweigh the benefits.
- D. No, because screening tools for osteoporosis are not accurate in men.
- E. There is insufficient evidence to assess the balance of benefits and harms of screening for osteoporosis in men.

### Answers

**1. The correct answer is B.** The USPSTF recommends bone measurement testing for postmenopausal women younger than 65 years at increased risk of osteoporosis, as determined by a formal clinical risk assessment tool.<sup>1</sup> The presence of at least one of the following risk factors may prompt clinicians to use a formal clinical risk assessment tool in this population: parental history of hip fracture, smoking, excessive alcohol consumption, and low body weight. For postmenopausal women younger than 65 years at increased risk of osteoporosis, the USPSTF found adequate evidence that screening can detect osteoporosis and that treatment provides a moderate net benefit in preventing fractures.

**2. The correct answers are A and D.** The USPSTF found that the most commonly used bone measurement test to screen for osteoporosis is central DXA, and most treatment guidelines rely on central DXA.<sup>2</sup> Central DXA measures bone mineral density at the hip and lumbar spine, whereas peripheral DXA measures bone mineral density at the lower forearm

and heel. Quantitative ultrasonography evaluates peripheral sites with an accuracy similar to that of central DXA in predicting fracture risk, but it cannot be used to determine bone mineral density. Unlike central and peripheral DXA, quantitative ultrasonography has no risk for radiation exposure. Both peripheral DXA and quantitative ultrasonography can be measured on portable devices, which may be less expensive and more accessible than central DXA devices. The USPSTF found limited evidence from two good-quality studies that repeating bone measurement testing four to eight years after initial screening provided no benefit in predicting fractures.

**3. The correct answer is E.** The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for osteoporosis to prevent fractures in asymptomatic men. For men, there remains a paucity of evidence that evaluates the benefits and harms of treating screen-detected osteoporosis for the primary prevention of osteoporotic fractures. The USPSTF found no studies that directly assess the harms of screening in men. Importantly, this recommendation applies only to asymptomatic men who have no history of low-trauma fractures, who have no conditions that may cause secondary osteoporosis, and who are not taking medications (such as aromatase inhibitors) that may cause secondary osteoporosis. Clinical risk assessment tools and imaging tests can accurately predict osteoporotic fractures in both women and men.

**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. US Preventive Services Task Force, Curry SJ, Krist AH, Owens DK, et al. Screening for osteoporosis to prevent fractures: US Preventive Services Task Force recommendation statement. *JAMA*. 2018;319(24):2521-2531.
2. Viswanathan M, Reddy S, Berkman N, et al. Screening to prevent osteoporotic fractures: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2018;319(24):2532-2551. ■