

# Putting Prevention into Practice

## *An Evidence-Based Approach*

### Interventions to Prevent Falls and Fractures in Community-Dwelling Older Adults

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#### Case Study

Mr. and Mrs. J. present to your office for their annual wellness visits. He is 75 years of age, has well-controlled hypertension, does not smoke, and has a body mass index (BMI) of 26 kg per m<sup>2</sup>. He recently fell while walking from his home to a neighborhood barbeque. Mrs. J. is 73 years of age and postmenopausal, has no significant medical history, does not smoke, and has a BMI of 24 kg per m<sup>2</sup>.

#### Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF), which one of the following interventions should be recommended to Mr. J. because it has been found to have a moderate benefit in preventing falls?

- A. Education on falls prevention.
- B. Group exercise classes three times per week.
- C. Cognitive behavior therapy.
- D. Use of a cane.
- E. Environmental assessment of the patient's home.

2. Mr. J. expresses a strong interest in preventing another fall and wants to know about other interventions. Which one of the following interventions should be selectively offered because it has been found to have a small benefit in preventing falls?

- A. Home visit and environmental modifications.
- B. Discontinuation of medications that may increase the risk of falls.
- C. Assessment of modifiable risk factors for falls, followed by customized interventions.
- D. Referral for psychological assessment.
- E. Assessment of diet and nutritional recommendations.

Answers appear on the following page.

See related U.S. Preventive Services Task Force Recommendation Statements at <https://www.aafp.org/afp/2018/0815/od1.html> and <https://www.aafp.org/afp/2018/0815/od2.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/falls-prevention-in-older-adults-interventions1> and <https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/vitamin-d-calcium-or-combined-supplementation-for-the-primary-prevention-of-fractures-in-adults-preventive-medication>.

This series is coordinated by Kenny Lin, MD, Deputy Editor.

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 continuing medical education (CME). See CME Quiz on page 203.

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3. Mrs. J. asks whether she should take vitamin D and calcium supplements to prevent falls and fractures for herself. Which of the following would be appropriate responses to Mrs. J.?

- A. Vitamin D supplementation has no net benefit in preventing falls among community-dwelling adults 65 years or older.
- B. The current evidence is insufficient to assess the balance of benefits and harms of daily supplementation with doses greater than 400 IU of vitamin D and greater than 1,000 mg of calcium for the primary prevention of fractures among community-dwelling, postmenopausal women.
- C. Daily vitamin D supplementation with a dose greater than 400 IU has a small net benefit for prevention of falls among community-dwelling adults 65 years or older.
- D. Daily supplementation with 400 IU or less of vitamin D and 1,000 mg or less of calcium has no net benefit for the primary prevention of fractures among community-dwelling, postmenopausal women.

4. The USPSTF recommendations for prevention of falls and fractures apply to which of the following populations?

- A. Postmenopausal women without osteoporosis or vitamin D deficiency.
- B. Adults older than 65 years who reside in a nursing home.
- C. Community-dwelling men older than 65 years.
- D. Men with osteoporosis or vitamin D deficiency.

### Answers

**1. The correct answer is B.** The USPSTF recommends exercise interventions to prevent falls in community-dwelling adults 65 years or older who are at increased risk of falls (B recommendation).<sup>1</sup> A pragmatic approach to identifying persons at high risk of falls would be to assess for a history of falls or for problems in physical functioning and limited mobility. Physicians could also use assessment of gait and mobility, such as the Timed Up and Go test. There is adequate evidence that exercise interventions have a moderate benefit in preventing falls.<sup>2</sup> Exercise interventions evaluated in the USPSTF review included physical therapy

and supervised individual and group classes. Exercise components included gait, balance, and functional training; resistance training; flexibility training; and endurance training. The most common frequency and duration for exercise interventions included three sessions per week for 12 months. The USPSTF did not find enough evidence about cognitive behavior therapy, use of a cane, environmental assessment, and education about falls prevention, when offered alone, to recommend for or against their use.<sup>1,2</sup>

**2. The correct answer is C.** The USPSTF found that multifactorial interventions provide a small net benefit in preventing falls in community-dwelling adults 65 years or older who are at increased risk of falls and recommends that physicians selectively offer these interventions (C recommendation).<sup>1</sup> Multifactorial interventions include assessment of modifiable risk factors for falls followed by customized interventions for individual patients. The initial assessment may include various components, such as balance, gait, vision, postural blood pressure, medication, environment, cognition, and psychological health. Interventions are tailored to findings from the assessment and could include nutrition therapy, medication management, environmental modification, exercise, physical or occupational therapy, and social or community services. Assessments and interventions may be performed by a number of different types of professionals. The decision to offer multifactorial interventions should be based on consideration of the circumstances of past falls, presence of comorbid medical conditions, the patient's values and preferences related to interventions, and the clinical resources available. The USPSTF did not find enough evidence on the benefits and harms of providing other specific interventions alone (other than exercise) to recommend for or against their use as individual interventions. The USPSTF also did not find enough evidence to recommend for or against providing combination interventions that are not customized to an individual's risks identified by a multifactorial assessment.

**3. The correct answers are A, B, and D.** The USPSTF reviewed the evidence about vitamin D, at various dosages, for prevention of falls and concluded with moderate certainty that vitamin D supplementation has no net benefit in preventing falls in community-dwelling older adults (D recommendation).<sup>1,2</sup> The USPSTF also reviewed the evidence on vitamin D and calcium

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supplementation, alone or combined, for prevention of fractures.<sup>3,4</sup> It concluded with moderate certainty that daily supplementation with 400 IU or less of vitamin D and 1,000 mg or less of calcium has no net benefit for the primary prevention of fractures in postmenopausal community-dwelling women (D recommendation). There is insufficient evidence to assess the balance of benefits and harms of daily dosages greater than 400 IU of vitamin D and 1,000 mg of calcium (I statement).<sup>3</sup>

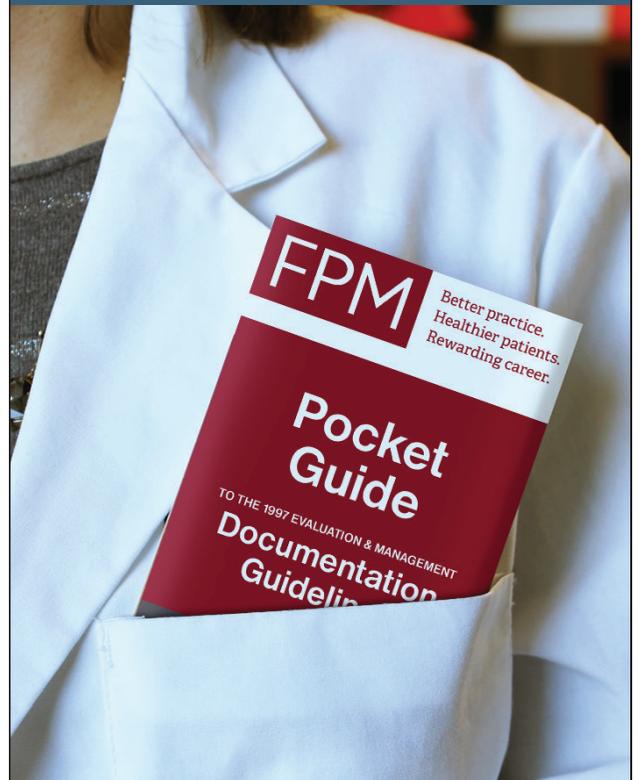
**4. The correct answers are A and C.** The USPSTF's recommendations for prevention of falls apply to community-dwelling (i.e., not residents of nursing homes or other institutional settings) adults 65 years or older who do not have known osteoporosis or vitamin D deficiency. In this population, the USPSTF found that vitamin D supplementation does not prevent falls; however, exercise and multifactorial interventions may prevent falls in individuals in this population who are at increased risk. The USPSTF's recommendations on calcium and vitamin D for prevention of fractures apply to community-dwelling adults not known to have osteoporosis or vitamin D deficiency who also do not have a history of fractures or falls.

**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

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