

Putting Prevention into Practice

An Evidence-Based Approach

Screening for Vitamin D Deficiency in Adults

Howard Tracer, MD, Medical Officer, U.S. Preventive Services Task Force

Program, Agency for Healthcare Research and Quality

Robert West, MD, MPH, Preventive Medicine Resident, Loma Linda University

Case Study

A 49-year-old Black man with a history of hypertension, type 2 diabetes mellitus, and class I obesity (body mass index of 31.4 kg per m²) presents for a wellness examination. The patient's hypertension and diabetes are well controlled with lisinopril and metformin; they do not take any other medications. The patient feels well today, with no health complaints and a negative review of systems. The patient tells you that they recently read an online article about vitamin D and is concerned they might have a low vitamin D level.

Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF) recommendation statement, how should you address this patient's concerns?

- A. Discuss with the patient that it is unclear whether they should be screened because the evidence is insufficient to assess the balance of benefits and harms of screening for vitamin D deficiency in asymptomatic adults.
- B. The patient should be screened for vitamin D deficiency because screening is indicated in male patients.
- C. The patient should not be screened for vitamin D deficiency because their age stratifies them in the low-risk category for vitamin D deficiency.
- D. The patient should be screened for vitamin D deficiency because screening is recommended due to the high prevalence of vitamin D deficiency in the United States.
- E. The patient should not be screened for vitamin D deficiency because there is a high risk of serious harms from treatment of vitamin D deficiency.

2. Which of the following statements about vitamin D deficiency are correct?

- A. Vitamin D deficiency is defined as a serum level of 25-hydroxyvitamin D (25(OH)D) less than 20 ng per mL (50 nmol per L).
- B. Serum 25(OH)D is currently considered the best marker of vitamin D status.
- C. Laboratories are reliably well standardized in their testing methods.
- D. Vitamin D requirements may vary by individual.

3. According to the USPSTF, which one of the following statements about risk factors for a low vitamin D level is correct?

- A. People who have a body mass index of less than 25 kg per m² are at higher risk for low vitamin D levels than people who are obese.
- B. Frequent sun exposure is paradoxically associated with a higher risk of low vitamin D levels.
- C. Younger people have a higher risk of low vitamin D levels than older people.
- D. Black people have a higher prevalence of low vitamin D levels than White people.
- E. Known risk factors account for almost all of the variability in 25(OH)D levels among individuals.

Answers appear on the following page.

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/vitamin-d-deficiency-screening>.

This series is coordinated by Kenny Lin, MD, MPH, 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 CME. See CME Quiz on page 449.

Author disclosure: No relevant financial affiliations.

PUTTING PREVENTION INTO PRACTICE

Answers

1. The correct answer is A. The evidence is insufficient to assess the balance of benefits and harms of screening for vitamin D deficiency in asymptomatic adults without conditions for which vitamin D treatment is recommended. This recommendation applies to all adults, regardless of age, and the recommendation does not differ based on the patient's sex. Although data from a national survey estimated that 18% of people in the United States may have low vitamin D levels, evidence of the benefits of identifying and treating asymptomatic individuals is not well established.¹ The USPSTF found adequate evidence that the harms of treating vitamin D deficiency are small to none.¹

2. The correct answers are B and D. Vitamin D requirements may vary by individual; thus, no one serum vitamin D level cutoff point defines deficiency, and no consensus exists regarding the precise serum levels of vitamin D that represent optimal health or sufficiency. Additionally, evidence suggests that results vary by testing method and between laboratories using the same testing methods. Despite these variations, total serum 25(OH)D is considered the best marker of vitamin D status.^{1,2}

3. The correct answer is D. Black people have a higher risk of low vitamin D levels than White people, although the clinical significance of this risk is uncertain.¹ Low sun exposure and obesity are risk factors for low vitamin D levels; risk is not known to be increased for individuals with a body mass index in the normal range. Older people are at higher risk of low vitamin D levels compared with younger people. Importantly, much of the variation in vitamin D levels among individuals is not accounted for by known risk factors; the reason for this variation remains uncertain.^{1,2}

The views expressed in this work are those of the authors and do not reflect the official policy or position of Loma Linda University or the U.S. government.

References

1. Krist AH, Davidson KW, Mangione CM, et al. Screening for vitamin D deficiency in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2021;325(14):1436-1442.
2. Kahwati LC, LeBlanc E, Weber RP, et al. Screening for vitamin D deficiency in adults: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2021;325(14):1443-1463. ■



aafp.org/CMEself-study