Putting Prevention into Practice
An Evidence-Based Approach

Screening for Prostate Cancer

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▶ **See related U.S. Preventive Services Task Force Recommendation Statement at http://www.aafp.org/afp/2013/0215/od1.html. Access to the statement is free and unrestricted.**

EB CME

This clinical content conforms to AAFP criteria for evidence-based continuing medical education (EB CME). See CME Quiz on page 251.

The case study and answers to the following questions on screening for prostate cancer are based on the recommendations of the U.S. Preventive Services Task Force (USPSTF), an independent panel of experts in primary care and prevention that systematically reviews the evidence of effectiveness and develops recommendations for clinical preventive services. More information is available on the USPSTF website (http://www.uspreventiveservicestaskforce.org). The practice recommendations in this activity are available at http://www.uspreventiveservicestaskforce.org/prostatecancerscreening.htm.

A collection of Putting Prevention into Practice quizzes published in *AFP* is available at http://www.aafp.org/afp/ppip.

Case Study

A 61-year-old black man presents for a routine checkup. He has hypertension and diabetes mellitus that are well controlled with medication. During the visit, he tells you that a friend advised him to get a prostate-specific antigen (PSA) test to screen for prostate cancer, and he would like to pursue testing.

Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF), how should you respond to this patient's request for a PSA test?

- ❑ A. Inform him that this service is not recommended, and that you will not order it.
- ❑ B. Order a PSA test because evidence clearly demonstrates that black men are more likely to benefit from screening than other populations.
- ❑ C. Order a PSA test because most deaths from prostate cancer occur in men 50 to 65 years of age.
- ❑ D. Engage him in a discussion about the small possibility of benefit compared with the known harms, and then allow him to make an informed decision.

2. Which one of the following statements about screening and treatment for prostate cancer is correct?

- ❑ A. Evidence from available randomized trials consistently shows that PSA-based screening results in a statistically significant reduction in prostate cancer deaths.
- ❑ B. The benefit of PSA-based screening after 10 to 14 years ranges from zero to one fewer prostate cancer death per 1,000 men screened.
- ❑ C. There is consensus about the best treatment of clinically localized prostate cancer.
- ❑ D. Clinical trials show that the treatment of screen-detected prostate cancer with curative intent results in decreases in mortality compared with watchful waiting.

3. Which one or more of the following are potential harms associated with prostate cancer screening and treatment?

- ❑ A. Approximately 80 percent of positive PSA test results are false-positive when cutoff points between 2.5 and 4.0 ng per mL (2.5 and 4.0 μg per mL) are used.
- ❑ B. Approximately one in three men who have a prostate biopsy experiences pain, fever, infection, bleeding, transient urinary difficulties, or other issues that he would describe as a moderate or major problem.
- ❑ C. Approximately 200 to 300 out of every 1,000 men who have surgery or radiotherapy for prostate cancer experience adverse effects such as urinary incontinence and erectile dysfunction.
- ❑ D. Many cases of prostate cancer detected by PSA-based screening would not have posed a health risk to the patient but are still treated.

Answers appear on the following page.

Answers

1. The correct answer is D. The USPSTF recommends against PSA-based screening for prostate cancer because there is moderate certainty that the potential benefit does not outweigh the known harms. However, it also recognizes the common use of PSA screening in practice today and understands that some men will continue to request screening. The decision to initiate or continue PSA screening should reflect an explicit understanding of the possible benefits and harms, and respect the patient's preferences. Physicians should not offer or order PSA-based screening unless they are prepared to engage in shared decision making that enables an informed choice by patients. Black men have an increased risk of developing and dying of prostate cancer, but represent a small minority of participants in randomized clinical trials of screening. No firm conclusions can be made about the balance of benefits and harms of PSA-based screening in black men; however, it is problematic to selectively recommend PSA-based screening in the absence of data that support a more favorable balance of risks and benefits. A higher incidence of cancer will result in more diagnoses and treatments, but the increase may not be accompanied by a larger absolute reduction in mortality. Seventy percent of deaths from prostate cancer occur after 75 years of age. There is convincing evidence that PSA-based screening leads to substantial overdiagnosis of prostate tumors, but there is a high propensity to treat most cases of screen-detected prostate cancer given the current inability to distinguish tumors that will remain indolent from those that will be lethal.

2. The correct answer is B. The USPSTF found adequate evidence that the benefit of PSA-based screening after about 10 to 14 years ranges from zero to one prostate cancer death avoided per 1,000 men screened. Two major trials of PSA-based screening were considered: the U.S. Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial and the European Randomized Study of Screening for Prostate Cancer. The U.S. trial did not demonstrate any reduction of prostate cancer mortality. The European trial found a reduction in prostate cancer deaths of approximately one death per 1,000 men screened in a subgroup 55 to 69 years of age. All-cause mortality in the European trial was nearly identical in the screened and nonscreened groups. There is no consensus about the optimal treatment of clinically localized prostate cancer. The Scandinavian Prostate Cancer Group Study-4 found that surgical management of localized, largely clinically detected prostate cancer was associated with an approximate 6 percent absolute reduction in prostate cancer and all-cause mortality at 12 to 15 years of follow-up. However, preliminary results from a randomized trial that compared external beam radiotherapy with watchful waiting in men with localized prostate cancer found no difference in overall survival at 20 years of follow-up. In the Prostate Cancer Intervention Versus Observation Trial (PIVOT), intention to treat men with primarily PSA-detected localized prostate cancer via radical prostatectomy compared with observation did not reduce disease-specific or all-cause mortality after 12 years.

3. The correct answers are A, B, C, and D. Approximately 80 percent of positive PSA test results are false-positive when cutoff points between 2.5 and 4.0 ng per mL are used. Evidence from a randomized trial of treatment of screen-detected cancer indicates that roughly one-third of men who have prostate biopsy experience pain, fever, bleeding, infection, transient urinary difficulties, or other issues requiring clinician follow-up that they consider a moderate or major problem. There is convincing evidence that a substantial percentage of men who have asymptomatic cancer detected by PSA-based screening have a tumor that will not progress or will progress so slowly that it would have remained asymptomatic for the man's lifetime (known as overdiagnosis). Estimates from the two largest trials suggest overdiagnosis rates of 17 to 50 percent for prostate cancer screening; nearly 90 percent of men with PSA-detected prostate cancer in the United States currently have early treatment with surgery, radiation, or androgen deprivation therapy. Radiotherapy and surgery result in long-term adverse effects, including urinary incontinence and erectile dysfunction in at least 200 to 300 per 1,000 men treated; up to five in 1,000 men will die within one month of prostate cancer surgery.

SOURCES

U.S. Preventive Services Task Force. Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2012;157(2):120-134.

Chou R, Croswell JM, Dana T, et al. Screening for prostate cancer: a review of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med.* 2011;155(11):762-771. ■