

Putting Prevention into Practice

An Evidence-Based Approach

Screening for High Blood Pressure in Adults

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► See related U.S. Preventive Services Task Force Recommendation Statement at <http://www.aafp.org/afp/2016/0215/p300.html>.

This PPIP quiz is based on the recommendations of the USPSTF. More information is available in the USPSTF Recommendation Statement and the supporting evidence on the USPSTF website (<http://www.uspreventiveservicestaskforce.org>). The practice recommendations in this activity are available at <http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/high-blood-pressure-in-adults-screening>.

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

CME This clinical content conforms to AAFP criteria for continuing medical education (CME). See CME Quiz Questions on page 449.

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Case Study

A 55-year-old black man presents for a blood pressure evaluation. He is trying to be more physically active and health conscious but has not seen a physician for five years. He takes no medications, has no concerns, and his physical examination findings are unremarkable. According to the blood pressure monitoring machine at his gym, his blood pressure has ranged from 150 to 160 over 90 to 100 mm Hg over several weeks. Your clinic's technician, using a manual sphygmomanometer on the left arm, measures his blood pressure as 167/95 mm Hg.

Case Study Questions

- Based on the U.S. Preventive Services Task Force (USPSTF) recommendation statement, which one of the following is the best way to diagnose hypertension in this patient?
 - You can diagnose hypertension based on a single manual measurement done upon entry to the office.
 - You can diagnose hypertension only if repeat office blood pressure measurements are elevated after a three-month period of lifestyle changes.
 - You recommend that the patient wear an ambulatory blood pressure monitoring (ABPM) device for a 24-hour period and return for a follow-up evaluation.
 - You tell the patient that he does not have high blood pressure and should return in one year for rescreening.
- If the patient is eventually diagnosed with high blood pressure, which of the following classes of medications are appropriate choices for initial treatment?
 - Angiotensin receptor blocker.
 - Calcium channel blocker.
 - Beta blocker.
 - Thiazide diuretic.
- The patient asks if his 19-year-old son should be screened for high blood pressure. Based on the USPSTF's findings, which one of the following statements is correct?
 - There is good evidence that screening for and treatment of high blood pressure in adults 18 years or older substantially reduces the incidence of cardiovascular events.
 - There is good evidence that screening for and treatment of high blood pressure has no harms.
 - Adults 18 years or older with normal blood pressure and no risk factors for high blood pressure should be screened biannually.
 - ABPM is required to diagnose high blood pressure.
 - For adults younger than 60 years, treatment should target a blood pressure level of 150/90 mm Hg.

Answers appear on the following page.

Answers

1. The correct answer is C. The USPSTF found convincing evidence that ABPM is the best method for confirming the diagnosis of hypertension. Studies show that elevated ABPM readings are consistently and significantly associated with increased risk of fatal and nonfatal stroke and cardiovascular events, independent of office blood pressure measurements. Patients wear an ABPM device for 12 to 24 hours, during which blood pressure measurements are taken and recorded every 20 to 30 minutes. Because blood pressure is affected by various short-term factors, such as stress, emotions, pain, physical activity, medications, and the presence of medical personnel (known as “white coat” hypertension), confirming a diagnosis of sustained hypertension requires multiple measurements taken outside of the clinical setting. Because of the variability of blood pressure readings, the USPSTF recommends confirmation of high blood pressure with ABPM (the reference standard) or home blood pressure monitoring before initiation of treatment. The disadvantages associated with diagnosing hypertension solely in the office setting include the potential for measurement errors, the limited number of measurements that can be made conveniently, and the confounding risk of isolated clinic hypertension. However, patients with very high blood pressure or signs of end-organ damage may need immediate therapy.

2. The correct answers are B and D. For black patients, initial treatment is a thiazide diuretic or a calcium channel blocker. For other patients, initial treatment consists of a thiazide diuretic, calcium channel blocker, angiotensin-converting enzyme inhibitor, or an angiotensin receptor blocker. For patients with chronic kidney disease, initial or add-on treatment can be either an angiotensin-converting enzyme inhibitor or an angiotensin receptor blocker, but not both.

3. The correct answer is A. The USPSTF found good evidence that screening for and treatment of high blood pressure in adults 18 years or older substantially reduces the

incidence of cardiovascular events with few major harms. Consequently, the USPSTF concluded with high certainty that the net benefit of screening for high blood pressure is substantial. The USPSTF recommends that adults 40 years and older or those with increased risk of high blood pressure, such as a high-normal blood pressure (130 to 139/85 to 89 mm Hg), those with overweight or obesity, or blacks, should be screened annually. Adults with normal blood pressure (less than 130/85 mm Hg) who have no risk factors for high blood pressure can be screened every three to five years. Although the USPSTF determined that the reference standard for diagnosis of high blood pressure is ABPM, home blood pressure monitoring is appropriate when ABPM is not available. Moderate- to high-quality randomized controlled trials demonstrate that treatment of persons 60 years or older to a target blood pressure of 150/90 mm Hg or less reduces the incidence of stroke, heart failure, and coronary heart disease events. For adults younger than 60 years, trials demonstrate similar effectiveness for a treatment goal of less than 90 mm Hg diastolic, with expert opinion recommending a systolic goal of 140 mm Hg.

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

SOURCES

U.S. Preventive Services Task Force. Screening for high blood pressure in adults: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2015; 163(10):778-786.

Piper MA, Evans CV, Burda BU, Margolis KL, O'Connor E, Whitlock EP. Diagnostic and predictive accuracy of blood pressure screening methods with consideration of rescreening intervals: a systematic review for the U.S. Preventive Services Task Force. *Ann Intern Med.* 2015;162(3):192-204.

James PA, Oparil S, Carter BL, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8) [published correction appears in *JAMA.* 2014;311(17):1809]. *JAMA.* 2014;311(5):507-520. ■