



DEPARTMENT OF VETERANS AFFAIRS
Veterans Health Administration
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UNDER SECRETARY FOR HEALTH'S INFORMATION LETTER

ABDOMINAL AORTIC ANEURYSM SCREENING

1. Purpose. This Under Secretary for Health Information Letter provides information on screening for abdominal aortic aneurysm (AAA) within Veterans Health Administration (VHA) facilities.

2. Background

a. An AAA is the expansion of the aorta below the renal arteries to a diameter of 3.0 centimeter (cm) or larger. AAAs are found in 4 percent to 8 percent of older men and 0.5 percent to 1.5 percent of older women. In a study of the prevalence of AAAs in a Department of Veterans Affairs (VA) population aged 50 to 79 years, 4.6 percent had an AAA of 3.0 cm or larger, 1.4 percent had AAAs of 4.0 cm or larger and 0.3 percent had AAAs of 5.5 cm or larger. Age (plus or minus (\geq) 65 years), male sex, and a history of ever smoking (\geq 100 cigarettes in a person's lifetime) are the most significant AAA risk factors. A family history of AAA in a first-degree relative requiring surgical repair also elevates a man's risk for AAA. Abdominal aortic aneurysms account for about 9,000 deaths in the United States (U.S.) each year. Most AAA deaths occur in men 65 years of age and older.

b. In general, adults younger than age 65 years and adults of any age who have never smoked are at low risk for AAA and not likely to benefit from screening. Among men age 65 to 75 years, an estimated five hundred who have ever smoked would need to be screened to prevent one AAA-related death in the next 5 years. For most men, age 75 years may be considered an upper age limit for screening. The majority of AAA-related deaths in women occur in those age 80 and older. Screening is generally not warranted for men over age 75 or women of any age, because of the many competing health risks and minimal benefits from screening.

c. Screening for AAA by ultrasonography is accurate and reliable, with 95 percent sensitivity and near 100 percent specificity. Four population-based randomized controlled trials of screening for AAA in men 65 years of age and older have been published. On the basis of meta-analysis, patients who were offered screening for AAA were 0.57 times as likely to have an AAA-related death compared to patients who were not offered screening (odds ratio, 0.57 [95 percent confidence interval, 0.45 to 0.74]). This represents a 43 percent reduction in AAA-related mortality. No difference in all-cause mortality was found in the three studies that examined it. No reduction in AAA-related mortality was found in the one study that included women. Screening itself was not associated with significant physical or long-term psychological harms. Major treatment harms include an operative mortality of 4 percent to 5 percent for open

repair and significant risk for major complications (such as cardiac and pulmonary complications) in nearly one third of patients.

d. A review of the four relevant cost-effectiveness studies of AAA by the U.S. Preventive Services Task Force (USPSTF) found an estimated cost-effectiveness ratio of population-based AAA screening (compared with no screening) that is in the same range as that of other cost-effective preventive services.

3. USPSTF. The USPSTF recommendations, on which VHA guidance is based, are:

a. The USPSTF recommends one-time screening for AAA by ultrasonography in men age 65 to 76 years who have ever smoked (a grade B recommendation).

b. The USPSTF found good evidence that screening for AAA and surgical repair of large AAAs (≥ 5.5 cm) in men age 65 to 75 years who have ever smoked (current and former smokers of at least 100 cigarettes) leads to decreased AAA-specific mortality. There is good evidence that abdominal ultrasonography, performed in a setting with adequate quality assurance (that is, an accredited facility with credentialed technologists), is an accurate screening test for AAA. There is also good evidence of important harms of screening and early treatment, including an increased number of surgeries with associated clinically significant morbidity and mortality, and short-term psychological harms. On the basis of the moderate magnitude of net benefit, the USPSTF concluded that the benefits of screening for AAA in men age 65 to 75 years who have ever smoked outweigh the harms.

c. The USPSTF makes no recommendation for or against screening for AAA in men age 65 to 75 years who have never smoked (a grade C recommendation).

d. The USPSTF found good evidence that screening for AAA in men age 65 to 75 years who have never smoked leads to decreased AAA-specific mortality. There is, however, a lower prevalence of large AAAs in men who have never smoked compared with men who have ever smoked; thus, the potential benefit from screening men who have never smoked is small. There is good evidence that screening and early treatment lead to important harms, including an increased number of surgeries with associated clinically-significant morbidity and mortality, and short-term psychological harms. The USPSTF concluded that the balance between the benefits and harms of screening for AAA is too close to make a general recommendation.

e. The USPSTF recommends against routine screening for AAA in women (a grade D recommendation).

f. Because of the low prevalence of large AAAs in women, the number of AAA-related deaths that can be prevented by screening this population is small. There is good evidence that screening and early treatment result in important harms, including an increased number of surgeries with associated morbidity and mortality, and psychological harms. The USPSTF concluded that the harms of screening women for AAA outweigh the benefits.

4. Recommendations from the VA National Center for Health Promotion and Disease Prevention (NCP)

- a. Men between the ages of 65 and 75 who have ever smoked need to be offered one-time screening for AAA, preferably with ultrasonography.
- b. Eligible men need to be provided patient education regarding the benefits and risks of screening and should discuss their preferences with their providers.
- c. At a minimum, the screening study should examine the aorta from the renal arteries to the aortic bifurcation, and report the greatest outside diameter measured perpendicular to the axis of the vessel. While ultrasound is the preferred modality, Computer Tomography (CT) and Magnetic Resonance Imaging (MRI) can provide the required information and are acceptable alternatives. In patients who are obese or who have excessive bowel gas, portions of the aorta may not be visible by ultrasound. These patients may be studied by low-dose non-contrast CT. Conventional angiography of the aorta is not a substitute for aortic screening because it visualizes the inside lumen diameter instead of the outside wall diameter.
- d. Men with normal findings on screening (aortic diameter of less than 3.0 cm) do not need repeat screening, as there is negligible health benefit in re-screening those with normal results. Men with aortic aneurysms of 3.0 to 3.9 cm need to be followed every 2-3 years, and those with aneurysms of 4.0 to 5.4 cm need to be followed every 6 months with repeat studies to monitor for growth of the aneurysms. If the aneurysm reaches 5.5 cm or larger, referral for surgical intervention needs to be considered.
- e. Although the target age range for screening is 65 to 75, men who have had radiologic procedures that meet the criteria in preceding subparagraph 4c between ages 60 and 65, and were not found to have AAAs, do not need to be re-screened between ages 65 and 75.
- f. Clinicians need to make individualized decisions with patients about the appropriateness of screening and early treatment. Men who are not candidates for treatment of AAA with surgical intervention, due to serious co-morbid conditions or limited life expectancy, need not undergo screening. *NOTE: All men and women, who are current smokers, need to be counseled appropriately about quitting.*
- g. Approximately one million current users of VHA services meet screening criteria. If all qualifying patients were to be referred for ultrasound in the first year, the imaging wait time might become unacceptably large, to the potential detriment of other patients. Therefore, facilities need to be judicious in working down the backlog of patients to be screened. Applying the principles and practices of Advanced Clinical Access can contribute to this effort. Radiologists are encouraged to report aortic diameter measurement on CTs ordered for other indications for men in the target population. If aortic diameter measurements are available from a prior ultrasound, CT or MRI, which visualized the aorta from the renal arteries to the aortic bifurcation, measurements may substitute for a dedicated AAA screening ultrasound study.

h. Examples of well-designed clinical reminders whose logic incorporates these recommendations are available at <http://vista.med.va.gov/reminders/>. *NOTE: Facilities are welcome to import and utilize these reminders, but their use is not required.*

5. References

a. Lederle FA, Johnson GR, Wilson SE, et al. for the Aneurysm Detection and Management (ADAM) Veterans Affairs Cooperative Study Group. "Prevalence and Associations of Abdominal Aortic Aneurysm Detected through Screening," Annals of Internal Medicine (Ann Intern Med). 126:441-449; 1997.

b. Fleming C, Whitlock EP, Beil T, Lederle F. "Screening for Abdominal Aortic Aneurysm: a Best-evidence Systematic Review for the U.S. Preventive Services Task Force," Ann Intern Med. 142:203–211; 2005.

c. U.S. Preventive Services Task Force. "Screening for Abdominal Aortic Aneurysm: Recommendation Statement," Ann Intern Med. 142:198–202; 2005.

d. Lederle FA, Johnson GR, Wilson SE, Littooy FN, Krupski WC, Bandyk D, et al. "Yield of Repeated Screening for Abdominal Aortic Aneurysm after a 4-year Interval," Archives of Internal Medicine. 160:1117-1121; 2000.

e. Lederle FA. "Ultrasonographic Screening for Abdominal Aortic Aneurysms," Ann Intern Med. 139:516-522: 2003.

6. Questions. Questions regarding implementation of these recommendations on screening for abdominal aortic aneurysms may be directed to the Director, VA National Center for Health Promotion and Disease Prevention, at 919-383-7874, ext. 222.

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