Screening for Glaucoma: Recommendation Statement

U.S. Preventive Services Task Force

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**Members of the Task Force at the time this recommendation was finalized. For a list of current Task Force members, go to* http://www.ahrq.gov/clinic/uspstfab.htm.

† Steven M. Teutsch, MD, MPH recused himself from voting on this topic.

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This statement summarizes the U.S. Preventive Services Task Force (USPSTF) recommendation on screening for glaucoma and the supporting scientific evidence, and updates the 1996 recommendations contained in the *Guide to Clinical Preventive Services*, second edition.[1] Explanations of the ratings and of the strength of overall evidence are given in Appendix A and Appendix B, respectively. The Discussion and Recommendations of Other Groups sections that are usually included in USPSTF recommendation statements are available in the complete recommendation statement on the USPSTF Web site (http://www.ahrq.gov/clinic/uspstfix.htm). The complete information on which this statement is based, including evidence tables and references, is included in the update for the USPSTF,[2] and in the evidence synthesis[3] on this topic, available through the USPSTF Web site (http://www.preventiveservices.ahrq.gov). The recommendation statement and summary of evidence are also available in print from the Agency for Healthcare Research and Quality (AHRQ) Publications Clearinghouse (call 1-800-358-9295, or e-mail ahrqpubs@ahrq.gov). The recommendation is also posted on the Web site of the National Guideline Clearinghouse™ (http://www.guideline.gov).

Recommendations made by the USPSTF are independent of the U.S. Government. They should not be construed as an official position of AHRQ or the U.S. Department of Health and Human Services.

SUMMARY OF RECOMMENDATION

The U.S. Preventive Services Task Force (USPSTF) found insufficient evidence to recommend for or against screening adults for glaucoma.

I recommendation.

The USPSTF found good evidence that screening can detect increased intraocular pressure (IOP) and early primary open-angle glaucoma (POAG) in adults. The USPSTF also found good evidence that early treatment of adults with increased IOP detected by screening reduces the number of persons who develop small, visual field defects, and that early treatment of those with early, asymptomatic POAG decreases the number of those whose visual field defects progress. The evidence, however, is insufficient to determine the extent to which screening—leading to the earlier detection and treatment of people with IOP or POAG—would reduce impairment in vision-related function or quality of life.

The USPSTF found good evidence that treatment of increased IOP and early POAG result in a number of harms, including local eye irritation and an increased risk for cataracts.

Given the uncertainty of the magnitude of benefit from early treatment and the known harms of screening and early treatment, the USPSTF could not determine the balance between the benefits and harms of screening for glaucoma.

CLINICAL CONSIDERATIONS

• POAG is a chronic condition characterized by a loss of retinal ganglion cell axons. It is manifested initially by peripheral visual field loss; in

APPENDIX A

U.S. Preventive Services Task Force Recommendations and Ratings

The Task Force grades its recommendations according to one of 5 classifications (A, B, C, D, I) reflecting the strength of evidence and magnitude of net benefit (benefits minus harms):

A. The USPSTF strongly recommends that clinicians provide [the service] to eligible patients. The USPSTF found good evidence that [the service] improves important health outcomes and concludes that benefits substantially outweigh harms.

B. The USPSTF recommends that clinicians provide [the service] to eligible patients. The USPSTF found at least fair evidence that [the service] improves important health outcomes and concludes that benefits outweigh harms.

C. The USPSTF makes no recommendation for or against routine provision of [the service]. The USPSTF found at least fair evidence that [the service] can improve health outcomes but concludes that the balance of benefits and harms is too close to justify a general recommendation.

D. The USPSTF recommends against routinely providing [the service] to asymptomatic patients. The USPSTF found at least fair evidence that [the service] is ineffective or that harms outweigh benefits.

I. The USPSTF concludes that the evidence is insufficient to recommend for or against routinely providing [the service]. Evidence that [the service] is effective is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

APPENDIX B

U.S. Preventive Services Task Force Strength of Overall Evidence

The USPSTF grades the quality of the overall evidence for a service on a 3-point scale (good, fair, poor):

Good
Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes.

Fair
Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, or consistency of the individual studies, generalizability to routine practice, or indirect nature of the evidence on health outcomes.

Poor
Evidence is insufficient to assess the effects on health outcomes because of limited number or power of studies, important flaws in their design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes.

an uncertain number of cases, it progresses to impairment in important vision-related function and even to irreversible blindness.

• The diagnosis of POAG is not made on the basis of a single test but on the finding of characteristic degenerative changes in the optic disc and defects in visual fields. Although increased IOP has previously been considered an important part in the definition of this condition, it is now known that many people with POAG do not have increased IOP; hence, there is little value of using tonometry to screen for POAG.

• Increased IOP, family history, older age, and being of African American descent place an individual at increased risk for glaucoma. Older African Americans have a higher prevalence of glaucoma and perhaps a more rapid disease progression, and if it is shown that screening for glaucoma reduces the development of visual impairment, African Americans would likely have greater absolute benefit than whites. People with a limited life expectancy would likely have little to gain from glaucoma screening.

• The natural history of glaucoma is heterogeneous and not well defined. There is a subgroup of people with POAG in whom there is either no disease progression, or the progression is so slow that the condition would never have an important effect on their vision. The size of this subgroup is uncertain and may depend on the ethnicity and age of the population. Others experience more rapidly progressing disease, leading to reduced vision-related function within 10 years. Whether an individual's glaucoma will progress cannot be predicted with precision, but those with higher levels of IOP and worse visual fields at baseline, and those who are older, tend to be at greater risk for the more rapid progression of glaucoma. Whether the rate of progression of visual field defects remains uniform throughout the course of glaucoma is unknown.

• Measurement of visual fields can be difficult. The reliability of a single visual field measurement may be low; several consistent visual field measurements are needed to establish the presence of defects. Dilated opthalmoscopy or slit lamp exam are used by specialists to examine changes in the optic disc; however, even experts vary in their ability to detect glaucomatous optic disc progression. Additionally, there is no agreed-upon single standard to define and measure progression of visual field defects.

• The primary treatments for POAG reduce IOP; these include medications, laser therapy, or surgery. These treatments effectively reduce the development and progression of small, visual field defects. The magnitude of their effectiveness, however, in reducing impairment in vision-related function is uncertain. Harms caused by these interventions include formation of cataracts, harms resulting from cataract surgery, and harms of topical medication.

References

1. U.S. Preventive Services Task Force. *Guide to Clinical Preventive Services.* 2nd ed. Washington, DC: Office of Disease Prevention and Health Promotion; 1996.
2. Fleming C, Whitlock E, Beil T, Smit B, Harris R. Screening for primary open-angle glaucoma in the primary care setting: an update for the US Preventive Services Task Force. *Ann Fam Med.* 2005;3:167-170.
3. Fleming C, Whitlock E, Beil T, Smit B. Primary care screening for ocular hypertension and primary open-angle glaucoma. Evidence synthesis no. 34 (prepared by the Oregon evidence-based practice center under contract no. 290-02-0024). Rockville, Md: Agency for Healthcare Research and Quality. March 2005. Available at: http://www.ahrq.gov/clinic/serfiles.htm.