

# Putting Prevention into Practice

*An Evidence-Based Approach*

## Vision Screening for Children One to Five Years of Age

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► See related U.S. Preventive Services Task Force Recommendation Statement on page 221.



This clinical content conforms to AAFP criteria for evidence-based continuing medical education (EB CME). See CME Quiz on page 171.

The case study and answers to the following questions on screening for vision impairment in children one to five years of age 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 detailed information on this subject is available in the USPSTF Recommendation Statement, the evidence synthesis, and the systematic evidence review on the USPSTF Web site (<http://www.uspreventiveservicestaskforce.org/>). The practice recommendations in this activity are available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspsvch.htm>.

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

### Case Study

A three-year-old girl presents for routine childhood immunizations and a routine evaluation. She does not have a history of vision screening and has no abnormal vision symptoms.

### Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF), how should this patient be approached with regard to vision screening?
  - A. She should not be screened until she is five years of age.
  - B. She should be screened at this time and have annual screenings until she is five years of age.
  - C. She should not be screened at this time because she has passed the optimal age for screening.
  - D. She should be screened at this time, or at least once in the next two years.
  - E. She should not be screened at this time because she has no vision symptoms.
2. Which one of the following statements about the benefits and harms of vision screening and treatment in children one to five years of age is correct?
  - A. The adverse psychosocial effects of vision screening tests in children older than three years, including an increased prevalence of anxiety and depression associated with positive test results, have been well established.
  - B. The harms of vision screening and treatment in children younger than three years are greater in magnitude than they are in children three to five years of age.
  - C. Treatment of amblyopia results in a permanent loss of visual acuity in the nonaffected, patched eye in approximately 10 percent of children three to five years of age.
  - D. Early treatment of amblyopia in children younger than three years, including the use of cycloplegic agents, patching, and eyeglasses, leads to improved vision outcomes.
  - E. Vision screening may lead to the overprescribing of corrective lenses in children.
3. According to the USPSTF, which of the following should be considered when deciding whether to refer children younger than three years for vision screening?
  - A. Treatment for amblyopia is more effective at earlier ages compared with treatment at three to five years of age.
  - B. Younger children may be unable to cooperate with the visual acuity test.
  - C. Photoscreeners may be associated with high initial costs and may also require external interpretation of results.
  - D. A child with a positive screening test result should receive immediate treatment with a cycloplegic agent.

Answers appear on the following page.

### Answers

**1. The correct answer is D.** The USPSTF recommends vision screening in all children at least once between three and five years of age to detect the presence of amblyopia or its risk factors. The USPSTF did not find adequate evidence to determine the optimal screening interval. The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of vision screening in children younger than three years.

**2. The correct answer is E.** False-positive results of vision screening tests may lead to the overprescribing of corrective lenses. The USPSTF found limited evidence regarding harms of vision screening, including psychosocial adverse effects, in children three years and older. The USPSTF found inadequate evidence of the harms of vision screening and treatment in children younger than three years. Adequate evidence suggests that the harms of treatment of amblyopia in children three years and older are limited to reversible loss of visual acuity resulting from patching of the nonaffected eye. Although the USPSTF found adequate evidence that early treatment of amblyopia in children three to five years of age leads to improved visual outcomes, it found insufficient evidence of the benefits of early treatment in children younger than three years.

**3. The correct answers are B and C.** Most studies show that vision screening and treatment later in the preschool years seem to be as effective at preventing amblyopia as screening and treatment earlier in life. Younger children often are unable to cooperate with some of the screening tests performed in clinical practice, such as visual acuity testing. As a result, screening of younger children often yields false-positive results. Potential disadvantages of using photoscreeners and autorefractors are the initial high costs associated with the instruments and the need for external interpretation of screening results with some photoscreeners. Children with positive screening test results should be referred for a full ophthalmologic examination to confirm the presence of vision problems and to receive further treatment.

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### SOURCES

U.S. Preventive Services Task Force. Vision screening for children 1 to 5 years of age: U.S. Preventive Services Task Force recommendation statement. *Pediatrics*. 2011;127(2):340-346.

Chou R, Dana T, Bougatsos C. Screening for visual impairment in children ages 1-5 years: update for the USPSTF. *Pediatrics*. 2011;127(2):e442-e479. ■

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