

The Need for Vision Screening in Primary Care Offices

Vision plays an important role in children's physical, cognitive, and social development. Uncorrected vision problems can impair child development, interfere with learning, and even lead to permanent vision loss; thus, early detection and treatment are critical.^{1,2,3,4,5} Visual functioning is a strong predictor of academic performance in school-age children^{6,7} and vision disorders of childhood may continue to affect health and well-being throughout the adult years.⁸ The economic costs of children's vision disorders are significant, amounting to \$10 billion annually in the United States.⁹

Routine vision screening and/or eye examinations are vitally important to detect problems before child development is compromised. Estimates of the proportion of U.S. children who receive vision screening vary depending on the data source and type of screenings studied.^{10,11}

Vision screening, eye examinations, population-based data systems, and measures of accountability are the cornerstones of a comprehensive system to ensure children's vision and eye health.

Amblyopia is found in 2 percent of children ages 6 to 72 months.^{12,13,14} Treatment is most successful when initiated before the age of 7 years.^{15,16} Untreated, or treated too late, amblyopia can lead to permanent vision loss.^{17,18}

Between 2 and 4 percent of children under the age of 6 years have strabismus, a misalignment of the eyes that can lead to the development of amblyopia.^{12,13,14}

The prevalence of refractive errors varies by age and race/ethnicity.^{19,20} Overall, 4 percent of children 6 to 72 months of age have myopia (nearsightedness),²¹ and 21 percent have hyperopia (farsightedness).²¹

All children should receive a comprehensive eye examination. Since that is not commonplace, a vision screening will identify those at higher risk of a vision problem and direct the child and their families to the proper eye care provider. Parents rely on the screening results and referrals they receive from their child's primary care doctor. Referral directions given by the clinical staff are vitally important.

The American Academy of Family Physicians (AAFP) and the American Academy of Pediatrics (AAP) both support vision screening as complementary to eye examinations. According to the AAP policy "Procedures for the Evaluation of the Visual System by Pediatricians" (January 2016) "Vision screening is crucial for the detection of visual and systemic disorders. It should begin in the newborn nursery and continue throughout childhood." If more primary health professionals routinely provided vision screening at well-child visits, the percent of children with undetected and untreated vision problems upon school entry will decrease.

Thorough education about children's developing visual system and common eye problems is imperative for family practice residents, pediatric residents and nursing students. Teaching vision screening skills to up and coming professionals early in their education helps to ensure that routine screenings will be emphasized once they are established in a practice.

Medicaid recently updated and increased their reimbursement rates for children's vision screenings. This change emphasizes Medicaid's recognition of the importance of having vision screenings completed in primary care offices. Reimbursement amounts range from \$2.40 (CPT 99173) to \$9.66 facility/\$10.42 non-facility (CPT 99174, 99177). Modifiers may apply.

Resources:

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- ⁴ Ibironke JO, Friedman DS, Repka MX, et al. Child Development and Refractive Errors in Preschool Children. *Optometry and Vision Science*, 2011;88(2):181-187.
- ⁵ US Preventive Services Task Force. Vision Screening For Children 1 To 5 Years Of Age: US Preventive Services Task Force Recommendation Statement. *Pediatrics*, 2011;127(2):340-346.
- ⁶ Maples WC. Visual Factors That Significantly Impact Academic Performance. *Optometry*, 2003;74(1):35-49.
- ⁷ Basch CE. Vision and the Achievement Gap among Urban Minority Youth. *Journal of School Health*, 2011;81(10):599-605.
- ⁸ Davidon S, Quinn GE. The Impact of Pediatric Vision Disorders in Adulthood. *Pediatrics*, 2011;127(2):334-339.
- ⁹ Wittenborn JS, Zhang X, Feagan CW, et al. The Economic Burden Of Vision Loss And Eye Disorders Among The United States Population Younger Than 40 Years. *Ophthalmology*, 2013;120(9):1728-1735. David S. Friedman. 2012 Fifth Edition of "Vision Problems in the U.S." (June 2012), Wittenborn, John S. & Rein, David B. "Cost of Vision Problems: The Economic Burden of Vision Loss and Eye Disorders in the United States." NORC at the University of Chicago. Prepared for Prevent Blindness America, Chicago, IL. (June 11, 2013).
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- ¹¹ Hartmann EE, Block SS, Wallace DK. Vision and Eye Health in Children 36 to <72 Months: Proposed Data System. *Optometry and Vision Science*, 2015;92(1):24-30.
- ¹² Multi-Ethnic Pediatric Eye Disease Study Group. Prevalence of Amblyopia and Strabismus in African American and Hispanic Children Ages 6 to 72 Months: The Multi-Ethnic Pediatric Eye Disease Study. *Ophthalmology*, 2008;115(7):1229-1236.
- ¹³ McKean-Cowdin R, Cotter SA, Tarczy-Hornoch K, et al. Prevalence of Amblyopia or Strabismus in Asian and Non-Hispanic White Preschool Children: Multi-Ethnic Pediatric Eye Disease Study. *Ophthalmology*, 2013;120(10):2117-2124.
- ¹⁴ Friedman DS, Repka MX, Katz J, et al. Prevalence of Amblyopia and Strabismus in White and African American Children Aged 6 Through 71 Months: The Baltimore Pediatric Eye Disease Study. *Ophthalmology*, 2009;116(11):2128-2134.

- ¹⁵ Holmes JM, Lazar EL, Melia BM, et al. Effect Of Age On Response To Amblyopia Treatment In Children. *Archives of Ophthalmology*, 2011;129(11):1451-1457.
- ¹⁶ Kemper AR, Crews JE, Strickland B, Saaddine JB. Vision Screening Among Children Aged <6 Years—Medical Expenditure Panel Survey, United States, 2009-2010. *MMWR*, 2014;63(2):43-46.
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- ¹⁸ Rein DB, Wittenborn JS, Zhang X, et al. The Potential Cost-Effectiveness Of Amblyopia Screening Programs. *Journal of Pediatric Ophthalmology & Strabismus*, 2012;49(3):146-155.
- ¹⁹ Wen G, Tarczy-Hornoch K, McKean-Cowdin R, et al. Prevalence Of Myopia, Hyperopia And Astigmatism In Non-Hispanic White And Asian Children: Multi-Ethnic Pediatric Eye Disease Study. *Ophthalmology*, 2013;120(10):2109-2116.
- ²⁰ Multi-Ethnic Pediatric Eye Disease Study Group. Prevalence of Myopia and Hyperopia in 6 to 72 Months Old African American and Hispanic Children: The Multi-Ethnic Pediatric Eye Disease Study. *Ophthalmology*, 2010;117(1):140-147.
- ²¹ Borchert MS, Varma R, Cotter SA, et al. Risk Factors For Hyperopia And Myopia In Preschool Children. *Ophthalmology*, 2011;118(10):1966-1973.