

Medical Policy: Ocular Photoscreening (Commercial)



POLICY NUMBER	EFFECTIVE DATE	APPROVED BY
M20190008	9/01/2019	MPC (Medical Policy Committee)

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Guidelines:

Instrument-based ocular screening using photoscreening is covered as medically necessary for vision screening for the following:

- As a preventive screening instrument for children 1 - 3 years of age (ends on 4th birthday).
- Individuals 4 years of age and older who are developmentally delayed and are unable or unwilling to cooperate with routine visual acuity screening.

Limitations/Exclusions:

Instrument-based ocular screening using photoscreening is unproven and not medically necessary for all other patient populations including children younger than 1 year of age. More age-appropriate screening methods are available for these populations.

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Applicable CPT and Diagnosis Codes

99174 Instrument-based ocular screening (e.g., photoscreening, automated refraction), bilateral; with remote analysis and report

99177 Instrument-based ocular screening (e.g., photoscreening, automated refraction), bilateral; with on-site analysis



Coding Criteria

Clinical Evidence

Ocular photoscreening has been investigated as an alternative screening method to detect risk factors for amblyopia, which include strabismus, high refractive errors, anisometropia, and media opacities. Many children permanently lose vision each year as a result of these treatable ocular disease processes. Early diagnosis and treatment of these conditions has been shown to yield better visual outcomes.

The U.S. Preventive Services Task Force (USPSTF, 2017) recommended vision screening for amblyopia and its risk factors in children aged 3 to 5 years. Evidence was insufficient to assess the benefits and harms of vision screening in children younger than 3 years. Various screening tests are used in primary care to identify visual impairment among children, including visual acuity tests, stereoacuity tests, the cover-uncover test, and the Hirschberg light reflex test (for ocular alignment/strabismus). Photoscreeners (instruments that detect amblyogenic risk factors and refractive errors) may also be used.

Infants and young preverbal children are difficult to screen because they are unable to provide subjective responses to visual acuity testing and do not easily cooperate with testing of ocular alignment or stereoacuity (AAP, 2002). For similar reasons, it also is difficult to screen certain older children, such as those who are nonverbal or have developmental delays.

Ocular photoscreening has been used to screen for amblyogenic factors, such as strabismus, media opacities, and significant refractive errors, in children (AAP, 2002). An advantage of ocular photoscreening over standard methods of testing visual acuity, ocular alignment and stereoacuity is that photoscreening requires little cooperation from the child, other than having to fixate on the appropriate target long enough for photoscreening. Thus, photoscreening has the potential to improve vision screening rates in preverbal children and those with developmental delays who are the most difficult to screen. Many of the children that are most difficult to screen using conventional methods are also at highest risk of amblyopia (e.g., premature infants, children with developmental delays).

In a retrospective study, Longmuir et al. (2013) reported their experience with vision screening in children and compared the results of photoscreening in children younger than 3 years with those of children of preschool age and older. During the 11 years of the study, 210,695 photoscreens on children were performed at 13,750 sites. According to the authors, these results confirm that early screening, before amblyopia is more pronounced, can reliably detect amblyogenic risk factors in children younger than 3 years of age, and they recommend initiation of photoscreening in children aged 1 year and older.

In a cross-sectional study, Longmuir et al. (2010) reported on a cohort of preschool children screened by a photoscreening program (using MTI PhotoScreener) over a 9-year period from a single, statewide vision screening effort. Children who failed the photoscreening were referred to local eye care professionals who performed a comprehensive eye evaluation. Over the 9 years of the continuously operating program, 147,809 children underwent photoscreens to detect

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amblyopic risk factors at 9,746 sites. Because of abnormal photoscreen results, 6,247 children (4.2%) were referred. The overall positive predictive value (PPV) of the MTI PhotoScreener was 94.2%.

Professional Societies:

American Academy of Ophthalmology (AAO)

The American Academy of Ophthalmology (AAO) Preferred Practice Patterns for Pediatric Eye Evaluations (2017) state that vision screening should be performed at an early age and at regular intervals throughout childhood. The elements of vision screening vary depending on the age and level of cooperation of the child. Subjective visual acuity testing is preferred to instrument-based screening in children who are able to participate reliably. Instrument-based screening is useful for some young children and those with developmental delays. Instrument-based screening techniques, such as photoscreening and autorefraction, are useful for assessing amblyopia and reduced-vision risk factors for children ages 1 to 5 years, as this is a critical time for visual development. Instrument-based screening can occur for children at age 6 years and older when children cannot participate in optotype-based screening.

American Academy of Ophthalmology/ American Association for Pediatric Ophthalmology and Strabismus / American Association of Certified Orthoptists

The American Academy of Ophthalmology, the American Association for Pediatric Ophthalmology and Strabismus, and the American Association of Certified Orthoptists coauthored a policy statement regarding the use of instrument-based screening devices. These devices are available commercially and have had extensive validation, both in field studies as well as in the pediatrician's offices. Screening instruments detect amblyopia, high refractive error, and strabismus, which are the most common conditions producing visual impairment in children. If available, they can be used at any age but have better success after 18 months of age. Instrument-based screening can be repeated at each annual preventive medicine encounter through 5 years of age or until visual acuity can be assessed reliably using optotypes. Using these techniques in children younger than 6 years can enhance detection of conditions that may lead to amblyopia and/or strabismus compared with traditional methods of assessment (Donahue and Baker, 2016).

References:

1. American Academy of Ophthalmology (AAO). Pediatric Eye Evaluations PPP – November 2017. Preferred Practice Patterns.
2. Donahue S, Baker C. Committee on Practice and Ambulatory Medicine, Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology. Visual System Assessment in Infants, Children, and Young Adults by Pediatricians. *Pediatrics* 2016;137;1.
3. Longmuir SQ, Pfeifer W, Leon A, et al. Nine-year results of a volunteer lay network photoscreening program of 147 809 children using a photoscreener in Iowa. *Ophthalmology*. 2010 Oct;117(10):1869-75.
4. U.S. Preventive Services Task Force (USPSTF). Final Recommendation Statement: Visual Impairment in Children Ages 6 months to 5 years: Screening. U.S. Preventive Services Task Force. September 2018.

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5. American Academy of Pediatrics, Committee on Practice and Ambulatory Medicine and Section on Ophthalmology. Use of photoscreening for children's vision screening. Policy Statement. Pediatrics. 2002;109(3):524-525.
6. American Academy of Pediatrics. AAP publications reaffirmed and retired, February and May 2008. Pediatrics 2008; 122(2):450.
7. American Academy of Pediatrics, Committee on Practice and Ambulatory Medicine and Section on Ophthalmology. Eye examination and vision screening in infants, children, and young adults. Policy Statement. Pediatrics. 1996;98:153-157.
8. American Academy of Pediatrics, Committee on Practice and Ambulatory Medicine, Section on Ophthalmology; American Association of Certified Orthoptists; American Association for Pediatric Ophthalmology and Strabismus; American Academy of Ophthalmology. Eye examination in infants, children, and young adults by pediatricians. Pediatrics. 2003;111(4 Pt 1):902-907.

Revision history

DATE	REVISION
4/2019	<ul style="list-style-type: none">• New Policy