

## Commentary: Photo screeners: The present and future of preschool screening

There is no doubt preschool screening is a definite challenge in measuring vision, diagnosing various ocular problems, and delivering appropriate management and most importantly to brief and counsel the parents of the diagnosed problem in children. To add on to this challenge and to go back to 1990s, preschool screening was a debateable issue. From an ethical point of view, it was appropriate to continue to screen only in the context of a controlled trial of treatment, in UK. However, in North America the opinion was to carry out preschool screening for detection of strabismus, refractive error, and amblyopia.<sup>[1]</sup> In 2006, visual disorders among preschool-aged children were common, yet screening was infrequent.<sup>[2]</sup>

With progressing time, it became clearer that preschool screening is essential to create awareness<sup>[3]</sup> about various ocular problems, early detection, early intervention and prevention or reduction of severity of amblyopia although the age of screening, the frequency of screening and methodology by which these children need to be screened is constantly getting modified. However, the US Preventative Services Task Force in 2011 recommended vision screening at least once for children between 36 months and 5 years of age and stated explicitly that photo screening is an appropriate screening technology.<sup>[4]</sup> In 2016, the American Academy of Pediatrics, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Certified Orthoptists, and American Academy of Ophthalmology released a joint clinical report recommending preschool vision screening in children aged 6 months to 3 years with physical examination (e.g., external inspection, the fixation and follow test, the red reflex test, and pupil examination). Instrument-based vision screening (with autorefractors or photoscreeners) may be used, when available, in children aged 1–3 years. Visual acuity screening may be attempted at age three years using HOTV or Lea Symbols charts; children aged 4–5 years should have visual acuity assessed using HOTV or Lea Symbols charts, the cover-uncover test, and the red reflex test.<sup>[5]</sup>

Various photoscreeners are available from few countries with high sensitivity and specificity relative to the gold standard comprehensive eye exam.<sup>[6,7]</sup> Instrument-based screening also had higher screening numbers and lower referrals of children with eye problems as compared to chart based screenings.<sup>[7]</sup>

Authors in their article, Agreement and Diagnostic accuracy of Vision Screening in Preschool Children Between Vision Technicians and Spot Vision Screener (SVS) system observed SVS to have good sensitivity and specificity. A high sensitivity index enabled screening a large number of preschool children with reasonable accuracy and without depending on trained personnel was shown to be a possibility with spot vision screener, which would not have been conceivable in the past. It is a useful alternative for children who do not have access to eye care services. SVS is portable, quick, and easy to operate.<sup>[8]</sup>

However, the limitation of this study was that screening was not done with cycloplegics in these children,<sup>[8]</sup> therefore missing on some numbers of children with hyperopia. There is also limited data on the accuracy of these vision screeners when used in population-based studies in developing countries. Therefore, more number of studies are required on using these photoscreeners in community-based population and comparing the results of the screeners with and without cycloplegics.

As of now, we have relatively reliable tools as regards to sensitivity and specificity to screen for refractive error,

relatively more number of trained optometrists and pediatric ophthalmologists and centres to cater to services for children as a whole. All that we need to do now is look at setting up guidelines or protocols in our country for methodology, interpretation and various plans of actions, utilising all modalities of screening and taking help of health care providers, which could be implemented uniformly and universally.

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### References

1. Rahi JS, Dezateux C. The future of preschool vision screening services in Britain. *BMJ* 1997;315:1247-8.
2. Hartmann EE, Bradford GE, Nottingham Chaplin PK, Johnson T, Kemper AR, Kim S, *et al.* Project universal preschool vision screening: A demonstration project. *Pediatrics* 2006;117:e226-37.
3. Ciner EB, Schmidt PP, Orel-Bixler D, Dobson V, Maguire M, Cyert L, *et al.* Vision screening of preschool children: Evaluating the past, looking toward the future. *Optom Vis Sci* 1998;75:571-84.
4. US Preventive Services Task Force. Vision screening for children 1 to 5 years of age: US Preventive Services Task Force Recommendation statement. *Pediatrics* 2011;127:340-6.
5. US Preventive Services Task Force. Vision screening in children aged 6 months to 5 years. US Preventive Services Task Force Recommendation statement. *JAMA* 2017;318:836-44.
6. Forcina BD, Peterseim MM, Wilson ME, Cheeseman EW, Feldman S, Marzolf AL, *et al.* Performance of the spot vision screener in children younger than 3 years of age. *Am J Ophthalmol* 2017;178:79-83.
7. Modest JR, Majzoub KM, Moore B, Bhamhani V, McLaughlin SR, Vernacchio L. Implementation of instrument-based vision screening for preschool-age children in primary care. *Pediatrics* 2017;140:e20163745.
8. Misra N, Khanna RC, Mettla AL, Marmamula S, Keeffe JE. Agreement and diagnostic accuracy of vision screening in preschool children between vision technicians and spot vision screener. *Indian J Ophthalmol* 2021;69:117-21.

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