What's the difference between photo screening and visual acuity measurement?

Overview

Photo screening devices like the Spot™ Vision Screener objectively measure refractive errors and alignment between the eyes, which helps assess for six risk factors of amblyopia without much cooperation from the patient. Spot Vision Screener examines both eyes at once and takes only a few seconds to perform the screening.

Visual acuity subjectively measures how well a child can see using a wall chart. The child needs to cooperate to look at the correct line and verbally relay what they see. Visual acuity testing can detect refractive errors, but does not detect eye misalignment and may miss differences between eyes. Visual acuity screening can also detect non-refractive vision problems that may be caused by problems with the retina, eye structure or neurological connection between the eye and the brain.

Introduction

The American Academy of Pediatrics (AAP) and American Association for Pediatric Ophthalmology and Strabismus (AAPOS) recommend the use of photo screening instruments in young children before they can successfully complete a chart-based visual acuity test. Once children can successfully perform a visual acuity test, usually around age 5, the policy recommends subjectively testing visual acuity with a chart-based screener. Policy statements have not endorsed the use of photo screeners in children older than age 5, largely because photo screener performance has not been thoroughly studied in this age group.

Study Objective: Is instrument-based screening a reliable and accurate solution for detecting vision problems in children? Does instrument-based vision screening provide time savings for schools?

A study performed by researchers at Virginia Commonwealth University demonstrated the effectiveness of photo screening in school-age children. The study included 1,593 third-grade children across 16 elementary schools in a single county in Virginia. Students received both instrument-based screening and traditional visual acuity screening tests.

Children referred through either method were provided with a comprehensive eye exam with cycloplegic refraction to assess the accuracy of the referral. Time to screen was also measured for both instrument-based screening and visual acuity measurement.

Validation of Instrument-Based Screening Benefits for Children.

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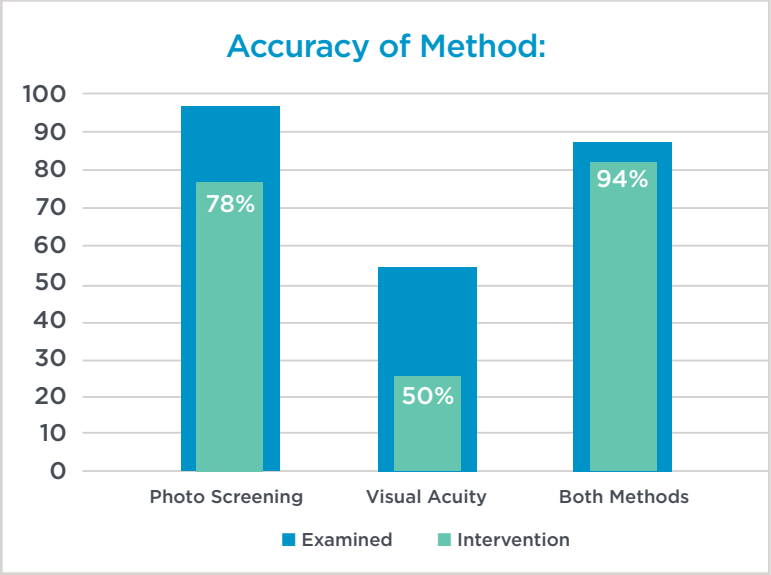
Study Outcomes:

Children Referred for Comprehensive Eye Exam:

A total of 516 (32.4%) of students were referred for a comprehensive eye exam based on either method.



Referral from both screening methods was a strong predictor of children needing a vision intervention, with 94% of those referred requiring glasses or a more in-depth follow up examination.

Additionally, 78% of the students referred by instrument-based vision screening alone required an intervention, compared to only 50% referred by visual acuity testing alone.

Note: The percentage shows the accuracy of each testing method.

Time Savings with Instrument-Based Screening by Child (Average):

Instrument-based screening took on average **30 seconds** to screen each child compared with visual acuity testing, which took on average **120 seconds** to screen each child.

Photo Screening

30 seconds
to screen each child

Visual Acuity

120 seconds
to screen each child

Conclusion

- Combining instrument-based screening with traditional visual acuity screening helps identify more children in need of visual intervention.
- Instrument-based screening is time efficient and can be performed in ¼ the time of visual acuity screening.
- Using instrument-based screening alone correctly identified more students in need of a comprehensive eye exam than using visual acuity screening alone.

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