

Title	The safety and effectiveness of preschool vision screening
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Aim

To systematically review the best available evidence on the safety, efficacy/effectiveness, and cost-effectiveness of universal and targeted preschool vision screening (PSVS) for detecting vision problems in asymptomatic preschool children (birth to 6 years of age) who are not necessarily at risk for developing visual impairment.

Conclusions and results

Five recently published systematic reviews were identified. Their results are summarized below.

- The primary research did not provide sufficient rigorous evidence to conclusively evaluate the effectiveness and safety of using PSVS (universal or targeted) to detect vision conditions in children younger than 6 years. Only one study directly compared screening with no screening, and only a few studies compared PSVS strategies of varying intensity or conducted at different ages. Most studies showed limited robustness of results.
- Studies of the potential harms of PSVS were lacking.
- The evidence suggested that universal PSVS had a positive effect on amblyopia prevalence in children. However, the impact of improved visual acuity on outcomes such as school performance or quality of life was not considered.
- No studies compared universal PSVS with targeted PSVS.

Results from a limited number of cost-effectiveness studies comparing universal vision screening with no screening indicated that the cost per case detected ranged from GB£600 to GB£73,000, depending on the specific characteristics of screening, the clinical setting, the disease prevalence, the cost components, and the child's age at screening. The cost per additional quality-adjusted life-year gained ranged from GB£500,000 to GB£11 million, depending on the child's age at screening. Thus, while vision screening was associated with improved health outcomes, it did not provide a net cost saving to the health system.

Recommendations

There was insufficient rigorous evidence to conclusively evaluate the effectiveness and safety of using PSVS (universal or targeted) for detecting vision conditions that commonly occur before 6 years of age. The limited economic evidence suggested that the additional health benefits of universal PSVS do not outweigh the additional costs.

As it is unknown whether universal or targeted PSVS helps reduce the prevalence of vision conditions such as amblyopia, strabismus, and refractive error, the best strategy for conducting PSVS remains unclear.

Methods

Comprehensive searches of various electronic databases were conducted to identify relevant systematic reviews and health technology assessments published in English between January 2007 and March 2012. A grey literature search was also conducted. Study selection, data extraction, and informal quality assessment were performed by one reviewer. The data were synthesized qualitatively.

Further research/reviews required

There is a lack of consistent evidence and consensus about how to conduct and when to start PSVS, what tools or tests are the most effective for detecting amblyopia and its predisposing conditions, and who is best placed (in terms of accuracy, availability, and efficiency) to conduct PSVS. Furthermore, evidence on the potential harms of PSVS remains limited. Future well-designed research is warranted to conclusively determine the utility of PSVS.

Written by

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