

Establishing a coordinated, comprehensive approach to children's vision screening in the U.S.

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Background

Amblyopia, strabismus, and significant refractive error are the most prevalent disorders of the vision system in children aged 3 through 5 years.

Amblyopia occurs in 1.2-3% of preschool children in the United States.

Poor vision can affect a child's development.

Our goal was to design a universal vision screening program that is flexible and effective on local, state, and national levels. Challenges include mobilizing stakeholders, building capacity and creating the expertise for success.



1 in 20 preschool-aged children has a vision problem

Program Goals

Prevent Blindness, with support from the Maternal and Child Health Bureau, established the National Center for Children's Vision and Eye Health (Center) to address children's vision screening. The Center convened experts from pediatrics, ophthalmology, optometry, public health, vision research, nursing, and more to develop recommendations for a comprehensive approach to children's vision screening (Figure 1). The Center targeted children aged 36 to <72 months old.

Current Approach to Children's Vision Screening and Surveillance



New Approach to Children's Vision Screening and Surveillance



* Children aged 36 to <72 months completing at least one valid vision screening in a primary care, public health or school/community setting with appropriate follow up or received a comprehensive eye exam by an optometrist or ophthalmologist.

Figure 1. The top of the figure depicts the current state of children's vision in which only a portion of the population receives screening and/or eye care.

The bottom portion depicts a vision system in which all members of the target population receive a vision screen and/or full eye examination.

Methods

The organization of the Center was focused on two primary objectives. As shown in Figure 2, the 5 pilot programs focused solely on their state systems and the National Expert Panel was tasked with planning a comprehensive approach to children's vision screening:

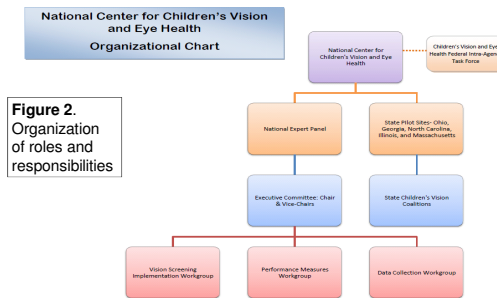


Figure 2. Organization of roles and responsibilities

The National Expert Panel formed recommendations around 3 key areas:

1. Performance measures to track both provision of vision screening & receipt of follow up care in children 36 to <72 months of age.
2. Uniform management of data collected during vision screening: demographics, results screening, and outcome/follow-up.
3. Best practice vision screening protocol supported by research evidence.

Recommendations were developed through a consensus process incorporating review of published literature; consultation with states developing their vision screening infrastructure; and consultation with experts in the national and state agencies that are actively involved with performance measure development. The full recommendations are on course to be published in 2014.

Additionally, pilot programs were established in five states (Ohio, Massachusetts, Illinois, Georgia, and North Carolina) to seek out best practices that align with the panel recommendations and to study possible strategies for comprehensive vision screening and surveillance of children in each particular state.



Results

Vision screening performance measures:

- Well-crafted valid and reliable performance measures can help to drive the development of appropriate data systems.
- The panel determined all care received by the child should be included.
- A child-based measure is preferred, which includes all sources of vision care and removes duplicate counts for children receiving care from more than one provider.

Vision screening data collection:

- Vision screening surveillance needs to incorporate systematic data collection, including child-specific identifiers to ensure that the data are accurately linked to the child without duplication.
- Data entry should be simple for community-based as well as health care provider office-based screenings, incorporate communication among these entities (Figure 3), and be able to exchange information between electronic medical records (EMR) information and a state-wide system.

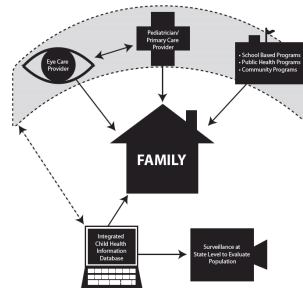


Figure 3. Flow of vision screening outcomes in an integrated system.

Vision screening implementation:

- Vision screening of children aged 36 to <72 months can be performed using scientifically recommended methods.
- Regardless of the screening method(s) selected, the method is only one part of a comprehensive screening program (Image 1). The screening system is only successful when the result of the screening is used in a meaningful way.

Image 1. Key features of a comprehensive screening program.

Considerations for vision screening in a preschool population

Before screening:



- Different tools work in different environments
- Staff need formal training
- Pre-training for child AND parent is key

While screening:

- Use of matching cards
- Reduce distraction and glare
- Keep the distance close

After screening:

- Consistent data collection
- Share results with parents and other providers (with permission)
- Have eye care resources on hand
- Ensure all vision needs for learning are met

Conclusions

Children's vision screening has been perpetually challenged by a lack of national standardization, infrastructure, and surveillance.

Vision screening lies at the intersection of multiple health care providers including pediatricians, optometrists, and ophthalmologists as well as many public institutions (Departments of Education, Departments of Public Health, etc).

Each entity has a role in the vision screening process, but often each role is uniquely defined varying by geography and profession.

The Expert Panel to the National Center for Children's Vision and Eye Health has suggested a comprehensive approach to vision screening implementation and surveillance with the goal of reducing the number of children suffering from needless vision loss.

Uniformity in vision screening implementation, improved data sharing and provider communication, and establishment of state and national level performance measures for vision screening represent the recommended pathway to healthier vision for children.

References

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For further information

Please contact kbaldonado@preventblindness.org. More information on this and related projects can be obtained at <http://nationalcenter.preventblindness.org>.