The USAID Micronutrient and Child Blindness Project

# Seeing the World through New Lenses: Providing Refractive Error Services to Children in Need

Summary of Grantee Accomplishments:

→ Screened over 950,000 children for visual acuity and basic eye conditions
→ Referred nearly 14,000 children with visual impairment for additional services
→ Provided eyeglasses to over 20,000 children

*Doctors in Quang Nam, Vietnam exchange knowledge and skills on pediatric ophthalmology.*


*Children await refractive error screening in Quang Nam, Vietnam.*

## A2Z Child Blindness Program: Tackling Avoidable Blindness through Partnerships

Approximately 1.4 million children worldwide are blind. In addition, nearly 17 million children with low vision or impaired sight lack the eyeglasses, visual aids, or services they need to help them function. As a component of A2Z: The USAID Micronutrient and Child Blindness Project, the A2Z Child Blindness Program uses competitive grants to reduce child blindness and improve eye health through support to NGOs that deliver services to populations in need. The goals and priorities of the program are to:

- Expand delivery of high-impact direct services, including screening, treatment, and education and rehabilitation.
- Scale-up innovative approaches to service provision and program implementation.
- Contribute to the global knowledge base on effective approaches to large-scale child eye health programs.

Managed by AED since 2005, the A2Z Child Blindness Program has awarded 37 grants to 24 local and international organizations to support work in 27 countries across Latin America, Asia, and sub-Saharan Africa. The majority of grant awards support service delivery initiatives that provide comprehensive services for children, from case detection and treatment to follow-up care. The following case study provides an in-depth look at delivering refractive error services to children in Cambodia (Seva/Cambodia), Nepal (Himalayan Cataract Project, Seva/Nepal), and Vietnam (Fred Hollows Foundation).

## Refractive Errors: A Leading Cause of Childhood Blindness

Globally, 12 million children ages five to fifteen are visually impaired because of uncorrected refractive errors—a leading cause of avoidable child blindness.

Many of these common visual impairments, including astigmatism, farsightedness, and near-sightedness, are easily diagnosed and corrected with glasses, contact lenses, or refractive surgery. Providing eyeglasses to children is one of the simplest, most cost-effective measures for treating refractive errors.

Despite this, barriers to access, affordability, and acceptance, as well as a lack of funding, human resources, and political commitment, prevent vulnerable children from receiving the refractive eye care services they need to reach their human potential. Without glasses and refractive error services, a child's vision, education, future productivity, employment opportunities, and quality of life are negatively impacted.

The grantees featured in this case study—Himalayan Cataract Project, Seva Foundation, and the Fred Hollows Foundation—used a combination of school and community-based refractive error programs to successfully screen, refer, and provide glasses and eye care services to 950,000 children in need from April 2008—March 2010, exceeding established targets. With an eye towards quality service delivery, building sustainable referral networks, creating local partnerships, and cross-sectoral collaboration, grantees were able to provide eye care services to children, families, and communities, improving the quality of life of thousands of children in Nepal, Cambodia, and Vietnam.

## Identifying Children with Refractive Errors through Screening

In all countries, grantees worked with existing eye programs available at community health clinics and hospitals, and built upon these structures to establish eye screening services at schools and in communities. The projects were able to reach large numbers of children using a strategic combination of school and community approaches, and by creating referral networks and linkages between the education and health sectors. School screening programs use existing school structures and human resources to reach thousands of children at a low cost. Community screening programs enable projects to reach the hard to reach, including out-of-school children and their families, and those living in remote or rural areas.

### *School Screening Programs*

Prior to implementation, projects collaborated with local eye clinic and hospital personnel, and the necessary village, district, and provincial level education authorities to establish school screening programs in Nepal, Cambodia, and Vietnam. This collaboration allowed projects to build sustainable referral networks between schools and hospitals, and ensured that children receive quality vision services through school-based screening programs.

Seva/Nepal works with school authorities to select teachers for training who are highly motivated, and those who teach health or work with youth clubs. Similarly, Fred Hollows Foundation in Vietnam selects screeners who are health teachers, school medical staff, staff working with the school founder, head teachers, or teachers recommended by the school management board. In Cambodia, Seva seeks teachers who have vision problems or wear glasses themselves, offering them free glasses as an incentive to participate.

A2Z grantees work with local clinic and hospital personnel to train teachers and equip them with vision charts, referral slips, and visual acuity training. Once teachers are trained, projects work with schools to establish and publicize vision screening schedules. During school screening days, children are screened by their teachers and are referred to nearby community eye clinics or hospitals as necessary.
In remote areas of Nepal and Cambodia that have minimal access to eye clinics and hospitals, Seva sends optometrists, ophthalmic assistants, or refraction nurses to visit schools and provide refraction to children who have been referred by their teachers.

These eye health personnel then return to schools with glasses for children who need them, and provide follow-up care to children as necessary. Overall, projects found that in-school screenings identified more children in need of glasses than surgery.

### *Community-based Screening Programs*

Projects also collaborate with local clubs, NGOs, women's groups, community leaders, and local eye clinics and hospitals to coordinate all aspects of community screening programs and establish community "screening camps". Some grantees, like Seva, employ a "whole family approach" to community screening programs, conducting both pediatric screening camps (for children only), as well as community screening camps, which include visual screening for adults.

**Table 1: Screening Strategies by Organization**

| Organization | School teachers | Community health volunteers | Traditional healers | Health workers |
|---|---|---|---|---|
| Fred Hollows Foundation Vietnam | x | x | | x |
| Himalayan Cataract Project | x | x | x | |
| Seva/ Cambodia | x | x | | x |
| Seva/Nepal | x | x | x | x |

Seva's "whole family approach" helps to ensure that parents are involved and understand the importance of eyeglasses for visually impaired children, and the need for continued follow-up care.

Grantees regularly select community screeners who are local, literate, cooperative, and those who are interested in volunteer work and demonstrate a positive attitude. The projects prefer to choose individuals who have experience with visual screening, working with health center staff and field workers, and who are recommended by provincial health authorities.

Seva/Nepal selects a local organizing committee, which often consists of individuals from various community-based groups, to organize screening camps. This committee then liaises with nearby eye clinics and hospitals to determine the date and location of screening camps, hire personnel to conduct screening and refraction, develop brochures, pamphlets and other educational materials, advertise camps on the

*Doctor Nguyen Ky Suong conducts post-surgical refraction at Binh Son District Hospital in Vietnam.*

radio and through public service announcements, manage registration, conduct screenings, prescribe treatment, and provide medicine and glasses at no cost to children who cannot afford them. Patients needing surgery are referred to the nearest eye hospital.

Similarly, Fred Hollows Foundation in Vietnam contacts local stakeholders to plan screening camps for each commune in a district. During these scheduled screenings, refraction is provided by a team consisting of an eye doctor and a community health worker. Children requiring follow-up or surgery are referred to nearby clinics and hospitals for subsequent care and treatment.

Seva/Cambodia partners with commune chiefs, monks, and other volunteers to inform the public that trained field workers will conduct eye examinations in their communities at a specific date and time. When field workers are not available, Seva partners with staff from government eye clinics to conduct scheduled screenings at nearby community health centers, temples, or other locales. All individuals who are identified as having eye problems are referred to the nearest eye center for in-depth examination and treatment.

The Himalayan Cataract Project employs a door-to-door approach, and conducts a training of trainers (ToT) at the outset of their community vision screening programs. Eye clinic and hospital personnel teach traditional healers, female community health volunteers (FCHVs), and primary school teachers how to screen and identify children with visual impairments through house-to-house visits. Volunteers then refer children in need of services to the nearest community eye center or hospital for care and treatment.

According to the projects in Nepal, female community health volunteers (FCHVs) were the most effective at identifying children with visual impairments because they are in regular contact with the community and are familiar with every household and its health history. As a result, they are able to gather information about eye problems quickly and provide immediate referral for treatment. Seva/Nepal found that traditional healers are able to successfully identify individuals with irritated eyes but are not successful at treating eye diseases. Therefore, Seva trained traditional healers to refer individuals with eye problems to nearby clinics or hospitals in a timely manner, rather than trying to treat the individual themselves.

Community screening identified more blind children and children with serious refractive errors than in-school screening.

### *Incorporating Eye Health Advocacy and Education into School and Community-based Screening Programs*

Both Fred Hollows Foundation and Seva used their school and community-based screening programs as platforms to advocate for increased community focus, commitment, and resources for eye health. Projects also worked to educate children and their families about the importance of vision screening and refractive error services. Seva/Nepal provides a 10-minute presentation for school students after all children have been screened, while community-based programs often provide eye health education to children and their families during screenings.

All projects encourage and use peer-to-peer, child-to-parent, and parent-to-parent education to stress the importance of getting regular vision exams and immunizations, good nutrition, proper hygiene, and wearing glasses. As a result, children inform their parents, children who do not attend school, and their communities on the importance and availability of eye care services. Projects work to educate and empower children to become eye care advocates by involving them in all aspects of eye screening.

## Ensuring Children with Refractive Errors Receive Quality Services and Use Eyeglasses

### *Quality of Services and Glasses*

Seva/Nepal uses ophthalmic assistants and optometrists from community eye clinics and local hospitals to perform refraction. These personnel receive regular refresher train-

*Ophthalmologists working with Fred Hollows Foundation conduct refraction in Vietnam.*

ings, thus ensuring that children receive quality screenings and refraction services. Fred Hollows in Vietnam works with reputable glasses suppliers and professional refractionists or ophthalmologists to ensure the accuracy of lens prescription and quality of frames. In Cambodia, Seva ensures that only refractionists or refraction nurses from clinics and hospitals write prescriptions for children with refractive errors.

### *Barriers to Access*

Grantees found that parents who have to travel long distances with children to reach an eye clinic, or those who have difficulty locating the glasses dispensary inside a hospital often defer the purchase of glasses for children, or don't buy them at all. Seva/Nepal found that placing the glasses dispensary inside the pediatric unit where children receive services often ensures that parents take their children to get the glasses they need in a more timely manner.

Seva/Nepal, Seva/Cambodia, and Fred Hollows Foundation make services and glasses more accessible to children by dispensing glasses at schools and other screening sites whenever possible, and providing glasses at no cost to children whose families can not afford them. Using community-based approaches, all projects work to bring eye care services closer to poor, rural villages, thus removing transportation and other logistical barriers to access.

Although programs did not experience difficulty in obtaining eyeglasses for lower refractive errors, Himalayan Cataract Project, Seva/Nepal, and Seva/Cambodia reported challenges in getting bifocals, glasses for higher refractive errors, and glasses for aphakic children (those who have undergone cataract surgery without an intraocular lens to replace the lens that was removed). For Seva/Nepal, regular lenses can be ground by primary eye care centers. Aphakic glasses, however, are not often in stock, and the thick lenses are difficult to fit into small frames. Higher power lenses must be obtained from tertiary hospitals, which can be located far from where children live.

### *Barriers to Acceptance*

Projects also faced barriers to the acceptance of eyeglasses among children. According to Fred Hollows Foundation in Vietnam, children do not like to wear glasses—particularly the thick-framed glasses that are commonly distributed—because they are ridiculed by their peers. Projects work to overcome this challenge by offering a wide variety of glasses and allowing children to choose their own frames. Projects also teach children how to care for lenses and when to seek help to replace them, giving them a sense of ownership over their glasses.

In Cambodia, Seva found that many people believe glasses actually exacerbate refractive error, and that children are often afraid that their parents won't let them play computer games or read comic books if they find out they are having vision trouble. The projects worked to combat these and other misconceptions through school and community-based advocacy and education, teaching parents and children about the importance of correcting vision problems, and indicating that glasses will actually help children participate in the activities they enjoy.

### *Follow-up*

Projects provide quality follow-up care to ensure that children are wearing glasses and have the correct prescription. Himalayan Cataract Project provides follow-up services to children with refractive error 6-8 months after their initial visit, while children with refractive error and amblyopia receive follow-up 2 and 4 months later. Teachers working with Fred Hollows Foundation in Vietnam ensure children are wearing their glasses in school, and remind children of the importance of periodic follow-up eye exams.

## Results

From April 2008—March 2010, the projects screened 950,000 children for visual acuity and basic eye conditions, identified 14,000 children with visual impairment, and provided eyeglasses to 20,000 children in need. For every 100 children screened, one child received glasses.

Each of these child eye care programs overcame barriers to successfully provide quality services, educate the public, and create local partnerships and referral networks.

## Lessons Learned and Way Forward

### *Training and Selection of Vision Screeners*

Experience from Seva/Cambodia and Seva/Nepal suggests that screening efficacy varies with a screener's attitude and motivation. Dr. A.S. Karthikeyan, a Seva trained pediatric ophthalmologist working in Nepal, said: "Different levels of motivation among people can affect the results. A well motivated teacher can do a very good job at screen-

ing as it takes a lot of patience to get children to read visual acuity charts."

Projects found that it is most cost effective and productive to have school teachers conduct the initial vision screenings of children, as sending eye clinic and hospital staff to conduct the initial screening is more costly and creates scheduling, timing, and logistical constraints. Eye clinic and hospital personnel, for example, are often only available to visit schools during weekends or holidays when hospital work is slow. During these times, however, children are not in school.

RP Kandel, Program Manager for Seva/Nepal, said, "Teachers are with the children everyday. They see who is holding their books close to their face when they read, who is having trouble seeing the board or squinting. They can often easily detect the children who have impaired vision."

For community-based screening programs, projects in Nepal found that FCHVs were highly motivated, familiar with a household's health history, and effective at identifying and referring children in the community who are in need of care. Ongoing support and training for this group will continue to yield high results in identifying out of school children through community-based approaches.

### *Sustainability of Programs*

While pediatric refractive error services can be supported in part by patient and glasses fees, funding provided by USAID has been essential for all programs. The government of Cambodia does not have a pediatric eye care program, and as a result all free refractive error services for children depends on external funding. In Nepal, all eye care is overseen by NGOs; it is unlikely that the government will sponsor a pediatric eye care program. Program activities in Vietnam can generally be supported by patient fees and eyeglass sales, however, external funding is needed to provide glasses to children whose families cannot afford them, as well as for eye health promotion, equipment procurement, and the training of personnel.

School and community screening programs must continue to educate the entire community about eyeglasses as a corrective measure for refractive errors, generate demand for refractive error programs, and advocate for more political commitment and human resources for vision services. Ongoing collaboration between village, district, and provincial level health and education sectors is also key to the success of pediatric refractive error programs. Increased refractive error education will highlight the importance of eye health and address cultural barriers to wearing glasses.

### *Program Development and Implementation*

The following recommendations should be implemented to improve the quality and coverage of school and community-based refractive error programs.

- Generate demand for refractive error services.
- Involve children in eye screening. This will educate and empower them to become eye care advocates.
- Work to reach children who do not attend school through community screenings and door-to-door visits.
- Increase motivation of screeners by offering free or subsidized eyeglasses and refractive services to teachers and community volunteers and health workers who conduct screenings.
- Use eye care personal trained in refraction techniques to conduct refraction.
- Provide ongoing follow-up care for children as vision and prescriptions will continue to change as children mature.
- Integrate education into screening programs. Children and their parents should learn about refractive errors and the importance of wearing eyeglasses as a corrective measure. Detecting refractive errors and prescribing glasses are not effective unless children receive and actually wear glasses with the correct prescription.
- Emphasize a 'whole family approach.' This will ensure that parents are involved and understand the importance of eyeglasses and continued follow-up care.
- Work with glasses manufacturers and suppliers to address supply challenges, including the procurement of bifocals, glasses for higher refractive errors, and glasses for aphakic children. Supplies should be made available at local clinics and hospitals, not just at tertiary hospitals, which are often hard to reach.

**"The project has implemented activities to raise a profound awareness about childhood blindness among the local community, from government officials to citizens, from the young to the old. The screening and referral system between schools at the district and provincial level is a key pathway for refractive error management now and in the future."**

***-Phan Quoc Bao, Project Manager***
***Fred Hollows Foundation, Vietnam***

### *Policy Development and Further Research*

The following recommendations will increase access to and coverage of refractive error services.

- Develop national refractive error guidelines to set standards for vision screening programs.
- Increase coverage of services by institutionalizing mandatory vision screening before children can start school.
- Expand knowledge of health practitioners and school children by including eye health in health textbooks.

Conducting further research on the ideal age of first screening children, recommended screening frequency, percentage of children who receive the correct prescription, and percentage of children who wear the glasses they receive, will be useful for developing high-quality, effective programs and policies.

*Beneficiary Mak Rorsynin receives vision screening at BOCC in Battambang, Cambodia (left) and new glasses (right).*

**Mak Rorsynin,** 8 years old, is the youngest of four siblings. Her family lives in Kampong Ampil village in Battambang Province, located 20 km from the Battambang Ophthalmic Care Center (BOCC)—an implementing partner of Seva Cambodia. Rorsynin began attending school three years ago, but had recently been having some trouble.

Her teacher reported that Rorsynin did not seem interested in playing with her friends and always held her school books close to her face. When Rorsynin's parents spoke with their daughter about her troubles at school, the girl complained that she could not see the blackboard well and was having trouble reading her books. All of her siblings were doing well in their studies, but Rorsynin, frustrated and upset, refused to return to school for the following six months. Her parents had no idea how to motivate her to go back to school. They wanted their daughter to receive a good education and hoped that she would someday become a teacher. Both of them worked catching fish in the nearby Sangke River and were uneducated; they wanted better lives for their own children.

On December 15, 2008, a field worker from BOCC met with the Kampong Ampil village chief to arrange a free community eye health screening in the village. The health worker requested the chief to gather villagers who had eye problems, especially women and children, together on a specific day. When the screening day arrived, Rorsynin's father arrived with his daughter. The health worker examined Rorsynin and recommended that she visit BOCC as soon as possible for a more in-depth examination.

The following day, Rorsynin and her father hired a motorcycle taxi and traveled to BOCC. There, the ophthalmologist informed them that Rorsynin had high myopia, and needed eyeglasses to correct her vision. Her father, distressed, explained to the doctor that he and his wife could not afford eyeglasses for their daughter. Thanks to the support of USAID and Seva Foundation, BOCC was able to give Rorsynin a free pair of glasses to correct her eyesight.

When she put on her new glasses, Rorsynin exclaimed that she could see more clearly, and proudly said, "I promise to go to school again, to study regularly, and to make my parents' dream come true–I will be a good teacher!" Rorsynin's parents were so happy and expressed their gratitude to all who helped their daughter to get eyeglasses so that she can return to school. Her parents wanted to share Rorsynin's story with everyone in their community so that other people would know to bring their children for timely care at BOCC.

USAID FROM THE AMERICAN PEOPLE

A2Z Micronutrients Sight Innovation

AED Ideas Changing Lives

This case study is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of Cooperative Agreement No. GHS-A-00-05-00012-00. The contents are the responsibility of the Academy for Educational Development and do not necessarily reflect the views of USAID or the United States Government.