**EVALUATION REPORT**

**1 May 2015 to 31 December 2020**

**Ch(eye)ld Health**

**Addressing Child Blindness and Visual Impairment in Indonesia**

**HELEN KELLER INTERNATIONAL**

**FRED HOLLOWS FOUNDATION**

**ORBIS INTERNATIONAL**

**CBM**

The Ch(eye)ld Health program was implemented from 2015 to 2020 by a consortium of agencies, led by Helen Keller International, which also included CBM, Orbis, and the Fred Hollows Foundation (FHF), along with local partners in the Indonesian health and education sectors. The primary geographic focus of the program was the Province of South Sulawesi, although vital program activities were also carried out by CBM in Jakarta and the Fred Hollows Foundation in Nusa Tenggara Barat (NTB).

The primary goal of the Ch(eye)ld Health program is an Indonesia where all children with visual impairments are identified early and can access quality affordable services. The program sought to achieve this vision through five interlinked objectives described below:

1. Assist the provincial and district governments in South Sulawesi and Nusa Tenggara Barat (NTB) to develop sustainable models for identifying and treating children with eye health problems
2. Establish and provide sustainable clinical and rehabilitation services for children with visual and other disabilities, including cataract, strabismus, amblyopia, infection, and other eye health conditions requiring tertiary care.
3. Pilot a system for screening premature babies for retinopathy of prematurity (ROP) and provide treatment when necessary to address the emerging burden of ROP in Jakarta.
4. Connect the health system to quality inclusive education and low vision services for children who are severely visually impaired or blind
5. Develop and implement a collaborative monitoring, evaluation, and research system in South Sulawesi, NTB, and Jakarta for gathering and using data on eye health screening, referral, and service delivery

This report will review selected research findings arising from the Ch(eye)ld Health Program and provide recommendations that may further enhance pediatric eye health services within the targeted regions and address identified deficiencies or gaps. A detailed description of program activities and accomplishments can be found in the accompanying Final Program Report.

***School-based Eye Health Services:***

**HELEN KELLER INTERNATIONAL**

The key lessons learnt from school-based activities provided in the province are:

In 2014, the Government of Indonesia issued a joint ministerial decree regarding its school health program which sought to enhance the knowledge and ability of teachers to encourage healthy behaviour among students. Mandated vision assessments of students during the first grade of primary and junior high school were included in the school health program and delegated to PHC staff. However, the PHCs did not receive formal training on how to conduct vision screenings and only a few PHCs allocated resources from their operational budgets to conduct annual screenings in schools within their geographic jurisdiction. PHCs also lacked the necessary staff needed to conduct large scale screenings campaigns given the number of schools and students within their designated catchment areas. While the inclusion of vision screening within school health programming is commendable, the absence of a realistic staffing plan and financial resources to achieve this goal inevitably resulted in few students receiving necessary eye care services.

In response, Helen Keller developed a cascade training model through which PHC staff equipped teachers with the basic skills and knowledge needed to identify students with impaired vision. The trained teachers then screened their students and referred those who failed the initial visual acuity screenings for further assessment and care. This establishment of a formal linkage between the community health and education sectors was critical to the success of the program and resulted in the training of 3,826 teachers from 1,337 schools in 24 districts in South Sulawesi. While the transfer of skills from PHC staff to teachers was successful, the needs and perceptions of teachers regarding this added responsibility need to be acknowledged if this practice is to be fully institutionalized and sustained.

A variety of strategies were adopted by participating schools to conduct the vision screenings. Some schools carried out screening over 2 or 3 school days until all students in the school were screened. Others conducted the screenings during lunch or other break times during the school day or were performed after school hours. Several participating teachers noted that they are compensated for and evaluated on the number of hours that they teach, and this does not include these additional extracurricular screening activities. So, the motivation to continue screening students year after year may not exist unless this responsibility is formally assigned, and they are instructed by school headmasters to conduct these activities on an ongoing basis. Several district education offices have recommended that this issue should be addressed by the Ministry of Education and school health activities included within the teaching hours of school health teachers.

"*School Health program is considered a part of extracurricular activities and our school has allocated funds for these activities. These activities are not counted as teaching hours, therefore, sometimes we have difficulty dividing time between screening activities and teaching."*

***- School health teachers from the districts of Gowa, Jeneponto, Makassar and Pangkep.***

Ongoing training and support for teachers will also be required. The number of children who were identified to have failed the initial visual acuity screening but were subsequently found to not require eyeglasses by the refraction opticians were higher than expected. This was due in part to a significant number of children with other non-refractive eye conditions requiring attention, such as conjunctivitis, trauma, etc., In addition, children with very mild myopia -0.5 D, which was below the threshold established for the dispensing of eyeglasses were often sent for further examination. While these referrals may not have resulted in the provision of eyeglasses they did address other eye care needs, and in case of children with very low myopia, provided an opportunity for the clinician to educate the child and to inform their families that their vision will likely worsen over time and to obtain annual eye exam. Refresher trainings were conducted with teachers through a You Tube based video series on vision assessment.

*"We are very happy with this training and this is the first time we have been involved in a program implemented by the government, especially the Education Office, and hopefully we can screen all our students at school "*

***- Principal of Madrasah Tsanawiya, Maros District***

"*This training is very good, because it provides us with new knowledge about eye health, especially screening procedures to detect if our students have eye problems or not. However, with our main task as teachers, it seems that we will not be able to screen all students "*

***- The majority of teachers, training participants in Phase II and III districts***

Deficiencies were also identified in communicating screening results to parents. Once a child was identified to have a visual impairment, the teachers instructed the children to inform their parents that they should be taken to the PHC or the district hospital for further assessment, particularly during the COVID period when onsite refractions in schools could not occur. School personnel were also tasked with sharing this information with parents, but this did not occur consistently. As a result, fewer students accessed services at the PHC or the district hospitals after being identified to have a vision problem. Upon interviewing a sample of parents, it was discovered that many students did not inform their parents of the results of the vision assessment, nor had the parents been contacted by school personnel. Therefore, a formal system of notification needs to be established with a person assigned to ensuring that this occurs.

***Human Resources Gaps and Resulting Access Barriers to Refractive/Optical Services***

Several challenges were identified related to refraction and optical services in the province which we have classified into three distinct categories. These are:

* **Registration & regulation enforcement**

1. Local government and private entities are not aware of regulations related to optical shops and registration requirements for refraction opticians (RO).
2. Refraction Opticians are required to renew their work licenses every year. This process takes a very long time and hence some of the ROs do not have a valid license to practice as many are waitlisted during this renewal process.
3. Most of the optical shop do not have a registration certificate and some of the optical shops employ non- RO staff or a RO without a valid license. The local authorities do not have any monitoring mechanisms in place to oversee this.

* **Resources**

1. There are a limited number of academies that offer training for Refraction Opticians in Indonesia. The training program is a three-year advanced diploma program, thus limiting the number of people trained.
2. Most optical shops are available in the main cities within a province and there is very limited access to optical services in rural communities.
3. The PHO and the hospital management has a limited budget for equipment maintenance.

* **Eye care within the national health system**

1. The frames and lenses sold in the optical shops are of varying quality: it is not known if there is a minimum standard for assessing lens or frame quality.
2. Not all optical shops are authorized to partner with the national insurance system. The price of eyeglasses at the insurance-partnered optical shop is higher than that at the non-partner optical shops.
3. The requirements for optical shops to partner with the national insurance system are not clear and as a result this limits their participation.
4. GAPOPIN, as the only legal association for optical shops, is not listed or recognized by the government as an association that provides health services. Due to this, not all optical shops are registered with GAPOPIN and GAPOPIN does not have any direct oversight authority over the optical shops.
5. A policy by the national insurance system states that for the cost of the eyeglasses to be covered by insurance, an ophthalmologist must sign the prescription. A GP working in a PHC is deemed competent to provide prescriptions up to -3 or +3.00 Dioptres; but due to the policy the patient must go to the secondary hospital to visit an ophthalmologist. The RO, who is trained to provide these services has the ability to prescribe but the prescription cannot be reimbursed by national insurance.
6. There is no data available from national insurance to show coverage of refraction and optical service provided. There are several possibilities for funding schemes for eyeglasses through: local government budgets, village budgets etc but appropriate utilisation has been an on-going challenge due to lack of data sharing between schemes and use of different procurement and provision procedures within each scheme.

The current referral protocols states that patients with eye complaints must be referred to a secondary hospital if services are not available at the PHC. A child, therefore identified with Uncorrected Refractive Error (URE) will have to be referred to the secondary hospital due to the lack of resources at the PHC to measure and treat refractive error. The services at the secondary hospital may or may not include the provision of refractive services since an ophthalmologist may not be present. So, the child may have to be referred to the tertiary facility which is in the capital city of the province. Additional policies like the recovery of costs through insurance once every year, a cap on costs of IDR 150,000 to IDR 300,000, and the ophthalmologist having to sign the prescription, further reduce accessibility of services. Additional barriers like the cost of transportation, time concerns for the parents to take their child for the treatment also limit the accessibility of these services in the current system.

For implementation of provision of refraction and optical services in the districts several brain-storming sessions were carried out with relevant stakeholders to understand the way forward.

The main areas of consideration were:

1. **To Identify resources to provide refraction services in the districts**

Given the shortage of refraction opticians, it was imperative to find alternate resources to provide refraction services. GPs are local to their districts and provide services in the PHC. They also have the competency to prescribe eyeglasses (+3.0 D to -3.0D). Hence, the GPs from the districts were trained to carry out refraction services. Any prescription above – or +3.0 DS or those with astigmatism will be referred to a refractionists.

The trained GPs continued presence within these communities and the services alignment with existing policies would help to ensure the sustainability of these services following the conclusion of the program. However, a prescription from the GP will still not be reimbursed by the National Insurance system (BPJS) but it appears that many people requiring eyeglasses seek them from local optical shops rather than follow the dictates of system and visiting the secondary hospitals, who would again refer them to an optical shop.

One success story was the development of a Vision centre in the district of Gowa. This was possible after repeated advocacy efforts to the DHO and the District Secretary of Gowa. A *Vision Center* is an innovative solution in providing affordable refractive and optical services for the community. Vision Center services in the district of Gowa have been implemented by cooperation between the DHO, Gowa and IROPIN- The DHO contributing by providing the infrastructure, financial resources and the authority to make policies, while IROPIN contributes human resources so that refractionists are able to provide quality refractive and optical services at these vision centers. This was further marked by the issuance of a Decree[[1]](#footnote-2) by the Regent of Gowa related to the establishment of a PHC as a Vision Center, the Health Office then followed up with the issuance of a License to Practice / Work for Optic Refractionists assigned by IROPIN.

In the future, the PHC-based Vision Center will not only serve to provide refraction services, but for also for screening of eye conditions like diabetic retinopathy, glaucoma and other conditions. School screening efforts can also be further strengthened by the involvement of Vision centers in training of teachers, screening at schools and finally accepting referrals from schools and MCH posts for management of refractive error and other eye conditions. The GPs trained in in each district regarding the provision of refraction services will also support the Vision Center in provision of services.

During the program period, the human resource gaps had to be addressed in order to meet the basic primary eye care and refraction needs of these communities. Non-traditional solutions such as the use of trained GPs to conduct refractions must be utilized to address these immediate needs while further investments are made in training refractionists, and appropriate incentives are identified to encourage and support their work in underserved communities. To address this challenge, three general practitioners from each district were trained to provide refraction services.

The GPs in many districts carried out refractions independently by visiting schools or by inviting students to their PHCs. Adequate monitoring is required to ensure that refractions carried out by the GPs are accurate. The training provided to the GPs was to address simple refractive errors. Ideally training should occur in a sequenced basis starting by improving the knowledge of the GPs on simple refractive errors to more complicated refractions for astigmatism. Training GPs was an effective solution to address the problem of deficient refractionists.

In the district of Gowa, three vision centres were also established in partnership with the professional association of refraction opticians (IROPIN) to address broader community needs on a more sustainable basis.

The government of Indonesia has made some progress in committing funds for assistive technology (AT), which also includes eyeglasses for uncorrected refractive errors. This mechanism is called DAK *Fisik,* which is a form of intergovernmental fund transfer from the central budget to local governments to finance the infrastructure and facilities development as well as the purchase of goods in the province/district that are in line with national priorities. It was determined that DAK *Fisik* funding would be expanded to include assistive technologies in the upcoming budgeting cycle. However, due to the pandemic, it is not clear it this has been implemented yet.

Due to the school closures and travel restrictions during the COVID-19 pandemic, the program encountered significant delays in the delivery of refraction and optical services. In coordination with the health and education offices in each district, Helen Keller was able to arrange for refraction activities in sixteen of the nineteen districts in Phases 2 and 3 of the project. One district from Phase 1 was also included as the district health office trained additional teachers who screened the students in their schools. The refraction opticians from the professional association (IROPIN) agreed to assist in the provision of these services from school to school in each district. All the students who failed the vision assessment were invited for the refraction activities. Of the students invited, around 60% students attended the services. As of 17 December 2020, 5,163 children have received eyeglasses of which 3,755 children received custom-made eyeglasses and 1,408 received R2C spectacles.

***Screenings in the communities:***

Early detection of commonly occurring eye health conditions was successfully integrated into the services provided at the PHCs as well as the MCH posts. The Indonesian System for Health care can be seen in the Figure 5 below. The Indonesian health system has a list of 155 conditions that can be treated at the PHC and conjunctivitis, hordeolum and refractive error are the three eye conditions that the PHC should be able to manage. However, PHC staff do not normally receive any in-service training to treat these conditions. Similarly, the GPs rely on the training imparted while they were at medical school.

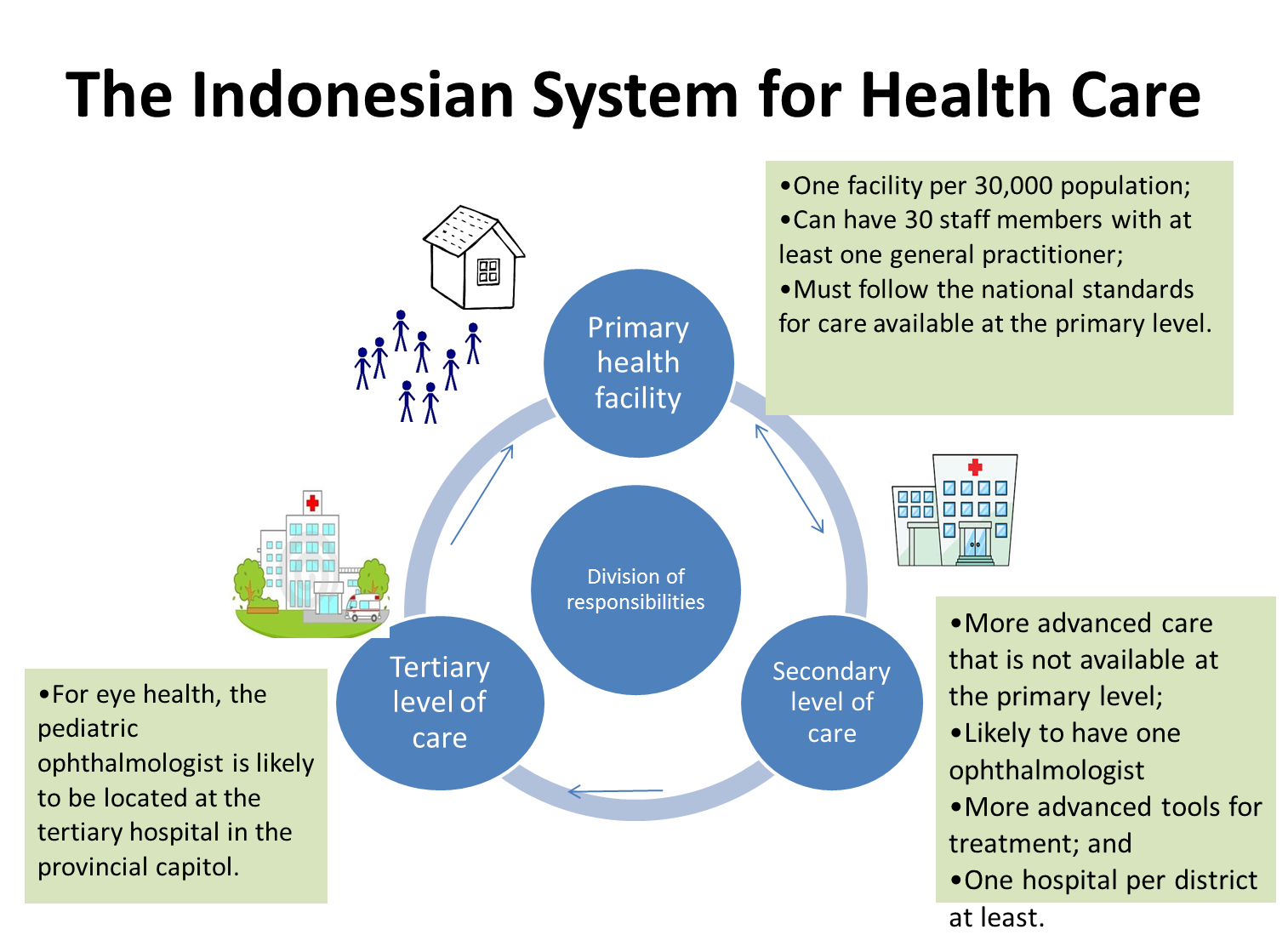


Figure 1: The Indonesian System of Health Care

Following the training provided during the program, all the 460 PHCs in the province now have at least two to three staff trained in early detection of eye conditions in children and the protocols to prevent, detect, treat and refer children with eye health condition. At the MCH posts, the CHWs were enthusiastic to learn new procedures and did not mind screening children. The parents were educated on simple signs that meant that their child cannot see well like holding the object very close to their face, squinting or tilting their head etc. In fact, at many of these posts, the screening was conducted every month. Gradually, as the process became familiar to them, the screening was carried out whenever they received complaints from the care giver of the child, in new babies or once in a quarter.

The communication between the Community Health Workers (CHWs), the mid wife and the nurse responsible for senses at the PHCs is critical to assist children identified with a problem. These three staff coordinate with each other and the parents for the child to be brought to the PHC and then follow up on the referral to the district hospital, if required.

Such linkages have been established between the PHCs and the MCH posts so that children with eye conditions identified in the MCH posts are flagged and followed up until they receive treatment by an ophthalmologist.

A few challenges identified are:

* Tracking children following referral to the PHCs or the district hospitals to assess compliance.
* Monetary support for the children to be transported to the city and provided accommodation when required to access services at the tertiary health facility. A local NGO offered to assist such children in need from the districts. The district health offices have also discussed the allocation of funds from the village budget for this purpose.
* The health system should permit children who are suspected to have advanced stages of retinoblastoma or congenital cataracts to be referred directly to the tertiary level to receive further assessment and care. Advocacy efforts need to be focused at the national level in order to enact this change and to reduce the time and effort needed for children to go through the intermediate steps of being examined at the PHC and district hospital before receiving treatment at the tertiary facility. The current referral pathway imposes unnecessary delays and hardships on families.

The integration of these activities into pre-existing programs run by the government have increased their chances of becoming sustainable. Continued education is important for the CHWs to continue screening and referring children to the PHCs for further management. The districts of Gowa and Bone have utilized their operational budgets to print more educational material and support continued child eye health trainings for the CHWs and are strong indications of their ongoing commitment to maintaining these services. Further assessment and refinements of the training curricula are needed as noted in the comment below.

*"This is my first time participating in training on eye health. I think that training time needs to be added, especially in practical sessions, so that all participants can experience how to carry out good screening procedures, eye examinations using penlight etc. "*

**- PHC staff, Jeneponto District**

***ROP screening services:***

ROP screening services have been successfully established in Jakarta and South Sulawesi.

In South Sulawesi, an ROP team which included representatives from the professional associations of ophthalmologists and neonatologists and the Hasanuddin hospital signed agreements with nine hospitals offering neonatal services and committed to conduct ROP screening for premature infants in their neonatal intensive care units. Early program data identified a critical need for increased parent education and counselling since a lack of understanding regarding the consequences of ROP or fear of propose treatment resulted in a lack of compliance with recommended treatment plans. Of the 23 infants identified with ROP in the initial implementation of the program, 14 babies received treatment but 9 have refused to seek further care. Additional counselling is required for these parents to understand the prognosis if treatment is not provided. The counsellors have received guidance on strengthening their skills to convince parents to get treatment for their children.

Also, the costs of screening for ROP is not yet included within the National Insurance system. The ROP team is currently still in discussion about this with the insurance system.

Meanwhile, the recovery of costs by the ROP team from partner hospitals was discussed and the following categories for payment have been instituted. This is critical to the long-term sustainability of the program as grant funding ends:

1. If the child holds insurance offered by the state, the cost per screening has been agreed as IDR 100,000 ($7) per child;
2. If the child has no insurance and is being seen at a government facility, the cost per screening is IDR 300,000 ($20) per child
3. If the child has no insurance and is being seen at a private facility, the cost per screening is IDR 500,000 ($ 35) per child

These cost recovery efforts are essential to maintaining this program and supporting the salaries of screening technicians along with transport and operational costs on an ongoing basis. Currently, babies requiring treatment are being brought to the hospital for treatment. A laser is being procured for the hospital, with which the ophthalmologist can travel to the NICU to provide treatment. This will reduce the risks associated with the transfer of the baby from one place to another.

In further developing this program model, we recognize that a fully integrated and complementary system of care that focuses equally on prevention along with the identification and treatment of retinopathy of prematurity is critical to reducing the incidence of vision loss among premature infants. ROP programs have traditionally prioritized screening and treatment efforts focused solely on an infant’s eyes while neglecting to make critical investments needed to build the capacity of neonatal intensive care units and their staff, and to reduce the number of children placed unnecessarily at risk, for example, by inadequate monitoring and regulation of oxygen use.

Key elements of the program must include a) assessing current NICU practices and capacity, identifying gaps in equipment and training, and improving the level of care through the adoption of global NICU standards, b) supporting the use of retinal cameras to conduct ROP screening and the adoption of a completely telemedicine-based approach to ROP management, and c) educating parents regarding the risks posed by retinopathy of prematurity and providing the necessary counselling and support needed to encourage compliance with recommended screening and treatment plans.

*"I just found out after this training that while administering oxygen and CPAP, we must pay attention to the amount or level that must be given to babies and not give 100% levels to babies in the NICU, so that we prevent ROP* **"**

***- Nurse NICU Ibn Sina Hospital.***

***Advocacy and Communications***:

Helen Keller, along with consortium partners, professional organizations, and university partners have advocated to the provincial governments and the Ministry of Health regarding the importance of eye health and the need for further investments in human resources and service provision. The formation of the task force at the provincial level is a valuable step in this process. South Sulawesi was one of the first provinces to establish a Prevention of Blindness committee at the provincial level and remains committed to addressing this issue. With the development of the roadmap until 2025, the Indonesian government has committed to improve the capacity of health workers all over the country. The module and IEC materials developed for child eye health has been shared with relevant stakeholders at the national, provincial and district levels to be replicated and used broadly.

Advocacy at the provincial and district levels has also helped in the integration of the early detection of eye problems at the schools, PHCs and the MCH posts. Awareness raising efforts regarding eye health and prevention of blindness efforts conducted during World Sight Day and National Health Day have also become institutionalized carried out regularly with considerable support and enthusiasm throughout the province.

The various materials developed by the project, like the training modules, school health kits, screening kits for the CHWs at the MCH posts, and the posters for the schools and PHCs were distributed to all the districts. Banners, education videos for school screening and examination of a child were also distributed. Materials were also developed for ROP screening like information leaflets, registration cards, posters and banners.

*"In the training held by Helen Keller, we gained an understanding about eye health, especially for children, and the most important thing is that we get a reference for activities that we can program through the annual budget at our office, because we never knew the types of activities we can carry out for the sensory program, especially those concerning the eyes, "*

***- Sitti Sarah, SKM., M.Kes (Head of PTM Sie and Keswa Health Office of Gowa Regency)***

Unfortunately, the Child Eye Health module could not be fully accredited by the Government of Indonesia as evidence had to provided that Helen Keller was a training agency and the duration of the training had to be limited for three days. The Ministry of Health, however appreciated the efforts to develop the module and said that they would integrate parts of the module into the broader eye health module for primary health care staff.

***Assessments:***

**Spectacle acceptability study:**

A cross-sectional quantitative survey was conducted with a random sample of 346 secondary-level students who received free-of-charge spectacles from Helen Heller through the school-based vision program.

The aim of this survey was to better understand acceptability of these free-of-charge spectacles among students who received them, with the main objectives being:

1. To identify the proportion of students who were provided free spectacles through school-based vision program who accepted and used them consistently.
2. To identify factors associated with spectacles acceptance and use among students provided free spectacles through the school-based vision program; and
3. To identify factors associated with spectacle non-acceptance and non-use among students provided free spectacles through school-based vision programming.

This survey received ethics approval through the Ethics Committee of the Faculty of Medicine, Hasnuddin University, South Sulawesi, Indonesia.

In total, 31% of selected students were found to be wearing their spectacles at the time of the data collection visit. Boys (38%) were more likely to be wearing them when compared to girls (28%). When broken down by uncorrected visual acuity for both eyes, 9%, 54% and 75% of students with mild, moderate, and severe uncorrected visual acuity were found to be wearing their spectacles, respectively. It is encouraging that students with higher levels of visual impairment are more consistently using their eyeglasses, while more support and education is needed to encourage those with mild myopia to also do so, although the benefit may not be as clearly evident to them. In addition, we were also encouraged by the fact that of the students who were not found to be wearing their eyeglasses during the visit, 35% had their spectacles with them at school, either physically with them or stored at their desk.so they were accessible during the school day.

When asked about frequency of wearing their spectacles over the previous 30 days, 19% reported wearing their spectacles all the time, 19% reported most of the time, 32% sometimes, 16% seldom, and 14% never wore them.

For students who were not currently wearing their spectacles at time of data collection, when asked the reason for why not wearing their spectacles now, 27% forgot them at home, 23% identified that they wear them only during specific times of day, and 22% identified that they felt dizzy, had a headache, felt uncomfortable, or could not see clearly when wearing spectacles. In addition, 9% stated lack of self-confidence or worried about being teased, and 6% reported that their spectacles were broken.

Among the students who were wearing their spectacles at time of data collection, the key reasons for doing so included the following: 94% noted that their spectacles helped them to see more clearly; 25% noted that their spectacles were comfortable; 2% mentioned that they made feel more attractive; and another 2% identified an increases ability to concentrate and to complete their school work.

**Enablers and Barriers to referral of students and children identified with eye problem in South Sulawesi**

This is a mixed methods study that included a cross-sectional quantitative survey coupled with in-depth interviews. The survey sample included 352 parents of secondary-level students who had previously failed school-based eye health screening and a separate 142 parents of younger children who failed their eye health screening at a maternal & child health (MCH) post. In-depth interviews were used to explore teachers (n=24), CHWs (n=14), and PHC staff (n=14) on their perception of enablers and barriers to referral for eye treatment among children and students who failed eye screening test.

The objectives of the study were:

1. To identify what proportion of:
2. Parents knew that their child had previously failed an eye health screening at schools and that their child was informed they needed to seek out appropriate eye health services.
3. Parents were informed and educated at the MCH post and were informed that their child requires to be seen by a doctor for further management.
4. To identify what proportion of parents successfully sought out appropriate eye health services for their child.
5. To identify enablers   and barriers for why appropriate eye health services were or were not successfully sought out.
6. To explore perception of teachers, CHWs and PHC staff on factors that enables and prevent students and children to seek referral for eye treatment

This study received ethics approval through the Ethics Committee of the Faculty of Public Health, Hasanuddin University, South Sulawesi, Indonesia.

For parents of students who were screened at school, 51% of parents were aware that their child’s eyes were screened. However, only 13% of parents received the results of this screening. Among those parents who received results, 21% were also informed that their child needed further examination. Ultimately 3% of all parents of students sought out further eye health services. Overall, the main reasons for not seeking out additional services was that 47% of parents did not see the problem as serious and 42% of parents were unaware that their child had a problem.

For parents of younger children who were screened at the MCH post, 94% of parents were aware that their child’s eyes were screened. However, only 67% were informed that their child needed further examination. Ultimately 21% of all parents of younger children sought out further eye health services. Overall, the main reason for not seeking out additional services was that 61% of parents were unaware that their child had a problem. The remaining 39% was broken down into multiple reasons such as not having time to take the child (7%), health services located too far away (6%), having no insurance card (6%), the eye problem not perceived to be serious (6%), child is too young (4%), and not having enough money (3%).

A key lesson learnt from this study was that the parents often did not know that their child had an eye health problem. This problem was anticipated in students who were screened at the schools as there was no formal mechanism for informing the parents of the child. Most often the teachers told the students to tell their parents, which the children most often forgot to do.  Several methods were tried through the course of the project, such as supplying teachers a template letter to fill out and send home with children to give to their parents. Cards were also developed which were given to students to give to their parents, but none of them appeared to have worked. A possible solution would be for the teachers to contact the parents directly to inform them that their child has a problem with his/her vision. This possibility was thought of but monitoring the activity across several districts was a challenge.

**Evaluating the inclusion of class prefects to increase screening and successful referral**

One intervention that was evaluated was the inclusion of class prefects into school screening activities to increase number of students screened and promote successful referral to PHCs for students who failed their screening.

The objectives of this evaluation were to:

* 1. Determine if including a peer-support component reduced the length of time between health teachers being trained and actual screening of students
  2. Determine if including a peer-support component increased the proportion of students who failed their eye screening, who successfully seek out eye health services.

18 secondary schools in Bantaeng District in South Sulawesi Provice were selected for participation in this evaluation. All schools included teachers who were trained to carry out school-based screening activities. Nine of the 18 schools were randomly selected to receive an additional peer-leader training (intervention schools), in which two students (one girl and one boy) from each of the schools received a one-day training on peer-to-peer techniques for motivating classmates on eye health. This one-day training also included eye health content, including practical sessions on conducting a vision assessment, public speaking, and peer education. The remaining nine schools (control schools) received no training in this regard.

As a follow -up to the training, in-depth interviews were carried out in the intervention schools to further assess the implementation of the screening activity. The class prefect students felt that the training was useful and that their knowledge towards eye health and the importance of vision had increased. The teachers stated that it was easier to gather students for screening and that the class prefects were able to motivate their peers to use their eyeglasses. The class prefect students and the teachers found the practical sessions on vision assessment most useful. Of the seven class prefects interviewed, six of them were able to assist the vision assessment in their schools. The class prefects were able to engage in gathering the students, completing the screening forms and conduct the vision assessment test. The class prefects talked about encouraging their friends who have failed the screening test to seek care from the PHC.

Unfortunately, we were not able to collect quantitative data from the PHC to measure how many of these students identified visited the PHC for further management and care. Due to the COVID-19 pandemic, Helen Keller was not able to provide refraction services as the DHO in Bantaeng has not permitted these activities to take place in the district. Therefore, no conclusion could be drawn from this study.

**Training evaluation of the trained PHC staff & schoolteachers**

A total of 3,257 teachers and 441 PHC staff completed a self-administered paper-based pre-training and post-training questionnaire immediately before and immediately after the training.

For teachers, the median score on the pre-test was 30% with an interquartile range of 20% to 50% correct responses. However, the median score for teachers on the post-test was 60% with an interquartile range of 50% to 70% correct responses. For PHC staff, the median score on the pre-test was 60% with an interquartile range of 53% to 73%. However, the median score for PHC staff at post-test was 80% with an interquartile range of 73% to 87%.

Training participants were also asked during the post-training questionnaire their future intentions regarding the information learned during this training. Almost all teachers (98%) and PHC staff (97%) stated that they intended to use the information learned from this training, and to also try the techniques discussed during the training. In total, 89% of teachers and 92% of PHC staff felt that they had the ability to screen children while 12% of teachers and 8% of PHC staff felt that they had very little to no ability.

Several months following their training, 294 teachers and 178 PHC staff completed a mobile-based follow-up questionnaire to better understand how they have been using skills learned through the training.

Among PHC staff completing the questionnaire, 85.2% stated that they were instructed to train others on the materials covered during this training. Among those who were instructed, 78% stated that they were instructed to train teachers, 13% were instructed to train health cadres, 13% midwives, and 1% other PHC staff.

Among those who had training responsibilities, the median number of teachers trained by PHC staff was 12 teachers (IQR: 6-15 teachers), with the maximum number reported trained by an individual PHC staff member being 41. These trained teachers came from on average 5 different schools (IQR 4-5 schools). Among schools where PHC staff had already trained teachers, the median proportion of schools already screening was 33% (IQR 33%-59%).

Among teachers completing the questionnaire, the median number of children estimated to have been screened by these teachers was 125 students, with an interquartile range of 80 to 241 students, and on average it took teachers roughly fifty minutes to screen a classroom (IQR: 30-50 minutes). Almost all teachers identified that they were using the Snellen chart (99.6%) and screening report book (99.6%) provided by Helen Keller International. In addition, most teachers (87%) also stated that they had not come across any obstacles preventing them from screening school children.

**The Cost Effectiveness Analysis of school screening; and provision of refraction and optical services**

This study was carried out to estimate costs of screening, refraction and eyeglasses per child to advocate to the government that such programs, when implemented efficiently, have the potential to improving quality of life in schoolchildren with refractive error in settings with limited access to care.

This observational study analysed the costs and outcomes of **Opticians-in-Schools**, a school-based visual acuity (VA) screening, refraction, and glasses delivery program implemented in six districts - Makassar, Gowa, Bulukumba, Bone, Palopo, and Parepare.

Two primary models of service delivery were tried out –

a) in which the opticians travelled to schools to perform refractions and

b) in which school children were invited to a centralized location to receive refraction services.

It was seen that the percentage of absenteeism was more in the latter model where students were invited to come to a central location thereby increasing the cost of the refraction and eyeglasses.

The costs were estimated for two models of service delivery:

1. School to school model: Here the opticians travel from one school to the next providing refraction for students identified with visual impairment. This was carried out in the districts of Makassar, Gowa, Parepare and Palopo
   * The cost of vision screening: IDR 36,437 or US$2.57 per child
   * Cost of Refraction: IDR 444,873 or US$31.33 per child
   * Cost of eyeglasses: IDR 587,838 or US$41.40 per child
2. Centrally managed model where the students are invited to a central location:

* The cost of vision screening: IDR 29,018 or US$ 2.04
* Cost of Refraction: IDR 849,091 or US$59.80 per child
* Cost of eyeglasses: IDR 1,039,786 or US$73.22 per child

Overall, the cost of vision screening per child was found to be IDR 36,437 or US$2.37 and the cost per student receiving glasses was IDR 518,322 ($36.50).

Assuming a 2 year useful life cycle for a pair of glasses and an 18.4% prevalence of uncorrected refractive error in South Sulawesi, the estimated cost per DALY averted was IDR 1,264,397($89.04) using pre-2010 GBD weights and IDR 5,933,441 ($417.85) using 2016 GBD weights.

***Conclusions***

Several lessons were learnt from the last five years of program implementation in South Sulawesi. The integration of eye health services activities into the educational and primary health care systems has improved the chances of sustainability of vision assessment in schools and early detection in the MCH posts.

The training of numerous health care workers at different levels has improved capacity and knowledge of GPs, nurses, teachers and CHWs through out all the districts in the province. Raising awareness at the schools, PHCs and MCH posts towards the importance of prevention of blindness through early detection has improved screening services at these locations.

The brain storming sessions with the district health and education offices to provide solutions to the provision of refraction and optical services has brought new perspective to them and created linkages between them and the professional organizations. New program areas like ROP screening, which only existed on a very limited basis, if at all, is now being encouraged in all hospitals providing neonatal services within South Sulawesi.

Additional education and counselling are required to parents to access health care and children to use their eyeglasses. With the estimated costs of providing screening, refraction services and eyeglasses, the provincial health office and the Ministry of health have more information to plan and budget for future programming in these areas.

This project addressed the growing problem of avoidable blindness in Indonesia through an efficient and effective school eye health and community eye care program that served five Districts of Nusa Tenggara Barat Province namely Mataram City, West Lombok, Central Lombok, East Lombok and West Sumbawa.

**FRED HOLLOWS FOUNDATION**

The goal of the project is to establish a system within Nusa Tenggara Barat (NTB) province where all children with visual impairment or other avoidable eye health conditions are identified early and have access to quality, affordable services.

The project activities are aimed at:

* Introducing eye health education to all primary and junior high schools in the project area
* Increasing human resource capabilities in visual acuity (teachers and primary health workers)
* Increasing selected primary health care workers’ skills in refraction
* Establishing a central Vision Centre in Mataram City to allow for the availability of high-quality, low-cost eye wear, provide essential equipment for screening and refraction services
* Increasing community awareness about eye health and vision care practices and available services
* Supporting national and provincial level advocacy efforts

The SIB project has three objectives:

**OBJECTIVE 1:**

A sustainable system is established in schools and in the community for the early identification and referral to appropriate service providers of refractive error and serious eye conditions among Grades 1-9 students, promoting uptake and utilization of services offered.

**OBJECTIVE 2:**

Support the establishment of refractive error services and referral pathways at the primary, secondary, and tertiary levels of the health system.

**OBJECTIVE 3**

Develop and implement a monitoring, evaluation, and research system in NTB that rigorously collects evidence and shares lessons learned through technical meetings and dissemination events that bring together experts from inside and outside Indonesia  
The Evaluation was carried out by documenting lessons learnt, and the methodology of the evaluation included:

* Review of existing project documentation – qualitative and quantitative data (to provide a summary of the project’s achievements as well as identify lessons learned throughout project implementation)
* Interviews with key stakeholders (including FHF staff, project partners)
* Interviews with project participants (e.g. doctors, nurses, teachers, parents, principals)

**Strengths**

**Integrating the project into the existing school health (PE) curriculum and Ministry of Eye Health Strategic Plan** was noted as a key strength of the project design as it provided an entry point to expand the existing curriculum within schools and strengthen referrals to PHCs. This approach also fostered collaboration between PHO, DHO and MoE, contributing to raising DHO’s awareness of the need for screening and other RE services for students.

*And now we understand many people in the educational program, in minister of education that many students now they are facing RE. So, we bring awareness and screening in educational sectors for our children.*

***-MoH interviewee***

**Participatory project design process:** Interviewees highlighted that utilising a participatory approach to the project design enabled greater ownership by the PHO and DHO and helped facilitate the integration of project activities in alignment with relevant national policies and provincial and district level priorities. Strategies include conducting pre-design discussions with PHO, DHO and other key stakeholders, PHO playing a leading role in designing project logical framework and identifying a focal person in MoH to support project design and implementation.

**Partnership and collaboration:** The project facilitated strong partnerships at different levels with the MoH, MoE, schools, PHCs and spectacles provider from provincial to PHC level. Respondents noted that once the partnership had passed the forming stage, they were clear of their roles and responsibilities. For example, PHO highlighted that their role included facilitating coordination between the school and PHC and ensuring that health service activities in the project’s workplan were on track. PHO and the schools also came together to influence government to provide eye health services for students. For example, PHO noted that they used data from schools on the number of students requiring spectacles as evidence to the Ministry of Health. The level of coordination was noted by one parent, who said,

*There’s good coordination between the PHC and the school. The hospital is really far away from here. I hope that this coordination can continue so people in this village don’t need to go to the hospital, they can just go to The PHCs.*

***-Parent***

**Technical Working group (TWG) and Steering Committee:** From the interviews, the roles of each organization participating in the technical working group and steering committee were clear which facilitated strong and regular communication and feedback across members and implementing project sites. TWG developed protocols for each project activities prior to implementation which systemised the wide reach of the project. TWG also responded to specific project site needs and challenges and adapted the project activities to suit the situation in consultation with and final approval of steering committee & DHO. The SIB project was integrated with Indonesia’s national health plan, called National Healthy School Project. This alignment was stated as a factor in ensuring the motivation of members of technical working group and steering committee and not adding project-specific workload. More importantly, steering committee members stated that the success and lessons learnt from SIB project will be used as the evidence to advocate to the national government to replicate the project and also make the project sustainable when SIB phases out.

**Relationship between schools and PHC:** These relationships provided a strong support and referral pathway for students following the initial Visual Acuity (VA) screening. For example, PHC staff visited schools and collaboratively worked with the Physical Education (PE) teachers to verify screening findings. On the other hand, some teachers made themselves available to accompany students who required spectacles to the PHC for secondary screening. Teacher interviews showed a clear understanding of the role of the PHC and the referral pathways available to students.

**Cascaded TOT model:** In order to reach the broad student base needed, a cascaded training of trainers (ToT) model was adopted. This involved a single trainer designing an eye health curriculum for PHC doctors and nurses, who attended a 5-day training. These health workers then trained PE teachers from schools in their local area, and the teachers subsequently carried out basic eye checks and referrals back to the PHC. There were some issues in the design of this approach (see challenges), but the cascaded training model was well received due to its effectiveness.

*The training has had a big impact for us [doctors]. It’s now easier for us. Before having the training, if a patient came with an eye problem, they always had to be referred to hospital, even for refractive error. But now they can make trial lenses and make glasses for the patient...It was refresher training on eyes generally. Also, good experience and knowledge on better refraction and correction. After the training, I had more confidence in these topics. And how to remove foreign bodies from eyes. It gave more confidence in doing that. It was all useful.*

***-a trained doctor***

This was an efficient model that could be used again, with some modifications (see recommendations).

*I didn’t have much knowledge [of eye health] before the training, but now I have more knowledge. I know how to screen for eye health problems for patients. I can also do outreach at schools and communities...Before I got knowledge from seniors as they were eye health programmers. But after the training I got much more knowledge and experience in refractive error. I'm confident now to diagnose cataract patients and can detect whether a cataract is mature or immature. All the training topics and materials were useful, it was compact and condensed so it’s all useful.*

***-a trained nurse***

To a large extent, teachers interviewed noted that the initial training received was adequate and could be easily integrated into their roles and teaching curriculum as PE teachers. Teachers also indicated an increase in knowledge and confidence to conduct screening, with one of the teachers indicating that after the training, he was confident in distinguishing between VA cases that required referral for spectacles, and cases that required referral to the hospital. However, some teachers indicated that they required a refresher training to renew their confidence in conducting screening.

**Awareness raising and behaviour change:** Although not an explicit goal of the program, the school screening services created much higher demand for eye health at the community level. PHC staff provided anecdotal observations that since the screening began, they were screening far more teachers than previously, increasing the demand for refractive error services and the amount of business received by the vision centre. As an indirect outcome of the SIB project, the respondents attributed this to teachers being more aware of eye health and the importance of screening and thus changing their health seeking behaviour.

In addition, parents had significantly higher awareness of eye health risk factors.

*One parent noted that her child was educating her about eye health, saying her daughter told her to,*

*Eat vegetables so my eye health becomes better. She gives me reminders if I’m sitting too close to the TV and scolds me if I’m on a gadget too long. She scolds me as she wants my eyes to get better’. Another parent told us that when his son was ‘using gadgets or watching TV, I didn’t care. But now I pay attention to how my son uses his phone, and I tell him not to use it for a long time. If he’s using his phone, max time is 1 hour, or I take the phone away from him. And if he watches TV now, he must be seated further back.*

In addition, 35% of respondents told us that they wanted the program to broaden in scope. Now that they know about it, they wonder why only students can access it. These responses came from parents, doctors, nurses, school- teacher and principal. The conclusion can be drawn that the school screening program was a useful proxy for raising awareness of eye health in the broader community.

**Improved perceptions:** The perception of students who need glasses improved following this program, including teachers, principals and fellow students. One principal told us that previously they thought some children were just ‘stupid’, but after this program they realised these children just needed glasses. Some parents also thought that wearing glasses was related to an illness, but now realise it’s not an illness to be cured.

**Participant satisfaction:** There was high satisfaction with the program across all participants we interviewed. Parents were satisfied that the program included glasses provision, not just screening, and that the glasses were high quality.

*One parent told us that before this program his son,*

*Already wore glasses, but we had to get new ones as the lenses had to change with the new prescription they gave. The glasses you provided are better in quality. We paid 500,000 rupiah for the glasses before, but the new ones are better quality*.

Principals were satisfied that the service was being provided to children to help their learning, with one telling us that,

*We need [the program] because young people use IT and gadgets. The learning process also involves lots of gadgets and IT.*

As previously noted, PHC workers were satisfied as it raised their skill level and allowed them to treat more patients rather than referring on. All participant groups were very positive that the program should continue.

*Further refresher training is needed, as well as for new doctors.*

***-Doctor***

**High collaboration and cooperation:** The level of collaboration and cooperation between the DHO, PHC and schools was highlighted as a strength of the project, and an aspect to be replicated. Though there were some early issues between the Steering Committee and the Technical Working Group (see challenges), these were ironed out and led to productive partnerships between stakeholders.

*I got enough support from PHC, because if I faced some problems, PHC team would come to school to help. There is a letter from PHC and they will inform the school of when they will come to schools in the week. I make a list of screening results and send to PHC and DHO, Once PHC receives the list, they will plan and come to school.*

* ***A school- teacher***

**Improved accessibility:** The PHC staff reported better access to services for the community through the vision centres. Community members no longer had to be referred on or travel farther distances to get screening and treatment. With greater awareness in the community of these services thanks to the school screening program, community members themselves could also more easily access services through the vision centres. The two aspects of the program complemented each other well and brought eye care closer to the community.

*It is also good for local people, as they can get eye care without needing to go to the hospital.*

***-a doctor***

***Challenges***

**Teacher quantity:** Interviewees noted that having only one trained teacher was a challenge – due to the large number of students, the PE teacher was not always able to single-handedly conduct the screenings in an efficient and timely manner. Some teachers noted that they provided informal training to other teachers or students to assist them in conducting screenings (such as through the mini-doctors program).[[2]](#footnote-3)While this alleviated the pressure and help adoption of the screening program, there were no measures in place to check adequacy of the informal training provided.

**Teacher interest varied:** While the cascade model was successful with broad positive feedback, a significant challenge raised by PHC trainers was the varying level of teacher interest. The program was designed to invite the school’s sports teacher to receive the training and subsequently carry out the program in their school. The rationale behind the decision was that sports teachers look after children’s health, and hence have the best skill alignment. This was true in many cases.

One doctor told us that if a teacher finds,

*More than 5 students with refractive error, we (from the PHC) go back to the school to do a follow up screening. Some teachers have good skills so their accuracy in detecting refractive error is 90%. But some teachers report that 50 kids have refractive error, but when we go there, we find out only 3 students actually have it. We found that some teacher didn’t do the screening at all. So, we suggest only inviting teachers who are interested in the training.*

***-a doctor***

On the other hand, the trainers also encountered teachers who did not seem interested, and because the training was a full day with lots of information to cover, they reported some teachers flagging interest in the afternoon. This has knock-in impacts for effectiveness and efficiency. The PHC team returned to screen at a school if there were more than 5 students who had suspected refractive error. In one case, there were 50 students at a school who were identified. Upon returning to the school for screening however, the PHC team found only 3 students with confirmed refractive error. This wastes students’ time as well as the time of busy doctors and nurses. A recommendation to address this is below.

**Training quality:** The training approach and training materials are quite friendly for teachers. But teachers noted that there was a need for more training and refresher courses. There is only one training for teachers which is not enough and there are no refresh trainings for them, although they can get supports from PHC when they come to visit. There is also a need for systematic plan for monitoring training quality to ensure that the training information and technical skills are taught adequately. There is no monitoring of the trainings as part of the project monitoring plan.

**Student stigma:** We heard from principals, parents and teachers who reported stigma that is faced in some schools around wearing glasses, creating a barrier to uptake and correct use. Parents reported that their children wear glasses ‘when needed’, such as doing work or reading, but not when playing.

while one doctor observed,

*Another issue is bullying – if students use specs, they can get bullying from friends. This particularly happened in one school. The nurses gave specs, but students didn’t use them. Students say their friends will mock them, especially students in rural areas.*

**Low understanding:** Increasing understanding has been a big benefit of this program, even so levels of understanding of eye health remain low. Parents were still unsure of how their children should be using glasses, principals reported that they would like more training to understand the issue. This impacts students’ understanding, with one principal saying students thought the eye tests involved injections so they were hesitant to participate.

while another principal said,

*Students are young, so they didn’t understand. They were afraid of being examined at first, but they now see the benefits.*

**Health worker turnover:** As doctors and nurses move to work in different PHCs, the health workers who replace them may not necessarily have had the eye health training that was delivered. As a result, it is difficult to maintain the standard of service.

**Vision centre sustainability:** In the SIB project there is a subsidy for free glasses for students. There was a question on what would happen to this subsidy when the project finished. In short, how can students continue to get free glasses at school after project finishes?

***Lessons learned / recommendations***

**Teachers self-select participation:** In order to improve quality of school screening activity, it is recommended to allow teachers to opt-in to participating in the program, rather than only allowing sports teachers to participate. This will ensure that only interested teachers take part and help avoid situations where there are poor quality screenings taking place in schools.

**Adjust the structure of the training days to allow follow up:** PHC trainers could run the training as two half-days, rather than a full day in order to maintain levels of concentration among teachers. The time in between the two sessions could be used to practice skills learned so far, and to raise awareness within schools of the program and eye health.

**Training quality:** The TOT training for PHC and teachers can be designed as a series of trainings at different stages of implementation and depth of knowledge. Also, the eye health education games can be introduced in new ways, such as exam tool or tracking changes of knowledge of eye health for students. The pre and post training evaluation should be in place. The spot check of training is also important to ensure the training quality. The checklist of quality insurance for trainings, screening and student knowledge increase while game playing will further strengthen the project’s impact.

**Integration screening and eye health education into existing science classes:** In the project, the screening and eye health education were conducted by the physical education teachers who was assigned by the principal of school and requested by the technical working group. In Indonesia, there is one lesson related to eye health in science classes. The project should take this opportunity to integrate the eye screening and eye health education into this lesson. The principal of the school can help coordinate with PE teachers and science teachers in school to cooperate to accomplish the work and also it can be supplementary to the national health project run in schools.

**Awareness work to reduce stigma and improve understanding:** More groundwork needs to be done to improve the perception of wearing glasses among students, as well as tackle the low understanding of wearing glasses among school staff and parents. This could involve changes to the curriculum design that is delivered to teachers, such as in a module and materials on raising awareness and understanding within your school and community. After the training, teachers could then run an awareness session for other teachers and the principal within their school. In addition, further support is needed to continue providing accurate eye health information to schools.

**Create links and relationships between working groups and clear milestones:** If this model is replicated, it is recommended to create a Terms of Reference for each group, including expectations and milestones, as well as offer opportunities to build relationships between the groups.

**Support awareness raising and demand generation within the broader community for eye health:**

Principals, teachers and parents consistently noted they wanted the program to be broadened out, while feedback from PHC staff noted the increase in service demand from teachers as a result of the program. There is clear appetite for more eye health services closer to the community, which can be capitalised by further increasing awareness of vision centres. The tools which help engage and empower community members will need to be developed to fit Indonesia’s diverse communities.

**Communication with parents throughout the process:** Regular communication with parents from pre-to post-screening and spectacle provision is essential to ensure that parents are aware and consent to their children’s participation. This is also important in ensuring that parents are informed of referral pathways for service provision beyond the life of the project.

**Coordination:** Multi-sectors cooperation is one of the key factors mentioned as leading to the project’s successful implementation in all schools in Mataram. Health offices, education boards, religion offices from provincial level to district level were involved in this project and had regular coordination and review processes & procedures, such as meetings. The top-down project coordination was also indicated as a factor in successful project implementation. The provincial level and different government departments reached agreements and issued a joint letter to the schools supporting the project which made, the project coordination & implementation easier at the district level.

**Sustainability of vision services**: In the project, spectacles are provided to students freely with project subsidy. The sustainability of this service should be considered to ensure the long-term impact of this project. The business plan or operation plan between PHC and optical shops should be discussed and developed so to ensure the sustainability of this services for students. Also, an incentive scheme, such as provision free glasses for teachers can also increase the motivation to do the screening and follow up, monitoring the glasses wearing of students.

***Conclusions and recommendations:***

At the end of three years of project implementation, the School Eye Health project has delivered significant gains in partnership with communities in Lombok.

PHC doctors and nurses are reporting improved eye health capacity, which means they can bring access to eye health closer to the community. Teachers, principals and parents are more aware of eye health, and critically students have access to screening services, referrals and treatment.

There is still work to do to improve compliance with wearing glasses among students, the level of training required, as well as understanding of eye health among the community. Even so, according to the interviews conducted there have been noticeable improvements in all these areas.

The level of coordination between different actors was consistently sited as a positive, and numerous interviews, including parents and principals, noted a desire to broaden the program to include more community groups, indicating improved understanding and greater demand for eye health services.

The high degree of integration into existing structures (schools, PHC, government departments) is a strong foundation to further build sustainable and equitable access to eye health that can save more children’s sight.

**ORBIS INTERNATIONAL:**

**Trainings at the Secondary and Tertiary level:**

Training at the secondary and tertiary hospitals was carried out by ORBIS International.

The following trainings were conducted for clinical staff at the district hospitals:

Two general ophthalmologists from district hospitals for three months in Bangladesh in year 2016. One ophthalmologist from the District Level Hospital completed a three-month training in Paediatric Ophthalmology and Strabismus at Cicendo Eye Hospital, in Indonesia in 2017. Twenty-three nurses from the six district hospitals were trained on ‘Basic Module for Eye Health’ in eye health in collaboration with HKI in 2017. Four nurses of District level hospital completed their two months training in Ophthalmic Nurse training program from UNHAS Indonesia in March 2020. Ten nurses received advanced ophthalmic training this year from University of Hasanuddin.

*"We are happy and grateful to have the opportunity to take part in the basic eye nurse training facilitated by HKI, because we have never previously received training like this. Currently, after attending the training, we better understand our duties as nurses in the clinic, we understand the types of eye diseases as well as their management or treatment including how to prepare and maintain equipment in the unit where we work. We have also made a work plan in the next few months in an effort to implement the knowledge we have, we hope we receive support from the hospital management where we work to achieve the plan. "*

***- Participants in Basic Eye Nurse Training***

Challenges at the secondary or district hospitals include the constant change of the trained nurses or doctors to other hospitals in different regions. To ensure sustainability of activities and the quality of services provided at the hospitals, the management of the hospitals must invest in refresher trainings for the already trained staff and in-service training for the new staff regularly.

The following trainings were carried out at the tertiary level:

**Paediatric Ophthalmology:** Trained one paediatric ophthalmologist from UNHAS in Bangladesh in October 2016. Four ophthalmologists attended observerships in Paediatric cataract and strabismus in the United Kingdom and Ireland in year 2016. Two ophthalmologists from UNHAS, completed the innovative Sandwich Paediatric Fellowship program in years 2019 and 2020 respectively. One anaesthesiologist attended a training in paediatric anaesthesia in Bangladesh for one month in year 2016.

**Paediatric Optometry/ Refraction/ Orthoptics:** Two ophthalmic nurses were trained in paediatric optometry/ refraction and one in orthoptics for three months in 2015. Two optometrists from UNHAS completed the six months paediatric optometry training in year2015 and 2019 respectively.

*‘This program is very effective for us and going to school abroad is our dream come true, especially because it’s very difficult for us to leave our young children for more than three months at a stretch. We feel very lucky to be placed at SCEH as the people were very friendly and made us feel at home, helping us adapt to a different culture altogether. We also found a lot of rare cases of children with myastenia gravis, duane syndrome, congenital fibrosis of the extra ocular muscles that we get rarely get to see in our country. The knowledge and skills that we acquired at SCEH will help us in improving our Pediatric Eye Care Services in Eastern Indonesia.’*

*Dr. Ratih Natasha Maharani, trainee for Sandwich Paediatric Fellowship from, Hasanuddin University Hospital, Makassar, Indonesia*

**Paediatric Nursing:** One ophthalmic nurse attended a training in Operation Theatre Management in Paediatric Ophthalmology in Bangladesh for three months in 2016.

Two hospital staff members attended Medical Record Trainings in Bangladesh for one month in 2016. One Nurse completed training in paediatric counselling in 2016. Two ophthalmologists and one nurse completed a weeklong Eyexcel (Expanding Global Eye Care Workforce Through Excellence) training for developing a counselling curriculum Aravind Eye Hospital, India in 2017.

**Quality Assurance:** Three paramedical staff from UNHAS hospital completed the Quality Manager's Fellowship for six weeks in September 2017 in India. One doctor completed completed an observership in Quality Assurance in September 2017 in India. Two staff members from UNHAS including Dr. Habibah, the coordinator of the Children’s Eye centre at the Hasanuddin University Hospital attended an orientation program on “Ensuring Quality in Trainings” in 2018.

**Equipment Maintenance Technician:** Three equipment maintenance technicians from UNHAS completed a one-month training program in Instrument Maintenance Course in India in year 2015, 2019 and 2020.

*‘Enjoyed being mentor to the Sandwich training module and Tele-mentorship, new future in training unfolds itself for the organizations with limited human resource. We are happy that the results and outcomes were similar to our two-year fellowship trained Paediatric ophthalmology fellowship trainees’.*

*Dr. Suma Ganesh, Faculty for Sandwich Paediatric Fellowship from Dr. Shroff’s Charity Eye hospital, New Delhi, India*

**Community Outreach:** One staff from UNHAS completed a three- week training course on Community Outreach and Social Marketing of Eye Care Services in 2017

Hospital based trainings (HBTs) are specialized short courses that are used to build capacity in multiple disciplines where an expert (and/or a team) comes from the UK/USA to a local hospital and works hand-in-hand with the local eye care professionals to transfer skill(s) in specific techniques and specialities. Five HBTs were conducted for developing skills of the paediatric eye care team at UNHAS and district hospitals during this program period.

The training of ophthalmologists at the district hospitals has improved the referral rate of children to the Hasanuddin hospital. There has been 124% increase in the number of referred cases receiving treatment at Hasanuddin hospital from 2016 to 2019

To addition to strengthening the capacity of the ophthalmologists, nurses and allied ophthalmic personnel at the secondary and tertiary facilities, the infrastructure of the eye clinics at these hospitals have also been upgraded to provide high quality services to aid the diagnosis and management of eye diseases in children.

Helen Keller has purchased and handed over essential equipment for the eye clinic in the four regional hospitals namely to H.Andi Sulthan Daeng Radja hospital in Bulukumba, Tenriawaru hospital in Bone, Andi Makassau hospital in ParePare and Sawarigading hospital in Palopo. Helen Keller has also purchased and handed over equipment for the Children eye centre in Hasanuddin hospital.

Hasanuddin University Hospital’s facility was upgraded in order to create a child-friendly environment for examination and treatment of paediatric eye patients through development of the first child-friendly paediatric eye care centre at the Hasanuddin University Hospital (UNHAS) campus. The UNHAS Children’s Eye Centre was strengthened with child friendly furniture and stickers on walls of the facility including waiting area, reception, examination room, low vision room, consultation room and counselling and training room. A play area was developed for children and breast-feeding corner for mothers. The paediatric eye care team including ophthalmologists, optometrists, nurses, counsellors were trained on child friendly approach. The facility was equipped with all medical equipment required for paediatric eye care services. It was also made disability-friendly by improving its physical accessibility for people with disabilities including wider doors and tactile surfaces for ease of movement. It was inaugurated on the National Children’s Day on July 23, 2016. This centre is now providing Paediatric eye care services and contributing to the reduction of avoidable childhood blindness in the province.

CBM carried out the following activities during the program period:

**CBM**

1. Capacity development which includes development of training modules, training and mentoring, training of Master Trainers;
2. Low vision service delivery;
3. Raising Awareness;
4. Advocacy for development of relevant policies;
5. Use of data collection, management and analysis for continuous improvement of service delivery.

***1.* *Capacity development***

* **Rigorous training efforts** have been carried out for community volunteers and health professionals primarily at tertiary hospitals where LV services should be provided. Although the quality of training and post-training supervision and facilitation especially of teachers and community volunteers require further assessment, it is fair to say that the project has been able to build a positive foundation for inclusive and comprehensive LV services in the project sites of Jakarta and Makassar. A notable result of this effort is the availability of ten Low Vision master trainers who become resources for health facilities who require clinical and technical assistance in Low Vision service provision, especially for children. The second important achievement is greater awareness about Low Vision in children among community members as an outcome of a wide coverage of community volunteer training and among inclusive schools as a result of teacher training.
* **Skills acquired by the project staff**

The project ensured the staff involved acquired the relevant skills. Training was provided for the project staff at the beginning of the project, and upgrade training was offered later. As a result, all key project staff in Jakarta and Makassar, as well as the management team, possessed sufficient and appropriate understanding, attitude, and skills to do their job.

***2. Low Vision Service Delivery***

* **A high volume of children with LV were treated in the Low Vision Center of HUH and LAYAK**; The project facilitated more than 2,000 (2,047 to be exact) sessions of children seen by an ophthalmologist in both Jakarta and Makassar. 28% of the children treated were the students in inclusive schools. Some of them were from special schools and some did not attend education due to their severe health problems.
* **Intensive vision acuity screening** of children in schools and in the community, which enabled the children with suspected vision problems and other disabilities to be referred to credible facilities of HUH or LAYAK LV Center and to receive the required treatment as well as the supporting device(s).
* **Support for pediatric patients** to be referred and treated in the tertiary hospitals in Jakarta and Makassar, including the surgery required for the pediatric patients. Additionally, the project also covers a number of ROP babies who were referred to LAYAK LV Center and to the HUH LV Center.
* **Existence of recognized Low Vision Centers**,an independent one – run by an NGO in Jakarta and an integrated one within the HUH in Makassar. All centers are with skilled staff/workers.
* **Supports and close facilitations for Low Vision children to enroll in an inclusive school**; A number of Low Vision students, who were initially in special schools, were enabled to enroll to an inclusive school with support and facilitation from the project. This reflects understanding and commitments from all parties: intensive lobby and persuasion from the project team, understanding and acceptance from both special and inclusive schools that a child is eligible to be among the children who do not have vision problems because s/he is still able to read and learn like others although with some limitations, and courage of the children and parents themselves. This is indeed an achievement considering in almost all places in Indonesia, a Low Vision child is considered a blind child.
  1. ***Raising Awareness***
* Increasing the awareness on Low Vision and disability inclusion among inclusive school- teachers; The teacher training in Low Vision made a number of inclusive schools in Jakarta and Makassar LV-friendly schools. The teachers who initially knew only refractive errors (children needing glasses for distance sighting), after the training they were more aware of Low Vision and the supports required by their Low Vision students
* The awareness raising effort could have positive impact to some portion of the community volunteers trained in Low Vision training. At least, they had exposures to Low Vision and where to seek care for Low Vision children. In the case of school- teachers, those from the inclusive schools were likely to gain ‘new’ knowledge about Low Vision which led to the increased awareness about Low Vision students and how to provide better and greater supports to the students.
* The awareness of Low Vision was also increased among health personnel, especially the ophthalmologists. Although no accountable data recorded, I was reported by both the senior ophthalmologists in RSCM Jakarta and HUH Makassar that the internal referral of children referred with Low Vision to the Low Vision centres was increased. In Makassar, after the Low Vision training, the ophthalmologist(s) from the secondary hospitals became more aware of Low Vision patients and did referrals to the HUH Low Vision centre.

***4. Advocacy for development of relevant policies***

This component was the most behind compared to the others. The challenge in the current design is the lack of advocacy initiative and it cannot be treated as an add-on the overall project design. To make Low Vision devices available is a complex process, which involves the national policy.

***5. Use of data collection, management and analysis for continuous improvement of service delivery***

Within a four-year period, the project was able to produce a database which is essential for continuous improvement in the LV service delivery. Simplification of the database instruments – including the collection means and its interpretation is required, especially to improve the sustainability of the data collection systems, for example, at HUH.

***The project’s impact on individuals and families***

Most of the interviewed children with low vision from Jakarta or Makassar benefited significantly from the treatment at the low vision centers, including those with additional impairments (except those children with severe cortical visual impairment and similar conditions).

In summary, the children usually had improved quality of life. They can read, relate and interact with others, are joyful because of being able to play with others, and became relatively independent (i.e. being able to go to and back from school with the escort of their parents or care-givers). On the parents’ side, many of them expressed ‘relief’ of being able to let their children go to school without their companion. In the beginning they felt worried, especially when the children got lost because of choosing the wrong number of public transport. However, they gradually felt confident as their children’s confidence also grew. Some mothers were pleased to see their children enjoying school and playing with their mates at home. They were pleased to see their children were growing up like other children.

The impact of Low Vision service provision, especially the provision of Low Vision devices is actually more articulated by adult Low Vision clients, both who were still in senior high school and those who already had means of income. Four adult clients who have been using Low Vision devices since they were kids, confirmed the benefits they experience of having Low Vision devices. Three of them were already undergraduates and until today, one works in a private tax agency and two have their own small businesses. One was still in high school. All admitted that being able to see, although not like others who do not have vision problems, help them to do things like most of others do: go to schools, relate with others and even having a partner, have means of income, and prepare a marriage. They seemed to be confident and determined. In principles, these LV clients enjoy quality of life.

***The project’s impact on schools and communities***

The evaluation team met with several school teachers of a special school and of two inclusive schools. This discussion revealed that the teachers of inclusive schools seemed to appreciate more the training in Low Vision facilitated by LAYAK.

Notes from the discussions with the trained teachers of inclusive schools:

* they gained better knowledge on vision impairments because what they knew before the training was just common refractive errors (children needing glasses)
* they were more aware about the students with vision problems who needed better supports
* they understood better to utilize any potential opportunity to improve the Low Vision student’s confidence

In the community, volunteers admitted that they were happy to know there was an Low Vision Center accessible by the community, which provided support to the low income families.

Sustainability is a complex concept, not to mention the LV issue itself. The sustainability of Low Vision service centers in Jakarta and in Makassar are influenced by two major factors:

* The leaderships within the center(s)
* The strong existence of field staff

***Recommendations***

Based on the analysis and discussions above, the evaluation team recommends the following:

**HUH Low Vision Centre**

* Ensure the comprehension of Low Vision service provision, which includes the inclusion of RO and Rehab staff, and secure the relevant skills required for the individuals involved. During the evaluation debriefing, the HUH senior ophthalmologist (Dr Habibah), provided an assurance that the Eye Department will allocate some funding to pay the honorarium of a Rehab staff, but did not mention their intention to recruit an RO specially based in the Low Vision Centre. She also shared a plan to train one more ophthalmologist, so that the existing ophthalmologist specially dedicated for Low Vision could further continue her study. Refresher and upgrading trading for those already trained in Low Vision, such as the existing Rehab staff and at a later stage, new people in the Low Vision Centre, should be ensured. The idea of Dr Habibah to integrate the rehabilitative aspect of LV services as part of the overall medical rehabilitation in year 2021 – currently awaiting the floor in the new building ready for occupation, should be refreshed overtime (by LAYAK and/or CBM in any opportunity) after the project completed.
* Low Vision service and care should be beyond the provision of medical/clinical and rehabilitation treatment, but it should, as much as possible, include psychology and psychiatry. During the evaluation, this was obviously captured during the interviews and discussions with the child clients and mothers. This idea was presented to Dr Habibah and team during the debriefing. At that time, Dr Habibah responded positively and planned to invite several other departments (as well as the *Komatda*) to discuss about the need.
* Advocacy to the external (government) institutions should not become the HUH Low Vision Centre’s responsibility. This should become the mandate and responsibility of the *Komatda* South Sulawesi. HUH Low Vision Centre/Eye Department could do some advocacy initiatives internally, so that the referral of children and adults with Low Vision (with/without other disabilities) could be ensured and no ‘missed opportunity’ of Low Vision cases.
* The existing coordination with the secondary facilities (district hospitals and private hospitals), specifically in Low Vision suspected cases, should be maintained and advanced. The collaboration should not only be with the ophthalmologists only, but also with other potential departments such as neonatal/prenatal department and child health ward which sees children with down syndrome and other disabilities being associated with higher prevalence of visual impairment
* The HUH Low Vision Centre should pay additional attention to client monitoring and find a practical mechanism for patients’ follow ups.

**LAYAK**

* Improve the skills, competence and effort in advocacy:
* Advocate education authorities to ensure a child with a disability receives a comprehensive eye health and low vision (if needed) examination before entering school, and that the students in special schools have ‘health record’ which informs their physical and mental impairments; The eye health examination can be done by *PHC*, and *PHC* can send a child with suspected LV to the secondary health facility, and further referral by the secondary facility can be done to the HUH Low Vision Centre. Utilizing the existing school health program (*Usaha Kesehatan Sekolah, UKS*) as a channel for visual acuity screening is highly recommended.
* Advocate and lobby the health authorities to support routine visual acuity screening through UKS, and appropriate response (by doing referral to higher level health facility) for students with a referrable eye health condition or other disability.
* Advocate for truly comprehensive screening for visual impairment and low vision integrating preventive and promotive activities
* Advocate for improved understanding of disability of all stakeholders (such as understanding of barriers for the concept of disability, the relevance of Universal Design, etc.)
* Pay greater attention to and ensure quality monitoring; Monitoring is essential management tool. It will help the management to track the activity implementation and results, which is important to get feedback especially on the progress of achieving the target indicators and the project objectives.

1. Decree of the Regent of Gowa Number: 221 / I / 2020 concerning the Designation of a Public Health Center as a Center for Refraction and Optition Services (Vision Center) in Gowa Regency, South Sulawesi Province. [↑](#footnote-ref-2)
2. 1. Program *Dokter Cilik* or Small-Doctors Program - Small Doctors Program is part of Usaha Kesehatan Sekolah (School Health Unit) or UKS. The *Dokter Cilik*, usually elementary and junior high school students, are trained to increase and maintain personal hygiene and health. They thenshare this knowledge and practice through peer to peer learning, as well as with their families and surrounding communities.

   [↑](#footnote-ref-3)