The Fred Hollows Foundation is an international development organisation, committed to a world in which no person is needlessly blind or vision impaired.

Thanks to advances in medical treatment, health care and technology, 4 out of 5 people who are blind don’t need to be. The Foundation works with local partners and governments in more than 25 countries to deliver essential eye operations and treatments, train surgeons and health care workers, provide equipment and advocate for sustainable eye care services.

With our partners, we innovate and facilitate high quality health services research to improve the quality, productivity and accessibility of eye care for those living in low resource settings.

Our research and innovation is grounded in our extensive experience strengthening eye care practice and policy.

We understand the nature and complexity of the challenges faced by healthcare organisations in low-resource settings and seek to work with them, eye care consumers, and other partners to identify, test, scale-up and showcase innovative solutions.

We are uniquely placed to undertake real world, applied research that catalyses meaningful change in the way eye care is delivered to those most in need. Our research is complemented by rigorous program monitoring and evaluation, which build our organisational capacity and strengthen the performance of our programs ensuring we continue to deliver what works for individuals and communities in need.

We believe that sharing our insights widely, facilitating knowledge exchange with our partners and scaling-up innovative solutions is key to driving large scale systemic change.
The Foundation has significantly expanded the scale and scope of its research, innovation and evaluation activities progressively over the past five years. This continues as part of our commitment to innovate to accelerate change, a key approach in the organisation’s 2019 - 2023 Strategy.

A total of 34 publications resulted from The Foundation’s research, innovation and evaluation activities 2019:
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REPORT: Eritrea RAAB Survey 2018: A national survey of avoidable blindness & vision impairment


Overview: In 2018 The Fred Hollows Foundation supported the implementation of the second national survey of avoidable blindness in Eritrea. Findings from the survey show that much has improved since the first national survey was implemented in the country in 2008.

We have seen a decrease in the prevalence of blindness, severe visual impairment, and early visual impairment. This has been matched by a remarkable increase in cataract surgical coverage among people who were blind from 61.4% to 77.6%. In 2008 cataract caused 55.1% of blindness – this number decreased to 47.7% in 2018.

There is now an opportunity to build on these successes and focus efforts on addressing the remaining challenges. A growing and ageing population means that even though the prevalence of blindness and vision impairment has decreased, the number of people affected has not. As women live longer than men, the number of women affected will continue to grow larger than the number of men affected.

Although there was an increase in the cataract surgical coverage, the proportion of surgeries that resulted in good visual outcomes did not increase as expected. The proportion of surgeries resulting in poor visual outcomes also remains well above WHO recommendations. The biggest and most important task at hand is to now turn this tide. We must do everything possible to make sure that cataract surgical outcomes improve and that more people – especially women – receive cataract surgery when needed.

**REPORT: Prevalence and causes of visual impairment and blindness in three ecological regions of Nepal**

Shrestha, M., Sun, S., Limbu, B., Khanal, S., Pradhan, B. and Shrestha,

**Background:** Visual impairment and blindness are significant public health issues worldwide. The study aims to explore is the prevalence and causes of moderate to severe visual impairment and blindness across three ecological regions of Nepal.

**Method:** A comparative cross-sectional study was conducted in three districts covering all ecological regions of Nepal. Intensive training for health workers was provided to conduct door-to-door visits for visual acuity testing using Snellen chart and refer the abnormal cases for comprehensive ocular examination by technicians and ophthalmologists to diagnose and treat ocular morbidities.

Collected data were analyzed using Statistical Package for Social Sciences (SPSS) and Stata software.

**Results:** Altogether 5234 participants were enrolled in the study. The overall prevalence of moderate to severe visual impairment (MSVI) was 9.5% (4.7% in the Mountain district, 11.2% in the Hill district and 21.2% in the Tarai district), though the prevalence of MSVI was 1.5% in participants aged 15-49 years and 25.1% in those aged ≥50.

The overall prevalence of blindness was 0.9%, and the prevalence of blindness in the 15-49 and ≥50 age groups was 0.2% and 2.3% respectively. Most cases of visual impairment and blindness (95.5%) were an avoidable cause, of which 93.7% were treatable and 1.8% were preventable.

Overall, cataract was the leading cause of visual impairment and blindness (53.5%), followed by uncorrected refractive error (39.5%).

**Conclusion:** The prevalence of visual impairment and blindness varied significantly with age, ethnicity and locality. The correction of refractive error and cataract surgery would reduce nine in ten cases of moderate to severe visual impairment and blindness.

**Citation:** Shrestha, M., Sun, S., Limbu, B., Khanal, S., Pradhan, B. and Shrestha, M. (2019). Prevalence and causes of visual impairment and blindness in three ecological regions of Nepal. Tilganga Institute of Ophthalmology.
ARTICLE: Incidence of visually impairing cataracts among older adults in Kenya


Background: Half of all the cases of blindness worldwide are associated with cataract. Cataract disproportionately affects people living in low- and middle-income countries and persons of African descent.

Method: This secondary analysis of the Nakuru Eye Disease Cohort Study was conducted from February 2016 to April 2016. This cohort comprised citizens of Nakuru, Kenya, aged 50 years or older who consented to participate in the initial or baseline survey from January 2007 to November 2008, as well as the follow-up conducted from January 2013 to March 2014. All participants at baseline (n=4364) and follow-up (n=2159) underwent ophthalmic examination.

Results: In this secondary analysis of the Nakuru Eye Disease Cohort Study of 4364 participants at baseline and 2159 participants at follow-up, the 6-year cumulative incidence of visually significant cataract in either eye was 251.9 per 1000, with the incidence increasing with age among those aged 50 to 59 years and those 80 years or older.

Conclusion: Adults in Kenya appeared to have a high incidence of visually impairing cataract, making cataract a priority for blindness prevention programs in the region; surgical interventions and awareness of these services are also required.

Acknowledgements: This study was funded in part by the MRC and the DFID under the MRC/DFID Concordat agreement, Fight for Sight, the International Glaucoma Association, the British Council for the Prevention of Blindness, the Fred Hollows Foundation, the Queen Elizabeth Diamond Jubilee Trust, and the Wellcome Trust.


ARTICLE: Improving the practice of cataract surgical outcome measurement

Congdon, N., Dodson, S., Chan, VF., Mathenge, W., and Moo, E.

Abstract: A study from Kenya showed that monitoring the visual outcomes of cataract surgery is associated with improving those outcomes. This suggests that we need to know how well our patients see after surgery to have the motivation and information to improve surgical results. Tools to help with this monitoring process, both paper-based and computer-based, have been developed and made freely available. However, the practice of monitoring outcomes has not yet become a routine part of running ophthalmic services other than in situations where it is demanded by regulatory authorities or funding agencies.

Quality of surgery and resulting patient satisfaction are the engines that drive sustainable cataract services. Monitoring surgical quality allows clinicians and healthcare administrators to identify issues and take action to improve practice, patient outcomes and centre performance because “if you measure it, you can manage it.”

ARTICLE: Magrabi ICO Cameroon Eye Institute, Yaoundé, Cameroon: Ophthalmology Subspecialty Patient Care and Training Center in Central Africa


Background: This article reviewed the establishment of the Magrabi ICO Cameroon Eye Institute at Yaoundé, Cameroon, as an ophthalmology subspecialty patient care and training center in Central Africa.

Method: Assessment of unpublished and published material.

Results: To improve, preserve and restore eye health and vision in a region with world-high prevalence of functional vision impairment and blindness, the Africa Eye Foundation established the Magrabi ICO Cameroon Eye Institute as an ophthalmology subspecialty patient care center for all in need and a training center for ophthalmologists, ophthalmology subspecialists, and allied personnel.

In 2017, the year of its inauguration and the first year of operation, the Magrabi ICO Cameroon Eye Institute provided ophthalmology subspecialty care to more than 25,000 patients and surgery for pediatric and adult cataract, glaucoma, retinal disease, oculoplastic disorders, and other vision-threatening conditions. Outreach programs extended care to an additional 2500 individuals in rural communities and 7 training courses were conducted for ophthalmologists and allied personnel.

Conclusion: Through ophthalmology subspecialty patient care and the training of ophthalmologists and allied personnel, Magrabi ICO Cameroon Eye Institute is acting to enhance vision and the quality of life for individuals and families in all segments of society.


ARTICLE: Population prevalence of myopia, glasses wear and free glasses acceptance among minority versus Han schoolchildren in China


Background: The aim of this research was to measure myopia, glasses wear and free glasses acceptance among minority and Han children in China.

Method: Visual acuity testing and questionnaires assessing ethnicity, study time, and parental and teacher factors were administered to a population-based sample of 9–12 year old minority and Han children in Yunnan and Guangdong, and their teachers and parents. Refraction was performed on children with uncorrected visual acuity (VA) ≤ 6/12 in either eye, and acceptance of free glasses assessed.

Results: Among 10,037 children (mean age 10.6 years, 52.3% boys), 800 (8.0%) were myopic, 4.04% among Yunnan Minority children (OR 0.47, 95%CI 0.33, 0.67, P<0.001), 6.48% in Yunnan Han (OR 0.65, 95%CI 0.45, 0.93, P = 0.019), 9.87% in Guangdong Han (Reference). Differences remained significant after adjusting for study time and parental glasses wear. Difference in baseline glasses ownership (Yunnan Minority 4.95%, Yunnan Han 6.15%, Guangdong Han 15.3%) was not significant after adjustment for VA. Yunnan minority children (71.0%) were more likely than Yunnan Han (59.6%) or Guangdong Han (36.8%) to accept free glasses. The difference was significant after adjustment only compared to Guangdong Han (OR 3.34, 95% CI 1.62, 6.90, P = 0.001).

Conclusion: Myopia is more common among Han children and in wealthier Guangdong. Baseline differences in glasses wear could be explained by student, teacher and parental factors. Yunnan Minority children were more likely to accept free glasses.

Acknowledgements: This work was supported by the United States Agency for International Development (USAID) Child Blindness Program; Orbis International; and the Fred Hollows Foundation.


REPORT: Viet Nam Child Eye Care (VNCEC) and Better Eyes for Better Education (BEBE) Projects

Brain, D.

Background: School eye health (SEH) programs are a mechanism to detect VI in large numbers of children, and they can also educate children, school staff and parents on preventable and treatable eye health conditions. To reduce the impact of VI in Viet Nam, the Fred Hollows Foundation Viet Nam (FHFVN) introduced a school eye health program comprised of two complementary projects; eye health screening and treatment, the Viet Nam Child Eye Careproject (VNCEC) and eye health education and awareness the Better Eyes for Better Education project (BEBE).

Method: The final evaluation comprised a comprehensive literature review of project design documents, project reports, research reports, and in-country qualitative focus group discussions (FGD) with stakeholders and beneficiaries, including Ministry of Education and Training, Ministry of Health, Project Management Boards (PMB), school nurses, teachers, parents, children and the FHFVN project staff. FGDs were held in each of the target provinces.

Results: The VNCEC and BEBE projects worked successfully together to strengthen the capacity of the education and health sectors to deliver SEH in the three target provinces and increase eye health knowledge among teachers, school nurses, parents, and children. The projects strengthened the existing collaborative model for school eye health, with SEH clearly understood as the responsibility of the education sector with the health sector providing technical support.

Conclusion: The Viet Nam School Eye Health program design, with its two complementary projects, VNCEC and BEBE is highly relevant and addresses a critical need in Viet Nam. The high level of vision impairment, which is increasing, primarily due to rapid increases in myopia in children, can negatively impact a child’s ability to learn, and their psycho-social development, potentially creating life-long limitations on their educational and economic opportunities. Critically, myopia onset can only be prevented, delayed or controlled while the eye is still developing, so interventions with children are imperative.

ARTICLE: Health-related behaviours in a remote Indigenous population with Type 2 diabetes: a Central Australian primary care survey in the Telehealth Eye and Associated Medical Services Network [TEAMSnet] project


Background: There is a wealth of data concerning the health behaviours of Indigenous Australians, but the health behaviours of Indigenous Australians with diabetes are not systematically documented. At the clinical level, understanding a person’s health behaviours can help identify and address barriers to diabetes care and promote good clinical outcomes.

Methods: We used a novel survey tool to systematically collect health behaviour data on Smoking, Nutrition, Alcohol consumption, Physical activity and Emotional well-being (SNAPE) from Indigenous Australians with Type 2 diabetes in a remote primary care setting in Alice Springs.

Results: At least one of the five surveys in the SNAPE tool was completed by 210 participants: 30% male, mean age 52.6 years (range 22.9 – 87.4). Fifty per cent of men and 23% of women were current smokers (P < 0.001). None of the participants reported an adequate intake of vegetables. Only 9.6% reported an adequate fruit intake. Some 49% of men and 32% of women consumed alcohol in the past year (P = 0.022), and 46% of drinkers were considered high-risk or likely-dependent drinkers. On average, participants walked 10 min or more at a time 6.0 days a week and spent 4.8 h sitting on a weekday. Mean adapted Patient Health Questionnaire 9 score was 4.61, with 34% of participants having mild depressive symptoms and 11% having moderate-severe depressive symptoms.

Conclusion: Our SNAPE survey tool results present a high-risk, disadvantaged Indigenous population with Type 2 diabetes. More resources will be needed to sustainably implement interventions with the goal of improving health behaviours and subsequent long-term health.

Acknowledgements: This work was supported by the National Health and Medical Research Council (NHMRC) Australia and The Fred Hollows Foundation.


ARTICLE: Diabetic Retinopathy research & innovation directions to 2023

D’Esposito, F.

Overview: Diabetic Retinopathy Research and innovation Directions to 2023 sets out our plans to pilot new ways to diagnose diabetic retinopathy, encourage more people to return for the treatment they need, test new technologies that can make diagnosis and treatment more affordable and accessible, and deliver the guidance that health providers, program implementers, and policy makers need.

Citation: D’Esposito, F. (2019). Diabetic Retinopathy research & innovation directions to 2023. The Fred Hollows Foundation.
REPORT: Integrated Model of Care for Diabetic Retinopathy within the Health System of Pakistan (IMOC-P) Project – Endline Evaluation

Awan, H., Khan, AQ., and Khan, MB.

Background: The Foundation supported a three-year project entitled ‘Integrated Model of Care for Diabetic Retinopathy within the Health System of Pakistan (IMOC-P). This project had several programmatic components which included the following:

- **Community awareness and identification and referral of persons with diabetes:** by training community health personnel called Lady Health Workers (LHWs) who were trained to use a diabetes risk assessment guide to identify persons with diabetes or at risk of developing it and refer them to a primary health care facility.

- **Initial screening:** by optometrists as part of a screening team that visited first level health facilities called Basic Health Units (BHUs) where LHWs referred their patients.

- **Referral system:** the project aimed to develop a referral system from the BHU to the respective tertiary centres with a diabetic clinic and a medical retina service.

- **Cooperation between diabetic clinic and eye care for diabetic retinopathy (DR):** the project planned to develop a collaborative arrangement between diabetes and medical retina clinics to have a joint diabetic eye clinic.

- **Data management:** customised software would be developed to help in data management and for patient tracking.

- **Operational research component:** that focussed on community knowledge and practices about diabetes, patient satisfaction survey, and a study to ascertain the usefulness of an Arc Light ophthalmoscope as a screening tool.

The IMOC-P programme was implemented between 2016-2018 with three main implementing partners: Lahore General Hospital (LGH Lahore), Gurki Trust Teaching Hospital (GTTH Lahore) and Sindh Institute of Ophthalmology and Vision Sciences (SIOVS Hyderabad). There were very few activities undertaken in 2016 due to delays in finalising agreements with the respective provincial health authorities.

**Method:** The scope of the evaluation was to determine elements of the project that influence the relevance, effectiveness, efficiency and sustainability of the project. The aim of the evaluation was to inform new project development for DR programming supported by the Foundation in the country. The methodology involved desk review, site visits, in-depth interviews of key informants and focus group discussions with LHWs.

**Results:** The project improved access of persons with diabetes or at risk of developing diabetes, firstly to LHWs and thereafter to BHUs, and secondly to tertiary centres. In normal circumstances, most of these persons would not have had the opportunity of DR screening at the primary health care facility level. The screening teams were able to detect DR and refer the patients to the respective tertiary centres.

The project data indicates that most key performance indicators achieved 70% or more of their respective targets. About 111% of LHWs were trained in diabetes and eye health and the use of the DRA form. The project exceeded its target despite the limited availability of LHWs for training activities as they were constantly involved in other programmes like family planning, immunisation and nutrition.

**Conclusion:** By training LHWs in use of DRA and developing a referral link to a primary health facility for DR screening achieved a cost-efficient intervention at the primary health care level as both these interventions are sustainable and scalable. The project demonstrated varying trends in sustainability.

**Citation:** Awan, H., Khan, AQ., and Khan, M. (2019). Integrated Model of Care for Diabetic Retinopathy within the Health System of Pakistan (IMOC-P) Project – Endline Evaluation. The Fred Hollows Foundation.
REPORT: Integrated Model of Care for Diabetic Retinopathy within the Health System of Bangladesh

Hasan, K.

Background: Integrated Model of Care for Diabetic Retinopathy Within the Health System of Bangladesh - a project implemented by The Fred Hollows Foundation, seeks to support the development and assessment of an integrated and comprehensive model of care for people at risk of vision loss due to diabetes-related eye disease in 4 districts in Bangladesh. The overall goal of the project is to avoid blindness in people at risk of vision loss due to diabetes, by strengthening the health system.

Method: The survey was conducted following both the qualitative and quantitative methods. Under the quantitative method, sample survey was carried out and in-depth interviews were conducted under the qualitative method. The target respondent of the sample survey was the beneficiaries. The sample size of this survey was 200. On the other hand, in-depth interviews were carried out among project officials, doctors (12) and relevant stakeholders (8) and Focus Group Discussions with the beneficiaries (8).

Results: The survey data show that all the beneficiaries are now aware about diabetes, have knowledge of harmful effects of uncontrolled diabetes and DR. The beneficiaries seemed to have received adequate knowledge on DR from the hospital - DAB center and district hospital(97%), media (48.5%) and courtyard sessions (48.5%) they had attended. These encouraged them for regular screening and to visit DAB center for eye check-up. They could correctly recall the suggested lifestyle they need to follow if DR was detected.

Conclusion: Integration of eye care into diabetes facilities, and integration of DR into eye care units of the public sector facilities, has proved to be successful. Screening, management and treatment of DR may be integrated into diabetes facilities for registered persons with diabetes.

Disseminating information and increasing community knowledge about diabetes and its consequences create community demand for the utilization of DR services in these facilities.

REPORT: Strengthening Gender Equality in Eye Health in Cambodia

Leslie, S., and San, M.K.

Background: The Strengthening Gender Equality for Eye Health (SGEEH) project partnered with the Ministry of Women’s Affairs (MoWA) and the Ministry of Health (MoH) to try and reduce the discrepancies in the number of women accessing eye health services within two districts in each of ten provinces. Across these 10 provinces, there are many differences in models of support to service delivery. It aimed to achieve three outcomes:

• Knowledge and utilisation of eye care services is increased by women and girls in 10 provinces of Cambodia
• Leadership and governance is strengthened to integrate eye health into policies and guidelines on gender equality and take a gender lens in developing eye health policies and guidelines. The result of this was intended to be some gender indicators embedded in the MoH/NPEH strategic plan.
• MoWA and MoH develop long-term partnership and strategy for increased availability of eye health services at subnational level.

Method: The evaluation of this project aimed to assess how effective the project was at increasing women’s access to eye care services in project locations and document how the effective parts of the model and broader project worked in more detail to help FHF decide how to take forward its efforts to mainstream gender in eye health, both in Cambodia and more broadly. This internal evaluation used a mixed methods approach, using both quantitative and qualitative data.

Results: The SGEEH models both work to engage people and educate them around gender and eye health. They are both successful in improving people’s knowledge of eye health, how to access health services and of the importance of women being able to access services.

Conclusion: The evaluation identified a number of recommendations:
1. Integrate a range of SGEEH activities into PPEHS.
2. Ensure service costs are free for the poor and ‘near poor’ in PPEHS Provinces.
3. Continue to fund the gender project in non-PPEHS Provinces where there is an NGO supporting the service delivery at the eye unit
4. Support MoWA and MoH/NPEH to develop and implement a joint work plan.
5. Work more closely with other NGOs to coordinate activities
6. Present the lessons learnt through the project to MoH community health promotion teams; and
7. Present the lessons learnt through the SGEEH project to other eye health NGOs and suggest that they could pick up the model in their provinces.

REPORT: Evaluation of Expanding the reach of Eye Care Services in rural areas of Nepal

Devkota, B., Manandhar, U, and Devkota, D.

Background: The prevalence of blindness (0.35%) continues to be a major health problem in Nepal. Unequal distribution and concentration of eye care services in urban areas have been a challenge in increasing their availability, accessibility and affordability for common populations in Nepal.

The Fred Hollows Foundation (FHF) in partnership with Tilganga Institute of Ophthalmology (TIO) and guided by the Vision 2020: The Right to Sight and World Health Organization (WHO) Global Action Plan has been supporting a three years’ project “Expanding the Reach of Eye Care Services in Rural Areas of Nepal (January 2016-December 2018). The primary purpose of the project is to deliver equitable eye care services to the remote populations of Rasuwa, Okhaldhunga, Sindhupalchowk, Rolpa and to develop and test sustainability strategies for the Community Eye Care Centres (CECs).

Method: In-depth and semi-structured interviews for qualitative and quantitative assessment and Focus Group Discussions (FGDs) with diverse stakeholders including CEC service users and non-users, Female Community Health Volunteers (FCHVs), officials of District (Public) Health Office, Education Office and Nepal Red Cross Societies.

The research team consulted 146 individuals for in-depth and semi-structured interviews, including past service users, service providers, community gatekeepers, persons attending CEC to use services and potential service users.

Results: One of the major changes found is the incredible increase in the number of eye care service users. There is a noticeable increment of CEC service users from 13,719 in 2015 to 29,850 within the first ten months of 2018. The increase of over 117% of service users, including a ratio of 57% female of the total CECs service users, is one of the indications of the success of the project in maintaining equitable access to eye care services.

The substantial increase in CEC service users have contributed to exceeding total project targets by 90,643 against 42,865 in the four project districts. However, the difference among four CECs vary as Okhaldhunga and Sindhupalchowk have exceeded project targets by 107% and 251%, compared to Rasuwa and Rolpa CECs that have just meet their targets. Nevertheless, last three years’ cumulative data shows that much remains to achieve as the project has been able to reach only 66.9% of the potential target population of the project districts.

Conclusion: The project has been delivering affordable quality eye care services and succeeded to increase number of users substantially enhancing their access. The project serves as evidence to the theory that providing services closer to underserved populations increases access and uptake of CEC services by these groups.

Citation: Devkota, B., Manandhar, U, and Devkota, D. (2019). Evaluation of Expanding the reach of Eye Care Services in rural areas of Nepal. The Fred Hollows Foundation.
There was no statistically significant association between active trachoma cases and controls. Droplet digital PCR was used to test for pathogens suspected to be able to induce follicular conjunctivitis. Polymicrobial community diversity and composition were studied by sequencing of hypervariable regions of the 16S ribosomal ribonucleic acid gene in a subset of 54 cases and 53 controls.

Results: Although Ct was associated with active trachoma, the number of infections was low (cases, 3.9%; controls, 0.4%). Estimated prevalence (cases and controls, respectively) of each non-chlamydial infection was as follows: Staphylococcus aureus: 1.9 and 1.9%, Adenoviridae: 1.2 and 1.2%, coagulase-negative Staphylococcus: 5.8 and 4.3%, Haemophilus influenzae: 7.4 and 11.7%, Moraxella catarrhalis: 2.3 and 4.7%, and Streptococcus pneumoniae: 7.0 and 6.2%.

There was no statistically significant association between the clinical signs of trachoma and the presence or load of any of the non-Ct infections that were assayed. Interindividual variations in the conjunctival microbiome were characterized by differences in the levels of Corynebacterium, Propionibacterium, Helicobacter, and Paracoccus, but diversity and relative abundance of these specific genera did not differ significantly between cases and controls.

Conclusion: It is unlikely that the prevalent trachoma-like follicular conjunctivitis in this region of the Solomon Islands has a dominant bacterial etiology. Before implementing community-wide azithromycin distribution for trachoma, policy makers should consider that clinical signs of trachoma can be observed in the absence of any detectable azithromycin-susceptible organism.

Acknowledgements: Fieldwork was jointly funded by the United Kingdom's Department for International Development Global Trachoma Mapping Project grant to Sightsavers, and by the Fred Hollows Foundation.

ARTICLE: Gender equity in mass drug administration for neglected tropical diseases: data from 16 countries


Background: Gender equity in global health is a target of the Sustainable Development Goals and a requirement of just societies. Substantial progress has been made towards control and elimination of neglected tropical diseases (NTDs) via mass drug administration (MDA). However, little is known about whether MDA coverage is equitable. This study assesses the availability of gender-disaggregated data and whether systematic gender differences in MDA coverage exist.

Method: Coverage data were analyzed for 4784 district-years in 16 countries from 2012 through 2016. The percentage of districts reporting gender-disaggregated data was calculated and male–female coverage compared.

Results: Reporting of gender-disaggregated coverage data improved from 32% of districts in 2012 to 90% in 2016. In 2016, median female coverage was 85.5% compared with 79.3% for males. Female coverage was higher than male coverage for all diseases. However, within-country differences exist, with 64 (3.3%) districts reporting male coverage >10 percentage points higher than female coverage.

Conclusion: Reporting of gender-disaggregated data is feasible. And NTD programs consistently achieve at least equal levels of coverage for women. Understanding gendered barriers to MDA for men and women remains a priority.

Acknowledgements: This work was supported by the United States Agency for International Development through its projects ENVISION, led by RTI International, and End Neglected Tropical Diseases in Africa (END in Africa), led by FHI 360.


A group of women in Ethiopia are prepared for surgery to treat trichiasis, a painful condition caused by repeat trachoma infection.
**REPORT: Evaluation of the Pacific Trachoma Initiative**

Thomson, J., and Lucas, B.

**Background:** The Goal of the Pacific Trachoma Initiative (PTI) 2014-2019 was to achieve the elimination of blinding trachoma as a public health problem by 2019 in four Pacific Island Countries (PICs): Fiji; Solomon Islands; Vanuatu; and Kiribati. The Objectives of the PTI were: 1. To clarify the enigmatic clinical presentation of trachoma in the PICs; and 2. To guide the policies and activities of the PIC national governments to support effective and sustainable elimination of trachoma by 2019.

**Method:** The Goal of the PTI was to achieve the elimination of blinding trachoma as a public health problem by 2019 in four Pacific Island Countries (PICs): Fiji; Solomon Islands; Vanuatu; and Kiribati. The Objectives of the PTI were: 1. To clarify the enigmatic clinical presentation of trachoma in the PICs; and 2. To guide the policies and activities of the PIC national governments to support effective and sustainable elimination of trachoma by 2019.

**Results:** Four rounds of MDA have been implemented within the program period although all were delayed compared to initially planned timings. This is still a good achievement given the enormity of implementing population-wide MDA, limited human resources, the complexity of the program, the challenges faced in individual countries and the unique fact that the program was adapting in real time to emerging data and evolving policy directives.

Challenges and risks to timely implementation did not seem to have been adequately identified in the PTI program design. More timely recognition of the unique challenges in the Pacific and increased levels of associated support from The Foundation and ITI may have managed this risk during implementation.

**Conclusion:** The PTI has laid the foundation for the approach to managing trachoma programs across the Pacific through informing policies and practices and capacity development which are also applicable to other NTDs. It will inform other countries in their approach to eliminate trachoma and has influenced global policy. However, the extent to which the PICs are likely to sustain a focus on trachoma is mixed. The sustainability of trachoma management is highly dependent on which part of the public health system is responsible for its management and the degree to which it is linked and integrated with other programs.

**Citation:** Thomson, J., and Lucas, B. (2019). Evaluation of the Pacific Trachoma Initiative. The Fred Hollows Foundatione0006543. doi:10.1371/journal.pntd.0006543

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**ARTICLE: Selecting behaviour change priorities for trachoma ‘F’ and ‘E’ interventions: A formative research study in Oromia, Ethiopia**

Greenland, K., White, S., Sommers, K., Biran, A., Burton, M., Sarah, V., and Alemayehu, W.

**Background:** Trachoma is the leading infectious cause of blindness. However, little is known about the behavioural and environmental determinants of transmission of the causative organism, Chlamydia trachomatis. We conducted formative research in a trachoma hyper-endemic area of Ethiopia to explore the behaviours which are likely to contribute to trachoma transmission and map their determinants.

**Method:** Data on water use, hygiene, defecation, and sleeping arrangements were collected from five communities during the dry and rainy seasons in 2016. Data collection involved direct observation in households (n = 20), interviews with caregivers (n = 20) and focus group discussions (n = 11).

**Results:** Although several behaviours that likely contribute to trachoma transmission were identified, no single behaviour stood out as the dominant contributor. Hygiene practices reflected high levels of poverty and water scarcity. Face washing and soap use varied within and between households, and were associated with other factors such as school attendance. Children’s faces were rarely wiped to remove nasal or ocular discharge, which was not perceived to be socially undesirable. Bathing and laundry were performed infrequently due to the amount of time and water required. Open defecation was a normative practice, particularly for young children. Latrines, when present, were poorly constructed, maintained and used. Young children and parents slept closely together and shared bedding that was infrequently washed.

**Conclusions:** Existing norms and enabling factors in this context favour the development of interventions to improve facial cleanliness as more feasible than those that reduce unsafe faeces disposal. Interventions to increase the frequency of bathing and laundry may also be infeasible unless water availability within the home is improved.

**Acknowledgements:** The study was funded by The Fred Hollows Foundation. Contributing authors were supported by the Wellcome Trust.

ARTICLE: The costs of monitoring trachoma elimination: impact, surveillance, and trachomatous trichiasis (TT)-only surveys


Background: Although trachoma causes more cases of preventable blindness than any other infectious disease, a combination of strategies is reducing its global prevalence. As a district moves toward eliminating trachoma as a public health problem, national programs conduct trachoma impact surveys (TIS) to assess whether to stop preventative interventions and trachoma surveillance surveys (TSS) to determine whether the prevalence of active trachoma has rebounded after interventions have halted. In some contexts, programs also conduct trachomatous trichiasis (TT)-only surveys. A few costing studies of trachoma prevalence surveys exist, but none examine TIS, TSS, or TT-only surveys.

Method: We assessed the incremental financial cost to the national program of TIS, TSS, and TT-only surveys, which are standardized cluster-sampled prevalence surveys. We conducted a retrospective review of expenditures and grant disbursements for TIS and TSS in 322 evaluation units in 11 countries between 2011 and 2018. We also assessed the costs of three pilot and five standard TT-only surveys in four countries between 2017 and 2018.

Results: The median cost of TIS and TSS was $8,298 per evaluation unit [interquartile range (IQR): $6,532–$10,111, 2017 USD]. Based on a linear regression with bootstrapped confidence intervals, after controlling for country, costs per survey did not change significantly over time but did decline by $83 per survey implemented in a single round (95% CI: $-108 to $-63). Of total costs, 80% went to survey fieldwork; of that, 58% went towards per diems and 38% travelled. TT-only surveys cost a median of $9,707 (IQR: $8,537–$11,635); within a given country, they cost slightly more (106% [IQR: 94%–136%]) than TIS and TSS.

Conclusion: This study was made possible thanks to funding from ENVISION, a global project led by RTI International in partnership with CBM International, The Carter Center, Fred Hollows Foundation, Helen Keller International, IMA World Health, Light for the World, Sightsavers, and World Vision.

Acknowledgements: The World Health Organization requires trachoma prevalence estimates for validating the elimination of trachoma as a public health problem. This study will help programs improve their planning as they assemble resources for that effort.


ARTICLE: Optimising age adjustment of trichiasis prevalence estimates using data from 162 standardised surveys from seven regions of Ethiopia


Background: The prevalence of trichiasis is higher in females and increases markedly with age. Surveys carried out in the daytime, particularly in developing countries, are prone to find older individuals and females at home at the time of the survey. Population-level trichiasis estimates should adjust sample proportions to reflect the demographic breakdown of the population, although the most accurate method of doing this is unclear.

Method: Having obtained data from 162 surveys carried out in Ethiopia as part of the Global Trachoma Mapping Project from 2012 to 2015, we used internal validation with both Brier and Logarithmic forecast scoring to test stratification models to identify those models with the highest predictive accuracy. Selection of partitions was undertaken by both simple random sampling (SRS) and cluster sampling (CS) over 8192 selections.

Results: A total of 4529 (1.9%) cases of trichiasis were identified from 241,139 individuals aged ≥15 years from a total of 4210 kebeles and 122,090 households visited. Overall, the binning method using 5-year bands from age 15 to 69 years, with coarser binning in 20-year age-bands above this age, provided the best predictive accuracy, in both SRS and CS methodologies and for both the Brier and Logarithmic scoring rules.

Conclusion: The greatest predictive accuracy for trichiasis estimates was found by adjusting for sex and in 5-year age-bands from the age of 15 to 69 years and in 20-year age-bands in those aged 70 years and greater. Trichiasis surveys attempting to make population-level inferences should use this method to optimise surgery backlog estimates.

Acknowledgements: Surveys providing data for this study were principally funded by the Global Trachoma Mapping Project (GTMP) grant from the United Kingdom’s Department for International Development to Sightsavers, which led a consortium of non-governmental organisations and academic institutions to support ministries of health to complete baseline trachoma mapping worldwide.

REPORT: Absence of Serological Evidence of Exposure to Treponema pallidum among Children Suggests Yaws Is No Longer Endemic in Kiribati

Handley, B., Butcher, R., Raebwebwe, T., Roberts, C., Cama, A., Mueller, A., Solomon, A., Tekeraoi, R., and Marks, M.

**Background:** Yaws is a neglected tropical disease targeted for eradication by 2020. Kiribati, a Pacific Island nation, was previously endemic for yaws but lacks recent data from which its current endemicity status could be determined. This study tested antibody responses to Treponema pallidum to determine if transmission of yaws is taking place among children in Kiribati.

**Method:** Using a commercially available T. pallidum particle agglutination kit (Serodia®, Fujirebio Inc., Tokyo, Japan), we tested dried blood spots, collected during population-based trachoma prevalence surveys on Tarawa Atoll and Kiritimati Island, for long-lived treponemal antibodies.

**Results:** Dried blood spots from 1,420 children aged 1–9 years were tested. Only two were positive, suggesting T. pallidum is not being widely transmitted among children in the settings sampled.

**Conclusion:** These data require support from additional surveys to demonstrate the absence of clinical signs of disease and molecular evidence of infection, to confirm that yaws is no longer endemic in Kiribati.

**Acknowledgements:** Fieldwork for the Kiritimati Island survey was funded by the Global Trachoma Mapping Project grant from the United Kingdom’s Department for International Development; the Wellcome Trust; and the Fred Hollows Foundation.

**Citation:** Handley, B., et al. (2019). Absence of Serological Evidence of Exposure to Treponema pallidum among Children Suggests Yaws Is No Longer Endemic in Kiribati. The American Journal of Tropical Medicine and Hygiene. 100 (4) DOI: https://doi.org/10.4269/ajtmh.18-0799

ARTICLE: Responses of the putative trachoma vector, Musca sorbens, to volatile semiochemicals from human faeces


**Background:** The putative vector of trachoma, Musca sorbens, prefers to lay its eggs on human faeces on the ground. This study sought to determine whether M. sorbens females were attracted to volatile odours from human faeces in preference to odours from the faeces of other animals, and to determine whether specific volatile semiochemicals mediate selection of the faeces.

**Method:** Traps baited with the faeces of humans and local domestic animals were used to catch flies at two trachoma-endemic locations in The Gambia and one in Ethiopia. At all locations, traps baited with faeces caught more female M. sorbens than control traps baited with soil, and human faeces was the most successful bait compared with soil (mean rate ratios 44.40, 61.40, 10.50 [P<0.001]; 8.17 for child faeces [P=0.004]). Odours from human faeces and some domestic animals were sampled by air entrainment. Extracts of the volatiles from human faeces were tested by coupled gas chromatography-electroantennography with laboratory-reared female M. sorbens. Twelve compounds were electrophysiologically active and tentatively identified by coupled mass spectrometry-gas chromatography, these included cresol, indole, 2-methylpropanoic acid, butanoic acid, pentanoic acid and hexanoic acid.

**Results:** It is possible that some of these volatiles govern the strong attraction of M. sorbens flies to human faeces. If so, a synthetic blend of these chemicals, at the correct ratios, may prove to be a highly attractive lure. This could be used in odour-baited traps for monitoring or control of this species in trachoma-endemic regions.

**Citation:** Robinson, A. et al. (2019). Responses of the putative trachoma vector, Musca sorbens, to volatile semiochemicals from human faeces. bioRxiv.
ARTICLE: Prevalence of active trachoma and associated risk factors among children of the pastoralist population in Madda Walabu rural district, Southeast Ethiopia: a community-based cross-sectional study

Kassim, K., Kassim, J., Aman, R., Abduku, M., Tegegne, M., and Sahiledengle, B.

Background: In developing countries particularly in sub-Saharan Africa trachoma is still a public health concern. Ethiopia is the most affected of all and bears the highest burden of active trachoma. In spite of this, the prevalence of active trachoma among the pastoralist population in Ethiopia not yet disclosed. The aim of this study was to determine the prevalence of active trachoma and associated risk factors among children in a pastoralist population in Madda Walabu rural district, Ethiopia.

Method: A community-based cross-sectional study was conducted among children in a pastoralist population in Madda Walabu rural district, from May 1 to 30, 2017. A systematic sampling technique was employed to select 409 children’s. Simplified WHO classification scheme was used to assess trachoma. Descriptive and logistic regression analyses were performed.

Results: A total of 406 children aged 1–9 years have participated, 89 (22%) [95%CI: 18.0–25.6%] were positive for active trachoma. Of these cases, 75(84%) had TI alone in one or both eyes, 14(16%) had TF alone in one or both eyes, and none of the children had both TI and TF. The odds of having active trachoma among children from households using river/ponds, unprotected well/spring and rainwater as their source of drinking water were higher than those from households using water from piped or public tap water (AOR: 13, 95%CI: 2.9, 58.2), (AOR: 6.1, 95%CI:1.0,36.5) and (AOR: 4.8, 95%CI:1.3,17.8) respectively. Children’s from households that lacked a latrine (AOR: 2.5, 95% CI: 1.8, 5.3), children who did not wash their face by using soap (AOR: 4.3, 95% CI: 1.8, 10.6) and children from households within 16–30 min of water source (AOR: 8.7, 95% CI: 2.20, 34.2) were higher odds of having active trachoma.

Conclusion: The findings of this study revealed that close to one-quarter of the total children screened for trachoma were positive for the disease. The finding implies that trachoma is still a major concern among children of the pastoralist community which demands further attention of the district health office. Again, intervention with the A, F and E components of SAFE strategy is strongly recommended.


ARTICLE: Safe mass drug administration and trachoma elimination

Addiss, D., Sarah, V., Negussu, N., & Emerson, P.

Overview: M Mass drug administration (MDA), which involves giving medicines to a whole community at one time, usually once a year, is a major component of the SAFE strategy to eliminate trachoma (Surgery, Antibiotics, Facial cleanliness, and Environmental improvement) and a cornerstone of programmes to eliminate other neglected tropical diseases (NTDs).

For the past decade, NTD programmes have focused on increasing the number of people treated. Since 2016, more than 1 billion people a year receive treatment through MDA for the NTDs that affect their communities. However, global health programmes have an obligation not only to provide benefits to populations, but also to minimise harm to individuals. Observational assessments of MDAs are needed to evaluate current safety practices and to identify prevention strategies. Prompt investigation, management and reporting of serious adverse events are not only legal and regulatory requirements; they also serve to decrease rumours, restore trust, and sustain high MDA coverage.

The push to reach the high coverage required for trachoma elimination need not conflict with MDA safety – high-quality programmes can achieve both.

For the past decade, NTD programmes have focused on increasing the number of people treated. Since 2016, more than 1 billion people a year receive treatment through MDA for the NTDs that affect their communities. However, global health programmes have an obligation not only to provide benefits to populations, but also to minimise harm to individuals. Mass drug administration (MDA), which involves giving medicines to a whole community at one time, usually once a year, is a major component of the SAFE strategy to eliminate trachoma (Surgery, Antibiotics, Facial cleanliness, and Environmental improvement) and a cornerstone of programmes to eliminate other neglected tropical diseases (NTDs).

ARTICLE: Announcing The Lancet Global Health Commission on Global Eye Health


Overview: Eye health has profound and widespread implications for many aspects of life, health, sustainable development, and the economy. Yet many populations do not have access to good-quality, affordable eye care. It is in this context that we are pleased to announce The Lancet Global Health Commission on Global Eye Health, whose report will appear in this journal on World Sight Day 2020.

This Commission will:
• Analyse the current state of eye health in low-income, middle-income, and high-income countries
• Examine the implications of projected growth of global burden of eye disease and sight loss
• Provide updated estimates of the economic cost of vision impairment and the return on investment from efforts to improve eye health
• Identify knowledge gaps impeding design and delivery of better, more equitable services, through a global “Grand Challenges” exercise
• Make the political, social, and economic case for action to achieve real and lasting reductions in the global burden of avoidable vision loss
• Review established and novel, evidence-based strategies to deliver high-quality eye health services.

These services should integrate well with existing health-care systems, should be mindful of environmental sustainability, and deliver services for all so that no one is left behind.

Acknowledgements: Funding support for the Commission has been provided by the Queen Elizabeth Diamond Jubilee Trust, the Wellcome Trust, the Seva Foundation, Sightsavers, the Fred Hollows Foundation, and CBM


REPORT: Strengthening eye health in Huanxian County of Gansu Province, China

Leemen, P., and Zhicheng, D.

Background: The Strengthening Eye Health in Huanxian Project commenced in October 2017 with the objective of establishing and strengthening eye care services at County Hospital, township and village level in Huanxian County. Following a similar format to projects in other parts of China, the project is based on The Fred Hollows Foundation’s Comprehensive Rural Eye Care Model, which typically involves four elements: hospital treatment, outreach work, community engagement and referral, delivered in cooperation with local government and mass organisations.

Method: This was an internal review, led by the Fred Hollows Foundation Monitoring and Evaluation Adviser, with participation from the Fred Hollows Foundation China team. The review drew on utilisation-focused evaluation principles, using the project management team to prioritise the questions, and shape the data collection and analysis in a way that would be useful for project management.

Conclusion: Overall the project appeared to be tracking well, there are a number of areas that could be focused on for the remainder of the project to cement progress, address possible gaps in access and ensure sustainability.


BOOK CHAPTER: Health literacy policy in Australia: past, present and future directions

Trezona, A., Fitzimon, E., and Dodson, S.

Overview: Health literacy addresses a range of social dimensions of health including knowledge, navigation, communication as well as individual and organizational skills for accessing, understanding, evaluating and using of information. Especially over the past decade, health literacy has become a major public health concern globally as an asset for promoting health, wellbeing and sustainable development.

This comprehensive handbook provides an invaluable overview of current international thinking about health literacy, highlighting cutting edge research, policy and practice in the field. With a diverse team of contributors, the book addresses health literacy across the life-span and offers insights from different populations and settings. Providing a wide range of major findings, the book outlines current discourse in the field and examines necessary future dialogues and new perspectives.

ARTICLE: Evaluation Literacy: Perspectives of Internal Evaluators in Non-Government Organizations

Rogers, A., Kelly, L., and McCoy, A.

Overview: While there is an abundance of literature on evaluation use, there has been little discussion regarding internal evaluators’ role in promoting evaluation use. Evaluation can be undervalued if context is not taken into consideration. Evaluation literacy is needed to make evaluation more appropriate, understandable, and accessible, particularly in non-government organizations (NGOs) where there is a growing focus on demonstrable outcomes.

Evaluation literacy refers to an individual’s understanding and knowledge of evaluation and is an essential component of embedding evaluation into organizational culture. In recognition of the value of the internal perspective, a small exploratory exercise was undertaken to reveal internal evaluator roles and ways of engaging with colleagues around evaluation.

The exercise examined a key question: What is the role of evaluation literacy in internal evaluation in the non-government sector? Three Australian auto-narrative examples from internal evaluators highlight evaluation literacy and locate it among the multiplicity of roles required for optimal evaluation uptake. Analysis of the narratives revealed the underlying issues affecting evaluation use in NGOs and the skills needed to motivate and enable others to access, understand, and use evaluation information. Responding to the call for expanded research into internal evaluation from a practice perspective, the authors hope that the findings will stimulate a wider conversation and further advance understanding of evaluation literacy.


ARTICLE: Knowledge Translation to Enhance Evaluation Use: A Case Example

Rogers, A., and Malla, C.

Overview: Knowledge in the form of information suitable for decision making or advocacy by foundations is not always readily available — a situation unacceptable for those who need such information for accountability, learning, and influencing policy and practice. This article addresses how essential information about monitoring, evaluation, and lessons learned can be made available to foundations.

The Fred Hollows Foundation identified a gap in this area through an evaluation capacity-building readiness assessment, and introduced the concept of participatory, real-time monitoring, evaluation, and learning bulletins grounded in the principles of knowledge translation. This article describes how those bulletins were developed and used within the foundation to ensure access to relevant and timely information, and examines how they provided a mechanism to promote internal reflection and shift attitudes around data, which supported the development of a culture of evaluation.

This approach for the timely development, synthesis, sharing, and dissemination of relevant information will be useful for foundations that have limited resources. As knowledge translation is often not resourced sufficiently in and by foundations, this article seeks to add weight to the argument for prioritization of packaging information in accessible ways.

REPORT: Eye Care System Integration
Afghanistan Mid-Term Evaluation Report

ASK Consulting

Background: The “Eye care system integration in Afghanistan” project is a three years and two months project (from November 2016 to December 2019), implemented in the Kabul Province by the Fred Hollows Foundation in partnership with HealthNet TPO. The project’s main goal is to contribute to ending avoidable blindness in Afghanistan.

Method: The evaluation team adopted a summative evaluation design which looks at the impact of an intervention on the target group.

Results: The evaluation team adopted a summative evaluation design which looks at the impact of an intervention on the target group. This type of evaluation is arguably what is considered most often as ‘evaluation’ by project staff and funding bodies- that is, finding out what the project achieved.

Citation: ASK Consulting. (2019). Eye Care System Integration Mid-Term Evaluation Report. The Fred Hollows Foundation.

REPORT: The Effect of Leadership Style on Employee Performance In Some Selected Non-Governmental Organizations: Orbis International Ethiopia, Family Guidance Association and Fred Hollows Foundation

Haileyesus, W.

Background: The purpose of this study was to examine the effect of leadership style on employee performance in some selected Non Government Organizations. A sample size of 160 was used from three selected NGOs in Addis Ababa using stratified sampling technique.

Method: The study adopted explanatory research design. A five point likert scale structured questionnaire was used for data collection. Statistical Package for Social Science (SPSS) software was used in analyzing the questionnaires. Descriptive statistics was used to measure the central tendency through use of mean scores, percentages, frequencies and presented in tables and charts.

Results: The study found that all the three leadership styles namely democratic, autocratic and laissez-faire are practiced at Orbis International Ethiopia, Family Guidance Association and Fred Hollows Foundation. Democratic leadership style is predominantly exhibited by the leaders of these organizations followed by Laissez-faire leadership style. Autocratic leadership style is the least practiced by the supervisors. The study revealed that the task and contextual performance of the employees working at the three selected organizations is high. Lastly, the study found that leadership style of the managers affect the employee performance either negatively or positively.

Conclusion: The study recommends that supervisors to practice more of laissez-faire leadership style to enhance the performance of employees. Though the result of the descriptive analysis shows that this leadership style has greater effect on employee performance, the managers should monitor the attitude, behavior of employees and situation and exhibit the right mix of the three types of leadership style depending on the situation.


ARTICLE: Evaluation for learning and improvement at the right time: an example from the field

Rogers, A., Watson, C., Harrison, Nea., Manhire, S. & Malla, C.

Overview: Evaluation expertise to assist with identifying improvements, sourcing relevant literature and facilitating learning from project implementation is not routinely available or accessible to not-for-profit organisations. The right information, at the right time and in an appropriate format, is not routinely available to program managers. Program management team members who were implementing The Fred Hollows Foundation’s Indigenous Australia Program’s Trachoma Elimination Program required information about what was working well and what required improvement.

This article describes a way of working where the program management team and an external evaluation consultancy collaboratively designed and implemented an utilisation-focused evaluation, informed by a developmental evaluation approach. Additionally, principles of knowledge translation were embedded in this process, thereby supporting the evaluation to translate knowledge into practice. The lessons learned were that combining external information and practice-based knowledge with local knowledge and experience is invaluable; it is useful to incorporate evaluative information from inception and for the duration of a program; a collaborative working relationship can result in higher quality information being produced and it is important to communicate findings to different audiences in different formats.

REPORT: Final evaluation of the Comprehensive Rural Eye Care Model Project in Yunnan Province

Pan, Y., and Yang, H.

**Background:** The three-year (2016.4-2019.3) “A Comprehensive Rural Eye Care Model in Yunnan Province—increasing access for disadvantaged groups to universal eye care” pilot project aims to develop a model to provide comprehensive rural eye care services in cataract, diabetic retinopathy and refractive error in the underserved regions in Yunnan province.

**Method:** This evaluation will employ a mixed methods approach to address the research questions, including in-depth interviews, analysis of project monitoring data and analysis of project reports.

**Results:** After three years’ implementation, the Project has achieved its project goal to develop a model to provide comprehensive rural eye care services in cataract, DR and RE in the underserved regions in Yunnan province that is effective, evidence-based, and replicable.

The Project has made meaningful contribution to improving comprehensive capacity of prevention of blindness in rural areas in Yunnan province. The Project strategies and approaches are generally understood and accepted by the provincial and local health authorities (partners), and are in good line with the national health and education policies, hence are feasible to be applied by different project partners at local and provincial level.

Through implementation of a comprehensive set of measures to prevent and treat preventable blindness caused by cataract, diabetic retinopathy and refractive error, the Project has a project design that is relevant to local priority eye health needs. The capacity building of health human resources is the main achievement and most valuable success of the project. This achievement is well in line with the National Health Commission’s policy priorities to improve the service capacities of county level hospitals and grassroots health professionals.

**Conclusion:** Through three years’ implementation and piloting, the Project has achieved positive results and impacts. A Comprehensive Rural Eye Health Care Service Model has begun to take shape, and The Foundation has worked effectively with multiple partners to complete the project implementation. The successes explored by the Project will jointly contribute to the comprehensive rural eye care model for China and to be presented to the provincial and national government for its replication in additional provinces and regions.

**Citation:** Pan, Y., and Yang, H. (2019). Comprehensive Rural Eye Care Model Project in Yunnan Province. The Fred Hollows Foundation.

REPORT: Better Quality for Eye Care (BEQUEC) Mid-term review

Murphy, B

**Background:** The Fred Hollows Foundation’s Better Quality for Eye Care (BEQUEC) project works in partnership with Viet Nam Ministry of Health (MoH) via their administrative body the agency of Medical Service Administration (MSA) to develop and implement new and improved national guidelines and standards to sustainably improve the quality of eye care in Viet Nam.

**Method:** Data collection was via: (1) Document analysis against key evaluation questions through a desk review of all relevant project documentation and other materials; and (2) Key informant interviews with 10 key stakeholders involved in the project including representatives from FHF project staff, the principal project partner MSA, Brien Holden Vision Institute and several eye health technical agencies that supported the development and review of the District Eye Care (DEC) guidelines and National Protocol on Cataract Surgery (NPCS).

**Results:** Despite implementation delays for all 3 project outcomes, all are on track to be completed by end of the project in June 2020.

**Conclusion:** For remainder of the BEQUEC project, recommendations include:

1. Support transparent and regular communications between MSA, VNIO and other eye health technical advisors
2. Support regular and ongoing of monitoring of NPCS implementation
3. Support MSA efforts to develop a clear action plan to address quality of refractive services

**Acknowledgements:** The BEQUEC project is funded by the Australian Department of Foreign Affair’s (DFAT) Australian NGO Cooperation Program (ANCP).

**Citation:** Murphy, B. (2019). Better Quality for Eye Care (BEQUEC) Mid-term review. The Fred Hollows Foundation.
OUR RESEARCH AND INNOVATION PRIORITIES

The Foundation undertakes and supports high quality, high impact research and innovation focused around five priority areas:

1. **Cataract** – Discover, design and test new and better ways to deliver high-quality cataract care in low-resource settings

2. **Trachoma** – Discover, design and test new and better ways to address trachoma end game challenges

3. **Refractive Error** – Discover, design and test new and better ways to deliver high quality refractive error care in low resource settings

4. **Diabetic Retinopathy** – Discover, design and test new and better ways to deliver high quality refractive error care in low resource settings

5. **Eye Health Data** – Contribute to global data on the prevalence and causes of blindness, and the responses and services needed to address it