



# Research and Evaluation Publications

# 2017



**The Fred Hollows  
Foundation**

ACN 070 556 642

# PREFACE

Restoring sight allows an individual to reclaim their position in a society, whether as an older person participating in social, family and community activities; as a worker contributing to the economic development of their community and nation; or as a young person attending school or pursuing further studies because they can see or because they no longer have to care for another family member who has lost their sight. Blindness is a particular problem for women in the developing world, and so restoring sight also contributes to addressing gender inequity.

The Fred Hollows Foundation's interest in research began with Professor Fred Hollows—a prolific author of studies on eye disease, eye health services and Aboriginal health. The Foundation remains committed to delivering research that builds a strong evidence base, drives better performance in our programs, furthers the global thinking on ending avoidable blindness, and supports our advocacy and policy efforts. High impact research and technological innovation form one of The Foundations four strategic objectives.

## Research Priorities

The Foundation undertakes high quality, high impact, ethical research focused around five priority areas:

1. **Diabetic retinopathy** – particularly research focused on better understanding the burden of DR, task shifting (and sharing), strategies for enhancing care coordination and integration, and technology assisted DR care solutions
2. **Trachoma research** – particularly research focused on community engagement with surgery, and hygiene and sanitation practices, and understanding the nature of trachoma infection in areas where clinical presentations differ from those seen typically in Africa
3. **Cataract** – particularly research focused on enhancing surgical quality, productivity, and equity of access
4. **Health systems strengthening** – particularly research focused on innovative models of eye health financing, and technology, strategies and models of care that strengthen eye care coordination, integration and access
5. **Community engagement** – particularly research that focuses on improved methods and tools to support needs assessments and engagement of communities in eye health program design

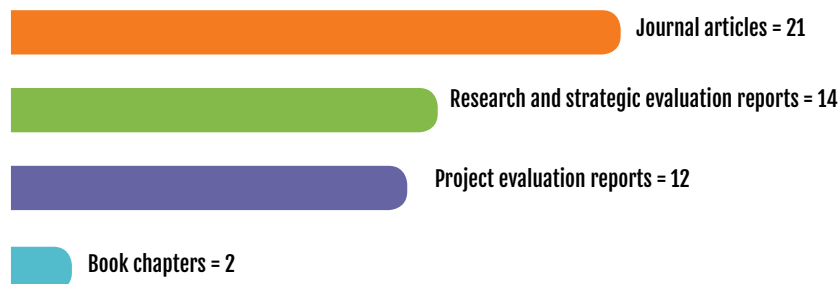
## Research Portfolio – 2017

The Foundation has significantly expanded the scale and scope of its research activities progressively over the past 5 years. In 2017 The Foundation's research portfolio consisted of 53 active research projects: 5 global initiatives; 17 projects across the Foundation's South Asia and Middle East region; 14 projects across East Asia; 13 projects in Africa; and 4 projects in Australia and The Pacific. The total value of these projects (multi-year value) was approximately AUD\$14M. Research outputs for 2017 included 49 publications: 21 peer review journal articles; 14 research and country program evaluation reports; 12 project evaluation reports; and 2 book chapters.

## The Research and Evaluation Publications Summary

The current document presents abstracts of the articles and reports of research and strategic evaluations published in 2017. Full text documents are available upon request: [fhfresearchunit@hollows.org](mailto:fhfresearchunit@hollows.org).

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# STRATEGIC EVALUATIONS

## PAKISTAN: Fred Hollows Foundation Pakistan Program Impact Evaluation 1998-2015: Final evaluation report.

Awan H

**Background:** The Fred Hollows Foundation has operated in Pakistan since 1998 with an overarching eye health program and a sequential series of projects. The purpose of the Impact Evaluation was to explore the factors behind the key successes, challenges and lessons learnt in order to inform future program strategies. Furthermore, the evaluation aimed to develop a better understanding of how The Foundation's work contributed towards health systems strengthening and what factors played a role in sustainability of its interventions in Pakistan.

**Method:** The evaluation included a desk-review of project documents and records and secondary literature. Key informant interviews were held with implementing partners and local health authorities. Data was analysed on the basis of thematic trends from the interviews as well as observations made by the Evaluator during the field visits. This was triangulated with project reports, documents and other secondary sources available.

**Results:** The findings suggested that by 2013, one-tenth of all cataract surgeries in Pakistan were performed in hospitals upgraded by The Foundation during its early programs. The program had also upgraded the facilities and systems of around 20% of all public district-level eye care facilities as well as 6 out of 7 tertiary teaching hospitals. Gender equity was bolstered through training of 4,000 female primary health care workers. The program's District Comprehensive Eye Care (DCEC) approach was found to be sustainable, scalable and replicable. Strengthening of district eye care services using the DCEC approach had a multiplier effect on service delivery, eye health workforce capacities, eye health information and monitoring systems, supply chain development and demand for subspecialty ophthalmic services. The success of the various phases of the Foundation's eye care program in Pakistan was rooted in ownership by national and provincial eye health leadership structures.

**Conclusion:** The Foundation's program helped strengthen leadership structures at national and provincial levels, which were then able to develop and resource eye health plans. The Foundation, in coordination with other NGOs, demonstrated the effectiveness of a district comprehensive eye care model, which led governments to enhance funding for eye health services.

**Acknowledgements:** Avicenna Consulting Pvt Ltd. The report was commissioned by The Fred Hollows Foundation, Knowledge and Innovation Division.

**Citation:** Awan H. (2017). *Fred Hollows Foundation Pakistan Program Impact Evaluation 1998-2015: Final evaluation report*. Avicenna Consulting Pvt Ltd. Report prepared for The Fred Hollows Foundation.

## RWANDA: The Fred Hollows Foundation's contribution to reducing avoidable blindness in Rwanda 2015-16

Musendo DJN, Nath S and Nyirahabimana C

**Background:** The evaluation assessed The Fred Hollows Foundation's contribution to reducing avoidable blindness in Rwanda during 2015 and 2016. The Foundation has implemented two parallel projects which were planned at the same time and their respective objectives were closely linked to each other. Project 1, Province and District Hospitals Service Delivery and Capacity Building Project, focused on building the capacity of public hospitals in rural areas to provide eye health services. Project 2, The National Eye Health Research, Advocacy, Capacity Building and a Human Resource Development Project, invested in acquiring evidence, raising the profile of eye health issues among policymakers, and increasing the number and skills of eye health personnel in the same hospitals where the first project made investments.

**Method:** The evaluation was a cross sectional study that adopted a Utilization Focused Evaluation approach and included: a desk-review and meetings with key staff of The Foundation; fieldwork in all three provinces where the program operates (East, West, North) as well as Kigali City; an in-depth exploration of the experiences of representatives from district and provincial/referral hospitals, civil society organizations, as well as, relevant government/public institutions. 74 in-depth interviews were conducted, as well as a focus group of community beneficiaries and a national stakeholders' workshop for 28 participants to discuss the evaluation findings. Thematic analysis was used to depict the program's implementation experiences and lessons learnt.

**Results:** The Foundation has made significant gains in Project 1 and helped improve eye health service delivery at district and provincial level in selected areas of Rwanda. The project contributed through a chain of strategies including supporting service provision, capacity building for public hospital ophthalmic departments; staffing hospitals with qualified mid-level ophthalmic workers; and actively engaging local authorities through annual partnership agreements. Project 2 provided up to date information on the causes of avoidable blindness in Rwanda via a RAAB in 2015. Project 2 also supported a new optical clinic, training of Ophthalmic Clinical Officers, assistant nurses and hospital directors/administrators. One of the most significant changes

was increased recognition, visibility and integration of eye health services at all levels within Rwanda, a positive outcome for the sustainability of eye health in the country.

**Conclusion:** The program aligns with Rwanda's plans and policies for eye health, and takes a broadly health systems strengthening approach, with activities supporting at least four health system 'pillars'. Investment in the system strengthening approach is important for sustainability, nevertheless there are a number of sustainability challenges at present.

**Acknowledgements:** Lifetime Consulting & Partners Ltd. The evaluation was commissioned by The Fred Hollows Foundation, Africa Region.

**Citation:** Musendo DJN & Nath S. (2017). *The Fred Hollows Foundation's contribution to reducing avoidable blindness in Rwanda 2015-16*. Lifetime Consulting & Partners Ltd. Report prepared for The Fred Hollows Foundation, Africa Region.

## **CAMBODIA: The Fred Hollows Foundation Cambodia Country Program evaluation, 2012-16**

Bell V.

**Background:** The evaluation assessed The Foundation's portfolio of projects in Cambodia over the period 2012 to 2016 to understand The Foundation's contribution to improved eye health outcomes and to building the capacity of the Cambodian eye health system. The Foundation has operated in Cambodia since 1998, initially in partnership with the Ministry of Health (MoH) and later with the University of Health Sciences (UHS) for ophthalmology residency and nurse training. In 2012, a partnership was started with the Ministry of Education, Youth and Sport (MoEYS) to implement a school eye health education project for primary school students. And in 2014, FHF entered into a partnership with the Ministry of Women's Affairs (MoWA) to strengthen gender equality in eye health.

**Method:** The evaluation approach included a desk-review of relevant documents and a series of semi-structured interviews and focus group discussions with: The Foundation's staff at country, regional and head office levels; representatives from national and provincial level ministries; eye health leaders, planners and managers; health workforce trainers; and eye health partners. A preliminary findings and reflections workshop was held with The Foundation's Cambodia team and key in-country stakeholders. Qualitative data from observations, interviews and discussions was analysed against the key evaluation questions, and findings were triangulated across different stakeholders wherever possible.

**Results:** The Foundation's Cambodia program has contributed to strengthening the eye health workforce

cadres of ophthalmologists, ophthalmic nurses and refractionists. It has also contributed to primary eye care awareness raising and training for health centre staff. The FHF Cambodia program is directly supporting 13 of the current 23 eye units in Cambodia and outreach eye health services have been delivered to underserved locations and population groups. Notable advocacy successes during the evaluation period have been the inclusion of eye health in the school health education syllabus and the inclusion of eye health in the MoWA's Women's Health Strategic Plan. The program has also provided input into the UHS Strategic Plan 2014-2018. While policy gains have been made, however, there is still limited ownership of eye care programming across the MoH.

**Conclusion:** The Foundation's program has been strategically aligned to Cambodia's National Eye Health Plan. The program has recently transitioned to a health system strengthening approach. The program has made an important contribution to increasing workforce numbers and expanding service delivery. Sustainability of services in the longer term will require more ownership by the MoH, which has relied on funding from INGOs for eye health.

**Acknowledgements:** The report was commissioned by The Fred Hollows Foundation, East Asia Region.

**Citation:** Bell V. (2017). *The Fred Hollows Foundation Cambodia Country Program evaluation: 2012-16*. Report prepared for The Fred Hollows Foundation.

# DIABETIC RETINOPATHY RESEARCH & EVALUATIONS

## ARTICLE: Agreement on diabetic retinopathy grading in fundus photographs by allied ophthalmic personnel as compared to ophthalmologist at a community setting in Nepal

Thapa R, Bajimaya S, Pradhan E & Paudyal G.

**Background:** Diabetic retinopathy (DR) is the emerging cause of blindness in the developing world. Timely detection of DR could save vision from its avoidable blinding condition. The objective of this study was to assess the accuracy of DR grading in fundus photographs by the allied ophthalmic personnel (AOP) as compared to ophthalmologist at a community setting in Nepal.

**Method:** Fundus photographs of known diabetes subjects attending for DR screening were graded by two groups of AOP and ophthalmologist. Agreement for DR grading by the AOP versus ophthalmologist was assessed using kappa coefficient ( $\kappa$ ).

**Results:** Fundus photographs of 864 eyes of 435 subjects with diabetes were evaluated in the study. The agreement was substantial for detection of normal versus abnormal retina by both the AOP 1 and AOP 2. For normal versus abnormal macula, the agreement was substantial for AOP 1 and moderate for AOP 2. The agreement for grading macular exudates, retinal haemorrhage, venous beading ranged from moderate to substantial for both the AOPs. There was overall substantial agreement for diagnosing cases with or without DR and CSME by both the AOP 1 and AOP 2. The agreement ranged from fair to moderate for diagnosing other stages of NPDR by both the AOPs.

**Conclusion:** Allied ophthalmic personnel with training could be a first level DR screener and referral of vision threatening DR. Three out of five diabetics could be managed at community level and thus reduce work load of ophthalmologist. This DR screening modality can be useful in other resource limited countries.

**Acknowledgements:** Tilganga Institute of Ophthalmology, Nepal. Funded by The Fred Hollows Foundation.

**Citation:** Thapa R, Bajimaya S, Pradhan E & Paudyal G. (2017). *Agreement on diabetic retinopathy grading in fundus photographs by allied ophthalmic personnel as compared to ophthalmologist at a community setting in Nepal*. Nepalese Journal of Ophthalmology, 9, pp. 43-50.

## ARTICLE: Protocol for the telehealth eye and associated medical services network [TEAMSnet] project, a pre-post study design

Brazionis L, Jenkins A, Keech A, Ryan C, Bursell S-E.

**Background:** Despite substantial investment in detection, early intervention and evidence-based treatments, current management strategies for diabetes-associated retinopathy and cardiovascular disease are largely based on real-time and face-to-face approaches. There are limited data re telehealth facilitation in type 2 diabetes management. Therefore, we aim to investigate efficacy of telehealth facilitation of diabetes and cardiovascular disease care in high-risk vulnerable Aboriginal and Torres Strait Islanders in remote/very remote Australia.

**Method:** Using a pre-post intervention design, 600 Indigenous Australians with type 2 diabetes will be recruited from three primary-care health-services in the Northern Territory. Diabetes status will be based on clinical records. There will be four technological interventions: 1. Baseline retinal imaging [as a real-time patient education/engagement tool and telehealth screening strategy]. 2. A lifestyle survey tool administered at  $\approx$  6-months. 3. At  $\approx$  6— and 18-months, an electronic cardiovascular disease and diabetes decision-support tool based on current guidelines in the Standard Treatment Manual of the Central Australian Rural Practitioner's Association to generate clinical recommendations. 4. Mobile tablet technology developed to enhance participant engagement in self-management. Data will include: Pre-intervention clinical and encounter-history data, baseline retinopathy status, decision-support and survey data/opportunistic mobile tablet encounter data. The primary outcome is increased participant adherence to clinical appointments, a marker of engagement and self-management. A cost-benefit analysis will be performed.

**Conclusion:** Remoteness is a major barrier to provision and uptake of best-practice chronic disease management. Telehealth, beyond videoconferencing of consultations, could facilitate evidence-based management of diabetes and cardiovascular disease in Indigenous Australians and serve as a model for other conditions.

**Acknowledgements:** TEAMSnet study group. Co-funded by The Fred Hollows Foundation, and NHMRC.

**Citation:** Brazionis L, Jenkins A, Keech A, Ryan C, Bursell S-E. (2017). An evaluation of the telehealth facilitation of diabetes and cardiovascular care in remote Australian Indigenous communities: - protocol for the telehealth eye and associated medical services network [TEAMSnet] project, a pre-post study design. *BMC Health Services Research*, 17, pp. 1-3



## REPORT: Rapid assessment of avoidable blindness and diabetic retinopathy in Papua New Guinea, 2017

Burnett A & Lee L

**Background:** The most recent vision related epidemiological study in Papua New Guinea (PNG) was conducted over ten years ago and found high rates of visual impairment (29%) and blindness (3.9%) in adults aged 50 years and older. In addition to being outdated, this study was only conducted in areas within and surrounding PNG's capital, Port Moresby. Non-communicable diseases pose an increasing threat to public health in PNG, and the burden of diabetes is now significant in urban areas. However, no data is available about the burden of diabetic retinopathy (DR). The main aims of this study were to: (i) assess the prevalence and main causes of blindness and visual impairment in people aged 50 years and older in PNG; and (ii) to assess the prevalence of diabetes and DR in adults aged 50 years and older in the NCD.

**Method:** This was a cross-sectional population-based survey. Four standard RAAB surveys were conducted – one in each region – as each of the four regions in PNG was expected to have a unique vision impairment profile. In addition, the diabetes and DR survey module were administered in the NCD, where burden of diabetes is thought to be higher.

**Results:** The estimated prevalence of blindness in people aged 50 years and older in PNG was 5.6% (95%CI 4.9-6.3%) and although not statistically significant, this was higher than the previous estimation of 3.9% (95%CI 3.4-6.1%) from two locations in the vicinity of Port Moresby.[1] The primary cause of vision impairment in PNG was untreated cataract. Burden of disease was high across all regions, but particularly in the Highlands region, and especially for women. Based on current WHO recommendation, PNG is below the recommended target that at least 90% of people who had cataract surgery should have postoperative best-corrected VA of 6/18 or better and at most 5% postoperative best-corrected VA worse than 6/60. The diabetes prevalence in adults aged 50 years was 8.1%. The rates of adults aged 50 years or older who were newly diagnosed was high (62.4%), and almost half (46.4%) of those with diabetes had some form of DR or maculopathy.

**Conclusion:** this indicates that undiagnosed diabetes and DR are likely to be increasingly significant public health issues in PNG. Given the low levels of awareness and previous treatment for diabetes and DR in the NCD population, better education, prevention, and management of the disease are required. Developing and evaluating a comprehensive model of eye care, which includes eye care services for people with diabetes will be important next steps for improving eye health in PNG. Achieving equitable access to eye care services for men and women and for those from urban and remote areas should be a long-term goal in PNG.

**Acknowledgements:** Led by The Brien Holden Vision Institute. Co-funded by The Fred Hollows Foundation.

**Citation:** Burnett A, Lee L (2017). Rapid assessment of avoidable blindness and diabetic retinopathy in Papua New Guinea, 2017 – Full report. The Brien Holden Vision Institute.



# CHILDHOOD BLINDNESS RESEARCH & EVALUATIONS

## ARTICLE: Environmental factors associated with ocular morbidity among children in three ecological regions of Nepal: a phase II Nepal Pediatric Ocular Diseases Study.

Adhikari S, Shrestha U, Shrestha MK, Paudyal M, Thapa B, Shrestha M.

**Background:** The Nepal Pediatric Ocular Diseases Study (NPODS) was a 3-year (January 2012–December 2014) longitudinal study carried out in three ecological regions of Nepal to understand the magnitude of the problems of childhood ocular morbidity and blindness. Based on the results of this study, a second phase of NPODS was undertaken to understand the risk factors associated with childhood ocular diseases. This paper analyses environmental factors.

**Method:** This was a nested case–control study with study population selected from the same cohort of children included in the baseline survey of NPODS. The study areas were the same (three districts from three ecological regions: Sindhupalchowk from mountain, Makawanpur from hills, and Sarlahi from Terai). After sample size calculation, cases and controls were taken in 1:4 ratio and matched for age, sex, and location.

**Results:** A total of 830 children (166 cases, 664 controls) were selected with 5.4 % of cases and 2.7 % of control participants non-responders. Among environmental factors, children who stayed with their mother during cooking, who had fewer windows in their kitchen, and who used dusty roads to school had significant association with ocular morbidities. Similarly, children with cable TV in their house had higher chance of having refractive error.

**Conclusion:** Many of the environmental factors associated with ocular diseases in children are modifiable. Improving the household environment is likely to effectively decrease the burden of eye diseases. The association of refractive error with increased indoor and near activities is an important finding, reported herein for the first time in Nepalese children.

**Acknowledgements:** Tilganga Institute of Ophthalmology, Nepal. Funded by The Fred Hollows Foundation.

**Citation:** Adhikari S, Shrestha U, Shrestha MK, Paudyal M, Thapa B, Shrestha M (2017). *Environmental factors associated with ocular morbidity among children in three ecological regions of Nepal: a phase II Nepal Pediatric Ocular Diseases Study*. International Ophthalmology, online 14 October 2017.

## ARTICLE: Cluster-randomized controlled trial of the effects of free glasses on purchase of children's glasses in China: The PRICE (Potentiating Rural Investment in Children's Eyecare) study

Wang X, Congdon N, Ma Y, Hu M, Zhou Y, Liao W, et al.

**Background:** Offering free glasses can be important to increase children's wear. We sought to assess whether "Upgrade glasses" could avoid reduced glasses sales when offering free glasses to children in China.

**Method:** In this cluster-randomized, controlled trial, children with uncorrected visual acuity (VA)  $\leq 6/12$  in either eye correctable to  $>6/12$  in both eyes at 138 randomly-selected primary schools in 9 counties in Guangdong and Yunnan provinces, China, were randomized by school to one of four groups: glasses prescription only (Control); Free Glasses; Free Glasses + offer of \$15 Upgrade Glasses; Free Glasses + offer of \$30 Upgrade Glasses. Spectacle purchase (main outcome) was assessed 6 months after randomization.

**Results:** Among 10,234 children screened, 882 (8.62%, mean age 10.6 years, 45.5% boys) were eligible and randomized: 257 (29.1%) at 37 schools to Control; 253 (28.7%) at 32 schools to Free Glasses; 187 (21.2%) at 31 schools to Free Glasses + \$15 Upgrade; and 185 (21.0%) at 27 schools to Free Glasses + \$30 Upgrade. Baseline ownership among these children needing glasses was 11.8% (104/882), and 867 (98.3%) children completed follow-up. Glasses purchase was significantly less likely when free glasses were given: Control: 59/250 = 23.6%; Free glasses: 32/252 = 12.7%,  $P = 0.010$ . Offering Upgrade Glasses eliminated this difference: Free + \$15 Upgrade: 39/183 = 21.3%, multiple regression relative risk (RR) 0.90 (0.56–1.43),  $P = 0.65$ ; Free + \$30 Upgrade: 38/182 = 20.9%, RR 0.91 (0.59, 1.42),  $P = 0.69$ .

**Conclusion:** Upgrade glasses can prevent reductions in glasses purchase when free spectacles are provided, providing important program income.

Lead evaluation organisation/s: Zhongshan Ophthalmic Center, State Key Laboratory of Ophthalmology, Division of Preventive Ophthalmology, Sun Yat-sen University, Guangzhou, China. Co-funded by The Fred Hollows Foundation.

**Citation:** Wang X, Congdon N, Ma Y, Hu M, Zhou Y, Liao W, et al. (2017) Cluster-randomized controlled trial of the effects of free glasses on purchase of children's glasses in China: The PRICE (Potentiating Rural Investment in Children's Eyecare) study. PLoS ONE 12(11): e0187808

## REPORT: School Eye Screening Project: Nangarhar Province (Afghanistan)

Iqbal, H

**Background:** The School Eye Screening Project in Nangarhar Province started in 2007 in partnership with Human Concern International (HCI). This initiative aimed to set up and strengthen the delivery of quality, accessible eye care services for the prevention of childhood blindness and vision impairment in Nangarhar Province. It built on the lessons from the previous Afghanistan School Screening program and the activities included screening of school children, within schools, for refractive error along with distribution of spectacles (Disease Control) and training of school teachers and health staff (Human Resource Development) on screening and referral of students with Refractive Error. The purpose of this evaluation is to determine the key learnings from the School Eye Screening project in Afghanistan. These learnings are intended to inform The Foundation's future eye health projects in the region, as well as potentially projects in other complex settings.

**Method:** Qualitative and quantitative data collection methods were used to undertake this evaluation. Quantitative data involved review and analysis of secondary data and qualitative data was collected by undertaking key informant interviews, carrying out focus group discussions and direct observations. Schools were purposively sampled to ensure equal representation and gender. Eleven informants were interviewed and 20 focus group discussions were conducted in 5 districts.

**Results:** The project was effective in screening students for refractive error, teachers were trained on how to screen the students and spectacles were distributed to children who needed them. Some students who had refractive error received spectacles. Some children demonstrated an improvement in learning outcomes but some children did not, most likely due to inaccurate identification of refractive error or the spectacles broke soon after they were purchased. Challenges arose with the teachers screening the students semi-annually. Students with other eye problems were referred to the provincial hospital for treatment. The guidance some of the teachers received from the project staff was not sufficient to screen the students and refer them to the hospital. Furthermore, teachers were not motivated to do so. The project faced some barriers, given the deteriorating security situation and inaccessibility of female students and teachers in particular to the schools.

**Conclusion:** The project has been effective in reaching the students in order to screen them for refractive error. However, the quality and timeliness of the spectacles were questioned, most of the students were treated by distributing spectacles. Given the fact that the spectacles were initially produced in Peshawar, it used to take longer to dispatch the spectacles to the students and they were prone to breaking. The provincial hospital should be equipped with the necessary equipment

to be able to produce subsidized and affordable spectacles. The students were referred by the refractionist for their specialized care, however there was no evidence for referral of the students to the provincial hospital. Consequently, it is recommended that clear guidelines are developed to refer the students. In order to increase the knowledge and develop the skills of the teachers, mainly in screening, referral and awareness raising to community members, the teachers should be trained rather than guided at least for one day.

**Acknowledgements:** Emerging Leaders Consulting Services

**Citation:** Iqbal, H (2017). *Endline evaluation report: School Eye Screening Project: Nangarhar Province (Afghanistan)*. Report for The Fred Hollows Foundation.



# TRACHOMA RESEARCH & EVALUATIONS

## ARTICLE: Prevalence of signs of trachoma, ocular chlamydia trachomatis infection and antibodies to Pgp3 in residents of Kiritimati Island, Kiribati

Cama A, Müller A, Taoaba R, Butcher R, Itibita I, Migchelsen SJ, et. al.

**Background:** In some Pacific Island countries, such as Solomon Islands and Fiji, active trachoma is common, but ocular chlamydia trachomatis (Ct) infection and trachomatous trichiasis (TT) are rare. On Tarawa, the most populous Kiribati island, both the active trachoma sign trachomatous inflammation follicular (TF) and TT are present at prevalences warranting intervention. We sought to estimate prevalences of TF, TT, ocular Ct infection, and anti-Ct antibodies on Kiritimati Island, Kiribati, to assess local relationships between these parameters, and to help determine the need for interventions against trachoma on Kiribati islands other than Tarawa.

**Method:** As part of the Global Trachoma Mapping Project (GTMP), on Kiritimati, we examined 406 children aged 1-9 years for active trachoma. We collected conjunctival swabs (for droplet digital PCR against Ct plasmid targets) from 1-9-year-olds with active trachoma, and a systematic selection of 1-9-year-olds without active trachoma. We collected dried blood spots (for anti-Pgp3 ELISA) from all 1-9-year-old children. We also examined 416 adults aged  $\geq 15$  years for TT. Prevalence of TF and TT was adjusted for age (TF) or age and gender (TT) in five-year age bands.

**Results:** The age-adjusted prevalence of TF in 1-9-year-olds was 28% (95% confidence interval [CI]: 24-35). The age- and gender-adjusted prevalence of TT in those aged  $\geq 15$  years was 0.2% (95% CI: 0.1-0.3%). Twenty-six (13.5%) of 193 swabs from children without active trachoma, and 58 (49.2%) of 118 swabs from children with active trachoma were positive for Ct DNA. Two hundred and ten (53%) of 397 children had anti-Pgp3 antibodies. Both infection ( $p < 0.0001$ ) and seropositivity ( $p < 0.0001$ ) were strongly associated with active trachoma. In 1-9-year-olds, the prevalence of anti-Pgp3 antibodies rose steeply with age.

**Conclusion:** Trachoma presents a public health problem on Kiritimati, where the high prevalence of ocular Ct infection and rapid increase in seropositivity with age suggest intense Ct transmission amongst young children. Interventions are required here to prevent future blindness.

**Acknowledgements:** Consortium for Global Trachoma Mapping.

**Citation:** Cama A, Müller A, Taoaba R, Butcher RMR, Itibita I, Migchelsen SJ, et al. (2017). *Prevalence of signs of trachoma, ocular Chlamydia trachomatis infection and antibodies to Pgp3 in residents of Kiritimati Island, Kiribati*. PLoS Neglected Tropical Diseases 11, 9: e0005863.

## ARTICLE: Eyelash epilation in the absence of trichiasis: Results of a population-based prevalence survey in the Western Division of Fiji

Macleod C, Yalen C, Butcher R, Mudaliar U, Natutusau K, Rainima-Qaniuci M, et. al.

**Background:** The WHO definition of trachomatous trichiasis (TT) is at least one eyelash touching the globe, or evidence of recent epilation of in-turned eyelashes, reflecting the fact that epilation is used as a self-management tool for TT. In Fiji's Western Division, a high TT prevalence (8.7% in those aged  $\geq 15$  years) was reported in a 2012 survey, yet a 2013 survey found no TT and Fijian ophthalmologists rarely see TT cases. Local anecdote suggests that eyelash epilation is a common behaviour, even in the absence of trichiasis. Epilators may have been identified as TT cases in previous surveys.

**Method:** We used a preliminary focus group to design an interview questionnaire, and subsequently conducted a population-based prevalence survey to estimate the prevalence of epilation in the absence of trichiasis, and factors associated with this behaviour, in the Western Division of Fiji.

**Results:** We sampled 695 individuals aged  $\geq 15$  years from a total of 457 households in 23 villages. 125 participants (18%) reported epilating their eyelashes at least once within the past year. Photographs were obtained of the eyes of 121/125 (97%) individuals who epilated, and subsequent analysis by an experienced trachoma grader found no cases of trachomatous conjunctival scarring or trichiasis. The age- and sex- adjusted prevalence of epilation in those aged  $\geq 15$  years was 8.6% (95% CI 5.7-11.3%). iTaukei ethnicity, female gender, and a higher frequency of drinking kava root were independently associated with epilation.

**Conclusion:** Epilation occurs in this population in the absence of trichiasis, with sufficient frequency to have markedly inflated previous estimates of local TT prevalence. Individuals with epilated eyelashes should be confirmed as having epilated in-turned eyelashes in an eye with scarring of the conjunctiva before being counted as cases of TT.

**Acknowledgements:** London School of Hygiene & Tropical Medicine. Co-funded by The Fred Hollows Foundation.

## REPORT: Face washing and environmental improvements for trachoma elimination in Pakistan: A situational analysis

Assessment with Facilitation Pty. Ltd.

**Background:** The report details the results of a situation analysis conducted to inform the planning and interventions required to address the facial cleanliness and environmental improvement (F&E) components of the SAFE strategy where these are recommended in Pakistan. The purpose of the situation analysis was to gain a detailed understanding of current and planned Water, Sanitation and Hygiene (WASH) programs and services in the five trachoma endemic districts, and to identify opportunities for leveraging these programs to support trachoma elimination in Pakistan.

**Method:** The situational analysis involved examination and further analysis of existing data and interviews with key informants. This phase of the project was intended to identify the available information, policies and strategies with respect to F&E component.

**Results:** The secondary level data revealed the prevalence of trachoma was high in the areas where communities are not satisfied with the services from Basic Health Units (BHUs). Access to water and improved sanitation showed disparities between rural and urban areas as well as income groups. The availability of soap and water for hand washing is covered in national and provincial surveys, and this is low for the poorest groups. However, face washing is not covered. Public investment on WASH sector in study districts particularly in Mansehra is very low. Ministry of Climate Change is facilitating a mass-media behaviour change campaign for safe drinking water, sanitation and hygiene across the country.

**Conclusion:** The Fred Hollows Foundation should engage and work with an INGO active in WASH, such as Plan Pakistan, to develop its understanding about F&E component while cascading the knowledge about trachoma to the INGO and its partners. This will enable The Foundation to develop a better understanding of the WASH sector and form linkages with Government Departments and civil society networks working in Pakistan.

**Acknowledgements:** The report was commissioned by The Fred Hollows Foundation, Pakistan.

**Citation:** Assessment with Facilitation Pty Limited. (2017) *Face washing and environmental improvements for Trachoma elimination in Pakistan: A situational analysis*. A Fred Hollows Foundation report.

## REPORT: Hygiene and sanitation behaviours in trachoma high and low prevalence zones: An exploratory study in Oromia, Ethiopia

Greenland, K., Alemayehu, W. Dodson, S., Sommer, K et al.

**Background:** Trachoma is endemic in many areas of Ethiopia, the country with the single greatest disease burden. Control entails the SAFE strategy: The “F” and “E” components require behaviour change and are challenging to implement. The proposed study sought to document current hygiene and sanitation practices and explore whether these potential risk factors for trachoma differed in zones with high and low trachoma prevalence.

**Methods:** The study was conducted in West Wollega Zone (low prevalence area) and Horo Guduru Zone (high prevalence areas) in May 2017. In total, 36 households from 18 kebeles were recruited for the study. All included households had at least two children under the age of nine. Data were collected through direct participant observation from dawn for a period of 3 hours. Following observation a brief interview was conducted with the primary female caregiver to provide clarity where needed. Socio-demographic and environmental information were also captured.

**Results:** All but three households had a latrine, and all but one of these latrines appeared to be in use. Human faeces was correspondingly rarely found in the compound area. As the rainy season had begun early, rainwater harvesting formed an important water source. This made it difficult to accurately capture water availability per household member per day. However, participants did not perceive water scarcity to be an issue for them. Water was most often used for body bathing, to perform the coffee ceremony, to wash dishes or during cooking. Laundry was observed on only two occasions, as was full body bathing of a child. Face washing was more commonly observed among children than among adults in all households. Twenty-six of 30 school-going children washed their faces before departing for school, 14 of whom used soap. The faces of pre-school children were less often washed. Faces washed as part of the early morning ritual ‘demi wash’ (hands, arms, face, legs and feet) were usually washed with soap; faces washed in isolation were usually washed with water only. Soap was used for face washing on 23% of occasions in the high prevalence zone and on 47% of occasions in the low prevalence zone. Hands were rarely washed with soap, and were never washed after wiping a child’s face.

**Conclusions:** This exploratory study suggests that some differences in personal hygiene behaviours, in particular face washing, may exist between households and between areas with high and low trachoma prevalence. The study found that face washing was more frequent among school-age children than younger children in

all study areas, suggesting that efforts need to be made to promote face washing for pre-school age children. As soap use may be beneficial, and soap use was inconsistent, particularly when hands or faces were washed in isolation, it may also be relevant to promote the use of soap during face washing. These findings are purely exploratory, and differences between the zones would need to be confirmed in a larger study.

**Acknowledgements:** The report was commissioned by The Fred Hollows Foundation.

**Citation:** Greenland, K., Alemayehu, W. Dodson, S., Sommer, K et al (2017). *Hygiene and sanitation behaviours in trachoma high and low prevalence zones: An exploratory study in Oromia, Ethiopia*. Research Report. The Fred Hollows Foundation.

### **REPORT: Studies Towards Stronger SAFE: Formative research in the trachoma-hyper endemic Oromia Region of Ethiopia**

Last A, Burton, M, Holland, M, Houghton, J, Logan, J, Chen-Hussey, V, Greenland, K, Sommers, K, Thomson, N, Negash, B, Sarah, V, Alemayehu, W, Dodson, S, Deneke, Y

**Background:** Endemic in 51 countries, trachoma is a concern of great public health importance in Ethiopia, the nation which carries the highest global burden. The formative research conducted in the observational component of this exploratory study aimed to identify key potential transmission moments and touch points which may impact continuing trachoma transmission. The data collated during this first phase of research will inform the Stronger-SAFE study and can be utilized in the design of future 'F' and 'E' interventions.

**Methods:** Observational fieldwork took place in the Boset Woreda of Oromia, Ethiopia. Data was collected during unstructured household observations (n=8), brief caregiver interviews (n=25), and a socio-demographic survey and environmental spot check (n=25). The kebele chosen for this study was selected purposively, based on high prevalence of active trachoma (30.0%-49.9% in children aged 1-9 years) reported during the Global Trachoma Mapping Initiative. Twenty-five households were specifically chosen for children who presented with TF during an initial community screening. Opportunistic swabbing of fomites, fingers, and faces took place during observations, when a direct transmission activity was observed. Routine swabs were also taken after the completion of observations, based on a pre-set list of additional surfaces (sleeping surface, fomites with visible dried discharge, jerry can lids, faces and hands of all children aged 1-9 years and those who come in close contact with them including caregivers and neighbour children in the same age group, objects repeatedly touched by children aged 1-9 years).

**Results:** Flies: Present in all compounds, especially drawn to the faces of the youngest children (under 5-years). Faeces: Latrines were present in 11/25 households, although quality and usage varied. Open defecation is commonly practiced, even in households with improved sanitation. Fingers: Handwashing (without soap) is commonly practiced at key reported moments. However, handwashing is not practiced after contact with nasal discharge. Faces: Face washing is inconsistent and the faces of young children (under 5-years) were often left dirty for extended periods. Nasal discharge was promptly wiped from the faces of young children, typically by the caregiver. Fomites: Fomites were used for facial wiping on 7/26 observed events. The presence of flies in compounds, coupled with the common practice of open defecation, the lack of handwashing after contact with nasal and ocular discharge, and the use of fomites, which are not washed after contact with facial discharge, may all contribute to continuing trachoma transmission in the study setting.

**Conclusion:** Households in Zone 1, and those located directly off the main road in Zone 2, were wealthier, with better constructed living structures and latrines. Presence of soap and latrines both decreased as compounds became more rural. However, households which had greater access to latrines, water, and soap often did not utilize these in daily practice. Although water scarcity was frequently reported in relation to decreased personal and environmental hygiene, the water available was prioritized for cooking and drinking, rather than for hygiene. Water can be collected, free of cost, at the river. Piped water was available in a nearby town, but was cost prohibitive for lower income households. Depending on the location of the compound, travel time to either source was between 2-3 hours each way. Reported MDA coverage, as recorded at the zonal health office, for this kebele was 100%, although the realistic coverage is likely closer to zero in the rural areas of Zone 2/3 of the study site.

**Acknowledgements:** The report was commissioned by The Fred Hollows Foundation.

**Citation:** Last A, Burton, M, Holland, M, Houghton, J, Logan, J, Chen-Hussey, V, Greenland, K, Sommers, K, Thomson, N, Negash, B, Sarah, V, Alemayehu, W, Dodson, S, Deneke, Y (2017). *Studies Towards Stronger SAFE*. Formative research in the trachoma-hyper endemic Oromia Region of Ethiopia. The Fred Hollows Foundation

## ARTICLE: Progress and projections in the program to eliminate trachoma

Emerson, PM , Hooper, PJ, Sarah, V

Trachoma is a progressive and miserable disease. Initiated by frequent and repeated ocular infections with the bacterium *Chlamydia trachomatis*, scars on the inside of the eyelids contract, disrupting the lid margin and causing the eyelashes to rotate inwards until they rest against the eye. With each excruciating blink, the lashes damage the sensitive cornea leading to corneal opacity and irreversible blindness.

Trachoma has been with us for a long time; it is among the conditions catalogued in the oldest medical text—the Ebers Papyrus. Taking into account life expectancies too short to allow many people to develop cataracts, trachoma was likely the leading cause of blindness before the Industrial Revolution and the consequent increase in life expectancy.

In our view, the integrated and holistic SAFE strategy to eliminate trachoma—a strategy based on surgical correction of misplaced lashes, the mass distribution of donated antibiotics, and the promotion of water, sanitation, and hygiene (WASH)—makes the program the most compelling of the neglected tropical disease (NTD) elimination programs. SAFE implementation goes far beyond “just” putting trachoma in the crosshairs for elimination as a public problem. Whilst we are used to the concept of collateral damage, the SAFE strategy comes with considerable collateral benefits. Such benefits include the improved quality of life associated with surgery, particularly for patients who are yet to suffer loss of vision [1]. An annual dose of azithromycin increases child survivorship by reducing mortality from common ailments like malaria, bacterial respiratory tract infections, and diarrhea, the three of which remain the primary killers of children living in poverty—children who do not have routine access to antibiotics [2, 3]. Freedom from trachoma does not have to wait for development. Development is the result of freedom from trachoma.



# CATARACT RESEARCH & EVALUATIONS

## REPORT: Beyond monetary benefits of restoring sight in Vietnam: Evaluating well-being gains from cataract surgery

Feeny S, McDonald L, Posso A, Chuyen T and Tung S.

**Background:** Despite important development gains in recent decades, preventable blindness remains a significant issue in Vietnam. Previous studies have identified that interventions to treat most vision loss are highly cost-effective, whether measured in terms of the economic return or of the value of restored sight to individuals. A key basis for these returns is the additional income that patients are able to earn following surgery through improved engagement in labour markets. While this monetary dimension is important from the perspective of economic development, it provides an incomplete picture of the total impact. The study aimed to adopt a more holistic assessment of the gains to restoring sight by examining non-monetary benefits that flow to cataract patients, their caregivers and their families, as well as to the wider community.

**Method:** The study used a mixed-methods approach to understand the benefits of cataract surgery for both patients and carers. Quantitative techniques were used to analyse secondary data from national surveys and primary survey data specifically collected for the study. Qualitative techniques were used to analyse data from interviews. Surveys and interviews for this study were conducted on the same participants prior to surgery and approximately three months after surgery.

**Results:** Results from paired t-tests indicated statistically significant ( $p < 0.01$ ) improvements in: income; mobility; self-care; the ability to undertake daily activities; self-reported health and mental health; life satisfaction; hope; and self-efficacy. Qualitative data analysis confirmed these findings. Non-monetary benefits also extended to the primary caregivers (of former cataract patients). Approximately three months after their dependent had received surgery, quantitative data indicated that attendance at work had increased for 59% of caregivers. There were also statistically significant improvements in the following ( $p < 0.01$  unless otherwise stated): income ( $p < 0.05$ ); self-reported overall health and mental health; hope; self-efficacy; life satisfaction. Qualitative data analysis confirmed improvements in income, with some carers even finding more stable forms of employment.

**Conclusion:** Findings from both the quantitative and qualitative analysis have confirmed important non-monetary benefits of restoring sight. This is true for cataract patients but also their primary caregiver, family and communities. This has important implications for advocacy. It is clear that estimates of the rate of return to restoring sight that focus only on financial gains will underestimate the true returns to society.

**Acknowledgements:** RMIT, Melbourne, Australia. Funded by The Fred Hollows Foundation

**Citation:** Feeny S, McDonald L, Posso A, Chuyen T & Tung S. (2017). *Beyond Monetary Benefits of Restoring Sight in Vietnam: Evaluating Well-being Gains from Cataract Surgery*. Report for The Fred Hollows Foundation.

## ARTICLE: Multisite prospective investigation of psychological outcomes following cataract surgery in Vietnam.

Berle D, Steel Z, Essue BM, et al.

**Background:** Cataract surgery is a low-cost and effective intervention. There is increasing evidence to suggest that cataract surgery is associated with improvements in mobility, overall functioning and reductions in psychological distress. Within low income and middle-income countries, cataract surgery has also been documented to lead to reductions in psychological distress; however, differences in economic activity and engagement in paid and domestic work in these countries may moderate such reductions. We aimed to examine the psychological outcomes following cataract surgery among a diverse Vietnamese sample.

**Method:** We report findings from the VISIONARY study, a 12-month multisite prospective study of cataract surgery outcomes conducted in Vietnam (N=462). Generalised estimating equations (GEEs) were used to identify variables which were associated with reduced psychological distress.

**Results:** A high proportion of participants (56.6%) reported psychological distress before surgery and severity of psychological distress had decreased by 12 months following surgery (95% CI (4.13 to 4.95)). There were regional differences in the extent of improvement in psychological distress and change in paid and unpaid work. The extent of improvement in visual acuity, male gender, and increase in paid and unpaid work hours were significant predictors of reductions in psychological distress.

**Conclusions:** Cataract surgery appears to result in the greatest reductions in psychological distress in communities where work engagement is highest.

**Acknowledgements:** George Institute for Global Health. Funded by The Fred Hollows Foundation

**Citation:** Berle D, Steel Z, Essue BM, et al. (2017) *Multisite prospective investigation of psychological outcomes following cataract surgery in Vietnam*. *BMJ Global Health*; 2:e000162.



## REPORT: Cambodian provincial and primary eye care: Situational analysis.

Dhakal R and Amry OK.

**Background:** The situation analysis aimed to: i) Provide baseline data for the evaluation of The Foundation's eye health projects in Cambodia in the future; ii) Describe the current eye health system at the provincial level for seven provinces, and identify the current situation, gaps, opportunities, needs, and future recommendations, by each health system pillar: leadership and governance; human resource development; service delivery; information management; commodities/supply system; and health financing. iii) Understand the current situation, capacity, opportunities and needs to change policy and practice through the project.

**Method:** Review and analysis focused on current reports, policy, strategy and other relevant documents. Key documents reviewed included: project documents, logical framework, Memorandum of Understandings, Annual Partnership Agreements, progress reports, and monitoring and mentoring reports.

**Results:** Although the prevalence of blindness in Cambodia has reduced from 1.2% in 1995 to 0.38% in 2007, there remain a number of challenges in eye care programming in the country. Cambodia has limited eye care services available due to a lack of eye health professionals and inadequate infrastructure, and low eye care awareness among community members. Within provincial towns only limited eye health services are available, and access to services is particularly difficult for people living in poverty in remote areas. Ophthalmic human resources remain a significant challenge with only 29 Ophthalmologists and 77 Ophthalmic Nurses/Eye Nurses in the country and acute shortage of mid-level health personnel.

**Conclusion:** The situational analysis provided further detail of the eye health situation in seven provinces of Cambodia, identified gaps in eye health care accessibility, and offered recommendations to address the limitations in each of the six pillars of eye health.

**Acknowledgements:** SBK Research and Development, Cambodia. The report was commissioned by The Fred Hollows Foundation, Cambodia.

**Citation:** Dhakal R and Amry OK. (2016). *Situational Analysis: Cambodian Provincial and Primary Eyecare*. SBK Research and Development, Cambodia.

## REPORT: Better Vision Healthy Ageing Program: Completion report

**Background:** Recognising that Sri Lanka has one of the fastest ageing populations in Asia, the goal of the program was to improve the health, vision and quality of life for elders in the region. The BVHA program aimed to: learn how healthy ageing strategies can contribute to the prevention and management of eye health problems; contribute re-orientation of health systems and services towards the needs of elders; and advocate for greater attention to vision within the international agenda for NCDs and healthy ageing and for greater recognition that good vision contributes significantly to active and healthy ageing.

**Method:** The program trialed an innovative model of healthy ageing that included health promotion, blindness prevention and social participation through the platform of Elders' Clubs. Through this platform, the Program also piloted an innovative model of community-based eye health screening to address an unmet need for eye health services – the Eye Health Promoter model. To provide evidence of outcomes of the BVHA Program, a community intervention randomized controlled trial was undertaken within program implementation, with the aim of measuring the effect of participation in Elders' Clubs on self-reported health and quality of life.

**Results:** 306 Clubs were created and supported and approximately 15,000 elders were reached through these clubs. 6,803 Elders were screened. Ophthalmic Technologists screened 6,225 elders and 973 elders received cataract surgeries facilitated through the BVHAP. 7581 pairs of glasses were distributed. The BVHAP developed extensive experience and insights into how Clubs operate, the forms of support required, their benefits, and the contributions that can be made by elders. The BVHAP-proposed Cluster model recognises the need for establishing Clubs at community level and not only at the level of administrative structures.

**Conclusions:** One of the key lessons from this program has been the importance of buy in and local ownership. Working within the system is important but making changes is challenging and takes significant time. Of all the innovative aspects of this program the Eye Health Promoters (EHP) model is completely new and offers very exciting opportunities. Future opportunities include global advocacy, local advocacy, further research and on the ground programming.

**Acknowledgements:** Research was led by a team of Burnett Institute researchers

**Citation:** Burnett Institute (2017). *Better Vision Healthy Ageing Program: Completion report*. A Fred Hollows Foundation Report.

## REPORT: Increasing demand and uptake of cataract services project baseline and situation analysis (Kenya)

Rogo, D

**Background:** This new project commenced in 2016, endeavoring to support the counties. Working in Baringo, Busia, Migori and Siaya counties between 2016-2020, the project seeks to increase access to and utilization of cataract surgical services by strengthening health systems in the four target counties to plan, budget and implement high impact programs that will prevent blindness due to cataract. Demand for cataract services will be created through community mobilisation, strengthened referral systems between communities and health facilities, bringing services closer to the communities through surgical outreaches and addressing specific barriers that include gender. Increased availability of services will be achieved through strengthening county health systems to plan, budget and monitor eye health services in their respective counties, support for infrastructure development and equipment as well as training of eye-health workers.

**Method:** This was a cross sectional study that adopted multiple approaches to data collection, including key informant interviews, focus group discussions (FGD), community surveys and literature reviews of secondary data. A participatory approach was adopted comprising of a joint team of consultants from AIHT and program personnel from FHFk, a team that agreed on the approach and methodology and tools for data collection. The targeted sources of information included the National MoH and its relevant departments, the county health authorities, the four county health institutions and their catchment populations, the respective County Health Management Teams (CHMTs), non-governmental eye care players and other relevant parties of interest in the national arena and county project areas.

**Results:** The baseline survey found the average CSR to be 1,103 with a target of 2,300 for the 4 counties. The system for referral from one facility to another is not well developed to support patient tracking. The cataract surgical outreach services had made it possible for community members to access eye health and cataract services. However, follow up was still low. It was found that the outreach programs had a huge impact in increasing awareness and access to eye health and cataract surgical services. Despite the ongoing interventions of cataract surgery, the existence of cataract surgery outcome monitoring (CSOM) tools and an eye health information system, adherence to meticulous scientific recording and analysis of the outcome data has not been followed. The four counties lack a standard CSOM mechanism in place for tracking performance of cataract surgeries. Reasons for poor follow up are due to challenges in clarity of understanding post-operative instructions, literacy, poverty and environmental challenges. All the facilities assessed had shortages in medical supplies and consumables. The local capacity to forecast, procure and

distribute the eye health commodities was weak due to the low priority eye care receives within the overall planning of the county eye care system, including inadequate budgetary allocation for eye care services. Only Busia and Migori counties have resident ophthalmologists. FHFk is currently providing subsidies and commodity supplies reducing the cost of treatment. The infrastructure for an eye health information system (eHIS) exists in the counties however, it has not been implemented fully due to budget, maintenance and technical backup and the inability to internalise the use of electronic tools. Generally the priority given to eye care services has been low, with eye care programs not being featured prominently in the county health care plans and is allocated minimal financial resources from public sector funding. Community FGDs revealed there is awareness on the preventable causes of blindness, though eye health is not critical when it comes to disease prevention at the community level.

**Conclusion:** The baseline survey has established that infrastructure exists to develop a robust eye care health system. However, there are many gaps to be traversed to achieve the optimal desire to eliminate avoidable blindness in the four counties. The areas of intense activity should be at the community level and in strengthening the health pillars. Community activities should enhance demand for eye care and cataract surgery. The health system pillars should strengthen the capacity for response clinically and surgically, using effective processes for delivering quality care. Innovative approaches to breaking down barriers to accessing services can be used including gender and social inclusion approaches and use of mobile phone technology to refer and track patients.

**Acknowledgements:** This research is a project conducted by The African Institute for Health Transformations supported by funding from The Fred Hollows Foundation.

**Citation:** Rogo, D (2017). *Increasing demand and uptake of cataract services project baseline and situation analysis (Kenya)*. A Fred Hollows Report.

## REPORT: Clinical Audit: Cataract Surgical Outcome Monitoring, 2015 (Kenya)

Wamalwa, E

**Background:** A Cataract audit report for Homa Bay Teaching and Referral Hospital, Kitale County Hospital, Nakuru County Referral Hospital, Siaya County Referral Hospital and Narok County Referral Hospital for the year 2015 was conducted to monitor the outcome of cataract surgery at these hospitals using Electronic Cataract Surgical Outcome Monitoring (CSOM) software.

**Method:** Patients aged 6 years and above who underwent cataract surgery at the selected hospitals between 1st January 2015 and 31st December 2015 were audited.

Data was collected using the cataract audit tool, entered into Redcap data handling software and then uploaded and analyzed using SPSS version 17. The data included demographic characteristics, pre- and post-operative visual acuity and likely cause of poor outcome. Post-operative follow up findings were recorded at discharge, between week 1 to 3, between week 4 to 10 and after 10 weeks. Visual outcome was recorded either as good (6/6-6/18), borderline (<6/18-6/60) or poor (<6/60).

**Results:** At Kitale County Hospital, at week 1-3 post-operative follow up visit, 225 eyes were reviewed, 42% had visual acuity better than 6/18 compared to 1% before surgery. Only 8% of the eyes were blind (VA worse than 3/60) after surgery. At week 4 – 10 and week 10+ follow up visits, good outcome was seen in 44% and 23% of the eyes respectively. At Homa Bay Teaching and Referral Hospital, at week 1-3 post-operative follow up visit, 137 eyes were reviewed, 24% had visual acuity better than 6/18 compared to 1% before surgery. Only 18% of the eyes were blind after surgery. At week 4 – 10 follow up visits, good outcome was seen in 32% of the eyes. At Nakuru County Referral Hospital, at week 1-3 post-operative follow up visit, 57 eyes were reviewed, 34% had visual acuity better than 6/18 compared to 0% before surgery. Only 22% of the eyes were blind after surgery. At Siaya County Referral Hospital, at week 1-3 post-operative follow up visit, 46 eyes were reviewed, 43% had visual acuity better than 6/18 compared to 2% before surgery. Only 11% of the eyes were blind after surgery. Overall, most surgeries performed were Small Incision Cataract Surgery (SICS)/ Extracapsular Cataract Extraction (ECCE). This study observed relatively low follow up rates in all health facilities.

**Conclusion:** Visual outcomes are generally below the WHO criteria. Electronic cataract surgical outcome monitoring is a more efficient way of auditing cataract surgeries compared to the old system of using hard copies. It is recommended to continuously use electronic CSOM to monitor cataract outcomes and to develop a cataract surgery training manual/ cataract surgery guidelines. Furthermore, a more detailed study around patient follow up should be conducted to suggest operational or behavioural methodologies that could enhance follow up.

**Citation:** Wamalwa, E (2017). *Clinical Audit: Cataract Surgical Outcome Monitoring, 2015 (Kenya)*. A Fred Hollows Foundation Report.

## REPORT: Cataract Audit in Kenya

**Background:** The purpose of this project was to reintroduce routine cataract audit in all eye care facilities in Kenya using modern technology as well as to monitor the outcome of cataract surgery at the Homa Bay Level 5 Hospital, Kitale District Hospital and Sabatia Eye Hospital using Electronic Cataract Surgical Outcome Monitoring (CSOM) software.

**Method:** This was a phased project to restart cataract audit in Kenya. Initially, a standardized cataract audit tool was developed through 2 consultative stakeholders meetings and converted into an electronic version. This was installed in the three hospitals, staff trained on CSOM and the tool used to capture cataract surgical data. Following successful data collection for the year 2014 in these three hospitals, the electronic cataract audit tool was cascaded to 4 other hospitals. All patients, age 6 years and above who underwent cataract surgery at the selected hospitals between 1st January 2014 and 31st December 2014 were audited. A total of 2,467 patient records from Sabatia, 612 records from Homa Bay and 401 records from Kitale were reviewed during the audit period.

**Results:** Visual outcome in Homa Bay Level 5 Hospital was good in 76.7% of the eyes and poor in 1.1% of eyes. Visual outcome in Kitale District Hospital was good in 66% and poor in 17% of eyes. Visual outcome in Sabatia Eye Hospital was good in 63% and poor in 6% of eyes. Although visual outcome observed in the 3 hospitals were below the WHO criteria, it is key to note that lack of a wide range of IOLs, lack of refractive services, patient loss to follow up and patient selection/comorbidities may have affected the visual outcome. This pilot audit was therefore a success and shows that electronic cataract audit in Kenya is feasible and can be adopted.

**Conclusion:** A standardized audit tool and a cataract audit software was developed and successfully used to collect data in the three hospitals, following which, the software was installed in four other hospitals. However, most hospitals in the country are still using the hard copies of the audit tool making data retrieval and analysis difficult. Electronic cataract audit in Kenya is feasible and can be adopted.

**Acknowledgements:** University of Nairobi and Ministry of Health. The evaluation was commissioned by The Fred Hollows Foundation, Africa Region.

**Citation:** Cataract Audit in Kenya (2017). A Fred Hollows Foundation Report

## ARTICLE: A global view on output and outcomes of cataract surgery with national indices of socioeconomic development.

Wang W, Yan W, Müller A, and He M.

**Background:** Cataract blindness accounts for a substantial proportion of blindness worldwide. Understanding the correlations between national levels of socioeconomic development with the quantity and quality of cataract surgery may provide insight for the prioritization and resource allocation for blindness prevention programs.

**Method:** The relationships between human development index (HDI), gross domestic product (GDP) per capita, and cataract surgical coverage (CSC) and visual outcome of cataract surgery were examined in a multinational study utilizing secondary data from the repository for Rapid Assessment of Avoidable Blindness (RAAB), World Health Organization, Global Burden of Disease, United Nations, and the World Bank.

**Results:** A total of 266 RAAB studies across 73 countries/territories were retrieved. Linear regression model results revealed strong associations of HDI with prevalence of cataract blindness ( $\beta = -7.056$ ,  $P < 0.001$ ), CSC ( $\beta = 60.808$ ,  $p < 0.004$ ), proportion of intraocular lens (IOL) implantation ( $\beta = 87.040$ ,  $P = 0.001$ ), and proportion of cases with good vision outcomes among operated eyes ( $\beta = 73.351$ ,  $P < 0.001$ ) in studies performed between 1995 and 2009. Similar associations were observed for studies performed between 2010 and 2015. In addition, countries with lower GDP per capita showed a higher rate of cataract blindness ( $\beta = -0.527$ ,  $P \leq 0.001$ ), lower CSC ( $\beta = 9.800$ ,  $p < 0.001$ ), lower percentage of IOL implantation ( $\beta = 6.871$ ,  $p = 0.001$ ), and fewer patients with good vision outcomes after surgery ( $\beta = 7.959$ ,  $p < 0.001$ ). After controlling survey year, country, and other factors, GDP per capita and HDI were also found to be significantly associated with CSC and visual outcomes after cataract surgery (all  $p < 0.05$ ).

**Conclusion:** We documented the strong associations of socioeconomic indices with quantity and quality of cataract surgery. These socioeconomic indicators should be considered as important factors for developing strategies aimed to improve worldwide cataract surgery service delivery. Lead research organisation/s: Centre for Eye Research Australia, University of Melbourne, Australia. Co-funded by The Fred Hollows Foundation.

**Citation:** Wang W, Yan W, Müller A & He M. (2017). *A global view on output and outcomes of cataract surgery with national indices of socioeconomic development*. Investigative Ophthalmological & Visual Science, 58, pp.3669–3676.



# HEALTH SYSTEMS STRENGTHENING RESEARCH & EVALUATIONS

## REPORT: Comprehensive Rural Eye Care Model Project in Xinjiang (China)

Wen Zhai

**Background:** In 2015, the Fred Hollows Foundation started the Comprehensive Rural Eye Care Model Project in Xinjiang, a three-year project with the overall goal of supporting the establishment of quality rural eye care model that is affordable and accessible. Key outcomes were to enhance eye care capacities through human resources for eye health development and equipment upgrades. The accessibility of basic eye care services were to be increased to the local underserved people through large scale screening and eye health promotion. A primary eye care network was to be established and maintained to strengthen and sustain PBL work.

**Method:** Various activities were carried out for the end-term evaluation. A literature review was conducted utilising documents provided by FHF and other sources. A paper-based survey was distributed to health administrators and workers involved in the project, with 41 people completing the survey. 74 interviews were conducted, which were organised individually or in focus-groups.

**Results:** Key components including multi-sector involvement, capacity building, screening, data collection and analysis to build a strong foundation for this model should be developed further and new components be piloted, in order to generate a holistic model framework and evidence to support its implementation. These components were highly credited by local partners and many will be continued after the end of the project. A large number of doctors, nurses and CHWs were trained by the project, enabling them to carry out the necessary services. The project made impressive achievements through screening, especially as it became a part of most pilot project hospitals. Awareness raising was primarily done through screening and service provision activities and bi-lingual IEC materials were developed. Partners were satisfied with the management and implementation of the project and had already started to build the potential of possible influence to local eye care policy. Recommendations included improving the quality use of on-site technical assistance and ensuring funding feasibility for capacity building and technical priorities.

**Conclusion:** Although the evaluation was conducted before the end of the project, there is strong evidence that the project will achieve the majority of its objectives. Future priority should be given to system building, policy change and model development to make more substantial and sustainable changes to all aspects of work related to eye care in Xinjiang.

**Acknowledgements:** Impact Consulting. The evaluation was commissioned by The Fred Hollows Foundation China.

## REPORT: Strengthening Rural Eye Care in Anhui Province: Lixin, Huoqiu and Susong counties (China)

Wen Zhai

**Background:** The end-term evaluation was carried out by conducting a literature review of documents provided by FHF and other sources, an online survey was distributed to health administrators and workers involved in the project, with 43 people completing the survey. In addition, 57 interviews were conducted in Hefei, Lixin, Huoqiu and Susong and a project-end review and feedback meeting for project partners took place.

**Results:** The FHF project in Anhui takes a highly practical and contextualised approach to address issues related to health services through its focus on preventable blindness. It has resulted in positive outcomes, both tangible and intangible. The five objectives planned for the project have been all achieved or exceeded against their respective indicators. The project was highly credited by local communities and project partners felt that they have been a part in developing and testing of an innovative administrative model for blindness prevention, which in the future could potentially benefit policy development for the whole province. Recommendations include to develop blindness prevention models based on the experiences generated from the project, to rethink the arrangements of vision centres due to its mixed nature of business and non-profit, strengthening the roles of CHWs and to continue capacity building activities.

**Conclusion:** The project has developed essential ingredients for a comprehensive rural eye care model in the highly diverse and complex public health system in China. More importantly, it has demonstrated the importance of these ingredients, among the local partners at the provincial and county levels. This is a significant achievement within the relatively short life-span of the project.

**Acknowledgements:** Impact Consulting

## REPORT: Prevention of blindness project Kabul-Afghanistan

Dr Humayoon Iqbal

**Background:** The Avoidable Blindness Project in Kabul was designed in 2013. This initiative aimed to strengthen the delivery of quality, accessible eye care services for the prevention of blindness and vision impairment in Kabul by providing screening and cataract surgical treatment to patients by building the capacity of Kabul Medical University Eye Hospital (KMUEH). The project was initially funded by The Foundation's regular funds and co-funded by the Australian NGO Cooperation Program (ANCP) during 2014-16. The purpose of this evaluation is to determine the key learnings from the project in Afghanistan. These learnings can inform The Foundation's future eye health projects in the region, as well as potentially projects in other complex settings.

**Method:** Mixed methods involving collection of quantitative and qualitative data was employed. For quantitative data, information was extracted while reviewing secondary data. Nine interviews were conducted on key Informants and 49 exit interviews were administered on beneficiaries at the University Eye Hospital. Site visits were also conducted to verify and validate views expressed by Key Informants during the face-to-face individual interviews.

**Results:** Doctors were enabled to reach more patients with a limited number of medical staff due to an increase in equipment provided to the Hospital, as well as necessary renovations. This included saving families money as they didn't have to travel as far to get the necessary eye services and increased the time efficiency of screening patients' eyes. There was a decline in the overall operations of UEH due to other challenges such as an explosion near the hospital in 2015. The number of visiting patients increased over the past 3 years. Majority of the patients were satisfied with the eye care services received. The two ophthalmic technicians trained will take their final qualifying exams after some challenges and the two optometrists are continuing their studies. However, the ophthalmologists meant to be trained in small incision cataract surgery and other sub-specialities were not trained due to several challenges. Prior to the inception of this project, all the focus was on income generation but now UEH focuses on the quality of service delivery including the technical and operation aspects of UEH.

**Conclusion:** The project was designed in alignment with national policies and KMU's priorities. Despite some challenges in human resource development and partnership, the project has effectively helped UEH in delivering quality eye care services through utilization of up-to-date equipment in an appropriate environment. The project represents an intervention in the eye health sector that has been highly relevant due to the limited number of trained eye health workers and specialists. Whilst retaining focus

on training of ophthalmologists, consider giving greater attention to improving the production capacity of midlevel eye care worker training institution in order to scale up eye health service delivery and accelerate progress towards achievement of the Vision 2020 targets.

**Acknowledgements:** Emerging Leaders Consulting Services

**Citation:** Humayoon Iqbal (2017). Prevention of blindness project Kabul-Afghanistan. A Fred Hollows Foundation Report

## REPORT: Government Engagement and Advocacy on the Right to Sight for All (China)

**Background:** This is an evaluation for the Fred Hollows Foundation China project 'Government Engagement and Advocacy on the Right to Sight for All' (GEA), which has been operating since 2013 with a proposed initial timeframe to December 2017. The purpose of the GEA project is 'to advocate the Chinese government to improve policy and practice for the provision of quality eye care services in rural China'. This evaluation was completed in May 2017 in preparation for plans for a second phase. It looks at the context for government engagement particularly the relationship between government and I/NGOs in China, and the context of blindness and vision impairment: these aspects are only briefly described in this summary.

**Method:** This evaluation is based on interviews, a literature review and observation of the GEA Project and Fred Hollows Foundation work in China over a period from July 2015 to April 2017. Interviews were conducted at the national and provincial level, which also included focus group discussions. Interviewees included government officials, hospital staff, community health workers, committee members, non-governmental organisations and local residents.

**Results:** The objectives have been broadly achieved, in particular with the new National Five Year Plan, increased awareness and engagement of prevention of blindness (PBL) stakeholders at different levels and government interest in replicating a rural eye health model, and that 'grassroots model', along with inclusion of primary eye care services into the primary health care system in the new Five Year Plan, along with development of training, while budget contributions have increased. Key achievements include; the development and maintenance of partnership work at national and provincial levels; national PBL management workshops; piloting innovative projects in provinces; the promotion of a rural eye health model that includes multi-sector and multi-agency collaboration; and development community based work and focus on the role of community health workers; as well as undertaking public advocacy and highlighting the need for public advocacy and engagement alongside policy and practice engagement with government and hospitals.

**Conclusion:** Overall the GEA Project has not only broadly

met its objectives but has and continues to have a considerable effect on the development of eye health policy and plans through bringing international standards and the Foundation's programme work in China in its engagement with government. The components of the national plan include not only shifts to universal eye health but also multi-sectoral and multi-agency collaboration as well as a commitment to develop a rural model, all of which have been demonstrated by FHF programs and promoted through the GEA project work. It is evident that these are operable in China through the work of FHF, and the partnership working with the National PBL Committee (and provincial committees) has shown that this is regarded as a trusted, valuable and credible relationship. It is recommended that the GEA Project be retained to further develop national and provincial policy work, and keep its flexibility to respond to changing environments and make the best use of opportunities to promote eye health policy and practice consistent with international standards and norms.

### **KENYA: County level project evaluation**

**Background:** Since 2010, the Foundation has focused on strengthening comprehensive eye care services in Western Kenya through the implementation of three projects: Nakuru comprehensive eye care project phase 2 (2010-2015), South Nyanza comprehensive eye care project (2011-2015) and The Central and Western Nyanza comprehensive eye health project (2013-2016). These projects aimed at contributing to the elimination of avoidable blindness in Kenya by strengthening health systems, enhancing the profile of eye care and increasing access and affordability of quality government eye care services. The interventions to achieve the program intentions focused on service delivery, human resource development, infrastructure and equipment and advocacy.

**Method:** This was a cross sectional study that used key informant interviews, focus group discussions, community surveys and literature review of secondary data approaches to data collection. The targeted sources of information were the national Ministry of Health (MoH) and its relevant departments, the county health authorities, the nine county health institutions, their catchment populations, respective county health management teams (CHMTs), non-governmental eye care players and other relevant parties of interest in the national arena and county project areas.

**Results:** In the three project areas, the programs achieved progressive annual increased number of outreach activities and cataract surgeries performed between 2010-2016. Providers did not use the CSOM tool as expected because they perceived it as duplication of work, which the limited number of staff could not adequately cope with. FHFK alongside other eye stakeholders, including the national and county governments, contributed to the HR capacity building and advocacy that led to additional ophthalmologists and mid-level ophthalmic workers being deployed to the eye

units. The eye health providers were trained and this led to effective leadership and better management of the ophthalmic services in the static sites and clinical skills to better perform cataract surgeries with better outcomes. Both primary eye care and comprehensive eye care facilities were built and renovated and equipped to attain the capacity to carry out cataract surgery and provide primary and secondary eye care services. However, the facilities did not fulfil the ophthalmic services unit equipment recommended criteria outlined in the National Strategic Plan for Eye Health and Blindness Prevention 2012-2018. Most community members indicated that the eye care awareness campaigns had increased their awareness on eye health. However, results from county governments remained low because eye health agenda was rarely discussed and budgetary allocation for eye health activities remained low.

**Conclusion:** FHFK support to the eye project areas improved quality at the county referral hospitals, outreach services increased cataract surgical access and other activities increased awareness and demand of eye health services. However, challenges still remain including a lack of commitment of county governments to allocate funds for the eye care programs, inability to identify champions to spearhead profiling of eye care to prominent levels in the health care systems, inability for members of the county assembly to sponsor legislation and bills and clarity in operational funds for eye care programs between CHMTs and eye care program teams.

**Acknowledgements:** This research is a project conducted by The African Institute for Health Transformations supported by funding from The Fred Hollows Foundation.

### **KENYA: National Level Project Evaluation**

**Background:** Two projects were implemented at the National level: National Support to Kenyan Blindness Prevention Program (2011-2015), which sought to support the development of national systems to provide high quality eye care services across Kenya by working to raise the public profile of eye health and integrate eye health into national health plans, policies, budgets and human resource strategies. The second project was The Institutional Capacity Strengthening of Eye Health Training Institutions (2013-2017), which was implemented to strengthen the capacity of tertiary and mid-level eye health training institutions to produce sufficient numbers of eye health workers. The purpose of the evaluation was to evaluate the effectiveness and sustainability of the two national-level projects.

**Method:** This was a cross sectional study that adopted multiple approaches to data collection, including a review of literature from secondary sources of data, key informant interviews and an assessment of both health facilities and training institutions. Both qualitative and quantitative data were collected using structured and semi-structured data collection tools. Data were obtained from key informants,

direct beneficiaries and from the assessment of health and training institutions. The evaluation adopted a purposive and multi-stage stratified sampling technique in order to collect required information. A total of 30 key informant interviews were conducted from 3 eye healthcare facilities, 2 eye health training institutions, 5 national MoH and related departments and 3 NGOs.

**Results:** The support provided by FHK to the training institutions helped to increase the number of eye health workers who were eventually posted to the county health facilities. However, the UoN-DO did not put in place mechanisms that would ensure continuity of the outreach program. In counties where the programs were implemented, the cataract surgical rate increased, the burden of trachoma was reduced, highly skilled eye health workers graduating and available in the public eye health sector, a functional HMIS technology was put into place and there were strengthened linkages and communication between MoH, eye health training institutions and other stakeholders. In addition, other critical achievements were the development of policies, guidelines, manuals, processes and standard operating procedures such as The Refraction Manual for Optometrists and Kenya Essential Medicines List. It is the expectation of all stakeholders that at the end of the initial start-up support, the eye care program will continue without interruption through government support.

**Conclusion:** Overall, the objectives of the two national projects were achieved. Key recommendations include supporting active engagement in Public Private Partnerships, ensure joint donor, government and training institution planning, develop a cataract training manual and cataract surgical guidelines, focus on innovation, strengthen political will, leadership and management and strengthen information collection and analysis and use this at all levels of the eye care program.

**Acknowledgements:** This research is a project conducted by The African Institute for Health Transformations supported by funding from The Fred Hollows Foundation.

## **REPORT: Mid Term Evaluation: Lao PDR Sustainable Comprehensive Eye Care Project (Phase 2-2014-2018) (LAO PDR)**

Frank de Caires

**Background:** The Sustainable Comprehensive Eye Care Project officially started in Lao PDR in 2008. The project involved ten Partners from the following Provinces during three phases. Phase I (2008 – 2013): Oudomxay, Luangnamtha, Bokeo, and Phongsaly; Phase II (2014 – 2018): Phongsaly, Luangprabang, Xayabouly, and Vientiane Province; and Phase III (2016 – 2020): Bolikhamxay, Khammuan, and Savanakheth. The project has five main pillars (below) and focus has been placed on the first three pillars and advocacy and research work is to be strengthened and

developed: human resources developed, essential facilities upgraded, renovated or built and equipment and tools provided, eye health services strengthened with budget support, especially for cataract surgery through mobile camps in Districts and rural areas of the Province, advocacy and partnerships strengthened, survey and research conducted.

**Method:** The following key activities were carried out: assessing the planned and actual log frame outputs of the project based on the project objectives; review of project documentation and model; field visits and joint discussions with stakeholders in one to one and group meetings at Province, District and Village sites. The report was shared with the evaluation team and Project Partners. A dissemination workshop was organised by FHF Lao PDR for Provincial Project Partners to discuss and share findings.

**Results:** Eye care services, facilities and networks have been significantly strengthened, especially at the Provincial Hospital Eye Units and have reached out to vulnerable populations living in remote areas through mobile camps for cataract surgery. Human resources have been significantly strengthened especially at Provincial level with Ophthalmologists, Basic Eye Doctors and Ophthalmic Nurses being trained. However, although sustainability and cost recovery is of concern to the Provincial Eye Units, there are no concrete plans in place to achieve sustainability. The Eye Unit operates within the context of the Provincial Hospital and is thus dependent on the hospital policy and strategy. In some cases the Hospital does not have a strategic plan on how to integrate eye care within the health system, how to establish cost norms or how to recover eye care service costs.

**Conclusion:** The project has made significant improvements in strengthening and developing eye care services in seven Provinces in Lao PDR, especially at Provincial level, in training ophthalmology specialists (Ophthalmologists, Basic Eye Doctors and Ophthalmic Nurses) and training health personnel on Primary Eye Care at District and Village levels, including a school network to test the visual acuity of children. However, referrals from villages are low and there is a need to further strengthen District Hospitals in terms of human resources, facilities and equipment. The long term viability and sustainability of the project needs to be addressed.

**Acknowledgements:** Mr. Frank de Caires, On-Change Ltd, Dr. Siphethavong Sisaleumsak, Mr. Sengphet Laopaoher, Mr. Phonesavanh Yangxiayee, Mr. Thongleck Xiong, Mr. Le Quang Tram Tinh, Dr. Sengtavanh Keokenchanh, Ms. Niphalay Thongkham.



## REPORT: End of project evaluation: A replicable Community Eye Care Project in Tarlac Province (Philippines)

Ma. Socorro E Ignacio

**Background:** After three years of implementation (2014-2016), The Fred Hollows Foundation's support to Tarlac CEHP was evaluated by an external evaluator. This end of project (EOP) evaluation aims to assess the implementation and overall results/ achievements of Tarlac's Community Eye Health Program (CEHP) and draw lessons on how best to replicate the CEHP model in other provinces, and generate learning that can inform FHF and Tarlac's future work. It was conducted at the end of the 3-year engagement period between FHF and Tarlac CEHP. The evaluation seeks to assess at what extent the project contributed to reducing avoidable blindness in Tarlac and to identify best practices and lessons for replicating the model in other parts of Philippines.

**Method:** Qualitative methods of data collection were employed in this research such as desk review, field observations, key informant interviews (KII), focus group discussions (FGDs) and field visits. The evaluation team interviewed relevant stakeholders from Tarlac CEHP, Rural Health Units (RHUs) of selected municipalities (Camiling and San Clemente), as well as representatives of technical support agencies namely: Department of Health, National Committee for Sight Prevention, and Philippine Academy of Ophthalmology. FHF provided the evaluation team with the list of key informants. Respondents of the focus group discussions include the Barangay Health Workers, school teachers and day care workers, parents of children who received eye glasses, and patients who have undergone surgeries in Tarlac Eye Centre (TEC). The LTP staff assisted the evaluation team by doing the coordination with the municipalities, RHUs, elementary schools, and day-care centres.

**Results:** The CEHP caters not only to the people of Tarlac but also to the neighbouring provinces and gives particular attention to the indigent, the marginalized and poor populations. The capacity building activities conducted produced mixed results. While trainings attended by the TEC staff, particularly the nurses, enabled them to perform their duties more effectively and efficiently, the same cannot be said of the community eye care workers and RHU staff. They requested basic training that emphasises how to promote preventive measures and recognition of early warning signs of an eye problem that would prompt community members to seek immediate help from the nearest health facility. Although there were aggressive efforts to address existing eye health problems in the community, efforts directed in educating the community on maintaining healthy eyes and preventive measures in order to avoid eye problems were minimal. This is supported by the lack of discussion on basic eye care and promotion of eye health in the training module for the community health workers. Equipment was provided

to TEC and TEC consists of a cornea specialist, paediatric ophthalmologist, glaucoma specialist, and retina specialist competently managing complicated eye cases. During community outreach activities, two major challenges were: refusal of some patients to go to TEC for further evaluation and failure of some patients to follow up for post-operation care.

**Conclusion:** With the accomplishment of the TEC (and its sustainability), there is no doubt that indeed it contributed to the reduction in the prevalence of preventable blindness in Tarlac. Recommendations such as ensuring community eye care workers act as front liners and continuing health education and promotion campaigns have been provided to facilitate the replication of the Tarlac community eye health program in other provinces.

## REPORT: Replicable Comprehensive Rural Eye Care Model for Vulnerable Groups in Inner Mongolia

Dr Raba Thapa & Shan Huang

**Background:** This project (January 2014-March 2017) is supported by The Foundation and Standard Chartered Bank (SCB). The purpose of the project is to improve policy and practice for providing quality rural eye care services by establishing a Comprehensive rural eye care model in Inner Mongolia Autonomous region and delivering a replicable model for advocacy at a national level. The objective of the project is to focus on avoidable blinding disease such as cataract, basic childhood blindness and refractive error (RE), and early intervention of diabetic retinopathy (DR) by providing modern surgical/medical management and screening, skill transfer, the provision of appropriate equipment, public awareness campaigns and patient education activities implemented within an existing eye health care system. The aim of the project end evaluation was to assess the effectiveness and impact of various activities conducted by the project during the project implementation period to inform the design and implementation of rural eye care models in other parts of the province of Inner Mongolia and other provinces in China.

**Method:** The evaluation consisted of a mixed methods approach to assess the project, where both quantitative and qualitative data was gathered. This included: a desk review of all project documents, focus group discussions (FGDs), in-depth interviews of key stakeholders and direct observations. A total of 114 people were interviewed individually or in FGDs that consisted of government officials, management teams in hospitals, health care professionals, school principals and teachers.

**Results:** The Knowledge, Attitudes and Practice Survey (KAP) conducted at baseline and endline found an improvement in the KAP of cataract, RE and DR among the vulnerable groups, which led to an increase in the demand for eye care

services in health facilities. The project activities enhanced the capacity of the health system in terms of trained human resources, an increase in infrastructure, an increase in the demand in eye care services and an increase in the revenue for the sustainable eye care system. However, some challenges included transportation to health facilities because of the large geographic area and to some extent financial constraints among the public. Various advocacy activities were found to be effective in motivating the relevant stakeholders for their support in continuing the activities and replicating the model in other similar regions to reduce avoidable blindness among vulnerable groups.

**Conclusion:** Overall, the comprehensive rural eye care model was successful and all objectives were achieved. The findings suggest that the project activities are effective to raise the awareness on major blinding disease of cataract, refractive error, diabetic retinopathy among the vulnerable groups, capacity building of human resource and infrastructure development, establish screening, referral and treatment of these avoidable blinding disease at the local level and evidence based advocacy. This model is found to be effective for vulnerable groups in rural areas and the replication of this model has been recommended in other areas.

**Acknowledgements:** Tilganga Institute of Ophthalmology. This evaluation is supported by funding from The Fred Hollows Foundation.

### ARTICLE: Association of socioeconomics with prevalence of visual impairment and blindness.

Wang W, Yan W, Müller A, Keel S, and He M.

**Background:** Vision loss is the third most common impairment worldwide. Although cost-effective interventions are available for preventing or curing most causes of vision loss, availability of these interventions varies considerably between countries and districts. Knowledge of the association between vision loss and socioeconomic factors is informative for public health planning. The study aimed to explore correlations of the prevalence of visual impairment with socio-economic factors at country levels and to model and estimate a socioeconomic-adjusted disease burden based on these data.

**Method:** In this cross-sectional study, the following data were collected from 190 countries and territories: the age-standardised prevalence of moderate to severe visual impairment (MSVI) and blindness from January 1 to December 31, 2010, across countries, human development index (HDI), gross domestic product (GDP) per capita, total health expenditure, total health expenditure as percentage of GDP (total health expenditure/GDP), public health expenditure as percentage of total health expenditure (public/total health expenditure), and out-of-pocket expenditure as percentage

of total health expenditure (out-of-pocket/total health expenditure).

Countries were divided into 4 levels (low, medium, high, and very high) by HDI. Data analysis was conducted from September 1, 2016, to July 1, 2017.

**Results:** A strong negative association between prevalence rates of MSVI and blindness and socioeconomic level of development was observed. The mean (SD) age-standardized prevalence of MSVI decreased from 4.38% (1.32%) in low-HDI regions to 1.51% (1.00%) in very-high-HDI regions ( $P < .001$ ). The national HDI level was attributable to 56.3% of global variation in prevalence rates of MSVI and 67.1% of global variation in prevalence rates of blindness. Higher prevalence rates were also associated with lower total health expenditure per capita, total health expenditure/GDP ( $\beta = -0.236$  [95%CI,  $-0.315$  to  $-0.157$ ] for prevalence of MSVI;  $\beta = -0.071$  [95%CI,  $-0.100$  to  $-0.042$ ] for prevalence of blindness), public/total health expenditure ( $\beta = -0.041$  [95%CI,  $-0.052$  to  $-0.031$ ] for prevalence of MSVI;  $\beta = -0.014$  [95%CI,  $-0.018$  to  $-0.010$ ] for prevalence of blindness), and higher percentage of out-of-pocket/total health expenditure ( $\beta = 0.044$  [95%CI,  $0.032$ - $0.055$ ] for prevalence of MSVI;  $\beta = 0.013$  [95%CI,  $0.009$ - $0.017$ ] for prevalence of blindness). Countries with increased burden of visual impairment and blindness can be easily identified by the results of the linear models. Socioeconomic factors could explain 69.4% of the global variations in prevalence of MSVI and 76.3% of the global variations in prevalence of blindness

**Conclusion:** Burden of visual impairment and socioeconomic indicators were closely associated and may help to identify countries requiring greater attention to these issues. The regression modelling described may provide an opportunity to estimate appropriate public health targets that are consistent with a country's level of socioeconomic development.

**Acknowledgements:** Zhongshan Ophthalmic Center, Sun Yat-Sen University, Guangzhou, China and the Centre for Eye Research Australia, University of Melbourne, Australia. Co-funded by The Fred Hollows Foundation.

**Citation:** Wang W, Yan W, Müller A, Keel S & He M. (2017). *Association of socioeconomics with prevalence of visual impairment and blindness*. JAMA Ophthalmology, published online October 19, 2017.

# COMMUNITY ENGAGEMENT RESEARCH & EVALUATIONS

## REPORT: Barriers women face in accessing trachoma and cataract health services in Baringo and Siaya, Kenya

Naanyu V & Were E.

**Background:** In parts of Kenya, the proportion of women who are blind is almost 60%. Two of the leading causes of avoidable blindness are cataract and corneal opacity due to Trachomatous trichiasis (TT). While both diseases disproportionately affect women, global evidence suggest that women are three times less likely to access eye health services as compared to men. At the same time, poverty (especially among women) is both a cause and a consequence of blindness that significantly reduces access to eye care services. This project explored the supply and demand-side barriers women face in accessing trachoma and cataract services in Baringo and Siaya, Kenya.

**Method:** A mixed methods approach was followed. Information was sourced from: published literature; health facility records in Siaya and Baringo counties; semi-structured interviews with female patients, their significant others, health care providers and health officials; and focus group discussions to collect information on broader community perceptions and experiences regarding access and barriers to eye health care.

**Results:** Upon reviewing eye-health utilisation data for Baringo and Siaya counties, there appears to be no significant difference in access to eye health services between men and women. In terms of barriers to women's access, supply-side barriers relate to the quality and geographical distribution of eye care services, with 'inattention to patients' comfort' of particular concern to women's care. Demand-side barriers include stigma of eye health issues, low service accessibility due to women's social and financial standing, and limited awareness of available services and eye health issues in general.

**Conclusion:** Although there appears to be no gender difference in access to treatment in Baringo and Siaya, women's access is still not sufficient to account for the gendered burden of disease against women. Research to ascertain the extent of the gendered burden is necessary to inform strategy for barrier-mitigation interventions. Potential interventions may include: community sensitizations on eye conditions and health services, counselling of female patients, fee waiver for women, increased gender balance when employing health workers, and ethical handling of female clients.

**Acknowledgements:** Department of Behavioural Sciences, Moi University, Kenya. The project was funded by The Fred Hollows Foundation.

**Citation:** Naanyu V & Were E. (2016). *Barriers women face in accessing trachoma and cataract health services in Baringo and Siaya, Kenya*. A Fred Hollows Foundation (Kenya) Research Report.

## REPORT: Eye care for people with disability in Cambodia: A study report.

Yim K, Maningo EV, Proyuth L, and Sola H.

**Background:** Around 2% of the population in Cambodia is affected by disability with landmines being a major cause. Landmines and war related injuries are also an important cause of ocular injury. Despite this, disability has not been specifically addressed in eye health in Cambodia and disability data is not recorded in the health system or linked to the social sector. The current study was undertaken to inform the development of The Foundation's 4-year project in Cambodia titled: "Addressing Barriers for People with Disabilities - Promoting Inclusive Approaches to Eye Health for Strengthened Health Systems" from 2017-2020.

**Method:** Data was collected from eye health and disability stakeholders, including service utilisation in Oddar Meanchey, Prey Vihear and Pailin Provinces. A cross-sectional design was used. Interviews were conducted with People with Disabilities (PwDs) visiting health centres and in their homes. FGDs were also undertaken with PwDs and interviews with healthcare service providers.

**Results:** The results of the study suggest considerable numbers of PwDs live in the Cambodian provinces of Oddar Meanchey, Pailin and Preah Vihear. The PwDs surveyed were victims of war, land mines, or of livelihood related accidents. While there is a reported increase in uptake of health services, many PwDs report they are unable to access services. Among the identified barriers were lack of awareness of the health services offered by NGO outreach, inaccessibility, poverty, fear due to limited awareness of surgery and lack of proper facilities.

**Conclusion:** PwDs are more prevalent among men who are exposed to occupational risks in the field. While uptake of the healthcare services has been reported to be increasing, further improvements to access and awareness are required. It was also noted that documentation is poor in the healthcare centres, and there is a need to improve healthcare facilities and the skills of the healthcare providers.

**Acknowledgements:** The project was commissioned by The Fred Hollows Foundation.

**Citation:** Yim K, Maningo EV, Proyuth L & Sola H. (2016) *Eye Care for People with Disability in Cambodia. Study Report, Phnom Penh*. A Fred Hollows Foundation Research Report.

## **REPORT: Pakistan gender situation analysis for utilization of eye care services: Barriers to eye health care access for women in four districts in Pakistan.**

Sarfraz S, Akhtar T, Aziz R and Khan A.

**Background:** The situational analysis aimed to inform the design of an eye care project for screening, early diagnosis and treatment of eye ailments amongst women working in agriculture and cottage industries in Pakistan. The analysis investigated the eye care needs of women and the barriers they experience in accessing eye care services.

**Method:** A cross sectional, mixed methods study design was used. 640 women and 120 spouses and male relatives of the women were surveyed. Around half of the interviews were conducted by random selection within the community and the remainder within an eye health facility. The qualitative component included focus group discussions (FGDs) and in-depth interviews with: working women, their husbands and employers, female community health workers, health providers and managers, social welfare sector managers, local representatives and NGO representatives. 256 persons participated in FGDs and 74 gave in-depth interviews. The study was undertaken in districts Khanewal, Sahiwal and Jhang in Punjab province and Hyderabad in Sindh province.

**Results:** The study found that working status was a facilitator of access to eye care services. Among working women, those who had control over their earnings were accessing eye care more than those whose earnings were going towards family expenditures. The main barriers to accessing services were poverty, cost of services, long travel distances, lack of transport facilities and dependence of women on husbands and male relatives for decision making and to accompany them to services. Both the availability and quality of services was inadequate. Public sector facilities are of lower quality compared to private facilities.

**Conclusion:** The study builds a case for programmatic and policy interventions to develop gender-sensitive systems for eye health and to strengthen existing linkages. The work environment of agriculture sector and cottage industry workers was poor and risky. To increase the access of women to quality services, eye care facilities need to be brought nearer to them and they need to be supported by services providers, husbands and families and their employers.

**Acknowledgements:** The principal investigator was Dr Shabnum Sarfraz, Pakistan. Funded by The Fred Hollows Foundation Pakistan.

**Citation:** Sarfraz S, Akhtar T, Aziz R & Khan A. (2017). *Pakistan gender situation analysis for utilization of eye care services: Barriers to eye health care access for women in four districts in Pakistan*. A report for The Fred Hollows Foundation, Pakistan.

## **ARTICLE: Inequality in cataract blindness and services: moving beyond unidimensional analyses of social position.**

Ramke J, Zwi AB, Lee AC, Blignault I and Gilbert CE.

**Background:** Inequalities in cataract blindness are well known, but data are rarely disaggregated to explore the combined effects of a range of axes describing social disadvantage. We examined inequalities in cataract blindness and services at the intersection of three social axes.

**Method:** Three dichotomous social variables (sex (male/female); place of residence (urban/rural); literacy (literate/illiterate)) from cross-sectional national blindness surveys in Pakistan (2001–2004; n=16 507) and Nigeria (2005–2007; n=13 591) were used to construct eight subgroups, with disadvantaged subgroups selected a priori (ie, women, rural dwellers, illiterate). In each data set, the social distribution of cataract blindness, cataract surgical coverage (CSC) and effective cataract surgical coverage (eCSC) were examined. Inequalities were assessed comparing the best-off and worst-off subgroups using rate differences and rate ratios (RRs). Logistic regression was used to assess cumulative effects of multiple disadvantage.

**Results:** Disadvantaged subgroups experienced higher prevalence of cataract blindness, lower CSC and lower eCSC in both countries. A social gradient was present for CSC and eCSC, with coverage increasing as social position improved. Relative inequality in eCSC was approximately twice as high as CSC (Pakistan: eCSC RR 2.7 vs CSC RR 1.3; Nigeria: eCSC RR 8.7 vs CSC RR 4.1). Cumulative disadvantage was observed for all outcomes, deteriorating further with each additional axis along which disadvantage was experienced.

**Conclusion:** Each outcome tended to be worse with the addition of each layer of social disadvantage. Illiterate, rural women fared worst in both settings. Moving beyond unidimensional analyses of social position identified subgroups in most need; this permits a more nuanced response to addressing the inequitable distribution of cataract blindness.

**Acknowledgements:** University of NSW, Australia. The Fred Hollows Foundation co-funded the initial survey in Pakistan referred to in the study.

**Citation:** Ramke J, Zwi AB, Lee AC, Blignault I & Gilbert CE (2017). *Inequality in cataract blindness and services: moving beyond unidimensional analyses of social position*. British Journal of Ophthalmology, 101, pp. 395-400.

## ARTICLE: Systematic development and implementation of interventions to OPTimise Health Literacy and Access (Ophelia).

Beauchamp A, Batterham RW, Dodson S, et al.

**Background:** The need for healthcare strengthening to enhance equity is critical, requiring systematic approaches that focus on those experiencing lesser access and outcomes. This project developed and tested the Ophelia (OPTimising HEalth Literacy and Access) approach for co-design of interventions to improve health literacy and equity of access. Eight principles guided this development: Outcomes focused; Equity driven, Needs diagnosis, Co-design, Driven by local wisdom, Sustainable, Responsive and Systematically applied. We report the application of the Ophelia process where proof-of-concept was defined as successful application of the principles.

**Method:** Nine sites were briefed on the aims of the project around health literacy, co-design and quality improvement. The sites were rural/metropolitan, small/large hospitals, community health centres or municipalities. Each site identified their own priorities for improvement; collected health literacy data using the Health Literacy Questionnaire (HLQ) within the identified priority groups; engaged staff in co-design workshops to generate ideas for improvement; developed program-logic models; and implemented their projects using Plan-Do-Study-Act (PDSA) cycles. Evaluation included assessment of impacts on organisations, practitioners and service users, and whether the principles were applied.

**Results:** Sites undertook co-design workshops involving discussion of service user needs informed by HLQ (n = 813) and interview data. Sites generated between 21 and 78 intervention ideas and then planned their selected interventions through program-logic models. Sites successfully implemented interventions and refined them progressively with PDSA cycles. Interventions generally involved one of four pathways: development of clinician skills and resources for health literacy, engagement of community volunteers to disseminate health promotion messages, direct impact on consumers' health literacy, and redesign of existing services. Evidence of application of the principles was found in all sites.

**Conclusion:** The Ophelia approach guided identification of health literacy issues at each participating site and the development and implementation of locally appropriate solutions. The eight principles provided a framework that allowed flexible application of the Ophelia approach and generation of a diverse set of interventions. Changes were observed at organisational, staff, and community member levels. The Ophelia approach can be used to generate health service improvements that enhance health outcomes and address inequity of access to healthcare.

**Acknowledgements:** Health Systems Improvement Unit, Centre of Population Health Research, Deakin University, Australia. The Foundation's staff member, Dr Sarity Dodson, was co-investigator and co-author.

**Citation:** Beauchamp A, Batterham RW, Dodson S, Astbury B, Elsworth GR, McPhee C, Jacobson J, Buchbinder R & Osborne RH. *Systematic development and implementation of interventions to OPTimise Health Literacy and Access (Ophelia)*. BMC Public Health, 17, 230, pp.1-18

## ARTICLE: Development of the organisational health literacy responsiveness (Org-HLR) framework in collaboration with health and social services professionals

Trezona A, Dodson S, and Osborne RH.

**Background:** The health literacy skills required by individuals to interact effectively with health services depends on the complexity of those services, and the demands they place on people. Public health and social service organisations have a responsibility to provide services and information in ways that promote equitable access and engagement, that are responsive to diverse needs and preferences, and support people to participate in decisions regarding their health and wellbeing. The aim of this study was to develop a conceptual framework describing the characteristics of health literacy responsive organisations.

**Method:** Concept mapping (CM) workshops with six groups of professionals (total N = 42) from across health and social services sectors were undertaken. An online concept mapping consultation with 153 professionals was also conducted. In these CM activities, participants responded to the seeding statement "Thinking broadly from your experiences of working in the health system, what does an organisation need to have or do in order to enable communities and community members to fully engage with information and services to promote and maintain health and wellbeing?". The CM data were analysed using multidimensional scaling and hierarchical cluster analyses to derive concept maps and cluster tree diagrams. Clusters from the CM processes were then integrated by identifying themes and subthemes across tree diagrams.

**Results:** Across the workshops, 373 statements were generated in response to the seeding statement. An additional 1206 statements were generated in the online consultation. 84 clusters were derived within the workshops and 20 from the online consultation. Seven domains of health literacy responsiveness were identified; i) External policy and funding environment; ii) Leadership and culture; iii) Systems, processes and policies; iv) Access to services and programs; v) Community engagement and partnerships; vi) Communication practices and standards; and vii) Workforce. Each domain included 1 to 5 sub-domains (24 sub-domains in total).

**Conclusion:** Using participatory research processes, a conceptual framework describing the characteristics, values, practices and capabilities of organisational health literacy responsiveness was derived. The framework may guide the planning and monitoring of health service and health system improvements, and has the potential to guide effective public health policy and health system reforms.

**Acknowledgements:** Health Systems Improvement Unit, Deakin University, Australia.

**Citation:** Trezona A, Dodson S. & Osborne RH. (2017). *Development of the organisational health literacy responsiveness (Org-HLR) framework in collaboration with health and social services professionals*. BMC Health Services Research, 17, 513, pp. 1-12.

## CHAPTER: Health Literacy in selected populations: Individuals, families, and communities from the international and cultural Perspective

Levin-Zamir D, Leung AYM, Dodson S and Rowlands G.

**Abstract:** International and cultural perspectives of health literacy help deepen the understanding of the global context within which health literacy plays an important role. Throughout this article, the authors explore the significance of health literacy initiatives, interventions, practices, and research for addressing health challenges on a variety of levels in the international and global context. More specifically, the notion of health literacy as a dynamic construct is introduced, after which the article examines health literacy throughout the life course, emphasizing the impact of health literacy among children and the elderly in their families and in the community. Cultural norms and family interpersonal relations, and values influence health literacy and need to be considered when closing the health literacy disparities. Global trends of migration and immigration bring to the forefront the need for unravelling the complexity of health systems, for which health literacy plays a central role; health literacy initiatives address cultural differences between providers and patients to help narrow the communication gap. The importance of cultural competency among health care providers exemplifies how capacity building in health literacy is critical for maximizing the benefits to the public of the health care system.

Health literacy provides a conceptual foundation for community participatory research, involving members of the public to take part in the planning, execution and evaluation of health education interventions. Selected case studies and picture boxes from around the globe, exemplify aforementioned topics of interest. Practical recommendations for policy makers, practitioners and research are offered based on the studies conducted in the international context.

**Citation:** Levin-Zamir D, Leung AYM, Dodson S & Rowlands G. (2017). *Health literacy in selected populations: individuals, families, and communities from the international and cultural perspective*. Studies in Health Technology and Informatics: Health Literacy, 240, pp. 392-414.

## CHAPTER: Global health systems and policy development: Implications for health literacy research, theory and practice

Rowlands G, Dodson S, Leung A, Levin-Zamir D.

**Abstract:** Accessible and responsive health systems are critical to population health and human development. While progress has been made toward global health and development targets, significant inequities remain within and between countries. Expanding health inequities suggest a widespread and systemic neglect of vulnerable citizens, and a failure to enshrine within policies a responsibility to tailor care to the variable capabilities of citizens. Implementation of health and social policies that drive the design of accessible health systems, services, products and infrastructure represents the next frontier for health reform. This chapter argues the need to consider health and health literacy across policy domains, to operationalize the intent to address inequities in health in meaningful and pragmatic ways, and to actively monitor progress and impact within the context of the Sustainable Development Goals (SDGs). The authors contend that viewing and developing policies and systems within a health literacy framework will assist in placing citizens and equity considerations at the centre of development efforts.

The chapter explores the relationship between health literacy and equitable access to health care, and the role of health system and policy reform. The authors first explore international policies, health literacy, and the SDGs, then explore national policies and the role that national and local services and systems play in building health literacy, and responding to the health literacy challenges of citizens. The authors discuss the World Health Organization's (WHO) Framework for Integrated People-Centered Health Services and the way in which health services are being encouraged to understand and respond to citizen health literacy needs. Each section of the chapter ends with a summary and a review of health literacy research and practice. Throughout, the authors illustrate their points through 'vignettes' from around the world.

**Citation:** Rowlands G, Dodson S, Leung A & Levin-Zamir D. (2017). *Global health systems and policy development: Implications for health literacy research, theory and practice*. Studies in Health Technology and Informatics: Health Literacy, 240, pp. 359-391.

## OTHER RESEARCH

### ARTICLE: Developing a cultural protocol for evaluation.

Rogers A, Bower M, Malla C, Manhire S, and Rhodes D.

**Abstract:** Evaluation is understood to be important for ensuring programs and organisations are effective and relevant. Evaluation findings, however, can be potentially inappropriate or not useful if those who have an in-depth understanding of the context are not involved in guidance, direction or implementation. The Fred Hollows Foundation's Indigenous Australia Program (IAP), with more than half of its employees identifying as Aboriginal and/or Torres Strait Islander, has developed a cultural protocol for evaluation to strengthen the quality of its program evaluations, whether they are carried out by internal staff or external evaluators. The development of the protocol was initiated after an evaluation capacity building appraisal identified the potential benefits of increased external support to undertake evaluation activities, and the requirement for this external support to be undertaken in a culturally appropriate manner. The protocol was developed by combining IAP's experience and knowledge with contemporary evaluation and research approaches, particularly those developed for use in cross-cultural settings, with the aim of producing a meaningful and locally relevant resource. The protocol aims to assist staff and external evaluators to ensure that evaluation activities are undertaken with the appropriate respect for, and participation of, Aboriginal and Torres Strait Islander individuals and communities. Consistent with IAP principles, those involved in the process of developing the protocols sought to ensure that engagement between staff, evaluators and evaluation participants occurs in culturally-appropriate ways. IAP believes that the protocol will contribute to stronger evaluation practices, deeper understanding and thus, more useful outcomes. The article describes the process of engaging IAP staff with contextual evidence and the literature around cultural protocols to create a meaningful tool that is useful in our particular context. The process of development described will be useful for: organisations undertaking initiatives that source external evaluators; internal evaluators engaging with external expertise; or evaluators linking with organisations working in a cross-cultural setting.

**Acknowledgements:** The Fred Hollows Foundation, Indigenous Australia Program.

**Citation:** Rogers A, Bower M, Malla C, Manhire S, Rhodes D. (2017). *Developing a cultural protocol for evaluation*. Evaluation Journal of Australia, 17, pp. 11-19.

### ARTICLE: Poor nutrition from first foods: A cross-sectional study of complementary feeding of infants and young children in six remote Aboriginal communities across northern Australia.

**Summary:** The study described the first foods of Aboriginal and Torres Strait Islander infants and young children who were recruited to a nutrition promotion and anaemia prevention program conducted from 2010 to 2012, in six remote communities across northern Australia. Of 245 Aboriginal and Torres Strait Islander participants aged 6–24 months most (67.4%) had breastmilk, nearly all (98.2%) ate solid food, but only 13% ate fruit, 33% had neither fruit nor vegetables, and 25% had sweet drinks. The study concluded that support for breast-feeding practices and promotion of nutrient-dense complementary foods, need to be embedded in initiatives for improved family food security.

**Acknowledgements:** James Cook University. The study is based on a former project of The Fred Hollows Foundation and co-author, D. Aquino, is former staff.

**Citation:** Leonard D, Aquino D, Hadgraft N, Thompson F & Marley JV. (2017) *Poor nutrition from first foods: A cross-sectional study of complementary feeding of infants and young children in six remote Aboriginal communities across northern Australia*. Nutrition & Dietetics. 2017.

### ARTICLE: Feasibility of a novel participatory multi-sector continuous improvement approach to enhance food security in remote indigenous Australian communities.

**Summary:** A longitudinal comparative multi-site case study, the Good Food Systems Good Food for All Project, was conducted (2009-2013) with four Aboriginal communities. The study found that a multi-sector participatory approach, seeking continuous improvement, engaged the Aboriginal and non-Aboriginal stakeholders and was shown to have potential to shift community diet. Provision of clear mechanisms to link this approach with higher level policy and decision-making structures, clarity of roles and responsibilities, and processes to prioritise and communicate actions across sectors should further strengthen capacity for food security improvement.

**Citation:** Brimblecombe J, Bailie R, van den Boogaard C, Wood B, Liberato SC, Ferguson M, Coveney J, Jaenke R. & Ritchie J. (2017). Feasibility of a novel participatory multi-sector continuous improvement approach to enhance food security in remote indigenous Australian communities. SSM - Population Health, online 17 June 2017.

### ARTICLE: Increased delivery of chemotherapy to the vitreous by inhibition of the blood-retinal barrier

**Summary:** The study investigated vitreous and retinal distribution, tumor accumulation and antitumor activity of topotecan, using pantoprazole as inhibitor of BCRP and P-gp. The study used rabbit and mouse eyes as BRB models and patient-derived xenografts as retinoblastoma models. It concluded that pharmacological modulation of the BRB is feasible, enhances anticancer drug distribution into the vitreous and might have clinical implications in retinoblastoma.

**Acknowledgements:** Institut de Recerca Sant Joan de Deu, Barcelona, Spain. Co-author Camilo A. Restrepo-Perdomo was funded by The Fred Hollows Foundation through an ICO fellowship (Homburg/Saar, Germany)

**Citation:** Pascual-Pasto G, et al. (2017). *Increased delivery of chemotherapy to the vitreous by inhibition of the blood-retinal barrier*. Journal of Controlled Release, 264, pp. 34-44.

### ARTICLE: Improving services for glaucoma care in Nigeria: implications for policy and programmes to achieve universal health coverage

**Summary:** In Nigeria, glaucoma is common, it is serious, ophthalmologists face many constraints in managing it, people do not know they have it until it is advanced, patients do not understand or comply with treatment after they are diagnosed and the poor are more likely to be glaucoma blind. Available evidence indicates that the health system in Nigeria is failing to meet the needs of patients with glaucoma. Based on evidence, the paper proposed future directions for improving services for glaucoma care in Nigeria, and the implications for policy and programmes to control glaucoma blindness, using a health system-oriented approach.

**Acknowledgements:** London School of Health and Tropical Medicine. Lead author Dr Fatima Kyari received study support from The Fred Hollows Foundation.

**Citation:** Kyari F, Gilbert C, Blanchet K & Wormald R. (2017). *Improving services for glaucoma care in Nigeria: implications for policy and programmes to achieve universal health coverage*. British Journal of Ophthalmology, 101, pp. 543-547.

### ARTICLE: Partnering to develop a continuing professional development program in a low-resource setting: Cambodia

**Summary:** A three-year program to develop a continuing professional development (CPD) program for Cambodian ophthalmologists. At the end of the program, all 47 (100%) practicing ophthalmologists in Cambodia were registered for CPD, and 21/47 (45%) were actively participating in the

COS CPD program online recording. Surveys of attitudes toward CPD demonstrated no significant change. Conclusion: Partnering was moderately effective in establishing a CPD program for Cambodian ophthalmologists. Uptake may have been limited by lack of a requirement for CPD for medical licensure in Cambodia.

**Acknowledgements:** RANZCO and Cambodian Ophthalmological Society. The Fred Hollows Foundation funded components of ophthalmology resident training.

**Citation:** Mack HG, Meng N, Parsons T, Schlenker G, Murray N & Hart R. (2017). *Partnering to develop a continuing professional development program in a low-resource setting: Cambodia*. Canadian Journal of Ophthalmology, 53, pp.379-384

### ARTICLE: Images in clinical tropical medicine: new diagnostics for Yaws

**Summary:** Yaws is treated with azithromycin (Zithromax) also used to treat Trachoma. This work was relevant to eye care as an integrated approach to Neglected Tropical Disease MDA interventions, however, Yaws does not affect the eyes or vision.

**Acknowledgements:** The Foundation co-funded aspects of the work.

**Citation:** Kositz C, Butcher R, & Marks M. (2017). *Images in Clinical Tropical Medicine: New Diagnostics for Yaws*. American J. of Tropical Medicine and Hygiene, 96, pp. 3–4.

### ARTICLE: Keeping my professional development continuous

**Summary:** Discusses the importance of continuing professional development for eye health workers in all settings.

**Acknowledgements:** A commentary by Dr Mathenge, The Foundation's Medical Advisor Africa.

**Citation:** Mathenge W. (2017). *Keeping my professional development continuous*. Community Eye Health Journal, 30, p. 6.



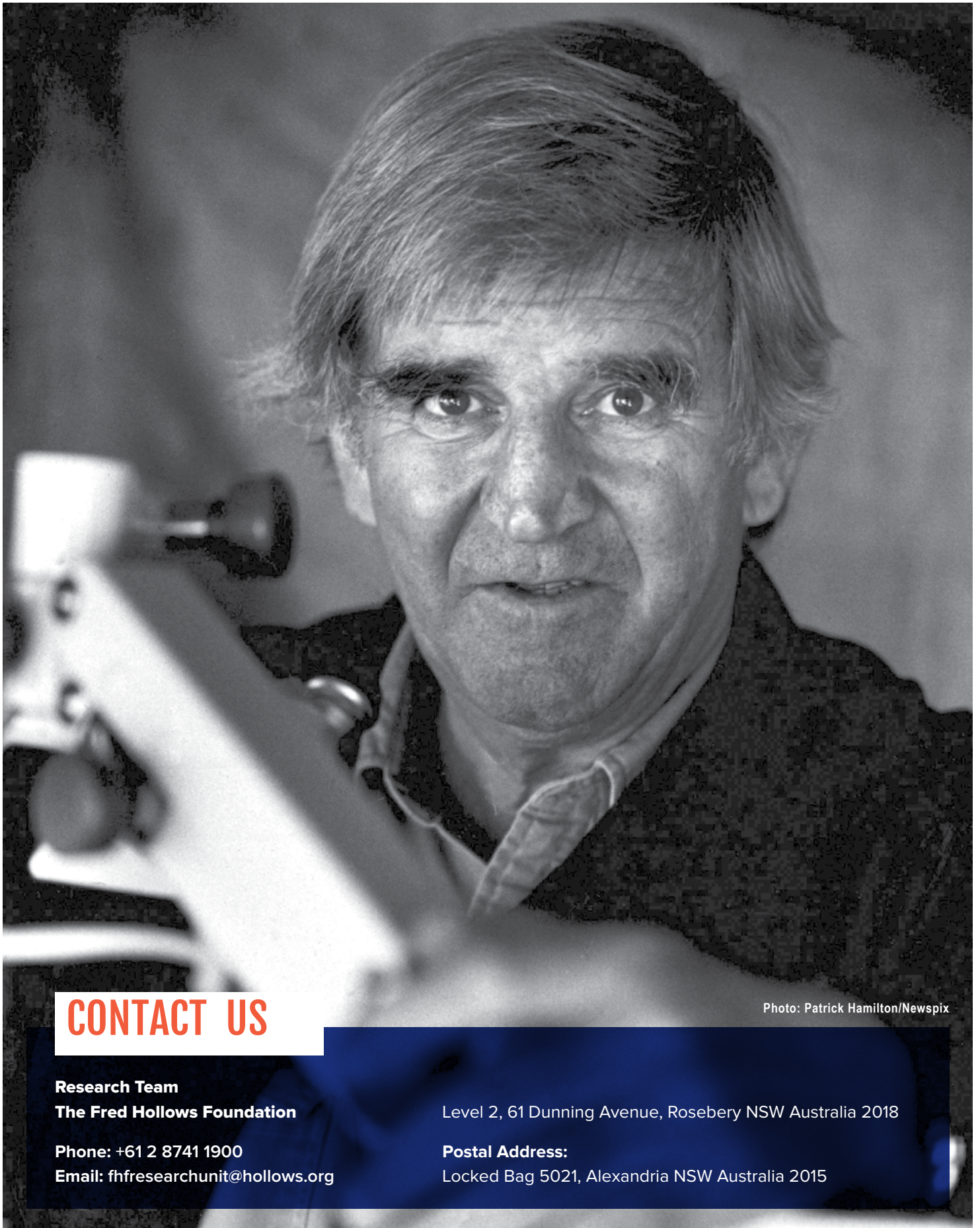


Photo: Patrick Hamilton/Newspix

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