

# Community Eye Health MSc dissertations

The seven Exchange articles that follow are based on the dissertations of students at the International Centre for Eye Health, London School of Hygiene and Tropical Medicine, who graduated in 2007.

## Poor vision and barriers to treatment among commercial vehicle drivers in Plateau State, Nigeria



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In Nigeria, deaths from road traffic accidents have increased from 18 per month in 1988 to 102 per month in 2000. Victims include drivers, passengers and pedestrians. Although there is a minimum legal requirement for visual acuity before a driver's licence can be issued, this is not implemented in practice.

This study investigated the visual acuity of minibus drivers providing public transport in Jos, Plateau State, Nigeria.

Four of the six major stations where people come to board these vehicles were randomly selected and a total of 673 drivers were recruited. Their distance vision was assessed using a Snellen chart and their eyes were examined by an ophthalmologist. Data were collected using modified survey forms used for the rapid assessment of avoidable blindness (RAAB). Information on barriers to treatment was obtained from all drivers with visual acuity  $<6/12$ .

A total of 53 drivers (7.8%) had presenting binocular vision  $<6/12$ . This represents the proportion of drivers in this study who would have failed to meet the legal requirement for a driver's licence.

Untreated cataract was the main cause

of presenting binocular vision of  $<6/12$ , followed by uncorrected refractive error. The main barriers to treatment were lack of knowledge of where to obtain ophthalmic services, lack of time to go for treatment, and not being aware of the problem.

It is therefore recommended that all commercial vehicle drivers have a comprehensive eye examination before obtaining a driving licence in Plateau state. An eye care service should also be put in place to meet the needs of commercial vehicle drivers.

## RAAB survey of Pemba and Unguja islands, Zanzibar



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No recent survey data are available about the magnitude and causes of avoidable blindness in Zanzibar. This study aimed to address this by conducting a rapid assessment of avoidable blindness (RAAB) survey. The RAAB survey is a relatively quick and cheap method, as it only includes people aged 50 and over (the prevalence of avoidable blindness is highest in this group). This minimises the sample size required.

The RAAB survey was conducted on Pemba and Unguja islands during July 2007. Visual acuity (VA) was measured and lens status was assessed. All eyes with VA  $<6/18$  were examined to diagnose the cause of visual impairment. All participants with VA  $<6/18$  who had also previously had a cataract operation were interviewed.

A total of 3,160 persons aged  $\geq 50$  were

examined (a response rate of 98.8%). The prevalence of blindness was 3.7% (defined as VA  $<3/60$ , with available correction, in the better eye). Avoidable causes accounted for 75% of blindness.

Cataract was the leading cause of blindness (67%), followed by posterior segment diseases (25%). Cataract (47%) and refractive error (39%) were the leading causes of visual impairment in both eyes.

A total of 30% of the eyes that had been operated on for cataract had a poor outcome (visual acuity  $<6/18$ ). The most common reported barrier to receiving cataract operations was 'unaware of treatment' (36%).

Of the 95 patients affected by poor outcome, 15 did not attend for post-operative care. The greatest barrier to receiving post-operative care was 'not advised' (80%). Most of the patients who mentioned this as a factor were from the private sector. The other barriers were 'distance to travel too far' (6.7%), and 'fear of returning after surgery' (6.7%).

In conclusion, there is a need for:

- routine monitoring of cataract operations to improve outcome
- more optical services to address refractive errors
- better public awareness about the available eye health services
- better coordination between the government and private sector; this will allow patients operated on in the private sector to be followed up in the government sector
- guidelines for the routine management of cataract patients, including counselling techniques to lessen the anxiety of patients before and after operations.

**One of the minibus stations (or 'parks') in Jos, NIGERIA**



## Analysis of eye care services in South Africa's public sector



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This analysis of eye care services was conducted to support the development of appropriate objectives and strategies for South Africa's national VISION 2020 strategy, which is currently in preparation.

Questionnaires about human resources, facilities, and number of cataract operations and refractions performed were sent to hospitals with eye units and to provincial coordinators. Semi-structured interviews were held with VISION 2020 committee members to describe how services were implemented. The study was limited to the public sector, which serves 80% of the population.

The study found that cataract services had been established in 43 of the 53 districts in South Africa. There were 65 ophthalmic nurses, 5 managers, 78 optometrists, and 124 cataract surgeons. The ratio of eye surgeons to population was 1:305,721, whereas the recommended ratio is 1:250,000.

The cataract surgical rate (number of operations per year, per million population members) was 1,056; this is just over half the rate of 2,000 needed in South Africa. There were 62 hospitals with eye units, but most used the theatre facilities only once per week. Although refraction services had been implemented in most districts, standardised refraction figures were not available.

Human resources could not be deployed where they were needed. Ophthalmic nursing was seen by some planners as

specialised nursing and therefore not appropriate in primary care, a priority in South Africa. The appointment of ophthalmologists in district hospitals was also seen as contradictory to the principles of primary care.

District health committees had a limited effect on curative services because they lacked members with executive powers and functioned more as discussion groups. Committee members appeared to lack managerial and leadership skills.

It is therefore recommended that the national policy on the deployment of human resources in eye care services be reviewed. The effectiveness and structure of district committees should be improved and leadership and managerial training for committee members should be coordinated.

## Evaluating the role of Anganwadi workers as key informants to identify blind children in Pune, India



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The key informant method has been found to be a cheap and reliable way of identifying blind children. This study aimed to evaluate the suitability of Anganwadi workers as key informants to identify blind and severely visually impaired children in Pune slums.

Anganwadi workers and helpers are engaged by the government to work in the state-operated Integrated Child Development Scheme (ICDS). This scheme caters to the health and pre-school education needs of children from birth to six years of age and also to the health and nutrition needs of pregnant women, nursing

mothers, and adolescent girls.

A total of 200 Anganwadi workers were selected from the ICDS services in the slums. They were trained as key informants to identify blind and severely visually impaired children. Each Anganwadi worker was responsible for an area that included 250–350 children up to 15 years old, thereby covering a total of 63,030 children. Children identified by the key informants as potentially blind or severely visually impaired were examined by an ophthalmologist according to the World Health Organization Prevention of Blindness survey methods. The major anatomical site and cause of visual loss was determined for each eye and each child.

A total of 39 blind or severely visually impaired children were identified by the key informants (56% boys and 41% girls). In total, 23 of these children (59%) were blind from avoidable causes.

The prevalence of blindness was estimated to be 0.06% (95% CI 0.04–0.08%), which compares well with the World Health Organization estimate for India of 0.08%.

In conclusion, Anganwadi workers can be used as key informants in Pune slums. This may be a useful way to estimate the magnitude and causes of childhood blindness in slums in India.

## Causes of childhood blindness and available services in schools for the disabled in southern Viet Nam



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No research is available about the causes of childhood blindness in Viet Nam, which makes it difficult to plan interventions. The aim of this study was to investigate the causes of childhood blindness in Viet Nam by examining children in schools for the disabled.

A total of 264 school children from nine schools in southern Viet Nam were enrolled in this study. Half of the participants were from Ho Chi Minh City, while the rest were from other provinces.

Data were collected using the World Health Organization Prevention of Blindness recording form and children were examined by an ophthalmologist. Data were also collected on educational and rehabilitation services available at those schools.

Retinopathy of prematurity (ROP) accounted for 83.9% of blindness among those aged five years or younger, for 37.7% among those aged 6–10, and for 8.5% in those aged 11–16. In children from Ho Chi Minh City, it was the most important single



**Tran Huy Hoang (far left) and his research team at Ho Chi Minh Eye Hospital, VIET NAM**

cause of childhood blindness, accounting for 46.3% in total. Corneal scarring was not a major cause of blindness, accounting for only 12.4% of all cases, but it was found more frequently in children aged 11–16 from provinces other than Ho Chi Minh City.

Rehabilitation services were limited; there was no psychological support or vocational training outside of that provided in the national curriculum.

A survey of disabled schools gives a biased view of the main causes of blindness and, ideally, a population-based survey would need to be done. The fact that ROP is present in a larger proportion of younger children than older children could indicate an increase in this condition over time; this may warrant further investigation. ROP appears to be the most important single cause of childhood blindness in children from Ho Chi Minh City, and it should therefore be a priority for intervention. In addition, more direct support should also be given to blind children in schools for the disabled.

## The prevalence of presbyopia and the feasibility of community distribution of near spectacles in adults in Zanzibar, East Africa



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Presbyopia, the age-related inability to focus at near distances, is a relatively neglected field of study, particularly in disadvantaged populations where literacy rates are low. This study aimed to assess the prevalence of presbyopia, its impact on quality of life, and people's willingness to pay for presbyopic correction in Zanzibar, East Africa.

A nationally representative sample of 400 people aged 40–50 years with distance visual acuity  $>6/18$  was selected from a RAAB survey being conducted in Zanzibar. Visual function and quality of life questionnaires were administered, followed by clinical assessment by an optometrist. Near visual acuity (defined as the ability to read N8 at 40 cm using a logMar E chart) was assessed with and without distance correction. Participants requiring a simple near addition were given free ready-made spectacles. They were asked about barriers to the uptake of services and their ability and willingness to take part in a community scheme to distribute near vision spectacles.

The overall prevalence of presbyopia was 89.2%. Of those who needed correction, only 17.7% had spectacles. Barriers to accessing services included 'not considered a priority' (33%) and 'lack of money'



Heidi Laviers

### Testing visual acuity. ZANZIBAR

(30.6%). Participants were, on average, prepared to pay US \$2.13 for a pair of spectacles (spectacles distributed during the survey cost US \$2.00) and 79.3% of those asked were willing to participate in the distribution scheme if it were introduced in their village. After adjusting for age, presbyopia, and presenting visual acuity, there was an association between 'having difficulty with near tasks' and living in a rural area, being female, and being illiterate. Lower quality of life scores were associated with being older, being female, living in a rural area, and being illiterate, after adjusting for occupation, presenting visual acuity, and presbyopia.

In conclusion, there is a need to increase the availability of affordable spectacles for near correction in Zanzibar, especially for women and those living in rural areas. Further research is needed to assess the use of and satisfaction with spectacles provided during this study and to measure changes in quality of life and visual function. A large proportion of participants were willing to take part in the distribution scheme (79.3%), which justifies further research into the feasibility of such a scheme.

## The characteristics of patients presenting with advanced proliferative diabetic retinopathy in Shanxi Eye Hospital, China



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In Shanxi Eye Hospital, approximately one-third of diabetes patients who come to

the retinal eye clinic are in an advanced stage of diabetic retinopathy (DR), a diabetes complication. They are said to have advanced proliferative DR. In nearly all cases, the vision of patients with advanced proliferative DR could not be restored, even after they had received complex vitreo-retinal surgery.

The aim of this study was to explore the socioeconomic characteristics of patients presenting with advanced proliferative DR and who hadn't yet received laser treatment for proliferative DR. It also explored the barriers to eye care. It is hoped that this study will be a first step in addressing prevention of blindness from advanced proliferative DR in this region.

One hundred and fifty-eight consecutive diabetes patients were recruited from the retinal outpatient clinic of the hospital: all were attending for the first time and had never received laser treatment before. The patients' socioeconomic status was recorded and ophthalmic examinations were performed. Patients presenting with advanced proliferative DR were also invited to either in-depth interviews or focus group discussions to determine barriers to eye care.

Of the 158 patients recruited for this study, 24.7% presented with advanced proliferative DR. Late presentation was significantly associated with education, occupation, health insurance, family size, and presenting complaints. However, the only variable independently associated with late presentation was education. The main reasons were lack of awareness and not having been referred to eye specialists by their physicians.

It is recommended that physicians in Shanxi province be informed about the risks of DR in patients with diabetes. In addition, a hospital-based screening programme among diabetes patients will serve to both identify early-stage DR and educate patients about this complication.