

Research and training programmes

EDITORIAL



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Research is defined in the *Oxford English Dictionary* as “a systematic investigation and study of materials and sources in order to establish facts and reach new conclusions.”

Research is embedded in the curricula of most postgraduate training programmes; students are expected to complete some form of original work towards a dissertation. This often evokes a range of reactions: “What is the purpose of this exercise? Why do I have to do research when I just want to do a job? Shouldn’t research rather be left to experts? I can’t do the course; I have no research background!”

In this editorial, I aim to show that research is in fact an integral part of learning, and that it teaches the knowledge, skills, and attitudes required for successful eye health work. I also hope to highlight how higher education institutions can support this process.

Research projects are often described as providing students with “cognitive, emotional, social and practical experiences”¹ which might otherwise be difficult to teach. In order to enable a student to have the best possible learning outcome, therefore, research projects must be clearly structured and students should be supported by the institution and the curriculum.

The learning process: how does it work?

Higher education training involves student-centred or self-directed learning, since adult students have accumulated considerable



Lutful Husain

A female interviewer talking to a mother in rural Bangladesh as part of the MSc project of International Centre for Eye Health student Lutful Husain (page 7). BANGLADESH

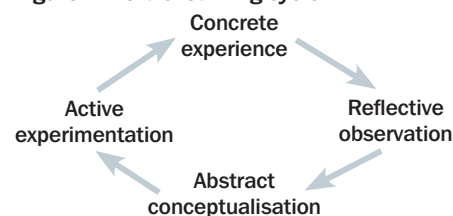
experience through their work, life, and education.² This experience provides the foundation upon which new learning is built.

Higher education gives students an opportunity to make observations, reflect on their experiences, and analyse ideas they have accumulated over time. These ideas form the basis of abstract concepts or theories that can be tested through active experimentation. This leads to new experiences, and the process starts again.

This cycle of experiential learning, known as Kolb’s learning cycle,³ will continue as

long as each new experience is reflected upon (Figure 1). The underlying principle is ‘learning by doing’.

Figure 1. Kolb’s learning cycle³



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Research projects and the learning process

Research projects require a series of stages, from deciding on a project topic to writing a conclusion, which take a student through the learning cycle depicted in Figure 1. Each stage of the research project supports the process of learning.

The MSc students whose dissertation projects are described in this issue of the

Community Eye Health Journal (page 7 onwards) will all have gone through this learning cycle, irrespective of the subject or methodology of their projects.

If a research project is properly supported by both the curriculum and the institution, each stage of the project also results in the student acquiring a wide range of knowledge, skills, and attitudes appropriate for their career development (Table 1).

Table 1. The learning gains for each research stage

Project development stage	Learning stage	Knowledge	Skills	Attitude
Deciding on a project topic	Reflection on past experiences	Sourced from lectures, books, discussions, and critical incident analysis	Retrieval and handling of information	Being explorative and enquiring
Exploring the chosen subject area and doing a literature search	Reflection and conceptualisation	Familiarity with core subject(s), critical evaluations of past research, better understanding of subjects that will aid research, e.g. statistics	Literature search, computing skills, data analysis techniques	Being methodical, being explorative
Designing a methodology	Conceptualisation	Understanding the use of different research methods, e.g. qualitative/quantitative, and using research tools	Designing questionnaires, databases, and consent forms; mapping; budgeting; managing projects	Being thorough, meeting targets, seeking out suggestions and guidance from supervisors
Field work	Active experimentation	Knowing the place and the people	Collecting data, following research protocol, leadership and communication skills	Being diligent about the application of protocol
Data analysis	Reflection and conceptualisation	Making sense of new information	Entering and cleaning data, using the correct statistical packages	Being clear and methodical, keeping to time frames
Writing: results and discussion	Active experimentation and reflection	Turning results into new knowledge	Comparing results with existing knowledge, writing skills, interpreting data correctly, critical thinking	Being honest about the results and the limitations of the study, being reflexive
Writing a conclusion	Experience and reflection	Knowing what has been learnt, what needs to be done, and what can be done	Writing skills, critical appraisal	Being practical

From experience to reflection

The first stage is to find a suitable topic for a research project. Students often worry about this: "I have no idea what to do!"

Past experiences and challenges are the starting point for exploring areas of interest. The topic needs to be personally stimulating and relevant. It should not only enable the student to pass the course, but also be valuable to others. Sharing opinions and views with tutors, experts in the field, and other students contributes to the reflective process, enabling the individual to identify a topic or a problem. Students might analyse critical incidents from their professional experience to identify issues for further investigation.

Good supervision and a well-designed curriculum enable the student to learn through reflection: he or she becomes familiar with the core knowledge of the research topic, learns to interpret new information, and is able to carefully formulate the research question/problem.

The expectation at this point is that each student begins to develop clear views about the topic. The end product of this reflection is a rationale for carrying out the particular research project. Students should be able to clearly state the main aim/purpose of their research, for example: "To determine the visual outcome after cataract surgery at Hospital X" or "To establish the prevalence and main causes of blindness in region Y."

From reflection to conceptualisation

Learning progresses in an exciting way once the student has grasped why they want to do the project. The reaction at this point is often: "What is the best method to get the answer to my research question?"

Students need to decide on the design of the study. They should also consider what the best methods are for collecting their data, whether qualitative, quantitative, or a combination of both (page 7). Doing this sets the student on the path to conceptualising their views and knowledge.

At this stage, students must think about sample sizes, time frames, and budgets. They must also figure out how to gain entry to the research site and how to get consent from subjects/participants. Lastly, they need to put a research team together and obtain ethical approval for their project.

Good supervision is crucial in helping students to develop a research methodology that is practical, remains within an allocated budget, and can be carried out within an appropriate time frame.

From conceptualisation to experimentation

The experimentation stage of the project is often described as the most interesting. Field work puts students' knowledge and skills into



Lutful Husain

It is important to get consent from research subjects. BANGLADESH

practice. They learn to train a team; to collect, organise, and manage data; and to enter the data into formats ready for analysis with statistical software packages. At this stage, students begin to reap the benefits of the careful and detailed planning that went into the design of their study.

When students implement and experiment with the ideas they have formulated in the field, the clinic, or the laboratory, this gives rise to new experiences. This process forms the basis of 'learning by doing' – also known as experimental learning.

From active experimentation to new experience

The process of reflection and conceptualisation continues during the next two stages of the research project: the analysis of the data and the writing up of the dissertation. New data give rise to new views and ideas, which are compared to those previously held. This is a particularly educative process, as students frequently find their notions and preconceptions challenged. Writing up the research and communicating the results is an active process and offers unique learning opportunities. For many students, this is the first time they face the challenge of writing a report describing their research, synthesising their findings, and making recommendations. This is an experience which will serve them well in any leadership role.

Roles of institutions and supervisors

Institutions have a major role to play. They facilitate the success of student research projects and can maximise the learning opportunities for the student.

The core subject knowledge is usually embedded into the curriculum and every effort is made to expose the student to the skills required for research. However,

students should also, where possible, have access to transferable skills workshops, including courses on interpersonal and communication skills, which will help to prepare them for their research projects. Institutions should endeavour to provide the right environment, including libraries and computing services.

Institutions have another important role: they must ensure that ethical guidelines are followed. Projects should not be allowed to proceed unless they have ethical approval from all health authorities concerned. Health and safety regulations must also be scrutinised prior to granting permission to carry out a project, for example if students are travelling to a war-torn region or taking blood from patients. Financial issues should be clearly addressed, with detailed budgets and provision for unexpected challenges, such as insurance for loss or breakage of equipment.

Student supervision provides essential support and should follow a clear framework which sets out the educational objectives, deadlines, targets, and assessment criteria. It is good practice to record the different stages in a logbook. This can also help to establish more equitable supervision, so that all students benefit equally from the attention of supervisors.

It can be argued that, in educational settings, giving students the opportunity to 'learn by doing' is the most powerful method of teaching. One could perhaps even argue that the experience of 'learning by doing' takes precedence over the content of the research project.

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Practical research: a basic outline for mid-level eye personnel



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Research plays an important role in the work of mid-level eye health personnel who want to provide the best possible care based on accurate and relevant evidence. For example, Isaac Baba, eye co-ordinator of Bawku Presbyterian Hospital in Ghana, describes a simple research exercise to understand and improve patient satisfaction with the eye care offered in the outpatient department.¹

Mid-level personnel might get involved in research in different ways:

- they can conduct research themselves
- they can assess the quality and usefulness of other people's research
- they can play an active role in large-scale multidisciplinary research projects.

Understanding the processes and methods of research is fundamental to each of the above.

What follows is a brief overview of the steps involved in research. Before embarking on a research project, you will need to consult and read research textbooks for more detailed descriptions and explanations.

Choosing a topic

The important question is: what do you want to find out? This will help you formulate your research question, the question your study will be designed to answer. You should also think about the amount of time you have for carrying out this research and whether you have any resources (including human resources) that may assist you with this work. Be realistic.

Choosing the title

Research projects need a descriptive title, which should be as clear as possible. When other eye care practitioners or researchers look at what research has been done, the project title helps them decide whether they want to read about it. Consider your title a 'work in progress' until the project is finished: you may find that you need to change the title as your thinking evolves.

Reviewing the literature

It can be a challenge to discover what other people have written about a topic. If possible, find and visit a resource centre or a library. If you have access to the internet, there are a number of ways to search for relevant literature.^{2,3}

A literature review should help to give you a context for your planned research. This



Victoria Francis

Interviewing hospital-based counsellors about patient needs. INDIA

means looking at the existing literature on your research area to find out what has already been written about your chosen topic.

Plan your literature review. This can be divided into three areas: defining your topic, selecting relevant keywords, and setting limits to your search. You can do the last by deciding, for example, how far back in time you wish to start the search, or by limiting the geographical location (e.g. using only studies done in a particular region).

In reviewing the literature, a researcher is required to read with a critical eye. Were there any limitations to previous work, or any mistakes? What did the research conclude? Were there useful recommendations?

If you are to do a careful review, you must systematically organise the literature you find. Make sure you record exact references on cards, in a notebook, or in a dedicated, computerised reference database. Note the name of the author(s) and the year of publication. If it is a book, record any editor(s), the title of the book, the edition, the chapter, and the publisher. If it is a journal, record the title of the journal article, the name of the journal, and the volume and page numbers. Later, when you write up your report, you will have the exact reference details at hand. This will help you avoid making mistakes or rushing back to the library for a last-minute check.

Designing the study

The question your research aims to answer will determine how your study should be designed (the methodology) and what methods you should use to collect your data. This is a very important part of the research process and has to be considered at the very beginning of the planning stage.

For example, if you wanted to find out whether patients were satisfied with their care, you might randomly select patients on discharge from hospital or in follow-up clinics and interview them with the help of a questionnaire or data collection form (an example of a quantitative method).

If you wanted to find out how you could help patients cope better with instilling their own eye drops, you would choose a different approach. In this case, you could hold focus groups where patients can discuss the difficulties they have experienced, or you could do an observational study of patients instilling the drops.

These examples are by no means complete, but they illustrate the need to think carefully about the correct methods for your study.

Methods should be chosen to ensure that:

- you are efficient and practical
- you collect the best evidence to support, or disprove, the case you are researching
- you conform to the ethical considerations of the project when collecting evidence from people.

Writing the research proposal

It is important to gain approval to conduct your research. Write clearly and accurately about what exactly you aim to achieve and how you intend to do this. You will also need to consider who should supervise your work, so the proposal should indicate what expertise your supervisor should have.

Ethical issues

It is essential to find out about local ethics committees and their rules for conducting research, and to gain ethical approval for your study before you start.

It is important to remember the following:

- patients must not be subjected to badly designed research
- patients have the right to confidentiality and autonomy
- patients must not be forced into participating in research
- patients must be given clear explanations in order for you to obtain their informed consent.^{4,5}

Obtain the approval of the officer, nurse and/or medical consultant in charge of your department; it is only courteous to do so. This should also help to avoid a clash between your research and another project already being conducted in the department.

'You only have one opportunity to collect the data, so be careful and keep good and accurate records'

Collecting and analysing data

A great deal of preparation has to be carried out before you set off into the field (where the study is to take place) to collect your data. You may have to negotiate your access to the field and work to gain everyone's confidence.

You only have one opportunity to collect the data, so be careful and keep good and accurate records. You run the risk of introducing bias if you rely on your memory to fill in any gaps.

It is a good idea to run a pilot study; this is a smaller version or 'practice run' of what will eventually become the main study. Doing so will help identify practical obstacles or problems with your design.

Data analysis follows on from data collection. Depending on the methods used, data analysis will explain the findings in a numerical (quantitative) way, in an interpretive (qualitative) way, or in a combination of these two ways.

Reporting your findings

Whatever the circumstances, you will have to produce a dissertation or written report. Many institutions provide clear guidelines as

to how this should be done. You can disseminate your research findings by giving a presentation or by submitting the research to a journal. All journals provide guidelines about how to prepare articles. These will give the length required and the referencing system used.

The development of human resources, as part of the VISION 2020 initiative, should include opportunities for mid-level personnel to develop awareness of research, particularly with regard to patient perceptions and satisfaction. Courses and workshops should also consider including research-based approaches to improve patient care.

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Victoria Francis

A research assistant runs a focus group discussion on traditional treatments of children's eye conditions. GHANA



Community Eye Health MSc



Daksha Patel
MSc Course Organiser

All MSc students at the International Centre for Eye Health (ICEH) carry out a dissertation project as part of the Community Eye Health MSc course. Most of the dissertations are excellent pieces of original and valuable research work, sometimes the first of their kind in their authors' country or region.

The projects tend to focus on the VISION 2020 priority disease groups: cataract, refractive errors, trachoma, childhood blindness, and diabetic retinopathy.¹ The ideas for projects often stem from the students' own experiences in the delivery of eye care in their country or region. The projects include population-based surveys to identify the burden and causes of blindness; specific, hospital-based research measuring the outcomes and outputs of services; and evaluations of the impact and cost-effectiveness of specific programmes.

The studies used either quantitative or qualitative methods, or a combination of the two. Quantitative studies are designed to answer the question "How many?" and are dependent on the size of the sample for their accuracy. Qualitative studies are designed to answer the question "Why?" and information is sourced from persons affected by or involved in the situation (also called subjects). The accuracy of these studies lies in the explanations given, not in the number of people interviewed (the size of the sample).²

The conclusions and recommendations from these dissertations are often translated into action plans to reduce the burden of blindness; they therefore have an impact in the real world. In addition, ICEH considers project work to be the most important component of the learning process in the Community Eye Health course, as it builds on theoretical knowledge by allowing students to apply their skills.

The ICEH MSc projects summarised below, along with two projects from MSc students at the Pakistan Institute of Community Ophthalmology, are presented under the following headings:

Prevalence: In this group of studies, the methods used were mainly quantitative. A sample size was determined and the



The ICEH Community Eye Health class of 2005 with Course Organiser Daksha Patel. UK

Anne Koeber

'These MSc dissertations are often translated into action plans to reduce the burden of blindness: they have an impact in the real world'

data were collected using pre-designed data-recording forms. The actual methods used to find subjects ranged from using census data to using the key informant method. The data were analysed using specific statistics software packages.

Prevalence and perceptions: These studies used a combination of quantitative and qualitative methods. The students collected some of their baseline data using quantitative methods, such as counting how many operations had a visual outcome >6/12. Qualitative information, such as information about why leprosy patients did not come for cataract operations, was explored using interviews and focus group discussions with relevant individuals. The analysis of the qualitative data was done by immersion into what people had said and identifying common themes (a thematic framework).

Assessing resources: These studies looked at what resources were available and how facilities or staff were being utilised. The methods chosen to find the answer varied. Some cases required clear quantification, e.g. using a questionnaire to evaluate neonatal care facilities. Other projects required a flexible, qualitative approach that would allow the student to

obtain information from a number of sources, such as interviews or focus group discussions.

Evaluation of interventions/programmes: These projects looked at how effective a programme/intervention was at achieving its goal. A variety of methods were used. In evaluating the impact of health education, qualitative methods such as focus group discussions and interviews were used. In another study, identifying how many people had taken up trichiasis surgery clearly required quantitative measurement.

Cost: These projects involved the collection of quantitative information about the cost of providing a service. The data were collected through questionnaires. In addition, these studies required a complex calculation of time and cost per procedure, which was related to the visual outcome from the procedure.

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Prevalence

A survey of childhood blindness in three schools for the blind in Zambia



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Aim: To assess the causes and distribution of blindness in children in three schools for the blind in Zambia, and to estimate the average cost of primary education per child per year. The results of this study will be used to develop baseline data for planning a nationwide intervention.

Methods: This was a descriptive, cross-sectional study with a quantitative component, conducted in three schools for the blind in Zambia. The World Health Organization Prevention of Blindness childhood blindness proforma was used to collect data and a questionnaire on cost was developed and administered to the head teachers. The data were recorded in Excel and analysed in the Epi Info™ statistical software package, version 6.

Results: A total of 133 children were examined. The sex distribution was 91 males (68.4%) and 42 females (31.6%), giving a male to female ratio of 2.2:1. The age range was 6–24 years with a mean age of 13.9 years. A total of 64.7% of the children were below 16 years of age. Whereas 1.5% of the children were found to have no visual impairment, the majority (60.9%) were blind. The major anatomical site for visual loss was the retina (30.8%). Oculo-cutaneous albinism accounted for 68.3% of all visual loss affecting the retina. Hereditary diseases (36.8%) were the most common cause. Measles and vitamin A deficiency combined accounted for 65.2% of all causes due to childhood factors. A total of 60.2% of children were blind from conditions that could have been avoided. Fifty per cent of children changed visual status from blind to severely visually impaired after refraction. Overall, 23.3% of children were recommended for enrolment into mainstream education. The three schools had unique features, which meant there was a wide variation between them in the total yearly cost per pupil. It was therefore not possible to determine a yearly cost per child that could be used as a guide for the whole country.

Conclusion: If low vision aids are provided, a significant proportion of visually impaired children can be given the same opportunities and educational experiences as sighted children.

Using the key informant method to investigate childhood blindness related to vitamin A deficiency disorder in six rural sub-districts in Bangladesh



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Aim: This study was undertaken to assess the prevalence, causes, and risk factors of childhood blindness related to vitamin A deficiency disorder (VADD) in six rural sub-districts in Bangladesh.

Methods: The study was carried out in rural sub-districts of Kishoreganj during June and July 2006. Risk factors of VADD-related childhood blindness were explored in six rural sub-districts. The key informant method of identifying blind children was used for the study. Key informants are unpaid volunteers from the local community who know their community very well. After receiving training from the field team of the Child Sight Foundation, the key informants had two weeks to identify blind children and motivate parents to bring the child for an eye examination. A cross-sectional study design was used to determine the prevalence and causes of childhood blindness for the Kishoreganj district. A case-control study was carried out to

MSc summaries continue over page ►

QUALITATIVE AND QUANTITATIVE METHODS

When to use which method

Qualitative methods	Quantitative methods
Use when the research question requires narrative data or data about meaning, e.g. patients' attitudes towards a new treatment, or the reasons that women do not come for cataract surgery	Use when the research question requires numerical data, e.g. the number of people affected by a specific condition or the risk factors for a particular disease
Use when the subject matter is unclear or unknown, e.g. health-seeking behaviour, personal experiences, or perceptions	Use when the subject matter is or can be clearly defined, e.g. blindness is defined as visual acuity <3/60 in the better eye
Use when variables are unknown or the definition is unclear, e.g. providers' or consumers' definitions of cataract blindness	Use when the condition can be measured, e.g. visual acuity can be measured with a Snellen chart
Use when there is a need to explain or relate aspects of behaviour to a wider context, e.g. lack of transport as a barrier to the uptake of cataract services	Use when there is no need to explain or relate findings to social or cultural settings because the situation is well understood, e.g. the prevalence of trichiasis cases in a region where trachoma is endemic
Use when a flexible methodology is needed which can expand as issues are explored in depth and which allows for the discovery of the unexpected	Use when the research is designed in advance and the methodology is to be repeated with accuracy at different times and places
Use when it is important to study issues in depth and in detail	Use when it is important to be able to generalise results and make comparisons across populations

Comparing qualitative and quantitative methods

	Qualitative methods	Quantitative methods
Methods	In-depth interviews, focus group discussions, observation, etc; requires capturing data through field notes, audio/video recording and transcription	Examination and/or structured interviews, followed by recording of findings on a data-recording form specifically designed for the study
Participants	Individuals or groups identified as having insight, experience, or information relevant to the study	Clearly defined, selected sample which needs to be representative of the target population
Sample size	Not random sampling, but requires a clear sampling strategy to select appropriate respondents; sampling may continue until redundancy or 'saturation', i.e. when no new information is elicited	Uses a random sample of predetermined size which is decided at the outset of the study and should not be changed
Analysis	Interactive process that requires immersion in the raw data, identification of common patterns and themes, and interpretation of meanings; can be done manually or with qualitative data analysis software	Requires data entry into a database, followed by analysis using statistical methods

explore the risk factors of VADD-related childhood blindness.

Results: Prevalence of childhood blindness in Kishoreganj was found to be 1.03/1,000 children; 32.7% of all children with severe visual impairment/blindness (SVI/BL) had lens disorders leading to blindness. Corneal opacity was the cause of SVI/BL in 23.4% of the study children. Thirty per cent of children were severely visually impaired or blind due to hereditary diseases and 27.1% were severely visually impaired or blind due to childhood factors. Overall, 37.8% children were severely visually impaired or blind due to treatable eye conditions. Illiteracy of mother (odds ratio [OR]=2.45), illiteracy of father (OR=1.74), mother's disease in pregnancy (OR=3.74), child not receiving vitamin A capsule during diarrhoea (OR=5.01), and child not receiving vitamin A capsule during measles (OR=3.88) appeared as significant risk factors for VADD-related childhood blindness. The following were found to be significant protective factors against vitamin A deficiency in children: child immunised against measles (OR=0.10); colostrum given to child (OR=0.15); child breastfed (OR=0.13); child given dark green leafy vegetables (OR=0.01); child given meat/fish/eggs (OR=0.08); oil/fat used in child's food (OR=0.14); vitamin A capsule given to child in last year (OR=0.31); vitamin A-rich food eaten during pregnancy (OR=0.02); and antihelmintics given to child (OR=0.15).

Conclusion: A comprehensive and integrated programme is needed to control the high prevalence of childhood blindness in the Kishoreganj district. The control programme should include primary prevention strategies for VADD-related blindness, strategies to identify children with eye disease at an early age, and referral and treatment of children with cataract. These programmes should take a primary eye care approach to highlight the risk factors and protective factors of VADD-related blindness in children.

Khumbo Kalua



Children waiting to be screened for eye problems surround Khumbo Kalua in Chikwawa district. MALAWI

Use of key informants in determining the magnitude and causes of childhood blindness in Chikwawa district, southern Malawi



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Background: Population-based studies to determine the magnitude and causes of childhood blindness require very large sample sizes and are very costly. Alternative methods such as the key informant method (which is cheap and easy to use) have been found to be as reliable as population-based studies in settings where the population is very dense.

Aims: To determine the magnitude and causes of childhood blindness in Chikwawa district, Malawi, using the key informant method; to see how this method can be used in a setting of low population density, where the population is widely dispersed.

Methods: Key informants are local people who know their community well. They were randomly selected by the communities themselves and trained for one day in techniques to identify children in the community who are blind. Each key informant covered on average 4–7 villages which were widely dispersed. Identified children were examined by the ophthalmologist to confirm the diagnosis.

Results: A group of 44 key informants was selected and trained. There were more female (80%) than male (20%) key informants. The key informants correctly identified 37 children who were blind in 196 villages (86% of the expected number from the area). The prevalence of childhood blindness was found to be 0.09%. Cataract was found to be the most common cause (35%) of childhood blindness, followed by corneal scarring (22%).

Conclusion: The key informant method was found to be cheap and useful in identifying children who are blind, even in areas where the population is widely dispersed. We recommend that this method be used to identify children who are blind in other districts of Malawi and where population-based surveys cannot be conducted.

Lutful Husain



Blind children identified during Lutful Husain's key informant study, conducted in collaboration with the Child Sight Foundation. BANGLADESH

Muhammad Muhtit



The Child Sight Foundation team. BANGLADESH

A national survey of visual impairment in Botswana



Oathokwa Nkomazana

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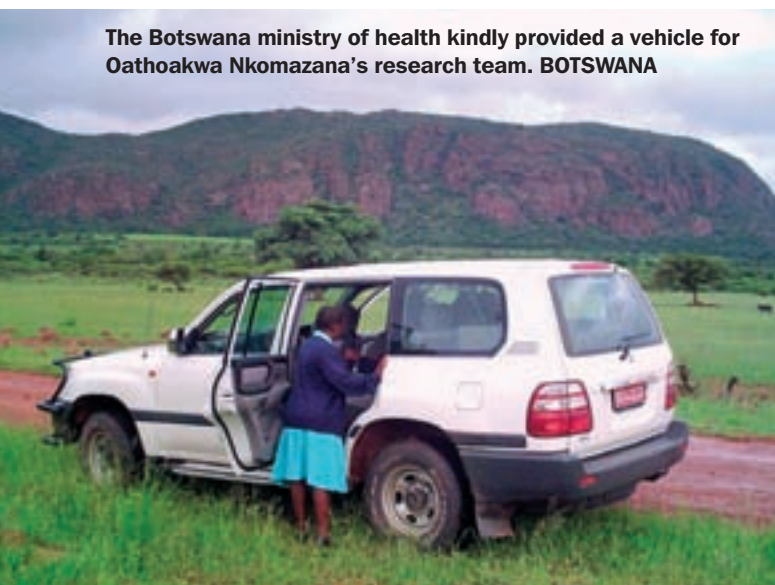
Aims: To estimate the prevalence and determine the causes of visual impairment in people aged 50 years and older in Botswana, and to assess cataract surgical services in the country.

Methods: Multi-stage cluster randomised sampling with probability proportional to size was used to select a cross-sectional, nationally representative sample of 2,662 adults aged 50 years and older. Demographic details were collected for each of the subjects. This was followed by measurement of distance visual acuity. The crystalline lenses of all the subjects were examined for cataract. All those whose vision did not improve to 6/18 with pinhole had their pupils dilated with a short-acting mydriatic and their fundus examined. Subjects with vision <6/60 due to cataract were asked why they had not had surgery. Blindness was defined as vision <3/60 in the better eye with available correction and visual impairment as vision <6/18 in the better eye with available correction. The convention used by the World Health Organization, of assigning the major cause to the disorder most amenable to treatment, was used for those with more than one disorder causing visual impairment.

Results: A total of 2,127 eligible subjects were examined (79.9% response rate) from 55 clusters. Of those, 130 were blind. The age- and sex-standardised prevalence of blindness was calculated to be 3.69% (95% confidence interval [CI] 2.38–5.00%). A total of 56 had severe visual impairment (age- and sex-standardised prevalence of 1.69%, 95% CI 1.04–2.33%). The main causes of blindness were cataract (46.9%), diabetic retinopathy (20.0%), non-trachomatous corneal opacities (13.1%), and trachoma (6.2%). Cataract was also the main cause of both severe (58.9%) and moderate (40.2%) visual impairment. Refractive errors were responsible for 38.5% of moderate visual impairment. In total, 55 (37%) of the eyes had best corrected vision <6/60 after cataract surgery. The age- and sex-standardised cataract surgical coverage for vision <3/60 was 66.5% for persons and 40.9% for eyes. For both blind and severely visually impaired people, the main reason given for not seeking surgery for cataract was lack of awareness of the presence of cataract. For those who were bilaterally blind, this was followed by lack of escort and cost of surgery. For those who were blind in one eye, fear of the operation ranked second, followed by lack of escort and the cost of surgery.

Conclusion: There are an estimated 6,370 adults aged 50 years and older who are blind in Botswana. The majority of them are blind from operable cataract. There is a need to provide high-volume, high-quality, efficient and accessible cataract surgical services in Botswana to address cataract blindness. Strategies also need to be developed to combat blindness secondary to corneal scarring and diabetic retinopathy.

The Botswana ministry of health kindly provided a vehicle for Oathokwa Nkomazana's research team. BOTSWANA



Oathokwa Nkomazana

Prevalence of blindness and low vision in Sawah Kulon village, Purwakarta district, West Java, Indonesia



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Background: In order to provide comprehensive eye care in a district, it is important to determine the prevalence and causes of visual impairment. Studies done in various parts of the world have identified a large proportion of treatable causes of blindness in people aged 40 years and older.

Aim: To conduct the first study to assess the prevalence of blindness and low vision in Sawah Kulon, Purwakarta district, West Java, Indonesia, where there is a primary health care centre.

Methods: Census data were used to design the survey. A sample size of 1,102 people aged 40 years and older was calculated for this district. Enumeration and door-to-door visual acuity examinations were performed for all persons aged 40 years and older. Further eye examinations were conducted by an ophthalmologist on people with visual acuity <6/18. Differences in the prevalence of blindness associated with age group, sex, and economic status were explored using stratified analyses.

Results: Blindness and low vision were found in 1.67% and 6.05% of the sample, respectively. Blindness and low vision increased significantly with increasing age; these conditions were also twice as high in females as in males. They were higher in people with lower income, although this was not statistically significant. Cataract was the principal cause of low vision (70.7% of people) and blindness (62.5% of people). Refractive error was responsible for 20.7% of blindness and 25.0% of low vision.

Conclusion: These data will be valuable in planning appropriate services in this district. People with lower income have poorer access to services and local health services need to be developed appropriately.

Diabetic retinopathy: analysing the Pakistan survey and evaluating local resources



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Aims: To estimate the prevalence of diabetic retinopathy (DR) in adults in Pakistan, to estimate the current service facilities for DR treatment in the province of Sindh, and to compare the current infrastructure with similar data collected in 1998 in order to provide evidence that can be used for provincial planning of diabetic eye services in Sindh.

Methods: The data of the recent Pakistan National Blindness and Visual Impairment Survey were analysed to calculate the prevalence of DR and to identify risk factors. Statistical methods used to assess association between the variables included summary statistics, simple cross-tabulation, and Mantel-Haenzel odds ratios (OR). Two community ophthalmologists from the department of ophthalmology at Dow University of Health and Sciences (Karachi) collected information about available infrastructure and human resources from all government tertiary centres and non-government hospitals which had treatment facilities for DR. This was performed under supervision of the provincial co-ordinator of the prevention and control of blindness programme in Sindh. Relevant information was collected using a data collection form based on one developed

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in a previous study. This allowed comparisons within Sindh province to be made. Additional data on the availability of fundus fluorescein angiography (FFA) were collected.

Results: A total of 17,311 adults (aged 30 and older) were enumerated for the survey. Among the 16,507 subjects examined, 660 diabetic patients were identified. Of these, 101 (15.3%) exhibited evidence of DR. The overall prevalence of diabetes was 4% and the overall prevalence of DR was 0.6%. The odds ratio (OR) of DR was higher in adult diabetic subjects living in urban areas (OR 2.7, 95% confidence interval [CI] 1.08–4.1) compared to those living in rural areas. The risk was also higher in hypertensive (OR 2.77, 95% CI 1.0–4.1) and obese (body mass index >30) participants (OR 2.2, 95% CI 1.7–4.2). Government sector hospitals provided better diabetic eye care services in terms of diagnosis (100% had diagnostic facilities) and treatment (85% had functional laser facilities), compared to the situation in 1998 (when only 50% had functional lasers). Twenty per cent of government tertiary centres and 50% of non-government hospitals had FFA capability. We found the same picture as in 1998 regarding vitreo-retinal surgical facilities.

Conclusion: The burden of blindness due to diabetic retinopathy can be reduced by good planning. Equal distribution of resources among the rural and urban areas must be targeted to obtain a comprehensive diabetic eye care programme. There has been some training of human resources for the management of DR, but it needs to be improved. Further research regarding the affordability of the service is required.

Rapid assessment of avoidable blindness in Kunming, China



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Background: According to global estimates by the World Health Organization (WHO), there were 141 million people with visual impairment in 2002 and cataract was then the leading cause of blindness. A national survey of China in 1987 suggested that the prevalence of blindness (as defined by the WHO) was 0.42% for all ages.

Aim: To evaluate the prevalence and causes of visual impairment in people aged 50 and older in Kunming, China.

Methods: A population-based cross-sectional study was conducted using multi-stage cluster sampling (including probability proportional to size, compacted segment and non-compacted segment sampling) to select 46 clusters of 60 individuals, each over 50 years of age. The standardised protocol for rapid assessment of avoidable blindness (RAAB) was used to identify people with visual impairment (VI) and ophthalmic examination was used to determine the main cause of VI. The RAAB software package and STATA 9 software were used to enter and analyse data.

Results: A total of 2,588 people from the sample of 2,760 were examined. Age- and sex-standardised prevalence of blindness (available corrected visual acuity <3/60 in the better eye) was 2.7%. It was 2.3% for severe visual impairment (SVI) and 7.2% for VI. The main causes of blindness were cataract (63.2%), other corneal scarring (14.7%), and glaucoma (7.4%). In total, 84.2% of blindness was avoidable, including cataract, other corneal scarring, uncorrected aphakia, and surgical complications. Cost was the most common barrier to cataract surgery. Cataract surgical coverage (CSC) in persons with best corrected visual acuity <3/60 was 58.9%. Cataract operations had a good outcome (visual acuity ≥6/18) in 43% of operated eyes.

Conclusion: The prevalence of blindness in Kunming is relatively high. The leading cause of blindness, SVI, and VI is still cataract. CSC is quite low and the outcome of cataract surgery is poor in the survey area.

Aldo Nogueira



Miriam Cano examines a patient in the ophthalmic ward of the Social Security Institute (IPS) Central Hospital, PARAGUAY

Prevalence and perceptions

Prevalence of diabetic retinopathy and barriers to uptake of eye care services by diabetic patients at the Social Security Institute Central Hospital in Asunción, Paraguay



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Aims: To estimate the prevalence of diabetic retinopathy (DR) among patients at the endocrinology department of the Social Security Institute (IPS) Central Hospital, Paraguay, and to explore the health-seeking behaviour of diabetic patients.

Methods: We randomly selected 307 patients from all diabetic patients attending the endocrinology clinic in order to establish the presence or absence of DR. Systemic and ophthalmic data were collected using questionnaires. DR was classified according to international disease severity scales for clinical diabetic retinopathy and diabetic macular oedema. Blindness and visual impairment were measured according to the grading system of the World Health Organization. Two focus groups, one comprising patients with visual impairment due to DR and another comprising diabetic patients with normal vision, were identified through purposive sampling. Patient behaviour with regards to seeking health care was explored in both groups. Quantitative data were analysed using EpiData and Stata, and a thematic framework was developed for the qualitative analysis.

Results: Of the 307 diabetic patients examined, 113 (36.8%) were male and 194 (63.2%) were female. A total of 304 (99%) patients had type-2 diabetes and three had type-1 diabetes (0.9%). Eighty-nine patients (29%) had some level of visual impairment. Of these, 16 were blind, a prevalence of 5.2% (blindness from all causes). DR accounted for 33% of visual impairment and 43.8% of blindness. The overall prevalence of blindness from DR was 2.28%, while 149 patients (48.53%) had some level of DR. Diabetic macular oedema was present in 88 patients (28.7%). Proliferative DR was

present in 26 of all patients (8.5%). The risk of getting DR was on average 1.9 times higher for every five years a patient had suffered from diabetes. Associations with other risk factors such as high blood pressure, body mass index, or HbA1c level were not significant in this study. The most important issues raised by the qualitative study included a general lack of awareness about diabetes and its possible complications, denial of the disease, and fear of going blind once DR had become established.

Conclusion: Findings from the study in the IPS Central Hospital in Paraguay suggest that diabetic retinopathy is an important public health problem. We highly recommend that a systematic screening programme be implemented to diagnose and treat DR earlier. Some of the issues encountered in the qualitative part of the study included lack of awareness about the serious complications of diabetes and difficulty coping with or accepting the disease. These results call for an urgent improvement of health education and promotion, as well as the provision of social services to patients.

Genetic eye diseases and genetic counselling services in Egypt



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Background: Available data suggest that two-thirds of childhood blindness in the Middle East is due to genetic diseases (with a prevalence ranging from 47% in Tunisia to 86% in Kuwait) and that autosomal recessive disorders, attributed to high rates of consanguineous marriage (between blood relatives), are common. Consanguineous marriage is common in Egypt (40%) and genetic eye diseases are assumed to cause at least half of all cases of childhood blindness. Genetic counselling services have been recommended by the World Health Organization as a potential control measure, but these services have not been evaluated with respect to eye diseases in children.

Aims: To assess the availability and level of use of genetic counselling services in Egypt, to evaluate parents' attitudes towards and satisfaction with these services, and to assess ethno-cultural beliefs about the causes of genetic disorders.

Methods: In-depth interviews were carried out in Egypt with consumers of the service (the parents of affected children) and service providers (ophthalmologists and geneticists).

Results: There are no guidelines for referral to genetic counselling services, and referral by ophthalmologists is affected by their personal experiences and research activities. The parents of affected children interviewed were satisfied with the service provided and the geneticists interviewed were qualified and highly skilled. However, services are insufficient and there are long waiting lists. The main barriers to service uptake were lack of motivation by parents, cost, long waiting lists, distance, and lack of awareness among doctors. Many parents attributed the condition of their child to the will of Allah, while doctors thought consanguinity to be the cause. Parents' perceptions of the term 'genetic disease' varied, but the majority understood it to mean a condition inherited within the family. The main motivation for seeking advice was to discover the risk of having another affected child. Parents were compliant with doctors' advice, but they often found it difficult to understand the level of risk. Abortion is prohibited in Islam and mothers were often blamed, even by other women, for their child's blindness. The possible consequences of genetic diseases were reported as divorce, husband taking another wife, social stigma, having no more children, and financial difficulties.

Conclusion: Genetic eye diseases are prevalent in Egypt, where they are due to high rates of consanguineous marriages. Genetic counselling services have the potential to reduce the prevalence of genetic disorders, but education and community support are needed to maximise the efficiency of such programmes.

Visual impairment in leprosy patients in northern Viet Nam



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Background: The visual impairment suffered by leprosy patients is an additional health burden often overlooked by health service providers. The prevalence of visual impairment and blindness is higher among leprosy patients than in the wider population, and it occurs as a complication of the disease or as part of the ageing process. Various studies have found that the prevalence of visual impairment is about 15% in patients who have had leprosy for less than 10 years, increasing to 40% in those who have had leprosy for 15 years or more. Eye care services in lepro-saria are often neglected or under-utilised by patients. It is necessary to know the prevalence and causes of visual impairment and blindness, and to investigate existing eye care practices, in order to improve utilisation of eye care services and to allocate appropriate resources.

Methods: One of the largest and oldest leprosy villages in northern Viet Nam was selected for this study. All the residents of this leprosarium (all of whom have leprosy) were invited to participate and examined for visual impairment and blindness. Patients who would have benefited from eye surgery, but who had not taken it up, were interviewed about their reasons. Responses were recorded on the questionnaire.

Results: A total of 403 patients were seen at the leprosarium. The prevalence of blindness was 9.9% and that of visual impairment, 24.1%. Cataract was the most common cause of blindness (57.5%) and of visual impairment (83.5%). Corneal opacity, from exposure keratitis (15%) and trachoma (12%), was the second most common cause of blindness. Cataract surgical coverage was 42.9%, trichiasis surgical coverage was 50%, and lagophthalmos surgical coverage was only 7.9%. Lack of awareness about treatment was the main reason given for not seeking treatment.

Conclusion: The prevalence of visual impairment and blindness in leprosy patients is very high and, at present, patients' eye care needs are not being met. There should be an urgent, comprehensive blindness prevention programme for leprosy patients. There is a need for better collaboration between leprosy control and blindness prevention programmes.

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Le Van Tung



A field worker explains how a visual chart works to a leprosy patient in Van Mon leprosy village, Thai Binh. VIET NAM

Assessing resources

Roya Husainzada



An operating room in Kabul Noor Hospital. AFGHANISTAN

Situation analysis of human resources in eye care in Afghanistan



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Background: The lack of adequately trained eye care personnel in low- and middle-income countries has been identified as a factor in the persistence of avoidable blindness. This situation is even more acute in fragile states, such as Afghanistan, where governments lack the capacity to manage public resources and deliver basic services, and are unable to protect and support poor and vulnerable groups.

Aims: To undertake a situation analysis of human resources in eye care in Afghanistan by assessing the number, qualifications, and distribution (geographical and by type of practice) of ophthalmologists, ophthalmic paramedical staff, and other ophthalmic personnel; and to assess the number and distribution (geographical and by category) of training institutions for eye care personnel.

Methods: The study was carried out between July and August 2006 in all provinces that had eye care centres and institutes. Data were collected from all private, government (public and army), and non-governmental organisation (NGO) eye care centres, as well as from training institutes for eye care personnel. This was done by visiting most of the centres and using electronic communication.

Results: The total number of eye care personnel in the country was 441. Out of these, 118 (26.8%) were ophthalmologists, 197 (44.7%) were ophthalmic paramedics (of which 103 were mid-level ophthalmic personnel), and 126 (28.5%) were other ophthalmic personnel. The ratio of ophthalmologists to population was 1:200,000 and that of mid-level ophthalmic personnel was 1:229,126. A total of 384 eye care personnel (87%) worked in urban areas and 57 (13%) worked in rural areas. Amongst them, 29 worked in the private sector (6.5%), 60 in the public sector (14%), 148 in NGOs (33.5%), 118 (43%) in mixed organisations (government and NGOs), and 15 in the army (3%). There were no eye sub-specialists or paediatric ophthalmologists. A total of 74 eye doctors were medical officers (62%) and there were just four community ophthalmologists. Of the ophthalmic paramedics, 103 were mid-level ophthalmic personnel (ophthalmic technicians and nurses, refractionists, and optometrists). There were five eye care training institutions in the country.

Conclusion: The human resources presently available in Afghanistan are inadequate, not only in quantity but also in quality. Eye care personnel are poorly distributed, with serious shortages in rural and peripheral areas. Most eye care personnel worked in government centres and NGOs. There were very few eye care training institutions, most of which were run by NGOs.

A situation analysis to provide information for developing a screening and treatment programme for retinopathy of prematurity in Sri Lanka



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Background: Sri Lanka is a lower-middle-income country with very good health indicators and services for premature babies. However, the expansion of intensive neonatal care units (NCUs) is leading to greater survival of premature babies and more blindness from retinopathy of prematurity (ROP).

Aim: To collect information on policies regarding neonatal care, current service provision and facilities for premature babies, and to assess current programmes for ROP. This information will be useful for planning a national ROP programme.

Methods: Hospitals with NCUs were visited in three provinces. Data were collected on infrastructure, personnel, policies regarding ventilation and oxygen administration, and survival of premature babies (from hospitals and the Ministry of Health). Data on ROP screening policies and the number of babies examined and treated were collected from ophthalmic units where possible.

Results: There are approximately 340,000 births annually, 17% of which are premature (defined as birth weight [BW] <2,500 g). There are no data on the proportion of babies with BW <1,500 g. Survival of babies with BW <1,000 g is 51%; it is over 75% for babies with BW of 1,000–1,500 g. Continuous monitoring of oxygen is not possible in all NCUs and alarms are often not adequately set up. Equipment is not equally distributed among provinces. Screening for ROP is not well organised and babies are often examined outside the NCU. The incidence of pre-threshold and threshold ROP ranged from 34.8% to 46.8%, and that of stage 4/5 was 1.3% in one NCU. Data collection is inconsistent.

Conclusion: Survival rates are relatively good in babies most at risk of ROP. Rates of ROP are high, which may be due to inadequate oxygen monitoring. Current ROP programmes need to be better organised, with standard screening criteria, examination methods, indications for treatment, and data collection. Long-term follow-up and referral systems for rehabilitation also need to be planned.

Assessing human resource needs for prevention of blindness in Association of Southeast Asian Nations (ASEAN) countries: identifying the gaps



Pg Hj Md Khairol Asmiee Bin Pg Hj Sabtu

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Aim: To obtain an overview of the current human resource needs in eye care for the prevention of blindness in the member countries of the Association of Southeast Asian Nations (ASEAN): Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam. We identified the different levels of eye care personnel, their numbers and distribution, and the training capacity for them in the region.

Methods: A mail-based questionnaire survey was used. Participants were recruited using the 'snowballing' technique, whereby one subject gives the researcher the name of another subject, who in turn provides the name of a third, and so on (Vogt, 1999), based on predetermined criteria. The specially designed questionnaire was pre-tested before distribution to assess its validity. Various channels were used to distribute it and participants were provided with several

options to respond, including a web questionnaire. Ethical approval was obtained from the London School of Hygiene and Tropical Medicine ethics committee prior to conducting the survey. Participants were provided with information sheets about the survey before their informed consent was sought.

Results: Seven out of ten countries responded. The result of the study shows that there is, to varying degrees, a shortage and maldistribution of ophthalmologists in some ASEAN member countries, particularly in Indonesia and CMLV countries (Cambodia, Myanmar, Lao People's Democratic Republic, and Viet Nam), where the burden of blindness is significantly higher. Furthermore, the integration of primary eye care into mainstream primary health care is incomplete. At secondary and tertiary level, the shortage of ophthalmologists has been supplemented by the use of mid-level eye personnel. However, their impact in addressing cataract (the main cause of blindness in the region) is restricted, as their roles are limited to carrying out basic eye tests, history-taking, and instrument care. Local training facilities are available for most levels of eye care workers, but questions about their quality and capacity remain unanswered. The working conditions of ophthalmologists in the ASEAN region are reasonable, and ophthalmologists are supported by professional and regulatory bodies. However, career structures for mid-level personnel are not available in all member countries.

Conclusion: In order to meet current needs, especially in countries with a high burden of blindness, there is an urgent need to address the shortage and maldistribution of ophthalmologists. Career structure and deployment of mid-level eye personnel need to be addressed and aligned to meet current eye care needs. The ASEAN region has the capacity to address its eye care needs and should do so through capacity building and service delivery programmes.

Situation analysis of human resources for eye care in the North West Province of Cameroon



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Aim: To provide comprehensive information on existing human resources for the provision of comprehensive eye care services in the North West Province of Cameroon.

Methods: Quantitative data were collected using a pre-tested questionnaire administered to all consenting eye care workers in the North West Province. Data on service outputs were obtained using a checklist and other available documents. Qualitative data were collected by means of semi-structured interviews administered to staff of eye units, primary level eye care workers, and visual

rehabilitation workers.

Results: The North West Province, which has a population of 2.1 million, had 9 eye units, 3 ophthalmologists, 21 ophthalmic paramedics, 47 community-based rehabilitation workers trained in primary eye care, and 8 ophthalmic paramedic students. There were also 19 special education teachers in two schools for the blind. In addition, the province had 3,131 community-directed distributors of ivermectin. The duration and type of ophthalmic training of ophthalmic paramedics, as well as their educational backgrounds, were very diverse. Close to 90% of the staff in the eye units were employed by mission hospitals and the distribution of human resources in the province was grossly unequal. The cataract surgical rate had increased by 35% between 2002 and 2005, to a total of 414 per year. The coverage of refractive services and the number of patients consulted per outreach had remained constant during the same period, at less than 1% and at 30 patients, respectively. The main barriers to the provision and uptake of eye care services were lack of human resources, poor collaboration among stakeholders, cost of services, and patient beliefs.

Conclusion: The number, distribution, mix of skills, and output of eye care workers in the North West Province are inadequate. At provincial level, it would be desirable to have a committee for the prevention of blindness. It would be worthwhile to research consumer perceptions and barriers to the uptake of eye care services. At national level, an action plan, advocacy, and funding for in-country training of different levels of eye care personnel should be considered.

Evaluating interventions/programmes

Evaluation of the SAFE strategy for preventing trachomatous visual impairment in the Enemor and Ener District of Ethiopia



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Background: Although the SAFE strategy (Surgery, Antibiotics, Face washing, Environmental change) is increasingly implemented to control trachoma, its operational effectiveness is not well known.

Aim: To evaluate the implementation of the SAFE strategy in a trachoma control programme area in the context of VISION 2020.

Methods: A cross-sectional trachoma survey, focus group discussions, and routine data analysis were undertaken in July 2006 in the Enamor and Ener District of southern Ethiopia. Using multi-stage cluster sampling with probability proportionate to size and compact segment sampling methods, 544 households were selected from a population of 110,000. Individuals were examined for signs of trachoma and visual impairment, and the heads of two-thirds of households were interviewed about risk factors.

Results: Of the 2,510 people enumerated, 2,637 (95%) were examined. The prevalence of trichiasis (TT) in people older than 14 was 9.04% (95% confidence interval [CI] 7.4–10.6%). Trachoma was responsible for 13% of visual impairment in people older than 40. Follicular trachoma (TF) in children aged one to nine was 33.1% (95% CI 29.4–37.1%), while 56.1% (95% CI 52.7–59.5%) had clean faces. The percentage of households using latrines was 74.4% (95% CI 69.9–78.87%). The themes that emerged from discussions included distance and fear as barriers to surgery, appreciation of antibiotics, “quest for water” and “education with legal enforcement” in terms of facial and environmental hygiene. A minimum of US \$18 per person was invested on SAFE over five years. Although active trachoma and visual impairment were moderately reduced as

Henry Nkumbe



A signpost advertising the services of a traditional healer in Bamenda, capital of the North West Province of Cameroon. Many interviewees in Henry Nkumbe's study made reference to the services of this healer. CAMEROON

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compared to baseline estimates and projections (40% for active trachoma and 25% for visual impairment), the programme was not adequate to control trichiasis.

Conclusion: The SAFE strategy may be effective when implemented for a longer duration, to an adequate extent, and with concurrent development programmes. SAFE should be routinely evaluated in order to improve its implementation. Further investigation of its socio-economic impact is recommended.

Evaluation of cataract surgical outcomes in Cicendo Eye Hospital, Bandung, West Java, Indonesia



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Aims: Cicendo Eye Hospital is a referral hospital in West Java Province. Every year, the hospital performs about three thousand cataract operations on average. However, cataract surgical outcome has not been evaluated. Outcome is an important indicator for monitoring the progress of the hospital's cataract surgical services towards the goals of VISION 2020.

Methods: This was a prospective observational study of all consecutive, age-related cataract operations booked on the elective list at the hospital from 1 April 2006 to 31 June 2006. Data were collected by means of a standardised computer cataract surgery outcome record form. Pre-operative visual status was recorded and the post-operative visual outcomes were measured at one day and one month after surgery. Analysis was done to identify the risk factors for poor outcome.

Results: A total of 443 patients were operated on. The mean age was 63 years and 52% of all patients were male. Using the WHO definition, 26.6% were blind pre-operatively and 72.69% of all eyes operated had visual acuity <3/60. Most of the operations were extracapsular extractions with intraocular implantation. One day after surgery, 42.44% of eyes achieved a visual outcome better than 6/18. At one month, this was the case for 76.08% of eyes. A poor outcome of less than 3/60 was seen in 11 cases (2.48%) at one month after surgery. Intra- and post-operative complications were seen in 10.84% of all cases, mainly due to vitreous loss (66.67%). Intra-operative complications, systemic diseases present before the operation, and associated eye diseases were significant risk factors for poor outcome.

Conclusion: At one month after surgery, visual outcome of the operated eye almost attained WHO criteria for available correction. The most significant risk factor for poor outcome was intra-operative complications, which could be minimised by improving skills and taking due care during operations.

An evaluation of eye health promotion activities to increase the use of eye care services in the Kilimanjaro VISION 2020 Direct Referral Site programme



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Aims: To assess community awareness about the Kilimanjaro VISION 2020 Direct Referral Site (DRS) eye care programme in Tanzania and the effectiveness of promotion strategies to increase the use of eye care services, and to solicit ideas on how these activities can be improved.

Methods: Quantitative methods were used to analyse secondary data (30,019 patient records collected at the point of service between January 2003 and June 2006) about how patients received information about the Kilimanjaro VISION 2020 DRS programme. Additionally, 75 interviews were conducted at markets,

mosques, and churches in the districts of Same, Mwanga, and Hai to complement the retrospective data. Qualitative methods were used to collect perceptions about eye diseases and about the programme from patients, the community, and health facility personnel. Fifteen semi-structured interviews were conducted with patients and families of operated and non-operated cataract patients. Focus group discussions with community leaders and health facility workers involved a total of 47 participants. Purposive non-probability sampling was used to select participants. The sample included a roughly equal balance of men and women.

Results: The quantitative analysis of existing data revealed that most respondents (39.3%) had received information from churches or mosques. The second most frequently mentioned source of information was posters (25.4% of responses), followed by radio, medical personnel, other sources, and village leaders. The qualitative analysis showed a high level of awareness about eye diseases, with cataract emerging as the most commonly recognised eye problem. Some people were aware that an operation was the treatment for cataract, but there was limited understanding amongst the community and health facility workers of what the operation entailed. However, patients who had undergone the operation were able to give quite detailed accounts. The conceptions held by community members provided useful entry points for future promotional work. One community member suggested that "the word upasujaji (operation) gives a bad impression, meaning to cut the eye." Suggestions from others included explaining the operation in terms of cleaning of the eye, removing the cataract, or correcting the eye. Many people in the DRS areas were able to describe in detail how the programme worked and what services were provided. However, users wanted more clarity, particularly about the costs of surgery. Health facility workers were both aware of and involved in the promotional activities. The community perceived the DRS programme as providing an affordable service close to home which included transportation to hospital. People reported that the eye health promotion activities had helped to dispel fear about surgery. There were, however, a few comments about how the programme had become too "business-like," not allowing enough time for detailed examination. Opinions about how best to communicate the DRS programme emphasised multiple-method approaches, and suggested improvements to the posters, greater use of interpersonal channels, more time for promotional activities in the build-up before a DRS visit, and the use of loudspeakers.

Conclusion: Promotional activities have created awareness, encouraged the use of eye care services, provided opportunities for facility workers and community members to participate, and fostered positive attitudes towards the DRS programme. There is room for improvement: we can increase the reach of promotional activities, perfect the posters, ensure greater clarity on the issue of fees for services, and build interpersonal channels to encourage more two-way communication with users.

Cataract surgical outcome and gender-specific barriers to cataract services in Tilganga Eye Centre and its outreach microsurgical eye clinics in Nepal



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Aims: To evaluate the cataract surgical outcome in Tilganga Eye Centre (TEC) and its outreach microsurgical eye clinic, to determine the barriers to patient uptake of cataract services in both urban (TEC) and rural (outreach clinic) settings, and to explore gender-specific health care-seeking behaviour.

Methods: The records of 562 patients who had undergone cataract surgery in the hospital from 1 January 2006 to 30 June 2006 and of 178 patients treated by the outreach clinics were analysed. Surgical

outcomes were measured using the OUTCOME software package. An open-ended questionnaire was used to interview 80 cataract patients with visual acuity <6/60 (38 in hospital, 42 in outreach clinics), in order to explore possible gender-specific barriers to cataract surgery. **Results:** At discharge from the hospital, 69.9% of patients presented with visual acuity (VA) >6/18 and 78% presented with best corrected visual acuity (BCVA) >6/18. At the three-week follow-up, 79.4% presented with VA >6/18. On providing them with best correction, VA was >6/18 in 93.2%. A total of 50 (8.9%) presented with VA <6/60 at discharge. At three-week follow-up, 2.8% presented with VA <6/60, which improved to 2.4% when best corrected. At discharge from the outreach clinic, 79.2% of patients presented with VA >6/18 and 85.5% presented with BCVA >6/18. At the three-week follow-up, 72.8% presented with VA >6/18. When best corrected, VA was >6/18 in 93.6%. A total of 16 (9%) presented with VA <6/60 at discharge. At three-week follow-up, 5.8% presented with VA <6/60, which improved to 2.6% when best corrected. The rate of complications was 7.8% in the hospital and 6.7% in the outreach clinics. The causes of poor outcome were surgical complications and case selection in the hospital, and refractive error (p=0.02) and case selection in the outreach clinics. Urban women chose to seek cataract services later, as they felt able to cope with their deteriorating vision, whereas rural women gave the long distance to services as the main reason for postponing surgery. For urban and rural men, the main barriers were cost and the lack of someone to accompany them.

Conclusion: Good visual outcome can be achieved in outreach clinics if strict protocols are followed. Operative complications and the rate of poor vision are not significantly different in both settings, despite the differences in environment. To bridge the barriers presented by distance and a lack of money, it is possible to carry out operations with good outcomes closer to rural communities.

Cost

Cost analysis of cataract services by eye care providers in Nigeria



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Aim: To determine and compare cost-effectiveness of cataract services in different eye care settings in Nigeria.

Methods: The study was conducted in three eye care facilities in the states of Lagos and Ogun in Nigeria between January and December 2005. Patient records were retrieved from three eye hospitals: a private hospital, a government hospital, and an NGO hospital. Recruitment criteria included all bilaterally blind cataract patients above the age of 40 with visual acuity (VA) <6/60 on the Snellen visual acuity chart who had undergone cataract operations in one eye. Twenty to thirty per cent of the operated patients were traced to their homes and interviewed to determine their vision-related quality of life, using an adapted version of the Indian vision function questionnaire, the IND-VFQ33. Cost data included provider and patient costs. Major outcome measures were cost-effectiveness ratios, restoration of good vision post-operatively, gain in utility and quality-adjusted life years (QALYs) post-operatively, change in vision-related quality of life, and patient satisfaction.

Results: Within the period of the study, 350 cataract operations were performed in the private hospital, 53 in the government hospital, and 543 in the NGO hospital. Among the patients who were bilaterally blind, 60 were in the private hospital (17%), 15 were in the government hospital (28%), and 147 were in the NGO hospital (27%). The mean age was 66.59 years (standard deviation 0.50). The unit cost of cataract surgery was highest in the government hospital (US \$2,734), while good sight restoration (VA ≥6/18) was highest in the private hospital. The NGO hospital was the most cost-effective, at US \$224 per QALY gained. Patient

satisfaction was greatest for the private hospital and lowest for the government hospital.

Conclusion: Although cataract surgery in the private and NGO eye care sectors in Nigeria falls within an acceptable range of cost-effectiveness, there is an urgent need to reduce unit cost. Cost outlay, output and outcome of cataract surgery need to be reviewed in the government sector.

Comparing the cost-effectiveness of school eye screening versus a primary eye care model to provide refractive error services for children in India



Barry A Lester

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Aim: To compare the cost-effectiveness of school eye screening (SES) for refractive errors with a primary eye care (PEC) model that provides comprehensive eye care, including refractive services, to children of school age.

Methods: Retrospective data from SES and PEC clinics in Delhi slums for 2005–2006 were examined. Children who had been dispensed spectacles through both models over 12 months were surveyed. Visual acuity with and without spectacles was measured and the children's spectacle-wearing behaviour was evaluated. The quality-adjusted life years (QALYs) gained were calculated using utility analysis for each model and were compared.

Results: The SES model was more cost-effective than the PEC model in all areas. In the SES model, the cost to examine a child was US \$0.64, the cost to examine and dispense spectacles was US \$12.13, and the undiscounted cost per QALY was US \$18.11. In the PEC model the cost of examining a child was US \$3.10, the cost of examining and dispensing spectacles was US \$25.58, and the undiscounted cost per QALY was US \$45.42. The correlation of spectacles prescribed to spectacles manufactured was excellent in both models, with a combined correlation of 98%. The sensitivity of teachers screening for vision impairment was 100%, while their specificity was 59.8%.

Conclusion: School eye screening in India is a highly cost-effective method of correcting visual impairment due to refractive errors in school-age children and should be expanded where possible. As not all children can be examined through school screening, comprehensive eye care clinics play an important role in the correction of refractive errors, but at a higher cost.



Barry Lester

The South Delhi slum where Barry Lester conducted a survey of children who had received spectacles. INDIA



Care of instruments and equipment: a success story

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“When a person is hungry and you give him a fish, his hunger is satisfied for that occasion. If you teach him how to catch a fish, it can take care of his hunger for the rest of his life.” This is a teaching principle that is often repeated, and one that is also very useful in the maintenance of medical equipment.

The instruments and equipment used in modern eye care have become very sophisticated and expensive. Keeping them in good working condition can become a nightmare, especially if hospitals are located in places where there is little service support from manufacturers or suppliers. These items can fail to work unexpectedly and the resultant downtime can compromise outcomes and patient safety.

An important fact about instruments and equipment is that, when manufactured by well-established firms and supplied by reliable dealers, they seldom fail, provided they are maintained as described in the user manual.

A machine is more likely to fail when it is first set up, often due to shortcomings in its installation, use, or handling. For this reason, most manufacturers usually offer a free warranty contract for the first year. Machines should be used often during that



Miss Sathya, a technician, cleans the phaco machine after the day's operations are done. INDIA

period; any malfunction, however trivial, should be brought to the attention of the supplier and rectified immediately. If this is done, the machine will usually work well for the rest of its lifespan.

It is generally believed that doctors and/or paramedical staff who use an instrument or machine will take care of it, but this cannot always be expected. The patient is the primary concern of doctors or paramedical staff. If there is a conflict, patient care will take precedence – so instrument care is bound to suffer. Also, some equipment is too complex to maintain for a person who is not technically trained.

At Aravind Eye Hospital, we took these factors into account and devised a scheme whereby a technically trained person is responsible for a sophisticated instrument or piece of equipment. This person's responsibility is to take care of it: to turn it on or off, and to go meticulously through all the stipulated steps before it is ready to be handed over for use by doctors and paramedical staff. This considerably lightens the workload of doctors – they can devote their full attention to the procedure and the patient. When a procedure is over, doctors and paramedical staff may be tired. Shutting the machine off in the sequence suggested by the manufacturer is then the responsibility of the technically trained person.

There is no need for a fully fledged biomedical engineer to do this job, as it is always possible to train a person with some engineering background on the various aspects of a particular instrument or machine. That person can in turn train others to keep equipment running in good condition. We find that graduates of our

polytechnics (technical colleges) do such jobs well.

We use such trained persons to maintain our phacoemulsification (phaco) machines, ERG machine, fundus cameras, and expensive surgical instruments used in operations. We have had great success with our LASIK machines: they are being used regularly and have functioned, without any hitch, for the last seven years, which has surprised the supplier!

It is difficult to train many people within an organisation to look after sophisticated instruments and equipment. Not all will have the competence or the aptitude required to understand the technical details. Training one or two persons with the right aptitude and making them responsible for looking after instruments and equipment will ensure better maintenance and performance in the long term.

Awareness about eye diseases among diabetic patients: a survey in South India

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Diabetes mellitus (DM) is reaching epidemic proportions in many countries, including India. Currently, there are 17.1 million diabetic patients worldwide. By 2030, this figure is projected to increase to 366 million people, 79 million of whom will be in India.



Miss Sugitha, a technician, cleans the delicate instruments used in vitreo-retinal surgery. INDIA

This is likely to have major implications for India, which is estimated to be home to a quarter of the world's blind population. Awareness about the eye complications of diabetes can play an important role in encouraging people to seek timely eye care.

We conducted a survey using a 20-point questionnaire among 1,000 diabetic patients who attended our out-patient department between October 2001 and March 2002. We assessed awareness about the eye complications of diabetes and asked patients how awareness could be increased.

Eighty-six per cent of patients were aware that DM could affect many parts of the body; 84 per cent knew that DM could affect the eye. Among those who were aware that DM could affect the eye, 36 per cent learnt this through the media, 32 per cent from other eye specialists and 30 per cent from their general practitioners or physicians. Among those who were aware that DM could affect the eye, 51 per cent did not know exactly which part of the eye could be affected, 28.3 per cent thought that cataract was the main eye complication, and 19 per cent thought that DM mainly affected the 'nerves in the eye' (presumably retinopathy). Around 50 per cent of the patients knew that routine eye checks were necessary even if DM was well controlled, while the remainder thought that routine eye examinations were not necessary in that case. To increase knowledge, better media coverage was suggested by 36.8 per cent. The rest suggested better communication from physicians (32.7 per cent), eye specialists (19.8 per cent), and health and paramedical workers (10.7 per cent).

Awareness is not the same as knowledge. Hearing about a problem is awareness, but understanding the causes or treatment of a disease, for example, is knowledge. Eighty-four per cent of the patients were aware that DM could affect the eye, so awareness is quite high. But knowledge levels were lower: only 46.9 per cent of those interviewed knew that retinopathy was related to the control of DM, and only 40.3 per cent knew that it was related to the duration of DM. Among those who were aware that DM could affect the eye, 51 per cent did not know what the eye complications could be. As this study was done in an eye hospital, knowledge levels amongst diabetic patients in the general population are likely to be lower.

The control of visual impairment from diabetes requires good disease control and regular eye examinations. Screening diabetic patients for retinopathy poses considerable challenges, particularly in a country like India where the numbers are large and many diabetic patients are unlikely to be aware that they need regular eye examinations. This study shows that, as a first step, there is a need to increase awareness and knowledge of the potentially sight-threatening complications of diabetes.



GLOSSARY

Glossary: research and training

Case-control study: a study in which people who already have a certain condition are compared with people who do not

Cross-sectional study: a study in which a population or sample is assessed at one point in time

Curriculum (pl. curricula): the subjects taught in a course of study (e.g. an MSc in community eye health)

Dissertation: a long, written essay or report describing research that is submitted as a requirement for an advanced academic degree; also called a thesis

Endemic: describes a disease that is constantly present, to a greater or lesser degree, in a population living in a particular area

Ethical approval: independent review of the scientific merit and implications of a study regarding the dignity, rights, safety, and wellbeing of research participants

Field work: research done in the real world (i.e. not in a laboratory)

Focus group discussion (FGD): a qualitative method to obtain in-depth information on concepts and perceptions about a certain topic through spontaneous group discussion of approximately 6–12 persons, guided by a facilitator

Incidence: the number of deaths or new cases of a condition, symptom, or injury that arises during a specific period of time, such as a year

In-depth interview: a face-to-face conversation to explore issues; conducted without using a structured questionnaire

Literature review: a summary and explanation of key studies relevant to a proposed project

Logbook: a notebook used to record the dates when decisions were made or actions were taken

Methodology: the precise design of a study, including the methods used

Multi-stage cluster sampling: constructing a sample from a population by first creating and selecting clusters (stage one), and then choosing elements from within the selected clusters (stage two)

Narrative data: verbal answers that take the form of a story or explanation, or which describe a series of events

Pilot study: a smaller version or trial run of a larger study that is conducted in preparation for that study; can involve pre-testing or 'trying out' a research tool such as a data-collecting form

Population: the group being studied, e.g. children of school age in Zimbabwe

Population-based survey: a survey where the sample is representative of the population being studied

Prevalence: a measure of the frequency of a disease or condition at a particular point in time, usually expressed as the number of cases per 100 people examined

Prospective study: a study in which events or cases are observed or studied as they occur, or in which human subjects are identified and followed forward in time

References: a short note detailing the source of information or a quoted passage

Reflexivity: an awareness of the researcher's contribution to the construction of meanings throughout the research process, and an acknowledgment of the impossibility of remaining 'outside of' one's subject matter while conducting research

Research protocol: a document describing in detail how a research study is to be conducted in practice, including the methodology, a plan for analysing the results, and a budget

Research question: the main question a research project aims to answer

Retrospective data/study: a study that looks at events that took place in the past; can involve extracting information from medical records or interviewing patients about past events or behaviour

Sample: a group of people or elements selected from the population being studied

Supervisor: the person who is responsible for guiding the individual(s) doing a research project

Variable: a broad term encompassing what is measured in a research project; demographic variables, for example, describe participants' age, sex, and socio-economic status; outcome variables might include visual acuity after cataract surgery or the number of people accessing services after a health education intervention.



Useful resources: research and training programmes

Internet

A practical guide for health researchers (WHO). To download, visit <http://whqlibdoc.who.int/emro/2004/9290213639.pdf>.

To order, visit www.who.int/bookorders/anglais/home1.jsp?sesslan=1 or write to the World Health Organization, WHO Press, CH-1211 Geneva 27, Switzerland.

The ethics of research related to healthcare in developing countries (Nuffield Council on Bioethics). To download, visit www.nuffieldbioethics.org. To order, email bioethics@nuffieldbioethics.org or write to Audrey Kelly-Gardner, The Nuffield Council on Bioethics, 28 Bedford Square, London WC1B 3JS, UK.

The knowledge base. A free online hypertext textbook on applied social research methods that covers everything about defining a research question, sampling, measurement, research design and data analysis.

www.socialresearchmethods.net/kb/

CDs

Monitoring cataract surgical outcome. ICEH/Hans Limburg, 2005. The free 'Monitoring cataract surgical outcome' CD contains links to different packages to monitor the visual outcome of cataract surgery, and many supporting documents and instruction guides. **Enquiries:** Sue Stevens (sue.stevens@Lshtm.ac.uk). 'Monitoring cataract surgical outcome' is also published on the web:

www.iceh.org.uk/files/mcso.html

Books

Newall R and Burnard P. Vital notes for nurses: Research for evidence-based practice. Blackwell Publishing, 2006. Available from Blackwell. UK £18 plus post and packing.

Tarling M and Crofts L (eds). The essential researcher's handbook: For nurses and health care professionals. 2nd ed. Baillière Tindall, 2002. Available from Elsevier. UK £22 plus post and packing.

Riley J. Getting the most from your data. Technical & Educational Services, 1996. A handbook of practical ideas on how to analyse qualitative data. Available from Waterstones. UK £10 plus post and packing.

Hirsch HL. Essential communication strategies. John Wiley & Sons, 2003. A simple, concise, and light-hearted practical guide to the communication dynamics of writing, presentation delivery,

and interaction. Available from Waterstones. UK £15 plus post and packing.

Bell J. Doing your research project. Open University Press, 2005. A guide for first-time researchers in education, health and science. Available from Waterstones. UK £17 plus post and packing.

Willis J. Data analysis and presentation skills. John Wiley and Sons, 2004. An introduction written for the life and medical sciences. Available from Waterstones. UK £22 plus post and packing.

Feuerstein M. Partners in evaluation. Macmillan Education, 1987. Available from Waterstones. UK £5.75 plus post and packing.

Green J and Thorogood N. Qualitative methods for health research. Sage Publications, 2004. Available from Waterstones. UK £20 plus post and packing.

Rowntree D. Statistics without tears. Penguin Books, 1991. Available from Waterstones. UK £7.19 plus post and packing.

Rose G. Epidemiology for the uninitiated. BMJ Books, 2003. Available from Waterstones. UK £15 plus post and packing.

Health research methodology: A guide for training in research methods. 2nd ed. WHO, 2001. Available from the WHO. UK £23 plus post and packing. Minimum 30% discount for low- and middle-income countries.

Journal articles

Biswas J. Practical suggestions in the writing of a research paper. Indian J of Ophthalmol 1998;46: 247–250.

Kitzinger J. Qualitative research: introducing focus groups. BMJ 1995; 311: 299–302.

Kuper H, Polack S, and Limburg H. Rapid assessment of avoidable blindness. Community Eye Health J 2006;19(60): 68–69.

Meyer J. Using qualitative methods in health related action research. BMJ 2000;320: 178–181.

Mays N and Pope C. Qualitative research: rigour and qualitative research. BMJ 1995;311: 109–112.

Mays N and Pope C. Qualitative research in health care: assessing quality in qualitative research. BMJ 2000;320: 50–52.

Négrel A and Mariotti SP. Trachoma rapid assessment: rationale and basic principles. Community Eye Health J 1999;12(32): 51–53.

Pope C and Mays N. Qualitative research: reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. BMJ 1995;311: 42–45.

Pope C and Ziebland S. Qualitative research in health care: analysing qualitative data. BMJ 2000;320: 114–116.

Wormald R. Bridging the gap to evidence-based eye care. Community Eye Health J 2004;17(51): 40–41.

Qualitative research – a series of seven articles. BMJ 1995;311: 109.

Community Eye Health Journal back issues

Volume 5, Issue 10, 1992
Audit results of cataract surgery

Volume 15, Issue 41, 2002
How can we improve patient care?

Volume 15, Issue 44, 2002
Importance of monitoring cataract surgical outcomes

Epidemiology in practice series: Introduction (Volume 10, Issue 21, 1997); Disease prevalence (Volume 10, Issue 22, 1997); Sample size calculation for eye surveys: a simple method (Volume 10, Issue 23, 1997); Disease incidence (Volume 10, Issue 24, 1997); Randomised controlled trials (Volume 11, Issue 26, 1998); People and eyes: statistics in ophthalmology (Volume 11, Issue 27, 1998); Case control studies (Volume 11, Issue 28, 1998); Screening for eye disease (Volume 12, Issue 30, 1999); Qualitative methods (Volume 12, Issue 31, 1999).

Suppliers' addresses

Waterstones: 71–74 North Street, Brighton, East Sussex BN1 1ZA, UK. Email: manager@brighton.waterstones.co.uk

Blackwell: 50 Broad Street, Oxford OX1 3BQ, UK. Email: mail.ox@blackwell.co.uk

Elsevier: Elsevier Books Customer Services, Linacre House, Jordan Hill, Oxford OX2 8DP, UK. Email: eurobkinfo@elsevier.com

WHO: World Health Organization, WHO Press, CH-1211 Geneva 27, Switzerland. Email: bookorders@who.int

News

Introducing the new Editor of the *Community Eye Health Journal*

I have great pleasure in introducing you to the new Editor of the *Community Eye Health Journal*.



Elmien Wolvaardt Ellison is a science graduate with extensive experience of print and broadcast journalism and specialist expertise in science communication. Prior to joining the *Community Eye Health Journal* she

worked with the Science Media Centre and the Science and Development Network (SciDev.Net). Before that she worked for the South African Medical Research Council (MRC) where she was Editor of *MRC News* and supported MRC researchers to communicate their research to policy makers, the public, and the media. She is currently involved in a British Council-funded project in South Africa developing training for health workers in evidence-informed decision making for HIV prevention, treatment, and care.



From me, **Victoria Francis**, it is a farewell which comes with a message of real appreciation for the contribution all of you, our readers, make to the lives of people. Preserving and restoring sight, and making sure

that those who live without clear vision reach their full potential, is truly worthwhile work. Not only that: working in community health brings you into touch with health workers, patients, families, community organisations, and policy makers, all of whom it is in your power to inspire and support. As Editor of the *Community Eye Health Journal* since September 2004, I have tried to make a modest contribution to your efforts, and I am ever humbled by the reports I receive from you, describing the realities of your work. Furthermore, I have been guided and assisted by your feedback, in particular by the insights we received through the reader survey. I take this opportunity also to express my pleasure at working creatively with the authors who generously give their time, experience, and expertise to communicate with our readers through the medium of this publication. I wish you all well in your continuing endeavours and extend a warm welcome to Elmien.

Victoria Francis, March 2007

Le saviez-vous ?

Nous publions également une revue en français, la *Revue de Santé Oculaire Communautaire*, qui est envoyée gratuitement aux lecteurs des pays en développement. Pour vous abonner, merci de bien vouloir faire parvenir votre nom, votre profession et votre adresse postale à : Anita Shah, *Revue de Santé Oculaire Communautaire*, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, Royaume-Uni.
Courriel : anita.shah@Lshhtm.ac.uk

Courses

International Centre for Eye Health MSc in Community Eye Health

Date: 20 September, 2007–19 September, 2008. **Venue:** The International Centre for Eye Health (ICEH) at the London School of Hygiene and Tropical Medicine, 8 Bedford Square, London WC1B 3RE, UK.

Objectives: To equip eye health professionals with the knowledge and skills to reduce blindness and visual disability by developing a community-oriented approach to eye health and the control of blindness, in line with the aims and objectives of VISION 2020: The Right to Sight.

Target audience: Eye care professionals (including ophthalmologists, optometrists, and project managers) who have or could have leadership roles either within their governments or in the NGO sector. This course does not include any clinical training and is not appropriate for people wanting training in clinical ophthalmology.

Scholarships: Please contact Emma Sydenham (emma.sydenham@Lshhtm.ac.uk) for assistance with securing funding from your home country to cover part of the course fee. **Further details and admission procedures:** Applications for this course are available on the London School of Hygiene and Tropical Medicine website: <http://www.lshhtm.ac.uk/prospectus/masters/msceh.html> and through contact with the Registry, 50 Bedford Square, London WC1B 3DP, UK. Telephone: +44 (0)20 7299 4646 Fax: +44 (0)20 7323 0638 Email: registry@Lshhtm.ac.uk

Planning for VISION 2020

Date: 9–13 July, 2007. **Venue:** ICEH at the London School of Hygiene and Tropical Medicine, 50 Bedford Square, London WC1B 3DP, UK. **Objective:** To familiarise participants with the goals and objectives of VISION 2020: The Right to Sight and the planning principles involved in establishing community eye health programmes. In addition to lectures about eye diseases and programme planning, participants will work in teams to develop a model for eye care

interventions in their selected regions.

Target audience: Ophthalmologists and eye health organisation programme managers involved in the drive to eradicate all treatable blindness globally by the year 2020. **Information and admission procedures:** Visit the London School of Hygiene and Tropical Medicine website: www.Lshhtm.ac.uk/prospectus/short/spv.html or email ShortCourses@Lshhtm.ac.uk

Kilimanjaro Centre for Community Ophthalmology (KCCO), Tanzania

Information and admission procedures for all courses listed below: visit the KCCO website (www.kcco.net) or contact Genes Mng'anya, KCCO Course Administrator. Email: genes@kcco.net

Integrating Childhood Cataract into VISION 2020 Programmes

Date: 1–5 October, 2007. **Objective:** To provide an understanding of the various strategies needed to improve uptake, counselling, surgery, follow-up, spectacles, and low vision care of children with congenital/developmental cataract. **Target audience:** Ophthalmologists or managers in settings with paediatric eye care services or programme staff responsible for organising childhood blindness activities.

Community Ophthalmology Certificate

Date: 15 October–7 December, 2007. **Objective:** To equip eye health professionals with the skills necessary to develop, implement, and manage a VISION 2020 programme. These include disease control, planning, human resource development, management, bridging strategies, and budgeting. **Target audience:** Ophthalmologists, project managers, or other eye care professionals who are responsible for developing and implementing district-based VISION 2020 plans.

Bridging Communities and Eye Care Providers to Achieve VISION 2020 in Africa

Date: 12–16 November, 2007. **Objective:** To provide eye care programme managers with the skills necessary to develop, implement, and monitor strategies for increasing utilisation of services by the population in need. **Target audience:** Eye care programme managers (government, NGOs, service groups), trainers, and key decision makers of national prevention of blindness programmes.

Management for VISION 2020 Programme Managers

Date: 19–30 November, 2007. **Objective:** To provide practical (African-tested) strategies for either developing or strengthening management systems to facilitate increased efficiency, coverage, and satisfaction with eye care services. **Target audience:** Heads and key decision makers of VISION 2020 planning areas.

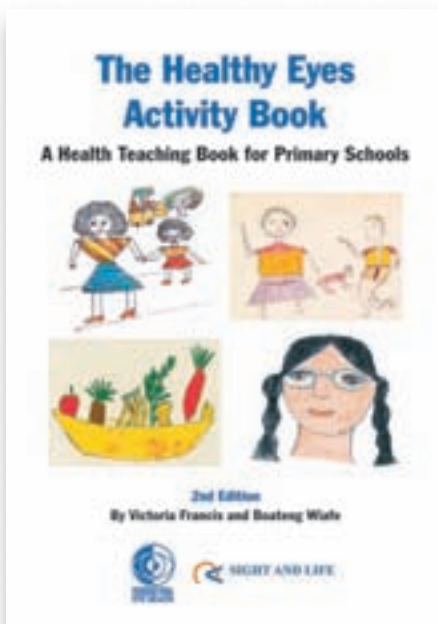
Conferences

The European Society of Ophthalmic Nurses and Technicians Annual Conference will be held during the **25th Congress of the European Society of Cataract and Refractive Surgeons (ESCRS)**, 8–12 September 2007, in Stockholm, Sweden. **Further information:** Email: sarah.smith@escrs.org

Eighth General Assembly of the International Agency for the Prevention of Blindness
Theme: Excellence and Equity in Eye Care.
Date: September 15–20, 2008. **Venue:** Los Salones Gran Panamericano, Buenos Aires, Argentina. **Further information:** Email: agency@lvepi.org

New resources available

Enquiries: Sue Stevens
 (sue.stevens@Lshtm.ac.uk)



Francis V and Wiafe B. The Healthy Eyes Activity Book. 2nd edition
The Healthy Eyes Activity Book was first published ten years ago. The authors, Victoria Francis (educationist, social researcher, and artist) and Boateng Wiafe (ophthalmologist), have built on the success of the book and acknowledged its wider appeal. Originally intended mostly for primary schools in rural Africa, the book has reached a wider audience, with translations in at least nine languages, largely through the efforts of SIGHT AND LIFE. The second edition takes cognisance of this wider appeal and has 'internationalised' the context, while still encouraging people to further adapt it to their needs and circumstances. Furthermore, this second edition expands on some areas that were not covered in detail in the first edition: there is a chapter devoted to nutrition and a chapter devoted to refractive errors. The section on 'How to adapt and translate this book' has been expanded to further promote adaptation of the material so that the stories reflect children's realities. Available free of charge to low- and middle-income countries, UK £5 otherwise.

Prozesky D, Stevens S, and Hubley J. Effective teaching and learning for eye health workers
 A 56-page booklet with content adapted from a series on teaching eye health in the *Community Eye Health Journal*, plus updated and additional material. The aim of this text is to stimulate readers to become more effective teachers. Available free of charge to low- and middle-income countries, UK £5 otherwise.

Two posters
Eye injury/trauma: primary level management and **Red eye – no injury: primary level management.** Available free of charge to low- and middle-income countries, UK £3 each otherwise.



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Next issue

The next issue of the *Community Eye Health Journal* will be on the theme **The visually impaired child**

Clare Gilbert