

## Improving eye care

### Is quality affordable?



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The question “Is quality affordable?” is loaded with dynamite!

Can a person who lives on less than US \$1 per day afford a high-quality cataract operation? If the answer is ‘No’, then do we offer that person poor or low-quality services? Do people living in poverty have a ‘right’ to high-quality eye or health care? If the answer is ‘Yes’, then at what price and who should pay? Should we ignore quality and focus on affordability? Or should we provide high-quality services in the hope that someone else will pay?

These are difficult questions, which policy makers, managers, and clinicians must face and try to answer.

#### What is quality?

How do we define and measure quality? A simple analogy will highlight the complexity of this issue: if we have a meal, how do we judge its quality? We can measure how many calories, vitamins, etc. the meal contains, or we can decide how satisfied we are with the food, and we may also take the service into account. Our degree of hunger and the price we pay for the meal may influence our level of satisfaction.

The American Medical Association defines the quality of care services as “the degree to which [these] services influence the



Ferdinand Alma

#### Maintaining clean facilities and clear access for patients contributes to the quality of care. IVORY COAST

probability of optimal patient outcomes.”<sup>1</sup>

The World Health Organization offers a more comprehensive definition<sup>2</sup> and divides quality in four sections:

- 1 Professional performance** (technical quality), including:
  - evidence-based practice
  - clinical audit
  - development of guidelines
  - measures of outcome
- 2 Use of resources** (efficiency)
- 3 Risk management** (risk of injury or illness associated with the service provided)
- 4 Patient satisfaction**

The different aspects of quality have been formulated into a set of six characteristics that any high-quality health programme

should display.<sup>3</sup> As shown in the Box overleaf, such a programme should be: safe, effective, patient-centred, timely, efficient, and equitable.

Quality can vary markedly between organisations. An ophthalmic centre in a high-income country will achieve different outcomes for patients when compared to a low-resource organisation in a low-income country. However, each organisation has a duty to maximise quality within its own resources. Quality is a ‘whole system’ concept: this means that every individual in the organisation, regardless of function or position, should be encouraged to find ways to improve quality.

It is important that we define precisely what quality means to our team or organisation. This

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### What are the characteristics of a good-quality eye care programme?<sup>3</sup>

- 1 Safe:** avoiding injury to patients
- 2 Effective:** based on evidence of effectiveness and avoiding services that have been shown to be ineffective
- 3 Patient-centred:** offering care which is responsive and respectful to the patient
- 4 Timely:** ensuring that waiting time is minimal, especially for potentially serious disorders
- 5 Efficient:** using resources wisely
- 6 Equitable:** providing care that does not vary due to personal circumstances or characteristics.

will give us clear objectives to improve eye care. Once we have defined quality in our setting, we need to establish ways of measuring and monitoring the different aspects of the quality of eye care. We can objectively measure vision, and whether our intervention restored or preserved it. We can also ask patients about satisfaction, not just with clinical care, but also with the non-clinical aspects of care. Were staff polite? Did they explain procedures? Did patients have to wait a long time?

### Affordability

Affordability depends both on the price of a health intervention and on the financial means of the person or organisation paying for it.

The cost of the intervention or service, and therefore its price, should be kept as low as possible through efficient business practices, e.g. high productivity and no waste (only use what is essential for quality).

Health care can be paid for in several ways: by the government, by the user or family, by another party such as a private company (e.g. health care insurance), or by a non-governmental development organisation (NGDO). The ability of these organisations or individuals to pay for health care will influence the level of service.

However, if the care needs to be free to some sectors of society, who will subsidise the cost? Sometimes, a family member will pay the fees or the government may provide

free health care. The more affluent in society may pay more for services, thereby subsidising services for the poor through a multi-tier paying structure (this is similar to first, business, and economy seats on aeroplanes). Local or international NGOs may also subsidise costs, but this is less sustainable in the long term.

### Is quality affordable?

There are degrees of quality. An individual organisation or hospital should be able to identify where quality needs to improve and to decide whether such an improvement is affordable.

Affordability of quality is not only or always a question of cost. Cost-effectiveness is important, but so is the best use of resources. Offering services of poor quality is a waste of resources and may prevent uptake of services. Many improvements do not require more money or resources, but may require the team to change the way it works. It is therefore important to consider the situation as a whole.

#### Improvements in quality that incur a minimal cost or save money

Some small changes in structure or process can lead to a large improvement in quality. Being aware of the organisation and the way it functions will allow us to identify and address these small changes. Here are two examples:

- A cleaner noticed that the waiting room became very dirty at lunch time and took responsibility for cleaning it before the afternoon clinic. This improved patient satisfaction with the service.
- The nurse in charge of an eye unit conducted an audit into the use of theatre time. She found that if the patient was anaesthetised as the eye doctor was getting ready, then it became possible to carry out ten cataract operations in one session instead of eight. This generated more income for the hospital.

#### Improvements in quality that incur a higher cost

We need to decide whether these improvements will be resource-efficient in the long run, as shown by the examples below. If a costly change significantly improves quality, it may be seen as affordable in view of the long-term benefits. Conversely, a procedure may be cost-effective in itself, but it can still represent a misuse of scarce resources.

- An ophthalmologist was keen to move from extracapsular cataract extraction (ECCE) to small incision cataract surgery (SICS). Investigation of the evidence showed a marked difference in surgical outcomes between ECCE and SICS. The cost of moving from ECCE to SICS, whilst large, was felt by the hospital administration to be affordable, because it had the potential to significantly improve clinical outcomes.



Being attentive to patients' needs is an aspect of quality. BANGLADESH

# Improving the patient's experience



- A government hospital in a low-income country wants to set up a corneal eye bank. The ministry of health can only identify a few patients who would benefit from this service and believes that any additional money should rather be spent on cataract surgery, as the need for it is greater. The ministry suggests investing the money in boosting cataract surgical services and reviewing the need for an eye bank at a future date.

## Seeking improvements by focusing on areas of influence

In a resource-poor environment, it can be more difficult to improve quality. For example, if the hospital cannot obtain intraocular lenses (IOLs), then how can it provide a high-quality cataract surgical service? In such instances, we must try to improve quality in the areas where our organisation has influence. We should try to build relationships with an eye hospital that has IOLs, or seek to change the ministry of health's procurement policy through lobbying in the national prevention of blindness committee, or seek support from an external donor.

## Conclusion

We need to make eye care and good vision accessible to everyone regardless of their ability to pay. In order to achieve this, both clinical and non-clinical services need to be of the best possible quality. This requires the involvement of all eye care staff to regularly discuss the quality of care and to identify ways in which practice can be improved with available resources.

## Improving quality: key messages

- 1 **Improvement in quality is part of the day-to-day work** of any eye unit and every eye worker
- 2 **Both clinical and non-clinical care affect the quality of service**
- 3 **Quality can be improved in small affordable increments**
- 4 **Improving quality can save money in the long term** but usually requires some initial investment
- 5 **Some improvements in quality may not be affordable** at this time and place
- 6 Each organisation must try to **improve quality within its resource constraints.**

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When arriving at the eye care unit, patients often feel unsure of what is going to happen, anxious, and vulnerable. Many have never found themselves in a hospital setting before or have never travelled or slept away from home.

It is an integral part of eye care to make sure a patient's experience is a positive one. This article offers suggestions for good, evidence-based, practice to improve this experience.

Our suggestions should necessarily be adapted to local context: resource-poor settings are particularly challenging work environments and staff may need to display more ingenuity in working towards good practice, when striving to achieve the goals of VISION 2020.

## Communication

Good communication is of greatest importance in all the caring professions. It is crucial at every level – between disciplines, and between staff and patients and their families.

If the eye care team is able to inform patients, instil confidence in them, and convince them of the need for treatment or follow-up, this can actually make the difference between successful and unsuccessful outcomes.<sup>1</sup> It is always important to consider the patient's point of view.

### Patient information

Accessible and correct information is the key to good communication with the patient and his/her family.

### Verbal information:

- Speak in a clear and friendly manner, and avoid using medical jargon.
- The patient should not feel rushed; adapt your pace, particularly if he/she has another sensory deficit (e.g. deafness).
- You will communicate more effectively if you are friendly and approachable, rather than 'business-like'.
- At appropriate moments in the conversation, you can check if the patient has understood the information, by asking questions such as: "Can you tell me the date and time of your next clinic appointment?". You should also ask if the patient has any unanswered questions.
- Consider potential language barriers. Interpreters can facilitate a stress-free interaction. If language has been a problem, you should make a note of it in the patient's records. This helps to plan ahead and to make sure you include the appropriate interpreter for future appointments.

### Written information:

Effective written information should help patients and their families to understand and remember a discussion, and it should contain all the important points.

A permanent written record of the information also offers another advantage; it gives all members of staff a standard set of information points that they should remember

*Continues overleaf* ➤



Joseph Verkula

Being friendly and approachable facilitates communication with patients. LIBERIA



**It is important to listen to the patient's point of view. BANGLADESH**

to include in their discussions with patients and families.<sup>2</sup>

For written information remember to:

- use short words
- avoid long words and jargon
- explain technical terms
- use short sentences.

The material needs to be tailored to local needs. For example, when a large proportion of patients are illiterate, depicting written information through pictorial descriptions and illustrations will often be more effective. When using printed text<sup>3</sup>:

- use a minimum of font typeset 14, but 16–22 may be needed by some patients
- use black text on a white background
- use Arial or Verdana fonts
- avoid continuous capital letters and italics; use bold to make any emphasis
- use non-glossy paper.

If written information is handwritten, it must be black on white, in block capital letters, and equivalent to at least a printed size 16 (≥4mm).

**Patient teaching**

When you teach patients a skill (e.g. instilling eye drops), it is important that you provide them with clear information and allow them to be active, rather than passive, in this teaching process. You should let the patient not only observe the skill, but also practise it under supervision, whilst giving them feedback. You should also give the patient the opportunity to ask questions.<sup>4</sup>

**Counselling**

Counselling aims to help the patient discover solutions to his/her problems by exploring and clarifying ways of living that will increase his/her wellbeing. Unfortunately, this is often misunderstood. The object of counselling is not to inform the patient about his/her eye disease or to direct the

patient towards a course of action. It is not prescriptive.

Counselling is a form of helping that is focused on the patient's needs, as perceived by the patient, and not on what others consider these needs to be. The counsellor does his/her best to listen to patients, working with them, to find the best ways to understand and resolve their problems. Counselling must take place in a private and confidential setting and counsellors should listen attentively to understand the patient's perspective. Counselling helps patients realise that there is a way for them to make a choice or change direction.<sup>5</sup>

Always remember that patients are individuals: despite having the same disease, different patients will have different needs.

There is evidence demonstrating many benefits of improved communication.<sup>6</sup>

Patients display better knowledge and are better able to recall information, they experience greater satisfaction with their health care, can give genuine and informed consent, and are able to cooperate better. As a result, they spend less time in hospital and experience a quicker recovery from illness and/or interventions. Consequently, they will relate their good experience to their community and this will create a better uptake of services.

**Staff accountability**

It is important that all staff be accountable for the standard of care given. Improving the patient's experience is the responsibility of

the whole eye care service delivery team.

Patients may be afraid to share their fears or complaints with doctors and nurses, thinking they are solely interested in treatment. They may be more comfortable sharing such comments with non-clinical staff; these personnel have a pivotal role in improving the patient's experience, as they often spend more time with patients. All personnel, therefore, should be alert and responsive to the patient's needs and give feedback to staff who can implement changes to improve the patient's experience.

Staff need to develop an awareness of their areas of competence, i.e. the skills, knowledge, and also the attitude (behaviour and belief systems) that they bring to their practice, as these will affect the way they treat patients.<sup>7</sup>

When acquiring experience, health care workers need to be self-aware and self-critical; they should seek supervision as they develop their own practice and offer supervision to junior colleagues. Continuing professional development (CPD), and being accountable for the standard of care given, results in relevant and appropriate delivery of care.

Finally, good time management is vital for improving the patient's experience. This encompasses prioritising, being systematic, and delegating where appropriate staff skills exist.<sup>8</sup> Poor time management leads to a last minute rush, creates stress in staff and in patients, and leads to poor performance. The needs of patients and families must take priority and you should make sure they are promptly addressed.

**Dignity**

Dignity is a basic human right. It is especially important to remember this in health care settings, where people feel more vulnerable.

Staff must make every attempt to preserve a patient's dignity.

The care delivered to patients may be influenced by the quantity and quality of resources, but it must not be in any way restricted by their age, creed, culture, nationality, race, gender, disability, illness, political beliefs, education, or social and economic status.<sup>9</sup>

A patient's culture plays an important part

in how he/she perceives dignity. It is important to show that you respect the patient's values. For example, ask the patient by what name or title they prefer to be called.

**‘Counselling is a form of helping that is focused on the patient's needs, as perceived by the patient, and not on what others consider these needs to be’**

**Privacy**

Ophthalmic patients require privacy. A patient interview or examination must happen away from spectators. You should take care

to ensure confidentiality and store patient records securely.

Privacy for personal needs and hygiene is essential, with separate facilities for men and women. Very often, mixed wards are still unacceptable to individuals, though there is frequently no choice.

Accommodation for children should preferably be in a specifically dedicated and child-friendly space.

Patients in isolation, e.g. due to an infectious condition, may feel neglected or stigmatised. Staff should take time to interact with them outside of actual treatment procedures, to help increase a feeling of self-worth. When possible, it is helpful to provide separate accommodation for glaucoma and cataract patients, because these patients will experience different outcomes after surgery.

### Prioritising

In outpatient departments, and on operation lists, certain patients should be given priority over others ('fast-tracked'): these are the very young, the elderly and infirm, those with acute or chronic general illness, and women (particularly those who are used to staying at home).

The patient is part of a family and community, and he/she may be supported by a parent, a sibling, a spouse or other carer. You should take time to address the needs and anxieties of carers too and, with the patient's consent, consult and include carers in any plans and preparation for the patient's discharge and ongoing care.

Staff must aim to be efficient and, most importantly, effective in supporting patients. They must be prepared to act as the patient's advocate and be assertive enough to challenge colleagues when they feel dignity is not given proper consideration.

## Environment

The ophthalmic health care setting is unique. Patients come from across the age spectrum and many have to cope with related health problems, as well as visual impairment. This poses a significant challenge, especially when eye care units are set up in under-resourced areas.

### Welcoming patients

Many patients travel long distances, and on arrival they will feel tired and vulnerable. The first person they meet will be very significant and will either raise or diminish their hopes and anxiety. The attitude of reception staff is crucial to the patient's feeling of wellbeing and self-worth.

### Cleanliness, safety, and comfort

Patients have a right to be cared for in a clean and safe environment. The housekeeping team are a vital part of the service and must be valued by clinical staff and senior managers.

The whole team is responsible for infection control, appropriate use of



Sivakumar M

### Ensuring that patients are cared for in a clean environment. INDIA

equipment, and reuse of materials. Health care settings must be places of safety and potential hazards must be noted.

The maintenance department is responsible for equipment and furnishings requiring repair or replacement. In small hospitals where there are no separate housekeeping and maintenance teams, other staff should be given responsibility for these roles.

Good lighting is important for patients and for staff, in a speciality in which attention to detail is so vital. When the electrical supply is erratic, it is important to have backup generators and lamps, and to ensure that all staff know how to operate these.

### Accessibility

Patients may rely on notices and signs with written instructions. These must be accessible: they should be displayed in well-lit areas and in a colour and size that can be read easily.

Some patients will not have adequate vision to read even the best signage and may ask a staff member, for example: "Where do I collect my drops?". It is not enough to point in the direction and reply: "It is down there on the right." Patients expect staff to know how to assist them; however, staff are sometimes not aware of the needs and problems of patients with visual impairment. Staff should not be shy to ask patients about managing a situation specific to their personal needs.

Guidelines for eye health workers on assisting the blind and visually impaired should be discussed, techniques demonstrated, and instructions kept on display. Orientation days should be held for new staff to equip them with an understanding of the needs of the visually impaired.

There is only one correct way to guide a visually impaired patient and it can be

described by the motto: "Don't pull me, walk with me."<sup>10</sup> Often, the wrong technique is used, causing difficulty and distress for the patient. Staff should always explain what is about to happen. Gentleness and patience are vital.

## Conclusion

The patient (and not the disease) must always be at the centre of ophthalmic services. Treating the patient as an individual will inevitably result in an improved service with increased outputs – but the outputs must never be the motivation for seeking such improvement.

## Glossary

**Communication:** a two-way process, interaction with other(s), sharing of information and ideas.

**Continuing professional development (CPD):** instruction or opportunities for the purpose of updating and improving professional knowledge and skills.

**Counselling:** forum for confidential discussion and consultation, where problems are expressed by the patient. A counsellor must have listening skills, a sound knowledge of health, as well as experience and training.

**Dignity:** to treat someone with dignity is to make them feel important and valued in relation to others. When treated with dignity, a patient will feel confident, comfortable, and valued.

**Patient information (verbal and written):** conveys facts or instructions (e.g. the cost of an operation).

**Patient teaching:** provides knowledge and/or skills through discussion or demonstration (e.g. how to instil eye drops).

**Staff accountability:** the obligation of answering for the results or outcome of one's actions, as differentiated from responsibility (what we ought to do).

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# Improving surgical outcomes

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Outcomes of cataract surgery are worse than we would like them to be. Community-based studies show that up to 40% of eyes have a postoperative presenting vision of  $<6/60$ .<sup>1</sup> Eyes with intraocular lenses (IOLs) do better; however, it has been shown that even in prosperous middle-income countries, such as Venezuela, in 20% of pseudophakic eyes presenting vision was  $<6/60$  and in 15% best corrected vision was worse than 6/60.

Poor outcomes matter. Patients deserve improved vision whenever possible and poor outcomes deter prospective patients from coming for surgery and probably reduce their willingness to pay for their treatment – particularly if they have to pay in advance!

In this article, we offer some suggestions for improving the quality of cataract surgery. We admit that there is little evidence base for most of these suggestions and that some of them are controversial. However, we hope to stimulate debate.

## 1 Selection and training of ophthalmologists

Selection processes usually emphasise academic credentials rather than clinical or surgical skills. It is difficult to test surgical aptitude during a selection process; however, generic tests of hand-eye coordination do exist and are used routinely in the selection and training of pilots. Should we consider using similar tools to select ophthalmologists? At the very least, we should ensure that trainees have stereoscopic vision.

Selection is not always based on quality. Some postgraduate programmes do not even identify candidates who are interested in ophthalmology, because the country desperately needs ophthalmologists. The training of ophthalmic assistants in many countries in Africa offers another example. Originally, this training consisted of one year of clinical ophthalmology for everyone, after which suitable candidates were selected for another year of training in cataract surgery. However, to answer needs in personnel, training programmes now last eighteen months to two years and all students on the course are trained in cataract surgery, regardless of inclination or aptitude. The trainees' cataract surgical skills vary greatly and it is unlikely that this change has improved cataract outcomes.

Postgraduate training of eye surgeons

should also have explicit targets for trainees, such as:

- number of operations that must be performed before trainees can qualify as ophthalmologists (e.g. in the UK, this number is 300, but most trainees perform more than 500 in practice)
- level of supervision: initially the trainee will be closely supervised by the trainer, but, by the conclusion of training, trainees should be able to operate on almost any cataract without supervision
- acceptable outcomes: e.g. simply performing the required number of operations would be insufficient if the trainee had a 25% vitreous loss rate.

## 2 Continuing medical education (CME)

In all medical disciplines, CME is vital. When ministries of health have so many claims on their small budgets, educating doctors is rarely a priority: after all, they have already received an expensive training. However, unless there is support for CME, the quality of care offered by specialists will deteriorate and this will reduce the value of the investment in their initial training.

CME is not just for doctors, but also for ophthalmic assistants and nurses. In the UK and the USA, qualified ophthalmologists must obtain a certain number of 'CME points' every year. Points can be obtained from private study. The process is administered by the Royal College of Ophthalmologists and the American Academy, respectively. This model, with its points system, may be one way in which ophthalmology institutions in affluent countries can assist low- and middle-income countries.

## 3 Innovation

At various stages in our careers, most of us have probably acquired a tip from another surgeon that enabled us to operate with greater confidence.

Eye surgery is not static and keeps improving. To improve our own surgery, we need to observe other surgeons and, occasionally, copy their techniques. This is easy in a large centre with multiple surgeons, but it is much more difficult if you are a surgeon working alone in a remote area. Those who work in larger centres should ensure that they can welcome other surgeons to observe and learn new techniques. This is also true for new materials and protocols, e.g. the use of cefuroxime in the prevention of endophthalmitis.<sup>2</sup>

## 4 Discipline

When we are under pressure to increase the numbers of cataract operations to 32 million per year by 2020, it is easy to focus on the quantity and lose sight of the quality.

Surgeons, and all eye workers, have to work in a systematic, disciplined way, so

that all patients are fully assessed preoperatively and only those who are likely to benefit proceed to cataract surgery.

Because cataract surgery is performed so frequently, it can become routine, and we become careless. Doctors, nurses, and health managers need to sit together to develop robust processes and systems to ensure that every patient receives the best care and to minimise the risk of error. This may be as simple as ensuring that no patient is taken to theatre unless the eye for surgery is marked, or it may be as complex as a ten-page booklet that includes all preoperative and postoperative instructions.

## 5 Biometry

Many centres still use standard-power IOLs because they cannot perform biometry. Biometry equipment has become more portable and less expensive. Most surgeons should use it as a routine, even in outlying clinics. We are not aware of any randomised trials proving that preoperative biometry improves unaided postoperative vision. However, given that biometry is safe and inexpensive, it is difficult to justify withholding it from any patient. The prevalence of axial ametropia varies widely, and biometry is of greatest value in communities with the highest prevalence, e.g. in Asia. It will have a lesser impact where axial ametropia is less common, e.g. in sub-Saharan Africa.



B Ramanurthy

## 6 Equipment

It is difficult to obtain good results with inadequate equipment. If the operating microscope is broken, it is safer to cancel the operation than to proceed. This is frustrating for both surgeon and patient. However, the inconvenience of a cancelled operation is minor compared to the problems caused by complicated surgery. Ultimately, only surgeons can judge whether the equipment is adequate for their needs. What is acceptable to one may be unsuitable for another. For example, some eye instruments are designed for use by a right-handed surgeon. However, one of the authors is left-handed!

As ophthalmic surgery becomes more complex, regular maintenance of equipment is essential. Fortunately, this has been



Ferdinand Ama

countries, ophthalmologists often specialise, for example in vitreoretinal surgery. General ophthalmologists perform most common procedures, but they refer complex problems, such as paediatric cataract, to a sub-specialist colleague. In developing countries, it can be difficult to establish such a referral network: travel is costly and difficult for patients, and people prefer to deal with the doctor they know and trust rather than visit an unknown surgeon in a distant place. However, the outcomes of surgery for these complex conditions always improve when patients are referred to specialists who have the necessary equipment, training, and personnel to obtain the best results.

### 13 Leadership

This is perhaps the most important point. If the quality of outcomes is seen purely as the job of the ophthalmologist, then it is unlikely that the results will ever improve. Every eye worker has to be involved, because every stage of the patient's journey, from diagnosis to discharge, can affect the outcome. This includes not only doctors and nurses, but also non-clinical staff, such as administrators and technicians. The surgeon's role is to provide leadership and to involve all the other personnel in ensuring that every patient gets the best treatment. A change in attitudes will be accomplished by involving all health workers and allied personnel in partnership, not by giving lectures or orders from above.

On the back page of this journal, you will find the CBM logo with the motto: "Together we can do more." This is the best advice you can ever follow, if you want to improve the quality of your surgical outcomes.

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### Resources for improving outcomes

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For a physical copy, you can order the 'Community Eye Health Updates 2007' CD from TALC, PO Box 49, St Albans, Hertfordshire, AL1 5TX, UK. Email: [info@talcuk.org](mailto:info@talcuk.org) Website: [talcuk.org](http://talcuk.org)
- 2 **Instrument maintenance training** is available at low cost at Aravind Eye Hospitals in India – see [www.aravind.org](http://www.aravind.org)

### Cataract surgery: the more you operate, the better your surgical outcomes. IVORY COAST

recognised by the VISION 2020 initiative, and training in equipment maintenance is available in some countries and regions.

### 7 Numbers

The more you do something, the better you do it – practice makes perfect. A surgeon who only operates on cataracts infrequently will have worse outcomes than a surgeon who operates every week. In most countries, almost all ophthalmologists do some cataract surgery. In countries where there are more than 50 ophthalmologists per million people, perhaps fewer of them should operate; this would allow operating ophthalmologists to increase their output and improve their outcomes. There is no agreed standard for the minimum number of operations an ophthalmologist should perform. However, we suggest that eye surgeons should operate at least once per week.

### 8 Audit

Prospective monitoring of outcomes was associated with an improvement in outcomes in three separate studies.<sup>3,4</sup> Even a regular retrospective audit will identify problems and help us deal with them. If we do not set challenging outcome standards, we will remain in our 'comfort zone', but we are unlikely to improve our quality.<sup>1</sup>

### 9 Morbidity/mortality meetings

Although there are few cases of mortality in ophthalmology (we hope!), it is helpful to organise regular departmental meetings to discuss results and causes of poor outcomes. It is essential that these meetings are not vindictive or punitive. A single individual is rarely wholly responsible for a poor outcome. There is usually a sequence of errors, some of which are due to systemic failures in the institution. If these are to be corrected, the review must involve everyone, including surgeons, nurses, managers, and technical staff. The goal is not to find out what went wrong (although this may be a necessary first step), but to determine how to improve

the standard of care in the future. If the end result is merely to identify a culpable individual, the exercise is worthless.

### 10 Standard evaluation systems

If everyone has different standards of evaluation, this obscures the bigger picture. The World Health Organization has set standards for best corrected vision at two months after surgery:

- 6/18 or better for 90% of eyes
- <6/60 for less than 5% of eyes

There are two problems associated with these guidelines. Firstly, few patients return for follow-up at two months, so the assessment of outcomes represents only a small fraction of operations. Secondly, although vision may be tested with best correction in the clinic, the patient may not buy the glasses, or the spectacles may be lost or broken within a month. Now that IOLs are almost universal and biometry is widely used, we could set standards for uncorrected vision at an earlier date – such as one week. This would allow more consistent reporting of outcomes, which would make it easier to identify best practice.

### 11 Refraction and spectacles

Even with biometry, some patients will have significant postoperative refractive error. One of the best ways to improve outcomes is to perform refraction for all patients and to give them spectacles. If there is significant astigmatism, the spectacles may be more expensive than the surgery, as astigmatic lenses are costly to prescribe and fit. Since most surgeons are aiming for good uncorrected vision, we should give spectacles either free of charge or for a minimal fee, to any patient who requires spectacles to achieve 6/18 or better.

### 12 Understanding our limitations

We have emphasised cataract surgery, as this is the most common procedure undertaken by ophthalmologists. However, the proposals are applicable to any simple or complex eye operation. In high-income



# Case study: improving the management of eye care programmes



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Nigeria is a federation of 36 administrative States, which each have a mandate to deliver health care to their population. Sightsavers International has been supporting four State ministries of health (Cross River, Kaduna, Kwara, and Sokoto) in implementing programmes designed to provide comprehensive eye care services.

Previously, eye care had been limited to services in big hospitals in the largest cities, which were inaccessible to the general population.

These new eye care programmes have been very successful. The Kwara eye care programme (KWECP), for example, has increased the cataract surgical rate from 196 cataract operations per million per year in 2003 to 932 in 2007.

This article describes what we have learnt from our experience in managing these programmes and hopefully will provide you with suggestions to improve management.

## Participatory planning

Planning for the Nigeria eye care programmes was participatory, and VISION 2020 provided us with a clear vision and strategy.<sup>1</sup> Three initial consultations with the State ministries of health were followed by meetings with the different stakeholders. These involved all relevant players in eye care at field level, all levels of government in health care delivery in the geographic region, and representatives of all health professionals involved in eye care.

Stakeholder meetings have been invaluable and helped to bring together what would otherwise have remained very diverse partners.

## Managing projects within a programme

An eye care programme often consists of various projects, designed to control different diseases within a finite period. This is due to disease focus, development priorities, and/or funding and management considerations.

The KWECP was running a Mectizan<sup>®</sup> distribution project, a vitamin A distribution project, and an eye care project under separate funding and management. Our experience showed that the people working with these various projects had a tendency to drift apart and work separately, that the different projects often resulted in conflicting pressures on the same staff, which resulted in inadvertent



An older woman sees her granddaughter for the first time after cataract surgery. NIGERIA

duplication of efforts and limited synergy.

To remedy this situation, we organised joint planning sessions between the management teams of the various projects under a unified State eye care programme, and we made sure that project reports were circulated to all other projects. Where possible, we tried to merge projects under one management team. We learnt that:

- Systems should be in place to ensure that different projects within the programme are complementary and synergistic.
- A project, which is for a finite period, is only one step in what will be a long-term programme. Elements of sustainability and long-term programme planning should be incorporated from the beginning.

## Managing human resources

Human resources are the most valuable asset of any eye care programme. Team building, continuous training, and motivation are essential aspects of human resource management<sup>2</sup> (see Box on the right).

### Assessing human resources

In order to effectively manage and develop human resources, it is essential to start by:

- estimating the available pool of people who may be trained
- assessing the levels of competence of existing personnel, as they may need some extra training.

Jenny Matthews/Sightsavers

In some States, a dearth of qualified manpower to train has limited the development of human resources. For this reason, the development of middle and lower cadres, especially ophthalmic nurses, has been less successful than that of ophthalmologists.

We also found that most existing staff required re-training before they could effectively perform their roles in service delivery.

### The importance of teamwork

Moving from an individual approach to a team approach has been a key factor in improving output in the KWECP.

The programme set up service teams responsible for eye health in defined geographic zones in the State. These teams comprised the various professionals required to deliver service; we used available staff and also organised training to fill identified gaps in human resources. We developed an approach centred on base hospitals and outreach clinics and surgery, and we instituted management committees and coordinating systems. We therefore moved away from the service delivery

system that had previously been the norm, which was centred on a single hospital and ophthalmologist.

## Managing human resources: key points

- 1 Check the available pool and competence level** at the beginning of the human resource development process
- 2 Emphasise a team approach;** clarify and develop roles, responsibilities, and reporting channels
- 3 Build teams with the correct mix** of professional and support staff
- 4 Do not assume existing personnel have the required skills** and knowledge for service delivery
- 5 Invest in adequate and continuous training**
- 6 Invest in management and advocacy training** for key personnel
- 7 A well-motivated team** delivers better results
- 8 Recognise individuals** for outstanding performance
- 9 Do not single out a single profession** for praise in the case of good performance, or criticism for poor performance (e.g. by saying that low numbers of cataract operations are the fault of the ophthalmologist).

## Training

It is important to invest in quality training, not forgetting to add principles of management for those in leadership positions. Training should be targeted at building appropriate teams with the correct mix of professionals and support staff.<sup>3</sup>

We have had much success in the training of ophthalmologists and we set up a practical training centre for ophthalmologists in KWECP. Two factors were key to this success. Firstly, there existed a pool of general practitioners in the State services which were available for training – this is not always the case in sub-Saharan Africa and cannot be taken for granted. Secondly, we benefited from the presence of a motivated consultant ophthalmologist in the programme, who became the principal trainer and acted as a focal person and driver for the training programme, as well as for service delivery.

## Motivating staff

The team leader plays a vital role in keeping his/her staff motivated. Motivation involves the development and maintenance of a shared vision, appropriate training and acquisition of skills, the recognition of individual contribution, and a careful use of incentives.

Performance-linked financial incentives alone are usually not very good motivators and may lead to service or project failure if the incentives dry up.

In our programmes, motivation was essentially the result of:

- improving staff morale through a culture of support and encouragement
- providing quality equipment and adequate consumables
- ensuring a conducive environment for service delivery
- providing the training necessary for the tasks at hand
- the incentive, with good performance, of further training and development of skills.

## Managing infrastructure and technology

Before planning a project, it is important to carefully assess existing infrastructure and technology. Infrastructure and technology constituted 30–70% of our project budgets at any one time, depending on the age of the programme, its expansion, etc. Even when an eye care programme is mature and spending a relatively small portion of its budget on infrastructure and equipment, these still represent a large past investment.

As shown in the Box in the next column, you should establish systems for cost-effective procurement, inventory, and monitoring.

We found that staff often required training in the proper storage and handling of assets, as well as in the use of whatever monitoring tools were in place for tracking assets and inventory. Complicated tools and procedures were not well received, so tools should be user-friendly.

## Managing infrastructure and technology: key points

- 1 **Appropriate technology means quality technology at an affordable cost**, so ensure adequate high-quality technology and equipment for service delivery
- 2 **Do not procure cheap, low-quality instruments or technology**
- 3 **Institute preventive maintenance**
- 4 **Establish standards** for technology and consumables
- 5 **Ensure proper documentation** and tracking of assets
- 6 **Use tools that are simple and easy to use** for tracking
- 7 **Do not discard existing systems**, provided that they meet standards
- 8 **Ensure consumption matches activities** and establish reorder levels.

## Improving quality

The quality of service delivery and of the patient's experience is dependent on ensuring that the staff are fully aware of the clinical and non-clinical aspects of 'quality', and of the role they personally play in improving them.

We cannot overemphasise the impact of improving the quality of clinical and non-clinical services. We found this to be a major driver of service uptake.

In KWECP, we established the concept of ensuring quality at every step of service delivery. We did this by developing a model team in one hospital and by nominating a coordinating consultant who actively trained and supervised ophthalmologists in service.

The programme selected a hospital which had existing infrastructure and human resources, but where output had been low over many years. The staff of this hospital were re-trained in the various clinical and non-clinical skills necessary to improve quality, including human relations. We therefore built a small, but effective, hospital-based eye care team, where responsibilities for administration, outpatient department activities, theatre nursing, etc. were clearly defined. Human resources were also developed in the surrounding communities for primary eye care work and referrals: a community ophthalmic nurse and primary eye care workers were trained, all led and coordinated by the ophthalmologist and his hospital-based team. This hospital- and community-based team was responsible for a population of approximately half a million persons.

The subsequent rapid acceptance and uptake of services and the fast build-up of surgical output from this team served as a positive role model. This model is now being

emulated by the rest of the programme and by other programmes supported by Sightsavers in the country.

## Advocacy and management

One of the main roles of the management teams in eye care programmes has been advocacy. Eye care ranks low in priority for health care in most parts of the world and Nigeria is no exception. The programme work in Kaduna, Kwara, and Cross River demonstrated a need for strong advocacy to generate State support and ownership of the eye care plans.

In Sokoto State, the most recent of the eye care plans, major investment was made in advocacy and in advocacy training for staff at the onset of the programme. This approach was highly successful: Sokoto authorities demonstrated much greater ownership and supported programme activities at an earlier stage in programme implementation than was the case for any of the older programmes in other States. The lessons we learnt were:

- consider advocacy as a major activity in your plan
- do not leave advocacy to chance encounters
- advocacy should be carefully planned with set goals and objectives
- invest in advocacy training for key personnel.

## Financial sustainability

Some form of income generation or cost recovery is essential to sustain an eye care programme. The government partners in Nigeria programmes vary in their financial contributions; one State provides regular financial support, while another provides no financial support at all despite extensive advocacy.

It is essential that fees are affordable by the majority of the population. The surgery fees introduced in our programmes have not

been a barrier to service delivery and provide resources for maintaining quality of service.

Evidence indicates that 80% of patients from the poorest and least developed areas of Sokoto State can afford the fee of about US \$12 (half the price of a goat).

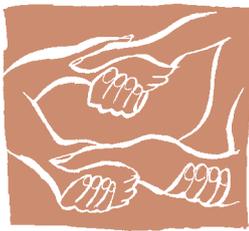
Policies should be in place so that no person remains blind on account of his/her inability to pay. In the Nigeria eye care programmes, many are assisted

by the local government authorities, some are supported by wealthy members of the community, and others are granted exemption from fees after recommendation by social services.

If free eye camps take place, such as those organised by the State government in Kwara, it is better to organise them in locations far away from the base, as we have noticed that they have a negative impact on paid service delivery in the base hospitals.

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# Short-term visits by eye care professionals: ensuring greater benefit to the host community



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In ophthalmology, even brief encounters with patients can have a dramatic effect on their health and quality of life, whether this is through sight-restoring surgery or corrective spectacles.

The relative affluence of medical staff in some countries and the availability of cheap international flights means that it is easy for these doctors, nurses, orthoptists, etc. to take leave and parachute themselves into another country for a week or two of eye care. A recent article in *BMJ Careers* directs the interested to a range of non-governmental development organisations who might be able to facilitate the adventure.<sup>1</sup>

I would like to question whether such expeditions achieve anything more than mere 'ophthalmic tourism'. How can we ensure that the greater benefit is to the host community?

The purpose of this article is not to discourage involvement in cross-cultural projects, but rather to help enthusiastic ophthalmology volunteers from all countries to channel their energy in the most productive manner.

## Pitfalls of cross-continental exchanges

### Unfamiliar clinical territory

Part of the joy of travel is the encounter with the unfamiliar, but consequently it is possible to make assumptions about medical practice which do not transfer to another context. The first visit anywhere will almost certainly involve mistakes being made.

The disease profiles of patients show geographical variation and ophthalmologists from temperate climates are less familiar with common tropical conditions, such as fungal keratitis. Furthermore, the management strategy for a corneal ulcer in their own country may be very different to that in the country being visited.

### Donations of consumables

Unfamiliarity is even more critical in the operating theatre. In most wealthy countries, practice relies extensively on disposable items. The necessity to reuse in poorer countries may be a problem for the visitor. If the visitor



Frank Green

Operating under a leaky roof in the Karen community. THAILAND

is profligate with precious supplies, this may also be a problem for the host!

Many visitors, however, arrive with charitable supplies of equipment and consumables. It is essential that such donations are appropriate. Drug companies may be keen to clear unused stock nearing expiry, writing it off against tax. There is the risk that supplies are merely transferred from one stockroom to another, often leaving the donor more satisfied than the recipient. For example, the only benefit of a recent donation of oxygen concentrators to a hospital in The Gambia was the establishment of a committee to oversee the acceptance of unsolicited donations.<sup>2</sup>

### Unfamiliar surgical techniques

A number of years ago, I conducted an anonymous survey of young doctors in an Asian country as to the benefits of visits from foreign eye surgeons. They cited 'donated consumables' as being the most important. This was ironic, as the visitors' remits were usually to train and mentor newly qualified doctors. In many cases, the visits were unsuccessful because the visitors were not familiar with the surgical techniques being used. Later audit revealed that sometimes

the visiting trainers' surgical outcomes were worse than those of their trainees.

Training in Western countries gives little exposure to suturing techniques and there is an enthusiasm for junior doctors to travel to developing countries to gain experience in surgery they would not get at home. Where this is part of an established exchange of skills, with appropriate supervision, this is beneficial to both parties. However, any suggestion that junior doctors may go to another country and practice, on disadvantaged people, techniques they would not be permitted to use in their own countries is immoral and unethical.

### Destabilising the local eye health services

All development assistance should be established around the principle of local needs assessment and requests for help. Volunteer health programmes have a curious knack of being clustered around popular tourist destinations, and whilst permission may have been sought from officials in the ministries of health (who might have their own agendas), sometimes the involvement of local ophthalmologists is not sought.

This can be very destabilising. Offering free care to poor people seems such an obvious solution when viewed from afar, but if it upsets the local economy and jeopardises a cost-recovery scheme at a nearby hospital, it may ultimately cause far more problems than it solves.

For example, cataract being a chronic disability, relatives may defer using services at the local clinic, if waiting another year means that their grandmother will get the surgery free from an exotic foreigner. Not only will this be detrimental to the local clinic, but if the grandmother's deteriorating vision is actually caused by glaucoma, the delay may also lead to permanent and irreversible blindness.

### Free services?

All cultures have a fascination with the stranger beyond the borders, and the unscrupulous may see this as a means of generating some income. Thus, whilst the visitor may be donating his or her services for free, some may view the foreign expert as a marketable commodity. There may be hidden payoffs, financial, political, or religious, of which the visiting eye professional will be unaware.

## Phacoemulsification versus SICS: responsible skills transfer

The local needs assessment is likely to establish that skills transfer is what is desired. This may well include a request for training in phacoemulsification.

It is interesting to speculate whether phacoemulsification would have become so dominant in the wealthier nations if small incision cataract surgery (SICS) had been developed first. Studies<sup>3-5</sup> have indeed demonstrated that the surgical outcomes of the two techniques can be similar, and that SICS is faster, cheaper, and less technology-dependent than phacoemulsification. Not all UK ophthalmologists are aware of this.

Of course, phacoemulsification can play a part in blindness reduction programmes, and many cataract surgeons want to have a broad range of skills to offer their patients.

Whilst I do know of circumstances where surgeons have become competent in phacoemulsification following two weeks of intensive training, this is not what we would expect of trainees in the UK or North America. Delivering a less thorough training in a potentially dangerous and highly expensive technique may not be in the best interest of a country's blindness prevention programme. An important principle to bear in mind is that all surgeons should be using "the right operation, for the right patient, at the right time!"

If training in phacoemulsification is part of a planned visit, both sides must ensure that the equipment is available, is of an adequate standard, and can be maintained when it breaks down. In addition, suitable arrangements must be made for the treatment of patients who suffer complications, such as a retained nucleus fragment.



Training in paediatric surgery in the southern African region. SWAZILAND

## Maximising benefit to the local community

The Box on the right details important principles to maximise the benefits of a visit for the local community. If these principles are ignored, a visit can easily create more problems than it can solve. There are many examples of successful cross-continental visits and exchanges. The following selection provides an illustration of these principles.

### Providing care to isolated and disadvantaged communities

Many isolated communities have no hope of an ophthalmic service, but for the intervention of an outsider.

The Vine Trust<sup>6</sup> set up a floating medical clinic on the Amazon River, which provides a service to remote and disadvantaged people and fulfils needs that would otherwise not be met.

Often, for small and isolated communities, visits from eye care staff will be the only stimulus for local services to be developed.

For example, Frank Green, a consultant ophthalmologist at Aberdeen University, has effectively been the sole ophthalmologist to the Karen refugees who have fled from Myanmar (Burma) to Thailand. Since 1990, he has made two to three visits each year. For political reasons, the Karen cannot receive ophthalmic medical support from their Thai hosts. The size of the community is sufficiently small to make it difficult to support and sustain a full-time ophthalmologist. However, over the years, a number of medical assistants have been trained locally to identify cataract and manage non-surgical cases.

### Providing expert training to meet local needs

In the 1980s, strabismus surgeons at Colombo Eye Hospital in Sri Lanka identified the need for orthoptic skills. However, sending staff to the UK to obtain orthoptic qualifications failed to provide a continuous service. With the backing of CBM initially, and later of the World Health Organization and of Sightsavers International, orthoptist Rowena McNamara was recruited for three months to design and deliver an orthoptic module, to add onto the ophthalmic technology course, with a curriculum to meet local needs. This has resulted in 20 years of uninterrupted orthoptic service at Colombo Eye Hospital provided by three full-time orthoptists. In 2000, a new clinic was started at Kandy Eye Hospital.

Another successful example of skills transfer meeting local needs is the formation of a vitreoretinal service at the Kikuyu Eye Unit, in Kenya. This was only possible as a result of regular visits by UK surgeons to East Africa, at the demand of local staff. A further consequence of this initial experience has been a commitment by the Jules Gonin Club to support vitreoretinal training in five institutions in low- and middle-income countries.

## Principles for a beneficial visit by eye care staff

It is crucial to consider all the following principles before embarking on a project:

- 1 **Response to local needs or request for help**
- 2 **Long-term commitment**
- 3 **Repeated visits**
- 4 **Full involvement of the local community and authorities**
- 5 **Commitment to the transfer of skills**
- 6 **Use of appropriate technology** (including surgical techniques and materials)
- 7 **Fostering a genuine sharing of experience and ideas**

## Conclusion

The best interactions are those that enable long-term relationships and foster a genuine sharing of experiences and ideas. Successful exchanges work both ways: visitors will recognise that they are liable to gain more than they give. For example, a report to the UK government<sup>7</sup> clearly acknowledged that the country benefits when its health care workers spend a period working overseas.

To facilitate such programmes, and to avoid some of the problems listed above, the International Centre for Eye Health (ICEH) advocates a proper needs analysis and an exchange through the Links Programme.<sup>8</sup> This programme is proving to be extremely successful, matching recognised needs and the skills offered, and it is certainly the best way forward to maximise the global enthusiasm for involvement in VISION 2020.

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### What do you think? Call for Exchange articles

We look forward to receiving your suggestions on **how local staff can maximise the benefits of a visit from a foreign eye care team**, in the form of Exchange articles (500 words). Email: [Anita.Shah@Lshrm.ac.uk](mailto:Anita.Shah@Lshrm.ac.uk) (Subject: Foreign eye care teams).

# Community Eye Health MSc dissertations

The seven Exchange articles that follow are based on the dissertations of students at the International Centre for Eye Health, London School of Hygiene and Tropical Medicine, who graduated in 2008.



The Jabel Awliya camp for internally displaced persons (IDPs). SUDAN

Lina Osman

## Situation analysis of ophthalmic services in displaced persons camps surrounding Khartoum, Sudan



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Following decades of civil war, approximately two million internally displaced persons (IDPs) are living in and around Khartoum, the capital city of Sudan; 400,000 have settled in the four official camps, and the rest live in 30 'squatter areas' scattered around the city. These communities are poor, vulnerable, and at greater risk of avoidable or preventable blinding eye disease.

Our study aimed to evaluate the distribution, availability, and accessibility of eye care services in the camps for displaced persons. This descriptive situation analysis of human resources and infrastructure is a necessary first step towards providing adequate and sustainable services.

All four official IDP camps surrounding Khartoum were included in our situational analysis. Quantitative data on human resources and infrastructure was collected, using a checklist, from the ministry of health and from the available services in the visited camps. Qualitative data aimed to explore the behaviour of IDPs in seeking eye care; they included focus-group discussions with mothers of school-aged children, semi-structured interviews with functionally blind IDPs, and semi-structured interviews with

health care staff working in the camps.

Virtually no eye care services were found in the camps. The only permanent service found in all the visited camps was a single eye clinic in a camp housing around 150,000 people, which was integrated within a primary health care unit. When assessing the IDPs' barriers to accessing medical eye care, we found that the main ones were: poverty, the absence of services, the lack of an accompanying individual, the fear of surgery, and customs and beliefs. Given the absence of services and appropriate health care cadres, as well as the inability of IDPs to afford even subsidised basic eye drops, existing health care staff felt inadequate because they could provide very little help.

In conclusion, future service planning in the area should be directed towards affordable eye care services for the IDPs. Health service planners also need to look into the reasons behind the absence of service provision: lack of commitment, funding, or personnel.



An interview in an IDP camp. SUDAN

Lina Osman

## Suppurative keratitis at Groote Schuur Hospital, South Africa: epidemiology, clinical features, and microbiology



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The visual prognosis of suppurative keratitis (SK) in the developing world is extremely poor, making this disease a significant cause of monocular blindness. Current standard practice in managing SK is empiric therapy with topical antibiotics, followed by a modification of this therapy based on clinical response and on microbiological results of corneal scrapings. Empiric therapy needs to be based on a knowledge of likely aetiological organisms, as these vary significantly both geographically and with time.

The aim of this study was to describe the epidemiology, clinical presentation, and microbiology of SK at Groote Schuur Hospital, in Cape Town, as recent data of this nature is not available in South Africa or Southern Africa. We conducted a retrospective review of clinical records of all patients admitted for inpatient therapy (186 patients, 210 admissions) over a three-year period (2005–2007).

The most commonly identified risk factors for SK were: neurotrophic cornea (28% of risk factors), ocular surface disease (23%), and trauma (21%). Trauma ( $p=0.004$ ) and retroviral disease ( $p=0.001$ ) were more commonly identified in the under-60 age group, and ocular surface disease ( $p=0.0001$ ) in people over 60. Retroviral disease was more common in women ( $p=0.009$ ) and trauma more common in men ( $p=0.0001$ ).

Visual acuity in the affected eye was  $<6/60$  for 78% of patients on admission and for 44% on final follow-up. Binocular acuity was  $<6/60$  for 13% of patients on admission and for 5% on follow-up. Thirty per cent of patients underwent acute surgery on one or more admissions.

Cultures were positive for 75% of specimens. Bacteria were isolated in 89% of these, fungi in 6%, and both bacteria and fungi in 5%. Gram-positive organisms constituted 69% of all bacteria isolated. The sensitivity of Gram staining (proportion of actual positives which are correctly identified as such) for cases of bacterial keratitis in this setting was low (27%) and for fungal microscopy even lower (19%).

In conclusion, SK is a blinding condition

in Cape Town, with patients presenting with advanced disease and frequently requiring acute surgical intervention. The spectrum of organisms isolated was very similar to that in other temperate regions. In this study, microscopy (bacterial and fungal) had a very low sensitivity, which is concerning.

## Vitamin A deficiency in Thatta District, Sindh Province, Pakistan



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Corneal blindness due to vitamin A deficiency (VAD) is a leading cause of preventable blindness in children in developing countries. This study aimed to evaluate whether VAD is a public health problem in children aged 6–72 months in the rural and underprivileged Thatta District, in Sindh Province, Pakistan. Another aim was to identify risk factors for VAD, and to determine the coverage of distribution of high-dose vitamin A.

Purposive sampling was used to identify high-risk areas. The caregivers of children were interviewed to collect information about demographics and risk factors of VAD. Both eyes of children were examined using torch and magnifying loupe. Height, weight, and mid upper-arm circumference were measured. A blood sample was obtained from every tenth child and clinical case in order to measure serum retinol levels, using high performance liquid chromatography.



Ocular examination in preschool children. PAKISTAN



Measuring height to assess nutritional status. PAKISTAN

Out of the 619 children examined, 18 (2.9%, 95% CI 1.58–4.22) were xerophthalmic. Mean serum retinol was 27.56  $\mu\text{g}/\text{dl}$  ( $n=49$ , SD +9.57) and the median was 25.64  $\mu\text{g}/\text{dl}$  (range=10.16–53.19  $\mu\text{g}/\text{dl}$ ). Eight children (16.32%) had serum retinol  $<0.7\mu\text{mol}/\text{L}$  (20  $\mu\text{g}/\text{dl}$ ) showing moderate subclinical VAD.

Five hundred and ninety-eight (96.6%) children had received vitamin A supplementation and 504 (81.4%) were immunised against measles.

Two hundred and twenty-seven (36.7%) mothers had night blindness (a symptom of VAD) during a recent or last pregnancy. In many locations, women thought this was a normal phenomenon of pregnancy.

Univariate analysis for individual risk factors was performed, but only age group was statistically significant ( $\chi^2=11.97$ ,  $p=0.0001$ ), as xerophthalmia rates increased with age.

Despite high vitamin A coverage, VAD is a public health problem in preschool children and pregnant women in selected underprivileged rural areas of Pakistan. Malnutrition is widespread and levels of illiteracy among mothers were extremely high.

More studies are required with adequate sample size to identify associated risk factors. Health education and promotion activities should be run in rural areas of Pakistan to increase awareness regarding night blindness.

## Childhood blindness: piloting the key informant method in Lorestan Province, Iran



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There are very few data on childhood blindness in Iran, a lower-middle-income country with a population of around 70.5 million people. There is currently no national programme for the prevention of childhood blindness.

Our research team undertook to pilot the key informant method in three out of the nine counties in the province of Lorestan. The aims of our study were, firstly, to establish the feasibility of a key informant survey in Iran and, secondly, to provide estimates of the prevalence and causes of childhood blindness in the area.

Around 120 community health workers were trained by the author to act as key informants, to identify and refer blind children from their own communities.

Two ophthalmologists then examined the children to verify that they were blind and to diagnose the cause of blindness.

Our study confirmed the feasibility of a key informant survey in Iran: the method was time- and cost-efficient, it was well received by local health authorities, and it produced credible estimates of blindness.



Training session on the key informant method. IRAN

Our findings were consistent with previous research conducted in Iran and in the Middle-Eastern Crescent. Out of around 110 children referred for examination, a total of 27 blind children were recruited, yielding an estimated prevalence of 0.06%, so that around 10,800 children were estimated to be blind in Iran.

The leading cause of blindness was retinal disorders (40.7%), followed by disorders of the whole globe (33.3%). The majority of cases had a hereditary aetiology (70.4%), which showed a significant association with family history of blindness ( $p=0.002$ ). The vast majority of blind children had a history of parental consanguinity (92.6%). Importantly, almost 50% of the cases were potentially avoidable, and 45.8% of blind school-aged children were not attending school.

Given the encouraging outcomes of this pilot study, the next rational step is to conduct a full-scale, district-level key informant survey in Lorestan. This will contribute to the planning of a national programme for the prevention of childhood blindness in Iran. Our recommendations also included the support of ongoing work in genetic counselling and of family planning and maternal and child health services.

## Incidence of blindness and low vision in Bauchi State, Nigeria



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Incidence figures, i.e. the number of new cases arising during a specific period of time, are important for the long-term planning of eye care programmes.

We conducted a follow-up after three years of all the subjects aged 40 years and above seen during the 2005 national blindness and low vision baseline survey in Bauchi State, Nigeria. Our aim was to assess the three-year incidence of blindness, low vision (visual acuity (VA)  $<6/18-3/60$ ), and cataract, as well as the three-year progression

*Continues overleaf* ➤

of cataract in this State.

Original clusters and subjects were traced and identified using enumeration records. Presenting VA was measured using the reduced LogMar chart and, for those with VA < 6/12, VA was then measured using a pinhole. For all subjects, lens opacity was graded using the Mehra Minassian classification; for those with VA < 6/12, pupillary dilation was performed and lens opacity assessed using the simplified WHO grading system as in the baseline survey.

We found that the three-year cumulative incidence of blindness in persons was 5.50% (95% CI 2.34–8.66), while that of low vision and blindness together was 19% (95% CI 13.56–24.44). Most of low vision was due to uncorrected refractive error. Of those who were normal at baseline, two subjects (1.19%) became blind, and 27 (16.16%) developed new low vision. Among those with low vision at baseline, nine (27.27%) new cases of blindness developed. The three-year cumulative incidence of bilateral cataract blindness was 5.33% (95% CI 1.94–11.96). The three-year progression of lens opacities was similar for nuclear and cortical opacities, at 2.39% and 2.99% respectively. The three-year mortality in the cohort was 10.3% and there was no gender difference or relationship with visual status at baseline.

Response rate was best in clusters where there had been some service provision or contact since the baseline survey.

## Assessing the use of traditional eye medicines in Bukavu ophthalmic district, Democratic Republic of Congo



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This study aimed to describe the extent of the use of traditional eye medicines (TEM) in the Bukavu ophthalmic district, in the Democratic Republic of Congo, with a view to collaborating with traditional healers in eye care promotion at community level.

A descriptive cross-sectional study of 470 consecutive patients who attended eye



**Interviewing a traditional healer.  
DEMOCRATIC REPUBLIC OF CONGO**

centres was carried out. This was combined with a qualitative study. Non-probabilistic convenience sampling was used to collect quantitative data, through a questionnaire and a clinical examination of patients. Qualitative information was gathered through in-depth interviews with six traditional healers.

Eighty-four (17.90%) patients reported using TEM for the current disease episode before attending eye care services. There was no significant association for age, gender, or place of residence. However, the level of education (primary school and below) was significant for association with usage of TEM.

The provider of TEM was in 72.6% of cases a relative, friend, or acquaintance ('non-professional healer') and in 27.4% of cases a professional traditional healer (affiliated with the Congolese Association of Healers).

Among the 84 subjects who reported using TEM, 46.4% stated preference as the reason for this choice, 33.3% reported proximity as the reason, and 15.50% reported cost. No patient declared a lack of awareness of the existence of eye care services in the district.

Amongst users, TEM was used for the following conditions: 34.5% used it for acute conditions (conjunctivitis, corneal ulcers), 22.7% for chronic loss of vision (cataract and glaucoma), and 42.8% for trauma and posterior segment disease. People who chose to use TEM presented late at the hospital. 19% of those who had used TEM were blind (visual acuity < 3/60) compared to 8.8% of non-users.

In conclusion, the health education of the population and the integration of traditional healers into primary eye care programmes are critical for reducing the harmful effects of traditional eye medicine. The healers interviewed expressed the willingness to collaborate with the existing eye care programme. However, much of the use of traditional eye medicine is not due to healers, but to the home practices in the region. If we are to solve this problem, the cost of services remains a key barrier to address.

## Health-seeking behaviour and cost of treatment for the families of children with cataract attending Instituto Brasileiro de Oftalmologia, Brazil



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Our study aimed to determine the health-seeking behaviour of families of children presenting with congenital and developmental cataract, as well as the cost of treatment to families – about which little is known.

The study was undertaken in the *Instituto*



**A young cataract patient after surgery.  
BRAZIL**

*Brasileiro de Oftalmologia* (IBOL) a private hospital in Rio de Janeiro, Brazil. *Instituto Catarata Infantil* (ICI), a non-governmental development organisation (NGDO), provides financial support for the treatment of children with cataract in IBOL.

We reviewed medical records of consecutive eligible children and interviewed their caregivers using a pre-tested questionnaire, to collect information about their health-seeking behaviour and socioeconomic status, and to calculate out-of-pocket costs for treatment. We also ascertained what the NGDO covered, to find out the extent to which it was meeting out-of-pocket expenses.

Data from 70 children were gathered, 42 (60.0%) of whom had bilateral disease. Fifty-eight cases (82.9%) were considered congenital and 12 (17.1%) developmental. Late detection of cataract occurred in 20 cases (28.6%). Children with developmental cataract were 4.8 times (CI 1.3–17.8) more likely to be detected late compared to those with congenital cataracts ( $p = 0.018$ ). Late presentation for treatment (treatment starting in the fourth month or later after recognition) was observed for 33 (47.1%) children. Having insurance (adjusted OR 0.17, 95% CI 0.04–0.82) and being the only child (adjusted OR 0.16, 95% CI 0.04–0.69) decreased the likelihood of late presentation.

The total annual cost per eye varied from US \$7.9 to 5,540.3, and the median was 327.9 (LQ 72.2, UQ 1438.1). The median expenditure incurred by parents supported by the NGDO was approximately one-third of that by parents with total and partial insurance coverage ( $\chi^2 = 43.941$ ,  $p = 0.0001$ ). In total, ICI spent US \$49,400 assisting 35 children, a median cost of US \$415.5 (range 0–799.2, LQ 175.2, UQ 547.1) per eye per year.

In conclusion, delayed detection and presentation for treatment of non-traumatic paediatric cataract are still significant problems in the state of Rio de Janeiro. Strategies should be implemented to ensure early recognition, prompt referral, and appropriate treatment, especially in the public health sector. The cost of managing cataract in childhood is high and NGDOs play an important role in bridging financial barriers in this setting.

## A brief experience of blindness



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Some months ago, I observed a blind pedestrian negotiating a busy London street with remarkable speed and confidence. "Just how does he do it?", I thought to myself. I decided that I, as an eye health professional, could benefit from a brief experience of what it was like to be 'blind'. This became the inspiration for a fundraising event, which involved me having my eyes covered for 24 hours, and being effectively 'blind', under close supervision from a sighted guide.

Living with sudden and complete visual loss is a high-risk endeavour, and 'pretending' to lose one's sight is no less risky. For this reason, prior to the event, my sighted guide, Puneet Sayal, and I underwent intensive visual awareness training. This involved learning a range of safe coping techniques, both indoors and out, such as opening doors, climbing stairs, and pouring hot drinks. Even the simplest activity could be challenging.

On the day of the event, with close guidance from my guide, I went about my normal daily routine: getting dressed, preparing and eating breakfast, walking to university, attending classes, etc.

I quickly noticed that some people treated me differently now that my eyes were covered: they were either more or less attentive than usual, and they sometimes addressed me indirectly by talking to my guide. Some seemed disturbed by my condition, others overeager to help.

I found I was less confident, found it more difficult to concentrate in class, and was not able to contribute as much as usual. I was completely dependent on my guide and experienced a severe loss of freedom. As the day progressed, I began to feel stressed and became anxious to remove my eye coverings. When they finally came off after 24 hours, the light was actually painful. I also felt quite emotional and remained unsettled for a few hours.

### Reflections after the event

The experience was deeply unsettling, but very valuable to me. Thanks to my guide, I never felt unsafe. I was more disturbed by my diminished confidence, independence, and ability to contribute. I cannot suggest that I now 'understand' what it is like to be blind, but I did learn the following lessons:

- Blind people must be treated normally – inclusion and dignity are paramount
- Efforts to help blind people can both help and hinder them
- Ask first before offering help and be precise with instructions
- Look at blind people and speak to them directly, using normal language
- Leaving a blind person without announcing it is unkind and embarrassing
- Ask how and at what pace a blind person would like to be guided
- Make sure the person you are guiding is safe, but stay relaxed, and remember not to pull, but to walk with him/her holding your arm
- Being blind is a constant challenge
- Rehabilitation training is crucial.

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## Epilation of eyelashes



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### Remember! Before performing any eye procedure:

- Wash your hands (and afterwards too)
- Position the patient comfortably with his/her head supported
- Avoid distraction for yourself and the patient
- Ensure good lighting
- Always explain to the patient what you are going to do.

### Indications

- To remove ingrowing eyelashes (trichiasis)
- To prevent corneal abrasion

### You will need

- Magnification (magnifying loupe)
- Torch or flashlight
- Gauze swabs
- Local anaesthetic eye drops
- Epilation forceps
- A helper

### Preparation

- Explain the procedure and advise the patient that it will cause some very brief discomfort
- The patient, helper, and examiner should be positioned appropriately. The helper can hold the torch (Figure 1).



Figure 1

Murray McGavin

### Method

- Instil the local anaesthetic eye drops
- Using magnification, identify the eyelashes which need epilating (Figure 2)

### For lower eyelashes:

- ask the patient to look up, fix his/her gaze, and keep still
- with an index finger, gently hold down the lower eyelid

### For upper eyelashes:

- ask the patient to look down, fix his/her gaze, and keep still
- with a thumb, gently ease the upper eyelid up against the orbital rim

- With the epilation forceps in the other hand, hold the ingrowing eyelash close to its base and pull gently forward to pluck it out (Figure 3)
- Repeat until all ingrowing lashes are epilated
- Between each epilation, wipe the eyelash off the forceps with a clean swab (Figure 4)
- Reassure the patient when all ingrowing lashes have been removed and advise him/her not to rub the eye.

Figure 2



Murray McGavin

Figure 3



Murray McGavin

Figure 4



Murray McGavin

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**The cataract surgery case mix study: establishing the preoperative visual acuity of cataract patients worldwide**

The International Centre for Eye Health (ICEH) is asking ophthalmologists from all over the world to become part of a research network.

In the network's first study, we would like to detail the variation in preoperative vision of patients undergoing cataract surgery in different countries. This information is essential when planning effective VISION 2020 programmes to eliminate cataract blindness.

We will be asking network members to record preoperative visual acuity on 100 consecutive patients undergoing cataract surgery. The study is anticipated to start in 2009.

Anyone who takes part in the study will be acknowledged in the resulting publication.

If you or your institution would like some more information on how to get involved please contact either Dr Shaheen Shah ([shaheen.shah@Lshtm.ac.uk](mailto:shaheen.shah@Lshtm.ac.uk)) or Dr Robert Lindfield ([robert.lindfield@Lshtm.ac.uk](mailto:robert.lindfield@Lshtm.ac.uk)).

**Notice to ICEH alumni**

The ICEH is currently working hard to improve the ICEH Alumni Network, to increase our communication with our alumni and enhance the working relationships between alumni. We have several exciting new projects underway, including an Alumni Mentoring Network.

For information, go to: [www.iceh.org.uk/display/WEBALU/Alumni](http://www.iceh.org.uk/display/WEBALU/Alumni)

If you are an ICEH alumnus and you have not received emails about this project, please send an email to [elizabeth.mercer@Lshtm.ac.uk](mailto:elizabeth.mercer@Lshtm.ac.uk) to get back in touch. If you know someone who is an ICEH alumnus who is not in touch with us, please encourage him/her to contact us.

**Standard list for a VISION 2020 eye care service unit**

This newly revised edition contains additional sections on paediatric and general anaesthesia. It can be downloaded on [www.v2020.org](http://www.v2020.org)

For a print version, please send your name, occupation, and address to: Teaching Aids at Low Cost (TALC), PO Box 49, St Albans, Hertfordshire, AL1 5TX, UK. Email: [info@talcul.org](mailto:info@talcul.org)  
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Picture: Sylvie Broomfield