

Ten years to VISION 2020: why information matters



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Why do we collect information in our eye care programmes? One important reason is that we use information to enhance our knowledge and then apply that knowledge to improve what we do.

Information is the first step in a process of learning and improvement that enables us to make better decisions, improve the systems and places we work in, and enhance the quality of our own individual work.

Information can help us improve; the trick is that we only collect the information we really need. We should neither overburden ourselves with more information than we can use, nor should we overload our colleagues with unnecessary requests for information when they should rather be delivering eye care to patients.

We need the buy-in and cooperation of our colleagues if we want to collect accurate information; this means that everyone has to be motivated to make it work. Some time ago, when designing a reporting format for VISION 2020 programmes, a wise colleague advised me that, unless the person who was collecting information could see the benefit to them of doing this, it was just a waste of everyone's time.

So why do we all need to invest some of our precious time in collecting and providing good information? What are the benefits to you?

Quality assurance and improvement

Just about everybody I have ever met in the health profession wants to do a good job for the patients they are serving; it is part of their motivation for being a health professional. Everyone has a responsibility to do the best they possibly can in the environment they work in and to try and



Adrian Hopkins

Volunteers' commitment to record keeping has been crucial to the success of the Mectizan® Donation Program. BURUNDI

get better at what they do. Improvement comes from experience, learning from others, and keeping abreast of the latest developments. It also involves looking at how, as an individual, one is presently performing, being self-critical, and trying to improve. In the article on clinical auditing to improve patient outcomes, David Yorston and Richard Wormald outline just how important it is to monitor

the outcome of surgery and compare performance over a period of time (page 48). Auditing is not about policing and pointing the finger when things go wrong – it is about trying to learn from what one is currently doing and, where appropriate, improve it. Recently,¹ it was reported that, in eight recent population-based surveys in various African countries, normal vision

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(visual acuity of $\geq 6/18$ or better) had only been restored to between 23% and 59% of eyes operated on to remove cataracts. There are many reasons for this, which we do not have the space to explore here, but can anyone reasonably argue against the need for self-auditing and self-improvement in the light of such findings? Yes, it takes time to capture and analyse the data, but if it helps even a handful of one's patients see better, then surely it is time well spent.

But it is not just the surgeons who are responsible for quality improvement; everyone in the eye care team has an important role to play. The article by Sue Stevens and Dianne Pickering (page 44) gives some really practical advice on how nurses can help improve the quality of care received by patients through the keeping of good nursing records. Ingrid Mason and Jonathan Pons give ideas and practical examples of how patient records can be managed at the eye care facility level, which requires the cooperation and dedication of management, doctors, nurses, and administrative staff (page 46).

At the community level, I have always marvelled at how one can visit some of the remotest villages in rural Africa and ask one of the community distributors – a volunteer from the village – for his/her records of the persons he/she has distributed Mectizan[®] to and how many tablets were given to each. Invariably, the distributor is able to show one the most pristine and complete records and can proudly explain, in great detail, what has been done. Equally impressively, well-attended community meetings are held to discuss the performance of the local community distributors using the collected data. This in turn gets summated to give national and global data. In the end, the work of some 250,000 distributors, working in 30 countries, results in 75 million people a year being treated. As Adrian Hopkins shows (page 53), the motivation of the distributors and their whole-hearted commitment to record keeping has been crucial to the success of onchocerciasis control programmes. As a result, the elimination of this blinding disease is a real possibility in many areas.

In Pakistan, considerable investment has been made in training Lady Health Workers to treat very basic eye problems and refer patients with more severe conditions. Recently, a new management information service was developed that enabled and required the Lady Health Workers to report the number of people they treated and referred with eye problems. This has been implemented with extraordinary success: policy makers now understand just how many people suffer from eye conditions in the community. It has also been a huge morale boost to the Lady Health Workers

themselves as they see the value of their work being recognised and acted upon.

How come, then, do many of us well-trained professionals find it so hard to complete data records, whilst village volunteers in Africa and Asia are so successful? The answer, I think, is that data requested of the volunteers are confined to only what it is absolutely essential to know. As my wise colleague pointed out, the volunteers who keep the records clearly see the benefit to them of keeping those records; they understand the need for these data and how they are used to better understand the eye care situation. The volunteers also receive feedback on their own performance, which assures them that someone has actually done something with the data they produce. Most take pride in collecting data, which meets the simple human need to feel good about one's own contribution to the world and to be able to say: "Here is proof of what I have done."

Advocacy

Advocacy is about using evidence to argue for a particular change one believes in and wants to make happen. We all advocate for things we want and certainly the availability of good information is a powerful tool when presenting a case.

Many (if not everyone) reading this article will be working in an environment with too few resources. Many of you will not have the drugs, consumables, or equipment to do the job you need to do. Your hospital administrators will sympathise but explain that, with so many other demands, their hands are tied. Keeping good records of your work will help you to argue your case in the face of limited resources and competing priorities. Data alone will not guarantee that you get your desired resources, but it will certainly make your argument stronger.

Launched in 1999, VISION 2020 is roughly halfway through and we have ten years left to achieve our goal of the elimination of avoidable blindness. We have achieved much: more than 100 countries have a national plan to tackle avoidable blindness and visual impairment, there is a World Health Assembly-adopted Action Plan and there are now many tried and tested programme approaches. But our biggest challenge today is to implement all these plans and scale them up from project level to full country-wide programmes to ensure that high-quality and equitable eye health services are available to all (page 55). Good data will be essential as we advocate for the resources to make this happen.

Reference

- 1 S Lewallen and RD Thulasiraj. Eliminating cataract blindness: how do we apply lessons from Asia to sub-Saharan Africa? *Global Public Health* 2010;5(6): 639–648. Available as a PDF on www.vision2020.org



Research for VISION 2020



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We need good quality information to be able to carry out our eye care programmes in support of VISION 2020, to measure (and improve) our performance, and to advocate for the resources and support we need to succeed. Much of this information can be collected, analysed, and used as part of our daily work, as many of the articles in this issue show.

However, many of our questions can only be answered by dedicated research. With the outcomes of such a large amount of eye care research available internationally, we can be forgiven for thinking that no more research is necessary. Unfortunately, this is not so. For example:

- Treatment paradigms established by research in resource-rich areas may not be an appropriate basis for delivering care in resource-poor areas. We need to test them and see what works best.



Researchers in Cape Town are investigating blindness due to diabetic retinopathy. SOUTH AFRICA

Elmien Wolvaardt, Ellison

- Health systems research, critical to inform our programmes and policies, is currently under-prioritised and under-resourced, and will not take place without more support.

- New evidence is needed to help us plan eye care because the patterns of eye disease are changing constantly, both due to an ageing population and due to changing lifestyles.

In addition, even when the appropriate research is available, there tends to be a gap between existing research and the actual use of evidence in the planning of blindness prevention programmes in the field; this is because research is often not easily accessible or not reported in a way that enables translation into actions.

Good research cannot take place without skilled staff and sufficient funding, but research often has to compete with eye care programmes for these resources. Therefore, we should be able to explain why we need to do research, why it is important, and how the outcomes of the research will support VISION 2020.

In September 2010, IAPB and the International Council for Ophthalmology jointly convened a workshop at the Lions Aravind Institute for

Continues overleaf ➤

Priority list of global research themes

Diabetic retinopathy (DR)

- Research to develop and test new paradigms for earlier treatment of DR relevant to resource-poor settings
- Research to develop and test interventions and systems effective in promoting and monitoring lifelong adherence to treatment of diabetes and diabetic eye disease within the non-communicable disease (NCD) framework

Open-angle and angle closure glaucoma

Research to develop low-cost and effective modalities and systems for identifying, treating, and monitoring glaucoma as well as promoting adherence to care in resource-poor settings

Childhood blindness

Research to demonstrate and evaluate a model for populations of up to 10 million at all levels of care which is comprehensive

and integrated into child health programmes (includes evaluation of interventions to improve referral, uptake, coverage, and follow-up)

Low vision

Research to evaluate models and content for low vision care across the life spectrum as part of comprehensive health services in resource-poor settings

Advocacy/impact

Research to demonstrate and disseminate the economic, social, and quality of life benefits of eye care to individuals and societies

Health systems

- Research on the governance and structures within strengthened national health care and education systems necessary to optimise the delivery of, and demand for, cataract, trachoma, and refractive error services, leading to

elimination of blindness and visual impairment from these conditions

- Research on the governance and structures within strengthened national health care and educational systems necessary to optimise delivery of, and demand for, comprehensive eye care services across the life spectrum

Primary health

Research on how to create and strengthen the systems for, and determine the benefits of, integrating primary eye health into primary health care and community development approaches

Planning and monitoring progress

Research to develop and test indicators and information systems to monitor eye care service outcomes at the programme, local, national, and regional levels, as part of integrated health management information systems

Community Ophthalmology (LAICO) in Madurai, India, to consider research priorities and related issues. More than thirty representatives from different parts of the world and from a variety of research and programme backgrounds came together to generate an exciting new research agenda for the future.

There were four main outcomes from the workshop:

- 1 A priority list of global research themes was determined – see page 43. These global priorities were underpinned with more detailed regional priorities and research needs for advocacy and health system strengthening.
- 2 A strong desire to invest in the capacity building of research institutions based in low- and middle-income countries and the recommendation that IAPB seek funding to promote this.
- 3 The need to ‘translate’ research – this means not only making it accessible and available to the people who need it, but also making research findings more easily understood by programme managers and policy makers and trying to break down the special language beloved of academia.
- 4 The creation of an IAPB research work group that will drive forward the ideas and recommendations from the workshop and also promote collaboration amongst IAPB members to support research work.

Delegates used the criteria listed below to set research priorities. These can be adapted to your own setting if you have to make decisions about allocating limited resources for research on a local, district, or national level.

- What is the likelihood that this research would have a major impact on reducing avoidable blindness by 2020?
- What is the likelihood that this research would improve our capacity to plan and deliver services?
- What is the likelihood that this research would contribute to greater resources being available for eye care services (e.g., evidence can be used for advocacy)?
- What is the likelihood that the impact of this research would lead to more equitable health outcomes across the region (e.g., research could help all segments of society, not just the privileged)?
- What is the likelihood of this study being designed and carried out to make a difference by 2020?

You can find a copy of the workshop report on the VISION 2020 website: www.v2020.org

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Keeping good nursing re



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In the busy working day of a nurse, with the many urgent demands on your time, you may feel that keeping nursing records is a distraction from the real work of nursing: looking after your patients.

This cannot be more wrong! Keeping good records is part of the nursing care we give to our patients. It is nearly impossible to remember everything you did and everything that happened on a shift. Without clear and accurate nursing records for each patient, our handover to the next team of nurses will be incomplete. Needless to say, this can affect the wellbeing of patients.

In fact, the quality of our record keeping can be a good (or bad) reflection of the standard of care we give to our patients: careful, neat, and accurate patient records are the hallmarks of a caring and responsible nurse, but poorly written records can lead to doubts about the quality of a nurse's work.

Another important consideration is the legal significance of nursing records. If a patient brings a complaint, your nursing records are the only proof that you have fulfilled your duty of care to the patient. According to the law in many countries, if care or treatment due to a patient is not recorded, it can be assumed that it has not happened. Poor record keeping can therefore mean you are found negligent, even if you are sure you provided the correct care – and this may cause you to lose your right to practise.

In short, the patient's nursing record provides a correct account of the treatment and care given and allows for good communication between you and your colleagues in the eye care team. Keeping good nursing records also allows us to identify problems that have arisen

and the action taken to rectify them.

In this article, we discuss how to be effective in your record keeping and how to maintain the high standards required.

Who is responsible for record keeping?

Anyone on the nursing team who provides patient care can contribute to record keeping. However, if you are a qualified or senior nurse supervising unqualified colleagues, you should assume responsibility for providing guidance on documentation.

What should go into a patient's nursing record?

The nursing record is where we write down what nursing care the patient receives and the patient's response to this, as well as any other events or factors which may affect the patient's wellbeing. These 'events or factors' can range from a visit by the patient's relatives to going to theatre for a scheduled operation.

If you are in any doubt about what to write down, it may be useful to ask yourself the following: "If I was unable to give a verbal handover to the next nursing team, or the next shift, what would they need to know in order to continue to care for my patients?"

You want to ensure that

the patient's care is not affected by the changeover of nursing staff.

‘Keeping good nursing records allows us to identify problems that have arisen and the action taken to rectify them’

How to keep good nursing records

The patient's record must provide an accurate, current, objective, comprehensive, but concise, account of his/her stay in hospital. Traditionally, nursing records are hand-written. Do not assume that electronic record keeping is necessary.

- Use a standardised form. This will help to ensure consistency and improve the quality of the written record. There should be a systematic approach to providing nursing care (the nursing process) and this should be documented consistently. The nursing record should include assessment, planning, implementation, and evaluation of care.

Records: a guide

- Ensure the record begins with an identification sheet. This contains the patient's personal data: name, age, address, next of kin, carer, and so on. All continuation sheets must show the full name of the patient.
- Ensure a supply of continuation sheets is available.
- Date and sign each entry, giving your full name. Give the time, using the 24-hour clock system. For example, write 14:00 instead of 2 pm.
- Write in dark ink (preferably black ink), never in pencil, and keep records out of direct sunlight. This will help to ensure they do not fade and cannot be erased.
- On admission, record the patient's visual acuity, blood pressure, pulse, temperature, and respiration, as well as the results of any tests.
- State the diagnosis clearly, as well as any other problem the patient is currently experiencing.
- Record all medication given to the patient and sign the prescription sheet.
- Record all relevant observations in the patient's nursing record, as well as on any charts, e.g., blood pressure charts or intraocular pressure phasing charts. File the charts in the medical notes when the patient is discharged.
- Ensure that the consent form for surgery, signed clearly by the patient, is included in the patient's records.
- Include a nursing checklist to ensure the patient is prepared for any scheduled surgery.
- Note all plans made for the patient's discharge, e.g., whether the patient or carer is competent at instilling the prescribed eye drops and whether they understand details of follow-up appointments.

Writing tips

- Ensure the statements are factual and recorded in consecutive order, as they happen. Only record what you, as the nurse, see, hear, or do.
- Do not use jargon, meaningless phrases, or personal opinions (e.g., "the patient's vision appears blurred" or "the patient's vision appears to be improving"). If you want to make a comment about changes in the patient's vision, check the visual acuity and record it.
- Do not use an abbreviation unless you are sure that it is commonly understood and in general use. For example, BP and VA are in general use and would be safe to use on records when



Elmien Wolvaardt Ellison

Patients' records must provide an accurate account of their hospital stay. SOUTH AFRICA

commenting on blood pressure and visual acuity, respectively.

- Do not speculate, make offensive statements, or use humour about the patient. Patients have the right to see their records!
- If you make an error, cross it out with one clear line through it, and sign. Do not use sticky labels or correction fluid.
- Write legibly and in clear, short sentences.
- Remember, some information you have been given by the patient may be confidential. Think carefully and decide whether it is necessary to record it in writing where anyone may be able to read it; all members of the eye care team, and also the patient and relatives, have a right to access nursing records.

Looking after nursing records

Keep the nursing records in a place where they can be accessed easily; preferably near to where the nursing team meet at shift change times. This will ensure that records are available for handover sessions and also that they are easily accessible to the rest of the eye care

team. The handover may take place with the patient present, if appropriate.

Indeed, nursing records can only be accurate if patients have been involved in decision making related to their care.

File the nursing records in the medical notes folder on discharge. Ensure that the whole team knows if nursing records are stored elsewhere.

How can nursing records contribute to VISION 2020?

Accurate records will contain observations of clinical outcomes, for example, how an elderly patient has benefited from his or her cataract operation or how skilled the patient is at instilling eye drops before discharge. Such information can be used in clinical audit and reports on clinical activity. This contributes to research and performance data which can be used to monitor improvement in service delivery and outcomes, all of which ultimately contributes to VISION 2020. It is not only medical notes that are important; well-written nursing records will provide qualitative comment on treatment outcomes.



Managing patient records in the eye unit



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Providing excellent eye care requires excellent record keeping and data collection. Why? Because good record keeping ensures continuity of eye care, fulfils medico-legal requirements, and is professional! Good data collection, based on good record keeping, supports health management information systems (see article on page 50), hospital audit (page 48), scientific research (page 43) and provides accountability to donors.

Types of records

Paper records are the standard in most low- and middle-income countries. These records can be held by the clinic or held by the patient; the latter is helpful when the health centre is unable to hold printed records or when patients are very mobile and have a choice of health care centres to attend. Sometimes there is a combination of both, as explained in the Good Shepherd Hospital case study (see box below).

Electronic records have many advantages because of the way data can be handled and analysed; some systems allow the eye care team to do

away with paper notes altogether and enter information directly into the computer system. However, this can be expensive in terms of the equipment needed, software, and the training of staff; not to mention the cost of repairs and troubleshooting if things go wrong.

‘Always be careful how information is stored and disposed of’

Organising records and keeping them safe

Information on patients is confidential. Some countries have data protection and patient confidentiality legislation which must be followed.

Patient records can be filed in different ways: by number (usually a unique patient number is assigned) by name (used less

Case study: Good Shepherd Hospital Eye Care Project

Good Shepherd Hospital Eye Care Project in Swaziland has a hybrid system of patient- and clinic-held records, assisted by a computer-based system.

The problem

We inherited a paper-based system which had both patient- and clinic-held records. Frustrations with this system included the extra work required to copy information from clinic to patient record by hand. We also found that the success rate of retrieving both clinic and client records was less than 75%, which meant starting all over again! Reasons for the loss of **patient** records were many, but were generally related to the flimsy physical nature of the records. Reasons for loss of the **clinic** records were due to patient name confusion or incorrect filing, the latter due to a haphazard filing system made worse by the use of bulky stationery.

Record searching was time-consuming both for the patient and the eye care team, and loss of data made managing patients with complex eye diseases impossible.

Finding a solution

We asked a businessman to sit in the clinic and observe the existing records system; this ‘outsider’ perspective helped us think about and redesign the system. We also reflected on the advantages of combined patient- and clinic-held records and the need for a computer to assist with data collection.

We decided on three guiding principles in our design of a record and data keeping system:

- 1 Mainly paper-based records supported by some electronic records.** Paper-based records are well understood and practical, whereas full electronic records were deemed too risky and expensive.
- 2 Patient-centred and portable.** This gives patients choices about where to access eye care. By holding a card with all relevant information on it, the client also takes responsibility for their eye care.
- 3 Inexpensive.** When resources are strained, the record keeping system must be economical, intuitive, meet the needs of the eye care team, and require no extra staff.

How the system works

The A4 cards used for clinic- and patient-held records are nearly identical and line up perfectly, so that carbon paper can be

used to capture information on both records at the same time; this minimises the writing required of clinical staff. Both are A4 in size.

Sturdy card (160 grammes per square metre) is used for the hand-held patient record, which makes it less likely to get lost or damaged. Lighter card/paper (60 grammes per square metre) is used for the clinic record, which makes it easy to file.

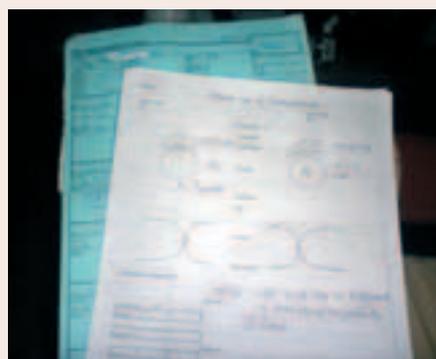
The potential for patient name confusion is eliminated by the use of a unique patient number which is assigned to each patient as they register; this number is copied onto both the clinic and patient records.

The front page of the clinic record has space to capture demographic information at the top, space to record five consultations, a diagnosis list on the side, and space to record surgical outcomes. The patient record or card is identical, but the names and logos of the clinic’s principal donors are printed in the space for surgical outcomes.

The reverse of the clinic record is printed with an eye examination schematic as well as space for listing procedures performed.

The reverse of the patient card is printed with health information as well as a hand-held Snellen chart.

At the consultation, the nurse uses carbon paper between the clinic and patient records and writes down the visual acuity, blood pressure, and blood sugar (if indicated) on both records. The doctor records the examination on the reverse of the clinic record and, using



The patient-held and clinic-held records

Jenni Sandford

frequently), by date (date of first record), or by place (where the patient lives). Paper filing can only use one indexing system at a time; however, patient information can be indexed in multiple ways when using electronic records.

Patient records must be kept in a safe, secure, fireproof environment that allows for expansion; as the unit becomes busier the number of patient notes that need to be kept will increase.

Always be careful how information is stored and disposed of; some countries have legislation which determines for how long patient files need to be kept.

Apart from safety concerns, there are no set rules for where records are stored. More important is to have a system that works and is efficient at retrieving patients' notes; also important is to have staff who understand the system and know how to file and retrieve notes in a systematic way.

If a member of staff takes a patient record away with them, a 'taken by' note should be placed in the filing system,

allowing everyone else to know where the records have gone and who took them.

Keeping track of test results

The results of any tests or investigations that a patient undergoes should be kept with the patient's other notes.

The patient's registration number (if used) must be recorded on all investigation and result slips.

Ensure that the results are kept together with other notes, whether by stapling or by using a paper punch and then linking the results and notes together.

Some hospitals use patient name plates (or sticky labels) that can be stuck to investigation slips; these reduce the risk of mixing up or losing results.

In some hospital environments, the test results are also copied into the patient notes. If this is the case, accuracy is very important!

Other patient records

The record of care that the doctor makes regarding a patient in the ward or operating

theatre should be kept together with the nursing notes. Consent forms, anaesthetic forms, treatment charts, etc. should all clearly state the patient's full name and his/her patient number.

X-rays, due to their bulk, are difficult to store with patient records. On the outside of the patient notes a coloured shape (e.g. a sticker) can alert clinical staff to the fact that X-rays are available. X-rays can then be stored in the X-ray department or in the clinical records department.

A records department

Some hospitals may have records departments with records staff whose purpose is to collect and file records once a patient is discharged. Records staff should also be able to search for X-rays or other investigations that may not yet be filed with the patient's notes.

Record keeping courses are available in some countries through the ministry of health. Having a well-run records department saves a great deal of valuable time and gives the patient better service.



Jenni Sandford

At the end of the day, or later in the week, information from the clinic-held record is entered into the computer database. SWAZILAND

carbon paper, records diagnosis, management, and treatment on both the clinic and patient records.

The patient card is folded in half, placed in a plastic sleeve, and given to the patient, who uses it to pay fees and/or collect any prescriptions.

At the end of the day, or later that week, the nurse will enter information from the clinic-held record into the computer database. This includes the demographic information (if new, or if there are changes) and the data from the consultation (such as diagnosis and treatment). The clinical notes are not copied. This process takes about two

minutes per new record, or less for a follow-up consultation.

The clinic record is then filed according to the unique client number in an ordinary lever-arch A4 file.

At follow-up, patients present their patient card and the number is used to retrieve the clinic record. In case the patient card is lost, the computer is used to look up the unique number. Staff then find the clinic record and issue a duplicate patient card.

The software

A well-known database programme is used to capture the information on

computer and the data entry fields have been designed to match the clinic-held record exactly. The programme is easy to use and does not require prior computer skills.

The same data could also be stored in a simple spreadsheet.

So far, an extra person (and therefore salary) has not been needed to record and subsequently enter data into the electronic database.

Value and effectiveness

The success rate of uniting patient with clinic records is now better than 95%. The system is easy to understand and operate by non-specialist eye care staff and highly accurate data can be obtained at low cost.

From the software, useful management information can be extracted, such as daily, weekly, or monthly statistics, as well as payment information for accounting purposes.

Some of the data collected, such as visual outcome after surgery and presentation by diagnosis, is used for clinical audit. Interesting research questions can also be answered, such as: "What is the average age and blood sugar of patients presenting with proliferative diabetic retinopathy?" This information is strategic in the design of public health interventions, as well as being of interest to the international medical community.

This is a work-in-progress and refinements are constantly being made, even after eight years of use.



Clinical auditing to improve patient outcomes



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Auditing: what is it all about?

Clinical audit is about measuring the quality of care we provide against relevant standards. If we are failing to meet these standards, the audit should help us understand the factors that are causing us to fail, so that we can set priorities and make improvements.

Auditing forms part of a cycle of activities:

- Selecting standards (setting our own or adopting existing standards or guidelines).
- Doing the audit (or analysing the results of ongoing monitoring) and identifying where we are failing to meet standards
- Identifying the factors causing us to fail, setting priorities, and taking actions to improve what we do.
- Checking whether we have improved (by doing a full re-audit or by monitoring one or two indicators, for example, visual outcome or patient numbers) and finding other solutions if we have not improved.
- If we have improved, repeating the cycle to identify and address the next set of problems or to measure ourselves against a new set of standards.

Every time an audit cycle is completed, there should be further improvement in patient care.

Audit and research are different, although there can be overlap. Audit cannot be used to show that one technique or treatment is better than another – this usually requires prospective randomised controlled trials. If differences in outcome are observed, these may be the result of many different factors: case selection, natural history, and other



Shafiqul Alam Kiron/Sightsavers

For auditing to have an impact on patient care, it is important to share the results with all staff members on a regular basis. BANGLADESH

factors such as resources or training. These may be precisely those factors that your audit is trying to understand.

What could I gain from doing an audit?

Here are a few examples:

Evidence for resources. Audit is a very powerful tool for providing evidence for the need for specific resources to increase quality standards or performance. This could be another member of staff to reduce waiting times in a clinic or a specific piece of equipment (for instance an A scan for biometry to improve refractive outcomes after cataract surgery).

Feedback for the community outreach team.

Auditing and monitoring of patient details can identify trends in attendance for eye surgery. For example, attendance rates for referrals may differ according to community members' age, gender, visual status, or area of residence. Once understood, these can be addressed by the community outreach team.

Understanding the impact of changes at the hospital. If done over a sufficiently long period, auditing and monitoring of patient attendance, in particular, will reflect

the effects of any changes in the quality of counselling or care provided, or changes in how the hospital is run (such as routine postoperative counselling or cleaner waiting rooms).

Identification of high-risk groups.

Auditing and monitoring the preoperative health assessment and visual acuity of patients and comparing these against the surgical and visual outcome after surgery can identify patients who are at higher risk of complications. If these are predicted,

the operating theatre can be prepared for them, and the ophthalmologist can ensure that operations are carried out by an experienced surgeon who is able to deal with any complication that occurs.

Measuring quality of care.

Some treatment outcomes are very long term. For example, it is difficult to audit the results

of treatment for open-angle glaucoma, as it can take years to know the final outcome. However, you can audit the quality of your care against standards, whether these are standards set by others (e.g. national or international bodies) or those which you set yourself. For example, what is the complication rate after trabeculectomy (and how does this compare with other hospitals in your country)?

'Every time an audit cycle is completed, there should be further improvement in patient care'

How do I get started?

- You need to decide what question you want to answer. What is the issue, problem, or question of concern? These can be driven by national or local quality requirements, such as those set by a funding agency, but may also be specific to a problem you wish to deal with. Complaints or critical incidents (events or circumstances that caused or could have caused unplanned harm, suffering, loss, or damage) can be a useful way of identifying problems that need to be addressed.
- Create a dummy report of your intended results. Say you want to audit the outcomes of corneal ulcer treatment. Your final report might include things like treatment given, average time to healing, average length of admission, culture and gram stain results, and final vision. You decide what you want in the final report and this will determine what data you need to collect in order to generate the desired report. This means you must have a plan for the analysis of the data you collect; it also ensures you collect it in a format that is as easy as possible for you to analyse.
- Discuss the audit with all your staff, particularly those who will have to collect data, so that they are informed and understand the reason for the audit. All members of the eye care team involved in the collecting of data need to be motivated to collect the data consistently. It is vital that they feel there is some purpose to it and that ultimately they and their patients will benefit.
- Develop the form you will use to collect the data. The aim should be to collect **sufficient data** (name, address, age, sex, date of surgery/admission, initial and final visual acuity, treatment/surgery details, and complications) on **all patients** and to do this for a **long time** so trends can be identified and progress monitored.
- Pilot the form on a number of patients, or for a given time. Review the results of the pilot. Is there information you do not need, or is there missing data? Can the staff collect the data without problems?
- Based on the pilot, revise the data collection form. An important principle here is to be sure you **only collect data which you intend to analyse**. There is a tension between monitoring for management purposes, which requires minimum data on all patients over a long time, and the needs of eye surgeons to have detailed feedback for clinical purposes to help them refine their surgical and diagnostic skills – and for which they need a lot more data on

fewer patients. One solution is for the surgical team to plan additional data collection projects to give them the detailed feedback they need, for example having a detailed monitoring form for every fifth or tenth patient.

- Start the audit and data collection.
- Analyse the data at predefined intervals; you would normally 'freeze' or 'lock' the database before each analysis.
- Provide regular feedback to all those involved. Hold regular meetings where you can give feedback on the findings and ensure that all staff are invited to attend. At the very least, there should be representatives from nursing, administration, finance, community outreach, pharmacy and supplies, as well as the surgeons and ophthalmologists. If poor outcomes are the result of poor case selection, then the community outreach team need to know. If poor outcomes are caused by endophthalmitis, and the surgeons decide to use intracameral cefuroxime as a prophylaxis, then the pharmacists need to know so that they can ensure the drug is available and that it is made up in the correct dilution.
- Use the audit to inform future policy and decision making so as to improve the eye care service.

Suggestions for successful auditing

- Minimise the extra work required. If possible, the information required for auditing should be integrated with the routine recording of clinical data. This can be done by using a standard form. This ensures that the necessary details are recorded and makes it simple for a clerical worker to transfer them to a computer. The form is placed in the patient's file and becomes the clinical record of the operation and postoperative care.
- Data should be collected on all patients, even those in whom a good outcome is impossible owing to pre-existing co-morbidity, e.g., previous glaucoma surgery. Although this means that a higher proportion of eyes will have a poor outcome, it permits a more reliable estimate of trends within the clinic.
- An audit programme should also monitor safety and include mechanisms for identifying common errors or mistakes as well as rare and more serious adverse outcomes. Monitoring complaints and critical incidents (for example, if a patient's life was in danger) are two important means of doing this. Audit for these types of outcomes should be routine and integrated into everyday activity.

In conclusion, the aim of an audit is not to identify a guilty person and then punish him or her. We know that we all make mistakes and we all have complications. The reason for auditing is to identify the problems, to learn from them, and to try to avoid making the same mistakes again and again.

Case study: an example of auditing that worked

The Kikuyu Eye Unit team audited all cataract operations over a twelve-month period. They were able to identify that patients who experienced vitreous loss had worse outcomes. They also showed that patients who were blind preoperatively (< 3/60 in both eyes) did worse than those who had a unilateral cataract and still retained useful vision in the other eye. They found that most of the patients who had a poor final vision had coexisting eye problems, such as glaucoma or corneal scar.

Armed with these results, all the surgeons in the team were retrained to manage vitreous loss more safely. Patients with bilateral blinding cataract were allocated to a senior surgeon. Perhaps most importantly, there was a cultural change: the team was no longer concerned solely with the quantity of operations, but also with the outcome. As a result, they became more selective and operated on fewer patients who had other blinding conditions and were highly unlikely to benefit from surgery.

The auditing results were shared with staff at regular intervals throughout the year. During this time, there was a highly significant trend showing a steady increase in the number of good outcomes and a decrease in the number of poor outcomes. Without the audit, the eye surgeons would not have known what needed to be changed and the improvement would never have happened.

Useful resources and further reading

Monitoring cataract surgical outcomes. Software published by the International Centre for Eye Health (2010) and available for free download from www.cehjournal.org/files/s1001.html (91 MB, single file or separate files). Also available on the CEH Update CD sent out once a year with the *Community Eye Health Journal*.

Principles for best practice in clinical audit. National Institute for Clinical Excellence 2002. Radcliffe Medical Press, Oxon, UK. Free download (1.5 MB) <http://www.nice.org.uk/media/796/23/BestPracticeClinicalAudit.pdf>

D Yorston, S Gichuhi, M Wood, A Foster. Does prospective monitoring improve cataract surgery outcomes in Africa? *Community Eye Health J* 2002;15(43): 46–47.

D Yorston. Monitoring cataract surgical outcomes: computerised systems. *Community Eye Health J* 2002;15(44): 56–57.

T Walia and D Yorston. Improving surgical outcomes. *Community Eye Health J* 2008;21(68): 58–59.



Managing information in eye care programmes: the health systems perspective



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What is the health systems perspective?

As eye care workers, we don't treat eyes, we treat people. Similarly, eye care does not take place in a vacuum; it is part of the wider health care system.

It is possible to forget this 'bigger picture' when our work demands such a lot of us. However, as we think about it, we will be surprised how much the work we do depends on the wider health system and, in turn, how much our eye care system can contribute to the wider health system.

The World Health Organization emphasises the need to have the health systems perspective or framework in mind when we plan and deliver eye care services.

This is not as complicated as it may sound! It means spending a little time thinking about each of the different but related elements that make up the building blocks of the health system.

- 1 Service delivery:** the actions we take to improve the health of our patients
- 2 Human resources:** the people who deliver eye care
- 3 Consumables and technology:** the tools we need in order to do our work
- 4 Financing:** how the eye care is funded
- 5 Leadership and governance:** how we manage our work, are accountable, and how our work is regulated
- 6 Health information:** the information we need to manage our work.

We can think about each of these within our eye programme. But more importantly, the health systems perspective encourages us to think about how our eye programme interacts – both positively and negatively – with nearby, parallel health



Eimien Wolvaardt Ellison

We need accurate information to plan and monitor eye services. SOUTH AFRICA

services and the wider health system such as the local hospital or national health system.

with any others in existence; or, where there are no others, how ours can be extended to support other health services.

Health management information systems (HMIS)

Health information is one of the six components of a health care system. We need information about each of the components in order to plan and monitor – with the ultimate aim of providing a better service and eliminating avoidable blindness.

A health management information system (HMIS), if well designed, can help us to manage all the information needed by (and generated by) the eye care programme – whether at local, district, or national level. Whether we are planning a new HMIS or evaluating an existing HMIS, the health systems framework can be a useful thinking tool.

It can help us to determine what questions the HMIS should be able to answer (which in turn determines how we design it) and plan the implementation of our HMIS.

Central to both of these is an awareness of how our planned HMIS will integrate

What questions should your HMIS be able to answer?

1. Service delivery

In order to know how well we are doing, we need information on how many people we are reaching (the quantity). Simple counts (or tallies) of the number of patients seen, screened, referred, and treated over the last day, month, or year will give us some idea of how we are doing. Information about the quality of our services is equally important. Table 1 gives some examples of the information we can collect to monitor the quantity and quality of our services. The purpose of collecting this information is either to reinforce that we are on the right track and/or to identify areas that need improvement or change.

It is vital that this information is shared with those who are responsible for the work behind the numbers. This is both to acknowledge work well done and to plan ways of improving our work where

necessary. The information collected should also be used by us and not just be passed on to others. The authors recommend holding periodic review meetings to analyse the information, identify problems or constraints, and decide on the steps we must take to do better.

At the level of the individual eye unit, we recommend that the person who collects the information should also analyse and present it. For example, the person who completes the daily register could be trained to analyse the data and present it at the monthly eye care team meeting. This will help them collect the information more carefully. They could look at how common different conditions are or the areas most patients come from. This will bring life to what could otherwise be a boring duty.

Continues overleaf ➤

Table 1. Examples of information for monitoring the quantity and quality of eye care services provided

Eye care services	Information for monitoring quantity of work	Information for monitoring quality of work
Trachoma	Number of patients seen requiring medical treatment	Proportion of people needing services who are coming for treatment (are we meeting the need?)
	Number of trichiasis operations done	Number of repeat trichiasis operations done
Refractive error	Number of refractions done	Proportion of patients with 6/6 distance corrected vision
	Number of glasses prescribed or dispensed	Proportion of patients with J2 near corrected vision
Cataract	Number of cataract operations performed	Proportion of eyes achieving vision 6/18 or better at last postoperative visit
	Number of cataract operations performed on blind patients	Proportion of eyes failing to see 6/60 at last postoperative visit

Case study: redesigning Kenya's HMIS for eye care



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In Kenya, the Division of Ophthalmic Services is responsible for coordinating eye care services in the country. To do this, it relies on data which, until recently, had been collected manually, sent by post, and then recorded centrally. This process has been fraught with difficulties: data was often incomplete and there was a low response rate from eye units (39% in 2007).

There was a need to enhance the health management information system to improve data collection and present data to the Division of Ophthalmic Services in a clear and understandable format that would facilitate planning.

The aim of the redesign was to ensure that the system was simple to use and did not require advanced computer skills.

Development of the HMIS

Microsoft Access was chosen as the operating platform. The new HMIS system was designed to allow data to be keyed into the computer at the health facility and relayed by mobile phone modem to the centralised database hosted by a server at the Division of Ophthalmic Services. The same data would be synchronised and integrated with the server at the Ministry of Health.

The Fred Hollows Foundation provided funding to:

- developed the software with feedback from users

- provide computers for eye units at provincial hospitals
- provide modems from a local mobile phone network.

Features

- Eye units enter routine information they would have collected anyway.
- Hospitals or clinics can access their own data and use it to generate their own reports.
- The Division of Ophthalmic Services can use the system to produce reports based on facility, district, or province as well as disease category, treatment, or type of operation.
- Authorised users can develop data sets for children or women only, or for a specific disease.

Progress

The system was piloted in three hospitals and has so far been implemented in nine hospitals in total. Once the seven provincial eye and three referral tertiary facilities in Nairobi are connected, it will be expanded to the 46 eye units at district level.

Outcomes

The system has enabled timely and useful information to be available, such as childhood morbidity and causes of blindness and low vision. The accuracy of reports has improved and the planning of eye services has been facilitated nationally and regionally.

Challenges faced

The process has not been easy! Uptake has been very slow and several problems have been faced in the implementation as well as in the use of the system in the nine hospitals where the system is now installed. Dedicated use of modems for data entry only has reduced the use or airtime and brought down the cost to US \$3 per month. Slow connection speeds have prevented use of the patient module but a dedicated server and line would eliminate this problem. The use of different HMIS software programmes throughout Kenya remains a problem.

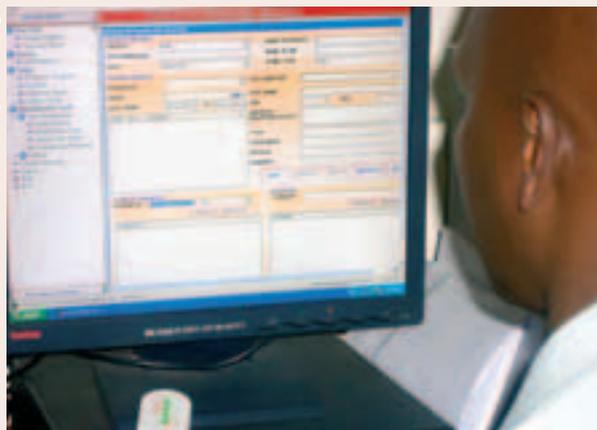
Lesson learnt: overcoming resistance

Eye care workers initially showed resistance to the amount of extra work that would be

needed. The fact that they could access the information they entered and use the system to create their own reports made a big difference. Once they saw that the system could help them with planning and with filling out the newly introduced yearly performance reports, they embraced the idea and were happy to use the system.

The author would like to acknowledge Alice Mwangi and Dr Hilary Rono for their help in writing the article.

Wanjiku Mathenge



Staff being trained to use the HMIS. KENYA



Do not destroy existing systems, but build on their strengths.

2. Human resources

Your HMIS should try to capture the following:

- Who is employed where, and to do what? In collecting information on human resources, you should look at all workers who contribute to the work, not just health workers. For example, you should consider records clerks, equipment technicians, and administrators in different districts.
- How many patients are seen at different eye units and by different staff members?
- Where are there long waiting times? You may improve the flow of patients by moving staff within a particular hospital, or by assigning staff to a clinic or hospital where there are more patients and longer waiting times and waiting lists.

3. Consumables and technology

The HMIS may be able to help you keep track of stock levels and stock used (this will be covered in detail in Issue 76, December 2011), as well as what equipment is available and functioning (see Issue 73, September 2010).

4. Financing

Your HMIS should capture information to produce financial reports which can be used to manage income generated, to manage budgets, and for reports to donors.

5. Leadership and governance

A summary of the above information will be invaluable to make decisions about all aspects of the eye programme and help you when reporting to your manager, the hospital leadership, the ministry of health, or a donor. It is good to spend time thinking about your reporting requirements when you design the HMIS.

Further reading

WHO Western Pacific Region. *Developing health management information systems: a practical guide for developing countries*. Order from Marketing and Dissemination, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (Tel: +41 22 791 2476; Fax: +41 22 791 4857; Email: bookorders@who.int).

Steps for developing or improving an HMIS

(Adapted from *Developing health management information systems: a practical guide for developing countries* by WHO Western Pacific Region)

1 Review the existing system.

- Make an inventory of the forms, log books and other tools used to record and summarise data at different levels.
- Assess the quality of the data being collected using the existing forms/formats at different levels.
- Determine the problems encountered with the current system of data collection, including problems with timing and flow of information.

2 Define the data needs of relevant units within the health system.

Define the different roles/functions of each level, for each of the major programmes; these will determine what information they need. For example, at the village level, information may be needed for case finding and service delivery; at the district level, information may be needed for monitoring and supervision. At the provincial level, information may be needed for programme planning and evaluation, and at the national level, for policy formulation.

- ### 3 Determine the most appropriate and effective data flow.
- Determine what data will be submitted to whom, how frequently, and in what form. Make a flow chart that shows the flow of information from the peripheral to the highest level.

4 Design the data collection tools.

- Develop a first draft of the form,

ensuring that it will produce all the data you need.

- Get feedback from staff who will be using the form and make improvements where necessary.
- ### 5 Develop the procedures and mechanisms for data processing.
- Assess the advantages and disadvantages of manually processing the data compared to using computers. Consider the cost, the availability of personnel (and their training, particularly at the lowest level), as well as the availability of technical support.
 - Pre-test any software and develop a training programme for staff.
- ### 6 Develop and implement a training programme for data providers and data users.
- This should include training of trainers, data providers, and computer operators and training of staff in the use of data generated by the system (at various levels).
- ### 7 Pre-test and, if necessary, redesign the system for data collection, data flow, data processing and data use.
- ### 8 Monitor and evaluate the system once it is in use.
- ### 9 Develop effective data dissemination and feedback mechanisms.
- Feed back to staff involved in the HMIS not only its outputs, but also who is using the information, what they are using and how.
- ### 10 Enhance the HMIS.
- Use the results of the monitoring and evaluation of the HMIS to continually improve it and decide on future expansion, where appropriate.

Useful tips

- Do not destroy existing systems; rather build on the strengths and learn from the weaknesses of what already exists.
- Consult with staff when you design the forms and/or computer system so that you are sure they understand them and know how to use them.
- Collect only the data which you are sure you will use.
- Ensure that the people collecting the data understand what it will be used for. Report the results back to them on a regular basis – this will help to keep staff motivated.
- The most effective data collection and reporting tools are simple and short.
- Data which is incomplete or incorrectly collected is worse than useless – it can give you false information.
- Not all data should be generated through the routine system of data collection. Data that are not frequently needed or are required only for certain subsets of the population can be generated through special studies and sample surveys.
- The development of the HMIS is always a work in progress. It is a dynamic endeavour where managers and workers strive for constant improvement.



Information for onchocerciasis control



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Onchocerciasis and Mectizan

Mectizan® has been donated for the control of onchocerciasis for over twenty years, and also for the elimination of lymphatic filariasis for the last ten years. Merck & Co. Inc, or MSD as the company is known in many other parts of the world, are donating Mectizan® to as many who need it for as long as it is needed. But how much is needed? Individual patients with skin disease or eye disease need only small amounts, but where the prevalence of skin disease or eye disease in an area is high it is important to treat all eligible people in the community. If we treat around 65% of the population on a regular basis, the effects of the disease will be drastically reduced. If however we maintain 80% coverage of the total population (or 95–100% of the eligible population) onchocerciasis may eventually be eliminated. Mectizan® is usually given annually. In some areas, where it is feasible, treatment takes place twice and even four times a year to break the transmission cycle more quickly. That amounts to a lot of tablets!

What information is needed?

In order to supply the correct amount of Mectizan®, we need data on the total population and/or the eligible population planned for treatment, the expected coverage level, and the planned number of treatment rounds during the year. The amount of Mectizan® needed can then be calculated. However, if the treatment planned was not completed the previous year, the amount has to be adjusted in order to avoid accumulating potentially expired drugs. It takes time to manufacture and ship drugs, and we need to know how much to produce in order to ensure that enough Mectizan® will be available when required. Prompt reporting of treatment, or even of difficulties in distribution, help to resolve some of these problems before they negatively impact drug delivery.

‘It takes time to manufacture and ship drugs, and we need to know how much to produce’



Adrian Hopkins

Community distributors are responsible for the collection of local treatment data. BURUNDI

The programme’s major partner for distribution is the African Programme for Onchocerciasis Control (APOC). APOC has developed the strategy of community-directed treatment with ivermectin (CDTI). The communities, once sensitised, take ownership of the programme and run it themselves, including choosing community distributors and organising community supervision. For this to work, there has to be a close relationship with the most peripheral elements of the primary health care system, usually the health centre staff. We therefore also need information about how staff involved in onchocerciasis control are trained and functioning at all levels of the health

service, and how many people need to be trained or retrained. This information is vital for planning and budgetary purposes, especially if other interventions are needed or if strategies change.

How is the information collected?

Information is collected at different levels. At the community level, the community distributors are responsible for the collection of local treatment information, which is collected and collated (summarised) by the health centre nurse for the whole health area (the area supervised by a health centre). The nurse will add data on training, tablet inventory, etc. and send a report to the health district. The health district will add data on training, supervision, and other activities at the district level.

Continues overleaf ➤

Normally, data is further centralised at the provincial level before being passed to the central level where it is forwarded to the supporting programmes and the drug donation programme. There has been an effort to get treatment data integrated into existing health management information systems in countries, but this has been a slow process, and there are many discussions about which indicators to use. As health systems are often weak at the periphery (e.g. remote or rural areas), community data may be collected by a supporting non-governmental organisation (NGO) in a parallel way and then forwarded to the government for their reports. Mectizan® is often donated through NGOs, so they are an important part of the process.

People need to be trained at the respective levels in order to collect this vital information. Once chosen by their community, distributors are trained in a very practical way, as close as possible to their community. Treatment is usually written down for each individual, and by family, in a locally bought exercise book or in specially printed registers. In some remote communities, volunteers may be illiterate. However, even in these circumstances, volunteers can be trained to use a simple tally sheet, which is often used to summarise data in any case. Training at the community level is usually done by the health centre staff who are in turn trained by staff at the district level, who have received their training at a provincial level. This form of 'cascade' training is a very effective process, but care must be taken to make sure the essential messages are relayed correctly at the relevant levels. Close supervision is required as incorrect data leads to incorrect tablet data or information for planning.

During the distribution process, the distributors are often helped by other volunteers to enter data into the exercise book or register. Having one page per household makes it easier to locate individuals for follow-up of the annual treatment or to find people who were absent at the time of treatment.



Community distributors can use the data they collect to do a follow-up. BURUNDI

The treatment summaries are prepared at the community level. These show numbers treated by gender and sometimes by dose (1–4 tablets) and also reasons for not taking the tablets (too young, pregnant, too ill, absent from the village, etc.). The health area nurse then collects data from all the communities and forwards it to the health district where it is centralised, sometimes computerised, and then forwarded to higher levels with their own activity report. Once again, NGOs sometimes facilitate this process.

How is the information analysed and used?

The data collected by the volunteers are usually analysed at the community level and the following are calculated: total number of people treated, number of tablets used, and sometimes coverage (percentage or proportion of population treated). Volunteers may also use the family treatment sheets to follow up on those who had not received treatment, often revisiting their homes. They may also try to follow up on people refusing treatment. Specially trained community volunteers may also participate in this analysis and may calculate the coverage. Health centre nurses usually discuss the results with community volunteers and will check the coverage levels. At the district level, health centres are compared and the results are tabulated and coverage calculated before the report is forwarded to the provincial or central level.

The information is used in different ways at different levels:

- At the community level, the details of treatment are shared and the coverage is discussed with the community distributors, including the importance of high coverage for control or elimination. Problems or low coverage are discussed to try and resolve challenges. Sometimes, coverage is compared between communities to see "who is doing best."
- At the health centre level, coverage is calculated: people responsible for high coverage are congratulated; discussions are held with those with low coverage and solutions examined. At this time, strategies for the next treatment round will be discussed and the needs for tablets will be calculated.
- At the district level, coverage is again the main issue as well as planning and budgeting for the next treatment round (training, retraining, further health education, etc.).
- At the central (national) level, the reports are used to calculate the next year's tablet request.



Ten years



Peter Ackland

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An encouraging start

We have just passed the halfway mark for the VISION 2020 global initiative, which was launched in 1999 with the goal to eliminate avoidable blindness by the year 2020. This is a good time to take stock of what we have achieved and what still needs to be done.

The success of VISION 2020 has to be judged against its impact on reducing levels of avoidable blindness in the world. Although still to be finally approved by WHO, some preliminary data on the global prevalence of blindness and visual impairment was presented in a meeting between WHO and IAPB members in October 2010. It suggests a decline of approximately 10% in the overall number of blind and visually impaired. Compared to the 314 million people with visual impairment ($\leq 6/18$) from WHO data produced in 2004, the new figures suggest a total of 285 million. Overall, this is a decrease of nearly 29 million. The number of blind people ($\leq 3/60$, presenting vision) has fallen from an estimated 45 million to 39.8 million. If these figures are confirmed, and if we take into account that, over the same period, there has been an 18% increase in the population of those aged 50 years and older worldwide, then we have some cause for optimism.

We also know that:

- The prevalence of blindness is decreasing in some countries that have adopted VISION 2020 strategies. The most recent national studies done in Pakistan, India, and The Gambia have all shown significant declines in prevalence rates compared to earlier surveys.
- The number of cataract operations done in India has increased fivefold over the past 25 years, to more than 5 million per year, and the lessons learnt are having a major positive impact in other countries.
- Blindness due to trachoma and onchocerciasis has decreased significantly and the possibility of the elimination of transmission of these two diseases by the year 2020 is within reach.
- Childhood blindness is decreasing due

to VISION 2020: how are we doing?

to vitamin A supplementation, measles immunisation, and the focus on blinding conditions such as retinopathy of prematurity.

- Half of the world's visual impairment is due to uncorrected refractive error, and significant progress has been made in bringing refraction and spectacle making to the poorest communities.

Scaling up and adopting new strategies

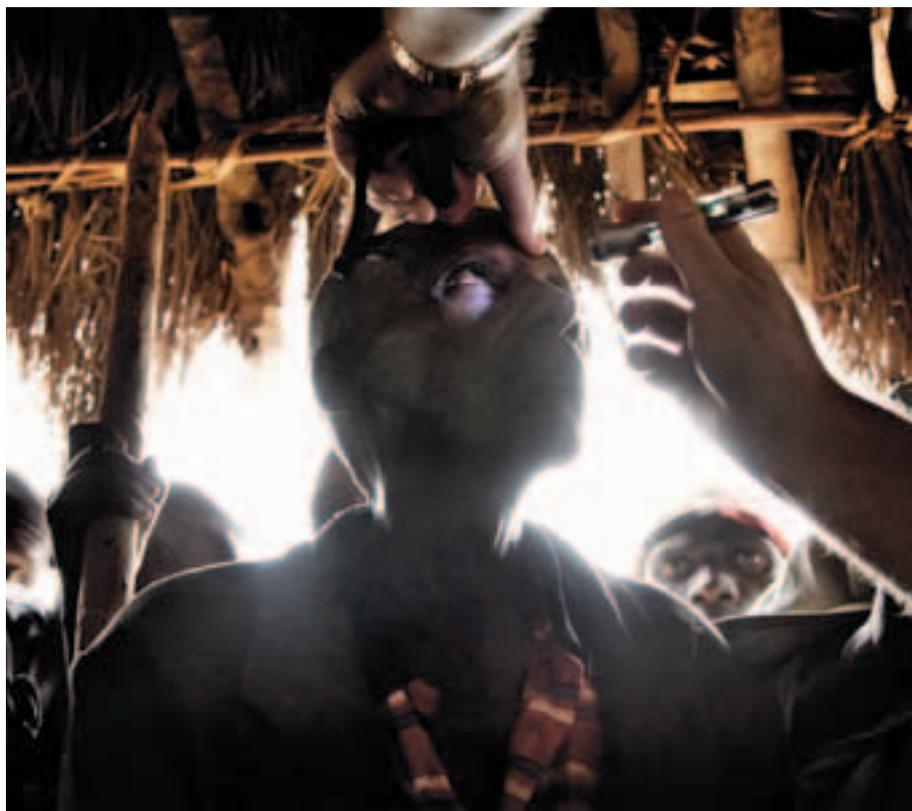
But much more needs to be done if we are to achieve our overall objective. The way forward will require us to build upon existing success, to 'scale up' what we are already doing (by going from project level to full country-wide programmes), and to adopt new strategies where progress has been slower than hoped.

For VISION 2020, increasing the available financial resources to implement national VISION 2020 plans and to bring good quality, equitable eye health services to the poorest communities is one very obvious area that requires our focus going forward. This will require extensive advocacy work, itself based on sound evidence, to influence and change the minds of policy makers around the world, most of whom presently see blindness as a low priority. More advocacy and more targeted research to prove our case (see article on page 43) are vital to our future progress.

But even if we were able to get more money, would countries have the capacity to absorb it and actually deliver the much-needed eye

health services? Sadly, the answer is no in many countries – because of the chronic shortage of eye health workers. Human resource development for eye health must receive even greater emphasis in the second decade of VISION 2020. Training is an important aspect of this but only one part of a complex jigsaw that includes wider policy issues such as staff retention and motivation, deployment to rural areas, the 'brain drain' to high-income countries and/or private practice, and so on.

Another important area to consider is the creation of consumer demand for eye health services. Why do so many



Stefano De Luig/VII Network

Checking a patient for cataract. BURUNDI

people still turn to traditional treatments rather than seek out the eye units that VISION 2020 has so busily promoted? There are many reasons and this is not the place to investigate them in detail.

But quality and access have to receive even greater attention than previously. For example, the quality of outcomes for cataract and trichiasis surgery is unacceptable in many countries and standards of surgery have to be improved.

We also have to look for opportunities to promote VISION 2020 within the wider health development world. For example:

- The current emphasis of many of the big donor agencies is to support the strengthening of health systems, rather than fund individual vertical initiatives. At the very least, we shall need to consider how current VISION 2020 approaches align with broader health system development.
- The global shortage of health workers is a very serious problem that extends far beyond eye care – we cannot resolve our own need for more eye health

personnel without taking account of initiatives such as the Global Health Workforce Alliance.

- There are opportunities for us to engage with the reawakened global interest in primary health care.

All of the above will require us to make new partnerships that take us outside our traditional comfort zone within our own profession.

This may all seem rather daunting, but we must remember that there has been a huge amount of innovation and progress within VISION 2020. We have much to contribute to the world of health development and others can learn as much from us as we can from them.

Scaling up

'Scaling up' is a commonly used term in development circles – but what does it mean? Recently, interesting work has been done to think through what scaling up really means in terms of international health. One approach is to consider the barriers that are currently preventing health approaches from being taken to scale. Take a look at www.expandnet.net for more information on this interesting topic.

How to apply an eye pad, shield, and bandage



Sue Stevens

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Before performing any eye procedure:

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

Eye pad

Reasons for applying an eye pad

- to **'rest' the eye**
e.g., hyphaema, vitreous haemorrhage.
- to **aid healing following trauma**
e.g., corneal abrasion.
- to **protect the eye**
e.g., following surgery and procedures requiring corneal anaesthesia.

You will need

- eye pad
- eye shield
- scissors
- adhesive tape

Preparation

It is important to remind the patient not to open the affected eye under the pad. If the eyelids do not close naturally over the cornea it will be necessary, before padding, to tape the eyelids closed.



Figure 1

Method

- 1 Apply a piece of adhesive tape, about 15 centimetres long, to the eye pad (Figure 1).
- 2 Ask the patient to close both eyes.
- 3 Position the eye pad diagonally over the closed lids of the affected eye and tape firmly, but gently, to the forehead and cheek.
- 4 Apply a second and third piece of tape to ensure the pad lies flat.
- 5 Extra protection can be given by taping a shield over the pad in the



Figure 2

same way. The shield shown (Figure 2) is produced commercially and is called a Cartella shield. You can also make your own (see box).

Eye bandage

Reasons for applying an eye bandage

To maintain gentle pressure over an eye pad:

- to arrest haemorrhage
- to reduce swelling after eyelid surgery
- following eye surgery, e.g., enucleation
- for a child, to ensure the pad is not disturbed.

You will need

- bandage – 5 centimetres wide
- eye pad
- adhesive tape
- small safety pin

Method

- 1 Apply an eye pad as described above.



Figure 3

- 2 Hold the rolled bandage in one hand with the opened end, held by the other hand, on the forehead above the affected eye (Figure 3).
- 3 Take the bandage, directed away from the affected eye, twice around the head firmly, but not tightly.



Figure 4

- 4 On the second circuit, bring the bandage below the ear and up over the eye and around the head again.
- 5 The bandage can partially obscure the other eye. To avoid this happening, place the index finger above the eyebrow and hold up the edge of the bandage (Figure 4).
- 6 Continue the two circuits described above until the bandaging is complete.
- 7 Secure with adhesive tape and/or small safety pin (but do not use a pin in the case of a child).

Making an eye pad and eye shield

You will need

- cotton wool
- two pieces of gauze
- scissors
- adhesive tape
- thin cardboard or old X-ray film
- circular object – about 8 centimetres in diameter
- pencil



Figure 5

How to make an eye pad

- 1 Place cotton wool between the two pieces of gauze.
- 2 Cut into an oval shape approximately 5 centimetres wide and 6 centimetres long (Figure 5).



Figure 6

How to make an eye shield

- 1 Draw a circle on the cardboard or film and cut around it.
- 2 Make a single cut into the centre (just half the diameter).
- 3 Turn into a cone (Figure 6) and secure the shape with adhesive tape.

How to care for and clean optical surfaces



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Many ophthalmic devices have optical components such as windows, lenses, mirrors, filters, and prisms; even very small irregularities (such as scratches) can cause unwanted scattering of light which reduces quality. The surfaces of lenses, prisms, and windows are often coated with an antireflective layer to prevent loss of light due to reflection. Mirrors have a highly reflecting coating to get maximum reflection of light. Filters have coatings to cut out undesired wavelengths. The coatings are very thin and delicate and can be damaged by improper handling and cleaning.

By following these suggestions, you will help ensure that all of the optical surfaces in your eye care equipment perform optimally.

General care

- Place a dust cover over eye care equipment when not in use.
- Always replace the lens caps, if available, when not in use.
- Keep eye care equipment in an environment that is not humid; this will prevent the growth of fungus on optical components (see Issue 73, page 37).
- Repeated cleaning will wear out the surface coating described earlier and the property of the surface may change. It is better to protect optical components from dust, stain and fungus.

Before you clean

- If the optical component is not dirty, do not clean it.
- First, read the manufacturer's instructions.
- Laser optics should only be cleaned by trained, qualified specialists.

What you will need

- dust blower (Figure 1)
- lens brush, which is sometimes attached to the dust blower (Figure 1)



Figure 1. A dust blower can be found at most photography shops. Some blowers, such as the one pictured, have a built-in lens brush.



Figure 2. Non-sterile, medical-grade cotton swabs

- lint-free lens tissue (available in photography shops)
- optical cleaning solutions (see below)
- lint-free cotton gloves
- bamboo tweezers
- cotton swabs (Figure 2). Use non-sterile, medical-grade cotton swabs, with degreased fibres that will not release lint. If these are not available, fresh cotton swabs can be prepared with wooden sticks and medical-grade cotton.

Optical cleaning solutions

First consult the manufacturer. If this is not possible, commercial lens-cleaning solutions sold in camera shops can be used for most optical cleaning. Otherwise try the following, going from weakest (1) to strongest (4) until the surface is clean:

- 1 Distilled water
- 2 A water-based solution: 1 part mild, neutral detergent to 19 parts distilled water
- 3 A mixture of 60% acetone and 40% methanol (not for use on plastic lenses)
- 4 Isopropyl alcohol (90% purity). Note: slow evaporation can leave drying marks on the surface.

Tips for cleaning

Do not touch optical surfaces with your bare fingers, since they leave behind grease and moisture marks that are hard to remove. Wear cotton, lint-free gloves if available and hold loose optical components by their edge (Figure 3).



Figure 3. Always handle loose optical components by their edges. Clean round optical surfaces from the centre to the edge in a widening spiral.

- Be careful of sharp instruments, including your fingernails, near optical surfaces. Use wooden, bamboo, or plastic implements instead. Always place optical components on a soft surface to avoid scratches.
- Do not apply optical cleaning solutions directly onto the optical components of a device, since these can enter the machine and cause spots on other lenses or otherwise damage the device. Instead, apply the cleaning solution to the lens paper or swab first.
- When removing stains, avoid excess pressure since this can remove the delicate surface coating.

Steps

- 1 Always remove dust first! Dust particles can produce scratches. Never wipe dust off optical surfaces, especially when they are dry. First use a dust blower to remove dust. Use a camel hair brush, sometimes included as part of the blower (Figure 1), to remove any dust that sticks to the surface.
- 2 To remove stains, use a lint-free cotton swab or a lens-cleaning tissue dipped in the optical cleaning solution. For round surfaces, move the swab or tissue in a circular path, starting from the centre and going in a widening spiral towards the edge (Figure 3). For rectangular surfaces, use repeated strokes parallel to each other and in the same direction until you have covered the surface. Repeat this step, using a fresh swab every time, until the stain is no longer visible at any angle under a bright light. If cotton lint is left on the component, remove it using the blower or a clean lens brush.
- 3 To remove stains on plastic components, use optical cleaning solution number 2 (the water-based solution). Do not use other cleaning solutions on plastic, unless indicated by the manufacturer, because they can permanently cloud the surface.
- 4 To remove fungus, use an optical fungicide. If unavailable, use surgical scrub soap.

New series

This is the second instalment in a series on practical equipment care and maintenance.

Trichiasis surgery: a patient-based approach

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Trachoma is the leading infectious cause of blindness worldwide. Corneal scarring, which causes trachoma-related blindness, occurs when the upper eyelashes are turned inward and rub on the eye (cornea). This is called trichiasis, and if the lid margin turns inward, the term entropion is used. Currently, there are an estimated 8.2 million people with trichiasis and 3.1 million people are blind from trachoma.

A systematic review of population-based trachoma surveys has shown that women are affected by trichiasis approximately twice as often as men. Trichiasis is more common with increasing age; however, in communities with very high levels of trachoma infection, trichiasis can occasionally occur in children.

Persons who develop trachomatous trichiasis (TT) usually need treatment to either surgically turn the eyelashes outward from the eye or to remove one or two in-turning eyelashes which are not central or touching the cornea; the latter is pulling out the in-turned lash or lashes with forceps, a procedure called epilation. Bilamellar tarsal rotation (BLTR) or posterior lamellar tarsal rotation (PLTR) are procedures widely used in trachoma endemic countries to surgically treat TT and are believed to produce comparable results.

In some countries, there are huge numbers of persons with untreated TT, often living in poor and remote communities. For example, in Ethiopia, there are an estimated 1.2 million people with TT who need an operation. However, the number of TT operations currently performed each year in Ethiopia is about 80,000. At this rate, it will take 15 years just to clear the backlog, without considering any new cases which will occur!

There are several reasons for the large numbers of untreated trichiasis patients in endemic countries:

- Patients may be unaware that surgery can help, or they may be afraid of an eye operation; as a result, uptake of TT surgery is often low, even when surgery



John Buchan

In some countries, there is a large backlog of trichiasis operations. NIGER

is provided free of charge. Sometimes, the fear is reinforced by awareness in the community that, at a particular clinic, trichiasis often comes back after surgery, which has a negative impact on uptake.

- Some patients find the cost of travel to seek eye services, or the lack of a companion to go with them, to be a significant obstacle. This is particularly true for women who also have to look after children and the household and cannot afford the time to go for treatment. Sometimes, it is just too great a distance to a health facility, so people will not go for treatment.
- In some situations, services are simply not available, nobody has been trained to perform trichiasis surgery, or the necessary equipment and consumables are not available.

Strategies to address the TT backlog will vary from country to country and setting to setting.

These may include: creating awareness of treatment for trichiasis through health education, including radio programmes; ensuring TT surgery is available at low cost and close to where people with TT live; or conducting enhanced outreach in communities where trachoma is common.

TT surgery can be performed by well-trained ophthalmic nurses, assistants, or doctors. There is good evidence that TT surgery can be done by non-ophthalmologists with comparable results to those of ophthalmologists.

One of the challenges is to encourage the trained TT surgeon to continue to work in rural areas and to equip them so that they are able to perform sufficient TT operations per year to maintain good experience and quality.

Unfortunately, the quality of training of TT surgeons can be variable and

adequate supervision may be lacking, leading to high rates of recurrence of TT after surgery. Surgeons who only do a small number of TT operations each month tend also to have poor surgical outcomes, leading to a vicious cycle of low uptake, low productivity, and poor surgical quality and outcome.

Breaking this cycle requires good planning and a willingness to acknowledge that results can be improved.

In order to develop a TT service it is useful to address various levels of eye care delivery.

National level

- At a national level, it is necessary to identify areas with a high prevalence of TT and to prioritise these areas for TT surgery programmes.
- TT surgeons need to be given good quality training and be adequately equipped. Quality of care is essential. In order to improve the quality of surgery, training of TT surgeons should be standardised and surgeons should be certified using the World Health Organization manual on assessment of trichiasis surgeons.
- Due emphasis should be given to the selection of trainees, the creation of a career pathway, and supervision of TT surgeons.
- TT surgeons must also have adequate supplies of instruments and consumables.
- Services, whether static or outreach, that are staffed with poorly skilled, inadequately supervised TT surgeons can result in poor surgical outcomes and negative publicity for the programme.

District level

- At the health centre level, transport to provide outreach programmes for TT surgery in affected communities is required, together with good provision of consumables to perform the operation: medicines, sutures, dressings, and so on.
- It may be necessary, in some situations, to consider offering incentives (such as a financial reward) to encourage good TT surgeons to work in high-volume TT programmes in remote areas.

Community level

- At the community level, women must be specifically and deliberately targeted for trichiasis surgery. A successful



CPD: Test yourself

trachoma programme requires the involvement of affected communities through their village leaders, women's group leaders, teachers, community health agents, health extension workers, or similar frontline health personnel. Recruiting village women who have had successful TT surgery to raise awareness and encourage others with TT to have the operation has proven to be a successful strategy.

- An outreach programme includes awareness creation in the community about trachoma, seeks community involvement in planning and executing the activities, and tries ultimately to engage the community to such an extent that they become the true owners of the programme. Community involvement and engagement is therefore essential for community ownership and the successful implementation of the full SAFE strategy.
- Community and local health service planners need to decide what contribution community members can make towards the cost of surgery. This will help to achieve sustainable service delivery and avoid a situation where the community either undervalues the service (perhaps because they consider a free service to be inferior) or where a state of dependence is created. Having said that, the cost of surgery should not be so high that poor patients cannot afford it.

In summary, it is essential to consider patients' needs. This will require comprehensive planning at national, district, and community levels to adapt and strengthen the health system to meet these needs. The ultimate aim is for patients with TT to have successful surgery, be satisfied with the result, and be advocates in their communities. Only then will we achieve the ultimate goal of the elimination of blinding trachoma.

Further reading

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W Alemayehu, M Melese, A Bejiga et al. Surgery for trichiasis by ophthalmologists versus integrated eye care workers: a randomized trial. *Ophthalmology* 2004;111: 578–84.

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These continuing professional development (CPD) Test Yourself questions are based on the contents of this issue. You can use the questions to test your own understanding; we hope that you will also discuss them with your colleagues and other members of the eye care team. The questions have been developed in association with the International Council of Ophthalmology (ICO) and are based on the style of the ICO Advanced Examination: www.icoexams.org/exams/advanced

1. Think about how to keep good nursing records. Which of the following statements are true and which are false?		True	False
a	If you make an error in a patient's nursing record, you can correct it using sticky labels or correction fluid.	<input type="checkbox"/>	<input type="checkbox"/>
b	Date and sign each entry, giving your first name.	<input type="checkbox"/>	<input type="checkbox"/>
c	It is acceptable to use some abbreviations in the nursing record.	<input type="checkbox"/>	<input type="checkbox"/>
d	It is better not to write opinions in the nursing record.	<input type="checkbox"/>	<input type="checkbox"/>
2. Think about managing patient records in the clinic. Which of the following statements are true and which are false?		True	False
a	Patient records must be kept safe because they could have commercial value.	<input type="checkbox"/>	<input type="checkbox"/>
b	If you remove a patient file, leave a 'taken by' note with your name and location.	<input type="checkbox"/>	<input type="checkbox"/>
c	Electronic patient records are better than paper records.	<input type="checkbox"/>	<input type="checkbox"/>
d	It is up to individual eye units for how long they keep patient records.	<input type="checkbox"/>	<input type="checkbox"/>
3. Think about auditing to improve patient outcomes. Which of the following statements are true and which are false?		True	False
a	Auditing should not be used to find a guilty person and punish him or her.	<input type="checkbox"/>	<input type="checkbox"/>
b	Surgeons should receive regular feedback about the auditing results.	<input type="checkbox"/>	<input type="checkbox"/>
c	Don't include patients in an audit if a good outcome is unlikely.	<input type="checkbox"/>	<input type="checkbox"/>
d	You should only collect the data you plan to analyse, not just as much data as possible.	<input type="checkbox"/>	<input type="checkbox"/>
4. Think about how to care for and clean optical surfaces. Which of the following statements are true and which are false?		True	False
a	All optical components should be cleaned regularly, whether or not they are visibly dirty.	<input type="checkbox"/>	<input type="checkbox"/>
b	Only some solutions are safe to use on plastic lenses.	<input type="checkbox"/>	<input type="checkbox"/>
c	Cleaning solution can be applied directly onto the lens to be cleaned.	<input type="checkbox"/>	<input type="checkbox"/>
d	The internal optics of laser machines can be handled by anyone who has read the instructions.	<input type="checkbox"/>	<input type="checkbox"/>

ANSWERS

1. a. False. Neither is acceptable. Draw one line through the error and sign it. Everyone makes mistakes in making notes and it is best to be open and honest when it comes to correcting an error which you have made. b. False. Give your full name. c. True. For example, BP and VA are both acceptable. All abbreviations must be commonly understood and in general use. d. True. For example, measure and record visual acuity rather than writing "the patient can now see much better". If you need to write an opinion, state that is what it is, i.e. "Based on the BP heart rate, and general state of the patient, my opinion is that there is improvement today."

2. a. False. Patient information is confidential and many countries have confidentiality legislation which must be followed. b. True. c. False. Both have advantages and disadvantages, depending on your circumstances. d. False. Some countries have legislation specifying the length of time. If there is no such legislation, we recommend that the notes are kept for a minimum of five years for an adult and 15 years for a child.

3. a. True. We all make mistakes. Auditing identifies problems so we can learn from them. b. False. All staff should receive regular feedback. c. False. Doing so will give you unreliable estimates of actual trends in the clinic. All outcomes MUST be recorded for a valid audit. d. True. Collecting excess data makes it confusing and difficult to analyse.

4. a. False. Only clean components which are visibly dirty. b. True. A water-based solution is best, others may cloud the surface. c. False. Apply the solution to the cloth or swab first, or else it can damage the equipment. d. False. Usually, laser optics and the optics of some other high-tech machines have to be handled only by trained technicians.

Third and last issue in 2010

Due to budgetary constraints resulting from the global recession, we regret that this is the final issue of the *Community Eye Health Journal* in 2010, making a total of three rather than four issues this year. During 2011, we will publish just two issues, due in September and December.

ONE Network

The Ophthalmic News and Education (ONE) Network provides free access to the latest research in peer-reviewed publications as well as lifelong learning tools and other resources. Journals available include *Ophthalmology*, *American Journal of Ophthalmology*, and *British Journal of Ophthalmology*. There is now also a text-only version of the site, which makes it much easier and quicker to use in a country where internet access is slow. Apply for access online: www.aao.org/oneapplication

Equipment donations

Aid to Hospitals Worldwide (A2HW) provides free used, serviced medical equipment to low- and middle-income countries in partnership with CBM UK. The equipment is serviced, electrically tested, has at least a five-year life span, and spare parts are available. There is an assembly and handling charge and all shipping/transport costs must be met by the recipient. The charity offers advice on transportation and prepares the necessary paperwork, including shipping manifests. For more information, visit www.a2hw.org.uk or email info@a2hw.org.uk



Video and photo competition – final call!

What does the *Community Eye Health Journal* mean to you? Send us a **photograph** or **short video** showing how you use the journal in your daily work – whether to teach others, to refresh your knowledge, or to improve the lives of patients. The overall winner will receive Kanski's *Clinical Ophthalmology*, kindly donated by Elsevier (worth UK £164). **Extended deadline:** 1 March 2011.

Reader survey: win great prizes

It is once again time to let you, our readers, tell us what you think about the *Community Eye Health Journal*. Your feedback will help us provide you with the content you want and need, and will also help us to secure funding to keep the journal going. You can complete and return the form to us on paper or you can complete it online: www.cehjournal.org/survey Everyone who completes the survey, whether online or on paper, stands a chance of winning one of six super book prizes. Make your voices heard!

Leprosy and the Eye teaching set updated

The ICEH *Leprosy and the Eye* teaching set has been updated to reflect the latest global data (August 2010). This is now available as an online resource only – please visit www.cehjournal.org/files/ts09.html to download your free copy (1.7 to 4.2 MB, depending on format chosen).

Meetings

27th Annual Pacific Rim International Conference on Disabilities, 18–19 April 2011, Honolulu, Hawaii. Theme: Humanity: Advancing Inclusion, Equality and Diversity. Email prinfo@hawaii.edu or visit www.pacrim.hawaii.edu

Courses

Community Eye Health Institute, South Africa
For information about costs and eligibility, contact Zanele Magwa, Community Eye Health Institute, University of Cape Town, Private Bag 3, RONDEBOSCH, 7700, South Africa. Tel: +27 21 404 7735 and +27 21 406 6215. Email: ntombizanele.magwa@uct.ac.za or visit www.cehi.uct.ac.za

District management training, 19–21 April and 13–15 September 2011.

Community eye health for ophthalmology registrars, 10–12 May 2011.

Training of trainers for primary eye care, 23–27 May and 10–14 October 2011 (two courses).

Leadership in management of VISION 2020 programmes (20–30 June 2011).

Project management for VISION 2020, 18–22 July 2011.

International Centre for Eye Health, UK MSc Public Health for Eye Care (formerly known as MSc Community Eye Health).

When: September 2011 to September 2012. Scholarships may be available for eligible candidates. **Where:** London School of Hygiene & Tropical Medicine, London, UK. **Application forms:** Registry, LSTHM, Keppel Street, London WC1E 7HT, UK. Tel: +44 207 299 4646. Email elizabeth.mercer@Lshtm.ac.uk or visit www.iceh.org.uk for more information.

Kilimanjaro Centre for Community Ophthalmology (KCCO)

All courses held in Moshi, Tanzania. For information on 2011 courses, contact Genes Mng'anya, KCCO, Good Samaritan Foundation, PO Box 2254 Moshi, Tanzania. Tel: +255 27 275 3547. Email: genes@kcco.net or visit www.kcco.net

Lions Aravind Institute of Community Ophthalmology (LAICO)

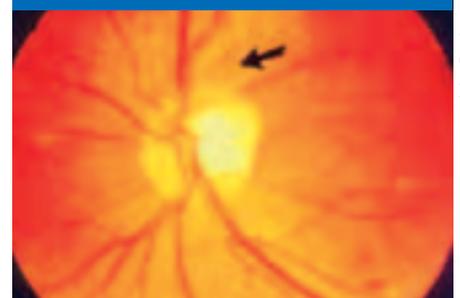
Instrument maintenance courses with a trainee:trainer ratio of 1:1. Courses start on 1 May, 1 August, and 1 November 2011. **Duration:** six weeks. **Cost:** US \$400 (including tools). Visit www.aravind.org/education/coursedetails.asp or write to Prof V Srinivasan, LAICO, 72, Kuruvikaran Salai, Gandhi Nagar, Madurai 625 020, Tamil Nadu, India. Email: v.srinivasan@aravind.org

Lions SightFirst Eye Hospital, Nairobi, Kenya

Small incision cataract surgery for ophthalmologists wishing to upgrade from ECCE. One-month-long courses run every month; please apply at least two months before the intended start date. **Cost:** US \$1,000 for tuition and US\$ 500–700 for accommodation and meals. **To apply:** Write to The Training Coordinator, Lions Medical Training Centre, Lions SightFirst Eye Hospital, PO Box 66576-00800, Nairobi, Kenya, call +254 20 418 32 39, or email training@lionsloresho.org

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Next issue



The next issue of the *Community Eye Health Journal* will be on **Diabetic retinopathy** (September 2011)