Balancing the books

Two critical questions face managers of eye care institutions:

• How can I reduce costs?
• How can I generate income?

Costs/expenditure

The costs of any eye care service can be divided into:

• Development costs – these are one-time (or infrequent) costs
• Service provision (running) costs – these are ongoing (weekly, monthly, or annual) costs.

Development costs

For the purpose of this article we will assume that development costs (equipment, instruments, vehicles, and training staff) will be financed by one-time investments from the government, non-governmental organisations (NGOs), local philanthropists or hospital savings. These development investments are very important; however, they are occasional and once made they are no longer critical to the ongoing financial sustainability of the eye care service.

Service provision (running) costs

These ongoing costs include salaries, consumables, utilities (water and electricity), rent, maintenance, and depreciation costs.

How to reduce costs

One can reduce salary costs by only employing essential staff. Each employee should have a clear job description for which they are well trained. Annual performance reviews and objective setting, with non-monetary incentives for good performance, can create a positive work culture.

Increasing productivity does not reduce the salary bill. But, where patients pay for services, seeing more outpatients, dispensing more spectacles and performing more eye operations (in the same time and with the same staff) can improve the financial situation and the sustainability of the service.

One can reduce the cost of consumables by:

• Only purchasing essential consumables
• Purchasing in bulk
• Using generic drugs and other consumables, thereby avoiding expensive ‘brands’ or designer-labelled consumables
• Ensuring that the eye care team has a culture of cost containment (keeping costs to a minimum, without reducing quality).

How to generate income

It is important that the actual cost of the service (e.g. cataract surgery, outpatient consultation or reading spectacles) is

Continues overleaf ➤

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calculated. Include all the ongoing costs in this calculation: salaries, consumables, water, electricity, rent, maintenance and depreciation costs. Once the full cost of the service is known, then you can determine how much income is needed in order to continue to provide the service.

‘Full cost recovery’ is an often-heard financial term; it involves a costing exercise that allows you to work out what your services cost, in full. Income can be generated from a variety of sources:

1. Within the hospital.
2. Within the community.
3. At the national level.
4. Internationally.

The closer the source of income is to you as the service provider, the more self-reliance and self-determination you will have. If the income source is further away (for example, if you are being funded nationally or internationally), you can increase your self-reliance and self-determination by developing additional sources of income, closer to ‘home’, i.e. within the hospital or the community. Some ideas are discussed below. 

**1 Within the hospital**

The patient receiving the service. The patient may pay the full cost of the service, be it a consultation, treatment or operation. If the patient cannot pay then a subsidy from another source is required.

**Other eye patients.** Some hospitals charge according to their patients’ income or ability to pay. Charging some patients more than the actual cost of the service allows the hospital to offer the same service at a below-cost price to patients who would otherwise be unable to afford it. This is known as a “tiered” service: the same service is given to different people at a different price. With this model, because some are charged less and some are charged more, it may appear that income will not increase. However, by making treatment more affordable, the hospital will attract more patients and therefore the overall income is likely to increase, due to economies of scale.

Another approach is for additional non-clinical services to be offered at an additional cost. For example, a person with plenty of money may be given the option to pay an additional fee to have a private consultation at a time to suit them, and be hospitalised in a private single room with air conditioning, an en suite bathroom and internet access. The price paid for these non-clinical services can be used to subsidise consultations, treatments and operations for patients who cannot pay. The model is similar to air travel – one may travel first class, business class or economy class,
Sale of spectacles can support income generation.

Depending on the available funds! However, it is important that the clinical service is of the same high quality for everyone; in air travel the pilot is the same, regardless of the class of travel.

Sales of spectacles or eye medicines.

Ready-made spectacles can be purchased or made on site and sold at a profit. Similarly, eye medicines can be bought in bulk and dispensed to patients, also at a profit.

Every little bit helps

If one dispenses 40 pairs of spectacles a day for 250 working days per year at a profit of £2 per pair, the income generated is £20,000, which will subsidise 400 cataract operations at £50 per operation.

Creating small business to generate income.

The hospital may generate income from small businesses (e.g. a tea or coffee shop, a restaurant, or by providing accommodation for the relatives of patients).

It is essential that any activities that support income generation are well managed in order to ensure that the quality of services remain high.

2 Within the community

Local philanthropy.

Individuals or local service groups within the community may agree to subsidise outreach clinics, eye surgery for poor patients, or even the purchase of equipment or buildings.

Corporate sponsorship.

Similarly, local businesses may agree to sponsor the eye services as part of their commitment to corporate social responsibility, particularly if the service can promote their name or logo (their ‘brand’).

Sometimes, local service organisations, businesses or individuals may want to help directly by providing volunteers. This can have its own challenges, but one should try and use volunteers as best as possible, while ensuring that the quality of services remain high. Volunteers can help translate or help illiterate patients to fill out forms. They can also run a refreshment stall, with the profit going to the eye clinic.

Donations.

Some pharmaceutical companies, or other businesses involved in eye care, may provide appropriate donations of essential medicines or equipment. These can be used to lower the cost of the service to low-income patients. Previous issues of the Community Eye Health Journal have contained useful advice for making the most of such donations.

3 At the national level

Government.

Ministries of health may provide all the running costs, or they may only provide the salaries of some staff, or a ‘bed or service’ grant. Governments are responsible for health service provision to the population and wherever possible they should be requested and encouraged to provide the funds for eye care services.

National NGOs, foundations or corporations.

There may be a national NGO with a mandate to improve eye care which can fund some of the services. Alternatively, a foundation or corporation may be willing to sponsor the service, although this is more likely to be possible for development costs, rather than service provision (running) costs.

Insurance schemes.

Some countries have insurance schemes for all or part of the population, which can be used to subsidise or pay for the cost of the service.

4 Internationally

Bilateral or multilateral development aid.

Government-to-government aid may fund eye services. Examples are onchocerciasis and trachoma control activities funded through the World Bank and the UK Department for International Development (DFID). This is usually administered by the ministry of health.

International NGOs.

There are many international NGOs (INGOs) which provide support for eye care services. As far as possible it is best to use this support for development costs such as staff training, or one-off equipment costs. It may also be useful for initial start-up costs, until a programme is able to cover its monthly or annual expenditure by generating its own income from patients, the community and national sources. Long-term reliance on INGOs for running costs does not promote financial sustainability and independence.

How to keep quality high

While taking the above steps to reduce costs and increase income, it is essential that the quality of service and patient satisfaction are maintained at the highest levels. Ongoing monitoring of treatment outcomes and patient satisfaction makes it possible to deal with any problems as they arise and to ensure that quality remains high. Previous issues of the Community Eye Health Journal contain useful advice for monitoring clinical outcomes and patient satisfaction.

Top tips to achieve financial sustainability

- Use what you have well, before looking for more resources.
- Aim to contain costs by ensuring only essential, generic consumables are bought – in bulk.
- Employ only essential staff who are well trained and have a clear job description.
- Promote a positive work culture through objective setting, regular feedback on performance and non-monetary incentives.
- Develop sources of income closer to you, the direct service provider – this will increase the degree of self-determination available to your programme.
- Generate income by charging for clinical and non-clinical services, to the extent that you are free to do so.
- Look to the local community and insurance schemes (if available) for additional sources of income.
- Use external support to pay for project start-up costs or to meet development costs such as staff training or the purchasing of equipment and instruments.

The suggestions in this article may be easier to apply in the non-government sector than in the government sector; however, the principles of cost containment and income generation are true for all sectors. How one applies them requires adaptation and perhaps a little innovation!

References

1 For an explanation of full cost recovery, visit: www.fit4funding.org.uk/support-pages/making-applications/full-cost-recovery/ There is also a full cost recovery case study – follow the link to the left of the web page.
2 Cordero I, Murray N, Nkumbe HE. Donations: how to use external support to pay for project start-up costs or to meet development costs such as staff training, or one-off equipment costs. It may also be useful for initial start-up costs, until a programme is able to cover its monthly or annual expenditure by generating its own income from patients, the community and national sources. Long-term reliance on INGOs for running costs does not promote financial sustainability and independence.

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3 Cordero I. Donations of consumables and surgical instruments: how to ensure you really benefit. Community Eye Health J 2011;24(76):41.
4 Comm Eye Health J 2011; 20 years to VISION2020: Why information matters.
5 Comm Eye Health J 2012. Putting patients at the centre of eye care.
Patient flow and cost

The design of eye care services influences the ongoing operational expenses and the resources (including the costs of investing in these resources) required to deliver them. This is just as true at a hospital as it is, for example, in a district eye programme.

**District eye programmes**

Here, approximately 80% of the needs for eye care services are relatively simple, such as refractive errors or cataract surgery. The remaining 20% is made up of more complex surgical interventions (including retinal or vitreous surgery, for example).

When an eye programme is well designed and well managed, solutions for simple needs (80%) can be delivered close to communities, with minimal investment and cost both to the patient and the provider.

Staff at this ‘primary’ or ‘community’ level can be trained both to meet these simple needs and to recognise the 20% of patients that must be referred. The equipment required would be the minimum needed for an eye examination, and the services provided should include refractive error correction and first-level treatment of ocular infections and injuries.

When such services are not available locally, however, the only option for patients is to go to the secondary (district or provincial) hospital or to a tertiary care facility. Then the cost goes up enormously, for both patients and providers. These centres of higher levels of care would then, for the most part, be treating conditions for which there are over-designed. They would be providing the same services with similar outcomes as in primary eye care centres, but at a significantly higher cost.

Where eye care is delivered, and by whom, has a significant impact on resources and associated costs.

**At the hospital**

In a hospital setting the following factors significantly affect cost:

- **Clinical protocol (including routine investigations)**
  - 1. Who does what in the protocol
  - 2. Internal policy on patient flow and how different stages of care are managed.

  This is best illustrated by considering two different scenarios involving a patient requiring cataract surgery.

  **Scenario A**
  - A patient presents with severe loss of vision. On determining that cataract surgery is required, the doctor advises the patient to undergo some investigations (lab, ECG, etc.).
  - The patient is advised to return on a later date to get the results and to allow the doctor to determine his or her fitness for surgery.
  - The patient attends for the appointment and the doctor finds the patient fit for surgery.
  - The doctor performs tasks, such as keratometry and A-Scan, to determine the power of the lens to be implanted.
  - The doctor or the hospital gives the patient the date for surgery, which could be several days to several months later.
  - The doctor checks whether the required IOL lenses and other surgical consumables are available. If not, he or she orders them.
  - The patient comes back on the appointed day for surgery and has the operation.

  In this first scenario, the patient ends up making three or four visits to the hospital. Each visit triggers a series of activities such as registration, retrieving the medical record (assuming that one is maintained), repeating some of the investigations or asking the patient to provide the same information again.

  The surgeon performed most of the routine clinical and administrative tasks, such as measurements for determining IOL power and ensuring its availability. This involves a lot of duplication in services as the highly paid doctor performs tasks which can be done just as well by a trained technician or manager. All of this translates into significantly higher costs.

  This scenario, which also plays out regularly when getting spectacles for refractive errors, for example, illustrates that there could be enormous cost savings if we were able to accomplish much of the treatment cycle in a single visit by having appropriate policies and patient flows, as the next scenario illustrates.

  **Scenario B**
  - A patient presents with severe loss of vision. The doctor determines that cataract surgery is required and orders the necessary investigations, as per the hospital protocol.
  - All the investigations are carried out by trained technicians, including A-scan and keratometry, and the results are made available immediately.
  - While the patient waits, the doctor reviews the findings. The doctor sees the patient again and advises that he or she can be admitted immediately for surgery.
  - The hospital manager is responsible for ensuring that there is sufficient stock of a wide range of IOLs and that equipment is maintained regularly and kept in perfect working condition. Everything is therefore already in place for the cataract operation.
  - The patient is admitted and operated on. All of this happens during a single visit.

By having a team of well-trained people who support the ophthalmologist in carrying out routine clinical and administrative tasks, costs are saved and the eye unit performs more efficiently, providing good quality care at an affordable price to more patients.
Many eye care programmes are supported by donors and once this funding stops, they can collapse. In this article, I will explain how some programmes and institutions have been able to keep going despite losing their donor funding. I have had the opportunity to work with government, church-run and privately owned institutions in Ghana, Zambia, Kenya and Rwanda, and will share with you what we have done to promote sustainability in some of these organisations.

**Starting the thinking process**

With any programme, however secure the funding might seem, it is helpful to think about how long funding might continue and plan accordingly.

In general, as mentioned on pages 41–43, it is best to use external funding for development and start-up costs (training, equipment, infrastructure) and then work towards sustainability, meeting the ongoing or running costs from other sources that are reliable in the long term.

The programmes and institutions with which we worked had mostly been provided with infrastructure, equipment, staff training and, in some instances, some consumables, to start their work.

Money was needed for the following ongoing costs:

- salaries (40–70% of total ongoing costs)
- consumables
- communication (internet, telephone, publicity and awareness creation)
- office and other costs (including water, electricity, maintenance, etc.).

As a next step, we acknowledged that tensions existed between sustainability on the one hand, and creating quality services that everyone could access at an affordable price on the other. In particular, we acknowledged that income might be too low to meet operating costs, while staying true to the principles of quality, equal access and affordability.

**Reducing costs**

The two key principles we applied were:
1. To keep costs as low as possible.
2. Where costs could not be reduced further, to make the best use of each resource.

**Personnel**

Only essential personnel were recruited. A typical team would consist of one ophthalmologist, two optometrists, one administrator, two ophthalmic nurses, two ophthalmic technicians, five nurse assistants, one equipment technician, two housekeepers, and one driver. The number of staff can be increased as the workload increases.

We reviewed the effectiveness of all members of the team every year and determined whether there was a way to reduce the costs associated with their work or to improve their output (e.g. the number of patients seen or treated).

**Utilities (water, electricity, phones)**

In a facility, much power and water is wasted because staff are unaware of the impact it can have on expenditure. We drew their attention to this and encouraged them to make sure lights and water were turned off at the end of the day. Any leaks and faults were reported and fixed immediately.

**Use of official vehicles**

Strict control measures were applied, including the use of a log book. The cost of running hospital vehicles was reduced by half. The log book also helped each hospital to know which department to charge for each trip.

**Bulk buying**

Hospitals were encouraged to change from purchasing on a monthly basis to annual or quarterly bulk purchasing of drugs and consumables, as well as quarterly purchasing of spectacle frames.

**Non-eye care services**

Security, grounds maintenance and catering are not part of the core business of providing eye care, and it may be cheaper to enter into contracts with external companies to provide these services (known as outsourcing). We considered each case carefully to ensure that it made financial sense to outsource, and to ensure that quality would be maintained at an acceptable level.

**Increasing income**

We increased the number of appointments and operations by attracting more patients and working more effectively. We also diversified our sources of funding.
by linking up with health insurance schemes, for example by ensuring that each eye clinic or department was linked with (or accredited by) at least one local insurance scheme.

Accreditation can be a lengthy process but ultimately it is worthwhile. It generally involves:

• ensuring that the facility is certified by the appropriate authority (e.g. the ministry of health or the district health authority)
• applying to the relevant insurance scheme(s)
• completion of the accreditation forms
• inspection by the insurance scheme
• receiving certification.

Government insurance schemes (or national health insurance schemes) have helped to increase the numbers of patients who use the facilities. This is because patients who would otherwise delay coming to the hospital came more readily because they did not have to pay cash for services; these costs were covered by the insurance scheme.

Attracting more patients

We decided to attract all kinds of patients to the clinics by creating a one-stop facility, like a supermarket, with a comprehensive list of eye services, including:

• eye surgery
• eye tests
• spectacle dispensing.

In addition, we visited companies and factories to provide screening services for workers who are too busy to come to the clinics.

Keeping quality high

The quality of services can be kept high by applying a number of strategies:

1. Human resources. Select staff carefully and treat them well so they always want to give their best. This includes providing staff with the equipment they need to do their work, offering training programmes to build capacity, and providing a safe working environment.

2. Equipment. Use initial or start-up funding to equip facilities with the equipment needed to make accurate diagnoses. Employ a part-time equipment maintenance officer, or assign equipment maintenance responsibilities to another staff member (while ensuring they are properly trained and resourced). This will ensure that equipment is properly maintained, which means it will remain in good working condition for as long as possible.

3. Monitoring. Put systems in place for monitoring patient outcomes and patient satisfaction, and take steps to make any changes needed.

Challenges

It has not been easy to get to where we are without challenges. In the case of the government institutions, one of the main challenges is to encourage administrators to think of creative solutions. Other challenges are listed below.

• Putting funds into a single account, also known as commingling of funds (i.e. not separating them into different accounts). This makes tracking progress and reporting to sponsors difficult; for example, funds budgeted for one activity may end up in expenditures for another (see article on page 48 for a suggested way to handle this problem).
• Delays in the payments by the National Health Insurance Scheme to the hospitals.
• Difficulties in retaining staff, especially in government institutions.

Reference


National health insurance schemes in Ghana

National health insurance came into being in Ghana with the passing of the National Health Insurance Act in 2003.

Its three main sources of funding are:

• the National Health Insurance Levy, a 2.5% value-added tax on goods and services (70%)
• social security taxes, paid by people in formal employment (23%)
• individual premiums, paid by insurance scheme members (5%).

The implementation of national health insurance has increased access to public health care services and raised public expectations: there is evidence that enrolled individuals are more likely to seek care for illness or injury. This translates to greater patient numbers, which improves sustainability.

Once a health care facility has been accredited (registered and approved) by the National Health Insurance Authority, it is permitted to display the sign of the relevant insurance scheme(s). (There are three different types of insurance schemes permitted by the act, and 145 are currently registered.) Members of the insurance scheme can access services at accredited institutions without having to pay at the point of service; the scheme then reimburses the health care facility according to a set tariff. Everyone has to pay a registration fee to obtain an insurance card, but some people are exempt from paying the premiums, including people over 70, pregnant women, children (if both their parents enroll) and the very poor.

Eye care benefits include cataract and eyelid surgery, biometry, assessment of visual fields, refraction, and basic ophthalmic preparations, but not spectacles and other optical devices.

References

Help! No IOLs for cataract surgery

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During a recent visit to Africa, an ophthalmologist told me that his eye department, in a rural part of his country, had recently lost its non-governmental organisation (NGO) support. As a result, he had not performed any cataract operations for several weeks, because the hospital had not ordered the necessary intra-ocular lenses (IOLs). This seemed a very unfortunate state of affairs – but also something others could learn from.

We have therefore invited ophthalmologists and regular Community Eye Health Journal contributors in Africa to explain how this situation could be better handled – and avoided – in future. What follows is an edited collection of their responses.

Boateng Wiafe Ghana
Cataract surgery should be the minimum service offered in any ophthalmic setting, especially when there is a resident ophthalmologist. It takes time to build up a practice and win the confidence of patients. Once this is done one has to make sure that the services are regular.

The ultimate solution is to educate management and encourage them to stock these items in the pharmacy, just like all the other essential items they stock.

In the short term, network with other eye institutions and barter with them. This is what I used to do many years ago when facing similar situations. For example, one institution may have IOLs in abundance, but no sutures or visco-elastic, and may be willing to make an exchange if you have sutures or visco-elastic to spare. Keep management informed so they can officially record the transaction, and ensure that everything you exchange or receive can be used before it reaches the expiry date. You could also ask patients to buy their own IOLs.

Heiko Philippin Tanzania
In an ideal world, an NGO will commit to support an eye department for a stated time period. Reducing funding should be discussed in advance and should not happen abruptly. On the other hand, eye departments should try to reduce their need for overseas aid over time by reducing costs and increasing local income, e.g. from consultation fees, health insurance, or local donors.

I would suggest that my colleague develops a business plan for cataract surgery which demonstrates to the hospital management its potential as a feasible procedure. Hospital administrators and finance managers think and talk in a different language from ophthalmologists, and might have a different definition of a feasible procedure. It is worth becoming familiar with the most important objectives and terms of financial management, e.g. by consulting the free financial guide at www.mango.org.uk

This business plan could include increasing income by linking with local health insurance schemes or by attracting both affluent and poor patients, with different fee structures for additional services.

Computer registration of patients and services, a separate cash point with invoices and receipts generated from the same database, stock management and standardised procurement procedures should also be considered. With the help of such a business plan, the ophthalmologist might find a new partner which could even be the hospital itself.

Hannah Faal Nigeria
When we talk about purchasing IOLs, administrators might be thinking some or all of the following.

• What is it? You have never explained or shown it to me, or shown me how it works.
• Your NGOs have been providing them all these years, why have they stopped? Please go back to them.
• I do not know where to buy them.
• The number you need is too small.
• They are not available locally and cannot be bought using a local purchase order (LPO).
• They are too expensive and do not generate revenue for the hospital.
• Patients buy their glasses and dentures; they should buy these too.

Unless ophthalmologists are able successfully to bridge this gap, they and their patients will lose out.

It is worth remembering that an IOL is an item, with a seller and a buyer. I would advise the ophthalmologist to think like an entrepreneur and start a business importing IOLs or similar items. Fix the prices at a level which patients can afford and think about sourcing, importation policy, duty waivers, purchase by LPO, advertising, and so on.

John Nkurikiye Rwanda
This doctor should use his own initiative. Cataract surgery at a referral hospital is not a free service. It is up to the doctor to convince the management of the hospital to put IOLs on their annual procurement list. For example, in Rwanda, IOLs are on the new list of essential drugs and consumables and there is no reason why they cannot be purchased.

Susan Lewallen South Africa
Stock keeping and procurement are critical management tasks in an eye care service. Unless they are taken seriously, such ‘crises’ will continue to happen.

Recommended reading
Available from www.cehjournal.org

Polymethylmethacrylate (PMMC) intraocular lenses are of high quality and can be procured at affordable prices in low- and middle-income countries.
Practical accounting for eye programmes: an introduction

Heiko Philippin
Head of postgraduate training and glaucoma specialist: Kilimanjaro Christian Medical Centre, Moshi, Tanzania. philippin@gmx.de

Richard Hess
Management consultant, Singen, Germany. richardhess09@gmail.com

No institution can survive without balanced books
Financial and administrative management are fundamental to any institution. This applies also to eye care projects. Eye care managers benefit from a solid understanding of accounting and financial management as it will help them to work in, or supervise, this important area.

Basic accounting
It is not possible to provide a comprehensive introduction to accounting in this article. A few definitions might, however, be helpful as a starting point for further reading.

• Budgeting is an essential process and should always happen when a new activity is planned. A budget is an estimate of future expenditure and income. Each activity needs its own budget. The budget is what you check your income and expenditure against when running the activity, to make sure you have enough funds and are not spending too much.

• Cost centres are different departments or activities. Examples of cost centres include the outpatient department, the operating theatre, and outreach. A cost centre will have its own account. It is useful to consider the cost centre's total expenses and total income to see whether it is running according to budget.

• An account is a record of financial transactions, including payments (expenses) or deposits (income). Each transaction is specified by date, type (cash, cheque, etc.) and detail, such as purpose of a payment, e.g. fees for surgery. Typical examples of accounts include petty cash, bank accounts or stock accounts. It makes financial management easier if you set up different accounts for different activities. The listing of the account names is called the chart of accounts.

• Double entry: whatever is taken from one account has to be received by another account. For example if salaries are paid, expenses increase in the salaries account and at the same time funds decrease in the bank account.

• A ledger is a book or computer file where all monetary transactions for each account are recorded. Transactions must be approved and accompanied by receipts.

Spreadsheet software can be a helpful accounting tool.

Software solutions
Initially, systems and standard procedures can be developed manually (on paper), also taking into consideration the country's legal requirements. Spreadsheet software is good for keeping records of income and expenditure. Once these standard procedures are established, they can be translated into a software system for easier and safer data entry, planning and reporting. A general accounting software package is often good enough, as you can use a special chart of accounts that reflects the needs of the project. Some examples are Quickbooks, GnuCash or WebERP.

Quickbooks is commonly used in companies and NGO projects; details can be found at www.quickbooks.intuit.com. GnuCash is an example of an open source and free software system which runs on all platforms (http://www.gnucash.org/). WebERP is also free and is a large system which runs on a server in a network (http://www.weberp.org).

Further reading
More information can be obtained from the Mango website (http://www.mango.org.uk/) which offers several articles, courses and tutorials about financial management and accountability in non-profit and related projects. Another starting point for a more general introduction can be Wikipedia: https://en.wikipedia.org/wiki/Accounting. Finally, some software solutions, such as GnuCash, are accompanied by helpful introductions and tutorials.

Accounting challenges in donor-funded projects

1 Keeping funds separate – and reporting accurately
Different donors (or partners) will require different financial reports about the activities they fund – often at different times.

It can be a challenge in eye care programme management to keep track of spending and to generate different reports for different donors with just a general income and expenditure statement.

A practical solution is to post donor funds, after they have been received, into a liability account, with sub-accounts for each donor. A liability account tracks how much a person or business (in this case, the eye care programme) owes a creditor, in this case the donor. The liability account tracks debts to the donor (i.e. the services to be delivered).

A statement of expenditure on respective activities should be issued once a month. These expenses can be posted from the relevant sub-account in the liability account to the income account, meaning that a debit is assigned to the liability account and the credit is offset to the income account.

With this approach, the donor liability account always shows the current state of different donor funds. If necessary, a report can be consolidated either in the general account or in a supporting document. [Note: receiving donor funds is not yet an income since these funds are designated for specific purposes and become an income only when spent.]

2 Dealing with different currencies
For different currencies, different accounts must be used. If average exchange rates are used internally, reporting becomes complicated because expenses vary over time according to changing exchange rates. A solution could be to use only one ‘reporting’ currency in agreement with the donors.

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The new On-Line Foundation Formative Assessment

This new online assessment is mostly for first year trainees. It is available 24/7 and candidates can use books or search engines to answer the 84 questions (336 options) in up to 20 minutes each. A compulsory “confidence indicator” which rewards those justifiably confident of their knowledge.

Questions are a statement, a scenario, many with a picture, diagram or video. When the examination is completed, candidates will be issued instant results, A*, A, B, C, D or F and a detailed analysis.

Subjects

A General Medicine related to Ophthalmology
Community Medicine and Public Health
International Medical Ethics and Good Practice
Epidemiology and Statistics
Genetics

B Ophthalmic pathology and intraocular tumours
Intraocular inflammation and uveitis
Retina and vitreous

C Trauma, external disease and cornea
Glaucoma
Lens and cataract

D Anatomy of the Eye, the Orbit and related structures
Embryology and Development
Neuro-Anatomy
Principles of General Physiology
Vision, Ocular Physiology, Biochemistry, Cell Biology
Pathology and Micro-biology

E Pharmacology
Optics and Refraction
Basic design, construction and use of instruments
Commonly used tests in ophthalmology

F Neuro-ophthalmology
Paediatric ophthalmology and Strabismus
Orbit, eyelid and lacrimal disease

The emphasis of the questions will be on basic and practical ophthalmology that is essential knowledge to be gained in the first year of training.

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## Primary level management of eye injury/trauma

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Foreign body</th>
<th>Blunt injury</th>
<th>Penetrating injury</th>
<th>Lid laceration</th>
<th>Burns</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History</strong></td>
<td>Foreign body sensation. May be conjunctival, corneal or sub-tarsal (under the upper eyelid)</td>
<td>Injury by blunt object, e.g. fist, stone, etc. Blood in the front of the eye (anterior chamber hyphaema)</td>
<td>Typically by a sharp object, e.g. stick. Perforation of the 'coat' of the eye (cornea or sclera)</td>
<td>Laceration of lid margin or canaliculus</td>
<td>Acid, alkali or thermal injury to the eye</td>
</tr>
<tr>
<td><strong>Vision</strong></td>
<td>Usually normal but can be affected if central cornea is involved</td>
<td>Reduced</td>
<td>Reduced</td>
<td>Normal</td>
<td>Reduced</td>
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<tr>
<td></td>
<td></td>
<td><strong>Torch exam</strong></td>
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<td><strong>Torch exam</strong></td>
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<tr>
<td></td>
<td></td>
<td>Foreign body is seen on conjunctiva or cornea, or under lid</td>
<td>Blood seen in anterior chamber. Pupil may be dilated</td>
<td>Cornea may be hazy and pupil may be distorted with uveal prolapse</td>
<td>Laceration visible</td>
</tr>
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<td></td>
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<td><strong>Torch exam</strong></td>
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<td><strong>Torch exam</strong></td>
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<tr>
<td><strong>Management</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1. Wash any loose foreign body away with clean water.</td>
<td></td>
<td>1. Apply an eye pad to prevent the person from rubbing the eye</td>
<td></td>
<td>1. Apply an eye pad. Be very careful not to press on the eye</td>
<td></td>
</tr>
<tr>
<td><strong>2. Conjunctival or subtarsal</strong> foreign bodies can be removed with a clean cotton bud. For a <em>corneal</em> foreign body, use local anaesthetic first, then try and gently remove it with the corner of a clean piece of paper.</td>
<td>2. Recommend bed rest and offer pain relief. Analgesics must not contain aspirin</td>
<td>2. Give tetanus toxoid 0.5 ml immediately</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. Apply antibiotic eye ointment</strong></td>
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</tr>
<tr>
<td><strong>Refer</strong></td>
<td><strong>Refer</strong></td>
<td><strong>Refer urgently</strong></td>
<td><strong>Refer</strong></td>
<td><strong>Refer urgently</strong></td>
<td></td>
</tr>
<tr>
<td>Refer if the foreign body cannot be removed</td>
<td>Refer if the person’s vision is reduced, there is more bleeding inside the eye or the eye becomes more painful</td>
<td>Refer to an eye unit immediately</td>
<td>Refer to an eye unit to ensure surgery aligns the lid margin</td>
<td>Refer to an eye unit immediately</td>
<td></td>
</tr>
</tbody>
</table>

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Photographs: Allen Foster (foreign body), Medical Illustration Department, Moorfields Eye Hospital (blunt injury), ICEH (penetrating injury, burn), HKI (lid laceration)
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Procurement support for eye care

SightReach Surgical®: The International Eye Foundation’s (IEF’s) procurement programme

The mission of SightReach Surgical is to make new ophthalmic instruments, other equipment, supplies and technology available and affordable to eye care providers in low- and middle-income countries.

In the 1990’s, IEF looked at why many eye care providers in these countries were not able to expand or scale up their services. One key barrier was the lack of access to and affordability of new, high quality ophthalmic products. In 1999, IEF established and registered SightReach Surgical® (SRS), the first non-profit platform to help ophthalmologists, eye care programmes and non-governmental organisations (NGOs) address this issue.

SRS offers a wide range of ophthalmic products from leading manufacturers around the world. There are no limits on what can be purchased. Our goal is to reduce the barriers of access and affordability for eye care providers in low- and middle-income countries. If you want it, we can get it for you. SRS also:

• provides guidance on the types of equipment and supplies appropriate for various settings.
• collaborates with ophthalmologists, NGOs, eye care development organisations, volunteers, and health charities working in low- and middle-income countries to assist with their procurement needs.
• provides competitive prices through our negotiated agreements with manufacturers and distributors.
• provides advice on shipping and navigating customs procedures.
• reduces the cost of eye care by lowering the cost of new technology.

You can view our catalogue online at www.sightreachsurgical.com. When clicking the product choices, an email goes to SRS and a quote will come back to you within 3 days. To make your purchase, SRS staff will contact you to discuss your needs and payment options. We arrange shipment of your items directly to you from the manufacturer or through our offices.

IAPB Standard List

The IAPB Standard List is an online procurement platform specifically developed for eye care service providers in low- and middle-income countries, and covers all the essential medical, equipment and technological needs (including computers and cell phones) of an eye clinic or hospital. Products on the Standard List are thoroughly vetted by the International Agency for the Prevention of Blindness (IAPB), including formal and informal inputs from a number of eye health experts who test them out in the real world.

The Standard List’s key strength is that it brings a range of products together in one place. This enables procurement managers or ophthalmologists grappling with tight budgets to choose from various options in the market. By pooling the buying power of IAPB members, the Standard List ensures that users enjoy discounted prices. It is also a powerful budgeting tool – the prices on the List are a good reference when applying for grants.

Verified IAPB member organisations and their partners (see the list of IAPB members here: http://www.iapb.org/member-directory) are entitled to access the full catalogue, complete with specially negotiated prices. Anyone can register to access the catalogue of recommended products, shown with indicative prices.

For more information, please visit http://iapb.standardlist.org or email Phil Hoare, Procurement Coalition Manager, IAPB phoare@iapb.org

Supporting refractive error services: the Global Resource Centre

The Global Resource Centre (GRC) was initiated by the Brien Holden Vision Institute and supplies affordable spectacles, frames, readymade readers, lenses, and basic optometry equipment to NGOs and the public health sector.

The GRC uses a cross-subsidisation model, providing spectacles for both low- and middle-income patients. The premiums paid by patients who buy the more expensive spectacles subsidise – in full or in part – the spectacles of poorer patients and younger children. This model is effective because of high patient numbers.

For organisations wanting to implement this model, but which lack the necessary patient numbers, we recommend the following:

• Develop a carefully balanced pricing strategy with the right products for different groups of patients. This requires that you know what patients want and what they can afford.
• Keep accurate records of what sells and what you have in stock. This helps you to know what to order – and when – so that you don’t run out of stock.
• Create a network by linking up with other institutions nearby. This makes it possible to combine orders, resulting in large savings for everyone involved.

For more information and to order, please e-mail Vivasan Pillay at v.pillay@brienholdenvision.org.za

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Eye care services are an integral part of health services. It is therefore important that eye care programmes are designed with financial sustainability in mind so they can become self-sufficient within a reasonable period of time. This article describes how costs were kept low, income was generated, and quality eye care was maintained at Kitale Eye Unit, a department within the Kitale District Hospital, the county referral hospital for Transzoia (population 1 million) in Kenya.

The unit has one ophthalmologist, three ophthalmic clinical officers and six nurses. They are all employed by the ministry of health. Four support staff (clerks, cleaners and cashiers) are employed by the hospital.

Capital development costs, such as building and equipping the eye unit, start-up costs of training personnel and support for outreach programmes were provided by Operation Eyesight Universal (OEU).

About 60% of the recurrent expenditure is funded by government, 18% comes from internally generated revenues, and the rest (22%) is supported by partner non-governmental organisations (NGOs).

Keeping costs low

Human resources management

The people are the most important asset in any organisation. Eye care workers are scarce and expensive to recruit. Various methods have been used to utilise available staff optimally, for example training, motivation, target setting, and task shifting. These will be discussed in more detail in a future issue of the Community Eye Health Journal.

Time management

There are three surgical days in a week. At first, operations are booked on just the first day. Once this day is full, bookings will be made on the next surgical day and so on. This maximises use of theatre space as well as the surgeon’s time.

Supplies: surgical consumables

One of our goals is to make eye care affordable by reducing the cost of surgical consumables. This has been achieved as follows.

1. Consumables for cataract surgery are purchased in bulk directly from manufacturers, reducing the costs by up to 50%.
2. A trachoma surgery kit with essential consumables has been developed in collaboration with Deepak Enterprises in India. This has made it cheaper to conduct trachoma surgery.
3. All surgeons perform small-incision sutureless cataract surgery as day surgery. Admissions are at the patient’s request or when there are complications that necessitate it. The costs associated with overnight admission and sutures are therefore avoided.

Increasing income

We have several ways of increasing income in Kitale.

Fee for service (user fees)

All patients pay for the services provided. This fee can be paid by their insurance or out of pocket for those without medical insurance. The consultation fee and user fee for procedures are levied as per hospital guidelines. The funds generated go to a common hospital pool and quarterly budgets are developed to spend the revenue.

Ophthalmic pharmacy

An ophthalmic products pharmacy was established with seed support from OEU. Medicine was procured in bulk, directly from the manufacturers. A profit margin of 30% was added to the cost of eye drops. This profit is divided as follows:

- one third to support the outreach programme
- one third to the hospital to pay utility bills
- one third to increase stocks.

In 2011 and 2012, the proceeds from the pharmacy supported two surgical camps and the surplus was enough to sponsor 70 cataract operations.

Outreach

Eye drops and spectacles for reading are sold during outreach services to those who can afford to pay. The proceeds are...
used to provide transport and meals for eye workers.

**Local philanthropists**
We have partnered with local service clubs, companies and philanthropists to support patients who are poor. The clubs include Lions clubs, which support surgical camps and trachoma activities.

**Maintaining quality**
Maintenance of the quality of eye services is continuous and dynamic. The three key processes are:

1. Identification of areas that need improvement.
2. Analysing areas of difficulty and proposing solutions.
3. Monitoring progress and providing feedback to staff.

At Kitale, identification of areas that need improvement is achieved through auditing surgical outcomes (such as cataract outcome) and getting feedback from patients about their experiences at the eye unit. A staff meeting is held every 2–3 months to discuss surgical outcomes and patient feedback. Probable solutions are also identified. Some of the solutions proposed so far have included purchase of essential equipment, continuous medical education for staff to keep them updated about current management of eye conditions, customer relations training, and refresher training for cataract surgeons.

Monitoring of progress and feedback to staff is done through quarterly reports, which are prepared by the eye department. Supportive supervision by Kenya’s national eye coordinator motivates staff to achieve better quality. Output has increased as a result (Figure 1).

**Conclusion**
In every unit, the eye care team is responsible for diversifying and improving quality of services in order to attract all clients, both those without funds and those who can pay for service. At the same time, managers have to be innovative in staff motivation, revenue generation, community support, political support, and hospital administration support. These days, government policies in Kenya allow innovation and freedom to think outside the box.

The author would like to acknowledge Michael Gichangi, Chief Ophthalmologist, Ministry of Health, Kenya for his contribution.

Further reading

How fixed fees and patient choice can support eye care for the poorest

CASE STUDY: LATIN AMERICA

Getting the price right

Fixed prices vs. negotiated prices

Many clinics negotiate prices with patients; however, fixed prices are more effective. A clear list (or menu) of services, at affordable prices, will increase patient volume and thus profit. The list can contain different types of services at different prices.

Fixed prices are more convenient and enable the patient to arrive with the correct amount of money. Patients should be able to pay for the entire service (pre-operative services, surgery and post-operative follow-up) as one package, rather than facing repeated charges for return visits or being charged an unexpected fee at every station.

Another advantage of fixed pricing is that the person providing advice to the patient (sometimes called a ‘patient counsellor’) will not be wasting time negotiating prices. Rather, the counsellor can describe the services offered and help the patient decide which type of service he or she wishes and is willing to pay for.

To arrive at the correct fixed price, look at the average of the negotiated prices for each service, and take that average to be the new fixed price. Each service will be affordable to most people.

Pricing based on product and service choices

The clinic must guarantee that all patients receive eye care in a convenient way and in a safe environment. These are the basics of quality care. However, many patients choose to pay for amenities beyond the basics. At Clínica Oftalmológica Divino Nino Jesus, patients can choose to pay more to go to the front of the queue (the ‘fast track’ option) or to have a foldable IOL used in cataract surgery. These options are perceived as being of greater value and patients will pay higher prices.

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Costs associated with their care, whether through its own revenue or through a government subsidy or charitable donation. Patients referred by the outreach programme are also treated without charge. This has built the reputation of the ‘new DNJ’.

Providing a better service

• Surgical patients are asked to come at appointed times, in ‘batches’, to reduce waiting time and apprehension before surgery. The times are determined by the number of operations done per hour.
• To further reduce apprehension, the counsellor who saw the patient in the outpatient department greets the patient at the operating room, waits, and takes them back to their family member(s) after surgery. The counsellor gives post-operative care advice before the patient goes home. We find that good customer service reduces fear and increases surgical acceptance rates and patient satisfaction.
• Visualiza helped to refine the manual small-incision cataract surgical techniques used by DNJ’s surgeons. This improved the quality of surgery and increased the number of cataract operations per hour from two to seven.
• The operating room floor plan was reorganised to increase patient flow from anaesthesia to the surgical table. This resulted in the surgical roster being completed by 11:00 a.m. instead of 1:00 pm, allowing more operations to be performed in a day.
• Outpatient examinations are scheduled every day. On arrival, patients may choose the ‘fast track’ option at a higher price to be seen quicker. This option reduces patients in the waiting area, allowing more patients in.

Computerised management information system

To monitor all aspects of DNJ’s service delivery and management, a Spanish-language computerised management information system, which was developed by Visualiza, was installed.

Increasing the number of patients who pay

In 2008, DNJ provided cataract surgery at only two price levels. One was free of charge and the other was an expensive private patient fee. In Figure 2, the brown section represents a very few patients who would essentially have been treated free of charge, but had subsidies from donors or other outside support which contributed toward the cost of surgery. By fixing fees according to patient income, many of the patients who would normally fit into the free category were now able to cover all or some of the costs of their care. Offering patients a choice of products and services, based on perceived value, has also boosted income.

Figures 1 and 2 reflect:
• an increase in cataract surgery
• an increase in the number of patients covering the cost of surgery
• a decrease in the number of patients who were subsidised at 100% (receiving their operation free).

DNJ is now a national leader in eye health in Peru. It collaborated with the Clinton Foundation’s cataract surgery initiative, VISION2020 Latin America, and provides technical assistance to four CBM/LA supported hospitals. DNJ helps develop eye care delivery standards for Peru, coordinates workshops and courses, and is a technical resource for ministry of health ophthalmic training programmes. It has come a long way in the last 7 years.

Figure 1. Increase in patient consultations and operations, 2006–2011

Figure 2. Increase in paying patients, 2008–2011

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FUNDRAISING

Tips for fundraising

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LINKS Programme, London School of Hygiene & Tropical Medicine, London, UK.
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1 Make the case for support
The key is to answer the question ‘What difference will it make?’ in terms that ordinary people (non-clinicians) can understand, and with which they can identify. Always relate your project or programme to people: what are their lives like now and how will your project improve things? How many people will benefit?

2 Decide who to ask
Start with people you know already: existing and past donors, patients, Ministry of Health, non-governmental organisations (NGOs). Follow up with your suppliers – i.e. drugs and equipment companies – they may support you financially or give gifts ‘in kind’. Find out which are the active community groups in your area, e.g. Lions, Rotary, or churches. Find out who funds other projects in your area – annual reports of charities and mental organisations (NGOs). Follow existing and past donors, patients, and programme to people: what are their lives like now and how will your patient improve things? How many people will benefit?

3 How to ask for funding
• You would be surprised how many people you know who could intervene on your behalf. Who might be able to introduce you to a potential donor? Make your case to them and get them on your side so they can be an ambassador for you.
• When you make contact with a potential donor, invite them to meet you. Say something like: ‘I have an exciting new project, I need your advice, would you come and see me?’ If you were introduced by one of your ‘ambassadors’, make sure they can be there when the donor visits.
• ‘Sell’ the project to the donor before you ask them for money. Make the case for support. Once the donor is on your side, tell them what you need.
• Always ask face-to-face. Don’t let someone go until you have asked them for precisely what you need – then wait for their reaction.

It will take time at first, but if you can get a handful of people ‘on board’, give them feedback, and keep them involved, you should be able to secure funding for a number of years.

CLINICAL SKILLS

How to check and record a patient’s body temperature

Dianne Pickering
Nurse Advisor (retired), Community Advisor, Community Eye Health Journal
dianne_logan@hotmail.com

All patients must be assessed for fitness before they can undergo surgery. As part of this assessment it is important to check and record the patient’s temperature. There are two reasons for this:
• It provides an initial recording (a ‘baseline’). If the temperature rises above this level after surgery, we are alerted to the fact that the patient may have an infection.
• It allows us to confirm that it is safe to operate on the patient. A high temperature may suggest an infection, which will have to be treated before the patient can undergo surgery.

Clinical glass thermometers
This article will cover checking the temperature using a clinical glass thermometer which contains mercury. This is the most accurate and most commonly used thermometer. Digital thermometers are available but they require batteries which may not be readily available.

WARNING: Mercury is toxic. If a thermometer breaks, put on gloves and use a tissue or a piece of cloth to dispose of the mercury carefully, e.g., into a sharps bin. Do not allow it to be handled or get into water supplies.

What is a normal body temperature? The normal range for human body temperature is between 36°C and 38°C. However, it is usual to consider a reading above 37.2°C as suspicious. Repeat checks should be done.

A patient’s temperature may be altered due to hormonal changes, exposure to heat or cold, exercise, and infection.

You will need
• A clinical glass thermometer
• Disinfectant or an alcohol wipe
• A watch or clock
• Tissue or dry swab
• Record chart/patient’s notes
• Pen

Preparation
1. Wash and dry your hands – this will help to prevent cross-infection.
2. Explain to the patient what you are going to do. This will help the patient to understand and will make it easier for them to cooperate.
3. Disinfect the thermometer by wiping with an alcohol wipe, or use a swab moistened with the disinfectant. Dry with a tissue or swab.

Method
We recommend taking the temperature in the axilla (armpit) as this is the easiest and safest place.
1. Ask the patient to loosen any tight clothing or remove long-sleeved garments so it is possible to access the axilla.
2. Hold the thermometer at the upper end. Shake it to ensure all the mercury is at the bottom. Clinical glass thermometers have a constriction in the tube so that once the mercury is above the constriction it cannot go down again until shaken. If you do not shake the thermometer it will result in an inaccurate reading.
3. Place the thermometer in the axilla (armpit). Place the forearm across the chest and ensure the upper arm is resting against the patient’s side.
4. Leave the thermometer in place for 5 minutes. This will ensure that the reading will be accurate.
5. Remove the thermometer, read, and immediately record the temperature on the record chart or in the patient’s notes.

NOTE: The thermometer will cool down when exposed to the air, so read the temperature immediately to avoid a low and false recording.
6. Tell the patient the temperature and whether any further investigations are needed.
7. Disinfect the thermometer and wash and dry your hands again.
8. Report a raised temperature to the clinical person in charge.

Read the temperature immediately after removing it from the patient’s axilla (armpit).

Record the temperature on the record chart or in the patient’s notes.

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Fungus: how to prevent growth and remove it from optical components

In hot and humid climates it is common for fungus to grow on the surfaces of optical components. Airborne fungal spores settle on optical surfaces and develop into organisms that digest organic material, such as oils from fingerprints or lens coatings, producing hydrofluoric acid as a waste product. This acid in turn destroys any lens coatings and permanently etches the glass.

In its initial stages, fungus, as pictured in Figure 1, may not be perceivable by the clinician. However, over time the fungus will cover the lens surface in a web-like manner, initially causing a very slight loss of image brightness, followed by decreased contrast due to light reflecting off the fungus. In its final stages, the fungus etches the outer coatings of the lens and image sharpness deteriorates.

Preventing fungal growth

Fungal spores are everywhere and germinate under suitable environmental conditions:

- relative humidity of at least 70% for more than 3 days
- little or no airflow
- darkness
- nutrients (textile lint, traces of grease, varnish, dust and dirt)

To prevent fungal growth on optical components the following precautions should be observed.

- After instruments with optics have been used and cleaned, they should be dried immediately. Turning on a fan in the room will hasten the drying process.
- Keep optical components in a dry place with a relative humidity of less than 65% and with plenty of air circulation. Air conditioners and dehumidifiers are very useful, but must be used 24 hours a day since sudden changes in temperature and humidity promote the growth of fungus.

- In a humid environment, do not cover optics with plastic drape covers (commonly supplied by medical equipment manufacturers) since these will retain humidity. If you need to drape the equipment to protect against dust, use a cloth cover. Do not use containers made of leather, textiles or wood to store optics.

- You can keep optics in sealed plastic containers, provided you include silica gel packs to absorb any humidity. Check the silica and replace it if you notice discoloration or moisture.

- Exposing optics to short periods of sunlight or artificial UV light may help prevent fungal growth.

- Use replaceable fungicidal pellets in cabinets where optics are stored or inside large devices such as surgical microscopes. These can be obtained from some instrument manufacturers, and have a useful life of about 3 years.

- If it is difficult to keep the environment dry you can construct a drying box (see Figure 2) for storing the optical components of your equipment when they are not in use. The box consists of a heater or light bulb used to heat up and dry the air. Openings at the top and bottom permit air exchange in the box with air flowing from bottom to top. Mesh (dust screen) filters placed on the openings will prevent dust from entering the box.

Removing fungus

Removing fungus from lenses can be difficult and may not yield suitable results since the damage is often permanent. Killing and removing the fungus and cleaning the optical surface may prolong the useful life of the instrument, however, if it can still provide an acceptable image.

Required materials:

- Fungicide. Optical fungicide solutions tend to be expensive and hard to obtain, but they are available from some optical equipment manufacturers. Alternatively, you can use a 50/50 mix of hydrogen peroxide ($\text{H}_2\text{O}_2$) and ammonia ($\text{NH}_3$). Usually, 5 ml of each is adequate (10 cc in total). Mix just prior to use and do not store the mixed product.

- Small (5 ml) syringe

- Lens cleaning solution

- Cotton-tipped swabs and lens tissue paper.

Procedure

- If possible, remove the optical components requiring fungus removal and place them on a clean, flat work surface.

- Dip the cotton-tipped swab in the fungicide mix and set aside.

- Using a small (5 ml) syringe without a needle, place a few drops of fungicide on the affected optical surface. Use the cotton-tipped swab to spread the drops over the surface. Repeat until the entire optical surface is coated with a thin layer of fungicide.

- Let the fungicide do its work for about 1 hour. Check periodically and re-apply fungicide if the previous application has dried out.

- When the hour has passed, gently apply a dry lens tissue directly on the optical surface to absorb the fungicide. Do not rub the tissue on the optical surface. Remove the lens tissue and re-apply until there is none left.

- Allow to dry for 1 hour.

- Clean the optical surface two or three times using the standard method for cleaning optics.

- Re-examine the optical surface for evidence of active fungus. **Note:** You will see the evidence of damage caused by the fungus; this is permanent and not reversible.

- It is possible that fungus has attacked the internal components of a lens assembly. Do not disassemble any optical assemblies (such as multi element lenses and oculars or eye pieces), but refer repairs to the manufacturer’s qualified service representative.

- Once all the optical surfaces requiring fungus removal have been treated, reassemble the equipment.

- As there is a high risk of recurrence, carefully examine the equipment on a regular basis, or at least once a month. Re-apply fungicide if you see evidence of recurrence.
Mali: achieving success along the path to trachoma elimination

Trachoma, the world’s leading infectious cause of blindness, affects over 300 million people globally. Caused by the bacterium *Chlamydia trachomatis*, the disease thrives in environments with poor access to water, sanitation, and hygiene. It is spread from one person to another by eye-seeking flies, and by sharing cloths used to wipe the eyes and hands. Repeated or persistent infection can lead to lid scarring and the inward-turning of the eyelid, so that each time a person blinks their eyelashes scrape against the globe of the eye. This incredibly painful condition, known as trichiasis, damages the cornea and eventually leads to blindness.

The World Health Organization has endorsed the implementation of the SAFE Strategy, which is a combination of activities designed to eliminate blinding trachoma. S stands for surgery of the upper eyelid to correct trichiasis and preserve sight. A stands for the mass distribution of antibiotics (Pfizer-donated Zithromax®, and tetracycline) to clear the eyelid of active infection. F stands for facial cleanliness to reduce the presence of infectious ocular and nasal discharge. E stands for environmental improvement to improve household access to water and latrines for better sanitation and hygiene. Implemented concurrently and successfully, the four components of the SAFE Strategy provide endemic countries with the tools needed to achieve trachoma elimination.

Mali, a land-locked country with 16.8 million people in West Africa, has historically been a country with a heavy burden of trachoma. In the late 1990’s, the prevalence of active trachoma – also known as follicular trachoma (TF) – was found to range from 23.1% to 46.7% and the prevalence of trichiasis to be 2.5%. This evidence led to the implementation of a trachoma control programme through the National Blindness Prevention Programme (PNLC) in 1998.

Since its inception, the PNLC has made significant progress towards the goal of eliminating trachoma as a cause of blindness by 2015, ahead of the global elimination date of 2020. With support from a multitude of partners, the PNLC has become a leader in trachoma elimination across sub-Saharan Africa. Mali’s military coup d’état in March 2012 resulted in the loss of significant donor support to its government, the seizure of the three northern regions (Gao, Kidal, Tombouctou) from the rest of the country, and unprecedented political and social instability. However, the persistence of the PNLC, together with continued financial support from some partners, ensured that their important work continued in all accessible areas during this difficult time.

**Figures 1 and 2: Maps of Mali depicting the prevalence of active trachoma at the start of the programme (left) and now**

<table>
<thead>
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<th>Key: Prevalence of active trachoma (%)</th>
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**Milestones**

Major milestones have been reached in the S and A components of the SAFE strategy in Mali. Since 2009, the PNLC has decreased the surgical backlog by almost half with targeted programme planning at the central, regional, and
district levels and strategic deployment of human resources (trichiasis surgeons), equipment, and consumables.

The prevalence of active disease has decreased to levels below the threshold recommendation for district-level mass drug administration (MDA), and so the programme has been able to stop this activity in 84% of the districts where trachoma is present (Figures 1 and 2). This has been due to the high annual rates of coverage with Zithromax® and tetracycline during MDA, strong data collection efforts, and conducting surveys to assess impact.

To address the F and E components, the PNLC conducted several different activities at the same time. These were:

- training for a variety of community groups and leaders (local women’s groups, religious/village leaders, and community volunteers) in trachoma prevention
- broadcasting of health messages on community radio stations
- development of a trachoma school health curriculum that is being taught in primary schools
- household latrine construction and community-led total sanitation. Since 2009, PNLC support has assisted in the construction of 53,090 latrines.

Future plans

The PNLC and partners will continue to build upon the gains made over the past 5 years and support the planning and implementation of SAFE strategy activities. The national programme is refining its surgical planning in order to reach the remaining 27,000 people estimated to need trichiasis surgery, thereby achieving the ‘elimination goal’ of less than one case of trichiasis per 1,000 persons.

Simultaneously, MDA to reduce transmission of trachoma will continue in communities where the prevalence remains high. Surveillance will also continue in areas where MDA has stopped. Social mobilisation and community sensitisation through radios, community volunteers, and women’s groups will play a vital role in supporting attitudes and behaviours that help prevent the transmission of disease, strengthen disease knowledge, and decrease the number of people who refuse treatment or surgery. Ongoing latrine construction will continue to provide household access to safe disposal of faeces.

With thanks to Sanoussi Bamani, Seydou Goita, Yaya Kamissoko, Sidi Coulibaly, Aryc W. Mosher, and Emily Toubali for their contributions to this article.

Test your understanding of the concepts covered in this issue and discuss any points of interest with your manager or a colleague. Produced in collaboration with the International Council of Ophthalmology (ICO).

### 1. Think about ‘balancing the books’ and sustainability

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**ANSWERS**

- 2a. True. Zero-grant programmes may be appropriate at small scale.
- 2b. True. A health system must cover some of the costs to ensure health insurance is sustainable.

### 2. Think about patient flow, accounting and procurement

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**ANSWERS**

- 1a. True. The benefits of bulk buying medicines and consumables are clear.
- 1b. False. Adjunctive therapy is essential post-operatively to minimize the risk of infection.
- 1c. False. The convergence of these two interests, however, may not yield an optimal result.
- 1d. True. Hospital gains include savings on the procurement list.

**PICTURE QUIZ**

Diagnose this

A ground-glass appearance of the cornea is noted immediately after cataract surgery (figure) and there is a +3 anterior chamber reaction. What condition do you suspect?

- Endophthalmitis
- Mechanical trauma to the cornea
- Intraoperative introduction of a toxic substance into the eye
- Fuchs’ corneal dystrophy

**ANSWER**

- **Diagnosis**: Introduction of a toxic substance into the eye

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**CONTINUING PROFESSIONAL DEVELOPMENT**

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Investing in vision pays off
A PriceWaterhouseCoopers (PWC) report commissioned by the Fred Hollows Foundation shows that – in low- and middle-income countries – an investment of just US $2.20 per person, every year for 10 years, will eliminate avoidable blindness and visual impairment. What is more, each dollar invested in this way will generate over US $4 of economic benefits – a four-fold return on investment. The Fred Hollows Foundation has now commissioned a further body of work from PWC that aims to make data available at country level. Read the full report at www.hollows.org.au/our-work/the-price-of-sight

Glucoma Africa discussion group
The Glucoma Africa discussion group is for everyone working in glaucoma care. Discuss difficult cases, post questions and support others by sharing your experience. Membership is free. http://health.groups.yahoo.com/group/glucomaafrica or email Dan Kiage: kiaged@yahoo.com

Subscriptions
Would you like to receive your own copy of the Community Eye Health Journal? Or have you changed address? Send your name, occupation, email address and home address to: Anita Shah, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, London WC1E 7HT, UK. Email: admin@cehjournal.org

Disability update
‘Getting to know Cerebral Palsy’ is a new guide funded by CBM which aims to increase knowledge and skills in caring for a child with cerebral palsy. It promotes group work and a participatory learning approach with an emphasis on the empowerment of parents and carers. Download is free. http://disabilitycentre.lshtm.ac.uk/getting-to-know-cerebral-palsy/

‘Inclusion Made Easy in Eye Health Programs’ has been updated and is now available on the CBM website: http://cbm.org/disability-inclusive-eye-health

Community Eye Health Update 8
The Community Eye Health Update 8 CD is being distributed with this issue of the Community Eye Health Journal. It contains past issues, photographs, posters and many other helpful resources for planning eye care programmes and teaching and learning about eye health. The CD is published in English, French, Spanish, Chinese and Portuguese.

Meetings


The Africa Ophthalmology Forum (AOF) will be awarding a support grant of US $500 each to 20 young sub-Saharan ophthalmologists attending WOC2014. Preference will be given to those who are making presentations and going to the WOC for the first time. Contact Henry Nkumbe, AOF General Secretary, by 15 December 2013: Nkumbe@gmx.net

Courses
Tell us about your course. Please write to: The Editor: Community Eye Health Journal, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK. Email: editor@cehjournal.org

London School of Hygiene and Tropical Medicine, London, UK
MSc Public Health for Eye Care, starting September 2014. To apply, visit www.lshtm.ac.uk/study/masters/mscphec.html

German Jordanian University, Amman, Jordan
Professional Diploma in Vision Rehabilitation (4 months, US $1,040) and MSc in Vision Rehabilitation (2 years, US $4,800) open to optometrists, therapists, educators and rehabilitation workers. For more information, visit http://tinyurl.com/rehabcourse. Email: vtc@glu.edu.jo

Lions Medical Training Centre, Nairobi, Kenya
Small Incision Cataract Surgery, for ophthalmologists wishing to upgrade from ECCE (6 weeks, US$1,000 for tuition). Write to: The Training Coordinator, Lions Medical Training Centre, Lions SightFirst Eye Hospital, PO Box 66576-00800, Nairobi, Kenya. Tel: +254 20 418 32 39.

Kilimanjaro Centre for Community Ophthalmology International
Epidemiology of Vision Loss in Africa, 20–23 January 2014, Cape Town, South Africa. Please contact Genes Mng’anga at genes@kcco.net and/or geneszt@yahoo.com. Visit www.kcco.net

Next issue

The next issue of the Community Eye Health Journal is called Does vitamin A deficiency still matter?
EXCHANGE: VIET NAM

Working towards sustainable eye care at district hospitals in Viet Nam

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The shortage of adequate facilities and qualified staff at district and community level means that tertiary eye care services in Viet Nam have been overburdened by high volumes of patients, not all of whom needed tertiary-level care. In Quang Nam province, an additional challenge is the mountainous terrain, which makes travel very difficult.

To help reduce the pressure on tertiary centres and increase access to eye care, the Fred Hollows Foundation (FHF) has been working since 2005 to implement a sustainable model of community eye care (CEC) based at two district hospitals: one in Que Son district (population >80,000) and one in Dai Loc district (population >145,000). This work is supported by Standard Chartered Bank’s ‘Seeing is Believing’ Initiative.

Vision centres
Previously, the eye departments at the two district hospitals mainly provided eye examinations, referrals, and some medical treatments. The CEC project has involved transforming the eye departments into vision centres with several functions:

• coordination of eye health promotion and community screening
• eye examinations and referral to tertiary centres if needed
• treatment of eye disease (including cataract surgery) at the district hospital
• refraction and dispensing of spectacles.

Reducing the cost of surgery
Strategic procurement procedures, including competitive tender processes, ensured that high quality consumables for surgery could be obtained at reasonable cost. Low-cost, high quality intraocular lenses (IOLs) were imported from FHF-established laboratories in the region, and used for all cataract operations. These IOLs cost only US $5.00, reducing the total cost of a cataract operation to just US $45.00 per eye.

Quality and efficiency
Local eye health personnel, including cataract surgeons, must undergo on-going training and skills development in order for the project to be sustainable. To achieve this, experienced surgeons were invited to lead a surgical training programme at the hospital, which proved to be very effective. This programme, together with other opportunities for continued professional development (e.g. workshops, refresher training, and mentoring with experienced surgeons), has allowed personnel to network and share knowledge and information. This has helped to improve the outcomes of cataract surgery and ensure that quality and efficiency remain high.

It is important to form close partnerships with suppliers and to train staff in the use and maintenance of instruments and equipment. For the hospital to run smoothly and offer high quality services, there has to be adequate supplies and well-maintained equipment and instruments.

These initiatives form part of the preparations for handover of the project to local surgeons once FHF support comes to an end.

Sustainable income sources
Viet Nam has a government health insurance plan with a co-payment scheme which covers 70–80% of the costs of cataract operations and eye disease treatments.

According to a report by Quang Nam Social Insurances in 2009, 67% of the population had health insurance cards. Health insurance enables more patients to go to eye units for screening and treatment, and higher patient numbers boosts hospital income.

The CEC project also has encouraged local authorities to contribute matched funding for eye facility construction. In Dai Loc, the local government contributed 20% of the construction cost of the eye unit, while in Que Son the local government paid the full cost of construction (US $100,000).

Sales of spectacles are an additional source of income. The district hospitals provide high quality refraction services for post-operative patients at a cost of just US $6–10 per pair. This also helps to ensure that patients get the best visual outcomes.

With its strategy for sustainability, the CEC project in Que Son and Dai Loc has developed high quality, affordable services and helps to narrow the gap between eye care services and patients.
Eye care programmes can become more sustainable and less dependent on external funding by charging user fees and thereby generating revenue to cover operating costs. Ideally, a substantial surplus will be generated to cover the costs of free surgery for the poor and fund capital expenses and institutional growth.

Afghanistan is a country recovering from decades of war and instability. Even without war, Afghanistan’s geography, climate and infrastructure constitute major challenges to providing adequate care to rural communities. Health indicators are amongst the worst in the world and blinding eye diseases are a significant public health problem.

The International Assistance Mission (IAM) is an international non-governmental organisation that has been implementing the IAM NOOR Eye Care Program in Afghanistan since 1966. IAM NOOR believes that high quality eye care services cannot be provided free of charge. The organisation also believes that services should be accessible for all persons in need, and it therefore provides a fee waiver for people who are unable to pay for treatment or surgery.

This article discusses an investigation conducted from 2011–2012 into the differences and similarities between two groups of hospitals in Afghanistan.

1. Four hospitals that are run by IAM NOOR.
2. Two government-run eye hospitals which have a contract with IAM NOOR that allows them to charge user fees. (Under the constitution, other governmental hospitals are not allowed to charge user fees.)

Level of cost recovery

- The IAM NOOR-run hospital in Mazar-i-Sharif had nearly achieved full cost recovery (98%).
- The other three IAM NOOR hospitals still have substantial dependence on donor funding and have cost recovery of between 47% and 62%.
- Both government-run hospitals have nearly reached cost recovery of 88% and 89% respectively.

Reasons for level of cost recovery

In the IAM NOOR-run eye hospital in Mazar-i-Sharif, the high level of cost recovery was mainly due to the high patient numbers (which increased income) and good efficiency.

Lower levels of cost recovery in the other three IAM NOOR hospitals were partly due to the fact that some of these are only recently operational and patient numbers are low. Cost recovery is expected therefore to increase once patient numbers go up and the hospitals are able to recruit more paramedical eye care workers (which will improve efficiency). The aim is to reach a ratio of one eye surgeon to five paramedical staff members. Patient numbers could be increased by operating on cataracts at an earlier stage, e.g. in eyes with a visual acuity (VA) better than the current threshold of 6/60. Reducing all unnecessary routine laboratory screening will reduce the costs of the service, thereby attracting more patients.

In the two government-run hospitals, the high levels of cost recovery were due to having lower expenses. These hospitals had relatively low efficiency compared to the IAM NOOR-run hospital in Mazar-i-Sharif; however, they provided substantially lower salaries and implemented other cost-cutting measures, including lower maintenance expenses, which increased their cost recovery.

Conclusion

Over the past decades, IAM NOOR has successfully provided eye care in Afghanistan, both through setting up and running eye care facilities and by supporting government eye hospitals through a partnership agreement. All facilities charge user fees to cover costs, and some clinics have nearly reached full cost recovery. Full cost recovery, however, does not necessarily imply that the facility is running at maximum capacity, nor that it is delivering high quality care to all patients in need of eye care. Nevertheless, cost recovery is essential to make eye care programmes sustainable in the long run.

Author’s note

IAM NOOR notes that it is encouraged by the results in cost recovery, established in such a challenging context. It will use the outcome of this evaluation to further improve sustainability of its eye care services in the coming years.

The authors express their gratitude to both IAM NOOR and Light for the World Netherlands for the opportunity to perform this evaluation and for providing supportive services. For a copy of the full report, please email Klaas Aikes: k.aikes@lightfortheworld.nl
Universal eye health: increasing access for the poorest

Elmien Wolvaardt Ellison
Editor: Community Eye Health Journal, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, London, UK. editor@cehjournal.org

Eye health is available, but not yet to everyone. The new World Health Organization (WHO) action plan calls for ‘universal eye health’, a new framework to scale up services and expand access to all.

‘Towards Universal Eye Health: A Global Action Plan 2014–2019’ was unanimously adopted by the 194 member states at the World Health Assembly, the decision-making body of the WHO. The International Agency for the Prevention of Blindness (IAPB) has also chosen to highlight universal eye health in its World Sight Day Report 2013.

What is new in this plan?
The focus of the Global Action Plan is now on ‘universal eye health’: all people should enjoy access to the best quality eye care without the risk that paying for such care will impoverish them.

The plan also sets a specific target of a reduction of 25% in the prevalence of avoidable visual impairment by 2019 (compared to the baseline in 2010).

In principle, universal eye health involves the following:

- offering comprehensive eye care services (for eye health promotion, prevention, treatment, and rehabilitation)
- integrating eye health into the wider health system
- providing access for everyone, including the poor, minorities, and the disabled
- ensuring that payment for services does not prevent access. Services should be free for the poorest – whether by means of fee waivers or national health insurance.

In practice, however, there are many challenges. These include:

- serious shortages in trained personnel, particularly in Africa
- low rates of surgery and irregular outreach to the poorest and rural populations
- treatment costs that are too high for many poor and marginalised people
- barriers, such as transport, lack of appropriate technologies and discrimination. These barriers make it difficult for vulnerable groups of people (the poor, minorities, the disabled, and women) to have access to eye care

User fees
User fees in public health facilities are a barrier to access and a major obstacle to achieving universal health coverage. To address this barrier, many countries have introduced exemption policies, such as free health care for children or other groups. Other countries have introduced national insurance schemes to help cover the costs of eye care.

Making progress
In Africa, Ghana’s National Health Insurance System now covers most ocular diseases, and almost every district has an ophthalmic nurse. Burkina Faso has made children under five exempt from paying health care fees. As a result, the number of children attending at health facilities has increased six-fold. It is estimated that this could save the lives of around 20,000 children every year, at a cost of just £3 per child per year.

In the Eastern Mediterranean Region, Jordan and Saudi Arabia are replacing inflexible hospital-based programmes with comprehensive community-based screening initiatives. Saudi Arabia has incorporated prevention of blindness into its new primary health care policy with a dedicated budget line and training schedule.

In Europe, an indicator on eye health was included in England’s Public Health Outcomes Framework in 2012 to track the rates of three major causes of avoidable sight loss (glaucoma, macular degeneration and diabetic retinopathy).

In Latin America, the government of Chile (where 70% of the population is not covered by private insurance) guarantees universal eye health coverage, for example by paying the fees in full if the patient is unable to afford care. In areas where government institutions cannot provide care, private organisations offer services that are paid for by government.


References

Time to reflect

- Has your country adopted the Global Action Plan? It has if it is a WHO member state. Visit www.who.int/countries/en/ to see if your country is listed.
- What is needed in your district or country in order to provide universal eye health?
- Who are the decision makers who can act to make these changes?
- What can you do to ensure access to eye health care for women, people with physical, sensory, and mental disabilities, people who are poor, people who are unemployed or in the informal sector, and/or refugees?

Participants in Trinidad and Tobago ‘walk for sight’ on World Sight Day 2013