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SUPPORTING VISION 2020: THE RIGHT TO SIGHT

# TECHNOLOGY FOR VISION 2020

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**The Global Initiative for the Elimination of Avoidable Blindness** (World Health Organization, 1997), which is VISION 2020's base document, emphasises the need for appropriate and affordable technology for the delivery of eye care on a global scale. The past ten years have already seen initiatives which have immeasurably increased access to eye care in developing countries. The outstanding achievement has been the mass production of low cost, high quality intraocular lenses, first by Aurolab in India, and then by the Fred Hollows Foundation. These organizations have substantially reduced the cost of IOLs, which are now widely distributed on the world market, and thus brought high quality cataract surgery within the reach of millions more people.

### IAPB Technology for VISION 2020 Working Group

By 2001 working groups had formed to address VISION 2020 priorities such as low vision and refractive errors. However, it was only in October 2001 that the International Agency for the Prevention of Blindness (IAPB) decided to set up a working group on technology. This group met for the first time at a workshop on 26th and 27th April 2002 in Sydney, Australia, after the International Congress of Ophthalmology. Twenty four people representing 15 organizations attended.

The workshop's objectives were:

- To share information about current availability of resources on appropriate technology for eye care
- To identify priorities for development, taking into account common needs and the resources available
- To agree the way forward.

The working group recognized the wide variation which exists between countries regarding norms and standards of eye care equipment, and committed itself to promoting the use of high quality equipment and consumables within national eye care

***Learning to repair & sharpen instruments***
*Photo: Photography Department, Aravind Eye Hospital, India*

**A NEW SERIES . . .**

**APPROPRIATE TECHNOLOGY FOR VISION 2020**

The ***Journal of Community Eye Health*** begins a new series of articles with an introduction by **Catherine Cross, Chairperson, IAPB Technology for VISION 2020 Working Group**.

The Working Group met for the first time on 26 and 27 April, 2002, in Sydney, Australia.

**D D Murray McGavin**
**MD FRCOphth**
**Editor**

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programmes. Further, the group seeks to encourage the development of appropriate national standards and monitoring systems. A series of priorities were agreed by members of the group on which they will work over the coming year.

**1. Establishing a purchasing network.** It was agreed to set up an e-mail network among the procurement managers responsible for purchasing equipment and consumables for their organizations. The intention is to share information on the suitability of items as well as on issues such as freighting and customs requirements. Procurement managers interested in joining the network should contact Philip Hoare at Sight Savers International (phoare@sightsavers.org).

**2. Identifying equipment and consumables for development.** It was recognized that further work needs to be done to identify low-cost items for development and how these will be developed. There was discussion over the increasing need for low cost lasers, particularly in the treatment of posterior capsule opacification after cataract surgery. The group felt that research was needed to determine the scale of need for treatment of PCO, as well as for angle closure glaucoma, and agreed that this should be followed up.

**3. Achieving a common standard list of equipment and consumables.** Several organizations have lists to assist staff and partners order suitable items. However, it was felt that these lists needed to be reviewed and consolidated. It would be helpful to include sections appropriate for setting up services at primary and at secondary level, as well as for training purposes. The list would need to be flexible and adaptable for regional differences, and, most important, information relating to suppliers and manufacturers should be included, with local maintenance and servicing facilities, and guide prices.

Providing an up-to-date service to eye care partners has major financial implications to which the group will have to give further thought. In the meantime, the International Resource Centre at the International Centre for Eye Health has offered to act as a collection point for existing lists, and for the collation of information on equipment maintenance (see below). *All technology group members, and readers of this article, are asked to ensure that copies of relevant information are sent to the Resource Centre, ICEH, at the address given on this page.*

**4. Providing service support, education and training.** Aravind Eye Hospitals in Tamil Nadu, India have considerable experience in delivery of high quality services. Two colleagues from Aravind made presentations on the equipment requirements for high volume cataract surgery and on issues around servicing and maintenance. Many items of essential eye care equipment lie idle for lack of maintenance or, simply, spare parts. The working group agreed that in order to achieve the objectives of VISION 2020 and aid sustainability, it would be necessary to:

- Integrate equipment maintenance personnel into the eye care team and provide training
- Ensure that all eye care personnel achieve a basic understanding of the principles and practice of maintenance
- Increase the availability of training, information, and post-training support.

A short training course for maintenance personnel has been running at Aravind four times a year for several years and Aravind has facilitated the establishment of a similar course in Kaduna, Nigeria. A different model, of itinerant service personnel, exists in Pakistan and may also start in

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Kenya. Nevertheless, this represents a fraction of the need, and the working group agreed that ways have to be found to expand maintenance training. One idea is the establishment of 'technology centres'.

**5. Distribution networks.** How often do we find that eye care personnel are hampered by the lack of appropriate and functioning equipment? Ministry of Health eye units, as the end users, often have little or no influence over the ordering and procurement process. This leads to problems such as inappropriate, incomplete, non-standard items being received, so that the equipment is unusable, the ophthalmic personnel cannot work effectively and their morale suffers, as indeed do their patients.

The working group considered the feasibility of a network of regional or national technology centres which could facilitate:

- Bulk purchasing of agreed high volume items
- Advocacy for the registration of essential items not yet included on national Essential Drugs and Appliances lists
- Importing procedures, storage, maintenance, and distribution.

While recognizing the difficulties of making this concept operational, the group agreed to investigate it further to see whether it would be workable in one or more countries.

These were some of the key issues discussed by the IAPB Technology for VISION 2020 Group. They recognized that improving access to appropriate equipment and supplies is vital to the development of eye care services and the ultimate success of VISION 2020. The group acknowledged that more can quickly be done to make available existing information through the e-mail purchasing network, and potentially through the ICEH Resource Centre. However, some of the other proposals, such as the development of information on the internet, have financial implications which will take time to resolve. We hope to bring readers progress reports in future editions of the Journal.

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# Training in Surgical Skills

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It was very interesting to read the letters relating to ICCE / ECCE in the *Journal of Community Eye Health* 2000; 14: 30–31. Many of the comments relate to outcomes of cataract surgery and mention the necessary skills / experience needed to obtain good outcomes. For these to be the norm rather than the exception, a set of conditions is required.

1. Knowledge of the procedure concerned.
2. Supervised training.
3. Practical surgical exposure and practice which leads to
4. Experience.
5. Follow-up and audit of outcomes to inform the previous steps.
6. Changes to steps 1 – 4, as necessary, to improve or maintain outcomes.

In my experience, supervised training and practice are the cornerstones to reaching a level of expertise which allows competent practice and thus experience. In turn, outcomes will improve.

### The Role of the Trainee

The old method of 'see one, do one, teach one' does not work as far as surgical training is concerned. In order to learn a practical procedure it is vital to understand what is happening at each stage of the procedure and, to this end, new trainees should first of all observe and question the trainer. When an experienced surgeon operates he or she is using many small 'tricks' and manoeuvres which may not be obvious to the inexperienced observer. It can be very helpful to write down the steps of an operation in a notebook, firstly, to help learn the order of the procedure and, secondly, as a permanent record of a particular trainer's method.

It can also be very helpful to scrub with the nursing team in order to learn the steps of a procedure, as it is good discipline to anticipate, ahead of the surgeon, what is required next. It has been said that 'a good scrub nurse gives you what you need, not what you ask for!'. Working with nurses in this way can also be useful in terms of team-building.

When learning a new procedure for the first time it is helpful to break it up into small sections.

Instruction in a surgical technique should first of all take place away from patients. The use of plastic eyes or animal eyes is helpful and there are several surgical models which can be used for this.

In my experience it is very useful to attend a micro-surgical skills training course. The importance of learning how to hold instruments, what a particular instrument is for, how to tie knots, etc. cannot be over-emphasised. Traditionally, this has been left to the trainee to pick up by observation and it is interesting to see how many senior surgeons still do not tie reef knots appropriately!

One of the duties of all trainees is to practise. Doing anything to a high level requires dedicated practice and time. Surgery is no exception. This may sound obvious but the number of trainees who practise regularly is very small. If a skills laboratoryisnotavailable,thentheordinary operating microscope can be used when the operating theatre is not in use. Only plastic eyes or other non-organic material should be used in the operating theatre and unusedsutures (whichareno longersterile) can be saved so that trainees can practise with them. A good set of instruments should be set aside for practice because just as a bad workman blames his tools, a good workman does not use bad tools.

Fig. 1 shows a skills board that has been developed by the Royal College of Ophthalmologists. This allows a number of procedures to be practised.

Fig. 2 shows a skills head which can hold an animal eye or a plastic eye. This simulates a human head and can be used under a microscope.

Pieces of fruit such as grapes and tomatoes are useful for practising capsulorhexis under the operating microscope.

### Trainers

Once the microscope and instruments have been mastered and the trainee is comfortable using them, progress will be much more rapid in the operating theatre.

When planning a teaching session in surgical training it is useful to have a well-defined end point.

It is critical that all trainees should have regular and frequent exposure to surgery and there are a number of ways to achieve this.

1. Dedicate a set time on each operating

list for the trainee. I use 40 minutes at the beginning of each list to ensure that each trainee receives supervised training on each list. It is important to take over the case after 40 minutes and although, initially, the trainees may not achieve much in this time, with regular exposure to training they will progress rapidly and after a few months may be at the stage of completing an operation.

2. If a trainee needs to practise a specific part of an operation, it is possible to supervise them doing this section for each one of the cases on the list. This way, very rapid progress is made in one surgical session but each case is still completed in a reasonable time by the trainer.
3. 'Reverse training' is a method of learning a procedure from the end backwards. For example, a trainee would start by tying the sutures for an extracapsular cataract operation. If this has been done satisfactorily, they would progress the next time to putting stitches in and then tying them. Following this, they would carry out the irrigation/aspiration and then complete the operation. The principle behind this is that they should be operating with the eye in a good condition each time, as the training surgeon will have carried out each of the previous stages.
4. A positive attitude and approach provides essential encouragement to all trainees. The use of humiliation or shouting has absolutely no part to play in surgical training. It is important to discuss which parts of the operation went well and then to talk about what might have been done differently. Identifying what needs to be practised for next time is useful. It is necessary that some of the practice is also supervised.

***Fig. 1: Prototype of the Royal College of Ophthalmologists' skills board***

*Photo: Pharmabotics, UK*

***Fig. 2: The Royal College of Ophthalmologists' skills head***

*Photo: Pharmabotics, UK*

Modern cataract surgery can be very effective and therefore sight restoring. To give all patients maximum benefit, the surgery must be performed well and to attain a high level of surgical skill, good, supervised training and regular and frequent practice are essential.

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# Training a Cataract Surgeon

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## Introduction

The major goal of Vision 2020: The Right to Sight is to make high quality eye care services available, accessible and affordable to all through a sustainable delivery system. One of the key pre-requisites to achieve the above goals is the development of adequate and appropriate human resources. An analysis of current practices reveals problems related to number, distribution, quality of training and utilization of various categories of eye care personnel. Fundamentally, most eye care delivery services in developing countries lack appropriate human resource development, including planning and training and, therefore, implementation of services is adversely affected. [1]

## Identification of Tasks

Cataract surgery is now, in effect, refractive surgery – which is more than just removing the opaque lens. It includes thorough pre-operative assessment, skilled surgical techniques and proper post-operative follow up with a focus on the best possible visual recovery.

An important step in cataract surgery training is the identification of tasks that a cataract surgeon is expected to learn and practice.

A cataract surgeon should take care of the following important steps (**S's**) of cataract surgery training:

1. **Case selection (*Selection*).** The cataract surgeon should have thorough knowledge of the patients before surgery. Diseases such as corneal scars, age-related macular degeneration, diabetic retinopathy, advanced glaucoma, etc. may be present and cataract surgery will not give the desired and required results.[1]
2. **Sterility and the Surgical field (*Sterility*).** Procedures such as effective 'scrubbing', 'gowning' and 'gloving' should be strictly observed. Cleaning the periorbital skin prior to surgery with povidone iodine will reduce the bacterial load and can prevent post-operative endophthalmitis.[2]
3. **Anaesthesia and intraocular pressure (*Soft eye*).** A soft, well-anaesthetised eye is vital to the success of cataract surgery. Peribulbar injections and intermittent digital pressure are best suited for trainee surgeons or technicans.[2]
4. **Intra-operativesurgicalcomplications (*Safe surgery*).** The cataract surgeon should have good control over:
   - Wound construction
   - Capsulotomy
   - Hydrodissection
   - Nuclear delivery
   - Cortex irrigation and aspiration
   - Lens implantation
   - Wound reconstruction.

   A safe cataract surgeon should know how to respect corneal endothelium, uveal tissues and posterior capsule and should avoid any damage to such tissues. In the case of posterior capsular rupture, he/she should know how to manage vitreous loss.
5. **Uncorrected refractive errors (*Spectacles*).** Significant astigmatism and uncorrected refractive errors from lost or broken aphakic glasses is an important cause of low vision and blindness following cataract surgery. It can be overcome by:
   - Biometry and the implantation of a customized intraocular lens that will ensure significant improvement in visual outcome
   - The appropriate removal of sutures to reduce significant astigmatism, followed by spectacle correction of the residual refractive error 6–8 weeks after surgery.[3]
6. **Post-operative complications (*Sequelae*).** There may be early or late complications. Persistent inflammation in the early post-operative period and posterior capsule opacification in the late period can adversely affect visual results. To avoid or minimise these, a cataract surgeon should take care of careful post-operative follow-up with early detection and treatment of post-operative complications. Routine follow-up on the first post-operative day, after 1 week and 6 weeks is recommended.[3]

## Training

1. **Length and content.** The cataract surgeon should have the opportunity of adequate supervised training. There will be considerable individual variations but as a minimum standard, 2–4 weeks of training in ECCE with IOL of an already qualified person and a minimum of 50 surgeries is recommended to reach a desired level of competency.

   Training should include:

   - Didactic teaching
   - Videos
   - 'Hands on' training.

   Training should be an ongoing process and not a one-time activity. Trainees should get an opportunity to refresh their skills and learn new techniques. Refresher training opportunities should be available according to the needs of the trainees. During the basic training period the trainee surgeon should not operate on 'only' eyes (the other eye being blind); eyes where the first eye has had a serious operative complication (e.g., vitreous loss), or children's eyes.
2. **Monitoring and evaluation.** The trainee surgeons should monitor their own surgical skills. Monitoring for surgeons in the initial phase should be to compare 'themselves with themselves' over time.
   Evaluation of training needs to be done by the trainer through regular close observation and assessment of skills.
3. **Certification and competency.** Certification of training is the responsibility of the trainer, certifying trainees as safe cataract surgeons or recommending further training under supervision.

***Bilateral cataract in an Afghan woman (pupils dilated)***

*Photo: M Murtaza Farrahmand*

# Training a Cataract Surgeon

### Requirements of a Trainee

- A trainee cataract surgeon should have, at least, basic knowledge of the eye and some experience in ocular surgery
- A commitment to improvement which should provide the necessary motivation, enthusiasm and determination that is required
- A trainee cataract surgeon should have binocular single vision
- Should be comfortable with the use of the microscope
- A trainee in cataract surgery should be able to master and practise the safest and simplest techniques.

### Equipment and Training Materials

A trainee should be given a kit containing the following:

- A curriculum of the cataract surgery training attended with information on sterilization, pre-operative assessment, operating room management and post-operative evaluation
- Videos of the surgery they have performed themselves
- A video on standard cataract surgical techniques
- A microscope
- Two cataract surgical sets
- 100 IOLs.

### A Cataract Training Centre

A Centre should have:

- Adequate physical space
- Adequate equipment, good quality instruments and consumables, as requested and required
- 'Wet' laboratory for the trainees to familiarize themselves with the instruments and microscope
- Audio-visual system for the recording of surgeries, for learning, monitoring and further reference
- Careful ophthalmic instrument maintenance and care by a trained ophthalmic technician / assistant / nurse who is also trained in the use of the microscope and other equipment maintenance and operating room management.

### Requirements of a Surgical Instructor/Trainer

A trainer should be or have:

- A highly skilled surgeon
- An aptitude for teaching and training
- The necessary time and patience needed for surgical skills transfer
- Ready to take over the moment a patient's safety is at risk.

### References


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## Review Article

# Training in Trichiasis Surgery


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***Trichiasis surgery might have prevented blindness....***

*Photo: Murray McGavin*

### Introduction

It is estimated that each village in central Tanzania has between 5 – 25 persons with in-turned eyelashes due to trachoma. Half of these people constantly epilate their eyelashes to ease the irritation and pain from in-turned eyelashes.

### Aims

The aims of training in trichiasis surgery are to teach:

- Identification of patients needing trichiasis surgery
- A good and safe surgical procedure
- The principles and practice of competent follow-up.

### Selection of Trainees

Trainees are recommended by their respective Health authorities. They are required to have:

- Previous experience in eye examination
- Experience in giving injections
- Knowledgeofsterilesurgical techniques
- Previously observed eye surgery.

Two weeks is the minimum time recommended to train a trichiasis surgeon.

### Objectives of Training in Trichiasis Surgery

At the end of the course the trainee should be able to:

- Perform the tarsal rotation method for trichiasis
- Complete at least 5 supervised operations to receive certification
- Follow-up trichiasis patients and recognise any complications
- Complete reports and keep records of trichiasis surgery
- Assess competence and improve surgical skills, under supervision
- Recognise the barriers to trichiasis surgery and how these can be overcome
- Assist in the planning and implementation of mobile eye clinics (community-based)
- Demonstrate trachoma assessment methods
- Demonstrate skills in trachoma grading
- Implement SAFE interventions as part of comprehensive eye care.

### Handouts

Handouts on the following topics, to support teaching sessions, are distributed to participants during the training period:

1. Primary Health Care.
2. The 8 Elements of Health Care.
3. The 5 Principles of Primary Health Care.
4. Anatomy of the Eye (main emphasis on the upper eyelid).
5. Checklist of Supplies and Materials.
6. Sterilization Methods.

7. Record Keeping.
8. The SAFE Strategy.

### Incision and Stitching Exercises

The trainer demonstrates the procedure. It is then practised on oranges and bananas.

The steps include:

- Incising the 'eyelid'–orange peel or banana
- Everting and incising the 'conjunctiva and tarsal plate'–inside of orange peel
- Completing the incision with scissors
- Suturing the 'eyelid'.

### Handling Surgical Instruments

The key skills in which each participant must be competent are:

- Holding the needle holder in the dominant hand

***Stitching exercises on an orange***

*Photo: Sidney Katala*

- Mounting the needle (with suture) on the needle holder
- Making sure the needle holder holds the needle one-third away from the tip
- Holding the toothed dissecting forceps with the other hand
- Holding the edge of the distal skin edge and inserting a needle with suture
- Holding the skin on the proximal side, and pushing the needle through the skin
- Pulling the suture and making the first, second, and third knots
- Cutting the two ends of the suture material (about 0.5mm long above the wound; this helps when removing sutures).

After everyone has successfully mastered incision and suturing skills, they each receive their own surgical kits for the field visits.

The trainer reviews the schedule for the field visits and reviews the sterilization procedures for surgical kits during the visits and at the end of each day.

### Mobile Eye Clinic: Procedure for Trichiasis Patients

During the mobile eye clinic, priority should be given to:

- patients with trichiasis
- people who are blind
- patients with painful red eyes.

Patients with trichiasis are sent immediately for visual acuity testing. These patients are then guided to the operating area. The outpatient form is carried with the patient into the operating area. Numbers are written on the outpatient form so that surgical teams will know how many patients to expect.

The following procedures are followed:

- Identify who will take the patient home and make sure all the procedures are understood, the need for return in 7 days clearly stated, and verbal consent given
- Written consent is advised
- Before the patient lies on the operating table, the surgical team checks the fitness of the patient for surgery (checking blood pressure, allergies to drugs, shortness of breath, heart problems, mental state…)
- The patient is asked if they have consumed any alcohol that day. If so, trichiasis surgery should be postponed
- Community health workers and/or the advance team should advise patients of this requirement during the preparation screening, before the days of the clinic
- After surgery, the patient takes the outpatient form and follow-up requirements are explained to the patient.

*Normally, trichiasis surgery is performed on one eye at a time. The second operation can take place when the sutures of the first eye are removed after eight days. Some patients may choose to delay the second operation until the first eye is completely healed.*

### The Trichiasis Surgical Procedure: Bilamellar Tarsal Rotation Procedure (BTRP)

With sterile instruments and other supplies at hand, the procedure should be done following these steps:

***Bilamellar tarsal rotation procedure (BTRP) training in session***

*Photo: Sidney Katala*

### Preparations:

a) Clean the skin surrounding the eye with an antiseptic solution.
b) Amethocaine eye drops instilled on the eye (or similar topical anaesthetic).
c) Scrub the hands with soap and water for at least 5 minutes.
d) Put on sterile gloves (gloves must be worn).
e) Clean the patient's face and eyes.

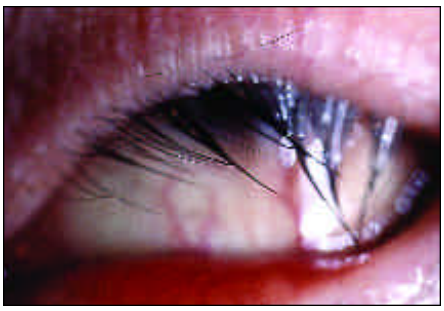
### Surgical procedure:

a) A local anaesthetic injection is given into the upper lid (ask the patient to look down).
b) Usually 3 mls are sufficient (never inject more than 5 mls in any single operation).
c) An operation is performed seated at the head of the patient.
d) For better visibility, a magnifying loupe is used and a flashlight held by an assistant.
e) The eyelid is 'fixed'.
f) The upper eyelid is incised (incision of the skin and muscle must be parallel to the lid margin and 3 mm above it, the entire distance between the haemostats).
g) Eversion of the eyelid is then done.

***Trichiasis screening with the aid of a magnifying loupe in rural central Tanzania***

*Photo: Sidney Katala*

# Training in Trichiasis Surgery



***Severe trichiasis***

*Photo: Murray McGavin*

h) Incision of the conjunctiva and tarsal plate, through its full thickness, parallel to the lid margin and 3mm above it, the entire distance between the haemostats.
i) The incision is then united by inserting the points of the closed scissors into the incision in the conjunctival–tarsal plate, through remaining intact muscle, and out through the skin-muscle incision.
j) Open the scissors while still held across the lid: the blunt aspect of the blades will spread apart intact muscle–repeat until it is a full thickness hole.
k) Remove the haemostats.
l) Complete the incision medially and laterally using the scissors.
m) Suturing the eyelid is then done using 4/0 silk or chromic catgut. This is to re-attach the distal fragment in an outwardly rotated position, so that the eyelashes no longer rub on the cornea. This is achieved by anchoring sutures on the conjunctival surface of the proximal fragment, and running them over the distal tarsal plate to exit through the skin near the eyelashes, thus drawing the lash margin outwards and upwards.

***An outreach eye clinic in central Tanzania***

*Photo: Sidney Katala*

## Trichiasis Surgery for Trachoma

A previous issue of the Journal (***J Comm Eye Health* 1994; 7: 21–26**) describes in detail the surgical BTRP – based on the **World Health Organization/ Edna McConnell Clark Foundation** publication (WHO/PBL/93.29) by **Mark Reacher, Allen Foster, Janey Huber & Brent Bauer**.
Some copies of this issue of the Journal are still available and will be sent on request while stocks last.

**Editor**

## Summary of Follow-up Care

Day 1: Lid surgery patients advised of time to return for follow-up care.
Day 2: Patient returns to meet health worker, who removes eye patch, cleans wound and applies tetracycline eye ointment. Any patient with excessive bleeding, swelling and/or severe pain should be referred immediately.
Day 3–7: Patients continue to see health worker on daily basis – to have the wound cleaned and to have tetracycline eye ointment applied.
Day 8: Mobile eye team returns – sutures are removed.

At the end of the trichiasis operation day, the principal trainer reviews follow-up procedures for patients who have undergone community-based trichiasis surgery with community health workers or their equivalents. Each communityhealth worker should receive a list of the trichiasis patients.

Each patient is given tablets of paracetamol to be taken as needed for pain relief, once in the morning and once in the evening.

## Overcoming Fears

Patients who are afraid of having trichiasis surgery receive counselling. Fear of the injection, cutting, pain and bleeding are most often the concerns expressed. Patients are asked to speak to someone who has had the operation and will talk about his/her experience.

## Constraints to Surgery

1. People do not know that this is a problem that can be solved.
2. People are afraid of the operation.
3. Communities lack transport to take patients to the hospital or clinic.
4. The number of people who are able to do the surgery is limited.
5. Bad service by service providers, e.g., bad language, etc.
6. The cost of surgery in some hospitals is not affordable to most patients.

## Graduation and Certification

Each participant is given:

1. A Certificate after successfully performingtheoperations – undersupervision.
2. A copy of the WHO Manual 'Trichiasis Surgery for Trachoma – The Bilamellar Tarsal Rotation Procedure'.

***Surgery for upper eyelid trichiasis***

*Graphic: Hugh Lugg*
*Photos: Mark Reacher & John DC Anderson*

3. 100 tubes of tetracycline.
4. 24 sutures, a surgical set for minor operations, and other supplies as available.
5. A set of bi-monthly reporting forms to be used within their health system.

## Further Reading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**Example of a Trichiasis Register**

| Date | No: | Name | Sex | Address | VR | VL | TT situation | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

# Madagascar: The Eclipse Story

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*Fianarantsoa*
*Madagascar*

## Introduction

On the 21st June 2001 there was a total solar eclipse in Madagascar. The path of totality traversed the Atlantic Ocean reaching land first in Angola, followed by Zambia, Zimbabwe, Mozambique and across southern Madagascar before it ended in the Indian Ocean. A total solar eclipse was visible in Madagascar at 4:28 pm. The track of totality extended at this time about 150 km wide and crossed the country from the west to the east. A partial solar eclipse was visible in the rest of Madagascar.

Cases of solar retinopathy are well documented, either in those people exposed for long periods of time to the sun, or those using magnification lenses (telescopes and binoculars).[1] This results in a photochemical insult or true retinal burn to the retina; the latter having a poor prognosis for recovery.

## The Study

In the six weeks leading up to the eclipse, we conducted a survey to gauge the viewpoints of the Malagasy people and the measures that had been instigated by the Malagasy government in order to reduce the incidence of eclipse related retinopathy. The survey population consisted of clinic attenders at the eye department in Fianarantsoa which was adjacent to the area of eclipse totality and is the principal eye unit for the southern one third of the country. One hundred people were interviewed before the event and those attending up to 4 months after with eclipse related problems were recorded.

## Results

We found that all 100 patients interviewed had received some information on the eclipse which came from a variety of sources (Table 1).

However, in the month preceding the eclipse, only 24% of people actually owned a pair of eclipse glasses. These glasses were mainly bought in the pharmacies or handed out at hospitals (Table 2).

Of the 74 patients who did not own a pair of eclipse glasses, 14 patients were waiting for free handouts of the glasses and 10 patients did not know where to find the glasses. The remainder would either not watch the eclipse or simply had not got round to purchasing a pair of the glasses. Patients were also asked their plans during the actual eclipse period (Table 3).

When specifically asked what were the dangers of the eclipse, 99% of patients knew that blindness was the main hazard.

## Preventive Medicine

The study we conducted was possibly biased, in that the sample population was mainly town based and therefore more exposed to the media. From our survey, the effort of the government and others to educate the public had been successful. Four months prior to the eclipse there was a daily half hour broadcast on television and radio to discuss the eclipse and what actions were needed. Information was also given in schools and there was even talk of parachuting people into the remote areas of the country to walk around giving advice. We saw several posters advising people to purchase eclipse glasses, and how to wear them, and also to keep their children indoors. Rural healers spoke of the eclipse as being 'a powerful event' and strong advice was given to stay inside. This was reflected in the results in our survey. A factory in the capital made the special glasses.

At another eye hospital, workshops had been set up to educate village volunteers, who would then take the message back to their respective regions. The lectures were designed to inform people on what eclipse glasses were and how to use them. The talks also encouraged people to stay indoors if they did not own a pair of protective spectacles. Eclipse glasses were being sold at 2500 Malagasy Francs a pair (approximately a day's pay). Cost was evidently a problem for some.

**Table 1: Sources of Information Concerning the Eclipse**

| | |
|---|---|
| Radio | 70 % |
| Television | 53 % |
| Lecture: Authorities | 11% |
| People: friends | 11% |
| Posters | 9 % |
| Newspapers | 6 % |
| School | 5 % |
| Museum | 2 % |
| Church | 2 % |

**Table 2: Where Patients Obtained their Glasses**

| | |
|---|---|
| Pharmacist | 9 % |
| Distribution (hospital, voluntary groups, Lions Clubs) | 9 % |
| School | 1% |
| France | 1% |
| Other ways | 4% |

**Table 3: What Will You Do During the Eclipse?**

| | |
|---|---|
| I will stay inside | 58% |
| I will watch the eclipse | 26% |
| I have not decided yet | 10% |
| I will be abroad | 2% |
| I will watch if I get free eclipse glasses | 2% |
| I will pray | 2% |

One of the main problems we came across was the misinformation that was circulating. People spoke of how the eclipse glasses could transmit blinding diseases or that the eyes of the Malagasy were strong and the eclipse would only affect the weak eyes of the foreigners. A common pre-conception was that this event marked the end of the world – so who cared about their eyes? One young villager was less concerned about his own eyes than those of his cattle or the lemurs in the rainforest. "Who will protect their eyes? They do not understand like us", he asked with a blank expression. Some people believed that Madagascar was to be the only country to be affected by the eclipse, and that this was probably due to the Vazaha (white people) who had brought the problem with them from abroad. It seemed that the eclipse might even mean the arrival of God to the capital city.

## What Happened?

It seemed that most of the population stayed indoors during the eclipse and heeded the advice of the local healers. One BBC correspondent, who spent the eclipse in a large village in a dry forest to the west of the country, commented that out of the 5000 villagers only 12 actually ventured out to watch the eclipse. There were far more tourists who flocked to the southern

reaches of Madagascar in order to catch a glimpse of the solar eclipse.

Our study audited the incidence of solar maculopathy post-eclipse presenting to the eye clinic. Five months after the event there had been no reported sightings of eclipse related retinopathy. This was in stark contrast to a studyin the UK[2] which reported 70 cases of temporary visual loss after the 1999 eclipse. They reported no cases of permanent visual disturbance 6 months later. Rai et al [3] in a study in Nepal audited the incidence of solar maculopathy over a 20 month period. They found that 40% of the 319 cases were eclipse related.

### Conclusion

The Malagasy eclipse experience highlights the fact that an underdeveloped country can provide effective public health education. Clearly the beliefs of the population played an important part in keeping a large percentage of people indoors during the eclipse.

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❑



# Comparison of Cataract Surgery in a Base Hospital and in Peripheral Eye Camps


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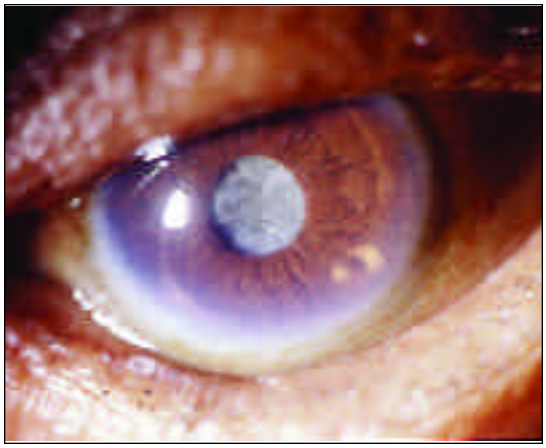
The Base Hospital approach (reach in) and Peripheral Eye Camp approach (reach out) are both community-orientated approaches to tackle the backlog of cataract blindness under the National Programme for the Control of Blindness. Both have proved effective and each has its merits and demerits. Both rely on community participation, intersectorial coordination and appropriate technology at an affordable cost.

We studied 3130 patients operated on for cataract by the Lions NAB Eye Hospital, Miraj (Base Hospital) between 1st January and 31st December 1996 and 1135 patients operated on at 58 Peripheral Eye Camps by the Sangli District, Mobile Ophthalmic Unit and the National Association for the Blind, in the same period. Follow-up was done one week, 3 weeks and 6 weeks after surgery.

The Base Hospital conducted diagnostic camps in the periphery and patients were moved to the Hospital, accounting for 80% of the patients, with the rest being 'walk-ins'. Patients were evaluated using the slit-lamp biomicroscope, keratometry and A-scan where necessary. They underwent planned extracapsular cataract extraction with a posterior chamber intraocular lens implant (58.2%) under a microscope with use of viscoelastics. They were re-transported after dressing the next day.

The Peripheral Eye Camps were conducted in Rural Hospitals or Primary Health Centres in permanent operation theatres, using sterile procdures. Diagnostic camps were conducted at the same site and the patients operated on the next day with intracapsular cataract extraction under an incandescent lamp. Dressing was done on the first and third day by the operating surgeon, followed by discharge.



***Mature cataract***

*Photo: John DC Anderson*

More women were operated on in Peripheral Eye Camps (59.1%) as compared to the Base Hospital (48%) as their carers were reluctant to transport them far. The very young and very aged were predominantly operated on in the Base Hospital because of the presumed quality of surgery and better management of complications.

Even in the periphery, 92% of patients or their carers were aware of IOL implantation surgery. Only 8% were unaware. Inability to pay was the chief reason (80%) for operating without lens implantation. Only 12% had fear or misconception about something put in their eyes. This means that a larger demand for surgery exists in the periphery for which we must prepare.

Final corrected visual acuity was much better in the Base Hospital (82.7% > 6/18) as compared to Peripheral Eye Camps (43.7%>6/18).There is a significantdifference between post-operative visual acuity in these groups. Microsurgery, viscoelastics and retinoscopic refraction gave a statistically significant qualititative improvement in vision. Base Hospital surgery resulted in better and earlier visual rehabilitation.

The Professor had significantly better results than all other categories. It should be noted that more experienced surgeons operated on more difficult, 'guarded prognosis' cases. (Professor: 95.2% > 6/18; Medical Officers/Registrars: 82.6% > 6/18; Senior Residents 86.5% > 6/18; Junior Residents : 76.3% > 6/18).

However, post-operative follow-up in the Base Hospital was very poor; only 52.7% patients turned up regularly on their own. For the rest, we had to do active follow-up in rural areas. Peripheral Eye Camps boasted 99.1% follow-up as they were conducted near to the patients' homes with the help of ophthalmic assistants who had close community contacts. The Base Hospital should have satellite outposts to ensure better patient follow-up and compliance. This will strengthen its network in the community.

Complications with both approaches were equally found, though the Base Hospital operated on all the difficult cases. Also, all Peripheral Eye Camps were conducted in permanent operation theatres. Vitreous loss was the chief cause of low post-operative vision (1.8% in the periphery and 3.3% at the Base Hospital). Posterior segment pathology was responsible for most others (3.7%).

**Table 1: Post-Operative Corrected Visual Acuities in Peripheral Eye Camps and Base Hospital. Aphakic Correction with + 10 D given to 99.1% Patients (1125 out of 1135) and Retinoscopic Refraction given to 63.9% (2000 out of 3130); Six Weeks after Surgery.**

| Vision | Total | % At Eye Camps | Total | % At Base Hospital |
|---|---|---|---|---|
| 6/6–6/9 | 58 | 5.2% | 685 | 34.3% |
| 6/12–6/18 | 434 | 38.6% | 966 | 48.3% |
| 6/24–6/36 | 575 | 51.1% | 227 | 11.4% |
| 6/60 | 44 | 3.9% | 92 | 4.6% |
| <6/60 | 14 | 1.2% | 30 | 1.5% |

**Table 2: Experience of Surgeon and Post - operative Vision in Base Hospital**

| Vision | Junior Residents | Senior Residents | Registrar or Medical Officer | Professor |
|---|---|---|---|---|
| | < 50 ops. | 50 – 200 ops. | > 200 ops. | > 4000 ops. |
| 6/6–6/9 | 33% | 30.4% | 33.9% | 57.1% |
| 6/12–6/18 | 43.3 % | 56.1% | 48.7% | 38.1% |
| 6/24–6/36 | 16% | 8.5% | 10.7% | |
| 6/60 | 5.6% | 3.1% | 6.7% | |
| <6/60 | 2.6% | 1.9% | 1.8% | 4.8% |

**Table 3 : Cost of Surgery per Patient (All figures are in rupees)**

| Expense | Peripheral Eye Camp | Base Hospital |
|---|---|---|
| Vehicle | 23.0 | 17.25 |
| Expense | 47.0 | 76.49* |
| Consumables # for Surgery | 75.0 | 79.91 |
| Medicines for Patients | 80.0 | 78.66 |
| Salary & Wages of Surgical Team | 152.5 | 142.76 |
| Goggles | 13.0 | 13.00 |
| | **390.50** | **408.07** |
| Office Expense | | 29.91 |
| Hospital | | 44.10 |
| Maintenance | | |
| Depreciation | | 15.02 |
| **Total** | **390.50** | **497.10** |
| **IOL Expense** | | **233.66✦** |

* Includes food provided for patient over three days.
\# Includes suture material, viscoelastic substance, etc.
✦ The cost of IOLs is now almost half the price of 5 years ago.

The surgery in Peripheral Eye Camps was marginally more economical as compared to the Base Hospital (recurring expenses per patient being Rs. 390.5 and Rs. 408.77 respectively). But considering the quality of surgery, early and better visual rehabilitation, the Base Hospital approach has much to recommend it.

Satellite Centres could be set up to improve follow-up. This shift to Base Hospital and Satellite Centres would ensure quality eye care to all patients, while still keeping community orientation.

There is no significant difference comparing Junior Residents (<50 ops.), Senior Residents (50–200 ops.) and Registrars/ Medical Officers (200–4000 ops.). There is, however, a significant difference between the results of the Professor (> 4000 ops.) and all other categories.

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# Letter

## Cataract Surgery

**Dear Editor**

I read J Fumpa's letter in the Journal (*J Comm Eye* Health; 2001; **14**: 15). His concern is fully understood by those who have lived in such circumstances in the past.

Between ICCE and ECCE (phaco is also ECCE), there exists another system which is suitable to any part of the world and any economic situation. I developed the mini-nuc technique. With a very small number of instruments one can achieve safe and very high standard cataract surgery, with or without an IOL. If a YAG instrument is not available, after implanting the IOL one can perform posterior capsulotomy under the IOL, thus avoiding the necessity of future YAG treatment. As it would be performed under the IOL, the IOL would prevent vitreous prolapse to the anterior chamber.

There are the means to perform perfect cataract surgery around the globe – safely, no viscoelastic material, no sutures, very cost effective. The only thing to be done is to learn how to do it!

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# Early Results of Cataract Surgery at Mechi Eye Care Centre in Nepal

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## Introduction

Mechi zone is located in the eastern region of Nepal and has a population of 1.2 million. According to the Nepal Blindness Survey in 1981[1] the prevalence of blindness in this zone was 0.64%. The most important cause of blindness in Nepal was cataract, accounting for two thirds of Nepal's blindness.

The people of the eastern region of Nepal had to go either to the neighbouring zone or across the border to India for detailed ocular examination and intraocular surgery. Since the Mechi Eye Care Centre was established, on 1 December 1996, it has provided the facilities for ocular examination and for surgery. Cataract surgery is the main operation performed in the Centre. In this study we included the total cataract operations performed in our Centre during the period 1 December 1996 to 15 May 1998. We have not included the data of cataract operations carried out as part of the outreach activities of the Mechi Eye Care Centre.

## Patients, Surgery and Follow-up

A total of 783 eyes were operated on in this period (Table 1). The ratio of male (50.4%) to female (49.6%) was nearly equal. Operations were done on the right eye (49.4%) and on the left eye (50.6%). Ninety-six percent of the patients were Nepalese in origin, 3% were Indian and 1% were Bhutanese refugees.

The most common type of cataract was age-related cataract, most often a mature cataract (Table 2). As our Centre does not have the facility to provide general anaesthesia we could not operate on children with congenital cataract unless they were more than twelve years of age and able to cooperate.

Surgery was done under the Takagi OM-5 microscope. Extracapsular cataract extraction with posterior chamber intraocular lens implantation was the routine procedure. Sometimes, if indicated, we performed intracapsular cataract extraction with anterior chamber intraocular lens implantation. Lens implantation was done under air in the anterior chamber, however viscoelastics were used occasionally if the intraoperative IOP was high and there was difficulty with lens implantation. Suturing was done with 10/0 nylon sutures. Subconjunctival gentamicin was given only if there was conjunctival discharge or conjunctival congestion.

Post-operatively, patients were examined on the slit-lamp. On the first day they were examined by the ophthalmologist. Patients were discharged on the first post-operative day and were called after one week for follow-up. At their subsequent visit they were examined either by the ophthalmologist or by the ophthalmic assistant. If any complication was noted then the ophthalmologist was notified immediately. Refraction was done every time at the firstvisit andwherepossible,thereafter.

## Pre-operative and Post-operative Visual Acuities

On the first post-operative day only 7.3% of the patients had presenting vision worse than 3/60 and 40% of the patients had vision equal to or better than 6/18. On the first return visit to hospital only 5.8% had presenting vision worse than 3/60 and with refractive correction only 0.2% were blind. With refractive correction nearly 91% of the patients had vision equal to or better than 6/18. There was a significant improvement in vision noted after surgery and minor refractive correction.

## Causes of Blindness after Cataract Surgery

The following are the causes of low, *uncorrected* vision after surgery, found on the first post-operative day.

Aphakia was the important cause for the

**Table 1: Cataract Surgery on 783 Eyes at Mechi Eye Centre**

| | Male | | Female | | Total |
|---|---|---|---|---|---|
| | RE | LE | RE | LE | |
| **Cataract extraction with PCIOL** | 178 | 182 | 170 | 185 | 715 (91.3%) |
| **Cataract extraction with ACIOL** | 11 | 11 | 11 | 7 | 40 ( 5.1%) |
| **Aphakia** | 10 | 3 | 7 | 8 | 28 (3.6%) |
| **Total** | **199 (25.4%)** | **196 (25%)** | **188 (24%)** | **200 (25.5%)** | **783** |

**Table 2: Cataract Types Presenting at Mechi Eye Centre**

| Type | Numbers |
|---|---|
| **Age-related cataract** | 1221 (94.7%) |
| **Congenital** | 25 (1.9%) |
| **Traumatic** | 21 (1.6%) |
| **Complicated** | 13 (1%) |
| **Dislocated lens** | 10 (0.8%) |
| **Total** | **1290** |

**Table 3: Visual Acuities in 1374 Eyes Presenting with Cataract**

| Visual Acuity | Numbers |
|---|---|
| **<3/60** | 1094 (79.6%) |
| **>3/60—6/36** | 253 (18.4%) |
| **>6/36—6/24** | 24 (1.7%) |
| **>6/18–6/6** | 3 (0.2%) |
| **Total** | **1374** |

**Table 4: Post-operative *Uncorrected* Visual Acuities in 783 Patients Receiving Surgery**

| Visual acuity | Day 1 | Week 1 | Month 1 | Month 2 |
|---|---|---|---|---|
| **< 3/60** | 57 (7.3%) | 36 (5.8%) | 11 (5%) | 1 (2.1%) |
| **3/60—6/60** | 95 (12.1%) | 64 (10.2%) | 12 (5.5%) | 4 (8.3%) |
| **6/36—6/24** | 297 (37.9%) | 274 (43.8%) | 90 (41.1%) | 20 (41.7%) |
| **6/18—6/6** | 313 (40%) | 236 (37.7%) | 102 (46.6%) | 23 (47.9%) |
| **Not mentioned** | 21 (2.7%) | 16 (2.6%) | 4 (1.8%) | |
| **Total** | **783** | **626 (79.9%)** | **219 (27.9%)** | **48 (6.1%)** |

**Table 5: Post-operative *Corrected* Visual Acuities in Patients Returning for Follow-up**

| Visual Acuity | Week 1 | Month 1 | Month 2 |
|---|---|---|---|
| < 3/60 | 1 (0.2%) | | |
| 3/60—6/60 | 7 (1.2%) | | |
| 6/36—6/24 | 36 (6.3%) | 2 (1%) | 2 (5.1%) |
| 6/18—6/6 | 515 (90.5%) | 189 (97.4%) | 36 (92.3%) |
| Not mentioned | 10 (1.8%) | 3 (1.6%) | 1 (2.6%) |
| Total | 569 | 194 | 39 |

**Table 6: Causes of Blindness after Surgery (1st Post-operative Day)**

| Causes | Numbers |
|---|---|
| 'Aphakia' | 16 (2%) |
| Posterior capsular opacity | 4 (0.5%) |
| 'Poor fundal glow' | 4 (0.5%) |
| Optic atrophy | 3 (0.4%) |
| Retinal scar | 3 (0.4%) |
| Corneal opacity | 2 (0.3%) |
| Retinal detachment | 2 (0.3%) |
| Phacomorphic glaucoma (previous) | 2 (0.3%) |
| Posterior synechia | 1 (0.1%) |
| Maculopathy | 1 (0.1%) |
| Age-related macular degeneration | 1 (0.1%) |
| Macular hole | 1 (0.1%) |
| Retinal haemorrhage | 1 (0.1%) |
| Total | 57 |

presenting, *uncorrected* vision to be less than 3/60. Other important causes were often due to posterior segment disorders present before the surgery.



### ECCE versus ICCE

Both of the procedures have certain advantagesanddisadvantages.ECCEoffers well-known advantages:[2] low frequency of vitreous loss and cystoid macular oedema, but still the risk of opacification of the posterior capsule. Twenty-one percent of the patients had posterior capsular opacification at follow-up.[3] Intracapsular cataract extraction is a reasonably successful, appropriate and cost-effective procedure. It is particularly suitable for treating the increasing number of blind cataract patients in areas of the world where resources are limited. [4,5,6] However, of 235 aphakic patients followed for 1-10 years in Karnali, Nepal only 23% were wearing aphakic spectacles in good condition, 25% had lost or broken their spectacles, 31% were wearing scratched or repaired spectacles, 5% never received spectacles and 16% were dissatisfied.[7]

***Spectacles after cataract surgery***

*Photo: Pak Sang Lee*

In Nepal, cataract is still the major cause of blindness. Some centres are carrying out extracapsular cataract extraction with posterior chamber intraocular lens implantation while other centres are doing intracapsular cataract extraction and prescribe spectacles afterwards. In our view, as the quality of vision is better with IOL implantation and intraocular lenses are available at cheaper prices, intraocular lens implantation is a cost-effective procedure after extracapsular or intracapsular cataract extraction.

### Conclusion

Extracapsular cataract extraction with intraocular lens implantation is a procedure with less sight threatening and eye threatening complications, in the hands of an experienced surgeon. Technical expertise can be learned with practice. In our country where aphakic glasses are not easy to buy in many parts of the country, IOL implantation during cataract surgery in eye hospitals and eye centres is a better alternative to aphakic correction with spectacles.

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## Client Satisfaction and Quality of Health Care in Rural Bangladesh

**Jorge Mendoza Aldana**
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**Ahmed Al-Sabir**

**Objective:** To assess user expectations and degree of client satisfaction and quality of health care provided in rural Bangladesh.

**Methods:** A total of 1913 persons chosen by systematic random sampling were successfully interviewed immediately after having received care in government health facilities.

**Findings:** The most powerful predictor for client satisfaction with the government services was provider behaviour, especially respect and politeness. For patients this aspect was much more important than the technical competence of the provider. Furthermore, a reduction in waiting time (on average to 30 min) was more important to clients than a prolongation of the quite short (from a medical standpoint) consultation time (on average 2 min, 22 sec) with 75% of clients being satisfied. Waiting time, which was about double at outreach services than that at fixed services, was the only element with which users of outreach services were dissatisfied.

**Conclusions:** This study underscores that client satisfaction is determined by the cultural background of the people. It shows the dilemma that, though optimally care should be capable of meeting both medial and psychosocial needs, in reality care that meets all medical needs may fail to meet the client's emotional or social needs. Conversely, care that meets psychosocial needs may leave the clients medically at risk. It seems important that developing countries promoting client-oriented health services should carry out more in-depth research on the determinants of client satisfaction in the respective culture.

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## Microbial keratitis in Hong Kong: Relationship to Climate, Environment and Contact-lens Disinfection

**Elizabeth Houang** **Dennis Lam**
**Dorothy Fan** **David Seal**

Microbial keratitis has been studied in Hong Kong as a representative subtropical climate of south China.

An 18-month investigation in 1997/98 of 223 cases of ulcerative keratitis (presumed microbial) was conducted in the 2 million population of Shatin and Kowloon, at the Prince of Wales and Hong Kong Eye Hospitals respectively, with comprehensive microbiology. A case-control study was pursued at the same time between 45 contact-lens wearers (CLW) developing microbial keratitis and 135 lens-wearing volunteers matched for age, sex, educational status and visual acuity. Home water supplies were sampled for *Acanthamoeba*. Previous ocular surface disease and trauma (preventable by wearing goggles for grinding) were common predisposing causes while cosmetic wear of contact lenses was responsible for 26% of cases overall. *Pseudomonas aeruginosa* was the commonest bacterium isolated, from both CLW and non-CLW, with infection being acquired within the community. These 28 pseudomonads remained fully sensitive to the third-generation cephalosporins, aminoglycosides and quinolone antibiotics, which is very encouraging. Fungi were isolated, predominantly *Fusarium* sp., but less commonly than expected. A fungal/bacterial ratio was obtained of 1/17, while in comparison, the expected ratio for a tropical climate ranges from 1/5 (Singapore) to 1/2 (South India). *Acanthamoeba* was the second commonest microbe isolated from keratitisofCLW. Thedomestic water environment of 8% of homes of both patients and controls wearing contact lenses was colonized with *Acanthamoeba*. Lack of hygiene, use of tap water for storing lenses, failure to air-dry lens-storage cases or use of one-step hydrogen peroxide disinfectant were identified as risk factors for keratitis in CLW. The study results commend use of multipurpose solutions by CLW in Hong Kong to achieve the lowest expected rates of infection

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## Long-term Follow-up of Lid Surgery for Trichiasis in the Gambia: Surgical Success and Patient Perceptions

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**H Faal** **R Bailey**
**A Foster** **G J Johnson**

**Background:** Surgery is an important component of the SAFE strategy which has been shown to improve visual acuity. There are limited data on long-term surgical success and patient perceptions and satisfaction. A sample of patients from the Gambia who had undergone previous lid surgery for trichiasis were therefore examined for recurrence of trichiasis and interviewed for patient satisfaction.

**Methods:** Health centre surgical records and community screening were used to identify patients who had undergone previous lid surgery. Consenting patients were examined and a questionnaire administered.

Kaplan-Meier survival plots were constructed for recurrence of trichiasis.

**Results:** Sixty-five subjects were recruited.

Median age at surgery was 50 years. Median time since surgery was 7 years. Fifty-two of 115 (45%) operated eyes were free of trichiasis at follow-up and 23 of 65 (35%) patients had not suffered recurrent trichiasis in an operated eye.

Median time for surgery to recurrence of trichiasis was estimated as 10.0 years (95% CI 3.7–16.3). Recurrent trichiasis was not significantly associated with visual impairment or blindness at follow-up. The following patient perceptions were reported: satisfaction with surgery (88%), less discomfort than before surgery (93%), improved vision (83%), work easier (38%), worth the expenditure (94%), would recommend it to others (93%), had recommended it to others (38%), experienced intra-operative pain (26%) and experienced post-operative pain (26%).

**Conclusion:** Factors affecting surgical success, including surgical technique and re-exposure to infection, are discussed. This study provides important preliminary data for programme planners but larger prospective studies are required.

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❑

## © Repair & Reconstruction:
**A JOURNAL FOR**
**Injury, Deformity & Disease**


The first two issues of this new Journal have had the theme: **Burn Injury**.

**Articles** in the second issue include:

Hand burns, head & neck burns, perineal burns, chemical burns, chemical eye injuries, electrical burn, treatment of burn contractures and surgery (Y to V plasty; Z-plasty).

The Journal is presently distributed **FREE of charge**.

This is a publication of the **International Community Trust for Health and Educational Services (ICTHES)**.

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## New Journals!

Two further journals are planned....

- **Journal of Community Ear & Hearing Health**
- **Developing Mental Health**

If you or a colleague are interested in these journals please write to: **Dr Murray McGavin** – at the address in **Edinburgh**.

## OPHTHALMOLOGIST REQUIRED IN YEMEN

**CHRIST CHURCH,**
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Ophthalmologist with clinical, surgical and teaching experience, urgently required to head up our Eye Clinic team of four (one newly qualified medical practitioner, two technicians and one receptionist). Fully equipped clinic and operating theatre, some outreach work. This is a Christian Charity. Our work is for the benefit of the poor in Aden and we work in partnership with Christian Blind Mission International.

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Flexibility, a sense of humour and a willingness to work as part of a team are all necessary. Satisfaction guaranteed!

Please contact:
**The Rev. Colin M Noyce,**
**Christ Church Centre**
**PO Box 1319, Tawahi, Aden,**
**Republic of Yemen**
**Tel/Fax: 967 2 201204**
**Email: chrchu@y.net.ye**

## ROYAL COLLEGE OF OPHTHALMOLOGISTS
**17 Cornwall Terrace, Regent's Park, London NW1 4QW, UK**

### Diploma Examination in Ophthalmology DRCOphth

**ANNOUNCING A CHANGE TO THE STRUCTURE**

From November 2001, there has been no Practical Refraction section in the Diploma Examination

The New Diploma Examination (DRCOphth) is a test of ophthalmic knowledge including relevant basic sciences and clinical skills for candidates who have worked in ophthalmology for one year (full-time or equivalent). This work experience need not have been gained in the UK.

**Information, Exams syllabi, Applications from:**
**The Head of the Examinations Department at the above address**
**Or Tel: 00 44 (0) 20 7935 0702**
**Or Fax: 00 44 (0) 20 7487 4674**
**Or E-mail: rco.exams@btinternet.com**
**Or visit the College website www.rcophth.ac.uk**

**UK and Overseas Examination Calendar 2002**

| Exam | Dates of Examination | Location | Closing Date |
|---|---|---|---|
| **Part 1 MRCOphth** | 8–9 April | **India** | 22 February |
| | 22–23 April | **UK** | 11 March |
| | 7–8 October | **UK, India** | 26 August |
| **Part 2 MRCOphth** | 9–11 April | **India** | 22 February |
| | 17–21 June | **UK** | 6 May |
| | 9–10 October | **India** | 26 August |
| | 4–8 November | **UK** | 23 September |
| **Part 3 MRCOphth** | 4–8 March | **UK** | 21 January |
| | 11–12 April | **India** | 22 February |
| | 9–13 September | **UK** | 29 July |
| | 10–11 October | **India** | 26 August |
| **DRCOphth** | 1–2 July | **UK** | 16 May |
| | 18–19 November | **UK** | 7 October |

**Overseas Location:**
- **Aravind Eye Hospital, Madurai, Tamil Nadu, India**

# 7th General Assembly of the International Agency for the Prevention of Blindness

**28th September – 3rd October 2003**

**MANAMA, BAHRAIN**

The scientific programme will cover topics related to the theme of the Assembly 'Partnership in VISION 2020' and will include keynote lectures, plenary sessions, workshops, presentations of model projects, free papers and posters. The Assembly is crucial as it will discuss progress made by VISION 2020 to date and discussion of plans for the future.

For further details please contact:

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