

## EDITORIAL

# What's new in trachoma control?



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## Progress towards elimination of blinding trachoma

Ten years after the *Community Eye Health Journal* first devoted an entire issue to trachoma (Vol. 7, Issue 14), and five years since its last trachoma-focused edition (Vol. 12, Issue 32), this debilitating disease continues to remain the world's leading cause of infectious blindness. The good news is that its elimination is now closer in sight due to recent health advances and developments to control the problem.

### What is trachoma?

Trachoma is an infectious disease of the eye caused by the bacterium *Chlamydia trachomatis* that plagues the developing world and remains highly endemic in the poorest and most rural regions of Africa, Asia, the Middle East and in some areas of Latin America and Australia. The bacteria can be spread on an infected person's hands or clothing and may be carried by flies that have come into contact with discharge from the eyes or nose of an infected person. Because trachoma is transmitted through close personal contact, it tends to occur in clusters, often infecting children in entire communities.

While infants and pre-school aged children are more susceptible to infection, the painful blinding effects of trachoma may not manifest until adulthood, affecting women three times more than men and hampering their ability to care for themselves and their families. Eight million people worldwide are visually impaired as a result of trachoma and approximately 84 million suffer from active infection, causing an estimated \$2.9 billion in lost revenue annually.<sup>1</sup>

Continues over page ►



John Buchan



John Buchan

**While infants and pre-school children are more susceptible to infection, the painful blinding effects of trachoma may not manifest until adulthood, affecting women three times more than men. NIGER**

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## EDITORIAL Continued

### Table 1. Components of the SAFE Strategy



**Surgery to correct trichiasis – the immediate precursor to blindness**



**Antibiotics to treat active disease – azithromycin or 1% tetracycline eye ointment**

## The SAFE Strategy

However, today there is a solution – the World Health Organization-recommended SAFE strategy. SAFE is an innovative, community-based approach designed to fight trachoma by treating infection and reversing its damage, thereby increasing the availability of health care in endemic areas while addressing the underlying medical, behavioural and environmental causes of the disease. It is comprised of the following components: Surgery to correct trichiasis – the immediate precursor to blindness,<sup>2</sup> Antibiotics to treat active disease – particularly Pfizer Inc – donated azithromycin (Zithromax<sup>®</sup>),<sup>3</sup> Facial cleanliness to reduce transmission,<sup>4</sup> and Environmental improvement to affect the determinants of vulnerability.<sup>5</sup> (Table 1, above)

Marcia Zondervan



A young child receiving azithromycin. MALI

## Azithromycin

The research performed in the early 1990s that led to the development of the SAFE strategy proved that a single oral dose of the antibiotic azithromycin (Zithromax<sup>®</sup>) could replace the accepted course of therapy of six weeks of tetracycline eye ointment applied twice daily (see article by Anthony Solomon for details). This breakthrough led Pfizer to donate the antibiotic through ITI for national programmes in the global elimination effort. From 1998 to 2003, ITI supported national programmes with 10 million treatments of the Pfizer-donated antibiotic, Zithromax<sup>®</sup>. And in November 2003, Pfizer committed to an increased donation of 135 million treatments of Zithromax over the next five years.

The availability of the SAFE strategy provided the basis for the World Health Assembly in

1998 to call for the global elimination of blinding trachoma by the year 2020 (GET 2020). This action was underscored by a further (World Health Assembly) resolution in May 2003 on the elimination of avoidable blindness. This resolution calls on member states to commit themselves to supporting the Global Initiative for the Elimination of Avoidable Blindness by setting up, no later than 2005, a national VISION 2020 plan, in partnership with WHO and in collaboration with Non-Governmental Organisations and the private sector.<sup>6,7</sup>

## International Trachoma Initiative (ITI)

In 1998, the Edna McConnell Clark Foundation and Pfizer Inc founded the International Trachoma Initiative (ITI), the NGO dedicated to eliminating blinding trachoma. ITI supports national trachoma programmes in countries where the World Health Organization has documented widespread disease, and collaborates with ministries of health and other partners to identify trachoma control target areas. ITI also assists in developing national plans for SAFE implementation and helps to mobilise people and resources for elimination efforts.

In 1999, ITI launched country programmes in Tanzania and Morocco and has since expanded into Ghana, Mali, Sudan, Vietnam, Ethiopia, Nepal, Niger, Mauritania and Senegal. These ITI-supported country programmes continue to make steady progress toward the ultimate goal of disease elimination. However, much work must be done in order to reach the GET 2020 goal and one of ITI's greatest challenges is to increase awareness about this neglected disease to gain the political will, financial support and collaborative partnerships necessary to achieve elimination.



## Facial cleanliness to reduce transmission

### Morocco

Trachoma has long been a significant public health problem in Morocco; however, by 1999 the disease was confined to the five southern provinces of Errachidia, Figuig, Ouarzazate, Tata and Zagora, due to good control measures. Introduction of the SAFE strategy with annual distributions of a single oral dose of Zithromax® to the affected communities in all these provinces resulted in a 90 per cent reduction of active disease rates in children under the age of ten by 2003. Morocco's success in implementing the SAFE strategy can be attributed to the strong commitment of its political leaders at the national, provincial and district levels. Prevention and treatment efforts have been integrated into the routine activities of government agencies, and communities actively participate in local health initiatives. Surgeries, while once performed in regional hospitals at an average rate of 400 per year, were increased to 2,500 in 1995 and peaked at 5,000 in the year 2000 due to decentralisation to smaller health units in high prevalence areas. Additionally, Zithromax® distributions were provided to 680,000 people – 100 per cent of the population at risk.

However, Face washing and Environmental change, the last two components of SAFE, have proven to be the greatest challenges because they require adjustments in

## Environmental improvement to affect the determinants of vulnerability

attitudes, beliefs and behaviours by the community at large. The Moroccan Ministry of Health has created primary school curriculum models that include children's books and games that emphasise the importance of facial cleanliness in disease prevention. And women, who play a significant role in family and community health, participate in literacy training, eventually becoming health educators in order to support face washing and proper sanitation practices.

The integration of trachoma control into national policy has been essential to the environmental component of the SAFE strategy. By working with the National Office for Potable Water and other partners, the national trachoma programme has brought clean water to 80 per cent of the communities at risk.

Morocco remains on target to eliminate blinding trachoma by the end of 2005, an achievement that will make it the first national programme to achieve elimination by implementing the SAFE strategy using Zithromax®. The national programme has now begun the transition from full-scale control activities to the final surveillance phase. Quarterly reviews from the Moroccan programme will serve as a model and provide hope for other trachoma endemic countries. (For more details about the Morocco experience, see the article by Youssef Chami and others in this issue).



Anthony Solomon

**Environmental improvement is closely linked to facial cleanliness. NEPAL**

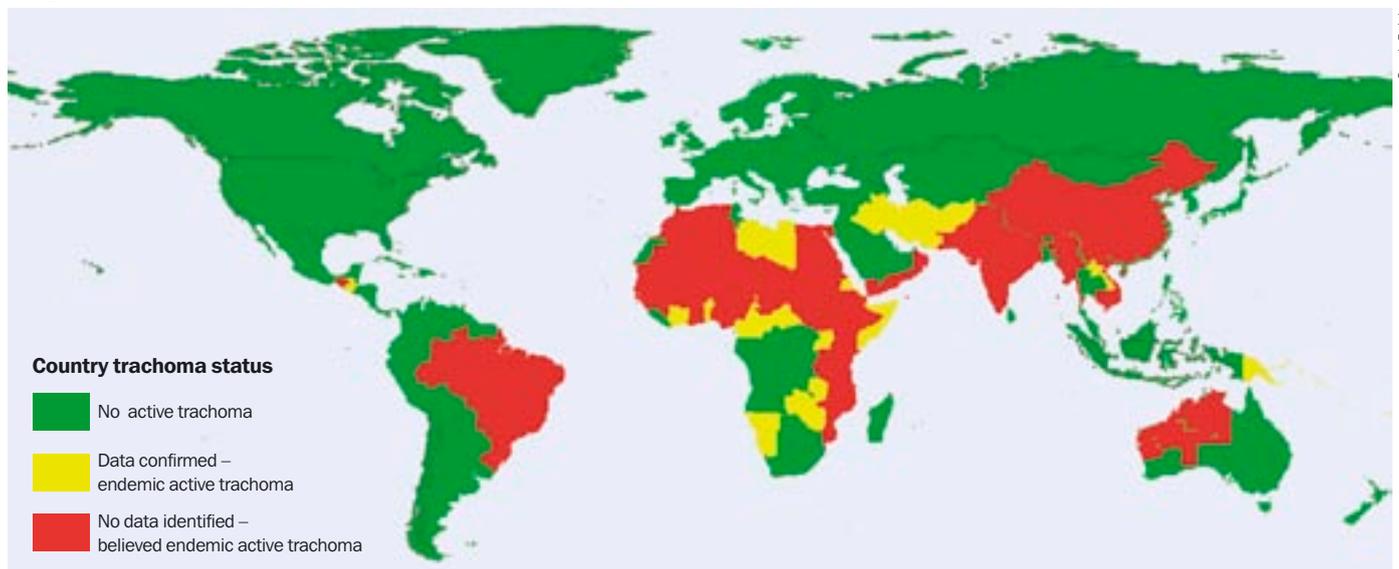
### Conclusion

The global elimination of blinding trachoma is within sight and this effort represents a successful partnership in the fight against this quiet disease. Multi-sectoral alliances are crucial for building the infrastructure necessary for disease elimination, economic development, environmental and behavioural change and sustained improvement in public health worldwide.

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### The global distribution of active trachoma



Sarah Polak



# What's new in trichiasis surgery?



**Matthew Burton and Anthony Solomon**

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## Introduction

There are approximately 10 million people living with trachomatous trichiasis (TT) worldwide. These individuals are at high risk of developing irreversible blinding corneal opacification (CO) if left untreated. Surgical correction of TT is believed to reduce the risk of progressive CO and blindness. During the five years since it was last reviewed in this journal there have been several important contributions to the field of TT surgery.

## Who needs surgery?

Deciding who needs TT surgery varies between control programmes. Some advocate early surgery when one or more lashes touch the eye, whilst others practice epilation until more severe TT develops. No study has compared these two approaches. However, data on the natural history of TT from The Gambia indicate that disease progression can be quite swift.<sup>1</sup> In one year, 33 per cent of cases of minor trichiasis (<5 lashes touching the eye) progressed to major trichiasis (5 or more lashes touching the eye). Therefore, where people do not have frequent contact with eye care services, surgery for mild disease is a logical approach. In addition, the surgery is technically easier and is likely to have a better outcome.

John Buchan



**Distance to surgical services is a barrier to uptake of TT surgery. NIGER**

## Who should do the surgery?

In most trachoma endemic areas there are not enough ophthalmologists to perform the required number of TT surgeries. Therefore, many programmes train nurses and other para-medical staff to perform lid surgery. A randomised controlled trial (RCT) in Ethiopia compared the results of TT surgery performed by trained nurses to those obtained by ophthalmologists, and found no difference in outcome.<sup>2</sup> A retrospective review of TT surgery in Morocco found that, of patients operated on by nurses, 12.3 per cent had recurrent disease at the time of follow-up: significantly less than patients operated on by ophthalmologists, possibly because ophthalmologists tend to do more difficult cases.<sup>3</sup> These studies support the practical decision to train non-ophthalmologists to do TT surgery.

## 'Performing surgery in villages might be expected to improve uptake'

### Where should the surgery be done?

Distance to surgical services has been consistently identified as a barrier to uptake of TT surgery.

Performing surgery in villages might be expected to improve uptake. In a community RCT from The Gambia the acceptance rate was 45 per cent higher with village-based TT surgery than with health centre-based surgery (though the difference did not reach statistical significance,  $p=0.15$ ).<sup>4</sup> There was no difference between village and health centre-based surgery in the rates of recurrent trichiasis or complications. The cost to the patient was significantly less for those who had village-based surgery.



John Buchan

**A trichiasis surgeon operating. NIGER**



John Buchan

**Trichiasis surgery. NIGER**

### Which procedure should be used?

A number of alternative procedures are used to correct TT. An RCT in Oman compared several of these and identified the Bilamellar Tarsal Rotation (BLTR) to have the lowest TT recurrence rate.<sup>5</sup> Subsequently the WHO endorsed BLTR as the preferred procedure for trachoma control programmes.<sup>6</sup> Several countries use a similar procedure called the Posterior Lamellar Tarsal Rotation (PLTR). These two procedures were formally compared in a RCT in Ethiopia, which found no difference between the two in the rate of recurrence three months after surgery; however, longer follow-up data are still needed.<sup>7</sup>

Anthony Solomon



**Trichiasis surgery being performed in a primary school classroom. TANZANIA**



After TT surgery. VIETNAM

## What is the outcome of surgery?

The outcome of trichiasis surgery has been measured in several ways: trichiasis recurrence rates, change in visual function, progression of corneal opacification and patient-reported symptoms. Previously, it was generally believed that the rate of recurrent trichiasis was about 20 per cent one year after surgery.<sup>5</sup> However, recent studies indicate that the rate of recurrent trichiasis is often higher than this, and that it continues to increase with time of follow-up. A three-year follow-up of individuals who had undergone BLTR surgery found recurrent TT in 62 per cent.<sup>8</sup> A Gambian study estimated that the median time to recurrence was 10 years after surgery.<sup>9</sup> The only prospective data on the impact of TT surgery on visual function indicates that there can be a modest improvement, equivalent to half a line of Snellen acuity, a year after surgery.<sup>5</sup> This is probably due to some restoration of the corneal surface and a reduction in ocular secretions. There are presently no long-term outcome data on visual function. Trachomatous CO has a multifactorial aetiology. Whilst direct abrasion by in-turned lashes is probably the single most important factor, other insults to the cornea play a part, including dry eye, bacterial infection of the damaged cornea, and a rough tarsal conjunctival surface. Progression of CO occurs despite successful treatment of TT.<sup>1</sup> Despite quite high recurrence rates, patient perception of surgery is generally positive with a large majority reporting improvement in vision and reduction in pain.<sup>9</sup>

## Glossary of terms

**Trachomatous trichiasis (TT)** – one or more eyelashes touching the eye due to trachoma related scarring of the lids.

**Corneal opacification (CO)** – easily visible corneal opacity overlying at least part of the pupil, which frequently causes visual impairment.

**Inter-surgeon variability** – variation in the outcome of an operation between different surgeons.

**Peri-operative** – at the time of the surgery.

**Prospective data** – data that is collected in a forward direction, pre-determining what observations to make and making these over a period of time.

**Retrospective review** – data collected after an event, usually from case records.

**Randomised controlled trial (RCT)** – the best method for testing the effectiveness of an intervention. Subjects are randomly allocated to a treatment or control group. This reduces the possibility of bias and confounding.

## ‘Studies support the decision to train non-ophthalmologists to do trichiasis surgery’

### Why does trichiasis recur after surgery?

There is little information on the causes of recurrent TT. It is likely that a number of factors contribute at different stages after surgery. The choice of procedure is important and has, in part, been discussed above. The suture type and time to removal may be important. Inter-surgeon variability is rarely reported, however, it is probably very important. Recent studies from Nepal suggest that BLTR patients who have post-operative ocular *C. trachomatis* infections are more likely to develop recurrent TT than uninfected patients.<sup>10</sup> It is possible that ocular infection with other bacteria could also play a role.<sup>11</sup>

### How can surgical results be improved?

Given the somewhat disappointing recent reports of relatively high trichiasis recurrence rates, there is a pressing need to develop strategies to improve the quality and long-term outcome of TT surgery. Ongoing audit of results is needed to identify surgeons in need of additional training and support. In areas where there is a low prevalence of TT, it may be appropriate for a small number of mobile surgeons to undertake all surgery, ensuring that all operations are done by individuals with regular experience. A number of ongoing studies are examining whether enhanced infection control with peri-operative azithromycin can influence surgical outcome. Uptake of surgery remains low in many endemic areas. Various barriers to surgery have been identified including cost, accessibility, fear and lack of time.<sup>12</sup> In order to ensure that trichiasis surgical services can most effectively minimise the incidence of blindness due to trachoma, research groups and control programmes will need to address all of these issues.

#### KEY POINTS

### How to improve trichiasis surgery

- 1 Encourage early uptake of surgery by patients before the trichiasis and scarring becomes very severe. This could be done by village health workers or previously operated trichiasis patients.
- 2 Surgery should be performed in the patient's own village. This may improve uptake and will reduce the cost to the patient, and results are just as good as hospital-based surgery.
- 3 If community-based surgery is the norm it is unlikely to be performed by ophthalmologists. Selected non-medical staff should be trained to do the surgery.
- 4 Where there is less trichiasis, a small number of mobile surgeons may produce better results.
- 5 Use an effective surgical technique. The most effective operations all require a full thickness incision of the tarsal plate and conjunctiva and rotating the lash-bearing part of the lid right away from the eye.
- 6 Careful sterilisation of instruments and sutures and thorough pre-operative cleaning of the lids and conjunctival sac with povidone iodine 2% solution are vital, as bacterial infection is commonly associated with trichiasis and increases the risk of recurrence.
- 7 Because even the best surgeons will get some recurrent trichiasis, all patients must be warned that the trichiasis may recur, and they should seek help if the symptoms return.
- 8 Keep good records of each patient including: address, visual acuity, operation done, surgeon.
- 9 Audit the results of each surgeon and provide additional training and support where the results are less good.

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# What's new in azithromycin?



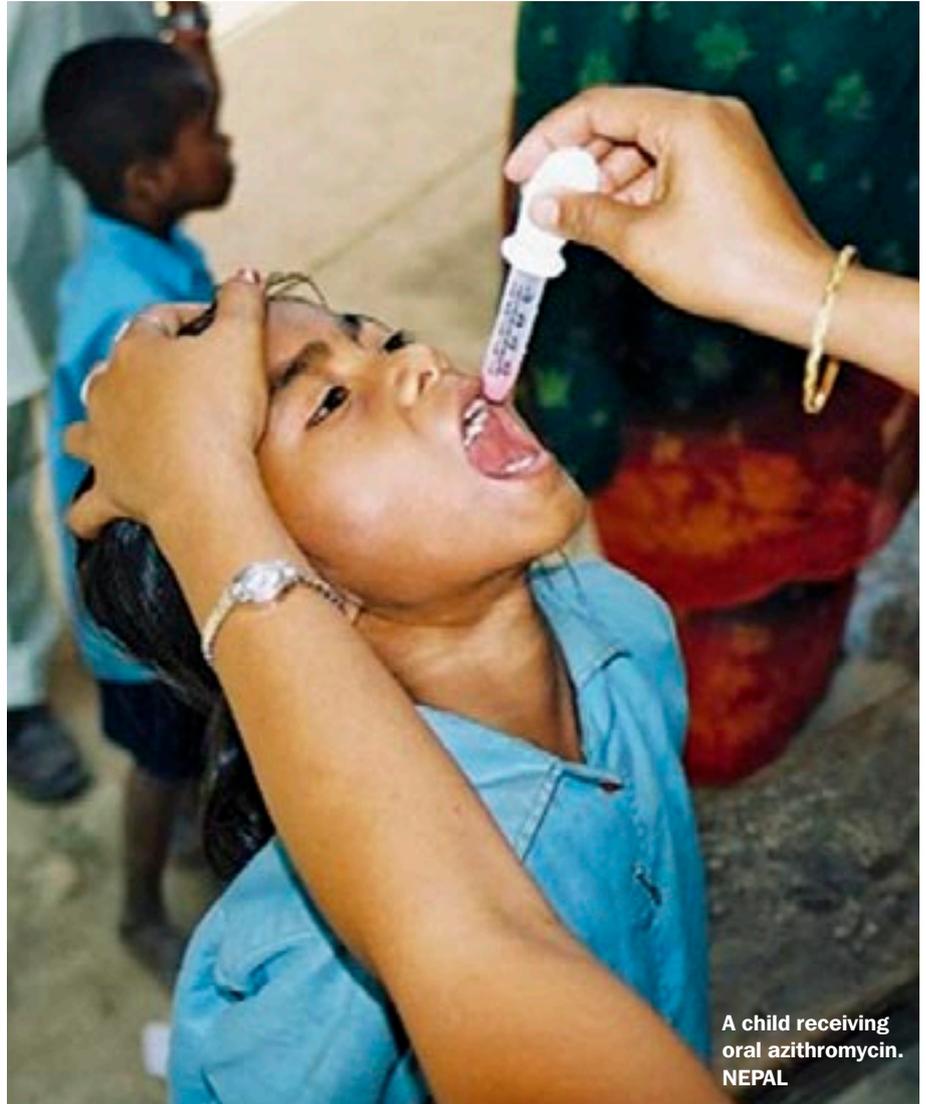
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## Antibiotics in trachoma control

Trachoma is caused by repeated ocular infection with the bacterium *Chlamydia trachomatis*. It is, therefore, logical that anti-chlamydial antibiotics have become a key component of the SAFE strategy. Tetracycline is an effective anti-chlamydial agent. However, because of its effect on growing teeth, oral tetracycline is not recommended for children less than 12 years of age, or for pregnant or breast-feeding women. Tetracycline eye ointment is safer than oral tetracycline, but is difficult and unpleasant to apply: if treatment is unsupervised, compliance for a full six-week course is thought to be poor. Fortunately, during the 1990s, it was shown that ocular *C. trachomatis* infections can successfully be cleared with a single oral dose of the antibiotic azithromycin,<sup>1</sup> and that treatment of whole communities is practical, acceptable to the community, effective,<sup>2</sup> and results in a low incidence of adverse reactions.<sup>3</sup> An operational comparison suggested that directly-observed single-dose azithromycin is more effective at achieving clinical cure of active trachoma than six weeks' unsupervised tetracycline ointment.<sup>4</sup> The main limitation to the use of azithromycin for trachoma control is its cost, which is high if the drug is not donated.

In 1999, when this journal last published a full issue on trachoma, azithromycin's manufacturer (Pfizer Inc.) was establishing donation programmes in five trachoma-endemic countries.<sup>5</sup> The scheme has now been expanded to include a number of additional countries. Several other developments in the last five years have had an impact on the way in which recipient programmes use donated azithromycin to control trachoma.



A child receiving oral azithromycin. NEPAL

## Who should be given azithromycin?

Trachoma is a community-level problem, and must be managed at the community level: treatment of individuals presenting to health facilities will have little impact on transmission. Previously, therefore, the World Health Organization (WHO)

recommended community-level assessment of the prevalence of TF and TI (signs of active disease) to determine whether or not community-based distribution of antibiotics was warranted.<sup>6</sup> Mass distribution of antibiotics (treatment of all members of all families in the community) was recommended if (a) the prevalence of TF in children was 20 per cent or greater, or (b) the prevalence of TI in children was 5 per cent or greater. Targeted distribution (treatment of all members of any family in which one or more family members had TF or TI) was recommended where the prevalence of TF in children was 5 per cent or greater, but less than 20 per cent.<sup>6</sup>

Three important changes have recently been made to these guidelines.

- 1 Recognising that, to achieve global elimination of trachoma, large populations will need to be given antibiotics, WHO suggest that initial assessment of the prevalence of disease (and determination of the need for antibiotic distribution) be made at the district

**Table 1. Current WHO recommendations for antibiotic treatment of trachoma**

<b>1 Determine the district-level prevalence of TF in 1 to 9 year-old children.</b>
If this is 10 per cent or more, conduct mass treatment with antibiotic throughout the district.
If this is less than 10 per cent, conduct assessment at the community level in areas of known disease.
<b>2 If assessment at the community level is undertaken:</b>
In communities in which the prevalence of TF in 1 to 9 year-old children is 10 per cent or more, conduct mass treatment with antibiotic.
In communities in which the prevalence of TF in 1 to 9 year-old children is 5 per cent or more, but less than 10 per cent, targeted treatment should be considered.
In communities in which the prevalence of TF in 1 to 9 year-old children is less than 5 per cent, antibiotic distribution is not recommended.

# 'In Ghana, trained community health volunteers have managed and dispensed azithromycin'

level, rather than the community level. Treatment of whole districts should help to minimise re-infection through contact between people from treated communities and those from untreated communities.

- 2 Because TF is a more reliable sign of trachoma than TI, determination of the need for antibiotic distribution should be based only on the prevalence of TF.
- 3 The prevalence of TF in children at or above which mass antibiotic treatment is recommended has been lowered from 20 per cent to 10 per cent. Targeted treatment is therefore only considered when the prevalence of TF in children is less than 10 per cent. This is good for programmes, since screening communities for cases of active trachoma is very labour-intensive. In hypoendemic areas, family treatment (identification and treatment of families in which there are one or more members with TF or TI) is an effective way to maximise the proportion of *C. trachomatis* – infected people given antibiotics.<sup>7</sup>

## Pregnant women and infants

At first, azithromycin being distributed for trachoma control was withheld from pregnant women because there were no data demonstrating that it was safe in this group.<sup>5</sup> A randomised controlled trial of the effect (on pregnancy outcome) of presumptive treatment of mothers for sexually transmitted diseases has recently provided useful data. The study compared babies born to mothers given three or four different STD treatments, including 1g azithromycin, during pregnancy, with those not given any of these drugs; neonatal death, low birth weight, pre-term delivery and infant ophthalmia were all significantly less common in the treated group.<sup>8</sup> National programmes should consider this evidence, which seems to support the use of azithromycin in pregnancy.

Recent research has highlighted the importance of young children as reservoirs of infection, particularly in areas with a lower prevalence of trachoma.<sup>7,9</sup> Antibiotic distribution teams should offer azithromycin to all individuals over the age of six months in eligible communities, and pay particular attention to ensuring they achieve high coverage in children below ten years of age. Tetracycline eye ointment should be given to children below six months of age, and offered to older individuals who refuse or cannot receive azithromycin. Overall coverage should be as high as possible, but treatment of 80% of the resident population should be the minimum target.<sup>10</sup>

## Who should distribute azithromycin?

In most trachoma-endemic areas, there are insufficient trained medical and nursing personnel. A pilot study in Ghana showed that trained community health volunteers could safely manage and dispense azithromycin to both children and adults.<sup>11</sup> This cadre now routinely assists in antibiotic distribution throughout National Trachoma Control Programme intervention areas in Ghana. Literate volunteers from trachoma-endemic populations also give useful assistance in a few other countries: cooperation with other community-based disease control programs should be considered.

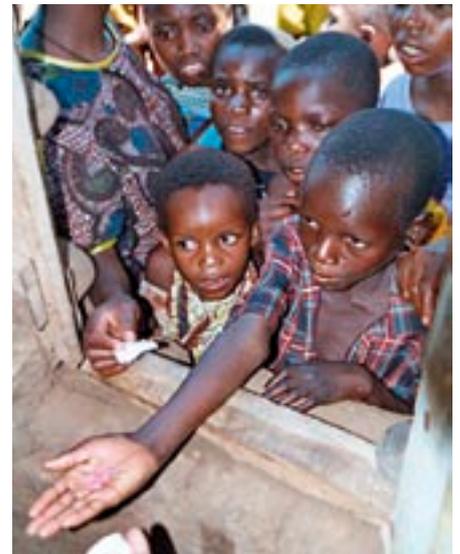
John Buchan



Height-based azithromycin dosing. ETHIOPIA

## How should the dose of azithromycin be determined?

For trachoma control purposes, the recommended dose of azithromycin is one dose of 20mg of medicine per kilogram body weight, to a maximum of 1g. However, weighing scales are expensive to buy, bulky and heavy to transport, and are sometimes unreliable in the field. Height-based azithromycin dosing<sup>11,12,13</sup> is now accepted as an economical, safe, effective and convenient alternative. Since the relationship between height and weight varies from one population to the next, programme managers should not use generic height-based dosing scales, but rather ensure that the scale used is appropriate for the specific recipient population.



Anthony Solomon

Azithromycin tablets in the hand of a child. TANZANIA

## How often and how many times should azithromycin be given?

At present, there are no good data demonstrating the relative effect of different frequencies of antibiotic distribution. Computer simulations of the effect of antibiotics suggest that in areas where trachoma is moderately endemic, annual treatment should be undertaken, but that in hyperendemic areas (prevalence of TF in children >50 per cent), treatment every six months may be required.<sup>10,14</sup> Trials to test this hypothesis are currently in progress. In the meantime, antibiotics should be distributed every 12 months.

Revised WHO guidelines suggest that, once a decision has been made to treat a district or a community with antibiotics, three annual distributions should be undertaken before reassessing the area as to the need to stop or continue.

## What impact will distribution of azithromycin have on trachoma?

In a study village in Northern Tanzania, 94 per cent of 978 residents were given a single-dose of azithromycin, and a further 4 per cent given tetracycline eye ointment. The prevalence of ocular *C. trachomatis* infection fell from 9.5 per cent before treatment to 2.1 per cent two months afterwards, and 0.1 per cent (only one resident infected) at two years.<sup>15</sup> If these results could be replicated at national level by achieving high coverage with azithromycin throughout entire endemic districts, very rapid progress could be made towards global trachoma elimination.

Continues over page ➤



A mother treating her child with 1% tetracycline eye ointment. KENYA

## Will mass distribution of azithromycin for trachoma control promote antibiotic resistance?

There is concern that annual mass distribution of single-dose azithromycin will encourage the development of resistant strains of *C. trachomatis* or other pathogens. There are as yet no published data showing the effect of azithromycin on antibiotic resistance in ocular *C. trachomatis* isolates. Selection of antibiotic-resistant conjunctival *S. pneumoniae* strains following azithromycin distribution has been identified, but the clinical significance of this is unclear.<sup>16</sup> Three published studies have examined the impact of azithromycin given for trachoma on nasopharyngeal *S. pneumoniae*. The first, in Australia, showed an increase in the prevalence of azithromycin resistance in *S. pneumoniae* from baseline to two weeks after treatment; the prevalence of resistance fell between two weeks and two months, and again between two months and six months.<sup>17</sup> However, follow-up was incomplete, there was no control group, and background antibiotic use is likely to be higher in Australia than in most other trachoma-endemic areas. The second study, in Nepal, found resistant *S. pneumoniae* strains in only a very small proportion of children, all of whom had been given azithromycin on two separate

occasions. This suggests that multiple rounds of azithromycin may be necessary to select for resistance in nasopharyngeal pneumococci.<sup>18</sup> The third and largest study published to date was conducted in Tanzania. More than 1,200 children were swabbed at baseline, two months after treatment and six months after treatment; only one macrolide (azithromycin-like drug)-resistant isolate was identified, six months after azithromycin distribution.<sup>19</sup> Perhaps if background macrolide resistance is rare, mass distribution of azithromycin will have little impact on *S. pneumoniae* antibiotic sensitivities.

## What if azithromycin is not available?

If azithromycin is not available to the programme in your district, the World Health Organization recommends community-based distribution of tetracycline eye ointment using the same guidelines detailed above. However, the ease of use of azithromycin and the likelihood that recipients are more compliant with treatment, make it the first-line antibiotic for trachoma control: endemic countries are encouraged to consult the International Trachoma Initiative to find out whether donated azithromycin can be accessed by their national control programme.

### Acknowledgements

The authors are very grateful to Dr Jacob Kumaresan and Dr Silvio Mariotti for helpful comments on a draft of this manuscript.

## Glossary of terms

**Hyperendemic area** – an area in which the particular disease or condition has a high prevalence

**Hypoendemic area** – an area in which the particular disease or condition has a low (but not zero) prevalence.

**Mass distribution** (of antibiotics) - treatment of all members of all families in the community or district.

**Operational comparison** – a comparison between different treatments made under operational conditions, such as in the context of a disease control programme. In the case of a comparison between the effectiveness of azithromycin and that of tetracycline, azithromycin would be directly-observed, and tetracycline would be applied at home, unsupervised, by the patient or their parent.

**Prevalence** – the number of cases of a disease or condition that are present in a defined population at a particular point in time.

**Targeted distribution** – treatment only of subsets of the community, as opposed to 'mass distribution'. In trachoma, targeted distribution often refers to identification and treatment of families in which there are one or more members with TF or TI, but other targeted distribution strategies have also been used.

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# Health promotion for trachoma control



**Marcia Zondervan, Hannah Kuper, Anthony Solomon, John Buchan (TIME Team, ICEH)**  
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## Introduction

Although progress has been made in refining the surgical and antibiotic components of the SAFE strategy, without effective health promotion it will be difficult to eliminate blinding trachoma by 2020. Health promotion is a cornerstone of each of the four components of the SAFE strategy. It includes:

- explaining the disease process and the need for trichiasis surgery to an often reluctant population (S)
- encouraging acceptance of mass antibiotic distribution (A)
- promoting facial cleanliness/hygiene (F)
- bringing about environmental changes, such as building and using latrines (E).

The Trachoma Initiative in Monitoring and Evaluation (TIME) group was asked by the International Trachoma Initiative (ITI) to evaluate trachoma control programmes in 8 countries. Participatory evaluations were conducted in Africa (Ethiopia, Ghana, Mali, Morocco, Niger and Tanzania) and Asia (Nepal and Vietnam) by teams which included national programme staff and external personnel. A standardised methodology was used. The experience taught us some valuable lessons about what contributes to health promotion successes and pitfalls in trachoma control programmes.



## Key components of effective communication for trachoma control

We identified five key components for effective trachoma control communication:

- 1 Develop health education activities in harmony with local culture
- 2 Match communication messages and methods to target audiences
- 3 Train and support locally based communicators
- 4 Ensure consistency in SAFE messages and services
- 5 Monitor and evaluate health promotion efforts.

### Develop health education activities in harmony with local culture

When health education forms part of community life, the familiar processes can make messages more acceptable. We found that community meetings held in familiar surroundings such as churches, mosques, clubs and societies are valuable for discussing trachoma. For example, in

Morocco, trachoma awareness is integrated into an adult literacy programme targeted at women; in Vietnam, the majority of women within endemic communities are reached through the Women's Union.

Where local cultural norms are not considered in the planning of SAFE activities, or where providers fail to approach communities in an appropriate manner, there may be resistance to the SAFE programme. We found in one village a total refusal to take up surgery. Gradually the reason for this became clear: the villagers felt that social norms had not been observed because surgeons had neglected to discuss their plans with village elders before inviting community members to have surgery. Once this was appreciated, and time taken to explain the need for surgery to the village elders, the embargo against uptake was lifted and interest in surgery was expressed.

Efforts can be compromised if an inappropriate person delivers the message, for example, a man lecturing to women. Similarly, mistakes have been made when health education sessions were conducted in

inappropriate places. For example, choosing to deliver messages to an intended audience of women and children at a public meeting place, only to find that women in the culture do not have direct access to such public venues. In such cases it makes sense to first find out where women traditionally meet, for example in Ethiopia, Morocco and Vietnam, trachoma control activities are integrated into existing women's groups.

### Match communication messages and methods to target audiences

Using a range of health promotion activities maximises opportunities for reaching the community and allows for the design of gender- and age-specific messages. The options are numerous and include communicating with the population at large (mass communication), communicating with targeted groups, and communicating with individuals on a one-to-one basis.

*Continues over page* ➤



An eye care worker wearing a SAFE promotion T shirt examines eyes in Nepal

### Mass Communication

Mass media (posters, television, radio, films and videos) are popular means of transmitting simple 'nuggets' of information to raise awareness about trachoma. The BBC World Service Trust developed radio spots in local languages in several countries including Tanzania, Ghana, Niger, Ethiopia and Nepal. These trachoma messages went out several times per day for a number of months. In Ghana, we found that the trachoma song played on the radio was very well received and women and children in every village we visited could sing the song. In Niger the trachoma control programme printed fabric that people made into clothes. These activities are in tune with local cultural norms, and appeared to have improved awareness about trachoma.

### Communicating using groups

Education at health centres and clinics, often performed by nurses known to the community, can be carried out while people are waiting to receive treatment. Another opportunity is to link antibiotic distribution in the SAFE strategy with health promotion. For example, at an antibiotic treatment session in Nepal, we saw a demonstration of how people first pass by the well to watch a face-washing demonstration, then wash their own eyes and faces, and then go on to receive the antibiotics. Practical demonstrations like this can greatly enhance communication with groups, as many programmes have demonstrated in their use of the 'leaky tin' to show how children's eyes and faces can be kept clean despite having limited access to water.

Schools are an excellent vehicle for trachoma health promotion. In Morocco, trachoma control is now integrated into the national school curriculum; Nepal and Vietnam target schools within particular regions; in Niger, Mali and Ghana there are pilot areas where NGOs support the development of school materials and programmes. Flip charts, posters, playing cards and games provided to schools were well received and utilised, as were dramas or even full stage shows. We saw one such excellent production in a rural school in Mali which combined a play, story-telling and dance to portray the story of an old lady who suffered from an eye problem, heard about the possibility of treatment and went for trichiasis surgery. The use of story, song and dance effectively overcame language barriers and demonstrated that the combined media can communicate trachoma messages to mixed language audiences.

## 'Co-ordination of the various activities involved in implementing SAFE is of the utmost importance'

### One-to-one communication

While mass communication and communicating with specific groups is useful for raising awareness about trachoma, we found that one-to-one communication may be more appropriate for identifying and overcoming barriers, such as the resistance to trichiasis surgery. Individuals with trichiasis are a subset of the population who need more specific information, counselling and support. In Vietnam, action groups, composed of the village head, the village health worker and the head of the women's union, are established in each village. These action groups visit each person identified with trichiasis, encourage them to have surgery, and help to make the arrangements to facilitate this. The programme decided not to use radio messages about trichiasis surgery because many sufferers do not identify themselves as having this condition and would probably not 'tune in' to such mass communication.

### Train and support locally based communicators

Locally based communicators are important as they are known to their peers, and can be active promoting health on a day-to-day basis. However, local communicators need to combine their natural communication abilities with information and skills specific to trachoma control. We found that training of trainers is an effective way to improve the communication skills of people at grassroots level. In Vietnam, for example, district education officers trained the head teacher and health education teacher from each school in trachoma control programme districts. These teachers return to their schools and train the other teachers.

We found two limitations to the effectiveness of locally based communicators: the lack of health promotion materials, and the difficulties of maintaining the enthusiasm and motivation of the communicators, many of whom are volunteers or combining the role with other jobs. One option is to provide monetary incentives, although this raises questions about the long-term sustainability. Another option is to provide opportunities for further education or improved status. In Tanzania, traditional dance groups were helped by district coordinators to make up their own dances and songs about trachoma. Dance groups were motivated by the enthusiasm and appreciation they received from the spectators, which gave them enhanced status in their communities.

### Ensure consistency in SAFE messages and services

**Link SAFE messages for health promotion**  
Trachoma education activities are often concerned with the importance of facial cleanliness and environmental change.

There has been a lack of emphasis on explaining the link between trachoma and trichiasis and to encourage uptake of the "S" component. All the messages have to be tailored to meet the specific understanding of the target populations. The link between the different actions (clean face, improve environment, treat trachoma, receive surgery if necessary) needs to be explained so that people know that all of these contribute to preventing blindness from trachoma.

### Coordinate the activities of SAFE

Coordination of the various activities involved in implementing the SAFE strategy is of the utmost importance. Appropriate structures must be in place to ensure that messages and services are planned to work together so as to avoid disappointment to beneficiaries. For instance, if people are encouraged by a community educator or through a radio message to go for surgery and then find that surgery is not available at the indicated time and place, they may refuse further invitations to attend and their experience will have a wider influence on the reputation of the programme.

### Monitor and evaluate health promotion efforts

The lack of robust indicators (other than crude process indicators such as the number of sessions given) is an important constraint to analysing the effectiveness of health promotion. Individual programmes must devise a set of indicators that are most informative for them. In Konso district, Ethiopia, a sanitation officer was employed to promote the construction and use of latrines. The sanitation officer was in regular contact with the community allowing the setting of goals, identification of indicators to track achievement of the goals, and monitoring of progress. This established both the means for evaluation, and the process of community engagement that resulted in community 'ownership' of the programme.

### Conclusion

Effective eye health promotion is the key to building the knowledge, skills and attitudes to bring about change within communities, so that we can achieve the goal of eliminating blinding trachoma by 2020. Key points that have emerged from our evaluation of trachoma control are the importance of establishing adequate support for community level workers, identifying, developing and encouraging dynamic local motivators, and setting structures in place to ensure delivery of appropriate and consistent messages which work in harmony with all components of the SAFE strategy.



# Lessons from the Moroccan National Trachoma Control Programme



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In 1992, the Moroccan Programme for the Prevention of Blindness (Programme Marocain de Lutte contre la Cécité) completed a nationwide survey of the prevalence of visual impairment and its causes in Morocco. Since then, the prevention of trachoma has been a key priority of the Programme for the Prevention of Blindness. In Morocco, blinding trachoma is confined to five southern provinces: Errachidia, Figuig, Ouarzazate, Tata and Zagora. These provinces account for 25% of the total area of the country, with a population of 1,619,000.

## Evolution of the programme

The Moroccan Programme for the Prevention of Trachoma developed in two key phases. The first involved laying foundations through integrating prevention activities into existing eye health and primary health care systems, establishing structured co-ordination units to enable collaboration at every level between different sectors, training relevant staff, and engaging the community through local development groups.

In 1997 the fight against blinding trachoma was further strengthened and consolidated by the adoption of the SAFE strategy. The strategy promoted greater integration of activities, improved collaboration across sectors, and promoted a community-focused approach.

This effort benefited from valuable support from partners including the World Health Organization (WHO), International Nongovernmental Organisations (INGOs) such as Helen Keller International (HKI), the Edna McConnell Clark Foundation, the International Trachoma Initiative (ITI) and Pfizer Inc.

In addition, the policy of decentralisation and devolution adopted by the Ministry of Health enabled the health service to maximise the resources available for the prevention of trachoma in endemic regions. This facilitated the development of a localised approach (called in French “une politique de proximité”), which has proved appropriate for addressing the population’s needs more effectively by:

- bringing the health service closer to the community and thereby addressing its concerns and operating with greater impact and efficiency
- establishing direct communication between the State and its social partners on the ground (local communities and civilian partners) in order to identify the most relevant ‘touch points’ with community life and to develop a better balance with regards to methods of public intervention

- achieving greater coherence and multi-sectoral co-ordination of local level action.

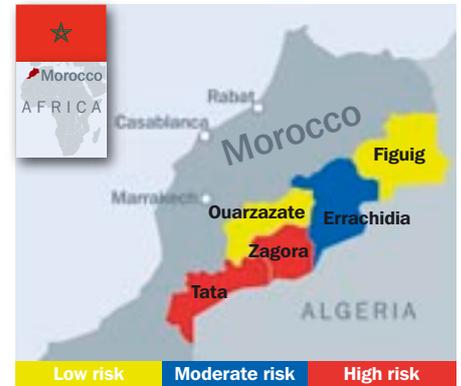
The prevention of trachoma in Morocco is currently undergoing a crucial phase of consolidation: making permanent what has already been achieved and eliminating trachoma-related blindness by validating and achieving the Ultimate Intervention Goals (UIG) for each component of the SAFE strategy between now and the end of 2005. It must also be noted that since its inception, the Moroccan Programme for the Prevention of Blindness has used evaluation procedures to ensure that whenever required, remedial measures are put in place in close consultation with all those involved. In addition, as a result of political involvement at all decision making levels (national, district and local) the prevention of trachoma has received support as a priority public health problem in target regions.

## Key strengths of the programme

To summarise, the key strengths of the Moroccan Programme for the elimination of trachoma-related blindness are as follows:

- 1 Political engagement at all levels
- 2 Inclusion of prevention in eye health services and primary health care systems
- 3 Integrated implementation of the comprehensive SAFE strategy. This facilitated:
  - a structuring of committees to co-ordinate activities and
  - b facilitate collaboration between sectors at national, district and local levels, through regular and periodic meetings
  - b adoption of a localised approach to address the concerns of the communities involved (integrated with other health activities)
  - c allocation of tasks between different players in trachoma control, according to their different competencies
  - d leadership provided by the Programme Nationale de Lutte contre la Cécité (PNLC), the principal stakeholder.
- 4 Adoption of evaluation as a fundamental component to support follow-up and planning
- 5 Decentralisation of planning, follow-up and evaluation
- 6 Communication with the public on the progress of the trachoma prevention programme (site visits by media professionals, press interviews).

**Fig. 1. Provinces targeted for trachoma control in Morocco**



**Surgeries, once performed in regional hospitals, increased with decentralisation to smaller health units. MOROCCO**

Hannah Kuper



# The evidence base for trachoma interventions

**Richard Wormald**

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SAFE is a policy based on common sense and practical know-how. It includes all the things we know contribute to blindness from the disease and the strategy is to interrupt the pathway to sight loss at several different stages.

It is, however, worth examining the evidence which underlies this policy. Like so often in politics and planning, policies are made first and then evidence is sought to support them afterwards. This is not a strictly evidence based approach.

There are Cochrane reviews either underway or published on all four components of SAFE.

## Surgery for trichiasis

Trichiasis is one of the most important components of the blinding process. That something has to be done about abrading lashes is without doubt. However, there have been no trials on whether surgery is more effective than simple epilation, though epilation has been found less effective than using tape to pull the lashes away from the globe. Another, perhaps more important, question is which operation is the most effective, simplest and cheapest to perform with the least complications.

A Cochrane review will soon be published addressing these questions but needless to say, like is so often the case, there are few good quality studies which adequately address this question.

Other important questions are about measures to improve uptake of surgery – can the operation be safely performed in the community and can paramedical staff be successfully trained to do the surgery. These questions are included in the systematic review which will soon be published in the Cochrane library.

## Antibiotics for active trachoma

A Cochrane review has been published for two years on this question and is currently being updated. Despite the growing confidence in the safety and effectiveness of azythromycin, there are few trials addressing the question and none show a convincing advantage over existing treatments. This reflects the nature of the studies and the difficulty in conducting large trials on at-risk communities. Before and after studies such as the one recently published in the *New England Journal of Medicine* (abstracted on page 61) provide such convincing evidence

of effectiveness that it may now be difficult to ethically conduct new trials. It is a shame that these trials have not been conducted since studies without a comparator group mean that the effect size cannot be estimated. We can only know that treatment is effective but not by how much. This also makes it difficult to build models of cost-effectiveness.

More evidence is needed however. Dosage, frequency, targeted versus mass treatment, means of distribution, safety monitoring and resistance are questions highlighted in an important *Lancet* review last year (Kuper H, Solomon AW, Buchan J, Zondervan M, Foster A, Mabey D. A critical review of the SAFE strategy for the prevention of blinding trachoma. *Lancet Infect Dis.* 2003 Jun;**3**(6):372-81. Abstract included in Issue 49 of the *Community Eye Health Journal*).

## Face washing

Improved personal hygiene and regular washing of the hands and face of children are common sense interventions which are hard to evaluate in trials. Two have been found by reviewers who published a review on the Cochrane library last year on this subject. One was a randomised controlled trial in which three villages were randomised to separate interventions while another previously unpublished trial was found in which children were individually allocated to topical tetracycline, face washing, face washing and tetracycline, and no treatment. Neither of these studies demonstrated convincing evidence of effectiveness. Clearly more research is needed in this area.

## Environmental interventions

A Cochrane review on this topic will shortly be published. Out of 285 citations, only one trial addressing this issue in the form of a cluster randomised controlled trial was found. Some indication that health education may have some impact was found in this study but no other studies were found answering questions on the many other potential environmental interventions including latrines, fly control, water supply and garbage disposal.

The *Lancet* review concluded that much more research is needed to reinforce the SAFE strategy on all aspects but especially in interventions for facial cleanliness and environmental improvement. These latter may be as effective as expensive antibiotics and have the advantage of improving many other aspects of quality of life.

## ABSTRACTS

### Face washing promotion for preventing active trachoma

Ejere H, Alhassan MB, Rabiou M.

**BACKGROUND:** Trachoma remains a major cause of avoidable blindness among underprivileged populations in many developing countries. It is estimated that about 146 million people have active trachoma and nearly six million people are blind due to complications associated with repeat infections.

**OBJECTIVES:** The objective of this review is to assess the effects of face washing on the prevalence of active trachoma in endemic communities.

**SEARCH STRATEGY:** We searched the Cochrane Central Register of Controlled Trials – CENTRAL (which contains the Cochrane Eyes and Vision Group trials register) on The Cochrane Library (Issue 2, 2004), MEDLINE (1966 to February 2004), EMBASE (1980 to February 2004), the reference lists of identified trials and the Science Citation Index. We also contacted investigators and experts in the field to identify additional trials.

**SELECTION CRITERIA:** We included randomised or quasi-randomised controlled trials, comparing face washing with no treatment or face washing combined with antibiotics against antibiotics alone. Participants in the trials were people normally resident in endemic trachoma communities.

**DATA COLLECTION AND ANALYSIS:**

Two reviewers independently extracted data and assessed trial quality. Study authors were contacted for additional information. Two clinically heterogeneous trials are included, therefore a meta-analysis was considered inappropriate. **MAIN RESULTS:** This review includes two trials with data from a total of 2560 participants. Face washing combined with topical tetracycline was compared to topical tetracycline alone in three pairs of villages in one trial. The trial found a statistically significant effect for face washing combined with topical tetracycline in reducing 'severe' active trachoma compared to topical tetracycline alone. No statistically significant difference was observed between the intervention and control villages in reducing ('non-severe') active trachoma.

The prevalence of clean faces was higher in the intervention villages than the control villages and this was statistically significant. Another trial compared eye washing to no treatment or to topical tetracycline alone or to a combination of eye washing and tetracycline drops in children with follicular trachoma. The trial found no statistically significant benefit of eye washing alone or in combination with tetracycline eye drops in reducing follicular trachoma amongst children with follicular trachoma.

**REVIEWERS' CONCLUSIONS:** There is some evidence that face washing combined with topical tetracycline can be effective in reducing severe trachoma and in increasing the prevalence of clean faces. Current evidence does not however support a beneficial effect of face washing alone or in combination with topical tetracycline in reducing active trachoma.

**Reprinted courtesy of:**

Cochrane Database Syst Rev. 2004;(3):CD003659.

## Global data on visual impairment in the year 2002

**Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, Pokharel GP, Mariotti SP.**

This paper presents estimates of the prevalence of visual impairment and its causes in 2002, based on the best available evidence derived from recent studies. Estimates were determined from data on low vision and blindness as defined in the *International statistical classification of diseases, injuries and causes of death*, 10th revision. The number of people with visual impairment worldwide in 2002 was in excess of 161 million, of whom about 37 million were blind.

The burden of visual impairment is not distributed uniformly throughout the world: the least developed regions carry the largest share. Visual impairment is also unequally distributed across age groups, being largely confined to adults 50 years of age and older. A distribution imbalance is also found with regard to gender throughout the world: females have a significantly higher risk of having visual impairment than males.

Notwithstanding the progress in surgical intervention that has been made in many countries over the last few decades, cataract remains the leading cause of visual impairment in all regions of the world, except in the most developed

countries. Other major causes of visual impairment are, in order of importance, glaucoma, age-related macular degeneration, diabetic retinopathy and trachoma.

**Reprinted courtesy of:**

Bulletin of the World Health Organization 2004;**82**: 844-51.

### Commentary

#### Improving Trend in Global Blindness

A global estimate of the magnitude and causes of visual impairment based on the 1990 world population data gave 38 million blind. This estimate was later extrapolated to the 1996 world population to give 45 million blind, and subsequently projected to the 2020 world population estimating 76 million blind. This increasing trend provided the basis for the 1999 launch of VISION 2020, the Global Initiative for the Elimination of Avoidable Blindness. New analysis using 2002 data reports that 37 million were blind. However, refractive error was not included, which implies that the actual global magnitude is greater. It is likely that this positive trend is due to two major factors:

- 1 More data from population-based studies on visual impairment carried out over the last decade are available allowing for more accurate estimates to be made.
- 2 There have been significant achievements in the prevention

and management of avoidable blindness. These include:

- Increased public awareness and utilisation of eye health care services
- Increased availability and affordability of eye health care services
- As part of primary health care, control activities against trachoma, onchocerciasis, vitamin A deficiency and other eye infections have resulted in a significant decrease in the numbers of blind compared to earlier estimates
- Impressive achievements in blindness control in some countries, for example India, The Gambia, Morocco and Thailand
- Increased global political commitment to prevention of visual impairment
- Increased professional commitment to prevention of visual impairment
- Commitment and support of non-governmental organisations
- Involvement and partnership with the corporate sector.

VISION 2020, the Global Initiative for the Elimination of Avoidable Blindness, needs not only to be sustained but strengthened further if the goals are to be achieved. The positive trend over the last 10 years as shown by the new estimates should not be a cause for complacency as demonstrated by the statistic that in 2002, 18 million people are blind in both eyes because they cannot afford or access cataract surgery.

## Mass treatment with single-dose azithromycin for trachoma

**Solomon AW, Holland MJ, Alexander ND, Massae PA, Aguirre A, Natividad-Sancho A, et al.**

**BACKGROUND:** Trachoma, caused by repeated ocular infection with *Chlamydia trachomatis*, is an important cause of blindness. Current recommended dosing intervals for mass azithromycin treatment for trachoma are based on a mathematical model.

**METHODS:** We collected conjunctival swabs for quantitative polymerase-chain-reaction assay of *C. trachomatis* before and 2, 6, 12, 18, and 24 months after mass treatment with azithromycin in a Tanzanian community in which trachoma was endemic. For ethical reasons, at 6, 12, and 18 months, we gave tetracycline eye ointment to residents who had clinically active trachoma.

**RESULTS:** At baseline, 956 of 978 residents (97.8 percent) received either one oral dose of azithromycin or (if azithromycin was contraindicated) a course of tetracycline eye ointment. The prevalence of infection fell from 9.5 percent before mass treatment to 2.1 percent at 2 months and 0.1 percent at 24 months. The quantitative burden of ocular *C. trachomatis* infection in the community was 13.9 percent of the pretreatment level at 2 months and 0.8 percent at 24 months. At each time point after baseline, over 90 percent of the total community burden of *C. trachomatis* infection was found among subjects who had been positive the previous time they were tested.

**CONCLUSIONS:** The prevalence and intensity of infection fell dramatically and remained low for two years after treatment. One round of very-high-coverage mass treatment with azithromycin, perhaps aided by subsequent periodic use of tetracycline eye ointment for persons with active disease, can interrupt the transmission of ocular *C. trachomatis* infection.

**Reprinted courtesy of:**

N Engl J Med. 2004 Nov 4;**351**(19):1962-71.

## Gender equity and trichiasis surgery in the Vietnam and Tanzania national trachoma control programmes

**West S, Nguyen MP, Mkocha H, Holdsworth G, Ngirwamungu E, Kilima P, Munoz B.**

**AIMS:** To calculate the gender distribution of trichiasis cases in trachoma communities in Vietnam and Tanzania, and the gender distribution of surgical cases, to determine if women are using surgical services proportional to their needs.

**METHODS:** Population based data from surveys done in Tanzania and Vietnam as part of the national trachoma control programmes were used to determine the rate of trichiasis by gender in the population. Surgical records provided data on the gender ratio of surgical cases.

**RESULTS:** The rates of trichiasis in both countries are from 1.4-fold to sixfold higher in females compared to males. In both countries, the female to male rate of surgery was the same or even higher than the female to male rate of trichiasis in the population.

**CONCLUSIONS:** These data provide

assurance of gender equity in the provision and use of trichiasis surgery services in the national programmes of these two countries. Such simple analyses should be used by other programmes to assure gender equity in provision and use of trichiasis surgery services.

**Reprinted courtesy of:**

Br J Ophthalmol. 2004 Nov;**88**(11):1368-71.

## Global burden of trachoma and economics of the disease

**Frick KD, Hanson CL, Jacobson GA.**

Interest in the economics of trachoma is high because of the refinement of a strategy to control trachomatous blindness, an ongoing global effort to eliminate incident blindness from trachoma by 2020, and an azithromycin donation program that is a component of trachoma control programs in several countries. This report comments on the economic distribution of blindness from trachoma and adds insight to published data on the burden of trachoma and the comparative costs and effects of trachoma control. Results suggest that 1) trichiasis without visual impairment may result in an economic burden comparable to trachomatous low vision and blindness so that 2) the monetary burden of trachoma may be 50 per cent higher than conservative, published figures; 3) within some regions more productive economies are associated with less national blindness from trachoma; and 4) the ability to achieve a positive net benefit of trachoma control depends importantly on the cost per dose of antibiotic.

**Reprinted courtesy of:**

Am J Trop Med Hyg. 2003 Nov;**69**(5 Suppl):1-10.





## LETTER TO THE EDITOR

## Simcoe cannula construction can endanger surgical outcome

**Brian Savage**

Haydom Lutheran Hospital, P.O. Mbulu, Tanzania.

Recently I noticed with surprise, during extracapsular cataract surgery, that cortex was retreating from the anterior port of my simcoe cannula during aspiration, instead of being drawn towards it.

On closely examining the cannula, I discovered that the infusion entering the luer connection was plumbed to exit at the anterior port, while the syringe was vigorously aspirating anything near the large side port; iris, anterior capsule, even posterior capsule; certainly not what I was expecting!

I discussed this by email with the supplier, who apologised: "I packed Reverse Simcoe in error!" and offered a replacement.

I find that the 'Reverse' Simcoe is a frequent visitor to extracapsular cataract sets. The surgeon, keen to get in among the cortex, often does not notice he is using one until the outcome of his operation has been affected because the wrong structure has been sucked into the cannula.

It is important for the surgeon to recognise the reverse simcoe. This can be done as follows:

- 1 Preoperatively, examine each simcoe cannula before use. Check that the luer port which receives the solution giving set, allows outflow via the larger side-port, and the smaller anterior port is connected to the narrow pipe which accepts the pvc tubing and aspiration syringe (Figure 1) and not the other way round (Figure 2).
- 2 At operation, before entering the eye, run the drip, and observe the outflow of the irrigating solution: If it arcs down and forwards, this is likely to be a normal simcoe (Figure 3). If however the outflow goes straight up before curving down (Figure 4), then you are about to use a reverse simcoe!
- 3 When operating, observe which port appears to be sucking in the cortex. This should be the smaller anterior port, while the anterior chamber is maintained by the flow from the larger side port.
- 4 Inadvertent aspiration through the larger side port of a reverse simcoe, while irrigating through the smaller anterior port, can cause unexpected shallowing of the anterior chamber.

**Fig. 1. Normal simcoe cannula****Fig. 2. Reverse simcoe cannula****Fig. 3. Normal simcoe flow****Fig. 4. Reverse simcoe flow**

# 2004/05 ICEH Community

Edited and introduced by **Daksha Patel**, International Centre for Eye Health, London**Daksha Patel (centre), ICEH Community Eye Health MSc Course Organiser, with a group of past ICEH students at the IAPB General Assembly in September 2004. DUBAI**

All ICEH MSc students carry out a dissertation project as part of the CEH course. They spend ten weeks dedicated to the project (five for field work and five for write up), and the planning is conducted throughout the year. The dissertation is about 10,000 words and requires a disciplined and dedicated approach. It is prepared in stages: the student identifies an area of interest and then carries out a literature search on the topic before finally deciding on the research question. The next stage includes designing the most appropriate methodology to answer the research question. Feasibility within the specified time frame and budget are important considerations. Students then have to seek ethical permission to carry out the project. Often the field work requires a team and students have to identify and train their own team for the project. This is then followed by the field work, data management and analysis and final write-up. The students at the end of this process are equipped to carry out research independently in their regions.

Most of the dissertations are excellent pieces of original and valuable research work. The summaries below provide some insight into the work carried out by the students at ICEH in the academic year 2003/4. Often the recommendations from dissertations get translated into action plans to reduce the burden of blindness in their communities. We consider the project work as the most important component of the learning process in our MSc course.

## Cost-effectiveness analysis of cataract services in Lagos University Teaching Hospital (LUTH), Lagos, Nigeria

**Olufisayo Temitayo Aribaba**

Lagos University Teaching Hospital, Guinness Eye Centre, p.m.b. 12003, Lagos, Nigeria.

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**Aim:** To examine the cost-effectiveness of Lagos University Teaching Hospital's cataract services.

**Methods:** A retrospective study of all consecutive cataract patients aged 18 years and above who had cataract surgery with Intraocular Lens (IOL) implants between July 2000 and June 2004. Health gains and costs incurred at the base hospital and the Pakoto PHC outreach were estimated. Those lost to follow-up before six weeks post-operatively were excluded. The cost-effectiveness analysis used effectiveness measures based on patients' utility values given their visual acuity in the best-seeing eye and in the operated eye. The utility values had been obtained by Brown and Brown (1999, 2000, 2002, 2003) using a Time Trade-Off questionnaire.

**Results:** Cataract surgery with IOL implants accounted for 40.4 per cent of all eye surgeries. A total of 264 eyes (81.7 per cent) had uniocular surgery while 42 eyes (13.0 per cent) had combined trabeculectomy for cataract and glaucoma. Analysis was based on the best seeing eye and operated eye per patient; effects were evaluated based on the difference in visual acuity gained post-surgically and their corresponding utility values. Streams of costs grouped from eight cost centres were used in assessing the cost-effectiveness and incremental

# Eye Health MSc Dissertation Summaries

School of Hygiene and Tropical Medicine.

cost-effectiveness ratio (ICER) for each of the four scenarios. For each scenario, the presence of complications is incorporated. To do so, the final ICER are constructed using 'expected' costs and 'expected' effectiveness given the incidence of complications.

**Conclusions:** With a cost effective ratio range of 1,928-2,875 \$/quality adjusted life years gained, cataract services in LUTH fall within the cost-effective range comparable to developed countries. Making hospital-based care affordable, accessible, acceptable and effective must be a priority with complementary outreach programmes.

## Evaluation of vitamin A deficiency programme in Lagos State



**Olufunmilayo Bankole**

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**Aim and methods:** An evaluation of the vitamin A deficiency prevention programme in two local government areas of Lagos State was conducted within the period 7/7/2004 and 23/7/2004. The aim was to determine the prevalence of xerophthalmia in children aged 24 to 71 months and assess the equity of the vitamin A programme using supplement distribution coverage, access and utility of existing facilities for vitamin A supplements distribution, the distribution, availability and affordability of fortified foods.

**Results:** A total of 2,922 children were studied, 1,428 (48.87 per cent) females and 1494 (51.13 per cent) males. The prevalence of total xerophthalmia was 0.34 per cent (95 per cent CI 0.16; 0.63 per cent). Vitamin A supplement coverage of study population was 99.1 per cent (95 per cent CI 98.7; 99.4 per cent). 15.0 per cent (95 per cent CI 13.6; 16.2 per cent) of recipients of supplements had the correct number of capsules expected for their age. All 0.9 per cent (95 per cent CI 0.6; 1.3) children who had not received supplements were from Mushin Local Government Area (LGA). There was under-utilisation of routine services by target population 16.2 per cent (14.9; 17.6 per cent) despite easy physical access reported by up to 93.8 per cent. Utilisation was worse in Agege compared to Mushin ( $p < 0.001$ ). Availability of fortified food was limited to one or two brands per market with 28.6 per cent of markets not having any. The household availability and awareness of fortified foods was better in Agege compared with Mushin LGA ( $P < 0.001$  for both variables).

**Conclusion:** Vitamin A deficiency is still a problem of mild public health significance.

## Correlation between visual outcome and cost calculation of ECCE/MSICS/PHACO in a tertiary hospital setting, Orissa, India



**Navratan Dhanuka**

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**Aim and methods:** The study is designed to look into visual outcomes from the different surgical techniques: Extracapsular Cataract Extraction with Intraocular Lens (ECCE IOL), Phacoemulsification with Intraocular Lens (PHACO IOL) and Manual Small Incision Cataract Surgery with Intraocular Lens (MSICS IOL) and the provider costs related to them. The study had a retrospective and a prospective design. The retrospective part looked at visual outcomes of 1505 patients operated by three different techniques – ECCE, PHACO and MSICS. The prospective study looked into visual outcome and the cost of 150 patients selected randomly for one of the three different types of surgery.

**Results:** MSICS IOL gave best visual outcome. PHACO IOL results were good but not as good as MSICS IOL. ECCE IOL gave poorest results comparatively.

The cost of MSICS IOL was Rs 713.94 (£8.50), ECCE IOL cost was Rs 713.94 (£9.00) PHACO IOL cost Rs 954.11 (£11.40). Hence MSICS IOL costs were almost similar to ECCE IOL but PHACO IOL costs were higher. The fixed cost was Rs 553.32 (£7.00). The variability of cost was mainly in the cost of the phaco machine, its accessories and personnel costs. Personnel costs varied mainly due to the duration of a particular procedure.

**Conclusion:** MSICS is the solution for the developing world's ever increasing cataract problem. It is cheaper, gives good visual outcome and can be done in less time which suggests that it is ideal for the developing world cataract scenario.

## Prevalence of causes of blindness and visual impairment in Muyika, a rural health district of the South West Province, Cameroon



**Joseph Enyegue Oye**

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**Aim:** To estimate the prevalence, risk factors and causes of blindness and visual impairment in the population aged 40 years and above.

**Methods:** A multistage cluster random sampling methodology was used to select 2,000 participants in 20 clusters of 100 people each. Demographic data, presenting visual acuity and ocular examination findings were collected.

**Results:** A total number of 1,787 people were examined, representing 89.35 per cent of the eligible sample. The prevalence of binocular blindness was found to be 1.62 per cent (95 per cent CI: 1.04 – 2.21 per cent), binocular severe visual impairment, 2.24 per cent (95 per cent CI: 1.55 – 2.92) and binocular visual impairment, 6.44 per cent (5.30 – 7.57 per cent). The prevalence of monocular blindness was 8.51 per cent (95 per cent CI: 7.21 – 9.80). Old age, female gender, farming and no occupation were identified as risk factors. The main causes of binocular blindness were: cataract (62.07 per cent); onchocerciasis (13.79 per cent); glaucoma (6.90 per cent) and phthisis/no globe (6.90 per cent). Refractive error was second to cataract as a cause of severe visual impairment (15.0 per cent), as well as for visual impairment (26.09 per cent). Cataract was the first cause of monocular blindness (32.03 per cent), followed by trauma (14.06 per cent). The Cataract Surgical Coverage (CSC) was 15.05 per cent for eyes and 21.73 per cent for persons. 64.29 per cent of eyes operated for cataract had poor visual outcome ( $VA < 6/60$ ). Lack of awareness of cataract (33.33 per cent) and inability to pay for services (30.13 per cent) were the most frequent barriers to cataract surgery uptake.

**Conclusions:** While a similar survey is needed for the urban area, stakeholders of the South West Province Comprehensive Eye Care Programme should develop strategies to make cataract services affordable and accessible to the population in order to improve on the cataract surgical coverage and should provide refractive error services at community level.

## Prevalence of blindness in a north-western Nigerian rural population: a rapid assessment of cataract surgical services



**Abdulla Usman Imam**

PO Box 52, EF Uturi Masinta, Bida Niger State, Nigeria.

**Aim and Methods:** This study was based on the World Health Organization standardised method of Rapid Assessment of Cataract Surgical Services (RACSS). A population-based cross sectional survey of people aged 40 years and over was carried out in a rural population

*Continues over page* ➤



between June and July 2004, to determine the prevalence of cataract blindness and coverage of cataract surgical services. Using systematic, two-stage cluster random sampling, 35 clusters were selected out of 24 villages with selection based on the probability proportional to the size (PPS) of each village. 50 people were then examined from each cluster.

**Results:** 1,573 people, out of 1,703 registered, were examined. The prevalence of cataract blindness was 4.5 per cent (95 per cent CI, 3.4-5.5). The prevalence of cataract blindness was higher in females (5.7 per cent) than males (3.4 per cent). Cataract surgical coverage for people was 11.7 per cent while coverage for couching was 21.7 per cent. Cost (39 per cent) and lack of awareness of cataract or its treatment (18 per cent) were identified as the main barriers to cataract surgery uptake.

**Conclusions:** The prevalence of blindness due mainly to cataract is unacceptably high in this rural community. The reasons are directly related to poverty, ignorance and lack of good quality cataract surgical service delivery. Establishment of good quality, high-volume and low-cost cataract service is highly desirable.

## Evaluation of visual outcome of cataract surgical services in St. Mary's Catholic Hospital, Gwagwalada, Abuja, Nigeria



**Cecila Oriri Kalu**

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**Aim:** To evaluate visual outcome of cataract surgical services, surgical complication rate, pre-existing disease and trend in cataract surgery, and to make recommendations.

**Methods:** A retrospective study was done to determine the visual acuity of all cataract surgeries of ages greater than 17 years from 2001-2003. A standard case of all elective cataract patients who underwent surgery was extracted from patient folders in the record department and evaluated for visual outcome of cataract surgical services.

**Results:** The visual outcome was 59.6 per cent with visual acuity better than 6/18 with best correction in a study population of 1,002 patients. The sight restoration rate was 86.12 per cent. A total of 91.9 per cent operations performed were extracapsular cataract extraction with posterior chamber intraocular lens (ECCE+PC IOL). Patients with pre existing disease accounted for 15.4 per cent and those with surgical complications were 10.4 per cent of all cases. The main causes for poor outcome were poor selection of cases and surgical complications.

**Conclusions:** Good outcome of cataract surgery is achievable in St. Mary's Hospital and can be further enhanced with good patient selection and consistent availability of biometry for pre-surgical assessment. The preferred type of surgery for all cataract cases remains ECCE + PC IOL.

## Outcome of bilateral paediatric cataract surgery in a tertiary eye hospital in India



**Rohit Chandramohan Khanna**

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**Aim:** To look at the outcome of bilateral paediatric cataract surgery in a tertiary eye hospital in India.

**Methods:** The records of all children under 16 years, who had undergone bilateral cataract extraction between Jan 2001-Dec 2003, with a minimum follow-up of three months, were reviewed.

**Results:** 215/257 (83.7 per cent) patients were eligible. The mean age at presentation was 53 months (range: 0-168 months). Congenital cataract was present in 107 patients (58.2 per cent) and

developmental cataract in 77 patients (41.8 per cent). Aetiology was established in 49 patients (22.8 per cent), with the commonest being genetic (14.9 per cent). Pre-operatively, 102 patients (47.4 per cent) had visual acuity less than 6/60 in the better eye. Post-operatively, 37 patients (17.2 per cent) were less than 6/60 of which 19 patients (8.9 per cent) were less than 3/60, in the better eye. 85 patients (39.5 per cent) had visual acuity equal to or better than 6/18. The mean age at surgery was 55.2 months (range; 1-168 months). 269/430 eyes (62.6 per cent) had IOL implanted. The mean duration of follow-up was 13.1 months (range; 3-38 months). The most common early post-operative complication was fibrinous uveitis seen in 57 eyes (13.3 per cent) and the most common delayed post-operative complication was Posterior Capsular Opacification (PCO) seen in 118 eyes (27.4 per cent). The most important prognostic factor for poor outcome was congenital cataract (OR: 26.3; 95 per cent CI 4.4-158.5), especially, in those operated after one year of age. The other independent risk factor for poor prognosis was total cataract (OR: 4.8; 95 per cent CI 1.3-17).

**Conclusion:** Delay in treatment of congenital cataract is associated with poor prognosis. Hence a strategy for early detection and treatment is crucial.

## Vitamin A situation and ocular disorders in children's homes in Nairobi, Kenya



**Kahaki Kimani**

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**Aim:** To determine the vitamin situation and ocular disorders in children's homes in Nairobi.

**Methods:** A cross sectional survey was carried out among children living in seven children's homes in Nairobi. Ocular examination, anthropometric measurement and serum retinol analysis were carried out.

**Results:** 403 children aged below 16 years were examined. There were no cases of clinical xerophthalmia. However, serum retinol level was assessed in a representative sample of 36 children, and 47.2 per cent of them had serum retinol below 0.70 micromol/L indicating a subclinical vitamin A deficiency. Serum retinol level was strongly associated with duration in the home  $P < 0.0001$  but not with the nutritional status score. Only 5.2% of the children were known to have received vitamin A supplementation. 8.7 per cent of the children had ocular disorders with allergy and suspected refractive error being the commonest. 3.0 per cent of the children were undernourished.

**Conclusions:** Vitamin A deficiency exists in children's homes in Nairobi with VAD being significantly associated with duration in the home and age of the child. The main ocular disorders are suspected refractive error and allergy.

## Analysis of cataract needs in two provinces of Vietnam



**Mansur Syumarti**

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**Aims:** To analyse data from RACSS study which had been conducted in two provinces (Gialai and Haiphong) Vietnam.

**Methods:** Data collected in 2000-2001 from surveys had been entered to the package for RACSS. Using the EPI-Info 6.04D and RACSS DOS programmes, the data was analysed with each level of visual acuity (3/60, 6/60 and 6/18).

**Results:** Cataract is the major cause of bilateral blindness (82 per cent in Gialai, 69 per cent in Haiphong). The age and gender adjusted prevalence of bilateral cataract blindness ( $VA < 3/60$ ) in people of 50 years and older was 2.9 per cent (95 per cent CI: 2.1-3.7) in Gialai and 1.2 per cent (95 per cent CI: 0.6-1.8) in Haiphong, with Cataract

# 'Often the recommendations from dissertations get translated into action plans to reduce the burden of blindness in their communities'

Surgical Coverage of 34 per cent in Gialai and 66 per cent in Haiphong. For VA < 6/60 the prevalence of bilateral cataract adjusted by age and gender in this group was 7.3 per cent in Gialai and 5.7 per cent in Haiphong. In this last group the Cataract Surgical Coverage (eyes) was 19 per cent in Gialai and 34 per cent in Haiphong. Of the patients operated with IOL implantation, 16.6 per cent in Gialai and 11.5 per cent in Haiphong could not see 6/60. 86 per cent in Gialai and 55 per cent in Haiphong, of those operated without IOL, could not see 6/60. The main barrier to cataract surgery was lack of awareness in Gialai, and cost in Haiphong.

**Conclusions:** To increase the Cataract Surgical Coverage in Gialai and Haiphong we need to train ophthalmologists. Health promotion, health education, cost recovery system and subsidies need to be improved.

## The distribution of axial length among young adults in urban and rural regions of Mongolia



**Davaatseren Uranchimeg**

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**Aim:** To compare distribution of axial length of the globe of young adults aged 20 to 39 years living in urban and rural regions of Mongolia.

**Methods:** The electoral register was used as the sampling frame. Ulaanbatar city was selected as the urban study site, and Selenge Aimag was chosen as rural. Approximately equal numbers of men and women aged 20-29 and 30-39 were identified by stratified, clustered random sampling, with a total of 375 people chosen in each area. Axial length (AL) was measured using A-mode ultrasound. Visual acuity and refraction were also assessed.

**Results:** Among those selected, 568 (76 per cent) were examined. Ocular biometric data were available for 566 (99.6 per cent) subjects. Mean AL was 23.35 mm (95 per cent CI, 23.27, 23.43). There was no significant difference in AL between 20's and 30's in the rural area (23.23 vs. 23.15,  $P=0.77$ ), however, the AL was significantly longer among young people in the city (20's: 23.66 vs. 30's 23.37,  $P=0.02$ ). In a multiple regression model examining the association of age, sex, education, occupation, income, height and area of residence (urban vs. rural), only height ( $P < 0.001$ ) and education ( $P < 0.001$ ) were significantly associated with axial length. A unit increase in educational achievement (primary, secondary and college) was associated with a 0.36 mm increase in axial length. For a 10cm increase in height, there was a corresponding 0.27 mm increase in axial length.

**Conclusions:** Mean axial length appears significantly longer among young adults in a city environment, compared with those in rural areas. This difference is explicable on the grounds of differences in educational achievement and height.

## Development of QOL instrument for the assessment of low vision of people aged 30 years and above in Bangladesh



**Masud Zaman**

House 17, Road 1, Jail Road, Dhapa, Rangpur 5400, Bangladesh.

**Aim:** To review existing quality of life (QOL) instruments and to modify and validate one for use with Bangladeshi adults with low vision (aged 30 years and above).

**Methods:** This multi-method study used both qualitative and quantitative research methods in a sequential manner to identify the domains, to develop a QOL instrument and to validate the instrument

through pilot testing and re-testing.

**Results:** The designed instrument showed the average questionnaire items' relevance to people with low vision was higher than those with normal vision. It was also observed that there was good correlation between the items of the instrument. There was good percentage of agreement on item responses to establish reliability.

**Conclusions:** On the basis of our findings in the literature review and qualitative research, our study provides support that the QOL instrument developed by Ellwein et al. is simple, valid, and reliable. It can be used for the assessment for vision-specific quality of life of Bangladeshi adults with low vision.

## Systematic review: modelling the prevalence of blindness and visual impairment in the Caribbean



**Abiodun Ogunsola**

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**Aim:** To review all available evidence on the causes and prevalence of blindness and visual impairment in the Commonwealth Caribbean and Haiti, and the results extrapolated to the rest of the region focusing on VISION 2020 priority conditions.

**Methods:** Published literature from 1965 to 2004 were searched in Pub-Med, Med-Line, CAREC, Cochrane, LILACS, and MedCarib. Search terms: blindness, visual impairment, Caribbean Islands, West Indies, prevalence, the individual countries and combinations of these specific terms. CCB, OSWI, Caribbean Health Research Council, Government ministries and relevant personnel were approached for unpublished data/report for the region.

**Results:** The Barbados Eye Study (BES) was the largest and only population-based study to investigate blindness and visual impairment in black adults (>40 years), in the region. The results from BES were extrapolated to the rest of the region, using the confidence interval to obtain a range that contains the true estimate with 95 per cent certainty. Childhood blindness (CB) estimates were modelled on both the crude estimates deduced from the only published article on CB and the algorithm based on under five year old mortality rates. The second set of estimates gave an overall number of blind children for the Commonwealth Caribbean (CC) of 588, more than twice that of the first, 216. The available data on cataract surgical services in the CC showed a huge disparity in the CSR: 390 in St Lucia and 3,786 in Montserrat. There was a substantial inequality in the number of eye-care professionals, with six countries without a single ophthalmologist.

**Conclusions:** The region needs population-based surveys to assess the services in place for the VISION 2020 priority conditions, and more investment in human resources. A standardised method of data collection is required with a centralised database.



## Submissions to Exchange

*Community Eye Health Journal* invites readers to exchange views and experiences. In the Exchange section we include letters to the editor and short reports about prevention of blindness activities, achievements and

lessons from different countries. Examples of reports considered for publication include outstanding achievements of eye care programmes, interesting insights from eye care work, and summaries of research projects. Reports will normally be between 200 – 300 words, but submissions of up to 500 words will be considered. Please send your contributions to The Editor at the address on the inside cover page, or email [victoria.francis@ishtm.ac.uk](mailto:victoria.francis@ishtm.ac.uk) mentioning Exchange in your title.

# Highlights from the 7th General Assembly, International Agency for the Prevention of Blindness, Dubai 2004



Clare Gilbert, Chairperson of the IAPB Programme Committee, with Victoria Francis, Coordinator of the rapporteurs

Approximately 550 eye health professionals from nearly 80 countries gathered in Dubai for the 7th General Assembly of the International Agency for the Prevention of Blindness (IAPB). General Assemblies, held every four years, provide participants the opportunity to break from their busy routines and see the 'broader' picture of global prevention of blindness, update their knowledge, share experiences and unite around the VISION 2020 agenda. Participants contributed high quality Free Papers and 67 posters illustrating research findings and operational aspects of VISION 2020.

## Partnerships in eye care

The theme was 'Partnership in VISION 2020'. Partnerships within the World Health Organization (regional and national structures), International and National Non governmental Organisations, professional groups (ophthalmologists and optometrists) and the private sector received detailed attention. Additionally, this General Assembly raised awareness of partnerships with industry, the corporate sector and the media.

Dr Kaschke of the Carl Zeiss Group outlined a vision of long-term partnerships with the corporate sector founded on four pillars: technical and financial support, management expertise, marketing and public relations capability and a global presence.

This decade has seen some remarkable partnerships with pharmaceutical companies. Working in partnership with the WHO, World Bank, and International NGOs, Merck and Co. Inc. is committed to donating Mectizan® – *for as long as needed, wherever needed* – to help eliminate onchocerciasis as a major public health problem. The International Trachoma Initiative (ITI) is another partnership founded between Pfizer Inc. (producers of the antibiotic azithromycin) and the Edna McConnell Clark Foundation (a charitable foundation) with the mission of eliminating blinding trachoma by the year 2020.

The Standard Chartered Bank's 'Seeing is Believing' project began as a partnership with Sight Savers International and now includes four other NGO members of VISION 2020 in an initiative planning to implement flagship projects in Bangladesh, China, India, Indonesia, Kenya, Nigeria, Pakistan, Sri Lanka, Thailand and Vietnam.

The BBC World Service Trust's involvement in trachoma communication campaigns demonstrates that partnerships in media programmes can contribute to building capacity in production skills for print and electronic media.

## Progress with VISION 2020 priority diseases

### Cataract

- Data from the global database of Cataract Surgical Rates (the indicator used to measure the service delivery) of countries in WHO regions show a wide range in cataract surgical rates, with some countries in Asia achieving high outputs
- affordability, availability and quality of cataract surgical services are being addressed.

### Trachoma

- Trachoma control programmes in more than 37 countries
- definition of UIG (Ultimate Intervention Goals) and AIO (Annual Intervention Objectives) in most endemic countries
- public-private partnerships, for example, Pfizer has increased its Zithromax donation from 5 million to 135 million doses
- links between trachoma control and PRSP (Poverty Reduction Strategy Papers)
- Morocco, the Gambia, and Oman are approaching elimination goal.

### Onchocerciasis

- Integration of Community Directed Treatment with Ivermectin (CDTI) into primary health care and control of neglected diseases
- emphasis should now be given to reach those affected in conflict and post-conflict areas and in villages with very poor infrastructure
- continuing research to find macrofilaricides.

### Childhood Blindness

- Increased awareness
- decline in corneal scarring due to VAD control programmes and improved measles immunization coverage
- rapid assessment methods
- increasing numbers of training institutions for paediatric ophthalmology.

### Refractive Errors and Low Vision

- more data on the prevalence in different situations
- existence of the technology to solve this problem
- increasing efforts to deliver services through personnel, capacity and infrastructure.

These successes have been supported by human resource development and technology within VISION 2020.

## Care for people who are blind

Our responsibility to care for people who are blind can be overlooked. Christopher Friend's presentation of the Alan Johns Memorial lecture (in which the audience sat in total darkness), brought this issue home

powerfully. Eye care professionals need to be better oriented towards the feelings, needs and aspirations of people living with blindness. We should endorse, promote and act on a rights-based approach to inclusion.

## Looking to the future

Professor Sommer identified research opportunities in support of VISION 2020 as: epidemiologic risk profiles; operations research aimed at applying existing technology; and basic biology to understand causal pathways.

Dr Geeta Vemuganti described research in stem cell biology, and the exciting possibilities it offers for the future.

Dr Barbara Silverstone and Mary Ann Lang demonstrated ways in which information technology can be used not only to provide information to patients, clients and providers, but also to bring them together through telemedicine.

Professor Irene Maumenee described the use of human genome information in genetic blindness and outlined how information from genetic studies could be used in genetic counselling, prenatal diagnosis, pre-implantation diagnosis, population screening and developing treatment methods to reduce the impact from genes causing hereditary blindness.

The Assembly concluded with inspiring words from the Immediate Past President, Dr Hannah Faal, and the President Elect, Dr Gullapalli Rao.

In her President's Review, Dr Hannah Faal reminded the audience that IAPB's deadline of 2020 puts urgency into everything we will be doing.

*"Let each family in every community know enough about vision to take responsibility for ensuring their own eye health. Let us position ourselves to fit into and gain from the explosion in technology, particularly information and communication technology, without losing sight of the way communities have traditionally communicated with each other... We must be prepared to change and remain relevant to our populations."*

The incoming IAPB president, Dr Gullapalli Rao, highlighted the tremendous activity that has taken place since the launch of VISION 2020 in 1999 and emphasised the challenges that lie ahead. Dr Rao outlined a four-tier pyramid 'Infrastructure Model' for a sustainable eye care delivery system beyond the year 2020. Dr Rao also emphasised that in delivering eye care we should promote excellence and equity, so that everyone in the world has that fundamental Right to Sight.

### Acknowledgments

This report draws on key points by rapporteurs Amir Bedri, Ciku Mathenge, Mohammad Muhit, Daksha Patel, Babar Qureshi, Bindiganavale Shamanna, Abigail Suka, David Yorston and Andrea Zin. Thanks to Jyoti Shah for supporting their efforts.



Useful resources

**Wellcome Trust. Trachoma CD-ROM 2nd Edition: A guide to trachoma and the SAFE Strategy** (due 2005).

The 2nd edition of the popular Trachoma CD-ROM, part of the award-winning series of 'Topics in International Health' discs will be available in 2005. This fully revised and expanded edition will contain 10 highly visual interactive tutorials. Each tutorial includes key references and self-assessments. The CD-ROM also has a searchable image collection with over 200 high-quality images (each accompanied by a detailed description), and a broad, easy-to-use glossary of medical and scientific terms. This Trachoma CD-ROM 2nd edition is produced with support from The International Trachoma Initiative, Sight Savers International and Christian Blind Mission International.



Example from the Wellcome Trust Trachoma CD-ROM 2nd Edition

Information about this disc available from website:

[www.wellcome.ac.uk/tih](http://www.wellcome.ac.uk/tih), email: [pgih@wellcome.ac.uk](mailto:pgih@wellcome.ac.uk)

Postal address: PGIH (Trachoma 2nd edition CD-ROM), The Wellcome Trust, 215 Euston Road, London NW1 2BE.

Fax: +44 (0) 20 7611 8270. Please mark the fax TRACHOMA 2nd Ed CD-ROM.

**Reader survey prize draw**

The prize draw was conducted during the *Community Eye Health Journal* Editorial Committee meeting on 16th November 2004. The following five readers are our lucky winners of £50 publications vouchers from the ICEH Resource Centre:

- Lin Yan** Beijing, China
- Damião Alves de Aquino** Ceará, Brazil
- Tsebo Mose** Benue, Nigeria
- Wayan GDE Dharyata** Bali, Indonesia
- Ashfaq Ahmad Hafeez** Sargodha, Pakistan



**LONDON SCHOOL OF HYGIENE & TROPICAL MEDICINE**

**MSc Community Eye Health**

**Dates:** 26th September 2005 – 15th September 2006

**Cost:** £13,350 (overseas students)

**Venue:** The London School of Hygiene and Tropical Medicine

The MSc in Community Eye Health is designed to equip eye care professionals and planners with the knowledge and skills to reduce blindness and visual disability. Training in community eye health extends the training in clinical ophthalmology applied to individual patients, to a consideration of the eye health of whole populations – how these can be assessed, resourced and evaluated.

The course is designed in keeping with the aims, priorities and strategies of VISION 2020. VISION 2020 is a programme designed to eliminate avoidable and treatable blindness, globally, by 2020. Applicants are expected to be health care professionals involved in eye care, or to have appropriate technical qualifications and work experience.

Course duration is one year (full-time) and the course is available on a part-time basis over two years.

Further information: e-mail [MScCEH@lshtm.ac.uk](mailto:MScCEH@lshtm.ac.uk) or [registry@lshtm.ac.uk](mailto:registry@lshtm.ac.uk) Alternatively look at our websites [www.lshtm.ac.uk/courses](http://www.lshtm.ac.uk/courses) or [www.iceh.org.uk](http://www.iceh.org.uk)

Application forms are available from The Registry, 50 Bedford Square, London WC1B 3DP, UK.  
 Telephone: +44 (0)20 7927 2239,  
 fax: +44 (0)20 7323 0638,  
 e-mail: [registry@lshtm.ac.uk](mailto:registry@lshtm.ac.uk)  
 Website: [www.lshtm.ac.uk/courses](http://www.lshtm.ac.uk/courses)  
 Please quote Ref: JCEH.



**Royal College of Ophthalmologists**

17 Cornwall Terrace, Regent's Park, London NW1 4QE, UK

**EXAMINATION CALENDAR 2004/5 (UK & OVERSEAS)**

**UK EXAMINATION DATES**

Examination	Applications and Fees Due	Essay and/or MCQ Papers	Clinicals/Orals/OSES†/OSCES†
<b>Part 1 MRCOphth</b>	29 November 2004	24-25 January 2005	None
	28 February 2005	25-26 April 2005	None
	15 August 2005	10-11 October 2005	None
<b>Part 2 MRCOphth</b>	13 December 2004	7 February 2005	7-11 February 2005 (Dundee)
	11 Apr 2005	6 June 2005	6-10 June 2005 (Brighton)
	12 September 2005	7 November 2005	7-11 November 2005 (Manchester)
<b>Part 3 MRCOphth*</b>	10 January 2005	7 March 2005	7-11 March 2005 (Newcastle)
	18 July 2005	12 September 2005	12-16 September (Southampton)
<b>Diploma in Ophthalmology (DRCOphth)</b>	25 April 2005	20 June 2005	20-22 June 2005 (Oxford)
	29 September 2005	21 November 2005	21-23 November 2005 (London)

\*This examination has changed since September 2003: please contact the Examinations Department for further details

**INDIA EXAMINATION DATES: Aravind Eye Hospital, Madurai, Tamil Nadu, South India**

Provided a minimum of six candidates are booked to sit, the Parts 1, 2 and 3 Membership Examinations are scheduled to be held on the following dates

Examination	Applications and Fees Due	Essay and/or MCQ Papers	Clinicals/Orals/OSES†/OSCES†
<b>Part 1 MRCOphth</b>	28 February 2005	25-26 April 2005	None
<b>Part 1 MRCOphth</b>	15 August 2005	10-11 October 2005	None
<b>Part 2 MRCOphth</b>	15 August 2005	12 October 2005	12-13 October 2005
<b>Part 3 MRCOphth</b>	15 August 2005	13 October 2005	13-14 October 2005

\* Any changes in any of the above dates will be posted on the website and within application packs. †Objective Structured Examination and Objective Structured Clinical Examination.

Applications packs can be obtained from: Examinations Department at the above address

**Tel:** 00 44 (0) 20 7935 0702 (X 212, 211, 210) **Fax:** 00 44 (0) 20 7487 4674 **Email:** [exams@rcophth.ac.uk](mailto:exams@rcophth.ac.uk)

**Visit the College website** [www.rcophth.ac.uk](http://www.rcophth.ac.uk)



## Useful resources

Continued

### Community Eye Health Journal Issues on the theme of trachoma

Trachoma and the SAFE strategy. Community Eye Health Journal Vol. 12 Issue 32 1999.

Available on-line [www.jceh.co.uk](http://www.jceh.co.uk)

New hope for trachoma control. Community Eye Health Journal Vol. 7 Issue 14 1994. Available from ICEH

### Manuals

Francis V and Turner V. Achieving community support for trachoma control – a guide for district health work. Geneva: WHO; 1993. WHO/PBL93.36. Available in English and French. Available from World Health Organization and ORCEA

Negrel A D, Taylor H R, West S. Guidelines for the rapid assessment of blinding trachoma. Geneva: WHO; 2001. WHO/PBD/GET/00.8 Available from World Health Organization

Reacher M, Foster A, Huber J. Trichiasis surgery for trachoma – the bilamellar tarsal rotation procedure. Geneva: WHO; 1993. WHO/PBL/93.29. Available in English. Available from World Health Organization and ORCEA

Sutter E, Foster A, Francis V. Hanyane – A village struggles for eye health. London: Macmillan Publishers Ltd; 1989. Available in English and French.

Available from ICEH Price: £5.00 + post and packaging to developing countries

World Health Organization (WHO). The SAFE strategy: Preventing trachoma. A guide for environmental sanitation and improved hygiene. Geneva: WHO; 2000. WHO/PBD/GET/00.7 Available in English and French (bilingual publication).

Available from World Health Organization and ORCEA

World Health Organization (WHO). Trachoma Grading Card – a double-sided, illustrated card explaining a simplified grading system for recognising trachoma. Available in English only. Available from World Health Organization and ORCEA

Trachoma information materials in Portuguese. Available from Service De Oftalmologia Sanitaria

Sutton S, Nkoloma H. Encouraging change. This book aims to enable people to improve their well being through better water supply, water use, sanitation and hygiene. Available from TALC. Price: £6.00

Sutton S, Nkoloma H. Low cost water improvements. Available from TALC. Price £5.25

The TALC Fly Trap. Leaflet on how to make a simple trap to reduce the fly population. Available free from TALC

### Slides

#### ICEH Trachoma Slides/Text Teaching Series

Second edition 1999

This teaching set discusses risk factors for the transmission of Chlamydia trachomatis, clinical features of the eye disease using the simplified WHO classification, medical and surgical treatments and preventive measures including recommendations for personal and community hygiene and

sanitation. It particularly emphasises the SAFE strategy for the control of trachoma. Available from ICEH Price: £15 + post and packaging for developing countries; £20 + post and packaging elsewhere. Also available to download as a PowerPoint presentation, single Word document and image files from [www.iceh.org.uk/files/tsno7/start.htm](http://www.iceh.org.uk/files/tsno7/start.htm)

### ASTRA CD-ROM

ASTRA is a rapid and reliable tool for classifying communities according to the prevalence of active trachoma. If coupled with spatial sampling techniques the method may be used to map trachoma prevalence over wide areas at reasonable cost. Operational research into using ASTRA to map the wide area prevalence of trachoma is currently ongoing in Vietnam. A CD ROM describing the ASTRA method is available. This CD ROM provides training material (video, slides, and manuals), background documents, and data collections forms for the ASTRA method as well as easy to use software for developing LQAS sampling plans. The CD ROM is available free of charge. Available from Mark Myatt, Brixton Health, 8 China Street, Llanidloes, Powys SY18 6AB, Wales, UK Email: [mark@brixtonhealth.com](mailto:mark@brixtonhealth.com)

### Web sites

#### International Trachoma Initiative

[www.trachoma.org/home.asp](http://www.trachoma.org/home.asp)

Trachoma Information Service [www.kcco.net](http://www.kcco.net)

WHO Global elimination of trachoma meeting and workshop reports

[www.who.int/pbd/publications/trachoma/en/](http://www.who.int/pbd/publications/trachoma/en/)

BBC World Service Trust

[www.bbc.co.uk/worldservice/trust](http://www.bbc.co.uk/worldservice/trust)

This website provides a description and photographs of multimedia trachoma communication campaigns in Ghana, Ethiopia, Nepal and Niger developed by the BBC World Service Trust.

### Addresses for ordering resources

International Resource Centre, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.

Email: [sue.stevens@lshtm.ac.uk](mailto:sue.stevens@lshtm.ac.uk)

Website: [www.iceh.org.uk](http://www.iceh.org.uk)

World Health Organization WHO Marketing and Dissemination, Avenue Appia, CH – 1211, Geneva 27, Switzerland. Email: [bookorders@who.int](mailto:bookorders@who.int)

Website: [bookorders.who.int](http://bookorders.who.int)

Ophthalmic Resource Centre for Eastern Africa (ORCEA) Kilimanjaro Centre for Community Ophthalmology. P O Box 2254, Moshi, Tanzania. Email: [kcco@kcco.net](mailto:kcco@kcco.net)

Website: [www.kcco.net](http://www.kcco.net)

Service De Oftalmologia Sanitaria Avenida Dr. Arnaldo, 351 – 6 Andar, Cerqueira Cesar, Sao Paulo, SP CEP 01246 – 902, Brazil. Fax: +55 11 853 3085 5962

Email: [nhm2@ig.com.br](mailto:nhm2@ig.com.br) [dvoftal@saude.sp.gov.br](mailto:dvoftal@saude.sp.gov.br)

Website: [www.cve.saude.sp.gov.br](http://www.cve.saude.sp.gov.br)

Teaching Aids at Low Cost (TALC) PO Box 49, St Albans, Hertfordshire, AL1 5TX, UK. Email: [info@talcul.org](mailto:info@talcul.org)

Website: [www.talcul.org](http://www.talcul.org) Fax: 44 1727 846852

## WHO simplified trachoma grading system



John Anderson

### TF Trachomatous Inflammation – Follicular

The presence of five or more follicles in the upper tarsal conjunctiva



Allen Foster

### TI Trachomatous Inflammation – Intense

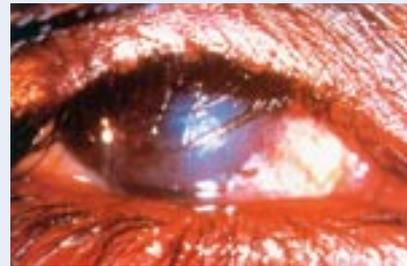
Pronounced inflammatory thickening of the tarsal conjunctiva that obscures more than half of the normal deep tarsal vessels



Hugh Taylor

### TS Trachomatous Scarring

The presence of scarring in the tarsal conjunctiva



WHO

### TT Trachomatous Trichiasis

At least one eyelash rubs on the eyeball or evidence of recent removal of inturned eyelashes



John Anderson

### CO Corneal Opacity

Easily visible corneal opacity over the pupil

Journal design by Lance Bellers

## Community Eye Health

# JOURNAL

Supported by:



Christian Blind Mission International



Sight Savers International



Dark & Light Blind Care



Conrad N. Hilton Foundation



(BCPB)



Tijssen Foundation



International Trachoma Initiative

## Next issue



The next issue of the *Community Eye Health Journal* will be on the theme **Red eye – the primary eye care approach.**

### Note from the Editor

*Community Eye Health Journal* has had a ‘face lift’ but not a change of content. Our new design helps us to include more content and present it in a way which can easily be used for training or adaptation. Hope you like it!

