

## 8<sup>th</sup> General Assembly of IAPB

### Contributing to achieve the goal of VISION 2020



**Peter Ackland**

Chief Executive, International Agency for the Prevention of Blindness (IAPB), London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.

Most readers of this journal will have heard of the International Agency for the Prevention of Blindness (IAPB), but they may not be aware of exactly what the organisation does and how it functions. The purpose of this article is to give a brief overview of what IAPB does and how it contributes to the elimination of avoidable blindness in the world.

The IAPB was established in 1975 as a coordinating umbrella organisation to lead international efforts in the prevention of blindness.

IAPB presently has 97 members, which include: the major international non-governmental development organisations (NGDOs) involved in eye health, the international professional bodies representing ophthalmologists and optometrists, universities, World Health Organization (WHO) collaborating centres, some national eye care NGDOs, and five major corporate institutions that fund VISION 2020 programmes.

IAPB's member organisations collectively deliver more than 1,500 eye health



Mamoun Mirghani

**Patients waiting at an eye camp: 64% of people who are blind in the world today are women. SUDAN**

programmes, in coordination with more than 1,000 partners in over 100 countries.

IAPB is the key partner that works on the VISION 2020 initiative with WHO, in particular the WHO prevention of blindness and deafness unit (PBD). This close association, added to its knowledge of eye health programmes based upon the experience of its member organisations, means that IAPB is uniquely placed to provide strategic leadership to VISION 2020. Its work adds value and contributes to the achievement of the initiative in the following specific areas: knowledge and expertise, advocacy, promotion of VISION 2020 programmes for the prevention of blindness, and coordination.

### Knowledge and technical expertise

IAPB provides knowledge and technical expertise to support the development of quality eye health programmes.

### VISION 2020 workshops

IAPB works in partnership with the International Centre for Eye Health (ICEH) to deliver annually more than twenty workshops that promote VISION 2020 around the world.

Topics include planning at national and district levels, specific disease control approaches, and advocacy.

So far, 150 countries have participated

*Continues overleaf* ►

#### IN THIS ISSUE

- Contributing to achieve the goal of VISION 2020**  
Peter Ackland
- Excellence and equity in eye care**  
Nick Astbury
- Blindness and cataract in children in developing countries**  
Parikshit Gogate and Mohammad Muhit

- Converting from ECCE to SICS**  
Nick Astbury
- Blindness and visual impairment due to retinal diseases**  
Shaheen Shah
- Perspectives on primary eye care**  
GVS Murthy and Usha Raman
- Human resources for eye care: changing the way we think**  
Usha Raman

#### EXCHANGE

- A new clamp for bilamellar tarsal rotation for trachomatous trichiasis**  
Keith Waddell
- Vision loss and visual hallucinations: the Charles Bonnet syndrome**  
Paddy Ricard
- HOW TO**
- Administering a subconjunctival injection**  
Sue Stevens
- NEWS AND NOTICES**

Supporting VISION 2020: The Right to Sight



The journal is produced in collaboration with the World Health Organization



Volume 22 | Issue 69 | March 2009

#### Commissioning editors for Issue 69

Dr Nick Astbury and Dr Usha Raman

#### Content editors for Issue 69

Dr Nick Astbury and Dr Paddy Ricard

Elmien Wolvaardt Ellison is currently on maternity leave

#### Editorial committee

Dr Nick Astbury  
Professor Allen Foster  
Professor Clare Gilbert  
Dr Murray McGavin  
Dr Ian Murdoch  
Dr GVS Murthy  
Dr Daksha Patel  
Dr Richard Wormald  
Dr David Yorston

#### Regional consultants

Dr Sergey Branchevski (Russia)  
Dr Miriam Cano (Paraguay)  
Professor Gordon Johnson (UK)  
Dr Susan Lewallen (Tanzania)  
Dr Wanjiku Mathenge (Kenya)  
Dr Joseph Enyegue Oye (Francophone Africa)  
Dr Babar Qureshi (Pakistan)  
Dr BR Shamanna (India)  
Professor Hugh Taylor (Australia)  
Dr Min Wu (China)  
Dr Andrea Zin (Brazil)

#### Advisors

Dr Liz Barnett (Teaching and Learning)  
Catherine Cross (Infrastructure and Technology)  
Dr Pak Sang Lee (Ophthalmic Equipment)  
Sue Stevens (Ophthalmic Nursing)

**Editorial assistant** Anita Shah

**Design** Lance Bellers

**Printing** Newman Thomson

**Online edition** Sally Parsley

**Email** [web@cehjournal.org](mailto:web@cehjournal.org)

#### Information service

**Email** [jenni.sandford@lshtm.ac.uk](mailto:jenni.sandford@lshtm.ac.uk)

#### Website

Back issues are available at:

[www.cehjournal.org](http://www.cehjournal.org)

#### Subscriptions and back issues

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

**Tel** +44 207 612 7964/72

**Fax** +44 207 958 8317

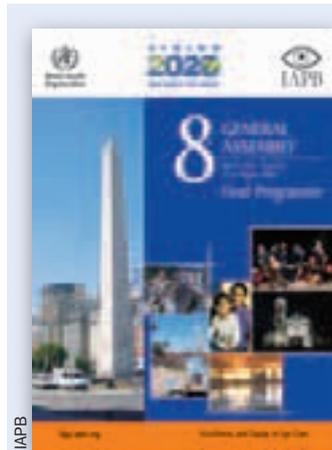
**Email** [admin@cehjournal.org](mailto:admin@cehjournal.org)

The *Community Eye Health Journal* is published four times a year and sent **free to applicants from low- and middle-income countries**. French, Spanish, and Chinese translations are available and a special supplement is produced for India (in English). Please send details of your name, occupation, and postal address to the *Community Eye Health Journal*, at the address above. Subscription rates for applicants elsewhere: one year UK £50; three years UK £100. Send credit card details or an international cheque/banker's order made payable to London School of Hygiene and Tropical Medicine to the address above.

© International Centre for Eye Health, London  
Articles may be photocopied, reproduced or translated provided these are not used for commercial or personal profit. Acknowledgements should be made to the author(s) and to *Community Eye Health Journal*. Woodcut-style graphics by Victoria Francis.

ISSN 0953-6833

The journal is produced in collaboration with the World Health Organization. Signed articles are the responsibility of the named authors alone and do not necessarily reflect the policies of the World Health Organization. The World Health Organization does not warrant that the information contained in this publication is complete and correct and shall not be liable for any damages incurred as a result of its use. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned.



### Note from the Editors: about this issue

This issue of the *Community Eye Health Journal* reports on a selection of themes discussed during the 8<sup>th</sup> General Assembly of IAPB (25–28 August 2008). The articles from pages 4 to 12 do not generally contain original results from the authors; they are reports inspired by specific sessions, courses, or symposia which took place during the General Assembly. Relevant details are indicated in the blue panel at the beginning of each article.

To view the Book of Abstracts from the 8<sup>th</sup> General Assembly, go to: [www.v2020.org/publications-IAPB](http://www.v2020.org/publications-IAPB)

For more information about the original presentations, email: [communications@v2020.org](mailto:communications@v2020.org)

in these workshops and 104 have developed a national VISION 2020 plan. In the future, we hope that the IAPB regions and national coordinators for blindness control will provide us with greater input as to workshop topics and target audiences.

#### Specialist committees

A number of IAPB specialist programme committees advise and promote best practice based upon the practical experience of our members' eye health programmes throughout the world.

Presently, there are committees for human resource development, technology, cataract, low vision, refractive error, and childhood blindness. Discussion groups also exist to share experience on gender, sustainability, partnership, and primary eye care.

In the future, our intention is to disseminate the work of these committees more widely, for example by creating a dedicated section on the VISION 2020 website<sup>4</sup> where all key documents and information will be accessible.

#### Advocacy

IAPB is involved in advocacy at different levels. It aims to achieve policy change, so that eye health can be integrated, and given greater priority, within national health care services.

#### Advocating at WHO level

IAPB has worked with the IAPB East Mediterranean regional chairperson and his team and the WHO PBD unit to secure greater recognition of the importance of blindness control work within WHO structures.

Our advocacy efforts have already yielded impressive results. The 2006 World Health Assembly resolution 59.25 requested that prevention of blindness and visual impairment be added to WHO's medium-term strategic plan 2008–13, thus giving greater priority to the prevention of blindness on the global health agenda. It built on the earlier achievement of resolution 56.26 in 2003, which urged all member states to set up national plans by 2005.<sup>2</sup>

At the next World Health Assembly, in May 2009, it is expected that a WHO action plan for the control of avoidable blindness will be approved. This will greatly enhance the

importance attached to VISION 2020 within the WHO system and will make WHO a stronger ally to promote the initiative at country level.

#### Gathering evidence

IAPB also draws together the evidence that will help us to argue more effectively for prioritising resources to support VISION 2020 national plans.

For example, IAPB produced a document linking the prevention of blindness with the achievement of the United Nations' millennium development goals (MDGs),<sup>3</sup> particularly the alleviation of poverty (MDG 1). This is a powerful advocacy message, which can be promoted by IAPB and its members.

#### World Sight Day

IAPB promotes World Sight Day, the key date in our annual calendar to promote awareness of VISION 2020. In 2009, the main theme will be gender. In 2010, when WHO releases new figures on the prevalence of global visual impairment, the theme will be 'State of the world's sight'. Both these themes will provide exciting opportunities for advocacy.

#### Promotion of VISION 2020 programmes

IAPB has been successful in negotiating and subsequently coordinating arrangements with a number of donors to support VISION 2020 development programmes. These are then implemented by IAPB member organisations with local partners.

Such programmes include: the Standard Chartered Bank's 'Seeing is Believing' programme, which is providing more than US \$30 million for rural and urban comprehensive eye care programmes; the Eye Fund, which will provide US \$18 million to eye hospitals and IAPB members, in the form of low-interest loans, to enhance their VISION 2020 activities; the Carl-Zeiss IAPB training centre programme, which will provide US \$1 million for the development of five training centres to enhance the quality of training of ophthalmic personnel; and the Optometry Giving Sight initiative, which raises funds to develop refractive error programmes.

## Coordination

The success of VISION 2020 depends on the contributions of many different stakeholders, including WHO, national and local governments, the private sector, the not-for-profit sector, and local communities. It is therefore essential to have in place:

- a good exchange of information
- coordination
- collaboration.

IAPB has a key role in ensuring that these three elements are in place and that all stakeholders work to a common agenda.

Our website,<sup>4</sup> which we supplement with regular electronic newsletters to our members, is an important source of information. We also hold a Council of Members' meeting annually and a General Assembly every four years.

## Conclusion

Much has been achieved over the first ten years of VISION 2020, but a great deal more is required if we are to realise our ambition to eliminate avoidable blindness by the year 2020.

It is progress at the regional and national levels that will actually lead us to the goals of VISION 2020. Our advocacy work needs to reach a larger number of decision makers, particularly in countries and regions where the level of avoidable blindness continues to be high.

We need to attract new funding to support our aspirations to expand our regional presence and, to do this, we need to be better at communicating with potential supporters. When resources allow, we intend to ensure that the regional structure of IAPB is strengthened (see below), so that all regions have a full-time regional coordinator, as presently only the West Pacific and Latin America regions are represented.

Above all, we must continue to develop the many partnerships that already exist and craft new relationships – by working together, we can achieve so much more.

## Plans for strengthening the regional structure

- Appoint a full-time coordinator in every region
- Provide better support to national prevention of blindness committees and coordinators, through training and visits.
- Make VISION 2020 programme information available through regional websites.
- Bring key stakeholders together at regional and subregional levels to share best practice and promote coordination amongst the many agencies involved.
- Encourage collaborative VISION 2020 development programmes and help to broker implementation funding for IAPB members and their partners.
- Promote a collaborative approach to our advocacy work.

### References

- 1 [www.vision2020.org](http://www.vision2020.org)
- 2 [www.iapb.org/WHA\\_59/WHA\\_progress.doc](http://www.iapb.org/WHA_59/WHA_progress.doc)
- 3 [www.iapb.org/review\\_pub.htm](http://www.iapb.org/review_pub.htm)
- 4 [www.iapb.org](http://www.iapb.org)

## Excellence and equity in eye care



**Nick Astbury**

Consultant Ophthalmic Surgeon,  
Norfolk and Norwich University  
Hospital NHS Trust, Colney Lane,  
Norwich NR4 7UY, UK.

The theme of the 8<sup>th</sup> General Assembly was 'Excellence and equity in eye care' – superlative sound bites perhaps, but when those words are considered in the context of VISION 2020, they take on a meaning that should define all our efforts to combat avoidable blindness.

### Striving for excellence

Allen Foster, in his inspiring 'Sir John Wilson' oration, urged that excellence should mean more than simply quality in clinical care or the latest technology.

Excellence, he said, should involve aspiring for the ideal in research, management, evidence-based clinical practice, and non-clinical patient care. It should be both our individual and corporate goal. Everyone involved in eye care should not compromise their own high standards in striving for excellence in their work.

Of course, there are many barriers to overcome, not least the lack of infrastructure and resources that besets so many developing countries. But that is no reason not to strive for excellence and respect the basic human right of all individuals to receive high-quality eye care.

### VISION 2020 is as important as ever

GN Rao, in his address to the Assembly, defined excellence in terms of concept planning, infrastructure, quality of human resources, and operating systems – in fact, all the building blocks of VISION 2020 that require the use of 'heart, head and hands'.

He wrote in 2005<sup>1</sup>: "70% of the population [in developing countries] live in rural areas, about half of whom are economically deprived with significant social barriers. There are very poor public education or information systems and funding for blindness programmes in most of these countries is virtually non-existent."

There has been little improvement since and, in 2009, the need for VISION 2020: The Right to Sight remains as acute as ever.

### Equity and moral justice

Equity is about the fair distribution of resources throughout a group of people according to population, not individual, need. Equity means not discriminating between people of different ethnicity, religion, age, gender, or social class, and delivering services in an acceptable, accessible, and affordable way. Equity, Foster reiterated, is a right founded on moral justice.



**Worldwide, visual outcomes of cataract surgery are still a cause for concern. SOMALIA**

### Challenges to service delivery

Two recent papers illustrate the challenges that we still face in the delivery of an excellent and equitable service.

A review by Hans Limburg et al. of recent surveys on blindness and visual impairment in Latin America<sup>2</sup> analysed data from nine countries and concluded that 43% to 88% of all blindness in Latin America is curable, being caused by cataract and refractive errors. Although simple and cost-effective strategies do exist, they need to be made available to more people. In addition, the visual outcomes of cataract surgery in most of the survey areas gave cause for concern, particularly in the case of cataract surgery without intraocular lens implantation.

The Pakistan national blindness and visual impairment survey<sup>3</sup> revealed a prevalence of total blindness more than three times higher in poor clusters than in affluent clusters. It also showed that, in poor communities, the cataract coverage and uptake of spectacle provision were less than half compared with rich communities. Inequity of access is an important factor even for relatively straightforward interventions such as the provision of spectacles.

### Conclusion

The ideals of excellence and equity are no less relevant in developing countries than they are in Europe and the West. All patients are equally deserving of the same high standard of care.

### References

- 1 Rao GN. Eye care delivery for VISION 2020. International Congress Series (2005);1282: 275–277.
- 2 Limburg H, von-Bischhoffshausen F, Gomez P, Silva J C, Foster A. Review of recent surveys on blindness and visual impairment in Latin America. *Br J Ophthalmol* 2008;92: 315–319.
- 3 Jadoon MZ, Dineen B, Bourne RRA, Shah SP, Khan MA, Johnson GJ, Gilbert CE, Khan MD on behalf of the Pakistan National Eye Survey Study Group. Prevalence of blindness and visual impairment in Pakistan: the Pakistan National Blindness and Visual Impairment Survey. *Br Med J* 2008;336: 29–32.



# Blindness and cataract in children in developing countries

## 8<sup>th</sup> General Assembly of IAPB

**Course 2:** Congenital and developmental cataract

**Speakers:** Paul Courtright, Parikshit Gogate, Kuldeep Dole, Mohammad Muhit, Khumbo Kalua, Andrea Zin, Elizabeth Kishiki, Rohit C Khanna

**Session:** Childhood blindness

**Speakers:** Pablo Cibils, Mohammad Muhit, Anna Rius, Deepti Bajaj, Marcela Frazier, M Alamgir Hossain



**Report by:**  
**Parikshit Gogate**

Head, Department of Paediatric Ophthalmology, Community Eye Care, HV Desai Eye Hospital, Pune 411 028, India.  
Email: [parikshitgogate@hotmail.com](mailto:parikshitgogate@hotmail.com)



**Mohammad Muhit**

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

Blindness in children is considered a priority area for VISION 2020, as visually impaired children have a lifetime of blindness ahead of them.<sup>1</sup> Various studies across the globe show that one-third to half of childhood blindness is either preventable or treatable<sup>1</sup> and that cataract is the leading treatable cause of blindness in children.<sup>2</sup>

The 8<sup>th</sup> General Assembly of the International Agency for the Prevention of Blindness (IAPB) provided an opportunity to be acquainted with recent research and programme development work in the prevention of childhood blindness.

## Obtaining population-based data on childhood blindness

Population-based data on childhood blindness are required in order to plan control strategies, but they are difficult to obtain:

- As childhood blindness is ten times rarer than blindness in adults, population-based surveys require a very large sample size.
- Examining blind children in a field study requires special expertise, a trained field team, and special equipment.
- Visual acuity measurement is difficult in very young children and involves special test materials or charts.
- In many communities, blind children are hidden because of stigma.

Methods used for identifying blind children generally target specific locations where children may be found, in

order to increase the chances of finding blind children. These methods include examining children in *anganwadis* (kindergartens), schools, vision centres, paediatric eye care centres, and during special outreach initiatives such as *sarva siksha abhiyan* ('education for all'). The 'key informant' method is another means of finding blind children.

### The key informant method

This novel method of obtaining population-based data on childhood blindness has been piloted in Bangladesh, Ghana, Malawi, and Iran.<sup>3,4,5,6</sup>

A study in Bangladesh, in which over 75,000 children were screened, compared the key informant and the house-to-house methods. It showed that key informants were able to identify almost two-thirds of all blind children in the study population, and that this required only one-sixth of the time and one-sixth of the human resources, compared to a house-to-house survey. Causes of blindness in children found with both methods were also comparable.

In densely populated Bangladesh, where community network structures are well developed, the key informant approach has shown that there are thousands of children with unoperated cataracts. This approach has also been successful in countries that are less densely populated, such as Ghana and Malawi.<sup>4,5</sup>

The key informant method provides a way to conduct large-scale population-based studies on childhood blindness in resource-poor countries, in order to obtain valid data on prevalence and causes, which can then be used to plan programmes and policies.

This method is quick, cost-effective, and involves community participation. All the other methods listed above have not proved so useful to detect children with cataract, with the exception of the *sarva siksha abhiyan* scheme, which also uses schoolteachers and health care workers as informants.

## Developing programmes to control blindness and cataract in children

Visual impairment in children can have an impact on their performance at school, as well as their social interaction and development. Promoting eye health in children and ensuring early detection of visual impairment is an important part of general eye health and child health strategies.

Since the launch of VISION 2020, various programmes have been developed in resource-poor countries to control blindness and cataract in children. Speakers presented a selection of pilot or established programmes in Latin America and Asia.

### Latin America

Vision screening in children is gaining popularity in many low- and middle-income countries, although there is very limited data available on its effectiveness and impact.

In Brazil, paediatricians have been enlisted to identify leukocoria using the red reflex test. This approach, described by Andrea Zin, has been successful because in this middle-income country most births are institutionalised and almost all children are seen in their infancy by a paediatrician.

Anna Rius presented a pilot project in Nicaragua and El Salvador, which was undertaken to develop and utilise campaign and educational materials in order to train and sensitise schoolteachers and nurses on children's eye health. The project showed that locally developed or adapted training and campaign materials can contribute effectively to a sustainable programme for the promotion of child eye health.

Another pilot study, in Nicaragua, trained teachers and volunteer nurses to screen the vision of schoolchildren. Marcela Frazier presented a study of its long-term outcome. During the pilot project, 5,673 children were screened by

nurses and schoolteachers, 376 of whom were then referred to an optometrist; 96 required and received new spectacles. A year later, the follow-up study retraced 51 of those 96 children on a randomly selected day and found that only ten were wearing their spectacles. Further research is needed to determine whether additional education or other factors can improve compliance with spectacle wearing among schoolchildren.

Child Sight Foundation



Finding blind children from the community. BANGLADESH

# Surgical management of childhood cataract

Childhood cataract, congenital or developmental, can be readily treated. However, the surgical management of cataract in children is different from that of adults and the postoperative follow-up takes longer and is more complex.

## Early recognition of childhood cataract

Early treatment is crucial. Delays in recognition and subsequent surgery can lead to amblyopia later in life. A Tanzanian study showed that there was an 18-month delay between recognition of cataract and surgery.<sup>1</sup>

Barriers to early cataract surgery in children include:

- Lack of awareness amongst parents, especially in rural settings.
- Asymptomatic children who regard their poor vision as 'normal'.
- Lack of paediatric or anaesthetic services in the region.
- Cost of surgery.
- Lack of awareness amongst general practitioners, paediatricians, and even ophthalmologists, which means that parents may be wrongly advised to 'wait' until the child is older.
- Fear of surgery amongst parents, due to concern about the risk of anaesthesia or the experience of poor results in other operated children.
- A belief amongst parents that congenital blindness (including congenital cataract) is simply not treatable.

## Preoperative evaluation

It should include:

- visual acuity
- intraocular pressure
- keratometry
- biometry (under general anaesthetic if necessary)
- external ocular and fundus examination
- B-scan for opaque media (to rule out ocular morbidity, such as microphthalmos, coloboma, primary persistent hyperplastic vitreous, uveitis, or tumour).

## India

Deepti Bajaj presented the childhood blindness programme in India which was initiated by ORBIS to support the Indian government's goal to create 50 paediatric eye care centres by 2010. Strategies included: creating a child-friendly environment in eye care facilities, training paediatric eye care teams, supplying appropriate technology and essential equipment for paediatric eye care, empowering local communities in case detection, and educating parents on childhood eye diseases and their prevention.

Between 2002 and 2008, ORBIS worked with 24 eye care partners to establish paediatric eye care centres in India, which will have a long-term impact on reducing avoidable blindness in children.

## Surgery

Paediatric cataract surgery is just one intervention in a series of steps needed to restore the child's vision. The surgery is challenging because the sclera is less rigid and the anterior capsule is elastic. It may be complicated by intraocular haemorrhage or posterior capsule rupture.

- It is widely accepted that cataract extraction with primary intraocular lens (IOL) implantation is safe and effective when performed in children over the age of two by a specialised paediatric surgeon.\*
- IOLs may be implanted earlier for unilateral cataracts, to reduce the likelihood of amblyopia.
- As the nucleus is invariably soft, the cataract can be aspirated using a Simcoe cannula or an automated irrigation/aspiration probe.
- A primary posterior capsulotomy with anterior vitrectomy is essential up to the age of six and may be necessary in older children if no follow-up is available.
- In-the-bag placement of the IOL is crucial to prevent decentration and capture.
- The wound must always be sutured, even if it is a 2 mm sideport.

## Postoperative care

Postoperative care and follow-up is extremely important – at least as important as the surgery itself.

- Postoperative inflammation and posterior capsular opacification are very common. Steroid antibiotic drops are required postoperatively for up to two months, in addition to a cycloplegic for the first two weeks. Oral steroids may be required for the first week. An early Nd YAG laser capsulotomy can be performed in older children.
- An accurate refractive correction must be given at first follow-up and amblyopia therapy started in the form of patching the good eye. School-age children need a pupil-split bifocal to take care of their near tasks, but younger children can simply be overcorrected for near.

## Bangladesh

MA Hossain described the large-scale programme developed by Sightsavers and ORBIS to control cataract blindness in children in Bangladesh. Since its launch in 2004, a total of 6,562 children with cataract have been identified and 90% of them have received sight-restoring surgery.

## Conclusion

Blindness and cataract in children remain a major challenge in resource-poor countries. Significant work has been done to tackle this problem in terms of research and programme development. We now need to use the expertise and knowledge gained to develop larger and better programmes to achieve the target of VISION 2020, which is



Young boy with cataract blindness. BANGLADESH

- Three-monthly review is recommended during the first year and an annual review thereafter.

## Counselling parents

Counselling parents at various stages of care for paediatric cataract should be an integral part of the service.

Parents should be made aware of the importance of postoperative care and of refraction before and after surgery.<sup>2</sup> Using key informants, not only for detection, but also to encourage and motivate parents to comply with long-term and regular follow-up, has also been very successful in a large-scale programme in Bangladesh.

## References

- 1 Mwende J, Bronsard A, Moshia M, Bowman R, Geneau R, Courtright P. Delay in presentation to hospital for surgery for congenital and developmental cataract in Tanzania. *Br J Ophthalmol* 2005;89: 1478–1482.
- 2 Erickson JR, Bronsard A, Moshia M, Carmichael D, Hall A, Courtright P. Predictors of poor follow-up in children that had cataract surgery. *Ophthalmic Epidemiol* 2006;13(4): 237–243.

## \*Note from the Editors

A forthcoming study by the British Isles Congenital Cataract Interest Group (BCCIG) has shown that primary IOL implantation in children under the age of two has been widely adopted among the relatively small number of paediatric ophthalmologists who manage these children in the UK and Ireland. There is concordance in practice with regards to surgical technique, choice of IOL model, and choice of power calculation formula. However, variation exists in eligibility criteria. A national study is now underway through the BCCIG to systematically measure the outcomes and predictors of outcomes of primary IOL implantation in children under the age of two. Lola Solebo A, Russell-Eggitt I, Nischal KN, Moore AT, Rahi JS, on behalf of the British Isles Congenital Cataract Interest Group (BCCIG). Forthcoming paper.

to halve the prevalence of childhood blindness and to eliminate cataract blindness in children.

## References

- 1 Rahi JS, Gilbert CE, Foster A, Minassian D. Measuring the burden of childhood blindness. *Br J Ophthalmol* 1999;83: 387–388.
- 2 Gilbert C, Muhiit M. Twenty years of childhood blindness: what have we learnt? *Community Eye Health J* 2008;21(67): 46–7.
- 3 Muhiit MA, Shah SP, Gilbert CE, Hartley SD, Foster A. The key informant method: a novel means of ascertaining blind children in Bangladesh. *Br J Ophthalmol* 2007;91: 995–999.
- 4 Boye J. Validating the key informant method in detecting blind children in Ghana. *Community Eye Health J* 2005;18(56): 131.
- 5 Kalua K, Patel D, Muhiit M, Courtright P. Causes of blindness among children identified through village key informants in Malawi. *Can J Ophthalmol* 2008;43(4): 425–7.
- 6 Razavi H. Childhood blindness: piloting the key informant method in Lorestan Province, Iran. *Community Eye Health J* 2008;21(68): 65.



# Converting from ECCE to SICS

## 8<sup>th</sup> General Assembly of IAPB

**Course 14:** Converting from ECCE to manual SICS

**Speakers:** RD Ravindran, Felipe Chiriboga, Reggie Seimon, Rainald Duerksen, Albrecht Hennig



**Report by:**

**Nick Astbury**

Consultant Ophthalmic Surgeon, Norfolk and Norwich University Hospital NHS Trust, Colney Lane, Norwich NR4 7UY, UK.

## Introduction

Cataract continues to be the cause of almost half the cases of blindness worldwide and the challenge to meet the needs and develop the required resources is as great as ever.

Cataract surgery has evolved from couching, first practised several thousand years ago, through intra- and extracapsular extraction (ECCE), to phacoemulsification. However, whatever the technique, the most important aspect is the outcome for patients. Today, the focus is more and more on excellence, which was one of the central themes of the 8<sup>th</sup> General Assembly.

Good outcomes depend upon teamwork, appropriate surgical technique, and the expertise of the individual surgeon.

Outcomes using small incision 'non-phaco' techniques have been encouraging in settings where large volumes of surgery have been undertaken.<sup>1</sup> Manual small incision cataract surgery (SICS) offers better outcomes than ECCE and provides results equally as good as phacoemulsification ('phaco'), while being faster, cheaper, and less dependent on technology.<sup>2</sup> It is therefore more appropriate for tackling cataract in low- and middle-income countries.

In developing countries, most surgeons are skilled in ECCE and would benefit from training to convert to SICS (see box). The availability of surgical training for SICS is becoming an increasingly important factor: indeed, 'phaco' surgeons have become more sophisticated in a technique that is inappropriate for tackling cataract on a global scale, and they are not best placed to teach small incision non-phaco techniques.

Increasingly, the focus of expertise in manual SICS is to be found in India, Pakistan, Nepal, Africa, or Latin America.

## Advantages of SICS versus ECCE<sup>a</sup>

- 1 Shorter surgical time
- 2 Fewer instruments used
- 3 Cheaper
- 4 Faster visual recovery.



Albrecht Hennig

**High-volume SICS cataract surgery. NEPAL**

The course on converting from ECCE to SICS featured four surgeons from Paraguay, Ecuador, Nepal, and India, all experts in manual SICS.

The speakers offered a glimpse of the variety of SICS techniques which have evolved in different parts of the world and discussed the best way to convert from ECCE to SICS.

## A variety of SICS techniques

### Paraguay

Rainald Duerksen described the manual small incision technique used at the Fundación Visión:

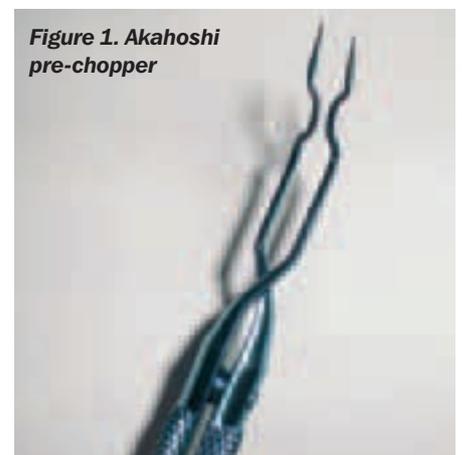
- 6–8 mm straight incision 3 mm from the limbus, with a 15 Beaver blade
- a three-plane, self-sealing, long tunnel (important to avoid iris prolapse)
- entry with a 2.75 or 3 mm crescent blade
- 5–6 mm capsulorhexis with either a 27 G needle or Utrata forceps
- hydrodissection and mobilisation of the nucleus
- injection of viscoelastic above and below the nucleus
- loop extraction of the nucleus
- cortical aspiration with a Simcoe cannula
- insertion of a polymethyl-methacrylate intraocular lens (IOL).

Duerksen outlined the difficulties for trainees learning to convert to SICS. These included premature entry, an incomplete capsulorhexis and tearing of the posterior capsule, or creating a zonular dialysis whilst attempting to mobilise the nucleus.

### Ecuador

Felipe Chiriboga, from the Fundación Oftalmológica del Valle, also described a high-quality, low-cost, SICS technique suitable for all types of nuclei. Features of his technique included:

- topical and intracameral anaesthesia
- inverted smile incision to reduce astigmatism (which should be 1 mm wider when the surgeon is learning the technique)
- use of methylcellulose as a viscoelastic
- rotation of the nucleus with a Jaffe-Bechert nucleus rotator introduced through a 6 o'clock paracentesis
- fracture of the nucleus using an Akahoshi pre-chopper (Figure 1).



**Figure 1. Akahoshi pre-chopper**

Felipe Chiriboga

Chiriboga stressed the importance of using two different pre-choppers: a sharp one for harder nuclei and one with a wider point for softer cataracts.



Figure 2. Nucleus extraction using a 'fish-hook'

### Nepal

A 'fish-hook' made from a 30G needle (Figure 2) has now become well known as a cheap, reusable, and very effective instrument with which to remove the lens nucleus.<sup>3</sup> Albrecht Hennig developed the technique in 1997 and over 375,000 operations have since been carried out in this manner at Lahan, in Nepal.

Hennig stressed the advantages of the fish-hook technique:

- it is easy to learn
- the hook can be made from a bent 30G needle
- it requires a small tunnel.



Figure 3. Frown incision

### India

RD Ravindran from Aravind Eye Hospital, in Pondicherry, presented a SICS technique using an irrigating vectis, which will be described in more detail in the next section.

## Teaching the conversion from ECCE to SICS

### Barriers to training

Ravindran outlined some of the barriers to the conversion to SICS:

- lack of available training programmes
- reluctance of surgeons to change their technique
- increased difficulty for those who have not mastered ECCE beforehand.

He described particularly difficult stages in the learning process, which included:

- tunnel construction
- capsulotomy (or capsulorhexis)
- prolapsing the nucleus into the anterior chamber
- nucleus extraction
- removing stubborn cortex from under the incision.

### Teaching under supervision

Hennig stressed that learning to convert from ECCE should preferably be undertaken in a training centre, under supervision, and in a stepwise manner on selected patients (see Table 1 below).

Experienced ECCE surgeons can also learn the transition to SICS by studying the techniques on videos and/or observing SICS surgery done by colleagues.

### Stepwise conversion to SICS: learning stages

Ravindran presented a scheme for converting to SICS by learning its steps in stages during the ECCE surgery.

**Stage 1** involves prolapsing the nucleus into the anterior chamber using a Sinsky hook, through a can-opener capsulotomy, and removing the nucleus with a vectis.

**Stage 2** involves vectis extraction through progressively smaller ECCE incisions, until an 8 mm sutured incision is achieved.

**Stage 3:** a sutured limbal tunnel is created with a crescent blade and keratome, the starting point being an 8 mm incision parallel to the limbus and 1 mm from clear cornea, which is then closed with three sutures after nucleus extraction using an irrigating vectis.

**Stage 4** is making a frown incision and tunnel (Figure 3). A fornix-based conjunctival flap is created, then a 1/3 to 1/2 thickness scleral groove (6–6.5 mm long), 1.5–2.0 mm from the limbus, and a tunnel extending 1–1.5 mm into clear cornea. A sideport is made in clear cornea, which is used for the capsulorhexis, to aspirate the cortex and to reform the anterior chamber.

**Stage 5** involves learning the capsulorhexis and nucleus extraction: a 6–6.5 mm capsulorhexis is done and the nucleus hydrodissected at 9 or 3 o'clock and a Sinsky hook used to wheel and mobilise it. An 8 x 5 mm irrigating vectis is placed below the nucleus and fluid injected when the nucleus has been pulled into the wound to create positive pressure. Then, with traction on the bridle suture, the nucleus is delivered applying pressure on the posterior lip of the wound. A large nucleus is fractured in the

## Tips for a successful conversion to SICS

- 1 Use stepwise learning under supervision
- 2 Start with simple cases
- 3 Avoid repetitive manoeuvres
- 4 Construct a tunnel of adequate size
- 5 Perform an adequate capsulotomy or capsulorhexis
- 6 Make liberal use of viscoelastic
- 7 Take time to master each step.

tunnel and the inner fragment repositioned back and the hydroexpression repeated. After aspirating the cortex and checking the wound for retained material, the IOL is implanted.

Ravindran concluded that, with supervised stepwise conversion from ECCE and careful case selection, the transition to SICS is achievable with minimal complications. The box above offers useful tips for a successful conversion.

## Conclusion

As always, the video presentations made the surgery look straightforward, as is often the case when it is expertly performed, but the message that emerged from the course was that SICS can be undertaken using a variety of techniques but should be taught in a training centre in a stepwise fashion. The result is a procedure that is eminently suitable for tackling the cataract backlog without the use of hi-tech equipment and with excellent results.

### References

- 1 Tabin G, Chen M, Espandar L. Cataract surgery for the developing world. *Curr Opin Ophthalmol* 2008;19(1): 55–9.
- 2 Riaz Y, Mehta JS, Wormald R, Evans JR, Foster A, Ravilla T, Snellingen T. Surgical interventions for age-related cataract. *Cochrane Database Syst Rev* 2006; issue 4, article no. CD001323. DOI: 10.1002/14651858.CD001323.pub2.
- 3 Gurung R, Hennig A. Small incision cataract surgery: tips for avoiding complications. *Community Eye Health J* 2008;21(65): 4–5.

### Acknowledgement

<sup>a</sup> This is based on a slide from the presentation made by Albrecht Hennig

Table 1. Stepwise conversion under supervision<sup>a</sup>

Stages of learning	Performed by trainer	Performed by trainee
1	<ul style="list-style-type: none"> <li>• Tunnel construction</li> <li>• Nucleus removal</li> </ul>	<ul style="list-style-type: none"> <li>• IOL insertion</li> </ul>
2	<ul style="list-style-type: none"> <li>• Tunnel construction</li> </ul>	<ul style="list-style-type: none"> <li>• Nucleus removal (through a smaller ab externo opening, using either a fish-hook or a vectis)</li> <li>• IOL insertion</li> </ul>
3	<ul style="list-style-type: none"> <li>• Supervision only</li> </ul>	<ul style="list-style-type: none"> <li>• Tunnel construction (starting with smaller tunnels on immature cataracts)</li> <li>• Nucleus removal</li> <li>• IOL insertion</li> </ul>



# Blindness and visual impairment due to retinal diseases

## 8<sup>th</sup> General Assembly of IAPB

### Symposium 8: Diabetic retinopathy

**Speakers:** Anthony Hall, David Yorston, Juan Carlos Silva, RD Ravindran

### Plenary 2: Emerging priorities

**Speakers:** Hugh R Taylor, Serge Resnikoff, RD Ravindran, Hasan Minto, Babar Qureshi, Santiago Castro Feijo

### Course 18: Vitreoretinal services

**Speakers:** Anthony Hall, David Yorston, Pedro Gomez, Marcelo Ventura



**Report by:**  
**Shaheen Shah**

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

This General Assembly, compared to others in the past, had retinal diseases as a cause of visual impairment and blindness higher up on the agenda. This article summarises the main points made in relation to retinal diseases, in particular the challenge of diabetic retinopathy.

## General overview on retinal diseases

### A global epidemic of diabetes mellitus

Diabetes mellitus is a chronic disease that occurs when the pancreas does not produce enough insulin, a hormone that regulates blood sugar. Diabetes may be insulin-dependent, which is typically of early onset, or non insulin-dependent, when the body cannot effectively use the insulin it produces (maturity onset diabetes). Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the eyes, kidneys, and nerves.<sup>1</sup>

The world is currently experiencing a global epidemic of this incurable disease. Current predictions estimate a doubling of the number

**Table 1. Number of people with diabetes (in millions): top ten countries<sup>1</sup>**

Country	2000	2030 (predicted)
India	31.7	79.4
China	20.8	42.3
USA	17.7	30.3
Indonesia	8.4	21.3
Japan	6.8	8.9
Pakistan	5.2	13.9
Russia	4.5	5.3
Brazil	4.6	11.3
Italy	4.3	5.3
Bangladesh	3.1	11.1
Worldwide	171	366



**Mobile screening van for diabetic retinopathy. INDIA**

RD Ravindran

affected from the current 171 million to an estimated 366 million by 2030 (Table 1). Global obesity maps presented at the meeting similarly showed a striking increase all over the world. The global increase of diabetes is attributed to increased life expectancy, urbanisation, and a change in life style and diet.

Although previously recognised as a disease of the developed world, diabetes is becoming increasingly prevalent in the developing world and the majority of the burden from this disease is predicted to affect people of working age in low-income countries.<sup>2,3</sup> In India alone, the number affected is expected to reach 80 million by 2030. As a shocking example, RD Ravindran cited the case of a 57-year-old physician who had had diabetes for 16 years and who presented with severe proliferative retinopathy. This highlighted not only a general lack of awareness, but also the fact that diabetic retinopathy may not be considered by some physicians to be an important complication.

### Ocular complications of diabetes:

The main microvascular complication of diabetes in the eye is diabetic retinopathy (DR), which is found in almost 20% of newly diagnosed diabetic people.

It is important to remember that diabetes is also a risk factor for cataract, so the retinopathy may only be evident once the cataract has been removed and a view of the posterior segment is possible.<sup>4</sup>

Diabetic retinopathy is increasing as a cause of blindness throughout the world and data presented at the meeting suggests that DR accounts for an estimated 5% of the 45 million blind people worldwide today.

### Age-related macular degeneration (AMD)

AMD was another retinal disease discussed and highlighted as a growing concern. It is a disorder predominantly affecting people over the age of 60. It affects the central part of the

vision, which is essential for detailed tasks requiring fine vision, such as reading and recognising faces.

By 2025, there will be twice as many older people worldwide as there were in 2000 (an increase from 606 million to 1.2 billion). Twenty-five years later, by 2050, the population of older people will be three times greater than in 2000, around two billion,<sup>5</sup> and subsequently the number of people with AMD will increase significantly.

Figures presented by Serge Resnikoff suggest that AMD is already the third largest cause of blindness in the world, as it accounts for 9% of the 45 million blind people worldwide.

### Treatment:

Unfortunately, although new and exciting treatment strategies have been demonstrated to be beneficial in the active 'wet' form of AMD (intravitreal injections of anti-vascular endothelial growth factor), they require repeated administration, are not curative, and are prohibitively expensive.

On the other hand, smoking is an established risk factor for AMD and tobacco control should be strongly advocated as a measure for the prevention of blindness.

For example, in Australia, cigarette packets display a prominent warning saying: 'Smoking causes blindness'. Currently, smokers represent 25% of the worldwide population. Resnikoff explained that, if this figure were to fall from 25% to 15%, this would avoid 100,000 cases of blindness. Unfortunately, figures presented at the meeting show that, as the tobacco industry reaches new markets, the share of the worldwide consumption of cigarettes represented by developing countries is steadily increasing. Currently, developing countries account for approximately 70% of global tobacco consumption.

## Retinal detachment (RD)

The annual incidence of RD is estimated at 10/100,000 per year, although there are regional variations. It was roughly estimated that, globally, 90 eyes are blinded by RD every hour.

Risk factors for RD are increasing age, myopia, and cataract surgery. All these risk factors are becoming more common.

Results from low-income countries show that many patients present only when they lose vision in both eyes. Delay in presentation was acknowledged as a significant problem in the management of RD. It is often due to inadequate primary eye care and to misdiagnosis. Thus, it was highlighted that all ophthalmologists should be trained to recognise and manage RD appropriately.

## Secondary prevention: screening for diabetic retinopathy

As blindness from DR is preventable, if caught and treated early (before symptomatic visual loss), DR provides an excellent opportunity for secondary prevention strategies, such as screening.

A number of different screening models were discussed at the meeting.

### Scotland

In Scotland, 24% of the population is obese – a figure second only to the US – and it is estimated that 3–4% of the population has diabetes. The model used for the national screening programme was a system of ‘gatekeepers’ on three levels, each with increasing expertise: a trainee screener (e.g. a nurse) assessed the presence or not of retinopathy, then a trained screener (e.g. an optometrist) assessed whether the patient with retinopathy needed to be referred for laser treatment, and this was confirmed by an ophthalmologist at the third level of screening.

However, this system is extremely costly and probably difficult to replicate in low- or middle-income countries. The automated grading of fundus photographs appears to be an exciting development, as it can reduce costs. One speaker mentioned a project comparing the cost-effectiveness of manual and automated grading for DR. It

showed that, although manual grading was more accurate, it cost UK £4,000 (US \$5,750) per additional case detected.<sup>6</sup>

### India

The Aravind model in India uses a number of different methods to screen for DR. These range from screening for diabetes in the general population (nearly 230,000 screened) and then screening the suspects for DR, to using telemedicine facilities for patients known to have diabetes.

### Telemedicine:

Telemedicine was advocated as a tool to improve rural eye care, as there is a disparity in the distribution of eye care resources. Two applications were described:

- a mobile model using a van with satellite connection to the Internet
- a physician- and clinic-based model using a fixed broadband connection.

Both models operate in two modes:

- real time or interactive videoconferencing
- store and forward to base hospital later.

Software designed for use within the screening process allows automatic generation of reports with possible treatment strategies. The results presented showed that nearly 52,000 people were screened using the mobile method and DR was found in 1,300, of which 76% had retinopathy detected for the first time.

### Latin America and the Caribbean

In Latin America, there has been no adequate situational analysis and there is limited logistic and technical skills.

On the Caribbean island of Dominica, the DR screening programme utilises an itinerant ophthalmic technician with a digital fundus camera. Only 35% of the target population was screened in 2007 and, furthermore, compliance for referral was poor (44%).

The figures were better in Medellin, Colombia, where nearly 70% of people known to have diabetes attended screening. Third-year trained residents graded the photographs. Retinal specialists provided treatment and treatment rates were high, with 25% of those found to have DR at screening receiving laser treatment.

### Offering screening and treatment hand in hand

A particular concern expressed by all speakers and highlighted as a significant barrier was the practice of setting up a screening system without adequate treatment facilities being in place. Laser treatment is largely unavailable in many low-income countries. Even when it is available, it is often inaccessible and expensive.

## Tertiary vitreoretinal services

A new theme this year was the establishment of tertiary level vitreoretinal (VR) services. VR services (which offer predominantly pars

plana vitrectomy) treat the complications of severe DR and/or patients with a retinal detachment (RD).

Primary success of vitrectomy in low-income countries averaged 60–80% and nearly 60% of patients achieved a visual acuity of 6/60 or better after surgery.

Vitrectomy also has a place in the treatment of one of the serious complications of phacoemulsification cataract surgery – a ‘dropped’ nucleus.

Training in this speciality is a difficult issue and it was argued that a training unit in VR needs to be performing at least 200 retinal cases a year.

## Integration with other health sectors

Finally, all the speakers mentioned that services for retinal pathology needed to be better integrated with other health care sectors. This was a recurrent theme of the meeting.

Services are currently disjointed; for example, orthopaedic doctors perform leg amputations in patients with diabetes, but they do not refer these patients for an eye examination.

Speakers advocated a better integration of blindness prevention strategies into national diabetes programmes.

## Diabetic retinopathy: key points

- 1 There is a need for **better public education and awareness** (through community stakeholders and media).
- 2 There should be **better coordination** between eye care personnel and other health care personnel (e.g. eye teams should liaise with physicians in health centres).
- 3 **Diabetes registers** should be maintained and kept up to date.
- 4 **Barriers to the use of services** should be identified. For example, in Tanzania, although the check up was free, one-fifth of diabetic patients left the eye department after being given dilating drops and before being examined, because the waiting time was too long.

### References

- 1 World Health Organization. Diabetes. Fact sheet N°312 September 2006. Available at [www.who.int/media-centre/factsheets/fs312/en/print.html](http://www.who.int/media-centre/factsheets/fs312/en/print.html)
- 2 World Health Organization. Prevention of Blindness from Diabetes. Report of a World Health Organization consultation. WHO: Geneva, November 2005. Available at [www.who.int/blindness](http://www.who.int/blindness)
- 3 Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. *Diabetes Care* 2004;27(5): 1047–53.
- 4 Shah SP, Dineen B, Jadoon Z, Bourne R, Khan MA, Johnson GJ, De Stavola B, Gilbert C, Khan MD. Lens opacities in adults in Pakistan: prevalence and risk factors. *Ophthalmic Epidemiol* 2007;14(6): 381–9.
- 5 Evans J. Eye care for older people. *Community Eye Health J* 2008;21(66): 21–23.
- 6 Scotland GS, McNamee P, Philip S, Fleming AD, Goatman KA, Prescott GJ, Fonseca S, Sharp PF, Olson JA. Cost-effectiveness of implementing automated grading within the national screening programme for diabetic retinopathy in Scotland. *Br J Ophthalmol* 2007;91(11): 1518–23.



Fundus examination inside a screening van. INDIA



# Perspectives on primary eye care

## 8th General Assembly of IAPB

**Course 1:** Primary eye care  
**Speakers:** Chad McArthur, Ronnie Graham, Boateng Wiafe, Susan Lewallen, Juan Carlos Silva



**Report by:**  
**GVS Murthy**  
 Senior Lecturer, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.



**Usha Raman**  
 Associate Director and Head, Communications, LV Prasad Eye Institute, Banjara Hills, Hyderabad 500 034, India.

We think of primary eye care (PEC), and any kind of primary health care (PHC), as a 'frontline' activity, providing care and identifying disease before it becomes a serious medical issue. However, as this course showed, even a cursory review of systems across the world reveals that there is no common understanding of what primary eye care means and there exists a wide variation both in its content and in the way in which it is delivered.

## The content of primary eye care

Taking a historical perspective, one can trace the initial efforts at establishing PEC to corneal disease, particularly in children, which led to the initiation of vitamin A supplementation programmes, and to trachoma control, which emphasised hygiene and access to water.

In a broad sense, primary eye care is an integral part of comprehensive eye care. It is targeted not only towards preventing blindness and visual impairment, but also

### Primary eye care

**Definition:** a frontline activity, providing care and identifying disease before it becomes a serious medical issue. Primary eye care can be delivered in many different ways.

#### Components of primary eye care:

- eye health education
- symptom identification
- visual acuity measurement
- basic eye examination
- diagnosis
- timely referral.



Fabrice Franci

Visual acuity testing in a school. BRAZIL

the involvement in service delivery of medical officers or highly skilled eye care workers. However, given the shortage of such trained personnel, this approach limits the spread of PEC and restricts its availability to contexts where such expertise is available.

#### Eye health education

It was observed that eye health education was a role for PEC that did not require high-level expertise, in contrast to diagnosis and eye examination. With eye health education, gains can be achieved through awareness and use of basic precautions.

More realistically, therefore, PEC could focus its efforts on eye health education, rather than on diagnosis. PEC workers would construct and deliver messages stressing the importance of diminished vision and the need for modern surgery. They would also allay apprehension or address unfounded beliefs in communities regarding surgery.

towards providing services to redress ocular morbidity.

The box on this page provides a list of components of PEC, but in reality its content can vary greatly, as shown by the speakers' presentations. The discussion focused particularly on the three following aspects:

#### Timely referral

It was felt that correct identification and timely referral were crucial to the success of PEC. It was stressed that an accurate diagnosis was important for both treatment and referral, as a high proportion of misdiagnosis would lead to a poorer quality of service.

The discussion emphasised the need to provide PEC workers with appropriate diagnostic skills. At the very least, health workers at this level need simple rules to differentiate the serious problems from the 'trivial' ones.

#### Eye examination

It was acknowledged that the scope of the basic eye examination varies from country to country, depending upon the development of health services. In some countries, it may include ophthalmoscopy, which requires training. PEC in such contexts may necessitate

## Integration: different approaches to the delivery of PEC

### Integration

Primary eye care cannot be considered as a stand-alone activity but should be integrated into existing primary health care systems (see Table 1).

**Table 1. Integrating primary eye care into health programmes<sup>a</sup>**

Disease	Health programme
Cataract	Healthy ageing
Refractive errors	Healthy schools Healthy ageing
Retinopathy of prematurity	Maternal and child care
Diabetic retinopathy	Non-communicable diseases

As less than 1% of the population is at risk of blinding conditions, it may seem difficult to sustain an entire programme of work around vision problems. However, ocular morbidity is actually much higher, which may be justification enough to allocate more resources to PEC.

Because eye health at the primary care



M Murtaza Farrahmand

from PEC workers, ineffective referral mechanisms, and a lack of task-oriented PEC.

### Selective primary eye care:

In this second approach, specific high-impact interventions were identified and supported under PEC.

The biggest weakness of this approach was that it fostered a vertical system and reduced the opportunity for integration into the existing primary health care systems in countries. This made it unsustainable in the long term.

### Priority eye conditions:

The third approach focused only on priority eye conditions, identified at national level. Schoolteachers, maternal and child health (MCH) workers, non-communicable disease (NCD) workers and NCD associations were involved. Personnel were trained to handle specific tasks. For instance, schoolteachers were trained to screen for refractive errors.

There is no evidence to indicate which approach is better, but it is clear that different countries may need different approaches.

## Challenges

Challenges to the successful implementation of PEC were discussed during the course. They included:

- determining the type of personnel to be involved
- effectively meeting training needs
- identifying an appropriate mix of skills for effective services in each context
- finding ways to embed PEC in existing health care services without losing focus on eye care.

It was agreed that more scientific evidence was needed on the different modalities of delivering PEC services in developing countries.

Whatever approach is used for PEC, it is imperative that there should be a set of monitoring indicators, which will enable documentation of the strengths and weaknesses of different approaches.

### Acknowledgement

<sup>a</sup> This box is based on a slide from the presentation made by Juan Carlos Silva

### Vitamin A distribution. AFGHANISTAN

level is relatively inexpensive and has better return than primary health care in general, it may be easier to set up a primary eye centre than a primary health centre.

Another approach is to create a hub where multiple health activities can be carried out in coordination.

Different approaches to the delivery of PEC were discussed during the course. Worldwide, experiences with PEC have varied from successful integration with PHC in Thailand, to creating new models of service delivery such as the rural family health system in Pakistan, to vision centres staffed by community workers put through intensive training in screening and identification of basic eye problems.

Drawing on experiences in the field, the presentations made by Ronnie Graham, Boateng Wiafe, and Susan Lewallen focused on PEC in the African context, whilst Juan Carlos Silva discussed the situation in Latin America.

### The experience of PEC in Africa

In Africa, only 30% of people have access to eye care and the spread of available services is uneven across, and even within, countries.

In Kenya, PEC is integrated at all levels of health care through the coordinated efforts of the Department of Prevention and Promotion of Health.

In Gambia, *nyateros* or 'friends of the eye' are the first point of contact for PEC. These include community-based rehabilitation (CBR) workers, teachers, and village health workers. These groups help to reduce fear of modern eye care, fight 'bad' practices, and generate awareness about eye health.

In Mali and Zimbabwe, the training of PEC workers is done in a cascading manner,

while in Zambia training is done at the national level.

The speakers thought that, in Africa, advocacy at the policy-making level was necessary, in order for PEC to be properly integrated into PHC and to be allocated sufficient resources. For PEC to be successful, toolkits need to be developed and some amount of decision making must be allowed at the community level. Efforts should be made to integrate PEC into existing successful programmes, such as the onchocerciasis control programmes.

## 'Correct identification and timely referral are crucial to the success of primary eye care'

### Approaches to the delivery of PEC in Latin America

In Latin America, three different approaches have been tried to deliver PEC.

### Inclusive primary eye care:

In this model, PEC workers were involved in case screening, recognising eye problems, initial treatment, and referral. This approach had a strong component of community participation and was managed by public funding.

However, this system was almost phased out in the 1990s, due to lack of cooperation

## PEC: key points

- 1 There is a need to look more critically at the evidence from existing PEC initiatives before we make further investments.
- 2 PEC can contribute to basic health information systems, as in many areas PEC is the only kind of health care that exists at primary level.
- 3 It is important to define the skill and knowledge requirements for a PEC worker.
- 4 PEC should be seen in the context of primary health care (sanitation, nutrition, immunisation, and hygiene).
- 5 'One shoe cannot fit all': the definition and scope of PEC must vary according to the demands of the context and the design of a country's health system.
- 6 To be effective, PEC needs a policy framework, relevant structures for service delivery, and adequate financial commitment for implementation.



# Human resources for eye care: changing the way we think

## 8<sup>th</sup> General Assembly of IAPB

**Course 10:** Productivity of eye care workers  
**Speakers:** Paul Courtright, Daniel Etya'ale, Hannah Faal, Ingrid Mason, Van Lansingham, Noel Chua



**Report by:**  
**Usha Raman**

Associate Director and Head, Communications, LV Prasad Eye Institute, Banjara Hills, Hyderabad 500 034, India.

The question of human resources is central to the success of VISION 2020 and of any health programme.

The VISION 2020 global initiative document clearly spelt out what personnel was required and, more recently, the World Health Organization document on human resources for health care made recommendations on the type and number of people needed in order to meet all our objectives in global health. In spite of this, practically none of the national eye care policies articulated so far have a clear recommendation on human resources.

## Numbers and distribution

Traditionally, much of the discussion on human resources for eye care has focused on numbers and distribution. Questions of how many and what kind of people we need, what sort of training they need to be given, and where we need them, dominate the conversation.

There is still a great need for eye health personnel in most countries. The reasons for this 'human resource crunch' vary worldwide, from a dearth of people suitable for training to high levels of emigration of trained personnel – such as occurs in the Philippines, where the export of human resources, particularly nurses, has led to the closure of hospitals and services.

However, although the issue of numbers and distribution of personnel is still an important one, our thinking about human resources is still very much 'from the top down'. As one speaker noted, there is an urgent need to shift our focus towards those who need care.

## A shift of focus towards the needs of communities

Daniel Etya'ale remarked that we need to think not of eye care workers, but of 'personnel needed for eye care'. Noting that the former label was too restrictive, he proposed the latter term, to move the focus to those who need care rather than those who provide it. This stems from a larger shift in focus from inputs to outcomes. The training and deployment of health workers



Vision testing by a community eye care team. INDIA

then becomes oriented to community need.

Hannah Faal also emphasised the need to step out of the 'eye box' and train professionals who can be integrated into other systems. This is particularly important at the primary level of service delivery, where integrated health care is key to achieving progress.

## New cadres

Early on in the VISION 2020 initiative, it was recognised that we need to develop new cadres of professionals who will work with, and within, communities to stem the rising tide of avoidable blindness.

However, eye care service delivery at all levels still relies too heavily on ophthalmologists, though the degree of this dependence on medical specialists varies across the globe. It is becoming increasingly clear that, if we wait for enough ophthalmologists to be trained and appointed to take care of all forms of vision impairment, the goals of VISION 2020 will not be met.

Midlevel ophthalmic personnel, vision technicians, ophthalmic nurses, nursing aides, instrument technicians, as well as 'hybrid' professionals who can perform a variety of functions, are all essential if we are to meet the human resource need for eye care.

The experience in Latin America suggests that productivity is limited when dependent on individual ophthalmologists. Eye care teams with flexible job descriptions and common goals work better in most situations, as certain categories of professionals (such as optometrists) are entirely absent in this region.

Van Lansingham explained that often team members have no job description, but build a combined commitment to outcomes and practise effective communication. These are factors which drive high performance.

## Productivity of eye care workers: maintaining enthusiasm

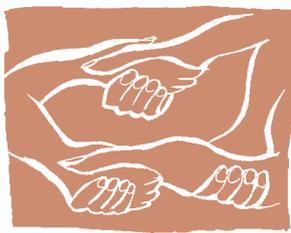
Even where the numbers of personnel are adequate and there is some degree of focused training, productivity remains a challenge. Ingrid Mason spoke of the need to examine, in each specific context, the possible causes of low productivity and its relationship with the quality of care.

Experience has shown that while enthusiasm, and consequently, productivity, is high at the beginning of a new entrant's placement, this flags very soon thereafter. Problems such as community resistance, isolation from professional and academic bodies, and difficulties in dealing with technology and equipment, are often responsible for the fall in enthusiasm.

It is necessary to re-examine the content and delivery of training programmes, as well as the practicality of criteria for evaluation. Much of the demand for training and the frameworks for evaluation must be dictated by the experience and expectations of community eye health workers.

If community health workers are to deal with eye care and perform basic vision screening, then they should be equipped with the skills and the technology to do this. They may also need to be given the technical wherewithal to manage and maintain equipment, as well as the advocacy and communication skills to create and exploit links with other sectors, when and where required.

Talk of productivity, therefore, can happen only if there is a clear understanding of what needs to be done and by whom, and it must be grounded in the realities of the community.



# A new clamp for bilamellar tarsal rotation for trachomatous trichiasis

**Keith Waddell**

Mobile Ophthalmologist, Ruharo Health Centre, PO Box 14, Mbarara, Uganda. Email: [Ruharo@bushnet.net](mailto:Ruharo@bushnet.net)

Surgery for trichiasis is an important part of the SAFE strategy for avoiding blindness and pain from trachoma. It often has to be performed by non-specialist workers in remote places. The World Health Organization (WHO) is rightly promoting bilamellar rotation as a standard operation,<sup>1</sup> but its method presents difficulties even for trained surgeons.<sup>2</sup> In the technique described by WHO, the lid is held by two artery forceps; however, it is difficult to make accurate cuts this way. Also, after the forceps are taken off, stitches then have to be put in a floppy, bleeding lid. A clamp is needed to stabilise the lid and prevent bleeding, but none of the available ones are suitable.

I have prepared a new design of clamp, which has worked well in the field in Uganda and Sudan, including when it was used by nurse surgeons. The clamp is shaped to hold the two layers correctly

together, with the lid margin lying against a shelf (Figure 1). When inserted correctly, the lid is stable and bloodless. There is a mark at 3 mm from the margin to show exactly where to cut (Figure 2). The cut is made through both layers together, down to the plate guarding the eye.

Whilst the lid is still held in the clamp, the stitches can be put in easily and accurately. Figure 3 shows the cut completed and the first stitch being inserted. Stitches start through the skin and muscle of the lid edge, then through the upper tarsal plate partial thickness side to side, and finally back beside the first bite. The stitches at the ends of the incision are tied firmly whilst still in the clamp. The central stitch is left loose until the clamp is taken off, so it can be adjusted accurately.

Only one short piece of stitch and one needle are used for all stitches, as opposed to three double-armed in the WHO method, so it is economic to use absorbable suture and the patient need not return for stitch removal. The end result is a neat operation, likely to be successful (Figure 4).

For very severe cases with total in-turning of all lashes, however, I find this operation is not successful: a Trabuct procedure is needed, as other surgeons have also found.<sup>3</sup>

The clamp is available from: Collton Hailsham Ltd, Unit 1B, Hankham Hall Cottage, Hankham Hall Road, Westham, Pevensey, West Sussex, BN24 5AH, UK. Tel/Fax: +44 1323 743629. Email:

[colltonhailsham@btconnect.com](mailto:colltonhailsham@btconnect.com)

The clamp comes with a leaflet describing its correct use. A CD-ROM of the procedure will be available soon. We have found the clamp fits most eyes (even children's), but smaller and larger models are available for the few patients with very contracted or large conjunctival sacs.

**Declaration of interest:** the author has no commercial interest in the clamp. Suggestions for improvement are welcome.

**References**

- 1 World Health Organization booklet WHO/PBL/93.29.
- 2 See my letter in *Community Eye Health* J 2001;14(38): 29.
- 3 John Sandford Smith: personal communication.

Keith Waddell



Figure 1. The new lid rotation clamp



Figure 2. The clamp in place; a mark at 3 mm shows where to cut

Keith Waddell



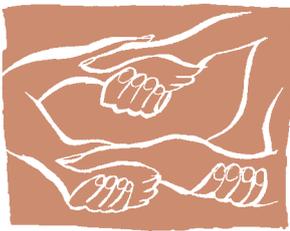
Figure 3. Inserting the first stitch after the cut has been completed



Figure 4. The final result

Keith Waddell

Keith Waddell



# Vision loss and visual hallucinations: the Charles Bonnet syndrome

**Paddy Ricard**

Consultant editor for the *Revue de Santé Oculaire Communautaire*, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1N 7HT, UK.

Around half the people presenting with acquired severe sight loss will at some point experience visual hallucinations. This is a little-known fact, not only amongst patients, but also amongst a significant number of health and eye care professionals. The condition is known as Charles Bonnet syndrome (CBS) and is named after the naturalist who first described this phenomenon in 1759.

Although visual hallucinations can be unsettling, current ignorance and lack of information about the condition lead to even greater distress in patients. They may believe that they are suffering from a mental condition, such as dementia, and that they are losing not only their sight, but also their mind.

The Royal College of Ophthalmologists<sup>1</sup> and the Macular Disease Society (MDS)<sup>2</sup> have now initiated a campaign to increase awareness of CBS amongst eye care staff. The many case studies collected by the MDS, such as the following, all tell a similar story.

## Case study

Mrs O had her first hallucination three years after been diagnosed with age-related macular degeneration (AMD), at the age of 82: she woke up in the middle of the night to find that her bedroom walls seemed covered in white fleece. She thought she was losing her mind and kept it to herself, though she was very distressed. When the hallucinations worsened, she decided to talk to medical staff. However, her general practitioner did not take her seriously, and the Accident & Emergency department of her local hospital referred her to a psychiatrist, suspecting that she suffered from dementia. Mrs O only found out about CBS after six months, through the MDS, and she immediately experienced a great relief. Since then, although she still finds some hallucinations frightening, she has found it much easier to cope with them.



Artist Cecil Riley, who suffers from CBS, depicts his visions in his paintings. UK



Nick Astbury

**Around half the people suffering from severe visual loss will experience visual hallucinations. BOTSWANA**

## Features of CBS

CBS occurs mostly in people who have developed severe visual loss in **both** eyes involving **central vision**. This situation is especially likely to occur in developing countries, where people may wait for sight loss before consulting and where advanced bilateral cataract is common. Causes of severe visual loss include:

- cataract
- glaucoma
- trauma
- macular degeneration
- diabetic retinopathy with maculopathy
- retinal detachment.

Here are some of the features of CBS:

- Patients experience complex visual hallucinations, i.e. fully formed images.
- Hallucinations include: patterns (brickwork, grids, etc.), letters, people (sometimes distorted or incomplete), animals, objects, and landscapes.
- There is no sound associated with these hallucinations.
- These hallucinations are due to impulses from the visual cortex in the absence of visual stimulation.
- Hallucinations may start occurring soon after the onset of visual loss, but they can sometimes appear up to ten years later.

## Information and reassurance

There is currently no treatment for CBS. However, health care personnel can still play a crucial role in alleviating anxiety experienced by patients, by informing them about the condition and reassuring them on their mental state. The eye care team may offer the following reassuring statements<sup>3,4</sup>:

- It is estimated that 50–60% of people suffering from severe visual loss will experience visual hallucinations.
- These visual hallucinations seem to abate after a while, usually after 18 months for 60% of patients.
- The visual hallucinations are a purely visual symptom and are not due to any mental health problem.
- Although there is no treatment, some patients find ways of controlling their hallucinations or of distinguishing between a real sight and a hallucination. 'Tricks' reported by sufferers include: going into a brighter environment, creating a distraction, looking directly at the images, some form of eye movement, etc. (not all of these suggestions may work for all patients).

## Conclusion

It is particularly important that all staff know about CBS, including receptionists, so that they do not turn patients away needlessly or doubt the veracity of their statements (or indeed their sanity).

A recent survey showed that, amongst those suffering from CBS: 60% feared being labelled as insane if they admitted to hallucinations, only 30% had ever revealed their condition to anyone else, and 30% lived in fear of impending insanity.<sup>3</sup>

CBS is still largely under-recognised, and further awareness of the condition can only encourage patients to report their fears. It is also important to forewarn patients that such hallucinations may occur.

Once informed, patients will not be so anxious about their mental health. They may develop ways of managing their hallucinations and may become more confident in using their residual vision.

## References

- 1 [www.rcophth.ac.uk](http://www.rcophth.ac.uk)
- 2 [www.maculardisease.org](http://www.maculardisease.org)
- 3 Menon GJ. Complex visual hallucinations in the visually impaired: a structured history-taking approach. *Arch Ophthalmol* 2005;123(3): 349–355. This article can be downloaded for free on [www.archophthalmol.com](http://www.archophthalmol.com)
- 4 ffytche D. Charles Bonnet syndrome. *MDS Digest* 6 November 2008: 27–32. This article can be downloaded for free on [www.maculardisease.org](http://www.maculardisease.org) ('Downloads and Publications').

# Administering a subconjunctival injection



## Sue Stevens

Nurse Advisor, *Community Eye Health Journal*, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.

### Indications

To administer medication in high concentration:

- for severe inflammation
- for treating infection
- at the end of an operation
- for dilating the pupil.

### You will need

- local anaesthetic drops
- sterile 2 ml syringe
- prescribed medication
- sterile 21G needle
- sterile 25G needle
- eye pad
- tape
- bandage
- clean cotton wool or gauze swabs.

### Preparation

#### Remember!

*This procedure can be very distressing for the patient and needs to be explained sensitively to ensure maximum cooperation.*

- Position the patient lying comfortably with his/her head supported on a pillow.
- Reassure the patient that adequate anaesthetic drops will be instilled before the injection is given.
- Instill anaesthetic drops at five-minute intervals over half an hour – a minimum of six drops.
- Away from the patient's view, draw up the prescribed medication using the 21G needle (Figure 1).
- Change to the 25G needle (Figure 2).

### Method

- Choose the site for the injection in the lower or upper fornix and, as appropriate, raise or lower the eyelid.
- Ask the patient to look in the opposite direction and fix his/her gaze.
- Tell the patient to expect a slight pressure sensation and keep reassuring him/her.
- With the bevel of the needle uppermost, lay the needle against the globe, away from the cornea, and make a 'pocket' of conjunctiva (Figure 3).
- Insert the needle into the space between



Figure 1

Murray McGavin



Figure 2

Murray McGavin



Figure 3

Murray McGavin



Figure 4

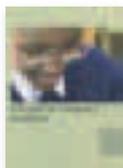
Murray McGavin

the conjunctiva and the sclera.

- Ensure the bevel remains under the conjunctiva and inject the fluid slowly to create a ballooning effect (Figure 4).
- Withdraw the needle carefully and ask the patient to close the eye – check that the eyelids can close properly.
- Dispose of the needle and syringe in an appropriate container.
- Hold an eye pad in position for a minute or so – the ballooning will subside.

- Apply the eye pad securely and, for maximum comfort, also apply a bandage.
- The pad and bandage should remain in position for two hours, after which any prescribed topical eye medication may be continued.
- Tell the patient that the conjunctiva may appear red and swollen and that the eye may be sore after the anaesthetic drops wear off. Oral paracetamol (two tablets) may be given for pain relief.

## Book review



**Childhood cataract in Africa.** Courtright P, Bowman R, Gilbert C, Lewallen S, van Dijk K, and Yorston D (editors). 2008. Reviewed by

Nick Astbury, Consultant

Ophthalmic Surgeon, Norfolk and Norwich University Hospital NHS Trust, Colney Lane, Norwich NR4 7UY, UK.

This is quite simply a brilliant manual, beautifully illustrated and written by people immersed in the ethos of community eye health and with first-hand experience of dealing with childhood cataract in Africa. It incorporates the conclusions and recommendations from a meeting of experts that took place at the Kilimanjaro Christian Medical Centre (KCMC) in Moshi, Tanzania and it covers planning and strategies as well as pre- and postoperative management, counselling, and rehabilitation. Dark & Light Blind Care (Netherlands) must be congratulated for sponsoring this work which should be read by everybody involved with childhood cataract, including parents, health workers, and ophthalmologists. To order this book, go to [www.kcco.net](http://www.kcco.net) or contact: Teaching Aids at Low Cost (TALC), PO Box 49, St Albans, Herts, AL1 5TX, UK. **Tel:** +44 1727 853869 **Email:** [info@talcul.org](mailto:info@talcul.org) **Website:** [www.talcuk.org](http://www.talcuk.org)

## Courses

### International Centre for Eye Health, London, UK

**Planning for VISION 2020**, 29 June to 3 July 2009. **Target audience:** Non-clinical course aimed at ophthalmologists, eye health programme managers, and NGDO staff working in developing countries. **Cost:** UK £735

**Tropical ophthalmology**, 28–30 October 2009. **Target audience:** Ophthalmologists and optometrists in the UK, Europe, or North America. **Cost:** UK £490

**NEW Community ear and hearing health in developing countries**, 29 June to 3 July 2009. **Target audience:** Otologists, audiologists, paediatricians, allied professionals, especially in the communication sciences,

health planners and NGDO staff who intend to work in a developing country. **Cost:** UK £750

Application forms for these three short courses can be obtained from: The Registry, 50 Bedford Square, London WC1B 3DP, UK.

**Tel:** +44 207 299 4648

**Email:** [shortcourses@Lshtm.ac.uk](mailto:shortcourses@Lshtm.ac.uk)

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

### MSc in community eye health

28 September 2009–17 September 2010

**Target audience:** Health care professionals involved in eye care who have relevant work experience. **Duration:** One year (full time).

Also available on a part-time basis over two years. **Cost:** UK £15,150 (Overseas) or UK £4,815 (Home). **For more information:**

Application forms are available from The Registry, 50 Bedford Square, London WC1B 3DP, UK.

**Tel:** +44 207 299 4646

**Email:** [registry@Lshtm.ac.uk](mailto:registry@Lshtm.ac.uk) or [MScCEH@Lshtm.ac.uk](mailto:MScCEH@Lshtm.ac.uk)

**Website:** [www.Lshtm.ac.uk/courses](http://www.Lshtm.ac.uk/courses).

Please quote Ref: JCEH

### University of Cape Town, South Africa Postgraduate diploma in community eye health

**Start date:** January 2010.

**Target audience:** National VISION 2020 coordinators and district VISION 2020 programme managers who wish to receive training in the management of district VISION 2020 programmes. **Course structure:** One-year course, comprising an initial ten weeks on campus, then 34 weeks off campus when the student is back working in his/her health district, and a final two weeks on campus. **Closing date:** 30 October 2009.

**Course fee:** ZAR 35,000 (US \$3,500). Recommended living expenses for 12 weeks in Cape Town ZAR 24,000 (US \$2,400), plus travel to and from Cape Town.

**For more information:** Contact Deon Minnies at [d.minnies@uct.ac.za](mailto:d.minnies@uct.ac.za)

### Kilimanjaro Centre for Community Ophthalmology (KCCO), Tanzania

All courses are held by KCCO in collaboration with Dark & Light Blind Care, Seva Foundation, and The Fred Hollows Foundation. **Venue:** KCCO, Moshi, Tanzania. **For more information:** Visit [www.kcco.net](http://www.kcco.net) or contact Genes

Mng'anya at [genes@kcco.net](mailto:genes@kcco.net)

### Addressing the challenges of childhood cataract in Africa

21–24 September 2009  
**Target audience:** Ophthalmologists or managers in settings with paediatric eye care services or programme staff responsible for organising childhood blindness activities.

### Bridging communities and eye care providers to achieve VISION 2020 in Africa

9–13 November 2009  
**Target audience:** Eye care programme managers, trainers, and key decision makers of national prevention of blindness programmes.

### Management for VISION 2020 programme managers

16–27 November 2009  
**Target audience:** Programme managers and key decision makers of VISION 2020 planning areas.

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

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

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

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

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

If you or your institution would like some more information on how to get involved please contact either:

Dr Shaheen Shah  
[shaheen.shah@Lshtm.ac.uk](mailto:shaheen.shah@Lshtm.ac.uk)

or Dr Robert Lindfield  
[robert.lindfield@Lshtm.ac.uk](mailto:robert.lindfield@Lshtm.ac.uk)

**Community Eye Health JOURNAL** Supported by:

**Next issue**

The next issue of the *Community Eye Health Journal* will be on the theme **Gender and eye care**