



Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:
Taylor, HR

Title:
Latest developments and advances in the prevention of blindness, a global perspective

Date:
2017-06-01

Citation:
Taylor, H. R. (2017). Latest developments and advances in the prevention of blindness, a global perspective. Journal of Current Ophthalmology, 29 (2), pp.73-75. <https://doi.org/10.1016/j.joco.2017.04.003>.

Persistent Link:
<https://hdl.handle.net/11343/256068>

License:
[CC BY-NC-ND](#)

Editorial

Latest developments and advances in the prevention of blindness, a global perspective



Providing eye care to all those who have vision loss and other eye disorders is an enormous challenge for ophthalmologists and all those who work in this area. Although the challenge is large, good progress has been made over the last few decades. However, much work still needs to be done.

Background

In 1994, the World Health Organization (WHO) estimated that there were at that time 45 million blind and that the number would double by the year 2020.¹ However, at least 75% of the blindness was unnecessary, being preventable or treatable. They estimated that the number of blind could be reduced to 25 million by 2020 by applying what we currently knew.

At that time, some 60% of blindness was due to cataract or uncorrected refractive error. These conditions could essentially be corrected overnight using the existing technology of providing cataract surgery and spectacles. Another 15% of blindness was due to three conditions that really needed a public health approach to large scale interventions: trachoma, onchocerciasis, and vitamin A deficiency. Another 15% of blindness was caused by chronic eye diseases that needed ongoing treatment, diabetic retinopathy, and glaucoma. There remained another 10% of blindness caused by diseases that at that time were neither treatable nor amenable to public health interventions; they included age-related macular degeneration (AMD), uveitis, and optic neuritis.

This led to the establishment of Vision 2020, a global initiative with the goal of the elimination of avoidable blindness by the year 2020 in order to give all people the right to sight.¹ This was a joint initiative between the WHO that provided technical assistance and the International Agency for the Prevention of Blindness (IAPB) and its non-government organization members that provided support with capacity building. Vision 2020 worked in partnership with national groups to develop national (Vision 2020) plans to provide eye care program development and delivery. Vision 2020 included three components: 1. Effective Disease Control focusing on cataract, trachoma, onchocerciasis, childhood blindness, and refractive error and low vision; 2. Human Resource Development including education and training, and emphasis on the

management and team development; and 3. Infrastructure Development including both facilities and also supplies and equipment.

Since then, there has been a dramatic increase in the cataract surgery rate around the world. In India, for example, the rate went from 1100 per million people per year to over 5000.¹ Similar changes have been seen across Latin America and many other areas.²

Considerable progress has been made with trachoma with the distribution of well over 100 million doses of azithromycin provided at no cost by Pfizer (International Coalition for Trachoma Control, ICTC), an enormous global mapping program that has now clearly defined all the endemic areas, and now the elimination of blinding trachoma in 10 of the 50 or so countries that are identified as having endemic trachoma.³ Similarly in onchocerciasis, great progress has been made with the donation of ivermectin by Merck, with again over 100 million doses being distributed free each year. Onchocerciasis has been eliminated from a number of countries in Latin America and in regions in sub Saharan Africa as well.⁴ Considerable progress has been made with vitamin A fortification to significantly reduce the amount of xerophthalmia and major projects have run for the management of congenital cataract and the early detection and treatment of retinopathy of prematurity.¹

Uncorrected refractive error and low vision remain major areas with 108 million people with under corrected distance vision and a quarter of a billion people over 50 with uncorrected presbyopia.^{5,6}

The current situation

The most recent data on global blindness were presented by the Vision Loss Expert Group as part of the work on the Global Burden of Disease.⁷ Their report showed that between 1990 and 2010, there had been only a very small increase in the absolute number of blind people, from 31.8 million to 32.4 million, but there was a dramatic reduction in the age-specific prevalence of blindness for those over the age of 50 which had dropped by 42%. Further analysis showed that the decrease in the prevalence of blindness was similar for both males and females, and although the rates were different, the decreased prevalence in 2010 was observable in each of the 17 global sub-regions that were examined.

Peer review under responsibility of the Iranian Society of Ophthalmology.

The major cause of blindness remained cataract, refractive error, trachoma, and onchocerciasis, although there was a marked increase in the prevalence of blindness from AMD, glaucoma, and particularly diabetes. While work on the prevention of blindness from cataract and refractive error was making very good progress, as were the other three disease areas initially identified by Vision 2020, much more work is needed on the detection and treatment of the more chronic diseases, particularly diabetic retinopathy and glaucoma that occurred with increasing frequency around the world including in underserved areas.

What can ophthalmology do?

The International Council of Ophthalmology (ICO) grew out of the first International Congress of Ophthalmology held in 1857.⁸ The ICO has 149 national and sub specialty ophthalmology societies as members and works closely with the global bodies such as WHO and IAPB and the supranational ophthalmology organizations. The ICO has focused its work on education, the provision of eye care, and developing leadership skills and capacities.⁹

While the need for eye care continues to increase, currently there are 205,000 ophthalmologists in the world, and clearly, they are not able to provide all the eye care that is required.¹⁰

To address the ever growing need for eye care, more ophthalmologists clearly need to be trained. However, this is not the whole solution. Eye care teams who are able to meet the community needs and also to integrate comprehensive eye care into the health care system also need to be trained. Equally, those who are trained need to have the infrastructure and support to be able to undertake the work they have been trained for.

The ICO has developed an extensive range of resources for teaching and learning that includes curriculum, the ICO exams and fellowships, extensive resources for teaching the teachers including the Centre for Ophthalmic Educators' website.¹¹

Another very important area of education is continuing professional development so that all ophthalmologists can keep current with the new developments and advances as they occur. The ICO is actively encouraging and supporting national societies in developing continuing professional development (CPD) resources and programs.

In addition, the ICO has developed clinical guidelines for the management of diabetic eye care and for glaucoma eye care.^{12,13} These guidelines provide a summary of best practice for high resource settings but more importantly, provide clear guidelines for those working in low and middle resource settings who do not have access to the equipment and resources that might be available elsewhere.

The ICO is also working closely with the WHO, IAPB, and others to help implement and promote the implementation of the WHO Global Action Plan.¹⁴ The World Health Assembly (WHA) set a target for a 25% reduction of avoidable visual impairment from 2010 to 2019. To monitor the progress, they

will follow the prevalence and causes of visual impairment, monitor the cataract surgery rate and cataract surgery coverage rate, and also document the number of eye care personnel by cadre. Each national government has committed to implement this Global Action Plan and are due to report to the WHA in 2017 and in 2020.

Summary

There are major efforts worldwide to reduce avoidable blindness and great progress is being made. However, there is still a lot of work that needs to be done. Training ophthalmologists and building the capacity is critical, but also there is a clear need to develop effective teams to provide high quality eye care to all. Underpinning this is the importance of quality education for those in training and also for ongoing professional development, and this is one of the major areas of activity of the International Council of Ophthalmology.

References

1. World Health Organization. *State of the World's Sight: VISION 2020: The Right to Sight: 1999–2005*. Geneva: World Health Organization; 2005 [cited 2013 30 April]. Available from: http://www.who.int/pbd/blindness/vision_2020/v2020_theighttosight.pdf.
2. Lansingh VC, Resnikoff S, Tingley-Kelley K, et al. Cataract surgery rates in Latin America: a four-year longitudinal study of 19 countries. *Ophthalmic Epidemiol*. 2010;17:75–81.
3. International Coalition for Trachoma Control (ICTC). Trachoma partners celebrate exceptional progress [cited 2015 18 December]. Available from: <http://www.trachomacoalition.org/news-blogs/trachoma-partners-celebrate-exceptional-progress>.
4. World Health Organization. Neglected tropical diseases — WHO revises onchocerciasis guidelines as countries approach elimination targets [cited 2017 23 March]. Available from: http://www.who.int/neglected_diseases/news/WHO_revises_guidelines_for_river_blindness/en/.
5. Naidoo KS, Leasher J, Bourne RR, et al. Global vision impairment and blindness due to uncorrected refractive error, 1990–2010. *Optom Vis Sci*. 2016;93:227–234.
6. Frick KD, Joy SM, Wilson DA, Naidoo KS, Holden BA. The global burden of potential productivity loss from uncorrected presbyopia. *Ophthalmology*. 2015;122:1706–1710.
7. Bourne RRA, Stevens GA, White RA, et al. Causes of vision loss worldwide, 1990–2010: a systematic analysis. *Lancet Glob Health*. 2013;1:e339–e349.
8. Taylor HR. *Trachoma: A Blinding Scourge from the Bronze Age to the Twenty-first Century*. Melbourne: Centre for Eye Research Australia; 2008.
9. International Council of Ophthalmology. [cited 2015 26 November]. Available from: <http://www.icoph.org/>.
10. Resnikoff S, Felch W, Gauthier TM, Spivey B. The number of ophthalmologists in practice and training worldwide: a growing gap despite more than 200,000 practitioners. *Br J Ophthalmol*. 2012;96:783–787.
11. International Council of Ophthalmology. ICO Center for Ophthalmic Educators [cited 2017 23 March]. Available from: <https://educators.icoph.org/>.
12. International Council of Ophthalmology. ICO Guidelines for Diabetic Eye Care [cited 2017 23 March]. Available from: <http://www.icoph.org/downloads/ICOGuidelinesforDiabeticEyeCare.pdf>.
13. International Council of Ophthalmology. ICO Guidelines for Glaucoma Eye Care [cited 2017 23 March]. Available from: <http://www.icoph.org/downloads/ICOGlaucomaGuidelines.pdf>.

14. World Health Organization. World Health Organization Sixty-sixth World Health Assembly 2013 [cited 2015 18 November]. Available from: http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_11-en.pdf.

*MSPGH, The University of Melbourne, Level 5, 207 Bouverie Street, Carlton, Victoria, 3053, Australia.
E-mail address: h.taylor@unimelb.edu.au.

Professor Hugh R. Taylor, AC, President,
International Council of Ophthalmology,
Melbourne Laureate Professor and
Harold Mitchell Chair of Indigenous Eye Health*
*Melbourne School of Population and Global Health,
The University of Melbourne,
Victoria, Australia*