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SUPPORTING VISION 2020: THE RIGHT TO SIGHT

THE ROLE OF OPTOMETRY IN VISION 2020

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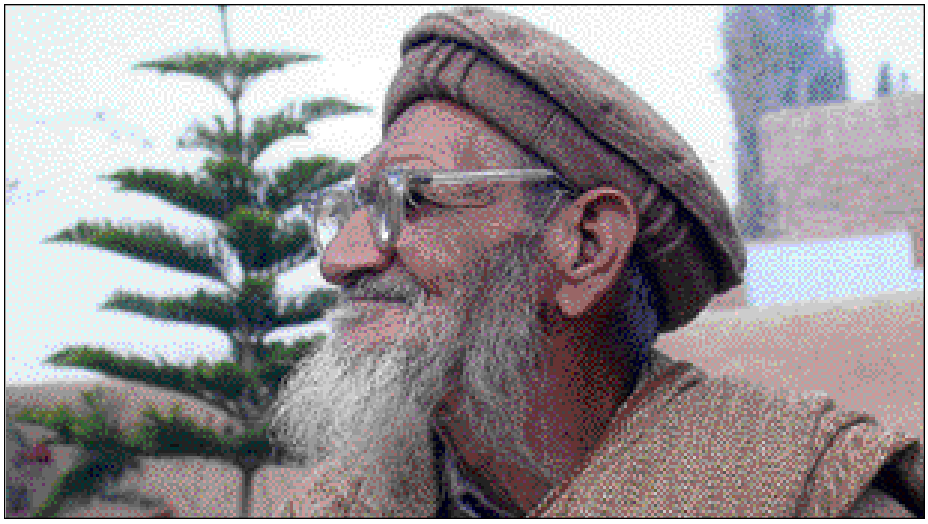

Vision restored!

Photo: Pak Sang Lee

The global initiative, *Vision 2020: The Right to Sight*, established by the World Health Organization (WHO) and the International Agency for the Prevention of Blindness,hascreatedvaluableandeffective collaborations of organisations involved in a wide range of eyecare and community healthcare activities aimed at the elimination of avoidable blindness and impaired vision.

Vision 2020's major priorities are cataract; trachoma; onchocerciasis; childhood blindness, and refractive error and low vision. These have been selected not only because of the burden of blindness that they represent but, also, because of the feasibility and affordability of interventions to prevent and treat these conditions.

It is only recently that uncorrected refractive error has achieved prominence as a major cause of functional blindness and significantly impaired vision, as a result of landmark population-based studies in adults, children and in post-cataract patients.

Apart from individuals who have taken an active role in the elimination of diseases such as onchocerciasis or have been in cataract teams, optometrists have had little opportunity to take part in the front line elimination of four of the major, preventable blindness-producing conditions targeted by *Vision 2020*. The realisation of the impact of uncorrected refractive error has provided the opportunity for optometry to play a major part in alleviating vision loss for those most in need.

The need to mobilise optometry to deal with uncorrected refractive error has been accompanied by the possibility of better integration of optometry into prevention of blindness in general, with some major benefits in areas such as:

- Teaching eye care personnel, especially in refraction and low vision care
- Providing screening and vision care services at secondary and tertiary levels

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Finding the Patients . . .

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- Detection and management of potentially blinding diseases such as cataract, diabetes and glaucoma
- Research into the understanding of global eyecare needs and solutions, especially in vision correction and vision care service delivery
- Building economic and logistical models of self-sustainable eyecare.

Impact of Uncorrected Refractive Error

Visually disabling refractive error affects a significant proportion of the global population, occurring in both genders, in all ages and in all ethnic groups.

The most common cause of visual impairment, and the second leading cause of treatable blindness,[1] uncorrected refractive error has severe social and economic effects on individuals and communities, restricting educational and employment opportunities of otherwise healthy people. The duration of the effect is also significant – refractive error can account for twice as many blind-person-years compared to cataract, due to the earlier age of onset.[2]

The need is very great for both children and adults. Studies have shown that refractive error in children causes up to 62.5% of blindness (≤ 6/60 in the better eye) in Chile,[3] 22% in Nepal,[4] 77% in urban India,[5] and 75% in China.[6] For visual impairment in children (≤ 6/12 in the better eye), refractive error is responsible for 55% in Chile, 86% in Nepal, 93% in China, 70% in rural India,[7] and 83% in urban India.[5] What is also disturbing is the amount of this refractive error that is uncorrected on presentation – 46% in Chile, 92% in Nepal, 58% in China, 86% in rural India. The burden even reaches to developed countries, with uncorrected refractive error causing 25% of all blindness (<6/60) in an Australian adult population and 56% of visual impairment (<6/12).[8]

The burden of refractive error is set to grow alarmingly due to an increase in myopia in both the developed and developing world, especially in urbanised East Asians, such as the Chinese populations in Hong Kong, Singapore and Taiwan. [9–11]

Refractive Error and Vision 2020

The impact and importance of uncorrected refractive error has now been recognised by *Vision 2020.* WHO established a Refractive Error Working Group (REWG), as part of global *Vision 2020* activities, in recognition of this important facet of internationaleyecare. TheREWGisnow developing international strategic plans and policies to eliminate uncorrected refractive error.

Eye examination by an ICEE optometrist in a remote location in East Timor
Photo: Brien Holden

Optometry's Role in Correcting Refractive Error

The good news is that while refractive error is amongst the most common causes of blindness and visual impairment, it is also the easiest to 'cure'. Refractive error can be simply diagnosed, measured and corrected, and the provision of spectacles is an extremely cost-effective intervention, providingimmediatecorrectionoftheproblem.

Throughout the world optometry has been the major provider of vision correction, but usually from a private practice setting. Public health optometry has not reached the communities that are in most need in any organised way. Despite this, on their own initiative, thousands of private optometrists worldwide have regularly visited communities in need to provide vision care and dispense spectacles. The opportunity now is for optometry to develop a concerted effort to create local capacity in these communities, in collaboration with its partners in *Vision 2020*, through service delivery, by creating human resources and by helping to develop the infrastructure needed, the three cornerstones of the *Vision 2020* programme.

What is Needed?

The way to eliminate uncorrected refractive error is through the development of all

these aspects of a self-sustaining system, including personnel to provide eyecare services; and spectacles, to correct vision.

Trained eyecare personnel
+ Affordable spectacles
= PEOPLE WHO CAN SEE!

In most developed countries the optometrist to population ratio is approximately 1:10,000. However, in developing countries the ratio is 1:600,000, and much worse in many rural areas, up to millions of people per optometrist. This lack of practitioners is the main reason for high rates of vision problems due to uncorrected refractive error in developing countries. The 'blindness' rate in many developing countries, especially in Africa, is 7 times higher, at 1.4%, than in developed countries.

In order to deliver good quality eyecare to countries where the need is greatest, there needs to be a steady but substantial increase in the number of eyecare personnel trained in refraction and vision correction. The current desperate situation in many countries cannot wait for advanced optometry to develop but requires optometry to take a major role in training mid-level personnel in refractive care. Whether it is the world's newest country, East Timor, or Ethiopia with its 70 million people, both without any optometrists, interim measures using nurse-refractionists or ophthalmic or optometric technicians that refract are essential.

Many make the issue of refraction and vision correction too simple. Why not just use subjective trial and error? The main reason is that it does not work. Children accommodate, myopia is overcorrected, and hyperopia is undercorrected. The second reason is that both adults and children will not wear spectacles that hurt their ears, look strange or 'strain their eyes' – even if they are free. It is a waste of time, resources and money to do it the wrong way. Doing it the right way means an accurate refraction (by a refractionist using either a retinoscope or refractometer) and the correct ISO/ANSI standard spectacles that are comfortable and attractive. Affordable spectacles can be provided easily through mass-distribution of 'ready-made' spectacles and the establishment of low-cost local laboratories for 'tailor-made' spectacles.

International optometry and opticianry have important roles to play in this task. Traditionally, these groups have been primarily involved in the private sector, generally looking after wealthier people in the community. But progressive leadership in optometry sees an ever-increasing role in the development of training and continuing education programmes for all levels of available eyecare personnel; in the establishment of infrastructure; in the development of effective models and programmes; in the delivery of eyecare services to meet community needs, and in the funding needed for the provision of training and low cost spectacles.

Optometry as Part of the Eyecare Team

In the first Planning Meeting of the Informal Group on Refractive Error, the participants endorsed 'the inclusion of the correction of visually disabling refractive error as a component of the Global Initiative for the Elimination of Avoidable Blindness - *Vision 2020: The Right to Sight*', and 'emphasised the need to deliver refraction services as an integral part of general health care systems and comprehensive eyecare'. [12]

The need for glasses is also a public eye health opportunity not to be missed. Refractive care provides excellent access to the population for screening of more serious eye problems, such as cataract and diabetes. Primary care screening by optometrists and eyecare workers, with optometrists taking care of the more immediate interventions required, and referral for more 'complicated' care, is 'classical' health care delivery.

One effective current model, developed by the LV Prasad Eye Institute in Hyderabad,India,fortheefficientandcost-effective delivery of eyecare is a community eyecare 'team'. For every 1,000,000 people the team has:

- 1 ophthalmologist
- 4 optometrists
- 8 eyecare workers
- 8 ophthalmic assistants
- 16 ophthalmic nurses.

The Role of Research

As the previous statistics show, there is a significant problem to be faced in addressing uncorrected refractive error. But understanding the scope of the problem, and most importantly, planning how to solve it, requires much more information than these simple numbers. Adequate prevalence data are necessary to determine the regions, population groups and age cohorts most in need of intervention, and, also, to provide the basis from which interventions in the future can be evaluated.

As part of the front line of the eyecare team, optometry has a role to play in research as diverse as the aetiology of the epidemic of myopia in East Asia, to collecting the data needed to design effective eyecare interventions, both in refractive error and for other eyecare needs. Optometry can significantly contribute to the understanding of:

- Worldwide blindness and impaired vision – the burden and its effects
- Health care planning
- Service delivery
- Outcomes of intervention.

Refractive Error Study In Children

A series of studies around the world have begun to fill in the gaps in our knowledge of the burden of blindness and impaired vision in children caused by refractive error. The studies address the variation of refractive error with age, gender, race and geographic region, the extent to which it is being corrected, and how the prevalence is changing over time. The Refractive Error Studies in Children (RESC) have so far been conducted in Nepal, China, Chile and India, using population-based, cross-sectional sampling, consistent definitions and a common methodology. ICEE is currently conducting the RESC study in KwaZuluNatal,SouthAfricainconjunction with the National Eye Institute and WHO, and sponsoredbyCBM International, Sight Savers International and ICEE. At the completion of the African study, data will have been collected on approximately 30,000 children worldwide.

Self-Sustainability, Refractive Error and Optometry

Two other important contributions that optometry and the optical industry can make to the worldwide fight to eliminate avoidable blindness and impaired vision due to refractive error are:

- Developing the logistics and economics of self-sustaining eyecare at the community and institutional levels
- Mobilising worldwide resources to develop models and create the educational and delivery infrastructure for refractive and general vision care.

First, optometry and opticians need to pass on knowledge of the logistics, supply systems and economic management that is done so well in private practice, to public health programmes. Thus, spectacle supply can effectively fund more expensive or intensive needs such as low vision and cataract surgery. An important part of practical and cost-effective eye care systems to communities in need is the understanding that it does not make sense to bring 50% of

Bifocal spectacles make a difference in Jamaica

Photo: Murray McGavin

the population that require refractive services into a hospital setting for refractive care. It makes much more sense to screen, refract and supply spectacles and vision care, including the detection and treatment of minor problems, and referral of those with more serious problems, at the community level. Optometry can make a major contribution in supporting eye care at this more convenient and cost-effective level.

Second, the global spectacle industry and optometrists and ophthalmologists who serve the private sector probably generate total revenues of over $100 billion. It would be a powerful statement of professional and corporate responsibility if 0.1% of this amount found its way back to help those most in need.

Conclusion

It should not be necessary for any child to struggle in school, to learn with an uncorrected refractive error. Nor should any older person be called upon to spend thirty or forty years without glasses, to see to read or sew or to manage a job. Optometry and the optical industry in its broadest sense should be able to find the financial resources to give this simplest gift of sight.

Preventable blindness is one of our most tragic and wasteful global problems. Optometry is an essential part of the team that will eliminate this tragedy, by understanding global eyecare needs and delivering effective and sustainable vision care to people in need, thereby ensuring their fundamental right to sight.

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