

Spectacles for the Millions Addressing a priority of “Vision 2020 - The Right to Sight”

R. D. Thulasiraj, Executive Director; Dr S Aravind, Administrator; Keerti Bhushan Pradhan, Faculty

The World Health Organisation, (WHO) its Member States and all agencies involved in the prevention of blindness and preserving the sight have joined together and launched a global initiative called “Vision 2020 – the Right to Sight”. This initiative is an outcome of the realisation that the number of blind would double by the year 2020 at current service levels and that over 80% of the blindness is avoidable - curable or preventable. Thus the aim of this initiative is to eliminate needless blindness by the year 2020.

Amongst the various disease control priorities under the Vision 2020 global initiative, the one that cuts across all regions is blindness and vision impairment caused by refractive errors. Refractive error can be simply diagnosed, measured and corrected with spectacles. The provision (distance spectacles for myopia and near spectacles for presbyopia) is extremely cost-effective in reducing visual impairment¹.

It is estimated that 2.3 billion people worldwide have refractive error. The vast majority of these could have their sight restored by spectacles, but only 1.8 billion people have access to eye examinations and affordable correction. This leaves approximately 500 million people, mostly in developing countries, with uncorrected error causing blindness and impaired vision².

The lack of refraction and spectacle provision in eye care services in underserved communities has important negative consequences in terms of lost educational and employment opportunities, which impacts quality of life and lost economy for the individual, the family and society¹.

Refractive Errors cut across all age - groups and its prevalence in India in children varies from 3% to 6%^{3,4}. While data is not available, the refractive errors will be of a higher magnitude of about 15% in the 15 to 50 years age group. In the above 50 years age- group. In the above 50 years age-group, at least

80% of them will require spectacle corrections for near vision. Extrapolating the projections to the one billion population of India, there would be an estimated 220 million persons who will benefit from refractive error correction. Against this, the actual use of spectacles is as extremely low, estimated at 15% to 20%. Though contact lens or laser surgery are the other options for refractive correction, like the rest of the world, correction through spectacles continues to be the most dominant and cost effective intervention in India.

The correction for refractive error in the older age-group is becoming important in view of the increasing literacy and the increasing requirement of good vision for daily living chores. The near vision glasses have been traditionally called as reading glass and are felt to have relevance only to those who can read and write. Often times the ophthalmologist would ask the patient if the patient can read or write and if the patient is illiterate, he or she is not even tested for refractive errors. It must be realized that reading and writing are only few of the many activities of our daily living that require good vision. There are several other activities, which require good near vision and this is yet to be recognized by the providers. Such activities include a broad spectrum ranging from regular household chores like sewing, cutting vegetables, etc., to activities at work places like weaving, spinning, carpentry, lathe work, etc. Hence the refractive correction has wider relevance and can make a significant difference to quality of life to all those with refractive errors. If we have to address this we need to develop a system and capacity for delivering 70 million spectacles a year, assuming that the average spectacle will last for three years on account of change in prescription or damages. How can this be addressed? The following are some of the challenges and possible solutions are given below :

Challenges:

1. Issues relating to dispensing:

In most situations getting a pair of prescription spectacle involves several visits. A visit has to be made to an ophthalmologist to get a prescription. Very often a second visit is needed to an optical shop to order the spectacles. Quite often a return visit has to be made to the shop since it takes two or three days to get it ready. After getting the spectacle many of the patients would like to show it again to the doctor to ensure that they got the right pair of spectacles. Depending on where the optical shop is located, it could add up to four visits to get a pair of glasses. The costs involved in this, both direct and indirect, are often significantly more than the cost of the spectacles themselves. The effort, resources and time required to go through the whole process often discourages the individuals from getting their refractive errors corrected. Hence the process and system of how spectacles are dispensed will need to be recognized as a significant factor that influences uptake.

2. Issues relating to reaching out everyone who has refractive errors:

Refractive error is very easy to diagnose and can be easily corrected by giving an appropriate pair of spectacles. However the real challenge here is in reaching those who have refractive errors and motivating them to get the corrections. This is particularly challenging as 70 % of our population lives in rural areas without convenient access to an eye care facility or an optical shop with refraction services. The low service levels have resulted in very few people wearing glasses and this in turn has resulted in low levels of appreciation for the need and benefits from correcting the refractive errors.

Possible Solutions:

Fortunately the skills required to do a good refraction, give a prescription and dispensing the correct spectacle can be given with appropriate training to those with just higher secondary school education. If we are truly committed to solving the problem of refractive errors a network of facilities should be developed at community level that can do refraction and dispense appropriate spectacles at an affordable cost.

1. Dispensing:

In order to address the issues of dispensing, the first

step is to integrate refraction and dispensing as a “one-stop” service through careful planning. By looking at the hospital data and experience it is possible to predict the mix of lenses that will be required and the frames that would be preferred. With the inventory of ready lenses and frames the only processing required to dispense a pair of spectacles is edging and fitting the lens in the frame. This can be done very quickly, making it possible to dispense the spectacles within half an hour. This concept has been quite extensively tested out at Aravind Eye Hospital both in its base hospital and in the several outreach activities. The optical dispensing is now an integral activity in its screening eye camps, school screening programmes and industry refraction camps. With a simple edging machine, well-planned inventory of lens and frames over 85% of the prescriptions are delivered on the spot and the remaining 15% are sent by courier or delivered in-person. During the year 2001, 25350 spectacles were distributed through outreach activities, thus reaching the rural population in a cost effective manner. The individuals paid an average price of Rs.150. They had a choice of frames and the opportunity to get the correct prescription glasses in one visit.

2. Developing a system for community outreach:

Under the initiative Vision 2020, at the community level an eye care centre is being envisaged for a population base of 50,000 at the community level. This centre would be able to provide some first-line treatment as well as provide the complete refraction services. These “Vision centres” in turn will develop its own network to carry out Primary Eye care activities in the community. These “Vision centres” will also be involved in outreach activities like community screening, school screening, industry screening, etc., to pro-actively promote the refraction services. In addition existing eye care providers can integrate the refraction services into their outreach activities.

3. Financing the concept:

The refractive correction through a pair of spectacles serves two purposes for the people. One is to help them see better and the other is the potential to make them look better. For the later – “vanity element”,

they are willing to pay, as long as the price charged is within four or five days of wages so that it becomes affordable. Even in this level it will be possible to provide good pair of spectacles that meets the functional and vanity needs and have a small margin, which can cover the costs of other related services.

Scope of work for NGOs:

Considering the need for refractive error services, which does not demand high levels of clinical & technical knowledge, NGOs can contribute in many ways and at the same time be sustainable. Any NGO with a small space can organise the refraction services with the help of an Optometrist and Optician. For a population of 100,000, it is estimated that there will be 22,000 individuals who will benefit from a pair of spectacles. If we consider that all those who require spectacles will also use it, the annual demand for spectacles will be around 7000 to 10000 spectacles, taking into account the average life of a spectacle is 2 to 3 years. Many own more than one pair. Besides prescription and dispensing of spectacles, the eye care personnel can also perform primary eye care services. This work will add value to NGO's as an additional healthcare activity and free the population from needless visual impairment with accessibility and availability of such services in the region. There may

be a question on where to get trained personnel or how to train personnel in this area of work? There are organisations in the country that are currently providing training this specific area. The combined result of these efforts will hopefully help realise the goals of the Vision - 2020.

References:

1. *Elimination of avoidable visual disability due to refractive errors: Report of an informal planning meeting.* World Health Organization. Geneva. 3-5 July 2000; WHO/PBL/00.79
2. Holden BA, Sulaiman S, Knox K. *The challenge of providing spectacles in the developing world.* *Journal of Community Eye Health*, 2000, 13:9-10
3. Dandona R et al. *Refractive Error in Children in a Rural Population in India.* *Investigative Ophthalmology & Visual Science*. 2002; 43:615-622
4. Murthy GVS et al. *Refractive Error in children in an Urban Population in New Delhi.* *Investigative Ophthalmology & Visual Science*. 2002; 43:623-631

For any queries contact: thulsi@aravind.org/
keerti@aravind.org