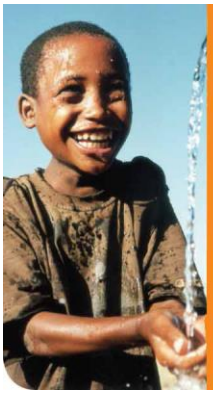

May 2016

IAPB Position Statement

IAPB Position Statement on Ready Made Spectacles

International Agency for the Prevention of Blindness

The purpose of IAPB position statement documents is to advise IAPB member organisations and other stakeholders of positions adopted by IAPB, in consideration of advice from leading experts, in issues affecting universal eye health.

By IAPB Refractive Error Work Group

Position statement:

Ready made spectacles have been shown to be less costly than supplying donated spectacles because of the cost of sorting donated spectacles.[5] While custom made spectacles remain the ideal solution to refractive error, ready made spectacles represent a reasonable alternative which can provide a more rapid response to the problem.

Recent estimates of vision impairment caused by uncorrected refractive error are 624.8 million cases globally, 107.8 million[1] from distance refractive error and 517 million[2] from uncorrected presbyopia. The financial burden to society resulting from uncorrected distance refractive error has been estimated at US$202 billion.[3,4] In contrast, the cost of correcting the problem has been estimated at about US$20 billion.[4] Application of the proposed protocol below could reasonably be expected to reduce the overall costs of spectacle provision and thereby increase the effectiveness of refractive error programs.

One of the least costly methods of correcting refractive error, including presbyopia, is ready made spectacles.

Ready made spectacles have been shown to be less costly than supplying donated spectacles because of the cost of sorting donated spectacles.[5] While custom made

spectacles remain the ideal solution to refractive error, ready made spectacles represent a reasonable alternative which can provide a more rapid response to the problem. They have also been shown to be suitable for a significant proportion of people with ametropia (myopia, hyperopia or astigmatism) and presbyopia.[6,7]

As with custom made spectacles, ready made spectacles should be used under the guidance of a suitably trained person.

Considerations

The problem of uncorrected refractive error in low income regions requires a low cost solution which does not compromise quality or cosmesis. Ready made spectacles present a low cost option for service delivery organisations. Unlike donated spectacles, ready made spectacles also have predictable appearance and are readily available in 0.50 D steps from −6.00 D to +6.00 D. They are also new, without any age related faults.

Guide on Usage

Based on a study of 700 ready-made spectacles,[8] together with the findings and proposals of others,[9-12] the IAPB makes the following recommendations for the selection of ready-made spectacles for refractive error programs:

- Ready made spectacles are suitable for ametropes where:
    - anisometropia is less than 1.0 D;
    - astigmatism is less than or equal to 0.75 D; or
    - prescribed prism is less than or equal to 0.5Δ.[12]
- Ready made spectacles are suitable for all emmetropic presbyopes.
- Ready made spectacles should preferably be limited to powers less than or equal to ±3.50 D. Delivery of custom-made spectacles back to outreach sites can be difficult, therefore a wider range of ready-made spectacles may be needed for such programs.
- All ready made spectacles should conform with the relevant ISO standards[8].
- Ready made spectacles of less than or equal to ±3.50 D should be checked visually for faults and flaws, notably surface waves[8]. Powers of less than or equal to ±3.50 D are relatively unlikely to fail on criteria requiring measurement by a focimeter. Therefore focimeter checking for powers within the range −3.50 D to +3.50 D is not required; a brief visual inspection will suffice.[8]
- Ready made spectacles should be an appropriate physical fit and be adjusted to suit the wearer by a trained person.
- If children are to be prescribed ready-made spectacles (most likely in low- resource

settings) they should be of an appropriate size and particular consideration should be made of the PD.

- Ready made spectacles should be cosmetically acceptable to the target population.
- **Ready made spectacles should be supplied under the guidance of a suitably trained person.**

Visual checking procedure for powers ≤±3.50 D

1. Hold the spectacles 10 centimetres above a grid such as an Amsler chart and observing one lens at a time, move the lens left and right (along the x axis), then up and down (along the y axis). The lines on the grid should remain straight. Waves will be evident as waving lines. If waves are found within a 15 mm radius of the geometrical centre the spectacles should be rejected.
2. Hold the spectacles horizontally and move them up and down. The horizontal line in the centre of the grid should remain at the same level in each lens when viewed together.
3. Check the surfaces of the lens for scratches and pits. The lens should be rejected if any scratches or pits are found within a 15 mm radius of the geometrical centre.
4. Check the frame for defects such as missing pads and broken or loose joints.

Checking procedure for powers >±3.50 D

1. Check for waves, pits and scratches as for lower powers. The spectacles should be rejected if any scratches or pits are found within a 15 mm radius of the geometrical centre.
2. Check frame for defects such as missing pads and broken or loose joints.
3. Measure vertical differential prismatic effect. Reject if >0.5Δ (based on ISO 21987[13]).
4. Measure and record centration distance (PD). Do not use if the centration distance differs by more than 3 mm from the patient's PD (based on ISO 16034,[14] ISO 21987,[13] and du Toit et al.[10]).

References

1 Bourne, R. R. et al. Causes of vision loss worldwide, 1990-2010: a systematic analysis. The Lancet Global Health 1, e339-e349 (2013). <http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(13)70113-X/fulltext>.

2 Holden, B. *et al.* Global vision impairment due to uncorrected presbyopia. *Arch Ophthalmol* **126**, 1731-1739 (2008).

3 Smith, T., Frick, K., Holden, B., Fricke, T. & Naidoo, K. Potential lost productivity resulting from the global burden of uncorrected refractive error. *Bulletin of the World*

Health Organization **87** (2009). <http://www.who.int/bulletin/volumes/87/08-055673.pdf>.
4 Fricke, T. *et al.* Global cost of correcting vision impairment from uncorrected refractive error. *Bulletin of the World Health Organization* **90**, 728-738 (2012).
5 Wilson, D. A., Cronjé, S., Frick, K. & Holden, B. A. Real Cost of Recycled Spectacles. *Optometry & Vision Science* **89**, 304-309 310.1097/OPX.1090b1013e318242cfae (2012).
6 Keay, L. *et al.* A randomized clinical trial to evaluate ready-made spectacles in an adult population in India. *Int. J. Epidemiol.*, dyp384, doi:10.1093/ije/dyp384 (2010).
7 Zeng, Y. *et al.* A Randomized, Clinical Trial Evaluating Ready-Made and Custom Spectacles Delivered Via a School-Based Screening Program in China. *Ophthalmology* **116**, 1839-1845 (2009).
8 Wilson, D. A. *Efficacious correction of refractive error in developing countries* PhD thesis, University of NSW, (2011).
9 Brian, G., du Toit, R., Wilson, D. & Ramke, J. Affordable ready-made spectacles for use in blindness prevention programmes: setting standards of quality. *Clinical and Experimental Ophthalmology* **34**, 722-724 (2006).
10 du Toit, R., Ramke, J. & Brian, G. Tolerance to Prism Induced by Readymade Spectacles: Setting and Using a Standard. *Optometry and Vision Science* **84**, 1053-1059 (2007).
11 IAPB Refractive Error Program Committee. Strategy for The Elimination of Vision Impairment from Uncorrected Refractive Error. (IAPB, 2008).
12 Ramke, J. & Holden, B. A. in *ICEE (internal document)*.
13 International Organization for Standardization. ISO 21987 Ophthalmic optics, Mounted spectacle lenses. (2009).
14 International Organization for Standardization. ISO 16034:2002: Ophthalmic optics - Specifications for single-vision ready-to-wear near-vision spectacles. (2002).