



DRAFT POSITION PAPER

ADJUSTABLE SPECTACLES

Position statement

There are an estimated 670 million cases of blindness or vision impairment (153 million people with impaired far visionⁱ and 517 million people with impaired near visionⁱⁱ) simply because they are unable to access an appropriate eye examination and spectacles. Far vision impairment alone costs \$269 billion a year in lost productivity.ⁱⁱⁱ The massive volume of cases, and consequent scale of disability and economic impact caused by uncorrected refractive error (URE) has led to various attempts to provide short-cut refractive care. Adjustable spectacles, with the optical power either set in an eye examination or self-adjusted, have been promoted by several companies and organizations as a potential solution.^{iv}

IAPB recognises the good intentions behind these short-cuts and spectacle technology but advises that its members and other parties engaged in promoting eye health should exercise caution with or avoid adjustable spectacles at this time. In deciding whether and how to use adjustable spectacles in future, the following areas should be considered.

Considerations

Sustainability

It is critical that refractive services are provided in a manner that contributes to affordable, high quality eye care for all patients irrespective of social standing. Isolated provision of spectacles is detrimental to the human resources and service delivery systems that are necessary for sustainable eye care services, and so should be avoided whenever possible.

- Adjustable spectacles that are affordable, comfortable, cosmetically acceptable and optically accurate may have a role contributing to sustainability when used by trained personnel within the recognised service delivery system of the jurisdiction
- Adjustable spectacles used in a way (e.g. self-adjusted for optical power) that undermines trained personnel working within recognised service delivery systems do not have a role

Children

Refractive care for children must involve an examination of the visual system to avoid complications, e.g. far-sightedness can cause eye turns, lazy eye, headaches and fatigue if not detected, measured, diagnosed and corrected adequately; near-sightedness can be over-prescribed leading to headaches, sore eyes and interference with the normal growth of the eye.

- Adjustable spectacles self-adjusted for optical power have no role in provision of refractive care to children due to their inability to control accommodation (the eye's focusing power)

- Adjustable spectacles used by trained personnel within recognised service delivery systems would need to be comfortable and cosmetically acceptable to children – variables such as size, weight and lens centration would require child-specific models

Benchmarking against ISO standards and the conventional options

Adjustable spectacles may be part of the solution to the global problem of vision impairment from uncorrected refractive error provided they meet ISO standards^v and are comparable to conventional ready-made and custom-made spectacles^{vi} in the following areas:

- Affordability
- Quality (optical, appearance, comfort, durability)
- Deliverability via an eye examination conducted by a trained person

These benchmarks promote quality eye care services including refractive care at all levels. The case load and relative simplicity of correcting refractive error means the bulk of refractive care is most efficiently dealt with at the primary level. However, screening for eye disease and management of potential complications associated with spectacles must be built-in.

REPCOM is unaware of any adjustable spectacles that achieve the first two benchmarks at present, and knows of adjustable spectacle manufacturers promoting self-adjustment in place of the third benchmark.

- Affordability and quality benchmarks appear more likely to be achieved in future by Alvarez lens system adjustable spectacles than by fluid-filled adjustable spectacles
- Adjustable spectacles that are many times more expensive, less comfortable and less cosmetically acceptable than the conventional options (custom-made and ready-made spectacles), or which do not achieve ISO standards for mounted spectacle lenses, do not have a role

Summary

Adjustable spectacles used as a corrective device prescribed within the affordability-quality-trained personnel paradigm provide an acceptable addition to the other available options.

However claims that using them as “self-adjustable spectacles” only have positive vision care outcomes are untrue. There are detrimental effects on eye disease case finding, prevention of blindness from eye diseases, the sustainability of eye care services, cross-subsidy systems that ensure access for all people, and care for people with “non-standard” refractive conditions such as astigmatism. Much more evaluation and systems development is necessary before “self-adjustable spectacles” could be promoted as a safe option for refractive error correction.

ⁱ Resnikoff S, Pascolini D, Mariotti SP, Pokharel GP. Global magnitude of visual impairment caused by uncorrected refractive errors in 2004. *Bull World Health Organ* 2008;86(1):63-70.

ⁱⁱ Holden BA, Fricke TR, Ho SM, Wong R, Schlenker G, Cronjé S, Burnett A, Papas E, Naidoo KS, Frick KD. Global vision impairment due to uncorrected presbyopia. *Archives of Ophthalmology* 2008;126(12):1731-9.

ⁱⁱⁱ Smith TST, Frick KD, Holden BA, Fricke TR, Naidoo KS. Potential lost productivity resulting from the global burden of uncorrected refractive error. *Bulletin WHO* 2009;87:431-37.

^{iv} Two different technologies have been promoted: 1) Fluid pressure changes used to vary equi-convex or -concave front and back lens surfaces, and 2) Alvarez lens systems, where 2 lenses slide across one another to vary optical power.

^v International Organization for Standardization. ISO 21987:2009 Ophthalmic optics – Mounted spectacle lenses. ISO, Geneva, 1 October 2009.

^{vi} Ramke J; Palagyi A; du Toit R; Brian G. Applying Standards to Readymade Spectacles Used in Low-Resource Countries. *Optom Vis Sci* 2009; 86(9): 1104-11.