

## LOW VISION STANDARDS

Chair: Jonathan Jackson

Co-chair: to be determined

A. Jonathan Jackson is a Hospital Optometrist with over 30 years' experience in secondary care Ophthalmology/ Optometry. He is currently head of Optometry at the Royal Victoria Hospital, Belfast, Northern Ireland and has gained experience through working in Teaching Hospitals, Universities and Professional Colleges in; Ireland (Royal Victoria Hospital/ Queens University/ Ulster University); England (Moorefield's Eye Hospital); the USA (University College Berkley) and Australia (Australian College of Optometry/Royal Victoria Eye and Ear Hospital/ University of Melbourne). The experience gained has been through working with many of the world's foremost ophthalmic surgeons, clinical & research optometrists and vision scientists. He is currently responsible for the delivery and development of adult and paediatric regional contact lens and low vision services, services built on an evidence base and validated against clinical standards. He has a PhD in Corneal Physiology and Morphology and has co-authored many corneal, contact lens, low vision and vision science related publications. He is in addition a Fellow of both the British Contact Lens Association and the American Academy of Optometry. In his current role as a member of the IAPB Low Vision Standards committee he has assisted the team in developing Low Vision Standards suitable for use across the Globe.



### **Symposium abstract**

Current estimates are that approximately 124 million people worldwide have Low Vision and of these two-thirds may benefit from access to Low Vision Services. Service models and materials required for the delivery of services will vary according to specific community needs, the skill mix available in those delivering services and the availability of funding to run services. The delivery of services is however only possible if those responsible for them have agreed, and well informed, standards against which to benchmark their activity.

In this symposium we will outline the importance of developing standards for affordable and accessible Low Vision Service delivery that can be applied globally and that are relevant to both the developed and developing world.

Members of the IAPB Low Vision Program Committee met in Hong Kong in Nov 2015. The purpose was to develop standards for affordable and accessible Low Vision Service delivery that can be applied globally and that are relevant to both the developed and developing world. In this symposium we will outline why standards are important in;

- (1) (H. Minto) the collection and collation of epidemiological data on vision impairment and why understanding the numbers is fundamental to service model design;
- (2) (J. Jackson) the collection of clinical information on the quantification of vision. Specific reference will be made of testing strategies and test chart characteristics used in the assessment of Visual Acuity, Contrast Sensitivity & Visual fields;
- (3) (I. Bailey) the establishment of design specifications for optical and non –optical low vision aids, with specific reference to the expression of lens power and magnification:
- (4) (P.Hoare) the responsibility of disseminating the standards to service providers globally.

The principles outlined are applicable to services developed for primary, secondary and tertiary Low Vision Centres. The standards developed as a result of the committees work have now been adopted by IAPB and will be published and made available to the global Low Vision community.

## **1. The epidemiological background to low vision standardisation.**

Minto H

*Brien Holden Vision Institute, Australia; International Agency for the Prevention of Blindness, UK*

Vision impairment has a major effect on a person's ability to perform tasks fundamental to education, gainful employment and social integration. It carries with it a higher risk of death, depression, an increased risk of falls, difficulties with daily living and increased dependence. Despite major advances in eye care 2/3 of the worlds estimated 124 million vision impaired people, who cannot have their sight fully restored with standard corrective measures yet have some residual vision, could benefit from Low Vision Rehabilitation strategies. This number is expected to double over the next 20-30 years. This is due to an increase in the prevalence of age related and disease specific chronic conditions and accompanying complications. Whilst the number of children with low vision is small in comparison with adults, the life years spent with the problem is significantly greater than adults. Low vision not only affects the child's development, independence and ability to pursue education, but has significant psychosocial and economic impact on the individual and the family.

Despite evidence highlighting the impact Low Vision Service provision can have on an individual's ability to cope with Low Vision, coverage of low vision services in most low or

medium income countries is below 5% and under 30% in most high income countries. Among the reasons for this low coverage is lack of trained professionals, the lack of standardised assessment procedure and little to no availability of affordable low vision devices. The only cost effective source of assessment tests and low vision devices, for those in the developing world, is through the Low Vision Resource Centre based at the Hong Kong Society for the Blind. In this presentation Dr Minto will highlight the importance of developing standards for individual communities that reflect resource availability and needs within those communities.

## **2. The standardisation of measures of Visual Function in Low Vision.**

Jackson AJ

*Royal Victoria Hospital, Belfast, Northern Ireland*

Individuals who have a defect in binocular vision that cannot be corrected by conventional (Spectacles, Contact Lenses or Surgical interventions i.e. Cataract Surgery) refractive means can be considered to have Low Vision. Quantification of the extent and nature of Low Vision involves the assessment of all major visual functions. The assessment of the visual systems ability to resolve high contrast detail at both distance and near (Visual Acuity) is of course paramount to the process of quantifying visual loss. Other aspects of vision, important to functional living, that should be assessed, are Contrast Sensitivity, Visual Fields and Colour Vision. Further detail as to the impact of vision loss on functionality can be gained from the assessment of glare sensitivity and a variety of dynamic activities including reading speed.

In assessing any of these functions it is essential that tests, and testing strategies, used produce reliable and reproducible measures that can be easily understood by all those involved in the visual rehabilitation process. In this session we will provide advice on test selection appropriate to the type and location of service being delivered. This will be illustrated through reference to the recently published IAPB Low Vision Standards.

## **3. Design specifications for optical and electronic low vision aids.**

Bailey IL

*University of California at Berkeley, USA*

Optical and electronic low vision devices are prescribed to enable visual impaired individuals to better perform their vision-dependent tasks. The magnifying effect and the field of view are the critical technical components of the prescribing decision. The technical parameters of the low vision devices are determined by the patient's vision characteristics and the visual

demand of the tasks. The Equivalent Viewing Distance (EVD) concept provides the simplest and most intuitive basis for making decisions about magnification. Our group has carefully assembled a list of recommended low vision devices and measured the technical parameters required by the clinician. For high-addition reading spectacles, the EVD is determined by viewing distance results from the power of the addition (in centimeters,  $EVD = 100/P_{\text{lens}}$ ). For optical stand magnifiers, the image is enlarged (ER) and it is located a fixed distance (d) below the lens. The EVD is equal the eye-to-image distance divided by the Enlargement Ratio ( $EVD = (z+d)/ER$ ). For video magnifiers, the ER is usually variable and the  $EVD =$  the eye-to-screen distance divided by the enlargement ratio ( $EVD = z/ER$ ). For telescope systems, the EVD is equal to the viewing distance divided by the telescope magnification ( $EVD = d/M_{\text{ts}}$ ) The Field of View (FoV) depends on a simple relationship between the EVD, the diameter of the field limiting aperture and its distance from the eye. In this presentation Dr Bailey will outline how the optical theory has been incorporated into the recently prepared IAPB Low Vision Standards publication.

#### **4. Development & delivery**

Hoare P

*International Agency for the Prevention of Blindness, UK*

The International Agency for the Prevention of Blindness (IAPB) is an alliance of civil society organisations, corporates and professional bodies promoting eye health through advocacy, knowledge and partnerships. IAPB aims to achieve 'Universal Eye Health', by maximising our members' impact and promoting eye care knowledge. IAPB divides its global network into seven regions, based on the World Health Organizations' geographical division of the world into six regional offices (with the only difference that we divide the Americas further into North and Latin America).

IAPB manages and promotes the IAPB Standard List of Equipment which is the world's leading online procurement platform specifically developed for eye care service providers in Low to Middle Income Countries (LMIC). IAPB recently launched the 3<sup>rd</sup> Generation platform which has been developed to provide a one stop shop for all eye care related equipment and consumables. IAPB recognises that due to the huge volume of people worldwide who suffer from low vision, approximately 124 million, the importance of making LV equipment and devices accessible to all persons providing low vision services is paramount. Developing guidelines as to the instrumentation and equipment necessary to deliver quality assured Low Vision Services, under very varied conditions and across the globe, is an essential component of this service. The Low Vision standards produced are a resource designed to ensure Low Vision Service quality. An additional benefit offered to the process of standards

development is IAPBs ability to disseminate the Standard List through its huge network and medium eg: VISION 2020 News Letter, IAPB Members News Letter, IAPB Standard List News Letter, Twitter, Face Book, LinkedIn etc. The Standard List is very well known in LMIC and has been available in a number of formats from the mid 1980s.