# The Interface between Primary and Secondary Paediatric Ophthalmic Services in Wales

Optometry Wales

## Executive Summary

The Welsh Optometrist and Orthoptist stakeholder group, Children's Vision in Wales (CVW), was established in 2010 . The aim of the group was to formulate an agreed care pathway for children's vision in Wales that would improve children's eye care and ease the pressures in paediatric ophthalmology service. This has now been successfully developed and submitted to the Welsh Government for approval. The pathway (Appendix 1) provides every child in Wales with school vision screening, and referral to an optometrist with referral to secondary care as required if clinically necessary. While Orthoptist led school vision screening has the detection of amblyopia at the heart of its rationale, there is a wider issue of uncorrected refractive error which may go undetected and alters as children develop, and continues to alter on through adulthood.

## Background

Refractive errors are common ocular conditions that have been identified as a cause of public health and economic concern[1], and by the WHO 'Vision 2020: The Right to Sight' as one of the avoidable causes of visual impairment[2]. Refractive errors, corrected and uncorrected, are the most common cause of visual impairment for school-age children[3]. Refractive errors in children are dependent on socioeconomic factors[4,5,] and uncorrected visual impairment in children is linked to lower socioeconomic status[5,6]. Progression to myopia through out childhood has been observed in several populations and is thought to be associated with near tasks and educational engagement[7,8,9].

By the age of 7 up to one in four children will be effected by hypermetropia[4,5], which is less frequent in non-white children[5], few (around 0.5%) will be effected by clinically significant myopia[4]. Around 3% of children will be affected by amblyopia, while 3% of children in this age group can also expect to experience 'clinically significant' strabismus[5]. By the age of 12, while up to one in six of children will be hyperopic, up to one in four of children will have progressed to myopia[3,4,10], with higher levels of myopia having been observed in South Asian populations[10].

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[1] Hyman L. Myopic and hyperopic refractive error in adults: an overview. Ophthalmic Epidemiology . 2007;14:192e7.
[2] Resnikoff S, Pararajasegaram R. Blindness prevention programmes: past, present, and future. Bull World Health Organ 2001;79:222-226.
[3] Robaei D, Kifley A, Rose KA & Mitchell P. Refractive error and patterns of spectacle use in 12-year-old Australian children. Ophthalmology 2006;113:1567-1573.
[4] O'Donoghue l, McClelland JF, Logan NS, Rudnicka AR, Owen CG & Saunders KJ. Refractive error and visual impairment in school children in Northern Ireland, Br J Ophthalmol 2010 94: 1155-1159.
[5] Williams C, Northstone K, Howard M, Harvey I, Harrad RA & Sparrow JM. Prevalence and risk factors for common vision problems in children: data fron the ALSPAC study. Br J Ophthalmol. 2008, 92 (7), 959-964.
[6] Robaei D, Rose K, Ojaimi E, et al. Visual acuity and the causes of visual loss in a population-based sample of 6-year-old Australian children. Ophthalmology 2005;112:1275-1282.
[7] Mutti O, Sinnott LT, Mitchell GL, Jones-Jordan LA, Moeschberger ML, Cotter SA, Kleinstein RN, Manny RE, Twelker JD, Zadnik K for the CLEERE Study Group. Invest Ophthalmol Vis Sci. 2011, 52, 199-205.
[8] Gwiazda J, Hyman L, Hussein M, Everett D, Norton TT, Kurtz D, Leske MC, Manny R, Marsh-Tootle W, Schieman M and the COMET Group. A Ramdomised clinical trial of progressive addition lenses versus single vision lenses on the progression of myopia in children. Invest Ophthalmol Vis Sci. 2003;44: 1492–1500
[9] Gwiazda J, Deng L, Dias L, Marsh-Tootle W & The COMET Study Group. Association of Education and Occupation with Myopia in COMET Parents. Optom Vis Sci 2011;88:1045–1053.

[10] Logan NS, Shah P, Rudnicka AR, Gilmartin B & Owen CG. Childhood ethnic differences in ametropia and ocular biometry: the Aston Eye Study. *Ophthalmic Physiol Opt* 2011, 31, 550–558.

Current practice of vision screening only at school entry has been guided by the Hall IV report which recommended that 4-5 year olds be screened in an orthoptist led programme. This was backed by the National Screening Committee[11]. Under the arrangements that are currently in place, the children who undergo screening who are then identified as having a suspected eye or vision defect are referred directly to secondary care services. The percentage of children who fail school vision screening at reception age is found to be 4-10%[12], with a positive case identification rate (PPV) of 47.5% to 66.4%[12]. However, not all Health Boards have instigated orthoptist led screening programmes for reception age school children, and screening coverage is 64.8% on average in those areas with an active screening programme[12].

While vision screening using uncorrected logMAR acuity may reliably detect myopia, current UK protocols may not effectively detect hyperopia[13], a known risk factor for strabismus and amblyopia[6,5], or astigmatism. Those identified by screening as amblyopic, or potentially amblyopic, may benefit from correction of refractive error prior to occlusion therapy, this benefit is seen in most cases within a few months[14,15]. Therefore, while the achievement of good uncorrected distance vision measurement during screening does not necessarily preclude the need for further investigation of visual status and management of refractive error[13], those who fail screening due to myopia or unconfirmed amblyopia would also benefit from assessment for uncorrected refractive error prior to consideration of occlusion therapy.

Optometry services in primary care are well established with an optometrist within 20 minutes of every household in Wales[16]. Access to primary care optometry is excellent, with children of school age being automatically eligible for NHS funded sight tests[17], and same day appointments being available in many cases. The assessment of and prescribing for refractive error and binocular vision problems are core competence skills for optometrists. The dispensing and fitting of spectacles to school age children are core competence for dispensing opticians.

For the majority of children who are identified as having a suspected vision defect during screening, referral to an optometrist for assessment and confirmation of a visual impairment prior to any potential assessment in secondary care would help secondary care prioritise services, freeing capacity for those most in need of subspecialist care.

Where referral to subspecialist services has been clinically indicated, a child discharged from secondary care services should be advised to attend an optometrist for routine follow up care in community optometry services. At the point of discharge, information regarding

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11 The UK National Screening Committee (2006) The UK NSC policy on vision defects screening in children. Available: http://www.screening.nhs.uk/vision- child. Accessed April 2013.

12 Snowdon SK and Stewart-Brown SL. Preschool Vision Screening. Health Technology Assessment 1997: Vol 1: No.8

13 O'Donoghue L, Rudnicka AR, McClelland JF, Logan NS & Saunders KJ (2012) Visual Acuity Measures Do Not Reliably Detect Childhood Refractive Error - an Epidemiological Study. PLoS ONE 7(3): e34441. doi:10.1371/journal.pone.0034441

14 Stewart CE, Moseley MJ, Fielder AR, Stephens DA and the MOTAS cooperative. Refractive adaptation in amblyopia: quantification of effect and implications for practice. BR J Ophthalmol 2004; 88: 1552-1556.

15 Stewart CE, Moseley MJ, Stephens DA & Fielder AR on behalf of the MOTAS Cooperative. Treatement dose-response in amblyopia therapy: The monitored occlusion treatment of amblyopia study. IOVS 2004, 45 (9) 3048 – 3054.

16 Sheen NJ, Fone D, Phillips CJ, Sparrow JM, Pointer JS & Wild JM. Novel optometrist-led all Wales primary eye-care services: evaluation of a prospective case series. Br J Ophthalmol.2009, 93 (4) 435-438.

17 Eye Care Statistics for Wales. Website accessed July 2013 http://wales.gov.uk/topics/statistics/headlines/health2013/eye-care-statistics-2012-13/?lang=en

the treatment the child has received in secondary care will inform their future care and reduce the likelihood of referral into paediatric ophthalmology services.

**Recommendations**

The Children's Vision Wales Group should consider how to cater best for those children who fail school aged screening. Optometry Wales recommends that these children are seen by an optometrist to assess for refractive error prior to any potential assessment within secondary care.

The Children's Vision Wales Group should consider whether those children who require refractive error correction should be offered a follow up in primary care prior to any potential referral to secondary care.

The Children's Vision Group should consider ways in which clinical audit may enable paediatric services to monitor the quality of children's vision services.

The Children's Vision Wales Group should consider welcoming improved and effective communication between primary and secondary care paediatric ophthalmic services.

The Children's Vision Wales Group should consider supporting increased awareness of eye care in relation to a child's development.

The Children's Vision Wales Group should consider opportunities for further research into the impact of uncorrected and corrected refractive error on social and educational development.

A note on the authors of this paper:

Optometry Wales is the professional umbrella organisation for the primary care eye health profession in Wales; representing all community optometrists, dispensing opticians and optometric practices. Optometry Wales is committed to eye care excellence. Optometry Wales is pleased to support the Children's Vision Wales Group.

Optometrists and Dispensing Opticians in Wales are regulated by the General Optical Council and are bound by the guidance provided by the College of Optometrists and the Association of British Dispensing Opticians. Sight Tests performed for both children and adults are governed by the Optician's Act 1989[18].

[18] Rules and Regulations of Sight Testing and Contact Lens Fitting and Supply. College of Optometrists and the Royal College of Ophthalmologists March 2011. Accessed Juy 2013