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Title of the Talk: Vision screening for correctable visual acuity deficits in school age children and adolescents

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Abstract (600 word limit)

Although the benefits of vision screening seem intuitive, the value of such programmes in junior and senior schools has been questioned. In addition there exists a lack of clarity regarding the optimum age for screening and frequency at which to carry out screening. Two studies compared vision screening with the provision of free spectacles versus vision screening with no provision of free spectacles (prescription only). These studies provide high-certainty evidence that vision screening with provision of free spectacles results in a higher proportion of children wearing spectacles than if vision screening is accompanied by provision of a prescription only (risk ratio (RR) 1.60, 95% confidence interval (CI) 1.34 to 1.90; 1092 participants). The studies suggest that if approximately 250 per 1000 children given vision screening plus prescription only are wearing spectacles at follow-up (three to six months) then 400 per 1000 (335 to 475) children would be wearing spectacles after vision screening and provision of free spectacles. Low-certainty evidence suggested better educational attainment in children in the free spectacles group (adjusted difference 0.11 in standardised mathematics score, 95% CI 0.01 to 0.21, 1 study, 2289 participants). Costs were reported in one study in Tanzania in 2008 and indicated a relatively low cost of screening and spectacle provision (low-certainty evidence). There was no evidence of any important effect of provision of free spectacles on uncorrected visual acuity (mean difference -0.02 logMAR (95% CI adjusted for clustering -0.04 to 0.01) between the groups at follow-up (moderate-certainty evidence). Other pre-specified outcomes of this review were not reported. Two studies explored the effect of an educational intervention in addition to vision screening on spectacle wear. There was moderate-certainty evidence of little apparent effect of the education interventions investigated in these studies in addition to vision screening, compared to vision screening alone for spectacle wearing (RR 1.11, 95% CI 0.95 to 1.31, 1 study, 3177 participants) or related outcome spectacle purchase (odds ratio (OR) 0.84, 95% CI 0.55 to 1.31, 1 study, 4448 participants). Other pre-specified outcomes of this review were not reported. Three studies compared vision screening with ready-made spectacles versus vision screening with custom-made spectacles. These studies provide moderate-certainty evidence of no clinically meaningful differences between the two types of spectacles. In one study, mean logMAR acuity in better and worse eye was similar between groups: mean difference (MD) better eye 0.03 logMAR, 95% CI 0.01 to 0.05; 414 participants; MD worse eye 0.06 logMAR, 95% CI 0.04 to 0.08; 414 participants). There was high-certainty evidence of no important difference in spectacle wearing (RR 0.98, 95% CI 0.91 to 1.05; 1203 participants) between the two groups and moderate-certainty evidence of no important difference in quality of life between the two groups (the mean quality-of-life score measured using the National Eye Institute Refractive Error Quality of Life scale 42 was 1.42 better (1.04 worse to 3.90 better) in children with

ready-made spectacles (1 study of 188 participants). Although none of the studies reported on costs directly, ready-made spectacles are cheaper and may represent considerable cost-savings for vision screening programmes in lower income settings. There was low-certainty evidence of no important difference in adverse effects between the two groups. Adverse effects were reported in one study and were similar between groups. These included blurred vision, distorted vision, headache, disorientation, dizziness, eyestrain and nausea. Refractive error (need for spectacles) can be defined as the inability of an eye to bring parallel rays of light into focus on the retina resulting in a blurred image. There are three types of refractive error. Myopia (short-sightedness) compromises distance vision. Hypermetropia (long-sightedness) compromises near vision and, if severe enough, distance vision as well.

Importance of Research (200 word limit)

Cochrane Review authors found seven relevant studies. These studies tested ways of improving the take-up of spectacle prescriptions given as part of a screening programme. Five studies were from China, one from India and one from Tanzania. These studies compared: vision screening with free spectacles with vision screening alone; vision screening with education with vision screening alone; and vision screening and ready-made spectacles with vision screening and custom-made spectacles. Vision screening involves testing the visual acuity of children in schools or communities with the aim of identifying children with reduced vision.

The review shows that:

• There are no studies comparing vision screening with no vision screening (evidence gap).

• Vision screening with provision of free spectacles results in more children wearing spectacles after screening compared with giving the children a prescription on its own (high-certainty evidence). Children in the free-spectacle group had better educational attainment (low-certainty evidence).

• Vision screening with health education designed to increase spectacle uptake did not appear to improve the number of children wearing spectacles after screening compared with no education (moderate-certainty evidence).

• Ready-made and custom-made spectacles appear to give similar visual results and similar spectacle wearing (moderate- and high-certainty evidence).

Biography (200 word limit)

Mr A. Tripathi did his masters in Ophthalmology in India and then completed fellowships in Ophthalmology from The Royal College of Physicians and Surgeons of Glasgow, The Royal College of Surgeons Edinburgh and The Royal College of Ophthalmologists, London. He completed his super speciality fellowships in lid, lacrimal and orbital surgery from University of Leicester and Cambridge

University UK. He is working as a consultant in UK since 2007 and is also an Honorary Senior Lecturer in University of Birmingham. He is actively involved in teaching and training programmes within UK, Europe and India. He has a number of research publications in international peer reviewed journals. In addition to his professional committments, Mr Tripathi is an accomplished singer, actor and writer and he has written many plays, poetries and has directed many plays. He regularly does musical concerts throughout the world to support various charitable organisations.

Information of Institute & Lab (200 word limit)

Russells Hall Hospital, United Kingdom

The facility was first planned in the 1960s as a general hospital for Dudley and the surrounding area. The first phase of the hospital opened in the Russells Hall area of Dudley in 1976 as a laundry centre for the borough's hospitals, and the general hospital buildings were built within the next five years, but a shortage of equipment meant that it did not open to patients until March 1984, becoming fully operational in May that year. The new hospital included an accident and emergency unit to replace those at the Guest Hospital and the Corbett Hospital in Stourbridge. Around this time, the NHS first began to consider the closure of Guest Hospital. There was much protest against this, and over the next few years there were several amendments to the proposals - including a move which would have seen Wordsley Hospital keep its maternity services but for all other services to relocate to Russells Hall. The hospital now has its own bus station, which gives a direct bus link to Dudley town centre, Brierley Hill, Kingswinford, Birmingham and Stourbridge. Russells Hall Hospital is currently home to Dudley Hospital Radio which is a free service available to the beds in the hospital.

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