Is New Zealand’s visual acuity screening programme in school-age children justified?

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New Zealand has a nationwide school-based screening programme to detect defective vision in children aged 11 or 12 (Year 7) and colour vision deficiency in boys aged 11 or 12. This is on top of the ‘B4 School’ vision screening at age four, which aims to detect and correct refractive error and amblyopia if present. However, from 1 July 2016, the colour vision screening component of the Year 7 screening is being discontinued, as there is little association between colour vision deficiency and adverse outcomes, and as there are no treatment options. Now is therefore an opportune time to consider the value of the remaining aspects of the Year 7 vision screening programme.

Vision screening after the critical amblyopia reversal period (up to eight years of age), is predominantly aimed at detecting refractive errors (myopia, hypermetropia and astigmatism) that can be corrected to improve visual function. Uncorrected refractive error can lead to poorer educational outcomes, with possible detrimental effects on future occupational choice, and can thus affect quality of life adversely.

But despite these plausible adverse associations, a Cochrane systematic review in 2006 concluded that there were no robust trials available that measure the benefit of vision screening in school-aged children. Other reviews have also found little evidence in support of screening school-aged children.

It appears that relatively few new cases of refractive errors are found in this age-group, as such problems have nearly always been detected earlier in life. Similarly our MEDLINE search to cover any new research that may have emerged after the Cochrane review, from the year 2006 to March 2016, failed to find any studies that provide convincing support of continuing the current vision screening programme in school children. This lack of adequate evidence and low yield of cases, may explain the general decline in school-based vision screening programmes in the UK.

This overall picture also suggests it is time for New Zealand health authorities to critically review the case for the Year 7 programme—so that we can tell if it is a good use of precious health sector resources and of displaced educational time in schools. In particular, what is the current effectiveness and cost-effectiveness of this programme in the New Zealand setting?

If it is not cost-effective nationally, however, might it still be cost-effective in deprived communities or in communities with high Asian populations (given some evidence for higher prevalence and severity of myopia in such populations)? Such analyses also need to take into account two notable trends:

- the rising incidence of myopia globally (though we have no clear data on this for New Zealand)
- what the market is offering in terms of some optometry practices in New Zealand providing a free full eye exam to under 16 year olds (with no cost for glasses of children of Community Services Card holders).

In summary, all screening programmes need a robust scientific basis in terms of effectiveness and cost-effectiveness. Therefore there is a need to clarify such issues for the current Year 7 vision screening programme in New Zealand schools.
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