

# Canadian clinical guidelines for periodic eye examinations in children aged 0-5 years. Have we got it right?

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The clinical guidelines published simultaneously in the *Canadian Journal of Ophthalmology* and the *Canadian Journal of Optometry* aimed to provide clear evidenced-based guidelines for paediatric vision care that were agreed upon by the relevant professions and accepted Canada-wide. We read them with great interest.

Briefly, the Joint Clinical Practice Guideline Expert Committee of the Canadian Association of Optometrists and the Canadian Ophthalmological Society undertook a structured review of the evidence regarding early childhood vision care, to underpin guidelines for screening and examination of vision in Canada during the first 5 years of life.

The new guidelines present Table 2 as a summary of current published guidelines for early vision care. However, the table is incomplete. The American Public Health Association recommends a regular comprehensive eye examination (not a screening) at 6 months, 2 years and 4 years.<sup>1</sup> American Optometric Association (AOA) guidelines specify that low-risk/asymptomatic children have a first eye examination at 6-12 months of age, again at least once between 3-5 years, another before grade 1 (approximately 6 years) and annually until 17 years;<sup>2</sup> these are the bases for the Canadian Association of Optometrists' guidelines.

The objectives of the new Canadian guidelines were to provide multidisciplinary, evidence-based guidance on timings, intervals and types of ocular assessments for healthy children by reviewing studies on screening and examination techniques with outcomes of visual acuity, reduced amblyopia, improved school performance and quality of life. The Committee selected 16 key studies, which were graded as low or moderate quality. The key studies all focused on vision screening with an outcome of amblyopia rate. There seems to be little evidence available regarding other outcomes, including targeted school performance and quality of life.

The lack of studies with high-quality evidence should not come as a surprise; the best evidence, a prospective controlled clinical trial of full eye examinations versus a control group, would be unethical; the control group would be deprived of vision care. Thus, studies on various protocols, timings and outcome measures include 'control' groups that were tested according to conventional practice. Nevertheless, the Committee concluded that there is strong evidence from well-conducted studies that children screened or examined early with regard to both ocular alignment and refraction will have better visual acuity and lower rates of amblyopia. The Committee recommends that low-risk children should receive routine screenings by primary health care practitioners and an ocular assessment between 0 and 5 years, preferably prior to 3 years of age. They also state the importance of testing for amblyopia risk before 4 years, although this age contravenes the evidence that before 3 years is preferable. In their limita-

tions section, the Committee states that implementation of the guideline for screening may be limited by available resources for vision screening (red reflex, cover tests and visual acuity) by primary care practitioners and therefore efforts should focus on access to oculo-visual assessments. The Committee's review excluded any discussion of higher-risk children; those with signs or symptoms, developmental delays, low socio-economic status, premature birth or familial risk factors.

We were puzzled by the mixed message in the Canadian Committee's conclusions, particularly regarding the expectation that primary health care providers should manage vision assessment throughout the first 3 to 4 years of life, while acknowledging that such screenings are frequently incomplete. In 2017, the AOA Evidence-Based Optometry Guideline Development Group<sup>2</sup> strongly recommended that“(i)nfants should receive an in-person comprehensive eye and vision assessment between 6 and 12 months of age for the prevention and/or early diagnosis and treatment of sight-threatening eye conditions and to evaluate visual development.”

For this initial examination, the AOA finds reliable ‘Grade B’ clinical evidence<sup>a</sup> with benefits that outweigh costs; no harms were identified. Similar evidence is presented to support re-examination at least once between 3 and 5 years of age, and again before starting grade 1. These guidelines are not cited, although they are the most recent update by a multidisciplinary group that has screened nearly 1,500 publications and graded 241. To our knowledge, these are the only clinical guidelines based on a full systematic review that adhere to rigorous protocols for clinical guidelines; specifically,

*“(c)linical practice guidelines are statements that include recommendations intended to optimize patient care that are informed by a systematic review of the evidence and an assessment of the benefits and harms of alternative care options.”<sup>3</sup>* It appears that the Canadian Committee has focused their attention on evidence of benefit without considering how to interpret a lack of evidence or evidence they omitted. Guidance should be optimal, particularly where the cost is not high and no harms of testing are identified. In addition to research evidence, consensus opinion, a valid level of evidence, indicates that a single eye examination in the first year of life will detect more disorders than screening.

Health providers are likely to interpret ‘first exam before 36 months, or up to 48 months’ as a guideline for all children, not as one that applies to only those in the lowest-risk group. In fact, visual risk factors in young children may not yet be identified. If we are to adopt this low standard of vision care for Canadian children, there is a serious onus to demonstrate that there is no harm to eliminating the current recommendation for full eye examinations before 1 year of age.<sup>1</sup>

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## REFERENCES

1. American Public Health Association. Improving Early Childhood Eyecare, 2020 <http://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/09/10/58/improving-early-childhood-eyecare>
2. American Optometric Association. Optometric Clinical Practice Guideline: Pediatric Eye and Vision Examination. <https://www.aoa.org/documents/optometrists/CPG-2.pdf>
3. Institute of Medicine Committee on Standards for Developing Trustworthy Clinical Practice Guidelines. Clinical Practice Guidelines We Can Trust. The National Academies Press. 2011:Washington, D.C.

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## FOOTNOTES

- a. Clinical evidence quality is ranked from A to D. Grade B includes randomized clinical trials (RCTs) with weaker designs; cohort studies (retrospective or prospective); diagnostic studies; and case-control studies of diseases or conditions.