

## **A school-based program for checking kindergarten children's vision**

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Every year in Ontario, 3000-5000 children lose the use of one eye, and countless more do poorly in school, because they have an eye or vision problem that is not treated in time. Our program is aimed at utilizing the five best evidence-based tools for detecting those eye problems in the school setting before children enter Grade 1, when the curriculum is centered heavily on reading. Roughly 10% of children age 3-5 years need glasses because they have refractive errors; they are too short-sighted to read the blackboard or too far-sighted to read a book comfortably. In addition, 3-5% of children have, or are at risk for, amblyopia – poor vision in an otherwise sound eye that cannot be corrected by glasses. Typically it is caused by one eye being misaligned (“lazy” eye) or misfocused. Treatment is usually effective if begun before age 7 but much less effective if begun later. Amblyopia is the leading cause of blindness in one eye in the Western world.

Currently in Ontario, pediatricians are supposed to check young children's vision, but the majority does not, and even if a possible problem is detected, parents usually do not make the suggested follow-up appointments with optometrists. The Eye See...Eye Learn program of the Ontario Association of Optometrists was designed to encourage parents of 4-year-old children to take their child for an OHIP covered eye exam with the incentive of free glasses should the child require them. In 2013, only 10% of 4-year-olds in Ontario were seen by an optometrist through this program. We propose an alternative model in which we conduct quick checks at the child's school, and then refer any child who fails these checks for a full optometry exam, also at the child's school. If glasses are needed, they are provided at no cost and dispensed at school.

In Phase 1 of our research program, conducted at the Fraser Mustard Early Learning Academy in Toronto in 2014-2015, our 5 screening tools were able to detect 97% of the children's eye problems. In Phase 2, we increased the sample size and diversity by piloting this vision checking program in 15 communities across Ontario, collaborating with local volunteer groups (such as the Lions Club and iScreen) as well as public health units in Kirkland Lake, Woodstock, and Sarnia. Preliminary findings to date (N = 1970) suggest that there is variability across communities in the prevalence of eye problems and the uptake of the in-school optometry exam by parents. Overall, 1050 children were referred for optometry exams, and 58% of those children were seen by the optometrist through our program. We detected 73 cases of amblyopia or amblyopia risk factors, and dispensed 180 pairs of glasses. These results indicate a need for a universal vision checking program for kindergarten children in Ontario and across Canada.

In this presentation, we wish to explain the need for vision checking before Grade 1, the results of our pilot study, and the details of our in-school model. We have designed a training paradigm such that the screeners need no special qualifications, training takes 2-3 hours, and up to 100 children can be checked in one school day. The optometry exam equipment is portable and can be set up in one hour at the school. We will showcase the success of our collaborations with local volunteer groups and OAO optometrists. We propose a time and cost efficient program to ensure that all children are prepared to start reading by the time they enter Grade 1.