TORONTO

STAFF REPORT
ACTION REQUIRED

Vision Assessment for Children in Toronto

Date:	June 17, 2016
To:	Board of Health
From:	Medical Officer of Health
Wards:	All
Reference Number:	

SUMMARY

This report provides an overview of the current vision programs for school aged children in the Toronto area and the cost for providing vision assessment. The published evidence and expert recommendations support a full eye examination by an optometrist at or before school entry to prevent irreversible vision problems that can affect children's learning. However, the evidence is inconclusive with regard to the effectiveness of universal vision screening programs and more robust studies are required. Access to vision assessment in Toronto is variable and funded by a combination of government and charitable sources. Current coverage levels suggest the need to raise parents' awareness of the importance of vision assessment for school age children and to increase collaboration among school boards to support vision assessment especially in high needs neighbourhoods.

RECOMMENDATION

The Medical Officer of Health recommends that:

1. The Board of Health forward this report to the Community Development and Recreation Committee.

FINANCIAL IMPACT

There are no direct financial implications arising from this report.

DECISION HISTORY

In July 2015, City Council adopted in principal the interim strategy for the TO Prosperity: Interim Poverty Reduction Strategy, http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.EX7.2. As part of that strategy, City Council requested the Medical Officer of Health, through the Board of

Health, to report to the Community Development and Recreation Committee on opportunities and costs for providing eye examinations for school age children in strong and emerging neighbourhoods; such report to also include current optometry programs operated by the Toronto Foundation for Student Success and any opportunities for expansion.

ISSUE BACKGROUND

Vision is one of the most important senses for child development and it is estimated that 80% of children's learning is gained through visual input.[5] If children's vision is not clear, or does not provide a focused image to the developing brain, irreversible loss of vision in one or both eyes may result. Early identification and treatment of vision problems enhances learning potential and therefore it is critical to start early to ensure children have healthy eyes.

Approximately 1 in 4 school age children have potential vision problems which, if left untreated, may interfere with proper visual development [3, 9] and may be misdiagnosed as having learning and/or behavioral problems. In many cases there are no obvious signs or symptoms that a child has vision problems. Many preschool and school age children are not receiving the vision care that is needed and it is estimated that only 14% of children under 6 years old receive professional eye care in Canada.[2]

As indicated in the TO Prosperity: Poverty Reduction Strategy, "not all residents find the services they need when they need them".[10] Consequently, these students have a much higher rate of undetected visual problems than the general population. [5]

It is important to point out the differences between vision screening and eye examination. Screening involves using age appropriate tools that can be used by lay personnel with minimal training. Eye examination refers to the comprehensive assessment by an optometrist of eye health and visual acuity. There are many visual disorders that can make learning more difficult. The most common ones are: amblyopia, strabismus, and refractive errors.

Amblyopia, also known as lazy eye, is poor vision in an eye that did not develop normal eyesight during childhood. Early detection is vital to the successful treatment of amblyopia as it is a preventable and treatable condition. The prevalence of amblyopia has been estimated to be between 2-5% in children and treatment is most effective before 7 years old.[4, 5, 6]

Strabismus, is the misalignment of the eyes in any direction (commonly referred to as cross-eyed). Strabismus in children does not go away on its own and strabismus in adults is treatable, so early identification is important. If left untreated, strabismus can lead to amblyopia.

Refractive errors commonly known as nearsightedness, farsightedness, and astigmatism which may cause decreased vision, visual discomfort (eye strain), strabismus and/or

amblyopia.

COMMENTS

In Toronto, there is a wide variety of vision programs and practices currently in place that have the goal to detect eye and vision problems. In an effort to look at the prevalence of vision problems in Toronto elementary students, six Toronto District School Board (TDSB) Model Schools for Inner Cities (MSIC) were selected in 2008-2009 where every student underwent screening. The results showed that 1 in 4 students (27%) were identified with potential vision problems and referred for further eye examination by an optometrist.[11] However, even when vision screening programs are offered and completed, it is noted that approximately 40% of children who fail a vision screening do not receive appropriate follow-up care.[5] This is especially true for low-income urban areas where screening and referral alone would not be sufficient due to many barriers.

The barriers that prevent children in high needs communities from receiving appropriate follow up care include: [9, 11]

- transportation issues
- lack of OHIP coverage
- language or cultural barriers
- cost of taking time off for parents
- cost of prescription eye glasses

Evidence-Informed Practice

In the U.S. a majority of States have requirements for either vision screening or examination when entering kindergarten or school for the first time.[1] Some States, such as Missouri, Illinois and Nebraska, require eye examination by optometrists instead of screening for students entering kindergarten. In States where visual screening is required, it is done in selected grades in the elementary level. Massachusetts is the only State that requires all public school students to have their vision tested annually.[11]

In Canada, there is no jurisdiction currently requiring vision assessment before school entry. In Manitoba, the vision screening program targets kindergarten, grades 1, 3, 5, 7, 9, and 11.[6] A systematic review conducted by Public Health Ontario (PHO) in 2016 shows no definitive conclusion regarding the effectiveness of universal vision screening programs for children 1-6 years old.[6] Current evidence supports the importance and benefits for full eye examination at or before school entry.[2, 3, 9]

The Canadian Association of Optometrists (CAO) recommends that all children receive comprehensive eye and vision examinations performed by an optometrist or an ophthalmologist prior to entering school.[2] The CAO policy and position statement states that screening programs cannot be relied upon to effectively identify preschool children with vision problems.[2] The Canadian Paediatric Society (CPS) recommends the following at routine well-child checks with their usual primary care providers: [3]

- Newborn to 3 months of age receive a complete examination of the skin and external eye structures (including the conjunctiva, cornea, iris and pupils), an inspection of the red reflex to rule out lenticular opacities or major posterior eye disease, high-risk newborns (at risk of retinopathy of prematurity and family histories of hereditary ocular diseases) should be examined by an ophthalmologist.
- Babies aged 6 to 12 months receive the same assessment as above, plus the ocular alignment should be observed to detect strabismus, fixation and following a target is observed, the corneal light reflex should be central and the cover-uncover test should be normal.
- Children aged 3 to 5 years old receive a complete assessment as noted above and be tested for visual acuity using age-appropriate tools
- Children aged 6-18 years old have the same assessment as above and examine whenever complaints occur.

Similarly, the Ontario Association of Optometrists' (OAO) recommended guideline suggests children should have a comprehensive eye examination by an optometrist at 6 months, 3 years of age, and every 12 months afterwards or as recommended by the optometrist. [7] In Ontario, OHIP covers yearly comprehensive eye examination for children under the age of 19. Ontario government data shows only about 10% of children received comprehensive eye examination before the age of four.[8] It would appear that more effort is needed to raise parents' awareness of the importance of comprehensive eye examination for preschoolers.

There are a variety of programs available that offer eye examinations and vision screening to children. However, due to the lack of robust studies it is difficult to draw a conclusion regarding the effectiveness of vision screening.[6] Well-designed research is warranted to assess on the effectiveness of such screening programs. Currently, McMaster University, University of Toronto and The Hospital for Sick Children are embarking on a research project to determine the best evidence-based and cost-effective vision screening program that could be used across Ontario and other provinces. This research will be important evidence to inform future policy direction in this area.

Based on over 15,000 screenings over a four year period in the Model Schools, TDSB has found that the number of referrals for eye examination increases with age among elementary students i.e. junior (Grade 3-6) and senior (Grade 7-8) level students have a significantly higher referral rate than primary (JK-Grade 2) students.[11] Given their limited resources, the Toronto Foundation for Student Success (TFSS) have targeted one junior (Grade 5) and one senior grade (Grade 7) plus any other students referred by the school staff since 2011.

There is very limited literature on vision screening with high school students. In a few U.S. jurisdictions, mandated vision screening includes students in Grade 9 to 11.[1] In 2011, TFSS had a pilot project in one of the inner-city high schools, 62% of students screened required eye glasses or a prescription change.[11] Out of 272 students screened, they dispensed more than 160 pair of eye glasses and 5 students who struggled academically were discovered to be legally blind.[11] This suggests that more research is

required to assess the need for school-based vision program in the high schools, particularly in the high needs neighborhoods.

Access to Vision Assessment in Toronto

Although small in scale, a 2009 Model Schools for Inner City (MSIC) study by TDSB showed differences in access to vision care between income groups. Three quarters of those in the two highest income groups reported their child had their eyes examined versus less than two-thirds of those in the two lowest income groups.[11] This MSIC study pointed to socioeconomic factors being a barrier even though the eye examination itself is covered by OHIP.

Financial assistance provided by the Angel Foundation for Learning is one way that the Toronto Catholic District School Board (TCDSB) helps to remove some of the barriers for students in need. By bringing the program to the school sites, both the TFSS's Gift of Sight and Sound program and the SVC program help to address some of the known barriers in high need neighbourhoods such as transportation issues, language and cultural barriers, and the cost of parents taking time off from work. The mobile vision care model of service to communities in need has been around for many years in the U.S. The Vision Service Plan (VSP) Mobile Eyes have three buses outfitted with state-of-the-art eye examination rooms and eyeglasses dispensaries.[12] The buses travel to community events across North America including some school sites in the United States. See Appendix A for details of current Toronto programs.

Funding

At present vision assessment programs in the Toronto area rely heavily on charitable donations and sponsors to sustain their services. It has been suggested by various sources that stable government funding would help to make the programs more comprehensive and sustainable. The following programs have expressed interest in expanding their services should additional sources of funding become available:

- TDSB developed a proposal in 2011 for inter-ministerial funding of $200,000 to support The Gift and Sight and Sound program in all Model Schools.[11] The amount requested included coverage for students with no or invalid OHIP, optician services and cost of eye glasses. It would appear that the amount proposed would cover selective grades only instead of a universal program. In the Neighbourhood Improvement Areas (NIAs) alone, there are approximately 44,000 TDSB elementary students; therefore to provide screening for these students would cost about $264,000 without including the cost of eyeglasses. If secondary school students are considered, there is an additional 20,000 TDSB secondary school students in the NIAs.

- For School Vision Care (SVC) to expand to Toronto, they would require additional funding and development of partnerships with the school boards. In the NIA's, there are about 18,000 elementary students in TCDSB and the French school boards. With an average cost of $11.50 per student, funding of approximately $200,000 would be needed for SVC to provide vision services in those schools. If secondary schools are included, there are a further 5,800 TCDSB secondary students in the NIA's, requiring

approximately $67,000 in additional funding.

CONCLUSION

The evidence is inconclusive regarding the effectiveness of universal vision screening programs and more robust studies are required. Although research is emerging, further evidence is required to understand the appropriate level of interventions needed in the early identification of vision problems to enhance the learning potential of children in schools.

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SIGNATURE

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Dr. David McKeown
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ATTACHMENT

Appendix A: Details of Current Programs

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Currently in the Toronto area, there are various vision assessment programs that differ in their approaches, targeted age groups and settings.

(1) Gift of Sight and Sound
The largest program in Toronto is the Gift of Sight and Sound by the Toronto Foundation for Student Success (TFSS), the charitable foundation of Toronto District School Board. Since 2007, it has provided school-based vision and hearing screening in the Model Schools for Inner Cities (MSIC).[11] The 150 Model Schools are determined by Learning Opportunity Index which are based on socio-economic factors. The majority of the Model Schools fall within the City's Neighbourhood Improvement Areas (NIA's).

The key elements of the vision program are as follows:

- Vision screening is done at school-based clinics by immigrant doctors seeking accreditation. Three separate screening tools are used (Snellen's Chart; Stereo Randot Test; Ishihara). The screening cost is approximately $5 per child.
- For those requiring further examination, optometrists and opticians are set up at "host" schools and neighbouring schools and organize appointments for students and parents to attend.
- Free eyeglasses are made available to those in need and are dispensed at schools within 1-3 months.

The entire program is free for the MSIC schools. For other interested schools, parents pay a $6 fee based on a cost-recovery model but it only provides vision screening with no follow up services. Last year, TFSS conducted screening for 170 interested schools besides the Model Schools. The Gift and Sight and Sound program is funded by financial and in-kind supports by philanthropists and private institutions through TFSS.

Since 2010-2011 school year, the program has been targeting students in Grade 5 (junior level) and Grade 7 (senior level) across the MSIC schools. In addition, screening is provided to elementary students in other grades if referred by school staff. According to TDSB, the program conducted 15,924 vision screenings last year with about 5,000 students referred for eye examination.

(2) Eye See Eye Learn (ESEL)
The Eye See Eye Learn program is available in six provinces across Canada. In Ontario, the pilot program started in 2009 in Hamilton and the program came to Toronto in the fall of 2014. ESEL offers comprehensive eye examination for Junior Kindergarten children by optometrists to assess eye health and visual abilities. The cost of eye examination is covered by the child's OHIP. If eye glasses are required, children are eligible for one free pair provided by the eyewear partners and participating optometrists. The program is partially funded by the Ontario government and administered by the OAO in conjunction with school boards and community partners. It is a not-for-profit program and the government funding has been used primarily to market the program through various

media. Optometrists who signed up for this program are also required to do their own promotion with their clients.

Currently, the Toronto Catholic School Board (TCDSB) has partnered with ESEL and is promoting the program within their elementary schools. It is estimated that only about 7% of kindergarten students in Toronto have used of this program.

(3) Angel Foundation for Learning

The Angel Foundation for Learning, a charitable foundation of TCDSB, raises funds to assist students in need, including access to eyeglasses. The school administration will initiate the application for the Melina De Meneghi Vision fund and up to $150 can be used toward the cost of eyeglasses once every two years. For those without OHIP coverage, the fund could be used to pay for eye examination as well.

In 2014-2015 school year, over $3,300 was disbursed from the Melina De Meneghi Vision fund which allowed 23 students to receive free eyeglasses and/or pay for eye examinations. The foundation also has a partnership with Loblaw Kids See Free Fund where they provide vouchers for free eyeglasses at Loblaw optical centre for TCDSB students from 5 to 19 years of age. In last school year, 76 vouchers were handed out. Together the funds assisted 99 students which represent 0.1% of the total TCDSB student population.

(4) Loblaw Kids See Free Fund

This program is available in selected Loblaw locations having an optical centre. Children between 4 to 10 years of age having a prescription from within the last 90 days can receive a free pair of prescription glasses once every year. The program includes a $49 frame and single vision lenses but upgrades are available.

(5) School Vision Care (SVC)

Outside City of Toronto, Durham region has the School Vision Care program that provides another delivery model. Started in 2013-2014 school year, SVC is a non-profit organization that provides both eye examinations as well as dispensing of free eyeglasses for those in need. Two specially equipped mobile trailers are used to visit all elementary schools in the Durham region starting with those in the lowest socio-economic neighbourhoods. The eye examinations are administered by optometrists and the cost is covered by OHIP. Participation is voluntary and there is no cost to the schools or the parents. Students who need glasses will receive a pair of free new prescription glasses through donation by sponsors. Their plan is to expand the program to Durham's secondary schools in the spring of 2016.

So far over 8,000 elementary students have been examined and the program has handed out approximately 1,200 pairs of eyeglasses. According to SVC's president, the monthly operating cost is $20,000 which works out to about $11.50 per child. Based on the success in Durham region, SVC is hoping that more school boards, including those in Toronto, will partner with them in the future to provide vision care to students.

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