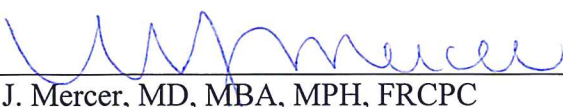


Report to: Board of Health
Submitted by: Dr. Nicola Mercer, Medical Officer of Health & CEO
Prepared by: Dawna Monk Vanwyck, Manager
Dr. Robert Hawkins, Dental Consultant
Approved by: Andrea Roberts, Family Health and Health Analytics
Subject: FLUORIDE VARNISH INITIATIVE: A PREVENTIVE ORAL
HEALTH STRATEGY

RECOMMENDATION(S)

- (a) That the Board of Health receive this report as information; and
- (b) That the Board of Health direct staff to send a copy of this report and to write a letter to the Minister of Health and Long-Term Care, copied to the Minister of Children and Youth Services, urging the Minister to maintain preventative oral health activities in the Ontario Public Health Standards and to secure the associated funding for this work for all PHUs.



Nicola J. Mercer, MD, MBA, MPH, FRCPC
Medical Officer of Health & CEO

EXECUTIVE SUMMARY

Fluoride varnish is an evidence-based practice that is recognized as a safe, effective intervention for reducing tooth decay, also known as dental caries. Wellington-Dufferin-Guelph Public Health (WDGPH) currently provides topical fluoride varnish as a preventive oral health strategy to students in seven elementary schools. This work has been supported by Healthy Smiles Ontario (HSO) funding.

Fluoride varnish applications in the elementary school setting began as a pilot during the 2007/2008 school year at Centre Peel Public School in response to extraordinarily high levels of oral disease including dental caries in the predominantly Low German Speaking Mennonite student population. Over 30% of the children had urgent dental needs and a further 13% were identified with non-urgent needs. During the past seven years, teachers and school administration worked with the oral health services staff and public health nurses to support the Fluoride Varnish Initiative. A local dental practice now provides toothbrushing supplies to augment the program. Over the course of the initiative, the number of children at Centre Peel identified with urgent dental needs has fallen to a low in 2014 of 5%. The cost savings to families and publicly funded programs is significant.

HSO offered an opportunity to expand the Fluoride Varnish Initiative. It was approved as a component of the Agency's original submission for HSO funding in 2010. Four schools were added to the initiative – Brant Avenue, Priory Park, and Westwood in Guelph; and Princess Margaret in Orangeville. These schools were identified as most likely to benefit from preventive oral health services, based on a history of higher rates of urgent dental needs identified during routine school screenings. Offering oral health screening and fluoride varnish to all students in each of these schools reduced the stigma of accepting preventive services for those most vulnerable, and enabled children who might otherwise not receive preventive services to participate.

Thrice yearly applications began in the fall of 2011 at these schools. In 2013, Oral Health staff provided 2,838 fluoride varnish applications. The rate of both urgent and non-urgent dental needs at these schools has been decreasing since implementation.

In 2013, HSO approved a Program Based Grant to add Victoria Cross Public School in Mount Forest to the roster. Hyland Heights Elementary School in Shelburne was added in the fall of 2014.

Changes to public health mandates as the result of the integration of publicly funded dental programs scheduled for August 2015 and the concurrent restructuring of the Oral Health requirements of the Ontario Public Health Standards (2008) create an uncertain future for this innovative and effective initiative. If only children and youth who are enrolled in the newly integrated program are eligible to receive any preventive services from public health, the Fluoride Varnish Initiative in selected schools will be in jeopardy. Ultimately, this will have a significant negative impact on the ability of vulnerable families to access services. It will reduce the number of children in our community who access an evidence-based treatment that prevents tooth decay and the physical, emotional and economic outcomes which accompany dental disease.

BACKGROUND

WDGPH offers preventive oral health services to children and youth as mandated by the Ontario Public Health Standards. These evidence-based services include topical fluoride application in selected schools in Wellington, Dufferin and Guelph.

What is Fluoride Varnish?

Fluoride varnish is recognized by oral health organizations as a safe, effective intervention for reducing the risk of tooth decay (Marinho, Worthington, Walsh, Clarkson, 2013).

Varnish is a temporary adhesive which contains 5% sodium fluoride. Fluoride varnish is not permanent; it only adheres to the tooth surface for a period of hours. The uptake of fluoride into tooth enamel (outer layer of the tooth) helps to make the tooth stronger and more resistant to tooth decay. It can also repair tooth surfaces where very early tooth decay has occurred. It is applied directly to tooth surfaces using a small brush with a disposable tip. The procedure is well tolerated by young children and takes between one and five minutes per child depending on the number of teeth in the mouth and the child's level of cooperation.

An Innovative Pilot

WDGPH's Fluoride Varnish Initiative in schools began during the 2007/2008 school year. The initiative was an evidence-based response to extraordinarily high levels of dental disease in the predominantly Low German Speaking Mennonite children at Centre Peel Elementary School. Routine screening had discovered urgent dental needs in 30% of screened students; a further 13% were identified with non-urgent needs. Accordingly, referrals to the Children in Need of Treatment Program (CINOT) were very high.

The Fluoride Varnish Initiative was one of the strategies implemented in the school and community to reduce serious dental disease in this population. This strategy involved oral health screening for all consenting students early in the school year; communicating with parents to obtain their consent for each application of fluoride varnish; and visits to the school three times between October and June to apply the fluoride varnish and provide oral health education. The decision to offer fluoride varnish three times per year was based on assumptions about the transient nature of the Centre Peel population. Prior to the increase in Oral Health staff as a result of HSO funding, public health nurses from the School Health and Child Health programs assisted with the application of the fluoride varnish.

Other strategies implemented to support this pilot included:

- The initiation of a toothbrushing program at the school supported by WDGPH staff and supervised by teachers for children from JK to Grade 8. Recently a local dental office has supplied toothbrushes and toothpaste to this program.
- Oral health education and screening at the Newcomers Group in Drayton attended by preschoolers and the mothers of many Centre Peel students.
- Portable oral health clinics in local community settings which offered preventive clinical services that enabled individualized education of parents and improved access to preventive services for the children. Parents who were reluctant to have their children participate in the Fluoride Varnish Initiative at Centre Peel could meet oral health staff, observe varnish application and receive individualized education about the initiative.

Participation rates at Centre Peel have remained high, at about 72%. The principal of the school recently commented in a public meeting that the “Public Health Dental Health team are like rock stars when they come to our school.”

Over the course of the initiative, the number of children at Centre Peel identified with urgent and non-urgent needs has fallen to a low in 2014 of 5%.

School Year	Total # of Children Screened	# of Children with Urgent Needs	% of CINOT for Entire School	# of Children with Non-urgent Needs
2005-2006	215	66	30.10%	29
2006-2007	265	42	15.80%	41
2007-2008	267	59	22%	34
2008-2009	267	46	17%	38
2009-2010	271	25	9.23%	30
2010-2011*	299	45	15.00%	44
2011-2012	237	18	7.59%	20
2012-2013	246	23	9.30%	15
2013-2014	214	10	4.67%	19
2014-2015**	217	11	5.10%	12

*In 2010/2011 an influx of new students to this school resulted in an increase in identified urgent and non-urgent needs.

**In 2014/2015 a small influx of students from another County resulted in increased number with urgent needs; students were being followed by another public health unit.

Expansion to Additional Schools

The decision to expand the Fluoride Varnish Initiative to other schools was based on the success achieved at Centre Peel. The Agency made application to the HSO Program to support expansion of the initiative to four additional schools – Brant Avenue, Priory Park and Westwood in Guelph; and Princess Margaret in Orangeville. These schools were identified as most likely to benefit from preventive oral health services, based on a history of higher rates of urgent dental needs being discovered during routine school screenings. Applications began in the fall of 2011 and have continued three times per school year. In 2013, Oral Health staff provided 2,838 fluoride varnish applications.

In the fall of 2013, following discussions with local dental providers and the school administration, Victoria Cross Public School in Mount Forest was added to the roster. A seventh school, Hyland Heights Elementary in Shelburne accepted the opportunity to participate in the initiative in the 2014/2015 school year. It is too early to assess the uptake or results for this school.

Fluoride varnish is offered to all children in the participating schools to avoid stigmatizing those children who are most vulnerable. Challenges exist in obtaining consent from some parents. This can be as a result of English as a second language, fears that oral health services are painful, and often are related to the logistics of having children transport and return consents. Staff have also identified that students in Grades 7 and 8 experience peer pressure and exert their right to decline – some school participation rates would increase by 5% if uptake in these grades were higher.

School	Average Participation Rate 2011-2014	Average # of applications per session
Centre Peel	72%	174
Princess Margaret	51%	180
Brant Avenue	61%	117
Priory Park	61%	107
Westwood	44%	184
Victoria Cross	46%	189

Overall, School Board officials and principals have been very supportive of the initiative in their schools. Occasionally, individual teachers require extra attention to the logistics of implementation, and WDGPH staff have been very sensitive to these needs.

ANALYSIS/RATIONALE

The research is very clear that poor oral health has a negative impact on child development and well-being. Dental pain is documented as a leading cause of missed days of school; and in Ontario, treatment of dental disease is the leading reason for day surgery under general anaesthesia for children ages 1 to 5. Across the Province, 50% of children in Grade 2 were found to have dental caries and the local data gathered in the Ontario Association of Public Health Dentistry (OAPHD) survey completed in 2012/2013 mirrors the Provincial rates. This rate of dental disease poses economic as well as health challenges for children and their families.

The assertion that the cost of restorative and preventive dental care is significant for all families and prohibitive for many is supported by *Oral Health-More Than Just Cavities* (2012). In this report, the Chief Medical Officer of Health of Ontario cited Health Canada findings:

- Only 62.6 % of Canadians had private dental insurance;
- 17.3% of Canadians avoided receiving dental care because of the cost; and
- A further 16.5% declined recommended treatment because of the cost.

In each of the WDGPH schools involved in the Fluoride Varnish Initiative a trend is observed toward decreasing percentages of children observed with urgent and non-urgent oral health needs. This trend is stronger in some schools than others. Staff postulate that trends are impacted by the transient nature of the school's population, and that some urgent needs are not preventable by fluoride varnish, such as periodontal disease. In these schools, all children are offered screening and there is increased opportunity to follow-up with children identified as at-risk for dental disease. The identification of urgent and non-urgent needs in a student population has a net benefit.

A cost/benefit analysis, conducted by a Masters of Public Health candidate completing a student placement at WDGPH in 2014, suggested that at Centre Peel considerable savings were being achieved for government funders as well as individual families in terms of payments to dental providers for restorative work. The analysis suggested that in addition to reducing the time children need to be away from school, savings also included reduced parental time taken away from work, and avoidance of risk associated with dental illness and treatments. The work postulates that since the implementation of the Fluoride Varnish Initiative at Centre Peel in 2008, between 670 and 780 cavities have been prevented in the student population. If costs of treatment were divided between private (60%) and CINOT (40%) savings between \$132,000 and \$155,000 are estimated to have been achieved. These immediate savings do not include the lifelong benefits of avoiding replacement fillings that turn into more complicated and expensive treatments such as root canals and crowns.

The Fluoride Varnish Initiative is currently resourced by HSO funds. The implementation of a comprehensive universal Fluoride Varnish Initiative in schools identified as having higher rates of urgent dental needs was a component of the original HSO application for this public health unit and the addition of Victoria Cross in 2013 was also supported by a Program Based Grant.

The integration of publicly funded dental programs and the possibility that the Provincial government intends to remove preventive oral health services from the Ontario Public Health Standards (OPHS) creates an uncertain future for this initiative. If public health is allowed to provide service only for those children and youth whose parents have enrolled in the newly integrated program, a targeted Fluoride Varnish Initiative will be in jeopardy. This will have a significant negative impact on the ability of vulnerable families to access services. It will also reduce the number of children in our community who access an evidence-based treatment that prevents tooth decay and the physical, emotional and economic outcomes which accompany dental disease across the lifespan.

ONTARIO PUBLIC HEALTH STANDARD

The Principles of Need, Impact, Partnership and Collaboration as outlined in the OPHS of 2008 are met by this initiative.

The Child Health Standard: To enable all children to attain and sustain optimal health and developmental potential.

The Oral Health Preventive Services Protocol (2008).

WDGPH STRATEGIC COMMITMENT

Evidence Informed Practice –We will use the best available information to guide our decisions regarding which programs and services to provide, the manner in which we provide them, and the allocation of our resources in support of these decisions.

Community and Partner Relationships – We will work with our communities and key stakeholders and consider their perspectives in our decision-making processes. We will identify important partnerships and collaborate to improve the health of our community.

HEALTH EQUITY

No formal Health Equity Impact Assessment has been completed. This initiative supports families, children and youth experiencing a disproportionate burden to their overall health as a result of difficult life circumstances.

APPENDICES

None

REFERENCES

Marinho, Worthington, Walsh, Clarkson, 2013. Fluoride varnishes for preventing dental caries in children and adolescents.

Report by Ontario's Chief Medical Officer of Health, 2012. Oral Health – More Than Just Cavities.