

OPHA RESOLUTION #1: Community Water Fluoridation (2011) October 5, 2011

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OPHA RESOLUTION: Community Water Fluoridation

WHEREAS about 70% of the Ontario population enjoys the benefits of community water fluoridation; **and**

WHEREAS municipalities and Ontario Health Units have been and continue to be faced with determined and persistent efforts to cease community water fluoridation by a small group of committed opponents of fluoridation; **and**

WHEREAS the overwhelming scientific evidence from well recognized and reputable researchers and organizations continues to indicate that community water fluoridation is safe, economical, and has proven effectiveness; **and**

WHEREAS community water fluoridation is recognized as an important component of maintaining and improving the oral health of all residents by dental, medical and other organizations provincially, federally and internationally; **and**

WHEREAS the U.S. Centres for Disease Control and Prevention lists the use of fluoride in drinking water as one of the greatest public health achievements of the 20th Century; **and**

WHEREAS the CDC estimates that for every \$1 invested in community drinking water fluoridation an estimated \$38 for dental treatment is avoided; **and**

WHEREAS national public health organizations from countries including Canada, United States, United Kingdom, Australia and New Zealand all endorse community water fluoridation; **and**

WHEREAS the Chief Medical Officer of Health for Ontario, outlined the importance of drinking water fluoridation in her statement, "The importance of maintaining good oral health should not be taken lightly – it is an important part of being healthy overall. As tooth decay is the single most common chronic disease among Canadians of all ages and poor oral health is linked to diabetes, heart disease and respiratory conditions, water fluoridation is, and must be recognized as, a very important public health measure".

THEREFORE BE IT RESOLVED THAT the OPHA supports the fluoridation of municipal drinking water and recommends adding under the Safe Drinking Water Act, a regulation change mandating the fluoridation of drinking water at a concentration of 0.5-0.8ppm, with optimal levels at 0.7ppm, as evidence demonstrates that water fluoridation is a safe, economical, and proven public health measure to prevent dental caries in all age groups.

Proposed Resolution

The Ontario Public Health Association (OPHA) supports adding a change to the regulation under the Safe Drinking Water Act mandating fluoridation of municipal drinking water at a concentration of 0.5ppm to 0.8ppm, with 0.7ppm representing the optimal fluoride concentration. Water fluoridation is recognized as a safe, economical, and proven public health measure to prevent dental caries in all age groups. OPHA endorses the accompanying information and the statement on drinking water fluoridation from Dr. Arlene King, the Chief Medical Officer of Health for Ontario, dated April 4, 2011.

Methodology

A literature review was conducted for reviews of community water fluoridation from 1997 to the present (2011) with a primary focus on locating fluoridation and fluoride policies and position statements from Ontario. The scope of the search was then broadened to include information from a national and international perspective. Information reviewed was completed by researchers, agencies, and organizations that represent the closest professional affiliation with the Ontario Association of Public Health Dentistry (OAPHD).

Background

The health benefits of drinking water fluoridation have been well documented since the 1940s and extend to all members of a community, regardless of age, socioeconomic status, education, or employment.¹⁻²³ In fact, the Centres for Disease Control and Prevention listed the use of fluoride in drinking water as one of the greatest public health achievements of the 20th Century.²⁴

Globally, the British Fluoridation Society reports that approximately 350 million people have access to optimally fluoridated drinking water including countries such as Argentina, Australia, Canada, Hong Kong, Ireland, Israel, New Zealand, Singapore, Spain, the United Kingdom, and the United States. It is estimated that an additional 50 million individuals have naturally

fluoridated drinking water at optimal concentrations.

Across Canada, there are an estimated 14,258,078 (45% of the national population) individuals with access to fluoridated drinking water.²⁶ In Ontario, optimizing fluoride levels in drinking water commenced in Brantford in 1945 and was quickly adopted by other municipalities throughout the 1950s and 1960s.^{1,27} Presently there are approximately 8.5 million people (70% of the provincial population) who receive fluoridated drinking water, with fluoride levels being stringently monitored to ensure the optimal level is maintained as required under the Ontario Public Health Standards.^{1,26-29}

In 2007, Health Canada convened a panel of experts to provide guidance to Health Canada, including recommendations to ensure that exposure to fluoride remains below levels that could cause adverse health effects while achieving the public health benefit of preventing dental caries.⁶ One of the key recommendations outlined by the panel was the adoption of "a level of 0.7 mg/L as the optimal target concentration for fluoride in drinking water, which would prevent excessive intake of fluoride through multiple sources of exposure."⁶ Health Canada is working with the Federal-Provincial-Territorial Committee on Drinking Water (CDW) to finalize the Guideline Technical Document on fluoride in drinking water.²⁸ During the review and update of this document, the CDW assessed all identified health risks associated with fluoride, taking into

account new studies and approaches. The Guideline Technical Document establishes a "maximum acceptable concentration (MAC) of 1.5 mg/L for fluoride in drinking water".²⁸ The Guideline Technical Document has now finished public consultation on its risk assessment, has been modified to address relevant comments and been approved through the appropriate Federal/Provincial/Territorial processes. It is expected to be published on the Health Canada website in spring/summer 2011.

Across the province similar recommendations have been endorsed by organizations such as OAPHD and alPHa, with the later drafting a fluoridation of drinking water resolution outlining "support for the practice of community fluoridation as a proven, cost-effective, safe and equitable public health intervention that significantly contributes to improving the overall health of the population.³⁰ The alPHa resolution further called "for the Province of Ontario to provide support, including provincial legislation and funding to municipalities for the fluoridation of community drinking water.³⁰

Overall, more than 100 national and international professional health organizations have endorsed the use of water fluoridation to prevent tooth decay^{1,30-47} and the reviews completed by

the CDW²⁸, Health Canada Expert Panel⁶, the Institut national de santé publique du Quebec[°], and the National Health and Medical Research Council of Australia¹³ have made the following key observations:

- fluoridation is safe;
- no evidence has been found that it causes cancer, bone disease, kidney disease, birth defects or other adverse health effects;
- there is no evidence that adding fluoride to the drinking water has negative environmental impact;
- fluoridation is still effective even though other sources of fluoride such as toothpastes and topical fluorides, are used;
- fluoridation benefits all residents served by community water supplies regardless of their social or economic status; and,
- fluoridation is the most cost-effective means of delivering the benefits of fluoride to whole communities.

Water Fluoridation: Support and Challenges

Nationally and internationally the benefits of water fluoridation have been well documented. Over the past 30 years, the incidence of dental decay has declined considerably in countries such as Australia, Ireland, and the United States where most of the largest cities, including Boston, Chicago, New York, Philadelphia, San Francisco, and Washington DC have fluoridated water supplies.⁴⁸ Conversely, the effects of removing fluoride from drinking water systems have also been observed.¹ For example, a 2007 report on water fluoridation by the Institut National de Santé Publique du Quebec revealed that the percentage of kindergarten children at high risk of developing tooth decay in Dorval, Quebec doubled in the two year period after water fluoridation was halted in 2003.⁸

Despite overwhelming scientific evidence outlining the safety and efficacy of community water fluoridation from around the world, a determined group of committed anti-fluoridationists

persists in pressuring local authorities to stop fluoridation.⁷ Opponents to water fluoridation primarily cite a link between fluoride exposure and Osteosarcoma (Bone Cancer), Kidney Disease, Hypothyrodism, and Dental Fluorosis.⁴⁹ Dental fluorosis, resulting from over exposure to fluoride, ranges in characteristics from a chalky discolouration of the tooth surface to enamel loss.⁴⁹

Results from the Oral Health component of the Canadian Health Measures Survey (2007-2009), indicate that when using Dean's Index the number of children (6-12 years) displaying moderate or severe fluorosis, when combined, represented a prevalence too low to allow reporting (less than 0.3%).⁵⁰ Evidence such as this calls into question the rigour and validity of studies and reviews that proclaim the connection been fluoride and chronic illnesses. The CDW report raises attention to "the weight of evidence from all currently available studies does not support a link between exposure to fluoride in drinking water at 1.5mg/L and any adverse health effects, including those related to cancer, immunotoxicity, reproductive/developmental toxicity, genotoxicity and/or neurotoxicity. It also does not support a link between fluoride exposure and intelligence quotient deficit, as there are significant concerns regarding the available studies, including quality, credibility, and methodological weaknesses."²⁸

In a recent review completed by City of Hamilton, Medical Officer of Health, Dr. Elizabeth Richardson, she concluded that "…research confirms the effectiveness of water fluoridation in preventing dental caries (cavities) in the modern context."⁵¹ The review further summarized that recent evidence has confirmed that "dental fluorosis remains the only risk at the low levels of exposure in fluoridated water."⁵¹ Such findings are further supported through a Public Health Agency of Canada funded review (Draft) that specifies there is "…no clear evidence for an association between drinking water fluoridation and other health outcomes."⁵²

In the last decade, numerous municipalities in Ontario (e.g., Aitikokan, Brantford, Dryden, Halton Region, Hamilton, Hastings District, London, Muskoka, Norfolk, Niagara Falls, Peel Region, Toronto, Tottenham, and Waterloo) have been challenged to discontinue community water fluoridation.⁵³ Although some communities have sustained water fluoridation, such as Toronto, where the Board of Health recently (May 2011) decided not to initiate any changes to the status of Toronto community water fluoridation.²⁹ In other communities, some of these challenges have led to decisions by city or regional councils to cease community water fluoridation; the most recent discontinuation of fluoridation occurred in Waterloo following a plebiscite.^{51,54}

In response to these local water fluoride eliminations and growing support for anti-fluoridation movements in other provinces, as witnessed by the March 2011 Calgary City Council decision to discontinue community water fluoridation⁵⁵, Dr. Arlene King, Chief Medical Officer of Health for Ontario, released a statement expressing her concern "…about the loss of fluoridated drinking water in certain communities in spite of consistent evidence that water fluoridation is safe and effective."¹ The provincial support of fluoridation is echoed by the members of the OAPHD and will be cited at future debates on the fluoridation issue. The OAPHD further urges all associations with an interest in the oral health of Ontarians, including the Ontario Public Health Association, to support and endorse community water fluoridation and the statement by Dr. King.

Funding for Water Fluoridation

Local governments can submit an application for capital funding to Infrastructure Canada. These funds may be for new equipment and/or facilities or the replacement of existing equipment and/or facilities.⁵⁶

REFERENCES

- Ministry of Health and Long-Term Care (2011). Statement From Dr. Arlene King, Chief Medical Officer of Health. Retrieved April 2011 http://www.health.gov.on.ca/en/news/bulletin/2011/hb 20110404 2.aspx
- Fawell J, Bailey K, Chilton E, Dahi E, Fewtrell L, Magara Y. (2006). "Fluoride in Drinkingwater" World Health Organization Retrieved April 2011 <u>http://www.who.int/water_sanitation_health/publications/fluoride_drinking_water_full.pdf</u>
- 3 American Dental Association (2005).Fluoridation Facts. Retrieved April 2011 http://www.ada.org/sections/professionalResources/pdfs/fluoridation_facts.pdf
- 4 Calgary Regional Health Authority Expert Panel for Water Fluoridation Review, (1998) "Report of the Expert Panel for Water Fluoridation Review, Calgary Regional Health Authority" <u>http://www.fluoridation.com/calgaryr.htm</u>
- 5 Fort Collins Fluoride Technical Study Group (2003), "Report of the Fort Collins Fluoride Technical Study Group, Fort Collins, Colorado" Retrieved April 2011 <u>http://www.healthdistrict.org/fluoridereport/FTSG.htm</u>
- 6 Health Canada (January 2007). Health Canada: Findings and Recommendations of the Fluoride Expert Panel. Retrieved April 2011 <u>http://www.hc-sc.gc.ca/ewhsemt/alt_formats/hecs-sesc/pdf/pubs/water-eau/2008-fluoride-fluorure/2008-fluoridefluorure-eng.pdf</u>
- Health Canada: Joint Government of Canada Response to Environmental Petition No. 221 filed under Section 22 of the *Auditor General Act* Received November 19, 2007. Retrieved April 2011 http://www.fptdwg.ca/assets/PDF/0804-JointGovernmentofCanadaresponse.pdf
- 8 Institut National de Sante Publique Du Quebec, (2007) "Water Fluoridation: An Analysis of the Heath Benefits and Risks" Retrieved April 2011 http://www.inspq.qc.ca/pdf/publications/705-WaterFluoration.pdf
- 9 Irish Ministry for Health and Children, (2002) "Forum on Fluoridation" Irish Ministry for Health and Children. Retrieved April 2011 www.fluoridesandhealth.ie/background/fluoridation forum.pdf
- 10 Lepo, J., Snyder RA., (2000) "Impact of fluoridation of municipal drinking water supply: review of literature" Retrieved April 2011 <u>www.uwf.edu/rsnyder/reports/fluoride.pdf</u>
- 11 Locker, D. (1999). "Benefits and Risks of Water Fluoridation: An Update of the 1996 Federal-Provincial Sub-committee Report" Retrieved April 2011 www.health.gov.on.ca/english/public/pub/ministry_reports/fluoridation/fluor.pdf
- 12 McDonagh, M., Whiting P, Bradley M, Cooper J, Sutton A, Chestnutt I, Misso K, Wilson P, Treasure E, Kleijnen J. (2000). "A Systematic Review of Public Water Fluoridation" NHS Centre for Reviews and Dissemination, University of York. Retrieved April 2011 <u>http://www.york.ac.uk/inst/crd//fluores.htm</u>
- 13 National Health and Medical Research Council Australia, (1999) "Review of Water Fluoridation and Fluoride Intake from Discretionary Fluoride Supplements" National Health & Medical Research Council, Australia. Retrieved April 2011 www.ada.org.au/app_cmslib/media/lib/0703/m50958_v1_nhmrc%20fluoride.pdf

- 14 National Health and Medical Research Council, (2007) "A Systematic Review of the Efficacy and Safety of Fluoridation" Retrieved April 2011 <u>http://www.nhmrc.gov.au/publications/synopses/eh41syn.htm</u>
- 15 National Research Council Committee on Fluoride in Drinking Water, (2006)
 "Fluoride in the Drinking Water: A Scientific Review of EPA's Standards." Retrieved April 2011 <u>http://www.nap.edu/catalog/11571.html#toc.</u>
- Scientific Panel on Dietetic Products Nutrition and Allergies, (2005) "Opinion of the scientific panel on dietetic products, nutrition and allergies on a request from the Commission related to the Tolerable Upper Intake level of Fluoride (Request No EFSA-Q-2003-018)." Retrieved April 2011 <u>http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1178620766918.htm</u>
- 17 Task Force on Community Preventive Services, (2002b) "Reviews of Evidence on Interventions to Prevent Dental Caries, Oral and Pharyngeal Cancers, and Sports-Related Craniofacial Injuries." American Journal of Preventive Medicine v. 23 no. 18: 21-54, 2002 Retrieved April 2011 <u>http://www.thecommunityguide.org/oral/oral-ajpm-ev-rev.pdf</u>
- 18 U.S. Task Force on Community Preventive Services,(2002) "Interventions to Prevent Dental Caries, Oral and Pharyngeal Cancers, and Sports-Related Craniofacial Injuries." American Journal of Preventive Medicine, U.S. Task Force on Community Preventive Services Retrieved April 2011 <u>http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5021a1.htm</u>
- U.S. Task Force on Community Preventive Services, (2002a) "Recommendations on Selected Interventions to Prevent Dental Caries, Oral and Pharyngeal Cancers, and Sports-Related Craniofacial Injuries" American Journal of Preventive Medicine v. 23 no. 18: 16-20 Retrieved April 2011 www.thecommunityguide.org/oral/oral-ajpm-recs.pdf
- 20 The Lord Mayor's Taskforce on Fluoridation, (1997) "The Report of the Lord Mayor's Taskforce on Fluoridation" Brisbane, Australia Retrieved April 2011 <u>http://www.nofluoride.com/Brisbane_Task_Force.html</u>
- 21 United Kingdon Medical Research Council, (2002) "Water Fluoridation and Health", United Kingdom Medical Research Council Retrieved April 2011 <u>http://www.mrc.ac.uk/Utilities/Documentrecord/index.htm?d=MRC002482</u>
- 22 United States Centres for Disease Control, (2001) "Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States" Retrieved April 2011 <u>http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm</u>
- 23 World Health Organization, (1994) "Fluorides and Oral Health" Retrieved April 2011 http://www.who.int/oral_health/action/risks/en/index1.html
- 24 Centers for Disease Control and Prevention. (1999). Ten Great Public Health Achievements United States, 1900-1999. Retrieved April 2011 http://www.cdc.gov/mmwr/preview/mmwrhtml/00056796.htm
- 25 British Fluoridation Society, One in a Million, 2nd Ed. 2004 Retrieved April 2011 http://www.bfsweb.org/onemillion/onemillion.htm
- 26 Office of the Chief Dental Officer of Canada (2006) Status of water fluoridation in Canada Retrieved April 2011 <u>http://www.hc-sc.gc.ca/ahc-asc/alt_formats/pacrb-dgapcr/pdf/branch-dirgen/wfc-efc- eng.pdf</u>

- 27 Brown HK, McLaren HR, Josie GH, Stewart BJ. Mass Control of Dental Caries By Fluoridation of a Public Water Supply: Dental Effects of Water Fluoridation, 5th Report, Dental Division, Department of National Health and Welfare, November 1955 and 6th Report, August 1958
- 28 Health Canada. (2009). Fluoride in Drinking Water. Retrieved April 2011 <u>http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/consult/_2009/fluoride-fluorure/consult_fluor_water-eau-eng.pdf</u>
- 29 Water Fluoridation in Toronto. (2011). Toronto, Ontario: City of Toronto.
- 30 Association of Local Public Health Agencies. (2011). Fluoridation of Drinking Water. Retrieved April 2011 <u>http://www.alphaweb.org/docs/lib_013863940.pdf</u>
- 31 Chief Medical Officer of Health (A) for Ontario Retrieved April 2011 <u>http://thunderbayfluoride.ca/uploads/documents/Dr.%20William's%20release%20Scan00</u> <u>12.pdf</u>
- 32 Dr. V. Goel, President and CEO Ontario Agency for Health Promotion and Protection, letter to the President of the Ontario Association of Public Health Dentistry, April 7, 2009
- 33 RCDSO Policy Statement (2003). Water Fluoridation. Royal College of Dental Surgeons of Ontario. Retrieved April 2011 http://www.rcdso.org/pdf/policy_statements/policy_fluoridation.pdf
- ODA Media Release (2008). "ODA SAYS TO COMMUNITIES "IT'S TIME TO STAND UP FOR WATER FLUORIDATION!" Retrieved April 2011 http://www.fptdwg.ca/assets/PDF/0808-ODA_Fluoride_PressRelease-July23-08.pdf
- 35 Ontario Dental Hygienists' Association Media Release (2008). "Dental hygienists support water fluoridation for optimal cavity prevention" Retrieved April 2011 http://www.fptdwg.ca/assets/PDF/0808-FluorideMediaRelease-ODHA.pdf
- 36 Ontario Association of Public Health Dentistry Retrieved April 2011 http://www.oaphd.on.ca/PDF/0808_OAPHDFluoridationPolicy.pdf
- 37 Health Canada It's Your Health (2010). Fluoride and Human Health. Retrieved April 2011 http://www.hc-sc.gc.ca/hl-vs/alt_formats/pacrb-dgapcr/pdf/iyh-vsv/environ/fluor-eng.pdf
- 38 Canada's Chief Dental Officer Weighs in on Fluoride Retrieved April 2011 http://www.hc-sc.gc.ca/hl-vs/oral-bucco/care-soin/fluor-eng.php
- 39 PHAC, CDHA, CAPHD Media Statement (2008). Experts Support Water Fluoridation. Retrieved April 2011 <u>http://www.fptdwg.ca/assets/PDF/0808-press%20release%20caphd-phac-cdha.pdf</u>
- 40 Canadian Dental Association Position Paper (2008). Use of Fluorides in Caries Prevention. Retrieved April 2011 http://www.cdadc.ca/_files/position_statements/fluorides.pdf
- 41 Canadian Association of Public Health Dentistry Position Paper. Retrieved April 2011 http://www.caphd-acsdp.org/Position-Fluoridation.pdf
- 42 CANADIAN EXPERTS STAND UP FOR WATER FLUORIDATION Retrieved April 2011 <u>http://www.fptdwg.ca/assets/PDF/0808-joint_water_fluoridation_release_Aug7-08.pdf</u>
- FDI Policy Statement (2008). "Promoting Dental Health Through Water Fluoridation" Retrieved April 2011 <u>http://www.fdiworldental.org/federation/assets/statements/ENGLISH/2008/Promoting-</u> dental-health-through-water-fluoridation.pdf

- 44 Canadian Public Health Association -1984 CPHA Resolution No. 2 Water Fluoridation "THEREFORE BE IT RESOLVED THAT the Canadian Public Health Association endorse water fluoridation as an effective and safe public health measure which reduces dental caries and urge all relevant international, national, provincial, territorial and municipal authorities to undertake earliest possible implementation of this important public health measure. ...*CARRIED*"
- 45 American Public Health Association Position Paper (2008). Community Water Fluoridation in the United States. Retrieved April 2011 http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1373
- 46 Public Health Association of Australia (2010). Public Health Association of Australia Policy-at-a-glance – Oral Health Policy. Retrieved April 2011. http://www.ada.org.au/app_cmslib/media/lib/0708/m96236_v1_phaa_policy_disease_oral_health.pdf
- 47 Public Health Association of New Zealand (2003). Public Health Association of New Zealand Policy on Water Fluoridation. Retrieved April 2011 <u>http://www.pha.org.nz/policies/phapolicyfluoridation.pdf</u>
- 48 O'Connor., M. et al. (1999) Water Fluoridation and Public Health. Royal College of Physicians of Ireland. Retrieved April 2011 http://www.dentalhealth.ie/download/pdf/waterfluoridation.pdf
- 49 Health Canada. (2011). Canadian Health Measures Survey. Oral Health Statistics 2007-2009. Retrieved April 2011 <u>http://www.hc-sc.gc.ca/hl-vs/pubs/oral-bucco/fact-fiche-oral-bucco-stat-eng.php</u>
- 50 Health Canada. (2010). Report on the Findings of the Oral Health Component of the Canadian Health Measures Survey 2007-2009. Ottawa: Minister of Health.
- 51 Water Fluoridation: New Data and Recent Developments (City Wide). (2011). Hamilton, Ontario: City of Hamilton.
- 52 McLaren, Lindsay. (2011). Drinking water fluoridation in Canada: Review and synthesis of published literature Draft.
- 53 Peat, Don. (2011, April 4). Toronto will continue fluoridation of the water supply. Toronto Sun. Retrieved April 2011
 - http://www.torontosun.com/news/torontoandgta/2011/04/04/17870616.html
- 54 Globe and Mail. (2011, April 4). Toronto votes to continue fluoridating water. Globe and Mail Retrieved April 2011 <u>http://m.theglobeandmail.com/news/national/toronto/toronto-votes-to-continue-fluoridating-water/article1970703/?service=mobile</u>
- 55 Markusoff, Jason. (2011, April 12). Calgary's fluoride battle isn't over; Alberta Health fighting removal. Calgary Herald. Retrieved April 2011 <u>http://www.calgaryherald.com/health/Calgary+fluoride+battle+over+Alberta+Health+figh</u> <u>ting+removal/4598480/story.html</u>
- 56 Infrastructure Ontario. (2011). Loan Program: Municipalities. Retrieved April 2011 http://www.infrastructureontario.ca/en/loan/municipal/index.asp

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