Faculty of Dentistry
University of Toronto

Michael J. Sigal, D.D.S.,Dip. Paedo.,M.Sc.,F.R.C.D(C)
Head, Discipline of Pediatric Dentistry
Department of Clinical Sciences
Telephone: (416) 979-4926 ext. 4320
Email: m.sigal@dentistry.utoronto.ca

Graduate Program in Pediatric Dentistry

March 30, 2011

Councillor John Fillion
Chair, Toronto Board of Health
Floor 10, West Tower
City Hall
100 Queen Street West
Toronto, ON
M5H 2N2

Re: Water Fluoridation for the City of Toronto

Dear Councillor Fillion:

It has been brought to our attention that the City of Toronto Board of Health is considering the removal of fluoride from the City water supply. The Graduate Program in Pediatric Dentistry at the Faculty of Dentistry is a strong supporter of water fluoridation and would consider it a dental public health tragedy if the City decided to remove fluoride from the drinking water.

The following are some key points regarding fluoride in our water supply which are presented in a question and answer format and are fully supported by the best published scientific evidence that we have available to us.

Community Water Fluoridation – Question and Answers

Q. **What is the history behind community water fluoridation**?

The long and safe record of community water fluoridation and its beneficial effects upon dental health have been well documented.[1-3] Community water fluoridation has been declared as one of the ten great public health achievements of the 20th century.[4]

Q. **What do Canadians think about community water fluoridation?**

A 2008 national survey of adults in Canada found that one in two were aware of community water fluoridation and the majority of them supported the practice of having fluoride added to their local drinking water, considering it to be both safe and effective. [5]

Q. **How relevant is water fluoridation today when cavities in many children have decreased?**

It has been observed that recent reviews of water fluoridation in Australia, Ireland, the United Kingdom, and the United States have all found effectiveness of

contemporary water fluoridation.[6] A summation of recent evidence from Australia, Ireland, and the United States also found noticeable difference in occurrence of cavities between fluoridated and non-fluoridated communities "despite the ubiquitous presence of fluoride in food, water, and dental products."[6]

The importance of water fluoridation for reduction of cavities in children from low-income families merits special mention. For instance, a 2006 study of low-income children in New York State found that children in predominantly fluoridated counties needed less dental caries related services.[7]

Q. **What would happen if water fluoridation is removed from a community that has previously benefited from it?**

Data from many countries have shown an increase in the occurrence of cavities upon stopping water fluoridation.[8] A Task Force of the United States Community Preventive Services computed, based upon summation of evidence, that stopping water fluoridation may increase occurrence of cavities by 18% during 6 to 10 years of follow-up.[2]

Cessation of water fluoridation would be a social injustice that would adversely impact upon the less fortunate including individuals with special needs/disabilities. Summary of evidence from Australia, New Zealand and the United States found "that disadvantaged children have the worst outcome in the absence of water fluoridation."[6] Further, an analysis of adult tooth loss in the United States found that fewer teeth were removed (extracted) if you were born in a county with water fluoridation and this impact was larger for individuals of low socioeconomic status.[9]

Q. **What are the known detrimental effects of community water fluoridation?**

Occurrence of dental fluorosis (commonly whitish discoloration of tooth enamel) is associated with water fluoridation.[1] It is the only known adverse effect of water fluoridation and is mild and undetectable to most individuals.

Adverse effects of community water fluoridation upon the human skeleton have been speculated but have never been substantiated. A multi-center study of osteoporosis and fractures in women in the United States found that long term exposure to fluoridated drinking water did not increase the risk of fracture.[10] A comparison of bone specimens from fluoridated Toronto and non-fluoridated Montreal concurred with epidemiological evidence and found that " the density is greater for bones from the region with water fluoridation, but the strength of the bone is unchanged while the strain data indicate that these bones may be more ductile and tough."[11]

In conclusion, the Graduate Program in Pediatric Dentistry at the University of Toronto strongly supports continued water fluoridation for the City of Toronto due to the overwhelming scientific evidence in its favor regarding the prevention of dental caries.

Members of the Board of Health and City Council are welcome to contact us directly if they desire more detailed information regarding this very important oral health issue.

Respectfully submitted,

Graduate Program in Pediatric Dentistry
Faculty of Dentistry
University of Toronto

Dr. Michael J. Sigal
Professor and Head
Pediatric Dentistry
Dentist-in-Chief
Mount Sinai Hospital

Dr. Peter Judd
Associate Professor
Pediatric Dentistry
Dentist-in-Chief
Hospital for Sick Children

Dr. Paul Andrews
Assistant Professor
Pediatric Dentistry

Dr. Hashim Nainar
Associate Professor
Pediatric Dentistry

Dr. Michael Casas
Associate Professor
Pediatric Dentistry
Hospital for Sick Children

Dr. Gajan Kulkarni
Associate Professor
Pediatric Dentistry
Preventive Dentistry

Dr. Brett Saltzman
Assistant Professor
Pediatric Dentistry

Dr. Edward Barrett
Assistant Professor
Pediatric Dentistry
Hospital for Sick Children

Dr. Regina Revuelta
Assistant Professor
Pediatric Dentistry

Dr. John Wiles
Associate
Pediatric Dentistry

Dr. Julia Rukavina
Assistant Professor
Pediatric Dentistry

Dr. Randi Fratkin
Associate
Pediatric Dentistry
Hospital for Sick Children

Dr. David Farkhouh
Associate
Pediatric Dentistry
Hospital for Sick Children

Dr. Bobak Mehdi
Assistant Professor
Pediatric Dentistry

Dr. David Kenny
Professor
Pediatric Dentistry
Hospital for Sick Children

Dr. Keith Titley
Professor Emeritus
Pediatric Dentistry

Dr. Norman Levine
Professor Emeritus
Pediatric Dentistry

CC: Dr. Hazel Stewart
Director Dental and Oral Health Services
Toronto Public Health
277 Victoria Street-5th Floor
Toronto, ON
M5B 1W2

References:

1. McDonagh MS, Whiting PF, Wilson PM et al. Systematic review of water fluoridation. Br Med J 2000; 321:855-9.
2. Truman BI, Gooch BF, Sulemana I et al. Reviews of evidence on interventions to prevent dental caries, oral and pharyngeal cancers, and sports-related craniofacial injuries (The Task Force on Community Preventive Services). Am J Prev Med 2002; 23:21S-54S.
3. Yeung CA. A systematic review of the efficacy and safety of fluoridation. Evid Based Dent 2008; 9:39-43.
4. Centers for Disease Control. Ten great public health achievements – United States, 1900-1999. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4850bx.htm Accessed on March 29, 2011.
5. Quinonez CR, Locker D. Public opinions on community water fluoridation. Can J Public Health 2009; 100(2):96-100.
6. Kumar JV. Is water fluoridation still necessary? Adv Dent Res 2008; 20:8-12.
7. Kumar JV, Adekugbe O, Melnik TA. Geographic variation in Medicaid claims for dental procedures in New York State: role of fluoridation under contemporary conditions. Public Health Rep 2010 125(5):647-54.
8. Newbrun E. What we know and do not know about fluoride. J Public Health Dent 2010; 70:227-33.
9. Neidell M, Herzog K, Glied S. The association between community water fluoridation and adult tooth loss. Am J Public Health 2010; 100:1980-5.
10. Phipps KR, Orwoll ES, Mason JD, Cauley JA. Community water fluoridation, bone mineral density, and fractures: prospective study of effects in older women. Br Med J 2000; 321:860-4.
11. Chachra D, Limeback H, Willett TL, Grynpas MD. The long-term effects of water fluoridation on the human skeleton. J Dent Res 2010; 89:1219-23.