

Community Water Fluoridation

Presentation to LaSalle Town Council

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Community Water Fluoridation

According to the United States Centers for Disease Control and Prevention (CDC), community water fluoridation is, **“one of the greatest public health achievements of the 20th century.”**

Fluoridating LaSalle’s water is:

- ✓ Safe
- ✓ Effective – it works
- ✓ Equitable – it reaches everyone
- ✓ Economical – it’s cost effective

Community Water Fluoridation is SAFE and EFFECTIVE

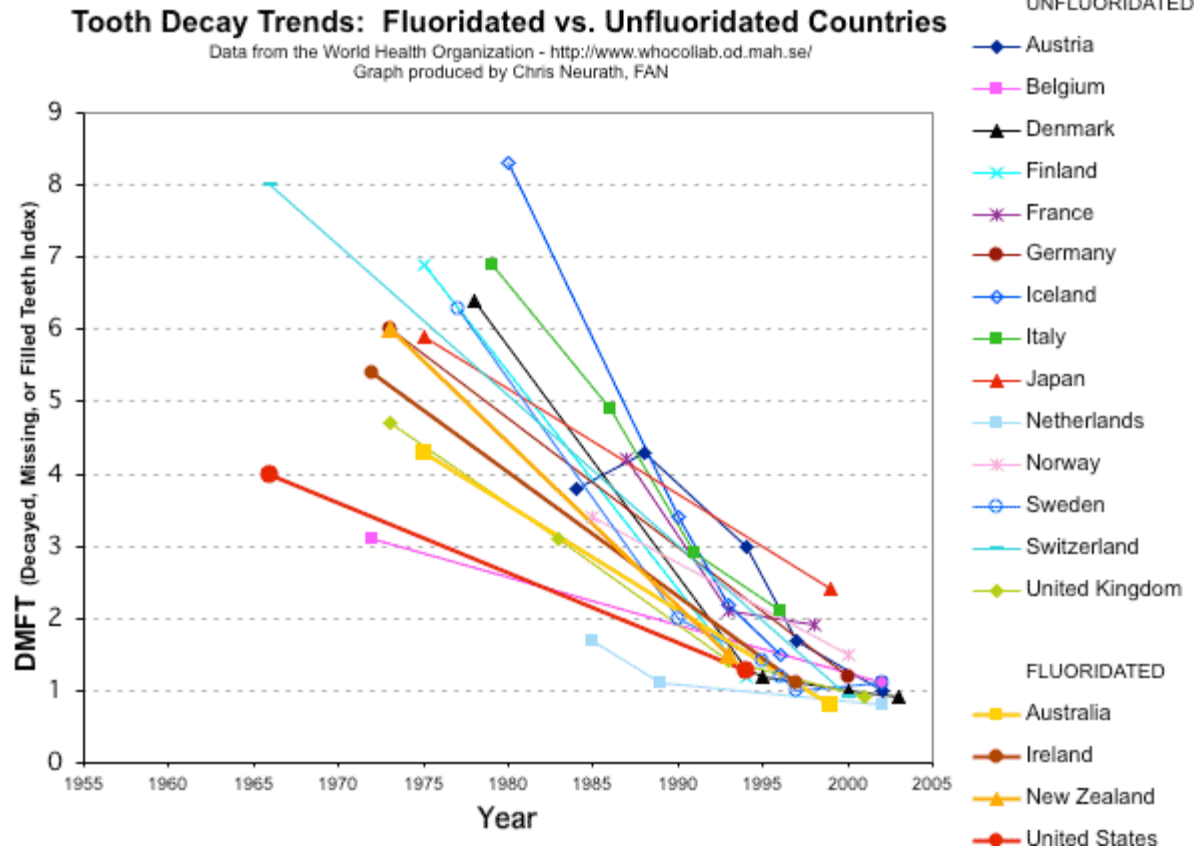
- Fluoride, a naturally occurring mineral, has been found to stop, prevent, and even reverse the process of tooth decay.
- The safety and effectiveness of community water fluoridation has been studied extensively and is supported by numerous major scientific and professional bodies including:
 - Ontario's Chief Medical Officer of Health – Dr. Arlene King
 - Ontario's Ministry of Health and Long-Term Care
 - Health Canada – Dr. Peter Cooney, Chief Dental Officer
 - The Public Health Agency of Canada
 - The World Health Organization
- Health Canada reviewed the latest available evidence on the benefits and potential risks from the fluoridation of community water in 2007 and concluded that the weight of evidence from all currently available studies shows no harmful health risk at current fluoride levels.
- In the past 15 years, there have been at least 18 reviews on water fluoridation which found the fluoridation of community drinking water to be safe and effective at preventing tooth decay.

Community Water Fluoridation is EQUITABLE and ECONOMICAL

- Community water fluoridation is supported by more than 100 national and international dental, allied health, and other organizations as the most cost-effective and equitable strategy for the prevention of dental decay.
- Adding fluoride to water is the best way to provide fluoride protection to a large number of people at a low cost. Water fluoridation benefits all residents, regardless of age, socioeconomic status, education, employment, or dental insurance status.
- Water fluoridation is especially beneficial to certain populations, including low income families and new immigrants, who may not have access to other means of fluoridation and dental care.
- It is estimated that for every \$1 invested in community water fluoridation, \$38 is saved in future dental treatment costs. [1]

[1] Centers for Disease Control and Prevention, 2011

Tooth Decay Trends



Alternative Methods of Fluoridation

Country	Alternative methods of fluoridation and/or dental care
Austria	Free basic dental care; school brushing programs
Belgium	Salt fluoridation
Denmark	Free dental care for children; fluoride tablets used in past
Finland	Free dental care for children
France	Salt fluoridation (40-50% of population)
Germany	Salt fluoridation
Iceland	State run school dental clinics in past; today, 75% reimbursement for child dental care
Italy	Free dental care
Japan	Free dental care
Netherlands	Free dental care for children
Norway	Free dental care; fluoride tablets and rinsing programs
Sweden	Free dental care; school rinsing programs
Switzerland	Salt fluoridation; school brushing programs
United Kingdom	Free dental care; 10% of population receives water fluoridation

Source: OECD Revenue Statistics, 1965-2007, 2008 Edition.

Evaluating the Impact of Municipal Water Fluoridation on the Aquatic Environment

- Not all of the fluoride added to our drinking water returns to the water source. If LaSalle's water is fluoridated at a level of about 0.6 milligrams per litre, this does not mean that fluoride levels in our waterways would be increased by the same amount.
- A study in Montreal showed that, after taking into account water loss during use, dilution of sewage by rain and ground water infiltrate, fluoride removal during secondary sewage treatment, and diffusion dynamics, water fluoridation would raise overall river fluoride concentrations by just 0.001-0.002 mg/L, "a value not measurable by current analytical techniques," and 1000 times less than the naturally occurring level of fluoride found in some bodies of water. [1, 2]
- Because of this dilution, there is no evidence that fluoridation increases the overall concentrations of fluoride in our waterways beyond the Canadian Water Quality Guideline level of 0.12mg/L. [2]

[1] Osterman, J.W., *AJPH* 1990, 80(10): 1230-1235

[2] Canadian Council of Ministers of the Environment. 2002

Source of Fluoride

- The Safe Drinking Water Act mandates and requires municipal drinking water licences.
- Windsor Utilities Commission (WUC) uses hydrofluorosilicic acid and is in compliance with section 14 of its Municipal Drinking Water Licence.

Hydrofluorosilicic Acid

- **Fluoridated drinking water is not a source of hydrofluorosilicic acid.** [1]
- When added to water, fluorosilicate compounds readily hydrolyse (or dissolve) completely to release fluoride ions and break down into harmless compounds, leaving none of the original chemical, This is generally accepted as a chemical fact. [1,2]
- Since hydrofluorosilicic acid hydrolyses (or dissolves) completely in water, leaving none of the original chemical, no research has focused on the direct consumption of fluorosilicic acid outside of occupational settings since, again, **fluoridated drinking water is not a source of hydrofluorosilicic acid.** There is no credible evidence of toxicity when these acids are diluted for use in fluoridated water. [1,2]
- Concerns have also been raised about arsenic and lead in fluorosilicic acid–treated water. However, there is no credible evidence that this is of concern. [2]

[1] Health Canada, March 18, 2008, Joint Government of Canada Response

[2] Pollick, H.F. *Int J Occup Environ Health* 2004, 10: 343-350

Safety Standards

- As required by section 14 of WUC's Municipal Drinking Water Licence, chemicals used must meet all applicable standards as set by both the American Water Works Association and the American National Standards Institute safety criteria standards NSF/60 and NSF/61.
- The National Sanitation Foundation (NSF) is the internationally recognized expert agency on certifying products and writing standards for food, water, and consumer goods. To date, they have certified that the three available fluoride containing water treatment additives (hydrofluorosilicic acid, sodium fluorosilicate, and sodium fluoride) meet NSF/ANSI Standard 60, which deals with the health effects of drinking water treatment chemicals.

Testing

- As required by Schedule 7 of Ontario Reg.170/03 under the Safe Drinking Water Act, WUC, the operating authority, must ensure that a water sample is collected at the end of the fluoridation process and tested at least once daily for fluoride.
- As required by Schedule 13 of Ontario Reg.170/03 under the Safe Drinking Water Act, the operating authority must ensure that a water sample is taken at least annually and tested for all parameters as set out in Schedule 23 of Ontario Reg. 170/03 including testing for the following analytes:
 - Antimon
 - Arsenic
 - Barium
 - Boron
 - Cadmium
 - Chromium
 - Mercury
 - Selenium
 - Uranium
- Sampling for lead is covered by Schedule 15.2 of Ontario Reg. 170/03 and the operating authority for the system must ensure that the requirements of this section are met.

Dental Health Needs in Windsor-Essex



Children

- Dental decay is the most widespread chronic disease of childhood.
 - Dental disease is the most common cause of permanent tooth loss in children.
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- Over \$2 million per year is spent by the Health Unit on dental programs for low income children in Windsor-Essex County.
 - Over 15,000 children screened in Windsor-Essex in 2011.
 - 17% of those children qualified for treatment.

Dental Health Needs in Windsor-Essex

- 33% of the general population in Windsor-Essex do not have dental insurance. ^[1]
- Among immigrants, who make up 23% of the population in Windsor-Essex, 45% do not have dental insurance. ^[1]
- Low income residents are much more likely to be without dental insurance. ^[2]

[1] Statistics Canada, Canadian Community Health Survey, 2009-2010

[2] Peel Public Health, 2011



Recently Reaffirmed Decision to Fluoridate Water

- Atikokan, Ontario
- Cape Breton, Nova Scotia
- Dorval, Quebec: reintroduced fluoridation after increase in incidence of decay after fluoride was removed.
- Halton, Ontario
- Hamilton, Ontario (Board of Health)
- London, Ontario (Board of Health)
- Norfolk, Ontario
- Sarnia, Ontario
- Toronto, Ontario (Board of Health)
- Tottenham, Ontario

Windsor-Essex County Board of Health

At the May 15, 2003 meeting of the Board, the following resolution was proposed and carried:

“That the Board of Directors of the Windsor-Essex County Health Unit support the concept of community fluoridation, consistent with the public health act.”



Conclusion

Based on a systematic review of evidence, community water fluoridation in LaSalle is:

- ✓ Safe
- ✓ Effective – it works
- ✓ Equitable – it reaches everyone
- ✓ Economical – it's cost effective

Recommendation

As Medical Officer of Health, I recommend the continuation of fluoridation to the LaSalle community drinking water system.



Questions?