

Hello:
I think I now have the correct email address for the city clerk in Windsor.
Please include the following letter and statement in the next council meeting.
I personally sent the email to the council members listed below so they have already received it, but just to make sure,
please reproduce it for the next meeting.
Thanks

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Subject: Letter and statement from Dr. Limeback

Dear Windsor council members May 3, 2012

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I served 3.5 years on the US National Academies of Sciences Subcommittee on Fluoride in Drinking Water. The NAS is sometimes referred to as the 'Supreme Court of Science', an organization that sets up unbiased (or balanced) committees to review scientific issues of concern to Americans. The committee on which I served examined the health effects of fluoride in drinking water.

Our report, published March 22, 2006 and can be found online at http://www.nap.edu/catalog.php?record_id=11571

Our committee was funded by the US EPA – we did not examine the benefit of fluoridation but we certainly reviewed all relevant literature on the toxicity of fluoride, including those at low levels of intake, and the effects of fluoridation.

It has taken 6 years for the EPA to respond to our report. It now acknowledges that fluoride in drinking water poses a problem and it has lowered its recommendation for levels of fluoride in drinking water to 0.7 mg/L (ppm). The American Dental Association and the Center for Disease Control in the US both agree that fluoridated tap water should not be used to make up infant formula, since that increases the risk of dental fluorosis. To me, dental fluorosis is a biomarker for fluoride poisoning. Health Canada, taking the recommendation of only profluoridation experts, failed to come up with the same warnings as in the USA but then Health Canada does not set fluoridation policy. Neither do the provinces. Municipalities set policies such as water fluoridation. As far as I know, Public Health Officials have made no effort to inform expectant mothers and mothers of newborn babies to avoid using fluoridated city tap water for making up infant formula. Their inaction is regrettable.

I have personally conducted years of funded research at the University of Toronto on the topic of fluorosis (fluoride poisoning) and bone effects of fluoride intake. A bone study, for which we received national funding, comparing hip bones of people who live in Toronto (fluoridated since 1963) to the bones of people from Montreal (Montreal has never been fluoridated), suggests disturbing negative changes in the bone quality of Torontonians (I can forward this study to you if you like). This is NOT GOOD.

Since we studied a cross section of the population as they were selected for hip replacement, we were unable to examine only those people who were exposed to fluoridation for a lifetime. If we had been able to do this, we would have seen a much greater negative effect of fluoride since fluoride accumulates with age (our study confirmed that). Studies like ours indicate that not only does extra fluoride in the water cause defective enamel (that is VERY expensive to treat) but also defective bone.

The NAS committee examined the literature on the effects of fluoride on bone up until 2006. Since that time there have been more studies to confirm the link between fluoridation and bone changes, as well as a link to bone cancer. Our Toronto vs Montreal study was not included in the 2006 review by the US National Academies of Sciences because it only just got published in 2010.

I am also the co-author of studies that show that too much fluoride accumulation in the dentin of teeth (the tissue that supports enamel) causes its properties to change as well. Fluoride has NOT been shown to be safe and effective. In fact, as more and more peer-reviewed studies on fluoride toxicity appear in the literature, it has become clear to me that the pendulum is certainly shifting to 'Not safe, and no longer effective'.

As a practicing dentist, I have been diagnosing and treating patients with dental fluorosis for close to 20 years. My research on dental fluorosis (confirmed by the studies reported in the 2006 NRC report as well as the York review) show fluoridation significantly increases the numbers of patients seeking expensive cosmetic repairs. No one in public health has ever accounted for the added costs in treating dental fluorosis when considering the cost-benefit ratio of fluoridation.

Our 2006 NRC (NAS) report also concluded that there is a likelihood that fluoride can promote bone cancer. On page 336 it is stated *Fluoride appears to have the potential to initiate or promote cancers, particularly of the bone, but the evidence to date is tentative and mixed (Tables 10-4 and 10-5)*. This alone should force the EPA to set a fluoride maximum contaminant level goal for fluoride in drinking water at ZERO (as it did for arsenic). The EPA has not yet made a decision as to fluoride's carcinogenicity.

I have looked at this from all angles and I have to conclude that fluoridated cities would save money on fluoridation costs, parents would save on costly dental bills treating dental fluorosis, dental decay rates would remain unchanged or even continue to decline (as has been demonstrated in many modern fluoridation cessation studies) and the health of city residents would improve when industrial waste products are no longer added to the drinking water.

I find it absurd that industrial toxic waste is shipped to the water treatment plants in large tanker trucks and trickled into the drinking water of major cities in North America. This not only puts water fluoridation employees at risk for serious injury, but if a major spill should occur, releasing the highly corrosive and poisonous hydrofluosilicic acid into the atmosphere, people's lives would be at stake.

Individual municipalities set fluoridation policies. That means that the city is responsible for the practice of fluoridation. I could not find anywhere in the Fluoridation Act of Ontario (see http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90f22_e.htm) that states that cities have to provide alternatives to water fluoridation should city councils decide to halt the practice.

Several Canadian cities have decided it is not worth continuing the practice of fluoridation. Recently Quebec City decided to halt fluoridation. So did Waterloo and Calgary.

There is no doubt in my mind that fluoridation has next to no benefit in terms of reduced dental decay. The modern literature is clear on that. Fluoridation cessation studies fail to show an increase in dental decay. In fact, caries rates continue to drop. Since fluoride intake delays tooth eruption, water fluoridation studies that do not make a correction for that are flawed. The York reviewers recognized this problem. Even the York review is flawed because of this. Additionally, in their systematic review, the York reviewers made a grave error in estimating benefits by lumping modern studies with very old studies when decay rates were a lot higher. In the 1950's, when fluoridation started to catch on, it was claimed that there was as much as a 40% benefit. Despite the evidence being very weak, fluoridation might have been worthwhile, especially since fluoridated toothpastes were not introduced until the late 1960's. After that, the benefit of fluoridation declined. Now, if there is any benefit at all, one could expect perhaps a 5-10% benefit in children. If half the children are already cavity free and the average decay rates are only two cavities per child it means cities have to fluoridate for 20 years in order to save one decayed surface for every fifth child. Clearly, that is NOT a policy that demonstrates fiscal responsibility and cities that do not do due diligence in terms of cost-benefit analysis are wasting tax payers money and may actually be putting their councillors in a position of liability. The claim that for every \$1 spent on fluoridation saves \$38 was never accurate and is currently exceedingly misleading. It simply is a lie.

The following is a formal discussion (deposition) of the above with proper citation of the peer-reviewed scientific literature. This literature cited is not junk science, as claimed by fluoridation promoters.

Sincerely

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STATEMENT BY DR. HARDY LIMEBACK

I am the Head of Preventive Dentistry at the University of Toronto in Toronto Canada, a professor of dentistry with a PhD in Biochemistry and a practicing dentist with 27 years experience who has done years of funded research in tooth formation, bone and fluoride.

I was one of the 12 scientists who served on the US National Academy of Sciences panel that issued the 2006 report, "Fluoride in Drinking Water: A Scientific Review of the EPA's Standards."

I would like to outline my arguments that fluoridation is ineffective and a harmful public health policy.

1. Fluoridation is no longer effective.

Fluoride in water has the effect of delaying tooth eruption and, therefore, simply delays dental decay (Komarek et al, 2005, *Biostatistics* 6:145-55). The studies that water fluoridation works are over 25 years old and were carried out before the widespread use of fluoridated toothpaste. There are numerous modern studies to show that there no longer is a difference in dental decay rates between fluoridated and non-fluoridated areas, a recent one in Australia (Armfield & Spencer, 2004 *Community Dental Oral Epidemiology*. 32:283-96).

Recent water fluoridation cessation studies show that dental fluorosis (a mottling of the enamel caused by fluoride) declines but there is no corresponding increase in dental decay (e.g. Maupome et al 2001, *Community Dental Oral Epidemiology* 29: 37-47).

Public health services will claim there is still a dental decay crisis. With the national average in Europe of only two decayed teeth per child (World Health Organization data), down from more than 15 decayed teeth in the 1940s and 1950s before fluoridated toothpaste, as much as half of all children grow up not having a single filling. This remarkable success has been achieved in most European countries without fluoridation. The "crisis" of dental decay often mentioned is the result, to a major extent, of sugar abuse, especially soda pop. A 2005 report by Jacobsen of the Center for Science in the Public Interest said that U.S. children consume 40 to 44 percent of their daily refined sugar in the form of soft drinks. Since most soft drinks are themselves fluoridated, the small amount of fluoride is obviously not helping.

The families of these children with rampant dental decay need professional assistance. It appears they are not getting it. Children who grow up in low-income families make poor dietary choices, and cannot afford dental care. Untreated dental decay and lack of professional intervention result in more dental decay. The York review was unable to show that fluoridation benefited poor people to any greater extent than other groups of the population. The York review, and others that followed, including the Systematic Review of the Efficacy and Safety of Fluoridation conducted recently in Australia <http://www.nhmrc.gov.au/publications/synopses/eh41syn.htm> and Health Canada's review of fluoridated water <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2008-fluoride-fluorure/index-eng.php> failed to identify even one double-blinded, randomized prospective clinical trial to prove the fluoridation works, after correcting for diet and delay in tooth eruption.

This means that the reviewers failed to show the level of evidence for efficacy that is required in North America for a medicine to be approved. Furthermore, most reviews admit that there is not enough evidence for safety, since properly conducted clinical trials were not designed to measure adverse health effects.

None of the reviews conducted to date addressed whether fluoridation can reduce the prevalence or severity of early dental decay in nursing infants (baby bottle syndrome). A very large percentage of dentists in North America do not accept patients on government assistance because they lose money treating these patients. In my experience, many dentists support fluoridation because it supposedly absolves them of their responsibility to provide assistance to those who cannot afford dental treatment. Even cities where water fluoridation has been in effect for years are reporting similar dental "crises."

In my opinion, Public health officials responsible for community programs are misleading the public by stating that ingesting fluoride "makes the teeth stronger." Fluoride is not an essential nutrient. It does not make developing teeth better prepared to resist dental decay before they erupt into the oral environment. The small benefit that fluoridated water might still have on teeth (in the absence of fluoridated toothpaste use) is the result of "topical" exposure while the teeth are rebuilding from acid challenges brought on by daily sugar and starch exposure (Limeback 1999, *Community Dental Oral Epidemiology* 27: 62-71), and this has now been recognized by the Centers for Disease Control.

2. Fluoridation is the main cause of dental fluorosis.

Fluoride doses by the end user can't be controlled when only one concentration of fluoride (1 parts per million) is available in the drinking water. Babies and toddlers get too much fluoride when tap water is used to make formula (Brothwell & Limeback, 2003 *Journal of Human Lactation* 19: 386-90). Since the majority of daily fluoride comes from the drinking water in fluoridated areas, the risk for dental fluorosis greatly increases (National Academy of Sciences: *Toxicological Risk of Fluoride in Drinking Water*, 2006). The American Dental Association and the Dental Forum in Ireland have admitted that fluoridated tap water should not be used to reconstitute infant formula.

We have tripled our exposure to fluoride since fluoridation was conceived in the 1940s. This has lead to every third child with dental fluorosis (CDC, 2005). Fluorosis is not just a cosmetic effect. The more severe forms are associated with an increase in

dental decay (NAS: Toxicological Risk of Fluoride in Drinking Water, 2006) and the psychological impact on children is a negative one. Most children with moderate and severe dental fluorosis, the prevalence of which is higher in fluoridated areas and is not insignificant in terms of proportions of the population affected, seek extensive restorative work costing thousands of dollars per patient. Dental fluorosis can be reduced by turning off the fluoridation taps without affecting dental decay rates (Burt et al 2000 Journal of Dental Research 79(2):761-9).

3. Chemicals that are used in fluoridation have not been tested for safety.

All the animal cancer studies were done using sodium fluoride. There is more than enough evidence to show that even this form of fluoride has the potential to promote cancer because it accumulates in the bone and produces levels that are high enough to induce cancer (NAS: Toxicological Risk of Fluoride in Drinking Water, 2006). Some communities use sodium fluoride in their drinking water, but even that chemical is not the same fluoride added to toothpaste. Most cities instead use hydrofluorosilicic acid (or its salt). H_2SiF_6 is concentrated directly from the smokestack scrubbers during the production of phosphate fertilizer, shipped to water treatment plants and trickled directly into the drinking water. It is industrial grade fluoride contaminated with trace amounts of heavy metals such as lead, arsenic and radium, which are harmful to humans at the levels that are being added to fluoridate the drinking water.

In addition, using hydrofluorosilicic acid instead of industrial grade sodium fluoride has an added risk of increasing lead accumulation in children (Masters et al 2000, Neurotoxicology. 21(6): 1091- 1099), probably from the lead found in the pipes of old houses. This could not be ruled out by the CDC in their recent study (Macek et al 2006, Environmental Health Perspectives 114:130-134). None of these issues have ever been addressed by the various government sponsored reviews.

4. There are serious health risks from water fluoridation.

Cancer: Osteosarcoma (bone cancer) has been identified as a risk in young boys in a recently published Harvard study (Bassin, Cancer Causes and Control, 2006). The author of this study, Dr. Elise Bassin, acknowledges that perhaps it is the use of these untested and contaminated fluorosilicates mentioned above that caused the over 500% increase risk of bone cancer in young boys. The long-awaited study published by her former PhD supervisor (Dr. Chester Douglass) in no way negated these findings. The NAS committee was unsure about designating fluoride as a potential carcinogen in 2006 because we wanted to wait for the final study from the Harvard group. Now that it is published, nothing has changed (Kim FM et al. 2011, J Dent Res. 90(10):1171-6).

Bone fracture: Drinking on average 1 liter/day of naturally fluoridated water at 4 parts per million increases your risk for bone pain and bone fractures (National Academy of Sciences: Toxicological Risk of Fluoride in Drinking Water, 2006). Since fluoride accumulates in bone, the same risk occurs in people who drink 4 liters/day of artificially fluoridated water at 1 part per million, or in people with renal disease. Additionally, Brits are known for their tea drinking and since tea itself contains fluoride, using fluoridated tap water puts many heavy tea drinkers dangerously close to threshold for bone fracture.

Our recently published study on fluoride in bone from fluoridation (Chachra et al, J Dent Res 89(11):1219-1223, 2010) shows a negative trend in changes that have occurred in the bone of Torontonians who have lived only a portion of their lives in fluoridated Toronto. Fluoridation studies have never properly shown that fluoride is safe in individuals who cannot control their dose, or in patients who retain too much fluoride.

Adverse thyroid function: Our National Academy of Sciences report (NAS: Toxicological Risk of Fluoride in Drinking Water, 2006) outlines in great detail the detrimental effect that fluoride has on the endocrine system, especially the thyroid. Fluoridation should be halted on the basis that endocrine function has never been studied in relation to total fluoride intake.

Adverse neurological effects: In addition to the added accumulation of lead (a known neurotoxin) in children living in fluoridated cities, fluoride itself is a known neurotoxin. We are only now starting to understand how fluoride affects the brain. Several recent studies suggest that fluoride in drinking water lowers IQ (NAS, 2006). We need to study this more in depth.

In my opinion, having served on the NAS Committee in the US for more than 3 years, the evidence that fluoridation is more harmful than beneficial is now overwhelming and cities that avoid thoroughly considering ALL the recent data do so, in my opinion, at risk of future legal action.

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