Why I Am Now Officially Opposed to Adding Fluoride to Drinking Water

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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 Heath 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). H2SiF6 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 recently 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.

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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Additional references at: http://www.fluoridealert.org/limeback.htm

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