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April, 2000

To whom it may concern:

Why I am now officially opposed to adding fluoride to drinking water.

Since April of 1999, I have publicly decried the addition of fluoride, especially hydrofluosilicic acid, to drinking water for the purpose of preventing tooth decay. The following summarize my reasons.

New evidence for lack of effectiveness of fluoridation in modern times.

1. Modern studies (published in the 1980's 1990's) show dental decay rates are so low in North America that the effects of water fluoridation cannot be measured. Because of the low prevalence of dental decay, water fluoridation studies today must be carefully conducted to correct for mobility of subjects between fluoridated and non-fluoridated areas, access to fluoride from other sources, the lack of blinding and problems with the 'halo' effect. Even when very large sample sizes are used to obtain statistically significant results, the benefit of water fluoridation is not a clinically relevant one (the number of tooth surfaces saved from dental decay per person is less than one half). Recent studies show that halting fluoridation will either result in only a marginal increase in dental decay which cannot be detected or no increase in dental decay at all.
2. The major reasons for the general decline of tooth decay worldwide, both in non-fluoridated and fluoridated areas, is the widespread use of fluoridated toothpaste, improved diets, and overall improved general and dental health (antibiotics, preservatives, hygiene etc).
3. There is now a better understanding of how fluoride prevents dental decay. What little benefit fluoridated water may still provide is derived primarily through topical means (after the teeth erupt and come in contact with fluorides in the oral cavity). Fluoride does not need to be swallowed to be effective. It is not an essential nutrient. Nor should it be considered a desirable 'supplement' for children living in non-fluoridated areas. Fluoride ingestion delays tooth eruption and this may account for some of the differences seen in the past between fluoridated and non-fluoridated areas (i.e. dental decay is simply postponed). No fluoridation study has ever separated out the systemic effects of fluoride. Even if there were a systemic benefit from ingestion of fluoride, it would be miniscule and clinically irrelevant. The notion that systemic fluorides are needed in non-fluoridated areas is an outdated one that should be abandoned altogether.

New evidence for potential serious harm from long-term fluoride ingestion.

1. Hydrofluorosilicic acid is recovered from the smokestack scrubbers during the production of phosphate fertilizer and sold to most of the major cities in North America, which use this industrial

grade source of fluoride to fluoridate drinking water, rather than the more expensive pharmaceutical grade sodium fluoride salt. Fluorosilicates have never been tested for safety in humans. Furthermore, these industrial-grade chemicals are contaminated with trace amounts of heavy metals such as lead, arsenic and radium that accumulate in humans. Increased lead levels have been found in children living in fluoridated communities. Osteosarcoma (bone cancer) has been shown to be associated with radium in the drinking water. Long-term ingestion of these harmful elements should be avoided altogether.

2. Half of all ingested fluoride remains in the skeletal system and accumulates with age. Several recent epidemiological studies suggest that only a few years of fluoride ingestion from fluoridated water increases the risk for bone fracture. The relationship between the milder symptoms of bone fluorosis (joint pain and arthritic symptoms) and fluoride accumulation in humans has never been investigated. People unable to eliminate fluoride under normal conditions (kidney impairment) or people who ingest more than average amounts of water (athletes, diabetics) are more at risk to be affected by the toxic effects of fluoride accumulation.
3. There is a dose-dependent relationship between the prevalence/severity of dental fluorosis and fluoride ingestion. When dental decay rates were high, a certain amount of dental fluorosis was considered an acceptable 'trade off' of providing an 'optimum' dose of 1.0 ppm fluoride in the water. However, studies published in the 1980's and 1990's have shown that dental fluorosis has increased dramatically in North America. Infants and toddlers are especially at risk for dental fluorosis of the front teeth since it is during the first 3 years of life that the permanent front teeth are the most sensitive to the effects of fluoride. Children fed formula made with fluoridated tap water are at higher risk to develop dental fluorosis. A relatively small percentage of the children affected with dental fluorosis have the more severe kind that requires extensive restorative dental work to correct the damage. The long-term effect of fluoride accumulation on dentin colour and biomechanics is also unknown. Generalized dental fluorosis of all the permanent teeth indicates that the bone is a major source of the excess fluoride. The effect of this excess amount of fluoride in bone is unknown. Whether stress bone fractures occur more often in children with dental fluorosis has not been studied.
4. A lifetime of excessive fluoride ingestion will undoubtedly have detrimental effects on a number of biological systems in the body and it is illogical to assume that tooth enamel is the only tissue affected by low daily doses of fluoride ingestion. Fluoride activates G-protein and a number of cascade reactions in the cell. At high concentrations it is both mitogenic and genotoxic. Some published studies point to fluoride's interference with the reproductive system, the pineal gland and thyroid function. Fluoride is a proven carcinogen in humans exposed to high industrial levels. No study has yet been conducted to determine the level of fluoride that bone cells are exposed to when fluoride-rich bone is turned over. Thus, the issue of fluoride causing bone cancer cannot be dismissed as being a non-issue since carefully conducted animal and human cancer studies using the exact same chemicals added to our drinking water have not been carried out.

The issue of mass medication of an unapproved drug without the expressed informed consent of each individual must also be addressed. The dose of fluoride cannot be controlled. Fluoride as a drug has contaminated most processed foods and beverages throughout North America. Individuals who are susceptible to fluoride's harmful effects cannot avoid ingesting this drug. This presents a medico-legal and ethical dilemma and sets water fluoridation apart from vaccination as a public health measure where doses and distribution can be controlled. The rights of individuals to enjoy the freedom from involuntary fluoride medication certainly outweigh the right of society to enforce this public health measure, especially when the evidence of benefit is marginal at best.

Based on the points outlined briefly above, the evidence has convinced me that the benefits of water fluoridation no longer outweigh the risks. The money saved from halting water fluoridation programs can be more wisely spent on concentrated public health efforts to reduce dental decay in the populations that are still at risk and this will, at the same time, lower the incidence of the harmful side effects that a large segment of the general population is currently experiencing because of this outdated public health measure.

Sincerely,
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Head, Preventive Dentistry

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