

To the Editor;

This letter is in response to the “Concerned about Fluoride”, published May 2, 2011. Our intention is to add to the public debate desired by the author.

Tooth decay is an infectious disease and is the #1 chronic disease in children and adolescents in Canada. It is four to five times more common than asthma and is the second most expensive disease category in Canada (1, 2). Untreated tooth decay can lead to infection, pain and abscesses. It can affect school performance, even a child’s sense of self-worth.

Current studies of our population demonstrate that community water fluoridation reduces the incidence of tooth decay by 18-40% (3,4,5). Research also tells us that oral health and general health are strongly linked (6). Fluoridation improves a population’s dental health, and as a consequence, its general health.

One of water fluoridation’s biggest advantages is that it benefits *all* residents of a community – at home, work, school or play – throughout their lifetime. This is of key importance for families when income level or ability to receive routine dental care is a barrier to receiving its health benefits. Fluoridated water greatly reduces the number of cavities in children’s teeth, which contributes to their healthy development.(7)

However, not many people realize that those same benefits also apply to adults, including older people. In fact, anyone who still has any of their own teeth will benefit from drinking fluoridated water.

The safety and efficacy of water fluoridation has been frequently studied and continues to be supported by current science (8,9,10). Over 60 years of research and recent systematic reviews have shown that water fluoridation is an effective and efficient public health measure for the prevention of dental decay. In fact, the U.S. Centers for Disease Control and Prevention has recognized water fluoridation as one of the ten great public health achievements of the 20th century. (1, 18)

On the other hand, studies and independent reviews of the relevant medical and scientific literature over many years have consistently failed to find evidence that water fluoridation has any effect on the health of the body other than reducing tooth decay.

The 2007 Health Canada Fluoride Expert Panel (comprised of experts from American and Canadian Universities and government health organizations) reported that current level of fluoride in drinking water is unlikely to cause adverse health effects, including cancer, bone fracture, immunotoxicity, reproductive/ developmental toxicity, genotoxicity, and/or neurotoxicity. The weight of scientific evidence does not support links between fluoride and *any* of these health effects. In fact, the Panel noted “significant concerns regarding the available studies, including quality, credibility, and methodological weaknesses such as the lack of control for confounding factors”. (12)

Dental fluorosis is a condition that can result if too much fluoride is ingested during the time when teeth are developing (the first three years of age). At its mildest, fluorosis is solely

cosmetic and causes white or brown spots on the teeth, but no disruption to the function of the tooth. Fluorosis is not a disease. Fluorosis can occur when someone is over-exposed to fluoride, i.e., consuming water well above the Health Canada-approved level of 0.7 ppm, and over an extended length of time. This over-exposure would have to occur during the time of tooth development; roughly from the womb to about 6 years.

However if fluoride is ingested in large amounts during the period teeth are developing, it can cause damage to the enamel of the tooth resulting in pain and chewing discomfort. The risk of fluorosis goes away once teeth are fully formed, at age six or seven.

Health Canada conducted the Canadian Health Measures Survey between 2007 and 2009 (13). It studied 1,200 Canadian children aged 6-12 years and found that, “So few children have moderate or severe fluorosis that, even combined, the prevalence is too low to permit reporting. This finding provides validation that dental fluorosis remains an issue of low concern in this country.” Additionally, Health Canada’s study says 12% of children studied have very mild fluorosis – where small white flecks are evident on a tooth. Only 4% had mild fluorosis (13)s. Cases such as these are generally not visible to the untrained person’s eye. From a health perspective, there is no reason to be concerned about the actual prevalence of very mild and mild dental fluorosis in Canada.

Fluoride may be given in many forms to reduce decay.

Topical applications by dentists show reductions in decay but are expensive when the number of tooth surfaces saved is compared to the cost. Fluoride rinse programs offered in some schools work best when targeting communities with high cavity rates and can also be expensive.

Fluoride toothpaste, while effective and cheaper than the other two options listed above, can be difficult to apply in some populations and in children are very young, or who have limited co-operative abilities due to developmental and intellectual disabilities.

A summary 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.” [italics added] (14)

Water fluoridation is supported by more than 90 health-related organizations around the world, including the World Health Organization, Health Canada, the Canadian and American Dental Associations, the Canadian Medical Association, the Food and Drug Administration of the United States and the Canadian Public Health Association. Both Canada’s Chief Dental Officer and New Brunswick’s Chief Medical Officer have also issued statements in support of continued municipal water fluoridation.

The National Health and Medical Research Council of Australia stated that “water fluoridation remains the most effective and socially equitable means of achieving community-wide exposure to the caries prevention effects of fluoride.” (15) The (US) Surgeon General supports this statement, noting “community water fluoridation continues to be the most cost-effective, equitable and safe means to provide protection from tooth decay in a community.” (16)

Despite the number of communities that have recently begun to question the use of fluoride in municipal water systems, there are also communities which are making the decision to add it in again, after having taken it out. One such community is Dorval Quebec. Having removed the fluoride during an equipment upgrade in 2003, the community restored fluoridation in 2007. Data collected on children enrolled in public schools in Dorval between 2003 and 2006 indicated that the percentage of kindergarten children at high risk of developing dental caries doubled in the two-year period after water fluoridation was halted in 2003, rising from 8 % to 17 %, which represents a statistically significant difference. (17)

What are the benefits of community water fluoridation – beyond the proven oral health benefits?

- **Less out-of pocket expenses** – a Centre for Disease Prevention and Control study says that for every dollar invested in community water fluoridation, \$38 is avoided in costs for dental treatments. (11)
- **Less public spending on health care** for emergency room visits to treat pain and infection – welcome news in a time when governments are faced with shrinking budgets and increasing needs
- **Less missed school and work time** - Health Canada's research estimates 2.26 million school days and 4.15 million working days are lost annually to oral health issues. (13)

Happy, healthy and productive communities. Through the safe and effective prevention measure of water fluoridation. That's the argument for dental health.

Sincerely,

Dr. Donald Joyce, President, Moncton Dental Society

Dr. Larry Peacocke, President, New Brunswick Dental Society

Note: The resource materials cited in this response are listed on the NBDS website at www.nbdental.com