

RE: Health Canada Review of Fluorides in Drinking Water

Nov 22, 2009

Dear Sir/Madam:

Having been involved in statistics and research methodology for close to 30 years, I found Health Canada Review of Fluorides in Drinking Water to be of extremely poor quality and deeply disturbing.

A proper literature review demonstrates a willingness to examine all scientific evidence and assumptions. Such reviews apply scientifically rigorous criteria equally to the evaluation of all studies. It should be implicitly assumed that any responsible and authoritative organization concerned with health regulations would conform to these basic principles of science. Health Canada's recent review of fluorides in drinking water demonstrates a deplorable ignorance or deliberate disregard for these principles. The points presented below substantiate this allegation.

Firstly, to conduct a through review of this area, a prerequisite is an expert panel made up of qualified individuals who can provide expertise from a number of different perspectives. In essence a proper risk assessment of the physiological effects would require extensive expertise in the following areas: fluorosis (dental & skeletal); developmental toxicity; neuroscience including brain and IQ effects; endocrinology including pineal gland effects and thyroid function; osteopathology including bone cancer; effects on the gastrointestinal tract, immune and reproduction systems; and respiratory function including allergic/hypersensitive effects. This basic requirement has not been satisfied by the external review panel of a paltry six members, four out of which are dentists. Dentists are not qualified to assess health impacts outside of the oral cavity nor are they trained in research methodologies. The two non-dentists, one being a medical doctor, on this review panel have published no scientific articles regarding fluoride in any peer-reviewed journal, demonstrating a lack of expertise on this subject. All professional organizations have codes of conduct and ethics which clearly indicate what members can or cannot do. Specifically, in case of dentists, "Dentists shall not represent their education, qualifications or competence in any way that would be false or misleading.", CDA Code of Ethics. Clearly the dentists on the expert panel are violating their own code of ethics.

Secondly, proper scientific procedures were not followed in this review. Proper scientific procedure requires a scientific review to state how they evaluate the merits of each study presented and an explanation as to why any study is retained as valid or why it is rejected. This Health Canada review does not explain their reasons for accepting or rejecting any of the research literature, demonstrating objectionable scientific technique. Many claims made by the authors are not supported by any research evidence. This is scientifically unacceptable and make such claims invalid. The review states, "since 1996 there has been an overall decreasing trend of dental fluorosis in Canada." No citation is given for this claim. Health Canada then contradicts itself by stating the opposite, citing

unpublished research: "Over the last 55 years, in areas where fluoride is added to the drinking water to bring the total level of fluoride to approximately 1 mg/L (optimally fluoridated areas), there have been increases in the total prevalence of dental fluorosis. Also, in non-fluoridated areas, there is clear evidence that the total prevalence of dental fluorosis has increased over the last 40 years (Clark, 2006)." Moreover, it is difficult to understand why the review used an unpublished papers (e.g., Clark 2006), yet ignored published, a peer reviewed paper (Clark et al 2006), by a member of the Health Canada review. The published peer-reviewed paper demonstrated that artificial water fluoridation is not safe, leading to not only increased incidences of dental fluorosis but also a significant increase in the severity of dental fluorosis, a visible sign of fluoride toxicity.

Thirdly, it is grievous that this review misrepresents the most authoritative evaluation of the health effects of fluoride, the U. S. National Research Council (NRC) 2006 Review. The Health Canada review states "The [NRC] Committee restricted its attention to studies that examined long-term exposure to fluoride in the range of 2–4 mg/L or above in drinking water." This Health Canada statement is false. The NRC committee examined a large number of studies examining artificially fluoridated communities using Fluoride concentrations of 1 mg/L., for example, all Tables in Chapter 2 and Chapter 5, Musculoskeletal Effects, Tables 5-1, 5-2, and 5-5. This comment is furthermore misleading because it perpetuates the misinformation regarding concentration and dose. The amount of fluoride ingested in a day (i.e., the dose) is the relevant information required to do a proper risk assessment, not the amount of fluoride in a litre of water (i.e., the concentration). Or, Health Canada's states, "The weight of evidence from all currently available studies does not support a link between exposure to fluoride in drinking water at 1.5 mg/L and any adverse health effects, including those related to ... genotoxicity and neurotoxicity." This contradicts the NRC review which states, "Genotoxicity tests indicate the potential for fluoride to cause mutations, affect the structure of chromosomes and other genomic material; affect DNA replication, repair, and the cell cycle; and/or transform cultured cell lines to enable them to cause tumours when implanted into host animals." pg. 304, and "On the basis of information largely derived from histological, chemical, and molecular studies, it is apparent that fluorides have the ability to interfere with the functions of the brain and the body by direct and indirect means." pg. 187.

For the Health Canada review to declare that there is no "credible evidence from the fluoride present in the water with fluoridation or naturally occurring fluoride, at concentrations equal to the recommended level and up the MAC," demonstrating health harm, is scientifically unfounded. The NRC Review of 2006, as well as the Canadian NRC 1977 Environmental Fluoride Review, The Quebec Ministry of the Environment 1979 Review, Daemker and Dey 1989, and the Camargo 2003 Review, all outline many environmental and human health concerns with artificial water fluoridation. The Health Canada document on Fluoride clearly does not accurately present the "weight of evidence from all currently available studies," as claimed. Conclusions based on such selective use of the available research literature are simply invalid.

In conclusion, in this draft Health Canada has published information that is either false, misleading or deceptive to the citizens of Canada on the significant public health issue of the artificial fluoridation of drinking water. Federal and provincial Ministers of Health must: firstly, be cognizant of the shortcomings of the conclusions of this review; secondly, refuse to allow any of its recommendations to influence government policy; and thirdly, order Health Canada to convene a proper multi-disciplinary review team based on the exemplary model provided by the 13 member NRC 2006 Committee on Fluoride in Drinking Water. Failure to do this would indicate that this review was a sham, premeditated to support the status quo and not truly concerned about the health of Canadians.

Robert Guthrie, MSc, Psychology  
109 Somerset Road  
London, Ontario N6K 3M6