

Community Water Fluoridation – what does the science say?

Fluoride is found naturally in soil, water and some foods, and has been part of human life since it began. In the mid 20th century, dentists discovered that people who lived in communities with small levels of fluoride in the water had better dental health. Water fluoridation is a way to copy what nature does, where nature isn't doing quite enough. Since it began in 1945, water fluoridation has expanded to serve hundreds of millions of people (including more than 40% of all Canadians), and is one of the recognized advances in modern public health.

Almost all drinking water in Alberta contains natural fluoride. The levels range from 0.1 part per million (ppm) to over 2.4 ppm (at which point the community must take action to reduce it). Fluoridation means adding and controlling fluoride level to a safe low amount (0.7 or 0.8 ppm) that benefits dental health. These small amounts do not affect water taste at all.

Despite the known oral health benefits, water fluoridation has become a controversial topic in some communities. When a public health measure causes confusion or concern, the responsible action is to review research, and learn the facts.

There is an overwhelming amount of information about fluoridation, which gets over 2,300,000 'hits' when searched on Google. PubMed, the online library of health studies, finds almost 6,000 published research reports. Sometimes the same research is used to support and to oppose the issue. To guide people towards the best information, systematic reviews are done: dedicated experts comb through published studies and select, read and rate each useful one. Systematic reviews avoid emotion by evaluating many research reports and giving more weight to better research.

Ethical and effective public policy must be based on the best evidence, using solid and repeatable studies, and not on a few selected studies, nor on weak studies, and nor on personal bias. Systematic reviews about fluoridation deliberately search for all studies, including ones about possible adverse effects. Reports that generate attention by challenging fluoridation must be considered appropriately alongside research that supports fluoridation as safe, effective and economical. Systematic reviews look at the quality level of the research, and how much research has been done. As such, systematic reviews represent the best that science has to offer.

Representing years of work examining thousands of documents, three systematic reviews about water fluoridation have been done in the last decade, in three different countries:

1. A Systematic Review of the Efficacy and Safety of Fluoridation 2007 Australian National Health and Medical Research Council

http://www.nhmrc.gov.au/_files_nhmrc/file/publications/synopses/Eh41_Fluoridation_PART_A.pdf

2. Preventing Dental Caries: Community Water Fluoridation 2001 US Task Force on Community Preventive Services

<http://www.thecommunityguide.org/oral/fluoridation.html>

3. A Systematic Review of Public Water Fluoridation 2000 University of York (UK)

<http://www.york.ac.uk/inst/crd/fluores.htm>

The US Task Force summarized the work: “According to the... rules of evidence, strong evidence shows that fluoridation is effective in reducing the cumulative experience of dental caries within communities”. The Australian review (a 2007 update of the 2000 UK review) said “The existing body of evidence strongly suggests that water fluoridation is beneficial at reducing dental caries” and found insufficient evidence of adverse health effects.

Despite the evidence, some people believe that there is a grand conspiracy about water fluoridation; some are convinced that health professionals overlook the studies that don't support fluoridation. It is recognized that rates of enamel fluorosis increase in areas with water fluoridation, but the main problem is not water, but toothpaste ingestion. The increases in 'very mild' and 'mild' fluorosis scores do not represent a health problem, but may be unesthetic.

Codes of Ethics oblige health professionals to put the well-being of patients and society first. Dentists and doctors routinely see people who have suffered greatly because of oral disease, impacting their general health and well-being. Public Health practitioners work to prevent disease and support health for all – including those advantaged by education and employment. That means reviewing the evidence and following best practice for the health of people in the community.

Published science offers a clear answer: fluoridation is safe and effective as a public health measure. Dedicated to evidenced-based best practice, Health Canada and AHS consider new research regularly. Should research evolve to suggest that a change in practice should be considered, recommendations will be revised accordingly.