

1. **Fluoridation of Community Water Systems**

The Canadian Association of Public Health Dentistry recognizes the benefits of community water fluoridation, and recommends it as a safe, effective and economical public health measure. It generates most difference in communities with a significant prevalence of dental caries. Continuing research into fluoridation is expected and recommended.

2. **Background. Statements of the issue and of positions taken by other organizations.**

Community water fluoridation is a process that mimics a natural occurrence: whereby drinking water contains a level of fluoride that reduces dental caries. Community water fluoridation has a rich history of misinformation and allegations, and has inflamed passions and politics. Nevertheless, respected professional organizations recognize community water fluoridation as a good public health measure.

A. Health Canada

“Health Canada endorses the fluoridation of drinking water to prevent tooth decay, but does not participate in the decision to fluoridate a water supply. “

<http://www.hc-sc.gc.ca/english/iyh/environment/fluorides.html>

B. Canadian Dental Association

“CDA supports fluoridation of municipal drinking water (at minimum levels required for efficacy as recommended by the Federal-Provincial Subcommittee on Drinking Water) as a safe, effective and economical means of preventing dental caries in all age groups. Fluoride levels in the water supplies should be monitored and adjusted to ensure consistency in concentrations and avoid fluctuations.

Communities considering water fluoridation are encouraged to review their individual circumstances carefully and in detail, giving attention to any available data on the dental health of community members, the size of the group not likely exposed to adequate fluoride from other sources, the minimum level of fluoride required to be beneficial, and any other information which would be helpful in making the required value judgment.

CDA recognizes and supports the need for continued research to determine optimal water fluoridation levels that can continue to provide protection from dental caries while reducing potential to contribute to fluorosis.”

http://www.cda-adc.ca/english/news_events/cda_in_action/position_papers/position_fluoride.asp

C. Canadian Paediatric Society

“There is no doubt that the use of fluoride decreases dental caries. On the other hand, it is clear that the ingestion of too much fluoride can result in varying degrees of fluorosis. Thus, in practice, the administration of fluoride should strike a balance between the two situations.

The position outlined in the present statement follows the principles agreed to at the Canadian Consensus Conference on fluoride held in 1997 (4). Fluoride should continue to be added to municipal water supplies where natural concentrations are less than 0.3 ppm. A suitable trade-off between dental caries and fluorosis occurs around 0.7 ppm.”

<http://www.cps.ca/english/statements/N/n02-01.htm#Recommendations>

D. American Dental Association

“For over five decades, the American Dental Association has continuously endorsed the fluoridation of community water supplies and the use of fluoride-containing products as safe and effective measures for preventing tooth decay.”

<http://www.ada.org/public/topics/fluoride/index.asp>

E. British Dental Association

“Water fluoridation is safe. Neither the Medical Research Council nor the University of York Centre for Reviews and Dissemination in their reports, respectively, in 2002 and 2000 found evidence to support claims that fluoride at the levels suggested (one part per million) causes cancer, bone disease, kidney disease or birth defects.

Water fluoridation does not infringe civil liberties. Civil liberties are a question of weighing personal preferences, like opting to drink fluoride-free water, against the common good, like the decrease in tooth decay as a result of fluoridation.

Dental and medical professionals support targeted fluoridation, not universal fluoridation. Targeted water fluoridation is a measure that would help narrow oral health inequalities. Many areas may not need fluoridation because they have very low levels of tooth decay, whereas other areas, particularly in poorer parts of the country, could benefit hugely.”

<http://www.bda-dentistry.org.uk/>

page: BDA publishes league table of children's dental health

F. British Medical Association

“The BMA has for many years been in favour of the fluoridation of mains water supplies. We support this policy on the grounds of effectiveness, safety and equity.”

<http://www.bma.org.uk/ap.nsf/Content/Water+fluoridation?OpenDocument&Highlight=2,fluoridation>

G. Australian Dental Association

“Water fluoridation is a safe, equitable, cost-effective public health initiative that responsible state and local governments should implement to reduce dental pain and disease throughout Australia.”

http://www.ada.org.au/_faq_single.asp?id=3367

H. World Health Organization

“Community water fluoridation is effective in preventing dental caries in both children and adults. Water fluoridation benefits all residents served by community water supplies regardless of their social or economic status.”

The World Oral Health Report 2003

http://www.who.int/oral_health/media/en/orh_report03_en.pdf

3. Evidence and rating of evidence.

There is a great deal of literature about water fluoridation. Over the last five years, several different groups of experts have reviewed the studies and presented their reports:

A. “Report of the Fort Collins Fluoride Technical Study Group”

Fort Collins, Colorado, USA 2003 April

<http://www.fcgov.com/utilities/fluoride.php>

The authors were a nine-member group (two physicians, a dentist, a chiropractor, water production manager, water quality manager, environmental toxicologist, environmental health professor, ecologist).

The 226 page report evaluated the many recent “Tier One” reviews of fluoridation (US ATSDR; US CDC; US Institute of Medicine DRIs; USPHS; UK MRC; US NIH; UK: York University Review; WHO; etc), and also included many references to less exhaustive reviews.

It had four main findings:

- It appears that community water fluoridation is effective in all age groups in preventing dental caries
- There is no good evidence of negative health effects. A degree of increase of dental fluorosis (an adverse effect) was regarded as an acceptable trade-off.
- It remains effective and cost-saving, even with widespread use of fluoride dentifrice.

- No evidence that adding fluoride increased contaminants in the water, changed the pH, or posed any health risk because of undissociated chemicals.

B. “Forum on Fluoridation” Irish Ministry for Health and Children 2002 September <http://www.fluoridationforum.ie>

24 Members (physicians, dentists, nutritionists, etc). A comprehensive review of the evidence for and against water fluoridation.

Overall conclusions:

- Very effective in improving oral health in Ireland
- At 1 ppm human health is not adversely affected
- Prevalence of dental fluorosis is increasing

Recommendations: (selected)

- Continue water fluoridation as a public health measure
- Reduce the level from 1.0 ppm to 0.7 ppm

C. “Interventions to prevent dental caries, oral and pharyngeal cancers, and sports-related craniofacial injuries” US Task Force on Community Preventive Services 2002 July (American Journal of Preventive Medicine)

http://www.guideline.gov/summary/summary.aspx?doc_id=3287

13 members; 3 consultants; 25 member consultation team

A systematic review of interventions to promote and improve oral health
Conclusion:

“strong evidence shows that community water fluoridation is effective in reducing the cumulative experience of dental caries within communities.”

Recommendation:

- Community water fluoridation: strongly recommended

D. “Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States” US Centers for Disease Control 2001 August <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm>

11 authors; 23 reviewers.

A report focusing on critical analysis of the scientific evidence regarding the efficacy and effectiveness of each fluoride modality in preventing and controlling dental caries, grading of the quality of the evidence, and assessment of the strength of each recommendation.

Recommendations:

- Continue and extend water fluoridation
- Continue research on water fluoridation

E. “A systematic review of water fluoridation” York University (U.K.)
2000 October <http://www.york.ac.uk/inst/crd/fluorid.htm>

10 authors; 14 consultants.

The systematic review attempted to identify all published human evidence in any language, and to rate the quality and relevance of research.

Conclusions: (selected)

In general, little high quality research has been done

- Fluoridation reduces cavities (level B, limited quantity)
- Fluoridation has beneficial effect in spite of other exposures to fluoride (level B, limited quantity)
- Some evidence that fluoridation reduces inequalities in dental health (level C, limited quantity)
- No clear association of hip or other bone fractures with water fluoridation (level C, limited quantity)
- No clear association between water fluoridation and cancer (level C, limited quantity)

F. “Benefits and risks of water fluoridation” Ontario Public Health Branch 1999 November.
http://www.health.gov.on.ca/english/public/pub/ministry_reports/fluoridation/fluoridation.html

1 author (3 investigators): Dr. David Locker, Community Dental Health Unit, University of Toronto.

A review of 1994 -1999 scientific literature [“narrow scope”] related to benefits and health risks of optimally fluoridated water.

Conclusions (selected)

- Caries rates are lower in fluoridated communities
- Magnitude of effect is not large, is more pronounced in primary dentition and among low socioeconomic groups
- no compelling evidence it causes health effects
- More research is needed

Recommendation (selected):

- Levels of 0.5 - 0.6 ppm may be adequate; flexible guidelines for optimal levels

G. “Review of water fluoridation and fluoride intake from discretionary fluoride supplements.” National Health & Medical Research Council, Australia 1999 April

Six authors (toxicology, epidemiology, preventive medicine). A review and critical appraisal of the scientific evidence since 1990 on water fluoridation and health effects.

Conclusions (selected):

- water fluoridation between 0.6 ppm (sub-tropical) and 1.1 ppm (temperate climates) continues to provide significant benefits in the prevention of dental caries for both deciduous and permanent teeth
- communities that have ceased water fluoridation have a demonstrated increase in caries experience
- fluoridation remains the most effective and socially equitable means of achieving community-wide exposure to the caries-preventive effects of fluoride
- there is evidence of increased dental fluorosis in communities with fluoridation and discretionary sources of fluoride
- lowering fluoride concentration of drinking water should only be considered after assessing effects on dental health of reducing use of supplements and the level of fluoride in formula and toothpaste.
- Insufficient evidence of increased risk of cancer or osteoporosis

4. Comments

A. The weight of the evidence points to the value of water fluoridation as a dental public health measure. Nonetheless, research should continue. The U.K. Medical Research Council in 2002 September issued its “Water Fluoridation and Health”

http://www.mrc.ac.uk/pdf-publications-water_fluoridation_report.pdf

- a report advising what research should be done. CAPHD recognizes the need to continue studying water fluoridation, and to continue weighing the evidence.

B. A recent challenge to the legality of water fluoridation (Nuisance; Negligence; Charter of Rights & Freedoms; Fisheries Act; Wildlife Protection Act; Water Protection Act; Environmental Protection Act; Criminal Code) occurred in B.C.

In 2003 January a Kamloops court ruled on the case. “Millership v B.C. & Canada”.

<http://www.taxtyranny.ca/images/HTML/Fluoride/Articles/Millershipv.doc>

The case included 15 days of hearing/trial and many thousands of pages of evidence. In the decision, Mr. Justice Powers wrote (section 67):

- “The mainstream or orthodox view of the dental and medical professions, and among scientific researchers, is that fluoridation is safe and effective practice for reducing dental caries. The evidence relied upon by Mr. Millership does not agree with this view.”

The quote from the decision sums up the controversy about fluoridation: some people reject the conclusion of the majority of scientific researchers.

C. In 1999 the U.S. Centers for Disease Control listed water fluoridation as one of ‘Ten Great Public Health Achievements’ of the century.

<http://www.cdc.gov/od/oc/media/tengpha.htm>

For more than 50 years water fluoridation has helped communities improve dental and oral health. It seems natural that in its quest to improve the oral health of Canadians, the CAPHD supports water fluoridation.