

*"In every deliberation we must consider the impact on the seventh generation."  
(Six Nations Iroquois Confederacy)*

## **Dear Recipients**

**June 9, 2009**

I wish to address the comments made by Dr. Williams in a letter dated May 26, 2009 ("Value of Water Fluoridation), in which he expresses support for fluoridation. I will present evidence which shows that his comments are not in accord with well-established facts from the primary research literature, which he completely omits from his letter.

It is understandable that people became interested in fluoridation, because of early research published by McClure and Dean in the 1930s and 1940s. The incorrect assumptions of this old research were recently discussed in the 2008 November issue of Public Health Dentistry by the Iowa fluoride group (Warren et al 2008). They point out that these early conclusions were; "not based on any direct assessment of how such intake relates to the occurrence, or severity, of dental caries and/or dental fluorosis." They continue; "In that era, most fluoride intake was from naturally fluoridated water...with no fluoride dentifrice, supplements, or other fluoride products available. Moreover, in that era, it was believed that fluoride needed to be ingested early in life to provide caries prevention" but that today it is known that; "benefits of fluoride are mostly topical."

Better research in the last 30 years has shown that the benefits ascribed to fluoridation are in fact achieved entirely by direct contact of fluoride with the dental surface, with high concentrations of fluoride. Even low fluoride toothpaste is no longer considered effective, as discussed at the 2008 International Association of Dental Research conference by Dr. Featherstone. (Available at ODA website: [http://www.youroralhealth.ca/content/view/150/212/#IADR\\_resources](http://www.youroralhealth.ca/content/view/150/212/#IADR_resources) )

Artificial water fluoridation does not provide effective topical effects because of its very low fluoride concentration (page 11 below, US Centers for Disease Control), while ingested fluoride exposes many tissues to what are now realized to be unacceptable risks, including DNA damage, a precursor to cancer, to brain and thyroid (Wang et al. 2009 available at [http://www.elsevier.com/wps/find/bookdescription.cws\\_home/717118/description#description](http://www.elsevier.com/wps/find/bookdescription.cws_home/717118/description#description)), also (Harvard study by Bassin et al. 2006), neurotoxic harm (23 new studies available at: <http://fluoridealert.org/iq.studies.html>) and other problems such as colic in babies, and irritable bowel syndrome in adults, as outlined by Dr. Susheela in her presentation to British Parliament (Available at: <http://www.fluorideandfluorosis.com/BritishParliament/Content.html>).

Carole Clinch BA, BPHE

Research Coordinator: People for Safe Drinking Water

Author: Clinch CA. Fluoride Interactions with Iodine and Iodide: Implications for Breast Health. Fluoride April-June 2009:42(2):75-87.

[http://www.fluorideresearch.org/422/files/FJ2009\\_v42\\_n2\\_p00i-iii.pdf](http://www.fluorideresearch.org/422/files/FJ2009_v42_n2_p00i-iii.pdf)

**Dr. Williams provides the following quote by Dr. Peter Cooney, Chief Dental Officer for Health Canada: The Public Health Service; “encourages Canadians to review respected and credible sources of information to reach their own conclusions”**

Are Dr. Williams and Dr. Cooney suggesting that all of the primary research and the following major reviews are NOT “*respected and credible sources*”? The primary research literature is always a better guide to scientific veracity than summary documents and pronouncements made by politically sensitive entities. The omission of this huge body of research is unprofessional and unacceptable.

**OMITTED: all primary research literature.**

- International Society for Fluoride Research (ISFR) Fluoride Journal: <http://www.fluorideresearch.org/backissues.pdf>
- Bibliography of Scientific Literature on Fluoride: <http://www.Slweb.org/bibliography.html>

**OMITTED: National Academy of Sciences**, arguably the most prestigious, independent scientific body in the USA and Canada, founded to provide scientific advice to government agencies:

- 1977 Canadian National Research Council Review
- 2006 US National Research Council Review, (summary bar graph & quotes attached)

**OMITTED: 1997 Canadian Consensus Conference**

- “The primary mechanism of action of fluoride to prevent dental decay is **topical.**”

**OMITTED: relevant reviews** (quotes below)

- 1979 Quebec Ministry of the Environment Review: Fluorides, Fluoridation and Environmental Quality (available at: [www.waterloowatch.com](http://www.waterloowatch.com))
- 2007 Pizzo et al Review which the American Dental Association has listed on its website for Evidence Based Dentistry (see: <http://tinyurl.com/SystematicReview>)

**OMITTED: balanced presentation of:** (quotes below)

1. 1999 Ontario Ministry of Health & Long Term Care Review
2. 2000 York Review
3. US Centers for Disease Control
4. American Dental Association

**Dr. Williams claim that artificial water fluoridation saves taxpayers money (\$38/person) is based on one American study, which used 30 year old data, which are no longer relevant, and makes a number of assumptions that are incorrect.**

**Griffin S, Jones K, Tomar S. An economic evaluation of community water fluoridation, Journal of Public Health Dentistry 2001;61(2).**

- It assumes that with water fluoridation NO other mode of fluoride application in a dental office would be required.
- It assumes that costs for treating dental fluorosis would be "negligible" and were not included. Dental fluorosis is highly prevalent (25-70% of the population) and the costs to repair are significant.
- Included in the \$38 saved, the paper actually assumed \$18.12 per hour wages lost for time taken visiting the dentist - for every person, even children who aren't earning! Many salaried people would not lose wages either for visiting a dentist.
- Many other costs of artificial water fluoridation were not included, such as fluorosis disease of bones and soft tissues (brain, endocrine systems), costs of special education, institutional care for those harmed by fluorosis diseases.

More recent research disputes this claim by the above paper:

**Maupomé G, Gullion CM, Peters D, Little SJ. A comparison of dental treatment utilization and costs by HMO members living in fluoridated and non-fluoridated areas. Journal of Public Health Dentistry 2007; 67(4):224-33.**

[http://www.ada.org/public/media/releases/0501\\_release01.asp](http://www.ada.org/public/media/releases/0501_release01.asp)

Portland, Oregon – Not Fluoridated spends \$176/child/yr  
 Vancouver, Washington State - Fluoridated \$180/child/yr

	<b>Oregon</b>	<b>Washington</b>
Population Fluoridated	19%	59% public water systems
Decay % 6-8 yr. Olds	57%	59%
Any Permanent Teeth Extracted	60%	63%
Very Good/Excellent Teeth	58%	51% Low Income Children
<b>Adult Dental Expenses</b>	<b>\$176/child/yr</b>	<b>\$180/child/yr</b>
Median Income	\$42,593	\$48,185
Preventive Dental Visit	45%	60%(within 12 mo Low income)
Delay in tooth eruption	---	5% compared to Oregon
Bachelor's Degree	25.1%	27.7%
English Spoken	88%	88%
Race Similar	+1% Hispanic	+1% Black

**Dr. Williams claims that the actual chemicals used in artificial water fluoridation are of “rigorous standards of purity and quality”**

The court evidence from the private consortium which certifies these chemicals (National Sanitation Foundation & American Water Works Association) is not in agreement with Dr. Williams claims.

**US Congressional testimony under oath:** selected quotes from Mr. Stan Hazan, General Manager, Drinking Water Additives Certification Program, National Sanitation Foundation, the self-regulating, private consortium which certifies water fluoridation chemicals, testified, under oath in 2004;

**Lawyer:** “does NSF require the manufacturer to provide a list of published and unpublished toxicological studies relevant to HFSA [hydrofluorosilicic acid] and the chemical impurities present in HFSA?”

**STAN HAZAN:** I would say that the HFSA submissions have not come with the tox studies referenced.

**NSF International does not accept any responsibility for the chemicals they certify**

- “NSF, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party.”  
[www.foodsafety.gov/~comm/ift4-ae.html](http://www.foodsafety.gov/~comm/ift4-ae.html)

Clearly the taxpayers cannot rely on a self-regulating private consortium which accepts no responsibility for its products and which does not follow its own standards, to provide “rigorous standards of purity and quality”, as stated by Dr. Williams.

**Dr. Williams states that we are putting “fluoride” into our drinking water.**

The [Basel Convention](#), [Environment Canada](#) and [United States Environmental Protection Agency \(US EPA\)](#) all state that the chemicals used in artificial water fluoridation are hazardous waste which may not be put directly into lakes, rivers & oceans.

Artificial water fluoridation chemicals contain between 20 to 30% hydrofluorosilicic acid (inorganic fluoride), trace amounts of arsenic, lead, mercury, radionuclides and other heavy metals (American Water Works Association ([AWWA Standard B703-06](#)), all considered to be toxic substances under the [Comprehensive Environmental Response, Compensation, and Liability Act \(CERCLA\) Priority List of Hazardous Substances in USA, 1989 First Priority Substances lists in Canada](#) and proposed for “virtual elimination” under the Canadian Environmental Protection Act ([CEPA 1999, 2006 update](#)), the [1997 Binational Toxic Strategy](#) and the [1978 Great Lakes Water Quality Agreement](#).

Fluoride products are not removed in sewage treatment and remains a toxic constituent of the effluent discharged by treatment plants to rivers and lakes.

Background levels of fluoride in the Great Lakes exceed the [Canadian Water Quality Guideline \(CWQG\)](#) and fluoride concentrations in sewage effluent are 5-10 times in excess of the CWQG (Camargo 2003, [Board of Health Hamilton, July 9, 2008](#)). At these concentrations fluoride is known to be toxic to a variety of water species such as salmon ([Daemker and Dey 1989](#)), caddisfly, daphnia magna [2003 Camargo review](#) & others ([1977 Canadian National Research Council Review](#)).

### **European Court Justice ruling (Warenvertirebs-Orthica vs Germany)**

Under a new European Court Justice Union ruling, fluoridated water, as a “functional drink” with pharmaceutical properties, must be regulated as a drug. It may not be used in the preparation of any food or beverage, nor may such food or beverages made with fluoridated water be exported to the European Union until it undergoes proper pharmaceutical scrutiny and is regulated as a medicinal product in the European Union.

**“The Food and Drug Administration Office of Prescription Drug Compliance has confirmed, to my surprise, that there are no studies to demonstrate either the safety or effectiveness of these drugs which FDA classifies as unapproved new drugs.”** *Letter from Dr. David Kessler, M.D., Commissioner, United States Food and Drug Administration, June 3, 1993 to Congressman Kenneth Calvert, Chairman, Subcommittee on Energy and Environment, Committee on Science, Washington, D.C.*

**“Fluoride and its salts” is a drug ([www.napra.org](http://www.napra.org)).**

- Schedule I drug at doses greater than 1 mg requires a prescription.
- Schedule III drug at doses at or less than 1 mg per dose can only be bought at pharmacies.

“Fluoride and its salts” is put on the **“high risk” carcinogen list**. (California Environmental Protection Agency - OEHHA)

[http://www.oehha.ca.gov/prop65/CRNR\\_notices/state\\_listing/prioritization\\_notices/1204prioriote.html](http://www.oehha.ca.gov/prop65/CRNR_notices/state_listing/prioritization_notices/1204prioriote.html)]

Available evidence for “Fluoride and its salts” **satisfies the 2005 US EPA guidelines** as a **“possible Human Carcinogen”**. As such, the Maximum Contaminant Level Goal should be zero. <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=116283>

**Dr. David Williams states: “from a health perspective, there is no reason to be concerned about the actual prevalence of very mild and mild dental fluorosis in Canada. In addition, the actual prevalence of moderate dental fluorosis in Canada is low”**

**We clearly have an epidemic of fluorosis disease in Ontario.**

- **10% of 13 year old children have moderate fluorosis** according to 2007 fluorosis data from Halton Region. (MO-12-08)
- **48% of 13 year old children have dental fluorosis** according to 2007 fluorosis data from Oakville, Ontario.

**Most (~80%) of Ontarians have access to treatment of dental cavities, but a significant part of the population would be unable to afford treatment of dental fluorosis.** Treatment of cavities is covered by dental insurance; repair of dental fluorosis usually is not.

**Costs for mistaking mild dental fluorosis as cavities?** Unfortunately, the public health service is not including these costs in their estimations. “the more common mild fluorosis can be easily mistaken for early enamel demineralization due to caries.” *Hirasuna K, Fried D, Darling DL. Near-Infrared Imaging of Developmental Defects in Dental Enamel. J Biomed Opt 2008 13(4):044011.*

**Dental Fluorosis and Lead Line are both Clinical Signs of Poisoning**

"Dental Fluorosis, no matter how slight is an irreversible pathological condition recognised by authorities around the world as the first readily detectable clinical symptom of previous chronic fluoride poisoning. To suggest we should ignore such a sign is as irrational as saying that the blue-black line which appears on the gums due to chronic lead poisoning is of no significance because it doesn't cause any pain or discomfort." *Dr. Geoffrey Smith, Dental Surgeon, New Scientist, May 5, 1983.*

**Social Costs of Dental Fluorosis**

No one disputes the devastating social effect on children who have damaged, fluorosed teeth; “Such changes in the tooth’s appearance can affect the child’s self-esteem which makes early prevention that much more critical,” writes Dincer. *Dincer E. Why Do I Have White Spots on My Front Teeth. New York State Dental Journal. 2008;74(1):P58. <http://www.nysdental.org/img/current-pdf/JrnJan2008.pdf>*

**Treatment options for Dental Fluorosis  
(estimate by Dr. Hardy Limeback, PhD, DDS)**

<b>severity</b>	<b>procedure</b>	<b>cost</b>	<b>% children</b>
Very mild and mild Moderate	polishing/bleaching	\$500	25
	microabrasion bleaching	\$1000	10
Severe	porcelain veneers	\$700-1,000/tooth	0.2
	full crowns	\$800-1,000/tooth	

**Dr. Peter Cooney, Chief Dental Officer for Health Canada states: “The big advantage of water fluoridation is that it benefits all residents in a community, regardless of age, socioeconomic status, education, or employment.”**

In fact, the **primary research** has shown **completely the opposite**. With the current epidemic of dental fluorosis described above, these people are clearly not “benefitting” from artificial water fluoridation. Artificial water fluoridation is the single largest source of fluorides therefore the single largest cause of fluorosis diseases of soft tissues (brain, endocrine glands, gut), bone and teeth.

**The research is very clear: artificial water fluoridation is not an equitable way to deliver fluoride to everyone in the population regardless of socio-economic status:**

- “Our results raise concerns that African-American children, and/or children of lower SES, are ingesting significantly more fluoride than children who are higher on the social scale. They may be therefore at higher risk for fluorosis.” *Sohn W, Noh H, Burt BA. Fluoride Ingestion is Related to Fluid Consumption Patterns. Journal of Public Health Dentistry 2009 In Press.*

A recent paper in the Journal of Public Health Dentistry (Warren et al Nov 2008) & the National Research Council 2006 Review describe the clearly sizeable subgroups of the population with above-average fluoride exposures, increased fluoride retention, or greater susceptibility to effects from fluoride exposures. Fluoride consumption varies by more than a factor of 10, from drinking water alone. Table 2-4, NRC 2006 Review; [http://books.nap.edu/openbook.php?record\\_id=11571&page=35#p200111b79960035001](http://books.nap.edu/openbook.php?record_id=11571&page=35#p200111b79960035001)

- **Example 1:** Athlete, Outdoor Worker or Lactating Mother (60 kg): High consumers (reasonably high but not upper bound levels) ingest **8.4 liters of water/day**.
- **Example 2:** Nephrogenic Diabetes Patients: High consumers (reasonably high but not upper bound levels) ingest **10.5 liters of water/day**.

**“The thyroid gland appears to be the most sensitive tissue in the body to F-.” & “DNA damage of brain and thyroid gland cells exposed to high fluoride, low iodine and their combined interaction increased markedly-”** *Wang J, Ge Y, Ning H, Niu R. DNA Damage in Brain and Thyroid Gland Cells due to High Fluoride and Low Iodine. In: Preedy V, Burrow G, Watson R, editors. Comprehensive Handbook of Iodine. Elsevier;2009, p. 643-9.* [http://www.elsevier.com/wps/find/bookdescription.cws\\_home/717118/description#description](http://www.elsevier.com/wps/find/bookdescription.cws_home/717118/description#description)

**We have an epidemic of thyroid disease.** Synthroid is the second most frequently dispensed medication in Canada in 2008, totalling over 11.4 million prescriptions – an increase of 9.8% from 2007. [http://www.imshealthcanada.com/vgn/images/portal/CIT\\_40000873/49/44/84335049IMSCanadaChartsENGLISH.pdf](http://www.imshealthcanada.com/vgn/images/portal/CIT_40000873/49/44/84335049IMSCanadaChartsENGLISH.pdf)

## **YOUNG CHILDREN should not drink fluoridated water**

**American Dental Association November 6, 2006** recommended that children under the age of 1 use: "purified, distilled, deionized, demineralized, or produced through reverse osmosis."

Scientific Committee of the Food Safety Authority of Ireland 2001 states; "that the precautionary principle should apply and recommends that infant formula should not be re-constituted with fluoridated tap water"

**Physicians' Desk Reference**, 1994, 48th Edition, p. 2335-6: "In hypersensitive individuals, fluorides occasionally cause skin eruptions such as atopic dermatitis, eczema or urticaria. Gastric distress, headache and weakness have also been reported. These hypersensitivity reactions usually disappear promptly after discontinuation of the fluoride."

**There is a wide range of health vulnerabilities in a population and a wide range of consumption patterns** for fluoridated water and beverages and foods made with fluoridated water, which means that an individual's daily dose of fluoride chemicals from drinking water cannot be controlled with the use of artificial water fluoridation.

### **Susceptible Populations to Water Fluoridation**

(from: US ATSDR 1993, Can NRC 1977, US NRC 2006, Quebec MOE 1977)

- **Pregnant mothers and their unborn children**
- **Young Children**
- **Elderly**
- **1- 5% of population - Hypersensitive to fluoride**
- **5-10% of population - Diabetics**
- **5-10% of population - Kidney disease patients**
- **27- 44% diets low in calcium, magnesium, iodine (US CDC letter)**
- **5% - 40% of population - thyroid dysfunction**
- **High water consumers (nephrogenic diabetes, labourers, soldiers, athletes, lactating mothers)**

### **Final Thoughts**

The omission of all primary research literature, the complete reliance on consensus guidelines which are well-known to be contaminated by special interests, and the omission of key commentary from the reviews which are cited, leads me to the conclusion that the Public Health Service lacks objectivity in their policy analysis. Based on the primary research literature, artificial water fluoridation is a scientifically unsound public health practice.

Ignoring the evidence done by important members of the Public Health Service (see below) which demonstrates that artificial water fluoridation does not prevent cavities, and causes clear health harm is simply not acceptable.



# Supplemental

## Chronic Toxicity of Fluoride Compared: Primary Research

From: Limeback H, Thiessen K, Isaacson R, Hirzy W. 2007 The EPA MCLG for fluoride in drinking water: new recommendations.

Water Contaminant	Health Effects mg/kg/day	Maximum Accept Conc mg/L	Assumed "Safe Dose" for a lifetime mg/kg/day
Antimony (Sb)	0.35	0.006	0.0004
Arsenic (As)	0.014	0.010	0.0003
Beryllium (Be)	0.46	0.004	0.002
Cadmium (Cd)	0.005	0.005	0.0005
<b>Fluoride (F-)</b>	<b>0.03</b>	<b>1.5</b>	<b>0.105 TDI Health Canada</b> <b>0.06 RfD USA EPA</b> <b>0.003 RfD Recommended</b>
Mercury (Hg)	N/A water intake	0.002	0.0003
Thallium (Tl)	0.23	0.002	0.00008

### OMITTED QUOTES

**Giuseppe Pizzo, Maria Piscopo, Ignazio Pizzo and Giovanna Giulliana. 2007 Community water fluoridation and caries prevention: a critical review. *Clinical and Oral Investigations*. Sep;11(3):189-193.**

- THE BENEFITS OF FLUORIDE ARE LARGELY TOPICAL NOT SYSTEMIC. They write: "it is now accepted that systemic fluoride plays a limited role in caries prevention [12, 38]."
- WATER FLUORIDATION MAY BE UNNECESSARY. They write: "Several studies conducted in fluoridated and nonfluoridated communities suggested that this method of delivering fluoride may be unnecessary for caries prevention, particularly in the industrialized countries where the caries level has become low. Although water fluoridation may still be a relevant public health measure in poor and disadvantaged populations, the use of topical fluoride offers an optimal opportunity to prevent caries among people living in both industrialized and developing countries."
- INTERRUPTION OF WATER FLUORIDATION DOES NOT INCREASE DENTAL DECAY. They write: "In the past decades, a number of authors focused their attention on caries trend of the communities that interrupted water fluoridation in comparison to communities without water fluoridation (Kuopio and Jyvaskyla, Finland; Chemnitz and Plauen, Germany; Tiel and Culemborg, Holland; La Salud, Cuba). In these communities, during the years of water fluoridation, a caries reduction had been

observed, but after the cessation, caries prevalence did not rise, remained almost the same or even decreased further. These findings do indicate that the interruption of CWF had no negative effects on caries prevalence.”

- REJECT THE NOTION THAT FLUORIDATION REDUCES SOCIAL DISPARITIES. They write: "to date, there is limited evidence to support the view that fluoridation reduced the disparities in caries."

### **1979 Quebec Ministry of the Environment Review: Fluorides, Fluoridation and Environmental Quality**

- “Full-scale retrospective epidemiological studies whose scientific value has been demonstrated before the courts have revealed that there is a marked correlation between increased cancer mortality rates and the artificial fluoridation of public water supplies.” p. 3-4 (Bill 88 - A Quebec Bill to adopt drinking water fluoridation.)
- “On the other hand, it has not yet been established with any certainty that water with the recommended level of fluoridation is effective in preventing tooth decay.” p. 128-129
- **“We must recognize that in this respect we are witnessing the most extensive toxicological study ever made on the human race , and that this study is being carried out without the consent of the people involved.” p. 129**

### **Dr. David Locker 1999 Benefits and Risks of Water Fluoridation: An Update of the 1996 Federal-Provincial Sub-committee Report Prepared under contract for: Public Health Branch, Ontario Ministry of Health First Nations and Inuit Health Branch, Health Canada.**

- "In Canada, actual intakes are larger than recommended intakes for formula-fed infants and those living in fluoridated communities. Efforts are required to reduce intakes among the most vulnerable age group, children aged 7 months to 4 years."
- "Current studies support the view that dental fluorosis has increased in both fluoridated and non-fluoridated communities. North American studies suggest rates of 20 to 75% in the former and 12 to 45% in the latter."
- "The magnitude of [fluoridation's] effect is not large in absolute terms, is often not statistically significant, and may not be of clinical significance."
- "Although it was initially thought that the main mode of action of fluoride was through its incorporation into enamel, thereby reducing the solubility of the enamel, this pre-eruptive effect is likely to be minor. The evidence for a post-eruptive effect, particularly its role in inhibiting demineralization and promoting remineralization, is much stronger."

### **2 years later**

Cohen H, Locker D. 2001 The Science and Ethics of Water Fluoridation Journal of the Canadian Dental Association. 67(10): 578-80.

- "In the absence of comprehensive, high-quality evidence with respect to the benefits and risks of water fluoridation, the moral status of advocacy for this practice is, at best, indeterminate, and could perhaps be considered immoral."
- "Ethically, it cannot be argued that past benefits, by themselves, justify continuing the practice of fluoridation. This position presumes the constancy of the environment in which policy decisions are made. Questions of public health policy are relative, not absolute, and different stages of human progress not only will have, but ought to have, different needs and different means of meeting those needs. Standards regarding the optimal level of fluoride in the water supply were developed on the basis of epidemiological data collected more than 50 years ago. There is a need for new guidelines for water fluoridation that are based on sound, up-to-date science and sound ethics. In this context, we would argue that sound ethics presupposes sound science."

**The US Centers for Disease Control and Prevention** state that fluoride works by the use of high fluoride concentrations, on the surface of the teeth – not by swallowing (systemic effect):

- "Fluoride's predominant effect is **posteruptive and topical.**" US Centers for Disease Control, 2001
- "Its actions primarily are **topical for both adults and children.**" US Centers for Disease Control, 1999

**The US Centers for Disease Control and Prevention** state that fluoride concentrations in drinking water are too low to have a topical effect:

- "Saliva is a major carrier of topical fluoride. The concentration of fluoride in ductal saliva, as it is secreted from salivary glands, is low...approximately 0.016 parts per million in area's where drinking water is fluoridated and 0.006ppm in non-fluoridated areas. **This concentration of fluoride is not likely to affect cariogenic activity.**"  
*Centers for Disease Control and Prevention, August 17, 2001. Recommendations for using fluoride to prevent and control dental caries in the United States. Fluoride Recommendations Work group. MMWR 50 (RR14); 1-42.*

**The American Dental Association** is mentioned in this document but the following statements are omitted:

- young children should use water: "purified, distilled, deionized, demineralized, or produced through reverse osmosis."
- "Fluoride's caries-preventive properties initially were attributed to changes in enamel during tooth development because of...a belief that fluoride incorporated into enamel during tooth development would result in a more acid-resistant mineral. However, laboratory and epidemiologic research suggests that...**its actions primarily are topical for both adults and children.**" Cover Story of JADA July 2000

## The York Review 2000:

- “We were unable to discover any reliable good-quality evidence in the fluoridation literature world-wide.”
- “Given the certainty with which water fluoridation has been promoted and opposed, and the large number (around 3200) of research papers identified, (9) the reviewers were surprised by the poor quality of the evidence and the uncertainty surrounding the beneficial and adverse effects of fluoridation.”

## Chair of the York Review: 2007 British Medical Journal October 6, 335: 699-702.

- “Estimates of the increase in the proportion of children without caries in fluoridated areas versus non-fluoridated areas varied (median 15%, interquartile range 5% to 22%). These estimates could be biased, however, because **potential confounders were poorly adjusted for.**” (e.g. fluoride delays eruption of teeth, therefore fluoride delays eruption of cavities)
- “the Medicines Act 1968, "Section 130 defines 'medicinal product' and I am satisfied that fluoride in whatever form it is ultimately purchased by the respondents falls within that definition." (16) If fluoride is a medicine, **evidence on its effects should be subject to the standards of proof expected of drugs**, including evidence from randomised trials.”
- “**There have been no randomised trials of water fluoridation.**”
- “Under the principle of **informed consent**, anyone can refuse treatment with a drug or other intervention.”
- “This is especially important for water fluoridation, as an **uncontrollable dose of fluoride** would be given for up to a lifetime-”

Below is a letter from the chair of the York 2000 Review which also gives a different perspective on this issue from what the Public Health Service presents to taxpayers.

## Letter: Chewing over the facts about fluoride and our dental health

Published Date: 26 July 2006

From: Professor Trevor Sheldon, Department of Health Studies, Innovation Centre, York Science Park, University Road, York, Chair of the York Review

[www.yorkshiretoday.co.uk/ViewArticle2.aspx?SectionID=101&ArticleID=1651774](http://www.yorkshiretoday.co.uk/ViewArticle2.aspx?SectionID=101&ArticleID=1651774)

In my capacity of chair of the Advisory Group for the systematic review on the effects of water fluoridation recently conducted by the NHS Centre for Reviews and Dissemination the University of York and as its founding director, I am concerned that the results of this review have been widely misrepresented. The review was exceptional in this field in that it was conducted by an independent group to the highest international scientific standards and a summary has been published in the British Medical Journal. It is particularly worrying then that statements which mislead the public about the review's findings have been made in press releases and briefings by the British Dental Association, British Medical Association, the National Alliance for Equity in Dental Health and the British Fluoridation Society. I should like

to correct some of these errors:

1. While there is evidence that water fluoridation is effective at reducing caries, the quality of the studies was generally moderate and the size of the estimated benefit, only of the order of 15%, is far from "massive".
2. The review found water fluoridation to be significantly associated with high levels of dental fluorosis which was not characterised as "just a cosmetic issue".
3. The review did not show water fluoridation to be safe. The quality of the research was too poor to establish with confidence whether or not there are potentially important adverse effects in addition to the high levels of fluorosis. The report recommended that more research was needed.
4. There was little evidence to show that water fluoridation has reduced social inequalities in dental health.
5. The review could come to no conclusion as to the cost-effectiveness of water fluoridation or whether there are different effects between natural or artificial fluoridation.
6. Probably because of the rigour with which this review was conducted, these findings are more cautious and less conclusive than in most previous reviews.
7. The review team was surprised that in spite of the large number of studies carried out over several decades there is a dearth of \*reliable\* evidence with which to inform policy.

Until high quality studies are undertaken providing more definitive evidence, there will continue to be legitimate scientific controversy over the likely effects and costs of water fluoridation.

SIGNED,

/Professor Trevor Sheldon MSc MSc DSc FmedSci/

Professor Trevor Sheldon letter to the Department of Health Studies,

Innovation Centre, York Science Park, University Road, York YO10 5DG, March 1, 2001