Fluoride Free Quad-Cities

To inform the public about the hazardous effects of fluoride ingestion, with the ultimate goal of ceasing water fluoridation.

www.FluorideFreeQC.org

Members of the Davenport City Council,

We request that you, as the responsible legal authority, pass an ordinance directing discontinuation of fluoridating the public water supply. It is our position that ingesting fluoride is definitely harmful and only insignificantly effective.

In order to present our case against water fluoridation as clearly and coherently as possible we will make the essential case in this first tab, incorporating the key quotes and graphics. The studies and reports cited are provided for reference and additional reading, as desired, in the following tabs. In appreciation of the value of your time, we particularly recommend only two of the supporting documents for your perusal.

We believe we have made a solid case that you can use, if required, to justify a decision to cease fluoridation against any proponents of fluoridation. If you have any questions please contact us and we will be happy to provide clarification or additional information.

Sincerely,

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The Case for Ceasing Water Fluoridation

We come to you, the Davenport City Council, as the largest stakeholder and final legal authority on whether or not Quad-Cities residents on this side of the Mississippi are forced to deal with adverse health effects stemming from fluoridated water. We will present our case as follows (numbering starts with '2' to mirror supporting tabs):

2. Legal.
    a. The Davenport City Council is the ultimate legal authority.
    b. The 1952 application to the State Department of Health to approve fluoridation has been violated and is void.
3. Ten quick negative facts on fluoride.
4. Children are overexposed to ingested fluoride, as evidenced by dental fluorosis.
5. Fluoride is a neurotoxin; ingestion is associated with lower IQs.
6. Policy contradicts the science.
7. Ingested fluoride is ineffective in reducing dental caries.
8. The City Council of Fairbanks, Alaska ceased fluoridation after a year of study.

2. Legal

The Davenport City Council passed Ordinance No. 14,015 on November 21, 1951 resolving to fluoridate the water supply. It received approval to add fluoride to the public water supply from the State Department of Health on July 9, 1952. Water fluoridation was instituted by the Davenport City Council, which had then and still retains the authority to make this decision.

City legal department memoranda dated July 12, 2003 and June 27, 2007 expressing the opinion that the city does not have jurisdiction over drinking water quality and cannot stop fluoridation of the water by the Iowa American Water Company is both right and wrong.

It is correct that the city cannot change the maximum contaminant level (MCL) for fluoride, that is, it cannot compel treatment to *reduce* fluoride below the limit set by the Environmental Protection Agency (EPA), which is 4.0 mg/L or 4.0 parts per million (ppm). That authority resides with the Iowa Department of Natural Resources (DNR) per Iowa Code Sections 455B.172(1) and 455B.173(5).

This is not the same as deciding whether or not to *add* fluoride to the water. Section 455B.173(5) assigns the DNR the duty to "Establish, modify or repeal rules

relating to drinking water standards for public water supply systems. Such standards shall specify maximum contaminant levels or *treatment techniques necessary to protect the public health and welfare* [emphasis added]." If there were a state requirement to fluoridate water to protect the public health from dental caries, it would derive from this section.

Mr. Dennis Alt, Environmental Program Supervisor and chief of the Water Supply Engineering Section of the DNR, in response to my query, confirmed: "There is no State law that requires public water systems provide fluoridation. The decision to fluoridate is a local option."

Regarding Iowa American Water Company (IAW), here is their corporate policy on fluoridation as posted on their website under frequently asked questions:

Customer Service

Does American Water put fluoride in the water?

Yes, in many systems. This is determined by local law. American Water and our subsidiaries do not put fluoride in water unless mandated by local law. American Water has a neutral stance on fluoride in water.

Thus, the Davenport City Council is the authority for deciding whether or not we fluoridate our water. If the City Council passes an ordinance directing IAW to cease fluoridating the water, that is the end of it.

We believe, however, that IAW or its predecessor at some undetermined time in the past violated the 1952 agreement by which the State approved the City's request to fluoridate. Paragraph 6 agrees "To instruct properly all water works personnel in the hazards and special precautions necessary in handling sodium fluoride", the clinical-grade chemical used in toothpaste, and what everyone expects to be in the water. At some point the water company switched to hexafluorosilicic acid, an untreated "product" water-scrubbed from the smokestacks of fertilizer companies. This is collected because EPA regulations do not allow the fluorine to be discharged into the air. They would have to dispose of it as toxic waste, and are not allowed to dump it into the water themselves. They are, however, allowed to forego this costly disposal and even turn a profit by selling it to cities as a "product" to fluoridate their water.

Paragraph 7 states "That failure on the part of the city or water works officials to comply with any of the provisions of this Agreement will automatically cancel the approval of the Department without notice"; we believe the substitution of sodium fluoride with hexafluorosilicic acid constitutes a failure to comply with the agreement and voided the State's approval. Whether or not the use of hexafluorosilicic acid is a common practice today, it is not what was agreed to or approved. We believe we are fluoridating without approval.

We urge careful consideration of Paragraph 8: "the State Department of Health assumes no responsibility for assuring that the fluoride treatment process is properly maintained and operated or for any objectionable conditions that may result therefrom."

The State has denied all responsibility and liability, leaving both with the City. Fluoridation may have been instituted with the best of intentions informed by the scientific consensus at the time. Given the current studies documenting the health hazards of ingesting fluoride that we are about to cite, holding responsibility and liability for this practice might give one pause; it is time to reassess.

3. Ten quick negative facts on fluoride.

We refer you here to Tab 3 as optional reading. It is a document that clearly, concisely and attractively presents facts and debunks myths on ten fluoridation arguments as additional justification for ceasing fluoridation.

4. Children are overexposed to ingested fluoride, as evidenced by dental fluorosis.

Let us begin with information taken directly from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/fluoridation/safety/dental_fluorosis.htm, as viewed on 9 June 2013:

> **What is dental fluorosis?**
>
> Dental fluorosis is a change in the appearance of the tooth's enamel. These changes can vary from barely noticeable white spots in mild forms to staining and pitting in the more severe forms. Dental fluorosis only occurs when younger children consume too much fluoride, from any source, over long periods when teeth are developing under the gums.
>
> [Here are the CDC's reference pictures illustrating the condition:]

Normal

Questionable

Very mild

Mild

Moderate

Severe

Who develops dental fluorosis?

Only children aged 8 years and younger can develop dental fluorosis because this is when permanent teeth are developing under the gums.

- ≅ Once the teeth erupt through the gums and are in the mouth, they can no longer develop fluorosis.
- ≅ The teeth of children older than 8 years, adolescents, and adults cannot develop dental fluorosis.

So, dental fluorosis only occurs when children under 9 years old consume (ingest) **too much** fluoride. Therefore, if a person has dental fluorosis, it is proof that they have consumed too much fluoride as a child.

The CDC's latest national survey (1999-2004) found that **41% of 12-15 year olds had dental fluorosis** (this is not even counting another 20% deemed "questionable"). This is up from 23% in the previous survey (1986-87), an increase of 78% over an 18-year span. Forty-one percent of a generation will spend the rest of their lives with teeth mottled by fluorosis, and the prevalence is sharply up trending.

Non-nursing infants are most vulnerable. Here is a sampling of recent warnings against using fluoridated water to prepare baby formula:

(compiled at and copied from http://www.fluoridealert.org/studies/infant01/)

"Infants less than one year old may be getting more than the optimal amount of fluoride (which may increase their risk of enamel fluorosis) if their primary source of nutrition is powdered or liquid concentrate infant formula mixed with water containing fluoride… If using a product that needs to be reconstituted, parents and caregivers should consider using water that has no or low levels of fluoride."

SOURCE: American Dental Association (2006). Interim Guidance on Reconstituted Infant Formula. November 9, 2006.

"[W]e recommend use of water with relatively low fluoride content (e.g. 0 to 0.3 ppm) as a dilutent for infant formulas and recommend that no fluoride supplements be given to infants."

SOURCE: Fomon SJ, Ekstrand J, Ziegler EE. (2000). Fluoride intake and prevalence of dental fluorosis: trends in fluoride intake with special attention to infants. Journal of Public Health Dentistry 60: 131-9.

"Our results suggest that the fluoride contribution of water used to reconstitute formulas increases risk of fluorosis and could be an area for intervention… Supporting long-term lactation could be an important strategy to decrease fluorosis risk of primary teeth and early developing permanent teeth."

SOURCE: Marshall TA, et al. (2004). Associations between Intakes of Fluoride from Beverages during Infancy and Dental Fluorosis of Primary Teeth. Journal of the American College of Nutrition 23:108-16.

These warnings, shared among health professionals and communities, are not common knowledge among the public and local decision makers. Two states have taken proactive measures on a state-wide basis to warn their citizens (Tab 4). The Vermont Department of Health issued its warning not to give any fluoridated water to infants under 12 month of age in December 2006. New Hampshire just last year

passed a bill requiring water consumer confidence reports to publish the following warning:

> "Your public water supply is fluoridated. According to the Centers for Disease Control and Prevention, if your child under the age of 6 months is exclusively consuming infant formula reconstituted with fluoridated water, there may be an increased chance of dental fluorosis. Consult your child's health care provider for more information."

Children are overexposed to fluoride as evidenced by dental fluorosis. Non-nursing infants are at especially great risk from fluoridated water. Rather than warning parents that we render the public water supply unsuitable for their babies, would it not be far better to vote to cease fluoridating the water?

5. Fluoride is a neurotoxin; ingestion is associated with lower IQs.

The Harvard School of Public Health, Department of Environmental Health, just published a study in October 2012. They examined and assessed 27 separate studies on fluoride neurotoxicity published over 22 years. Here are the key quotes from the study:

> "…children in high-fluoride areas had significantly lower IQ scores than those who lived in low-fluoride areas."

> "The results support the possibility of an adverse effect of high fluoride exposure on children's neurodevelopment."

> "Findings from our meta-analyses of 27 stud ies published over 22 years suggest an inverse association between high fluoride exposure and children's intelligence. Children who lived in areas with high fluoride exposure had lower IQ scores than those who lived in low-exposure or control areas."

> "A recent cross-sectional study based on individual-level measure of exposures suggested that low lev els of water fluoride (range, 0.24 – 2.84 mg/L) [Davenport, at 0.7 mg/L, falls in this range] had significant negative associations with chil dren's intelligence (Ding et al. 2011)."

> "The results suggest that fluoride may be a developmental neurotoxicant that affects brain development at exposures much below those that can cause toxicity in adults (Grandjean 1982)."

> "…a shift to the left of IQ distributions in a popu lation will have substantial impacts, especially among those in the high and low ranges of the IQ distribution (Bellinger 2007)."

The Xiang report is one of only four that were published in English. It contains graphs depicting actual IQ scores in an intelligible manner. It especially illustrates the

last quote. The graphs are printed on the next page due to formatting requirements. The Xiang study found a mean IQ difference of 8 points.

If you read the Harvard study (Tab 5, but not recommended), some statistical terminology from the study requires explanation. The Standardized Mean Difference in IQ scores of -0.45 cited in the results is NOT the difference in IQ points. This is a correlation factor. The Cohen guidelines for interpreting the magnitude of the SMD in the social sciences is: small, SMD = 0.2; medium, SMD = 0.5; and large, SMD = 0.8. The -0.45 shows that there is a negative medium correlation of IQ with fluoride exposure, that is, IQ is lower in the exposed groups. This is represented in Figure 2 in the report. You can see the dotted line average IQ of the groups exposed to high amounts of fluoride is significantly lower than the control group (the zero reference line).

We should note that a member of the Scott County Board of Health dismissed the Harvard study as only meta-study conducted by entering search criteria into various databases. He went on to read a statement from the Dean of the Harvard Dental School in support of fluoridation, as if the word of one Harvard Dean can negate a review published by a different Harvard school. Had we been offered a rebuttal, we would have pointed out that this is also how the American Dental Association finds and reviews the latest in dental research; they call it Evidence-Based Dentistry. The point is that the Harvard review evaluated the methodology of 34 studies and validated 27 as sound. Twenty-six of the twenty-seven studies all showed the negative inverse correlation mentioned above.

We also need to point out that concentration isn't the same as dose. Although Davenport's fluoride concentration is relatively low, the intake dose will vary with consumption levels. A person that consumes twice as much water as another gets as much fluoride as if the other person had consumed water of twice the concentration. The point is that the higher the amount of fluoride intake, the greater the harm.

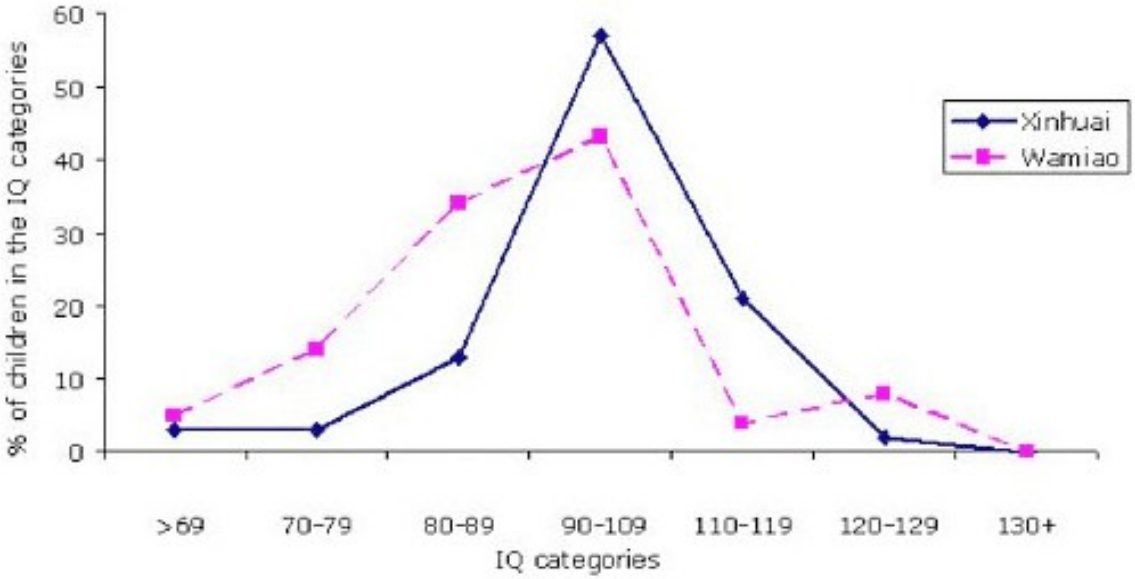


FIGURE 7-1 Distribution of IQ scores from females in Wamiao and Xinuai. SOURCE: data from Xiang et al. 2003a.

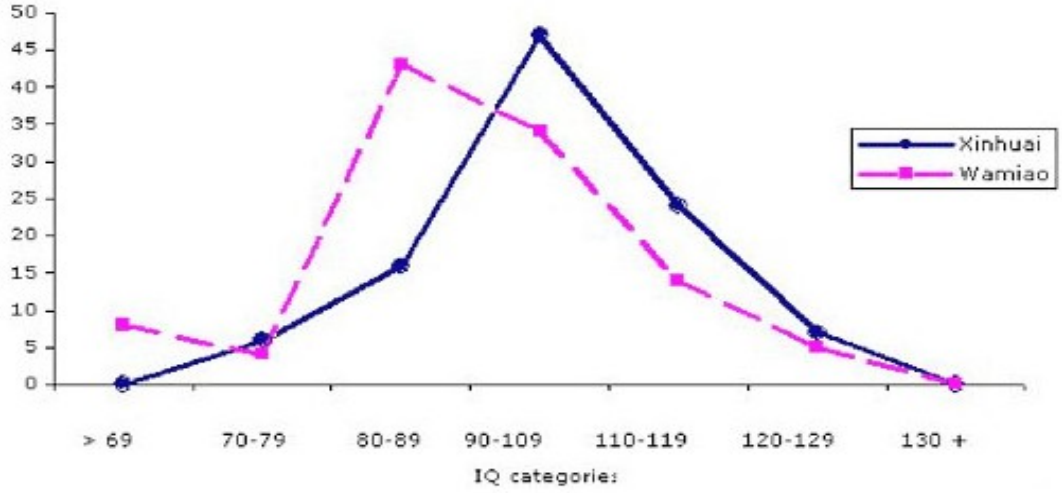


FIGURE 7-2 Distribution of IQ scores from males in Wiamiao and Xinuai. SOURCE: data from Xiang et al. 2003a.

6. Policy contradicts the science.

Our research has uncovered discrepancies between the public policy pronouncements of several health organizations and the scientific findings within their organization or profession.

The CDC hails water fluoridation as "one of 10 great public health achievements of the 20th century." The side effect of dental fluorosis, when addressed at all, is written off as merely a cosmetic effect. It claims that "Fluoridation has played an important role in the reductions in tooth decay (40%-70% in children) and of tooth loss in adults (40%-60%)" from 1945 to 1999. Note that it does not attribute these declines to water fluoridation; it merely asserts that water fluoridation played an important but unquantified role. It is a subtle distinction that is easily lost, as shown by the July 2011 Iowa Department of Public Health Fact Sheet, which references the CDC citation but makes the erroneous interpretation that "Fluoridation safely and inexpensively has reduced tooth decay up to 40 percent." No, it hasn't, and the CDC never claimed it did--just that it played a role. We will soon quantify just how small a role water fluoridation plays in dental health.

The American Dental Association, despite studies cited in various dental journals and their own caution to use water with no or low levels of fluoride when preparing infant formula, is an ardent supporter of water fluoridation. Indeed, their current policy, unchanged since publication of a white paper in 1979, is "bringing water fluoridation to the entire American population…" To do so,

> "Development of the program must begin with re-education and stimulation of the individual dentist both in the community and in the dental school… Individual dentists must be convinced that they need not be familiar with scientific reports of laboratory and field investigations on fluoridation to be effective participants in the promotion program and that nonparticipation is overt neglect of professional responsibility."

It appears that not only does the ADA not address the science against water fluoridation, it discourages dentists from reviewing the relevant research, seeks their "re-education," and accuses anyone not on board with fluoridation of professional neglect. It is no wonder that dentists are nearly unanimous in reflexively defending water fluoridation against any challenges. Indeed, we were not surprised when our presentation on Monday, May 12, to the Davenport Community School Board to solicit their support precipitated a visit to Davenport by Dr. Bob Russell, director of the Iowa State Health Department Dental Bureau that Thursday, to lobby for continued fluoridation.

We contend the ADA has a conflict of interests regarding water fluoridation. The ADA has endorsed fluoridation of community water supplies as safe and effective since

1950. Any evidence to the contrary would raise liability concerns. With over 40% of the current generation afflicted with dental fluorosis as a consequence of this policy, there exists the potential for a massive class-action lawsuit. There is also the issue that it is the dental profession that makes billions each year treating and whitening discolored teeth. One could make the argument that cosmetic dentistry for all teeth over a lifetime is much more profitable than [spoiler alert] filling the *one* cavity that *might* occur in the absence of water fluoridation.

Lastly, it is ironic that the EPA set fluoride standards for drinking water at a level higher than its scientists are willing to drink. The EPA Headquarters scientists applied the EPA's standard risk control methodology to determine a safe reference dose. Drinking a quart of water in Washington, D.C. causes one to consume over 100 times the reference dose.

We request you read the statement of the EPA Headquarters Union of Scientists in Tab 6—it is only 4 pages and corroborates all the points made in this case. We will only quote their concluding paragraph here:

> "The implication for the general public of these calculations is clear. Recent, peer-reviewed toxicity data, when applied to EPA's standard method for controlling risks from toxic chemicals, require an immediate halt to the use of the nation's drinking water reservoirs as disposal sites for the toxic waste of the phosphate fertilizer industry."

7. Ingested fluoride is ineffective in reducing dental caries.

Given the preceding documented harms associated with fluoridated water, dental fluorosis and lowered IQ, one would presume the benefits of fluoridation must be great indeed to outweigh such harm. This is not the case.

Let us revisit the CDC's assertion that "fluoridation has played an important role" in the improvement of dental health. The CDC has itself recognized since at least 1999 that the primary benefit of fluoride accrues when applied topically vs. via ingestion, contrary to the hypotheses of the earliest days of fluoride research. In their own words:

> "[L]aboratory and epidemiologic research suggests that fluoride prevents dental caries predominately after eruption of the tooth into the mouth, and its actions primarily are topical for both adults and children." - Centers for Disease Control and Prevention. (1999). Achievements in Public Health, 1900-1999: Fluoridation of Drinking Water to Prevent Dental Caries. Mortality and Morbidity Weekly Report, 48(41): 933-940.

> "In the earliest days of fluoride research, investigators hypothesized that fluoride affects enamel and inhibits dental caries only when incorporated into developing dental enamel (i.e., preeruptively, before the tooth erupts into the mouth)… However, a high

fluoride concentration in sound enamel cannot alone explain the marked reduction in dental caries that fluoride produces. The prevalence of dental caries in a population is not inversely related to the concentration of fluoride in enamel, and a higher concentration of enamel fluoride is not necessarily more efficacious in preventing dental caries.

"The laboratory and epidemiologic research that has led to the better understanding of how fluoride prevents dental caries indicates that fluoride's predominant effect is posteruptive and topical… Fluoride works after teeth have erupted"

- Centers for Disease Control and Prevention. (2001). Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States. MMWR, 50(RR14): 1-42.

Thus, the CDC's own findings show that there is no reason to ingest fluoride, especially during the years of permanent tooth formation when children are subject to fluorosis and neurotoxicity.

Let us, for the moment and the sake of argument, make the strongest documented case for water fluoridation. The 1987 National Institute of Dental Research (NIDR) survey found that the average Decayed, Missing and Filled Surfaces was 18% less for fluoridated vs. unfluoridated areas (or 21.5% higher in unfluoridated vs. fluoridated areas). This sounds significant, but isn't. In absolute terms we're looking at a difference between 2.79 and 3.39 tooth surfaces out of a total of 128 surfaces. This equates to 4.7% of total tooth surfaces, or about one-half of one tooth surface. In terms of teeth rather than surfaces, the difference in DMFT is 0.08 teeth—less than one-tenth of one tooth. The figures of this study clearly show the lack of appreciable difference in DMFT between fluoridated and unfluoridated areas.

The ADA still maintains that "studies prove water fluoridation continues to be effective in reducing tooth decay by at least 25%," but they do not cite the studies. We strongly suspect the ADA is relying on the discredited Brunelle interpretation of the data from the 1987 NIDR survey above that reports 26% fewer DMFS (the various methods used to manipulate the data are documented in the report in Tab 7).

The ADA also warns in its "Fluoridation Facts" brochure:

"Dental decay can be expected to increase if water fluoridation in a community is discontinued for one year or more, even if topical products such as fluoride toothpaste and fluoride rinses are widely used."

The studies conducted in communities that ceased fluoridating water, including country-wide in Cuba, show that not only did dental decay not increase, but continued its decrease.

1. Canada:

"The prevalence of caries decreased over time in the fluoridation-ended community while remaining unchanged in the fluoridated community."

SOURCE: Maupome G, Clark DC, Levy SM, Berkowitz J. (2001). Patterns of dental caries following the cessation of water fluoridation. Community Dentistry and Oral Epidemiology 29: 37-47.

2. Finland

"The fact that no increase in caries was found in Kuopio despite discontinuation of water fluoridation and decrease in preventive procedures suggests that not all of these measures were necessary for each child."

SOURCE: Seppa L, Karkkainen S, Hausen H. (2000). Caries Trends 1992-1998 in Two Low-Fluoride Finnish Towns Formerly with and without Fluoridation. Caries Research 34: 462-468.

3. Germany

"In contrast to the anticipated increase in dental caries following the cessation of water fluoridation in the cities Chemnitz and Plauen, a significant fall in caries prevalence was observed."

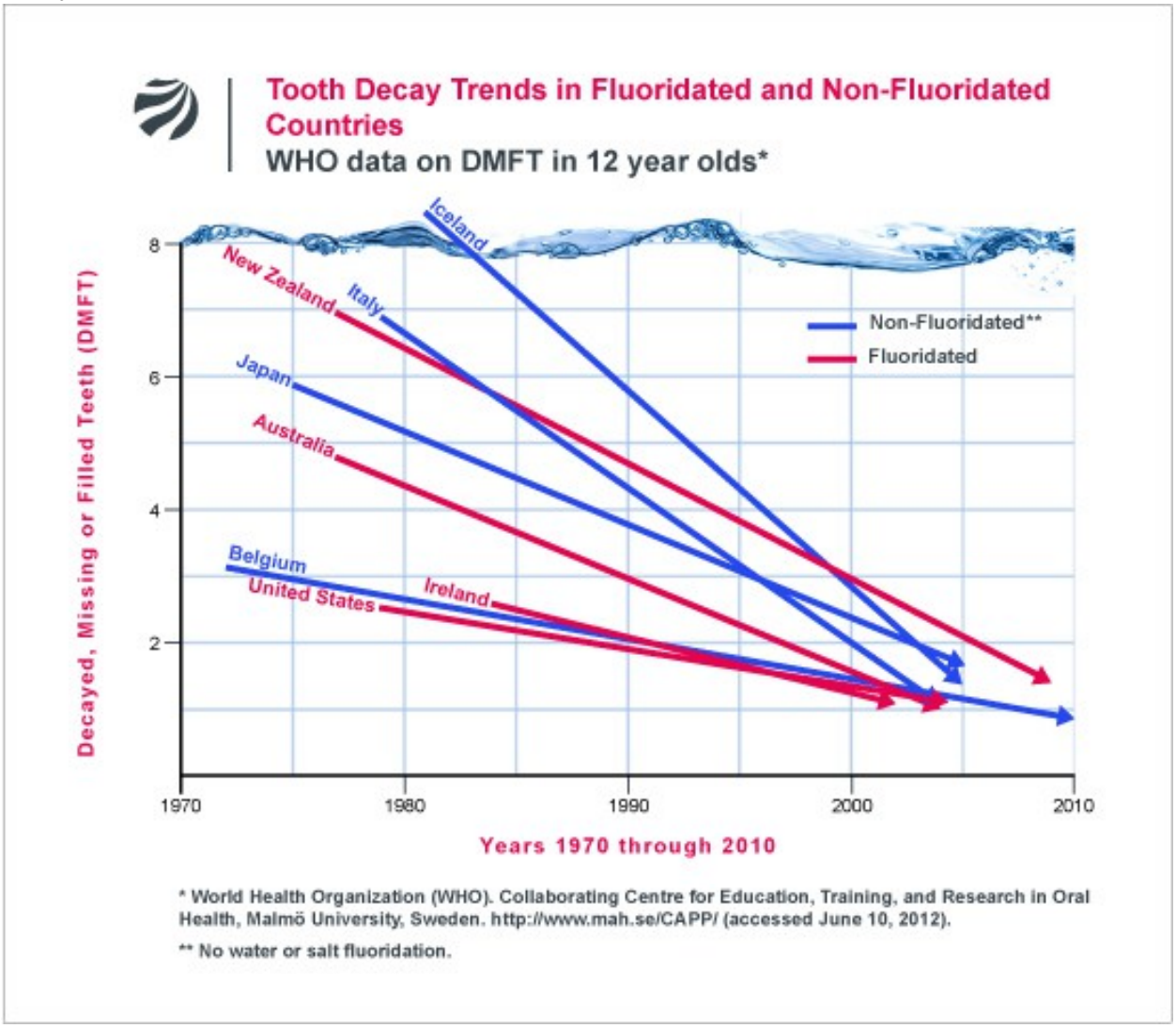
SOURCE: Kunzel W, Fischer T, Lorenz R, Bruhmann S. (2000). Decline of caries prevalence after the cessation of water fluoridation in the former East Germany. Community Dentistry and Oral Epidemiology 28: 382-9.

4. Cuba

"In 1997, following the cessation of drinking water fluoridation, in contrast to an expected rise in caries prevalence, DMFT and DMFS values remained at a low level for the 6- to 9-year-olds and appeared to decrease for the 10/11-year-olds. In the 12/13-year-olds, there was a significant decrease, while the percentage of caries-free children of this age group had increased…"

SOURCE: Kunzel W, Fischer T. (2000). Caries prevalence after cessation of water fluoridation in La Salud, Cuba. Caries Research 34: 20-5.

Finally, a quick examination of World Health Organization data reveals a similar world-wide decline in dental caries among both the countries that fluoridate and the majority that do not. The world-wide decline in dental caries cannot be attributed to water fluoridation, which is insignificantly effective. This decline continues even after fluoridation is ceased.



8. The City Council of Fairbanks, Alaska ceased fluoridation after a year of study.

This last section is presented to assist you in your deliberations. We appreciate that we are throwing a lot of science at you, and you may feel this is all outside your areas of competence. We attempted to secure the endorsement of the Scott County Board of Health, to make this easier for you, but they responded "Who are we to question the CDC?" They reviewed the evidence, but never addressed the CDC's own science vs. their policy. The Scott County Board of Health is appointed, not elected, and so not directly accountable to their citizens in the way that you are as the city council.

We therefore present to you the next best thing: a case study of the Fairbanks City Council that fluoridated to the same concentration as Davenport and was requested to cease fluoridation. They formed a committee of four Ph.D.'s, one M.D. and one D.D.S. that studied the science and took public comments for one year. The task force submitted its recommendation to cease fluoridation to the council on April 25, 2011 [bonus points if you can guess which was the lone voice of dissent]. The city council passed an ordinance on June 15, 2011 ceasing fluoridation. We ask that you follow their example and do the same.