

MINUTES OF THE SENATE PUBLIC HEALTH AND WELFARE COMMITTEE

The meeting was called to order by Chairperson Susan Wagle at 1:30 p.m. on March 2, 2004 in Room 231-N of the Capitol.

All members were present except:

Senator Nick Jordan- excused
Ms. Emalene Correll, Legislative Research

Committee staff present:

Ms. Terry Munchmore, Legislative Research
Mr. Norm Furse, Revisor of Statute
Mrs. Diana Lee, Revisor of Statutes
Ms. Margaret Cianciarulo

Conferees appearing before the committee:

Ms Kim Gulley, Director of Policy Development & Communications, League of Kansas
Municipalities
Dr. Albert Bergstahler, Professor Emeritus of Chemistry, University of Kansas
Dr. Robert Hetrick, Psychologist, Wichita
Ms. Melody Scheel, Kansas Citizen from Winfield
Mr. Joe Walker, Constituent from Wichita
Mr. Wayne Logbeck, Kansas Citizen from Hutchinson
Mr. Denny Burgess, Lobbyist for the City of Wichita

Others attending:

Please See Attached List.

Hearing on SB530 - concerning public water supply; requiring fluoridation in certain public water supply systems

Upon calling the meeting to order, the Chair announced there would be a hearing today for the opponents of SB530, concerning public water supply; requiring fluoridation in certain public water supply systems, but first, called upon Mr. Furse to explain the bill. Highlights included:

- 1) Introduced by the Committee on Ways and Means and is the result of a sub-committee review by the Committee;
- 2) The bill is based on part of the California law relating to the fluoridation of water supplies;
- 3) Would generally require fluoridation in certain public water supply systems;
- 4) Sec. 1 and 2 are new and subsequent sections are amendatory;
- 5) Sec. 1 provides that in order to promote the public health through the protection and maintenance of dental health, the Secretary of Health and Environment could adopt rules and regulations requiring fluoridation in public water supply systems and specifically in public water supply systems with at least 10,000 service connections;
- 6) The Secretary is given rule and reg authority in sub (b) in Sec. 1 to set certain minimum and maximum standards relating to concentration of fluoride requirements generally relating to fluoride and the schedule for fluoridation of public water supply systems;
- 7) Sub.©) defines "Secretary" being Secretary of Health and Environment;
- 8) New Sec. 2 provides that certain public water supply system would not be required to comply with Sec.1 and those are those systems that are enumerated in capitol letter A, starting on line 40;

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9) On page 2, commencing on line 12, the Secretary is required to prepare and distribute a list of water supply systems that do not qualify under the section where the exemptions would qualify under this act;

10) A system that has acquired the funds necessary for fluoridation and is not included in the list of those that are not able to meet the requirements, may elect to exercise their options pursuant to subparagraph (B) of paragraph (1) not to fluoridate during the following fiscal year by notifying the secretary;

11) Paragraph (4) addresses the permit issued by the Secretary for the system and the specifics (is it required to fluoridate pursuant to Sec. 1 and amendments or has been granted an exemption); and,

12) The Secretary, as the administering agency, is given the power to enforce Sec. 1 of the bill and the enforcement mechanism in sub. ©), and determining that the provisions are not being carried, the Secretary may notify the Attorney General, who, upon request of the Secretary, may institute proceedings in order to compel compliance with the order;

13) On page 3, sub. (e), the Secretary shall seek all sources of funding that are available for this purpose (ex. Federal block grants; donations from private foundations, etc.);

14) Un Sub (f), a system with less than 10,000 service connections may elect to comply with the provisions of the act and may do so on its own;

15) In Sub (g), costs other than capital costs incurred, may be paid from federal transfer donations or private foundations for these particular purposes;

16) Sec. 3 commences the amendatory section which is a public water statute of the state public water supply statutes, and is in here because of line 31, page 7, Sections 1 and 2 and makes those sections applicable to the definitions that are in Sec. 3, and would also apply to new Sections 1 and 2;

17) Sec. 4 amends a section giving the Secretary authority currently to specify primary drinking water standards but also provides current law reading in lines 36 through 38, reading that no standard of rule or regulation may require the addition of fluorides to public water supplies, but Sec. 1 can now require the Secretary to do so; (The new language in italicized creates an exception that is provided in Sec. 1, no primary drinking water standards *except as provided in section 1 and amendments thereto.*)

18) Sec. 5 is another amendatory section and is in the new bill with new language on page 5, lines 5 through 7, which provides that the Secretary may grant variances for purposes of primary drinking water standards for various purposes because the water is unable to meet those standards even with modern technology, but an exception to that would be that no variance granted under this subsection *shall be construed to waive or modify any requirement of Sec. 1 and amendments thereto.*

19) The bill will take effect July 1 of this year.

As there were no questions of Mr. Furse, the Chair then called upon the first of six opponents of the bill, Ms. Kim Gulley, Director of Policy Development & Communications, League of Kansas Municipalities (LKM), who stated it was important to note that LKM is not opposed to the idea of fluoridation of the public water supply, however, because the bill mandates fluoridation in communities with at least 10,000 service connections, they must oppose the measure in its current form. She also stated that although the bill would only directly affect the cities of Wichita and Hutchinson, a number of other communities who buy water from these two public water suppliers would be indirectly impacted. A copy of her testimony is (Attachment 1) attached hereto and incorporated into the Minutes as referenced.

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The next conferee to be called upon was Dr. Albert Burgstahler, Professor Emeritus of Chemistry, University of Kansas and editor of "Fluoride, A Quarterly Scientific Journal of the International Society for Fluoride Research." Dr. Burgstahler stated that with the recommended 1ppm fluoride in drinking water, fluoridation delivers 100 times more fluoride in a baby formula than is present in mothers' milk and nowhere in the bill does it identify what kind of "fluoride is proposed to be added to municipal drinking water." He also stated that in Missouri, a State Dental Health Department comparison of life-long resident 2nd and 6th grade children in seven geochemical regions, found no statistically significant differences in tooth decay rates between localities with optimal or sub-optimal levels of fluoride in the drinking water. A copy of his testimony is ([Attachment 2](#)) attached hereto and incorporated into the Minutes as referenced.

The third conferee was Dr. Robert Hetrick, a psychologist from Wichita, who offered eight problems inherent to putting a people-altering chemical into a municipal water system and stating that toothpaste is inexpensive and that according to the CDC and the ADA, this form of delivery is more effective than drinking it. A copy of his testimony is ([Attachment 3](#)) attached hereto and incorporated into the Minutes as referenced.

The fourth opponent was Ms. Melody Scheel, a Kansas citizen from Winfield, who also provided a letter from Professor Roger Masters of Dartmouth College containing scientific data, graphs, and a list of references to peer reviewed scientific publications of his work with Senior Chemist Myron J. Coplan. Ms. Scheel went on to state that because of the high cost of Sodium Fluoride today, more than 90% of all fluoridated cities now use silicofluorides even though they are toxic waste-products from plants that produce phosphate fertilizer. A copy of her testimony and Dr. Master's letter and his attachments are ([Attachment 4](#)) attached hereto and incorporated into the Minutes as referenced.

The fifth conferee was Mr. Joe Walker, constituent from Wichita, who stated he has been a fluoridation researcher since 1964 and who also provided information with his testimony including highlights of the congressional testimony of fluoride, and excerpts from a September 9, 2002 letter from the U.S. Environmental Protection agency responding to a U.S. House Senate Committee on science inquiry into fluoridation. Mr. Walker stated that the CDC, in 2001, admitted that any benefits from fluoride are topical, not systemic and the ADA in their July 2000 JADA, which said ingestion of fluoride does not provide any significant reduction of tooth decay, and that any beneficial effect is a result of topical application directly to the tooth. A copy of his testimony, the congressional testimony, and excerpts from the U.S. Environmental Protection agency are ([Attachment 5](#)) attached hereto and incorporated into the Minutes as referenced.

The sixth conferee to testify was Mr. Wayne Logbeck, a Kansas citizen from Hutchinson, who offered two excerpts from a paper by Dr. J. William Hirzy, Senior Vice President, NTEU Chapter 280 Washington office of the EPA, including, "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. A copy of his testimony is ([Attachment 6](#)) attached hereto and incorporated into the Minutes as referenced.

The final opponent conferee was Mr. Denny Burgess, Lobbyist for the City of Wichita, who stated that the City is concerned that the state is denying local control through the wording of the bill and would violate the spirit of the Home Rule which is the foundation of local government and the bedrock of our belief in independence. He also stated that the issue of fluoridation was put to vote of the people in 1978, in the form of the proposed ordinance "that the Wichita public water supply shall not be fluoridated without a binding vote of the people, and the voters adopted the prohibitory ordinance 45,314 to 38,825. A copy of his testimony is ([Attachment 7](#)) attached hereto and incorporated into the Minutes as referenced.

As this meeting was for opponents only, questions came from Senators Haley, Barnett, Jordan, and Wagle for Ms. Gulley, Dr. Hetrick, Dr. Burgstahler, Mr. Walker, and Mr. Logbeck including: has there ever been

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another bill to mandate local control, does Great Bend and Winfield have 10,000 connections, direct the Committee to some of the warnings of the ADA and the Canadian Dental Association, do we have a survey of the cities that do have fluoridation now and any comparative study of their decay situation to non fluoridated cities in the state, page 2 of Mr. Walkers testimony where he listed a number of organizations, are you implying that at one point in time they officially supported having fluoridated water and now they no longer support it or did they just not take a stand on it, how much would it cost Wichita and Hutchinson to implement this legislation, the 1999 official study, and lastly, could you provide any or more material:

1) to support Dr. Hirzy's excerpt regarding the phosphate fertilizer industry, could you provide material;

2) reference the court case where Mr. Walker testified under oath the results were in error;

3) on xyletol and the FDA approved sodium fluoride;

4) showing where the organizations that had endorsed fluoridation and then actually changed their positions.

Adjournment

As there were no further questions, the Chair said that they would continue tomorrow, March 3, 2004, with testimony from the proponents. The Committee was adjourned. The time was 2:30 p.m.

The next meeting is scheduled for Wednesday, March 3, 2004.

SENATE PUBLIC HEALTH AND WELFARE COMMITTEE

GUEST LIST

DATE: Tuesday, March 2, 2004

NAME	REPRESENTING
Denny Burgess	City of Wichita
Linda Kasey	KDHE
Dave Waldo	KDHE
Teresa Schwab	Oral Health Kansas
Kelly Finney	Ks. Public Health Assn.
Dawn McGlasson	KDHE
Barbara Starrett	Kansas Health Institute
Kim Kimminau	Kansas Health Institute
Janelle Garrison	self
Jeri Larland	self
Stephanie Nance	self
Chipper Nance	self
Michael Hoffmann	self
Wesley Nance	self
Richy Nance	self
Chris Collins	KHS
Kevin Robertson	Ks Dental Assn
Jim Byrnes	Sen. SALMANS
Gary Hill	KS Dental Assoc.

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SENATE PUBLIC HEALTH AND WELFARE COMMITTEE

GUEST LIST

DATE: Tuesday, March 2, 2004

NAME	REPRESENTING
Eric Collins	K2 Front Consulting
BOB HETRICK, Ph.D	Self
Melody Scheel	Fluoride Awareness Team of Kansas
Albert M. Burgtahler	Self and Fl. Awareness Team
Jae Walker	Self
Deanna Havens	FLUORIDE ACTION NETWORK FLUORIDE AWARENESS TEAM
Austin Lowry	Self
LARRY R BAER	LKM
Kim Gallegher	LKM
Tom Laches	KDH



League of Kansas Municipalities

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To: Senate Public Health and Welfare
From: Kim Gulley, Director of Policy Development & Communications
Date: March 2, 2004
Re: Opposition to SB 530

Thank you for the opportunity to appear today on behalf of the League of Kansas Municipalities (LKM) and our member cities. At the outset, it is important to note that LKM is not opposed to the idea of fluoridation of the public water supply. However, because the bill mandates fluoridation in communities with at least 10,000 service connections, we must oppose the measure in its current form.

Although this bill would only directly affect the cities of Wichita and Hutchinson, a number of other communities who buy water from these two public water suppliers would be indirectly impacted. LKM opposes mandating fluoridation in these communities.

The City of Wichita has studied and debated the issue of fluoridation for many years now. The issue has even been put to a vote of the general public in Wichita. To adopt state legislation mandating fluoridation in this city would be to supplant the will of the elected officials and the citizens of Wichita.

The City of Hutchinson has also specifically considered, and rejected, the issue of fluoridation in recent years. In addition to the general policy issues in Hutchinson, there are some practical concerns with fluoridation in Hutchinson because that city uses water wells as their water source. It is much more costly and complex to fluoridate a public water supply that comes from a variety of wells, rather than a single water treatment plant.

Because of its erosion of home rule and local control, LKM opposes SB 530 and respectfully requests that the committee does not recommend this legislation favorably for passage. I would be happy to answer questions at the appropriate time.

*Senate Public Health & Welfare Committee
Attachment 1
Date: March 2, 2004*

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Kansas Senate Bill 530 - Why it should not be approved

Summary of independent testimony submitted by Albert W. Burgstahler, Ph.D. (Harvard, 1953), Professor Emeritus of Chemistry, KU; Editor (since 1998) of *Fluoride*, the quarterly scientific journal of the International Society for Fluoride Research founded in 1968; author of various fluoride research presentations and publications; co-author with George L. Waldbott, M.D., and the late H. Lewis McKinney, Ph.D., of *Fluoridation: The Great Dilemma* (Coronado Press, 1978). Home address: 1620 Massachusetts St., Lawrence, KS 66044. (Prepared for presentation to the Kansas Senate Committee on Public Health and Welfare, Tuesday, March 2, 2004.)

Because it is based on erroneous and misleading premises and on outdated and mistaken claims of effectiveness and safety for preventing tooth decay, Kansas Senate Bill 530 mandating water fluoridation for cities with 10,000 or more water utility connections should NOT be approved.

Contrary to what proponents usually contend, fluoridation of drinking water is NOT "nature's way" to prevent tooth decay. With the recommended 1 ppm fluoride in drinking water, fluoridation delivers 100 times more fluoride in a baby formula than is present in mothers' milk, which, as we all know, provides optimal nutrition for babies and their developing teeth. Even at this low level of intake, a newborn infant tends to excrete more fluoride than it ingests from its mother. *How, then, can proponents consider fluoride to be an essential dental nutrient when so little of it is retained from less than 0.01 ppm in maternal milk?*

Despite its length and convoluted rhetoric, nowhere does SB 530 identify what kind of "fluoride" is proposed to be added to municipal drinking water. In fact, the commonly used fluoridating agents are silicofluoride by-products of the phosphate fertilizer industry. Although sold by producers at a nice profit to communities to fluoridate their drinking water, these commercial-grade silicofluorides, which have not been tested for safety in controlled animal studies and also contain lead, arsenic, and other hazardous contaminants, are too toxic to allow their disposal into the air, land, or water near the site where they are produced. *Are most proponents even aware of these facts?*

Reports of significantly less tooth decay with fluoride in drinking water, whether present naturally or artificially, have been shown to be seriously flawed, largely because essentially the same decreases in tooth decay were occurring at the same time in neighboring nonfluoridated communities beginning around the 1950s. This fact became increasingly clear in the next several decades, and, in communities that discontinued fluoridation, e.g., in Canada, Cuba, East Germany, Finland, Holland, tooth decay rates did not increase but continued to decline. In the United States, a nonsignificant difference of only 0.6 of a decayed, missing, and filled tooth surface per child (of 128 permanent tooth surfaces) has been claimed in a USPHS survey of over 37,000 schoolchildren aged 5-17 in 84 communities. In Missouri, a State Dental Health Department comparison of life-long resident 2nd and 6th grade children in seven geochemical regions found no statistically significant differences in tooth decay rates between localities with "optimal" (0.7 ppm or more) or "sub-optimal" (less than 0.7 ppm) levels of fluoride in the drinking water. Recent studies in California, Kentucky, Maryland, New York, Washington, and elsewhere,

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show that young children in low-income families have no less tooth decay-and often more-with fluoridation than without, but their dental decay rates directly reflect their dietary and nutritional deficiencies. *Why do proponents of fluoridation not want to mention these pertinent research findings?*

Contrary to earlier belief, ingestion of fluoride-including from fluoridated water-is now recognized, even by the Centers for Disease Control, to contribute very little anti-caries effect. (Direct topical anti-caries effects of higher concentrations of fluoride, as in dentifrices, are still touted, but the differences in caries rates are very small when fluoride and nonfluoride users are carefully matched.) Systemic adverse health effects of ingested fluoride are, however, very important. Increasingly recognized, the most obvious toxic effect of early childhood ingestion of fluoride is the growing incidence of unsightly dental fluorosis associated with water fluoridation. Within a few years after the 1950 USPHS endorsement of fluoridation, other nondental adverse health effects from drinking fluoridated water (e.g., early-stage skeletal-arthritis and reversible gastrointestinal and neuromuscular symptoms) began to be reported in peer-reviewed medical journals. (For details and references, see the book *Fluoridation: The Great Dilemma* cited in my bio sketch.) Unfortunately, most US dental and public health agencies and organizations deny or ignore these unrefuted reports. *One can only wonder: why do proponents continue to support and promote fluoridation almost entirely on the basis of the original 1950 and since re-affirmed USPHS endorsement, without any significant independent reassessment on their part?*

During the last two decades, many additional reports of serious toxic effects of fluoridated water in the 1-ppm range have been published. These include well-documented findings of brain damage in rats, IQ deficits in children not related to iodine deficiency or differences in blood lead, diminished thyroid function in people, increased blood lead levels in children drinking silicofluoridated water, osteosarcoma (bone cancer) in young males, increased bone fractures in children with mild dental fluorosis, and a greater incidence of hip fractures among the elderly. Although there is conflicting evidence over some of the studies in these areas, profluoridation authorities continue to deny there are any scientific findings of serious toxic effects, even though they have been published in recognized peer-reviewed scientific journals. (For documentation, see <http://www.SLweb.org/bibliography.html> and <http://www.fluoridealert.org>. See also the soon-to-be-published, very revealing-and potentially very embarrassing-book *The Fluoride Deception* [Seven Stories Press, 2004] by investigative reporter Christopher Bryson.) To illustrate further, less than a year ago, on May 6, 2003, proponents even declined to participate in an EPA-sponsored scientific debate on fluoridation in Washington, DC. Moreover, dentists, physicians, and public health officials who publicly oppose the profluoridation positions of their professional organizations, soon find themselves in hot water and subjected to reprisals and even loss of livelihood. *What do these facts tell us about how secure the proponent position on fluoridation really is?*

In continental Europe and in many parts of the non-English-speaking world, fluoridation has been rejected or abandoned, largely on the basis of negative scientific evidence, yet tooth decay rates

in these countries are no higher-and are often lower-than in heavily fluoridated nations such as Ireland and the United States. Health authorities in many nonfluoridated countries, well aware of evidence of serious adverse effects of fluoride, generally frown on the idea of attempting to use the water supply to deliver uncontrolled doses of a known toxic agent to consumers, regardless of age or state of health. Last August, a fluoride subcommittee of the National Research Council, at the request of the EPA, began deliberations to evaluate the growing body of evidence of toxic effects of fluoride in drinking water even at the recommended 1-ppm level. *In the face of such facts and events, how can proponents credibly assert that there is no credible opposition to fluoridation? Under these circumstances, why would any legislature still want to push for mandatory fluoridation?*

MANDATING FLUORIDE CONSUMPTION THROUGH THE PUBLIC WATER SYSTEM

THE UNINTENDED CONSEQUENCES OF SENATE BILL 530

Honorable Senators Wagle, and Members of the Public Health and Welfare Committee.

I am Dr. Robert Hetrick, a psychologist from Wichita, Kansas. Using my research training, I have devoted several thousand of hours to investigating fluoridation. One critical aspect of fluoridation has been under publicized, namely, municipal water system. It transports the injected fluoride. In the long history of water treatment, this is a *new* use. Using the system as a medicine-delivery device brings serious problems to the controversy over ingesting a fluoride compound. These troubles are separate from, but intimately tied to, the problems of ingesting fluoride. Imagine delivering a treatment to a hospitalized patient through a *flawed* I.V. drip, or, heaven forbid, a garden hose. Without doubt, control over the medicine is lost and the patient's welfare is compromised. Make no mistake, ingesting fluoride to prevent an oral disease is, by definition, medical treatment.

Here are eight problems inherent to putting a people-altering chemical into a municipal water system.

1. FDA approval is *not* mandated by Senate Bill 530. Therefore, the Bill has no control over the quality or *safety* of the compound used. There is a 99% chance that hydrofluorosilicic acid will be used because it is the *least* expensive compound. This acid converts a glass of wholesome water into a cocktail containing *arsenic*, *lead*,

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mercury, nucleotides, and other heavy metals. Senate Bill 530 must require a fluoride that is approved by the FDA before all Kansans are mandated to drink it.

2. The bill has no protections for groups of Kansans who are “unusually susceptible” to fluoride’s negative effects. According to the *U.S. Department of Health*, these persons are the elderly, people with deficiencies of calcium, magnesium, and/or vitamin C, and constituents with cardiovascular and kidney problems. (*U.S. Dept. of Health and Human Services, Agency for Toxic Substances and Disease Registry, April 1993*). Fluoridation will unnecessarily expose these persons. It will expose children aged 6 months to 3 years, in spite of the warnings against it by the ADA and the Canadian Dental Association.
3. A financial burden is placed on oversensitive citizens by unavoidable exposure. Even costly avoidance-measures cannot fully exempt any citizen from exposure. These individuals will be forced to pay about \$3000 for a whole-house reverse-osmosis filter system, or to purchase bottled-water for their life time.
4. Health-oriented legislation should respect a citizen’s right to *informed consent* and *to refuse medical treatment* as upheld by the U.S. Supreme Court. The *Human Rights Convention*, signed by 26 countries, held that fluoridation is mass medication. It denies several individual liberties. All Kansans deserve and expect this health bill to conform to law and to current medical and dental ethics. It does not. (Traditional ethical standards of treatment are circumvented by mass-dosing. (D. W. Cross and R. J. Carton, Ph.D., *International Journal of Occupational &*

Environmental Health, 2003, 9: 24-29)

5. This Fluoridation bill promotes the use State's police power in order to favor a minority of citizens at the expense of several other minorities and of *all* citizens. Such powers are traditionally reserved for imminent threats such as a fast-spreading and contagious disease that causes death or disability. Dental caries does not rise to this level of threat or urgency. To use such power to force an unavoidable treatment on our communities is to abuse the public trust. (See D. W. Balog, Pace Law Review, <http://www.rvi.net/~fluoride/Pace.htm>; (Doug Cross, Forensic Ecologist, 8th September 2000, www.doublef.co.uk)
6. Bill 530 undercuts and subverts the will of the people. Thousands of Kansans have repeatedly, and legally, said "No" to fluoridation. The democratic process is trivialized by the mandate of this bill.
7. Environmental pollution is an absolute consequence of adding fluoride to drinking water. It is inevitable because 99% of the added fluoride ends up our food-chain. In 1983, an Assistant EPA Administrator irresponsibly saluted fluoridation as a *solution* to the disposal problem of fluoridated factory sludge. Because it is inexpensive, citizens will be forced to drink a diluted waste product and the environment will be contaminated.
8. If Bill 530 becomes law, it paves the way for other well-intentioned disease fighters to seek the insertion of their *drug-of-choice* in to our water. How many drugs

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should be allowed? Should not a priority be given to those drugs with the potential to save lives?

Until the foregoing problems are remedied, we must not permit a misuse of our municipal water. In truth, without this bill, *no one* will be deprived from using fluoride. Toothpaste is inexpensive, of pharmaceutical grade, and universally available. In fact, this form of delivery is more effective than drinking it, according to the CDC and the ADA. Therefore, let promoters seek and support programs that provide incentives for oral hygiene and dietary factors promoting dental caries. The issue of non-compliance with effective hygiene is minimized when children use the safe and natural alternative called *Xylitol*. They love its sweet taste. It is potent in fighting the bacteria that causes cavities. It is safe for diabetics, too.

Your consideration of these factors will be appreciated,

W. Robert Hetrick, Ph.D.

6600 Aberdeen St.

Wichita, Ks. 67206

316 685 8084

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March 2, 2004

Good Afternoon Honorable Senators Wagle, and Members of the Public Health and Welfare Committee.

My name is Melody Scheel and I am from Winfield Kansas. I have followed the Fluoridation issue in Kansas for more than 30 years, and am Co-Founder and Chair of the Fluoride Awareness Team of Kansas.

Today the Committee has been provided with written testimony, from Professor Roger D. Masters of Dartmouth College, an internationally known specialist in the application of contemporary biology to human behavior and public policy, who is unable to attend today due to his teaching commitments. His course this term is called "Human Nature, Biology, and Public Policy".

Dr Masters has also provided to you scientific data, graphs, and a list of references to peer reviewed scientific publications of his work with Senior Chemist Myron J. Coplan.

I have come before you today to highlight some important points included in the scientific work of Dr. Masters of Dartmouth and Myron Coplan (formerly Vice President of a major Chemical Engineering Firm in Massachusetts).

It is important **at this point**, for you to understand that because of the high cost of Sodium Fluoride today, more than 90% of all Fluoridated cities now use Silicofluorides even though they are toxic waste-products from plants that produce phosphate fertilizer.

The published work by Masters and Coplan is OF GREAT IMPORTANCE because it is the **principal scientific research** on differing **biological effects** of water treated with silicofluorides and sodium fluoride.

Masters and Coplan carefully compared fluoridated cities using Sodium Fluoride (which has been tested for safety) with those using either fluosilicic acid or sodium silicofluoride (agents that have never been tested

In these studies, the researchers found that the greatest likelihood of children having elevated blood lead levels occurs where poor children (**especially minorities**) are exposed to **both** SiF-treated drinking water **and** to **known risk factors** (including old houses with lead paint, high lead levels in water, or industrial pollution).

The research shows that silicofluorides are also significantly associated with higher rates of behaviors linked to **lead neurotoxicity**, including **ADHD or other learning disabilities, violent crime, and substance abuse**. The researchers did NOT find these effects where sodium fluoride is used in water treatment.

Please also consider the following points that are evidenced in the graphs provided by Dr. Masters.

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1. Comparing children in U.S. counties with populations over 500,000, blood lead levels are always higher where over 80% of water is treated with SiF.
2. The significant differences are WORSE for Blacks than for Hispanics, and worse for Hispanics than for Whites.
3. High lead levels disturb brain chemistry and have been linked to violent crime.

Tomorrow the proponents will come before you.

They will not only fail to specify the particular **type of Fluoride** they are promoting for our water, but they will also likely attempt to refute the great work of Dr's Masters & Coplan. They will call it "Junk Science".

They will try to say that the studies **falsely imply** that fluoride is contaminated with lead. You will see for yourself that this is not what the studies claim.

They will also likely present to you published criticism written by Urbansky & Schock , who at the time were EPA employees and specialists in water chemistry without any expertise in studying the **biological effects of toxins**..

Dr. Masters has provided an annotated rebuttal to these criticisms, showing that Urbansky and Schock's charges are based on theoretical models of **water chemistry** that ignore the **actual** neurotoxic effects of known toxins.

We the people of Kansas must demand that the CDC, the EPA, the ADA and any other organizations who either promote or fund Fluoridation, **put their money where their mouth is** by providing true scientific safety studies on these chemicals.

The Fluoride Awareness Team of Kansas advocates the use of 100% Xylitol mints or gum as a viable and safe alternative to Fluoridation.

The children of Scandinavia now enjoy the benefits of very healthy teeth thanks to a program of receiving xylitol daily in school

Xylitol has passed rigorous safety tests. It was approved by the FDA in 1963 as a food additive and is recognized world wide for its powerful **strep-inhibiting** effectiveness and cavity prevention.

I thank you for allowing me this time to present this data to you today.



Dartmouth College

Hanover, New Hampshire 03755

Department of Government, 6108 Silsby Hall

Professor Roger D. Masters
Research Professor of Government
& Nelson A. Rockefeller Professor Emeritus
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27 Feb. 2004

TO: Members of the Kansas State Legislature
FROM: Roger D. Masters

By way of identification, I am Nelson A. Rockefeller Professor Emeritus of Government and Research Professor in the MALS program and Mathematics-Social Sciences, Dartmouth College. Over the last 30 years, I have been a specialist in relating the findings of contemporary biology to human behavior, law, and political science. (For example, I am one of the founders and member of Executive Council of the Association for Politics and the Life Sciences). For over ten years, I have been studying toxins, brain chemistry, and behavior or health. My recent work with Myron J. Coplan, a senior chemical engineer, has focused on the harmful effects of using silicofluorides (fluosilicic acid or sodium silicofluoride) to treat public water supplies. In many studies [see the bibliography I have provided], we have found that these UNTESTED chemicals -- now used for over 90% of water "fluoridation" in the U.S. -- increase the body's uptake of lead from environmental sources such as old housing. Epidemiological research shows that silicofluorides are also significantly associated with higher rates of behaviors linked to lead neurotoxicity, including ADHD or other learning disabilities, violent crime, and substance abuse. We do NOT find these effects where sodium fluoride is used in water treatment.

It is my professional judgment that the U.S. should establish a moratorium on the use of silicofluorides until extensive, objective testing demonstrates their safety and explains the errors in our published research. Such testing was required for attempts to sell bottled water treated with nicotine added (as a way of ending smoking) and has been done for sodium fluoride, but not for silicofluorides. Given legal cases now pending, any legislation that authorizes the use of silicofluorides might possibly open the state of Kansas to highly costly class action suits.

If an extensive presentation of my scientific research and expert opinion is desired, I would be happy to come to a special hearing of your committee. I cannot attend the March 2 hearing since I have a scheduled class to teach.

Sincerely yours,

Roger D. Masters

4-3



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
CINCINNATI, OH 45268

November 16, 2000

OFFICE OF
RESEARCH AND DEVELOPMENT

Roger D. Masters
Research Professor of Government
Dartmouth College
Department of Government
6108 Sibley Hall
Hanover, New Hampshire 03755-3547

Dear Professor Masters:

We have received your letter dated September 27, 2000, requesting empirical scientific data we may have on the health effects of fluosilicic acid or sodium silicofluoride and manganese neurotoxicity.

→ To answer your first question on whether we have in our possession empirical scientific data on the effects of fluosilicic acid or sodium silicofluoride on health and behavior, our answer is no. Health effects research is primarily conducted by our National Health and Environmental Effects Research Laboratory (NHEERL). We have contacted our colleagues at NHEERL and they report that with the exception of some acute toxicity data, they were unable to find any information on the effects of silicofluorides on health and behavior. ←

In answer to your question on empirical information we may have on manganese neurotoxicity, NHEERL scientists forwarded to us several manuscripts with reference sections that contain information on the neurotoxicity of manganese. These are enclosed for your information.

I apologize for the delay in responding to your request and hope you find the enclosed information useful.

Sincerely,

Robert C. Thurman, Chief
Treatment Technology Evaluation Branch
Water Supply and Water Resources Division

Enclosures

4-4

Why Urbansky-Schock's Criticism of Coplan-Masters' Evidence on Silicofluoride Hazard Does Not Provide Valid Scientific Expertise

Roger D. Masters

Research Professor, Dartmouth College

The criticism of our research findings by Edward T. Urbansky and Michael Schock (e.g., "Can Fluoridation Affect Water Lead (II) Levels and Lead (II) Neurotoxicity?")^a has long been the most frequently cited to reject the evidence in our numerous publications.^b For the following reasons, their public statements do not provide adequate scientific evidence for the biological safety of adding silicofluorides to a public water supply or for dismissing our findings as irrelevant to public policy decisions. A more complete analysis of recent criticisms, presented to the AADR, is attached.^c

- Urbansky and Schock consider theoretical issues in water chemistry without reference to the **biological** (and neurotoxic) effects of water treated with fluosilicic acid (H_2SiF_6) or sodium silicofluoride (Na_2SiF_6).^d

- Urbansky and Schock make no reference to the fact that the EPA confirms it has no evidence on the effects of "chronic exposure" to these silicofluoride compounds,^e which are highly toxic chemicals that were never tested before their use was approved.

- Urbansky and Schock only discuss our empirical findings on children's blood lead in Massachusetts,^f ignoring the replication of these results using established epidemiological methods to study data from New York state and the National Health and Nutrition Evaluation Survey (NHANES III).^g

- Urbansky and Schock ignore the repeated finding of significantly increased rates of dysfunctional behavior (learning disabilities, substance abuse, or violent crime) in communities using silicofluorides as compared to those with water treated by sodium fluoride or those not adding fluoride compounds to their water.^h

- Urbansky and Schock nowhere cite the study by Kick in 1935, which is one of the few experimental studies in which animals were tested to compare physiological responses to exposure to water treated with silicofluorides compared to sodium fluoride. Kick's findings show a marked difference in excretion pathways of fluoride from silicofluoride treated water, reflecting biological differences that require more study.ⁱ

- Despite extensive theoretical discussion of the "virtually total" dissociation of silicofluorides after they are added to water, Urbansky and Schock fail to cite the contrary finding of Westendorf (whose experiments in Germany in 1975 found that silicofluorides also had the biological effect of acetylcholinesterase inhibition).^j

- Urbansky and Schock themselves explicitly provide theoretical evidence of incomplete dissociation that could change water chemistry: "Hexafluorosilicate ion reacts with water to produce fluoride ion and an assortment of silicon oxyanions, e.g., SiO_3^{2-} , SiO_4^{4-} , $\text{SiO}(\text{OH})\text{O}_3^{3-}$." ^k Urbansky and Schock discuss the "formation of fluoro-complexes" (Tables 2-3) and "fluoride or fluorosilicate complexes" in "hypothetical water solutions" (Table 6) and present equations (5) and (6) earlier in the paper that include " $\text{Si}(\text{OH})_4$ " without mentioning that silicic acid – which can be highly reactive with heavy metals – can have the equivalent composition (H_4SiO_4).

^a On the web, available at:

http://www.google.com/search?q=cache:f3oPM2_ZVboJ:fluoride.oralhealth.org/papers/pdf/urbansky.pdf+silicofluoride+toxicity&hl=en&ie=UTF-8

^b E.g., at a "Fluoridation Forum" in Ireland (as in other contexts), the work of Urbansky and Schock is the only reference cited by T. Reeves in his claim that scientific evidence proves that tests showing the safety of sodium fluoride can be assumed to apply to fluosilicic acid or sodium silicofluoride. According to report on the scientific presentations in Ireland (http://www.fluoridationforum.ie/forum_reports3c.htm): "At this stage Mr Reeves dealt with two studies by Dr Roger Masters and Myron Coplan, which showed an effect of

silicofluorides used in water fluoridation on blood lead levels. (28) The CDC was unimpressed by these ecological studies, which failed to offer any credible evidence of an effect. A paper was written in response to the above study by Urbansky and Schock which concluded that no credible evidence exists to show that water fluoridation has any quantifiable effects on the solubility, bioavailability, bioaccumulation or reactivity of lead or lead compounds.”

^c Myron J. Coplan and Roger D. Masters, “Is Water Fluoridation with Silicofluorides Hazardous? A New Issue Linking Science and Public Policy” paper prepared for meeting of the American Assn for Dental Research, 2003.

^d “The largest portion of “Can Fluoridation Affect Water Lead (II) Levels and Lead (II) Neurotoxicity?” (sections 1 through 7 inclusive) is focused on theoretical analyses of water chemistry, using equations to explore the likely dissociation of silicofluorides, the bonding of lead to silicofluoride residues or fluoride, the chemistry of lead bonding with other elements, and the measurement of lead levels in children’s blood. E.g., “Calculations were performed for the following hypothetical water solutions, as a means to test some plausible limits on when fluoride or fluorosilicate complexes might be of consequence with reference to solubility.” (note 1, Section 4). For more recent studies of abnormal brain chemistry as a problem of learning disabilities, hyperactivity (ADHD), substance abuse, and violent crime – and of biochemical or nutrient approaches that correct behavioral dysfunctions, see D. Bryce-Smith, “Lead induced disorder of mentation in children,” *Nutrition and Health* (1983) 1: 179-94; Bellinger D et al., “Pre- and postnatal lead exposure and behavior problems in school-aged children,” *Environmental Research* (1994) 66: 12-30; D. Cory-Slechta, “Relationships between Lead Induced Learning Impairments and Change in Dopaminergic, Cholinergic, Glutamatergic Neurotransmitter System Functioning,” *Annual Review of Pharm. Toxic.* (1995) 35: 3337-3395 C. B. Gesch, et al., “Influence of supplementary vitamins, minerals and essential fatty acids on the antisocial behaviour of young adult prisoners,” *British Journal of Psychiatry* (2002) 181: 22-28; Kenneth Blum, “A commentary on neurotransmitter restoration as a common mode of treatment for alcohol, cocaine and opiate abuse,” *Integrative Psychiatry* (1989) 6: 199-204; C. A. Kahn, P. C. Kelly, W. O. Walker, “Lead screening in children with attention deficit hyperactivity disorder and developmental delay,” *Clinical Pediatrics*, (1995) 34: 498-501.

^e Letter, Robert C. Thurnau (chief, Treatment Technology Evaluation Branch, Water Supply and Water Resources Division, US EPA) to Roger Masters, Nov. 16, 2000.

^f Roger D. Masters and Myron J. Coplan, “Water Treatment with Silicofluorides and Lead Toxicity,” *International Journal of Environmental Studies* (1999) 36: 435-449.

^g Masters, R.D., Coplan, M. J., Hone, B.T., and Dykes, J.E. (2000). “Association of Silicofluoride Treated Water with Elevated Blood Lead,” *Neurotoxicology* 21: 101-1100; Masters, Roger D. 2002. Neurotoxicology and Violence,” in Richard W. Bloom and Nancy K. Dess, eds., *Evolutionary Psychology and Violence: A Primer for Policymakers and Public Policy Advocates* (Praeger/Greenwood).

^h Masters, R. D. and Coplan, M. J., with Hone, B.T., Grelotti, D. J., Gonzalez, D. and Jones, D. (1999). “Brain Biochemistry and the Violence Epidemic: Toward a ‘Win-Win’ Strategy for Reducing Crime,” in Stuart Nagel, ed., *Super-Optimizing Examples Across Public Policy Problems* (NOVA Science Publishers); Masters, R. and Coplan, M. (1999) “A Dynamic, Multifactorial Model of Alcohol, Drug Abuse, and Crime: Linking Neuroscience and Behavior to Toxicology,” *Social Science Information*, 38:591-624; Masters, R.D. and Coplan, M.J. (1999). “The Triune Brain, the Environment, and Human Behavior: Homage to Paul MacLean,” to appear in Russell Gardner, ed. *Festschrift in Honor of Paul MacLean*. First presented at Back Bay Hilton Hotel, Boston, Mass. – July 16, 1999; Masters, Roger D. (2001), “Biology and Politics: Linking Nature and Nurture” in Nelson W. Polsby, ed., *Annual Review of Political Science*, vol. 4, pp. 45-369.

ⁱ Kick CH et al, Fluorine in Animal Nutrition, Wooster OH: Ohio State Agricultural Experiment Station, Bull, 558, Nov, 1935.

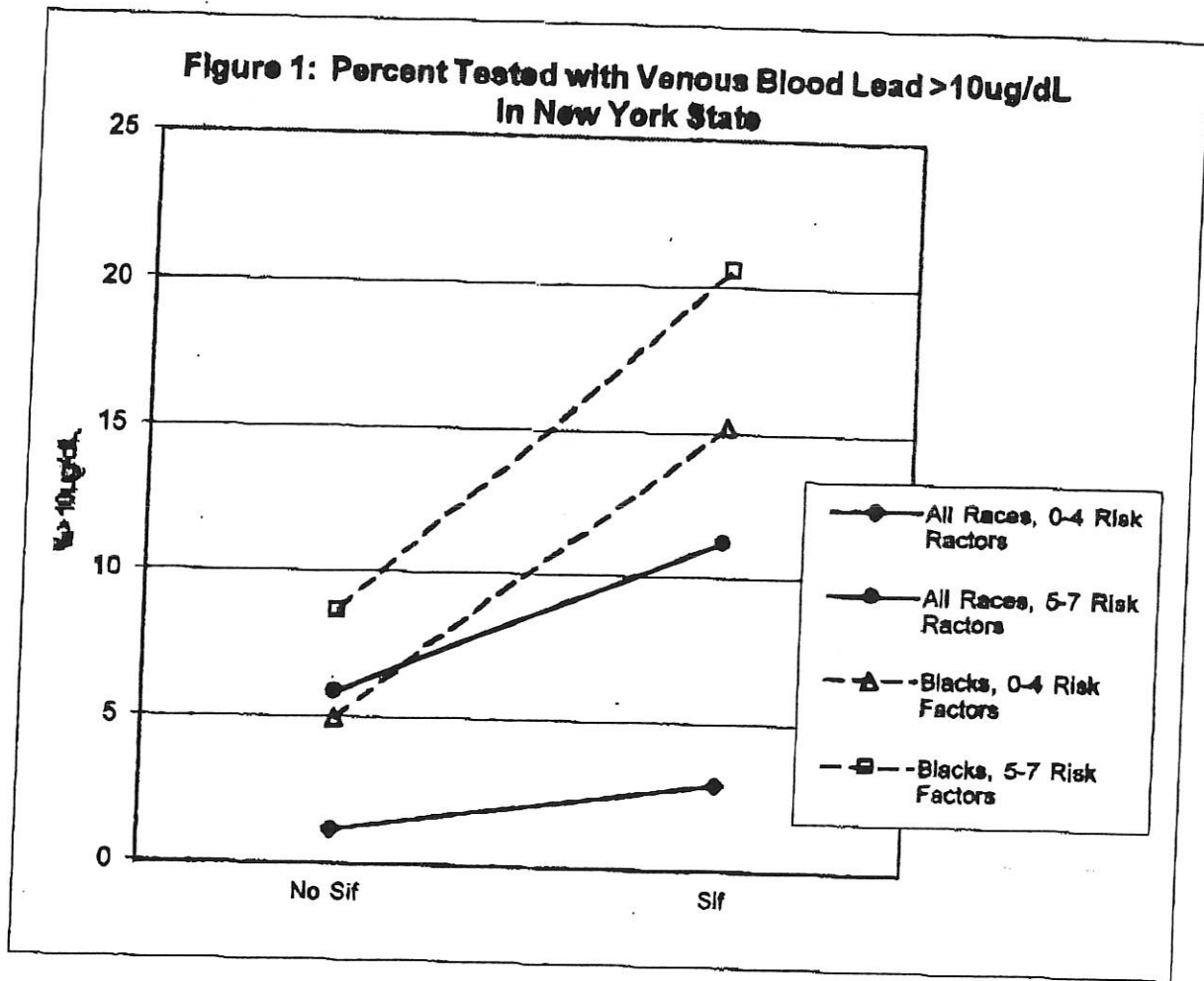
^j Westendorf Johannes (1975) “Die Kinetik der Acetylcholinesterase hemmung und Die Beeinflussung der Permeabilität von Erythrozytenmembranen durch Fluorid und Fluorocomplex-Jonen”; Doctoral Dissertation, Universität Hamburg Fachbereich Chemie; Hamburg). For a translation, see: <http://www.dartmouth.edu/~rmasters/ahabs/> See also Knappwost A and Westendorf J. (1974) “On the Inhibition of Acetylcholinesterase by Fluoride”; *Naturwissenschaft* 61: 274-275 and “Inhibition of Cholinesterase by Fluorocomplexes of Silicon and Iron,” *Ibid.*, p 275.

^k Urbansky & Schock (note 1), Section 1, p. 3.

Please consider the EVIDENCE in the following graphs from the published research of Masters and Coplan:

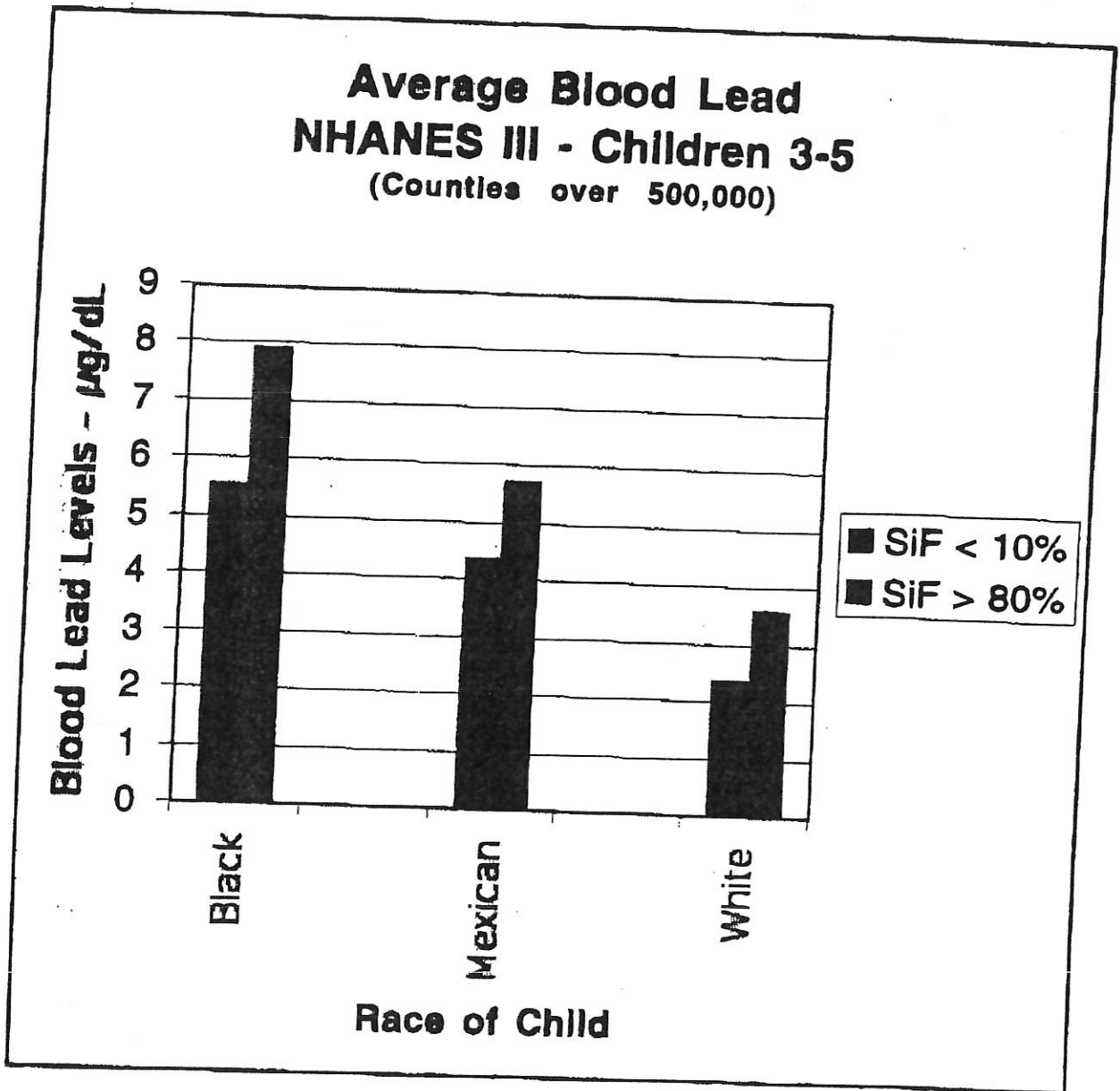
1. Comparing children in U.S. counties with a populations over 500,000, blood lead levels are always higher where over 80% of water is treated with SiF than where less than 10% has this chemical. The statistically significant differences are WORSE for Blacks than for Hispanics, and worse for Hispanics than for Whites. (DID I SEND GRAPHS FOR 2 DIFFERENT AGE RANGES? IF SO, YOU CAN USE BOTH AND POINT THIS OUT)
2. Data from Massachusetts shows that while children's blood lead levels are higher in communities with a higher percentage of houses built before 1940, this effect is much worse in communities using SiF.
3. High lead levels disturb brain chemistry and have been linked to violent crime. Where SiF is in use, data from all 3141 U.S. counties show there are higher rates of violent crime. In New York state, children's blood lead levels in communities with fewer risk factors for lead uptake were compared to communities with more risk factors. As predicted, SiF greatly increased the harmful levels of lead poisoning in the higher risk communities.
4. SiF is associated with higher rates of learning disabilities in Massachusetts. Because lead lowers the neurotransmitter dopamine and is a factor in ADHD and other learning deficits, this confirms predictions.

FIGURE 4



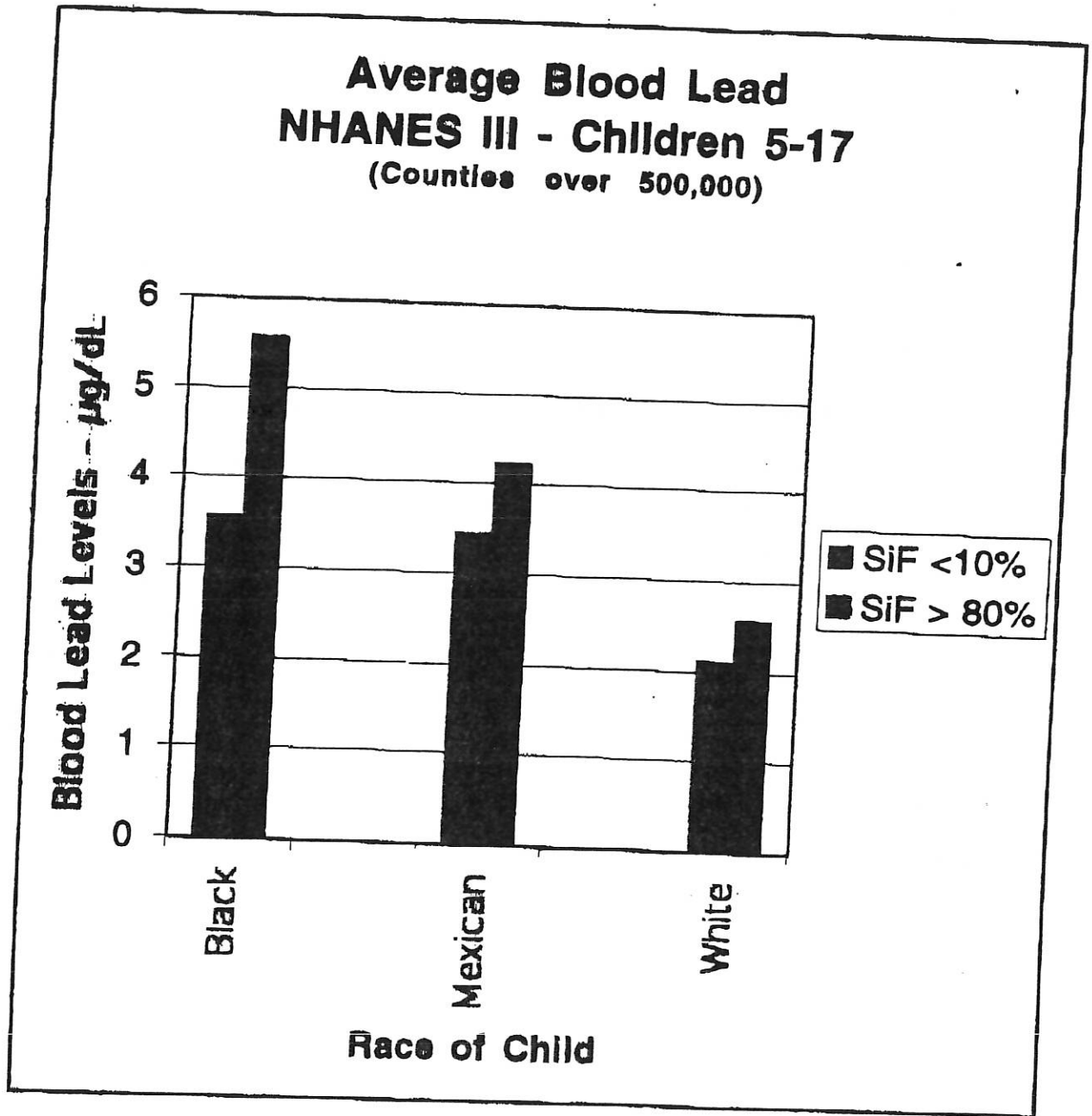
This figure divides all New York communities into those with above average levels of 0-4 of the risk factors and communities with 5-7 of these risk factors. For each level of risk, blood lead levels are higher where silicofluorides are in use; and this effect especially pronounced for blacks

FIGURE 5



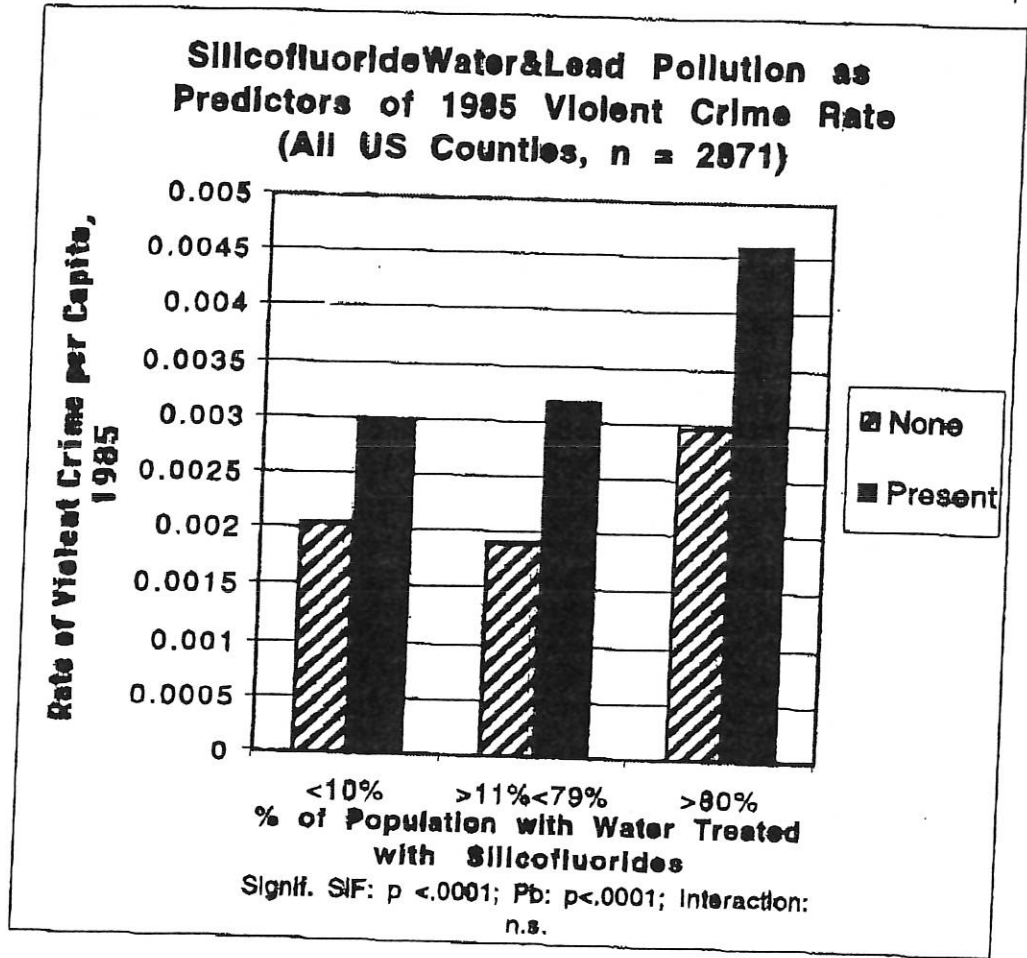
For NHANES III Children 3-5, mean blood lead is significantly associated with fluoridation status (DF 3, F 17.14, $p < .0001$) and race (DF 2, F 19.35, $p < .0001$) as well as for poverty income ratio (DF 1, F 66.55, $p < .0001$). Interaction effect between race and fluoridation status: DF 6, F 3.333, $p < .0029$;

FIGURE 6



Significance, for ages 5-17: fluoridation status (DF 3, F 57.67, $p < .0001$), race (DF2, 28.68, $p < .0001$), Poverty-Income Ratio (DF 1, 252.88, $p < .0001$). Interaction between race and fluoridation status DF 6, F 11.17, $p < .0001$

FIGURE 8.



Lead Pollution: EPA Toxic Release Inventory: solid bars = present; diagonal stripes = no lead pollution.

FIGURE 9

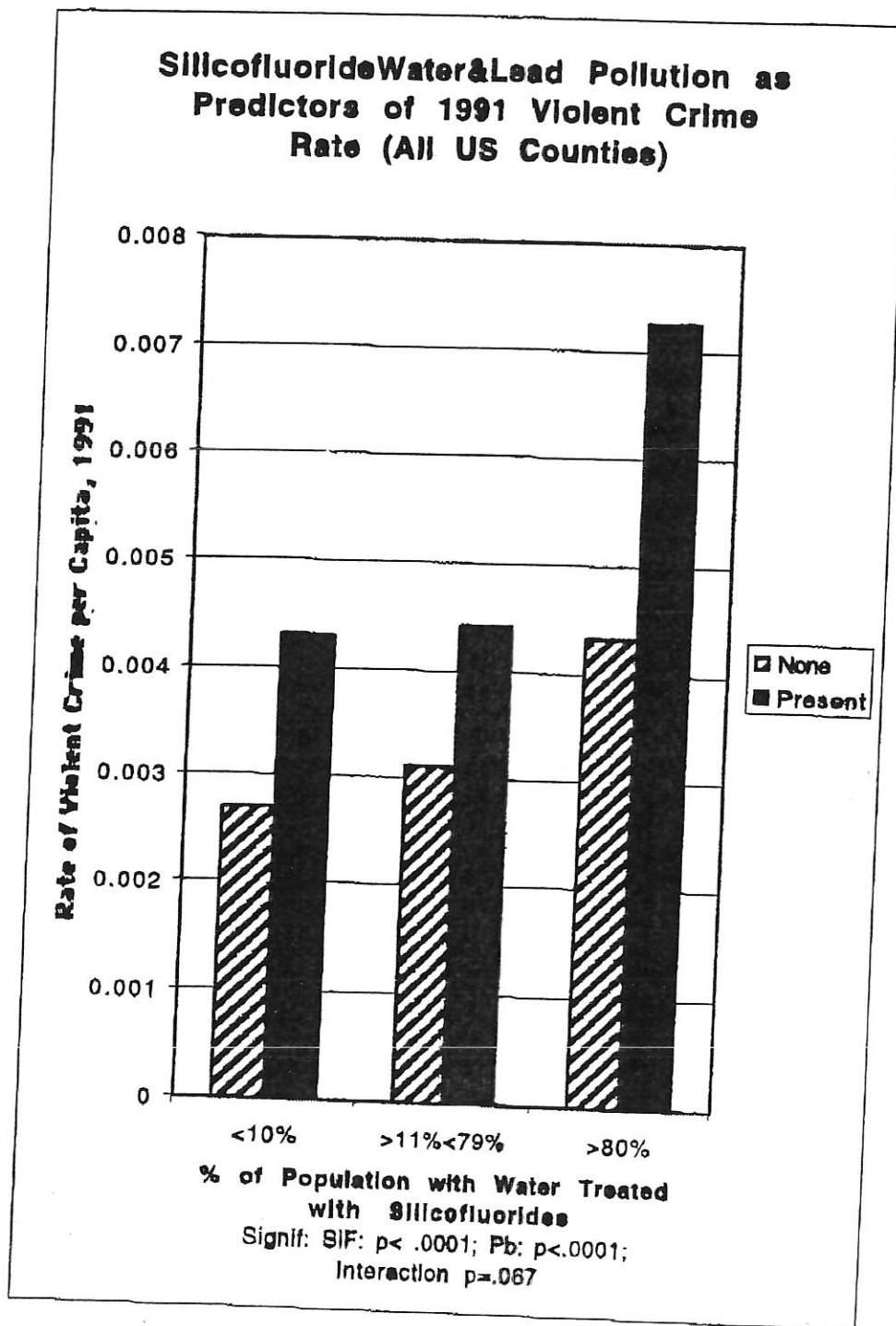
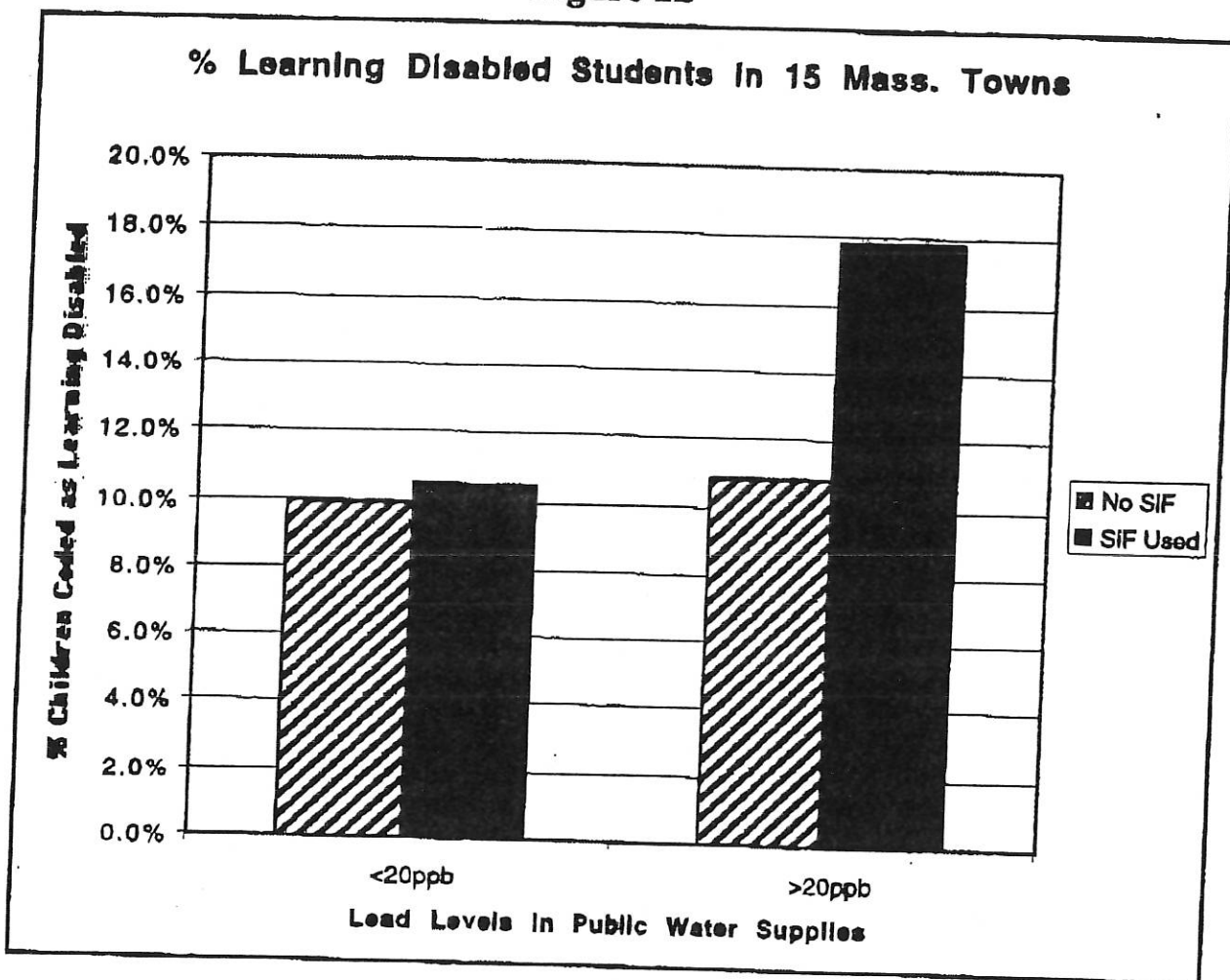


Figure 10

(6 of 8) 4-12

Figure 12



Lead Levels in Public Water Supply: 90th % first draw sample of water had lead level above or below 20 ppb

SiF: Community water supply does not or does use either fluosilicic acid or sodium silicofluoride (SiFs) as fluoridation agents (CDC Fluoridation Census).

% Learning Disabilities: Results of author's informal survey. Sample is too small for statistical reliability, but note same pattern also found for children's blood lead: SiF enhances negative effects of lead pollution in environment.

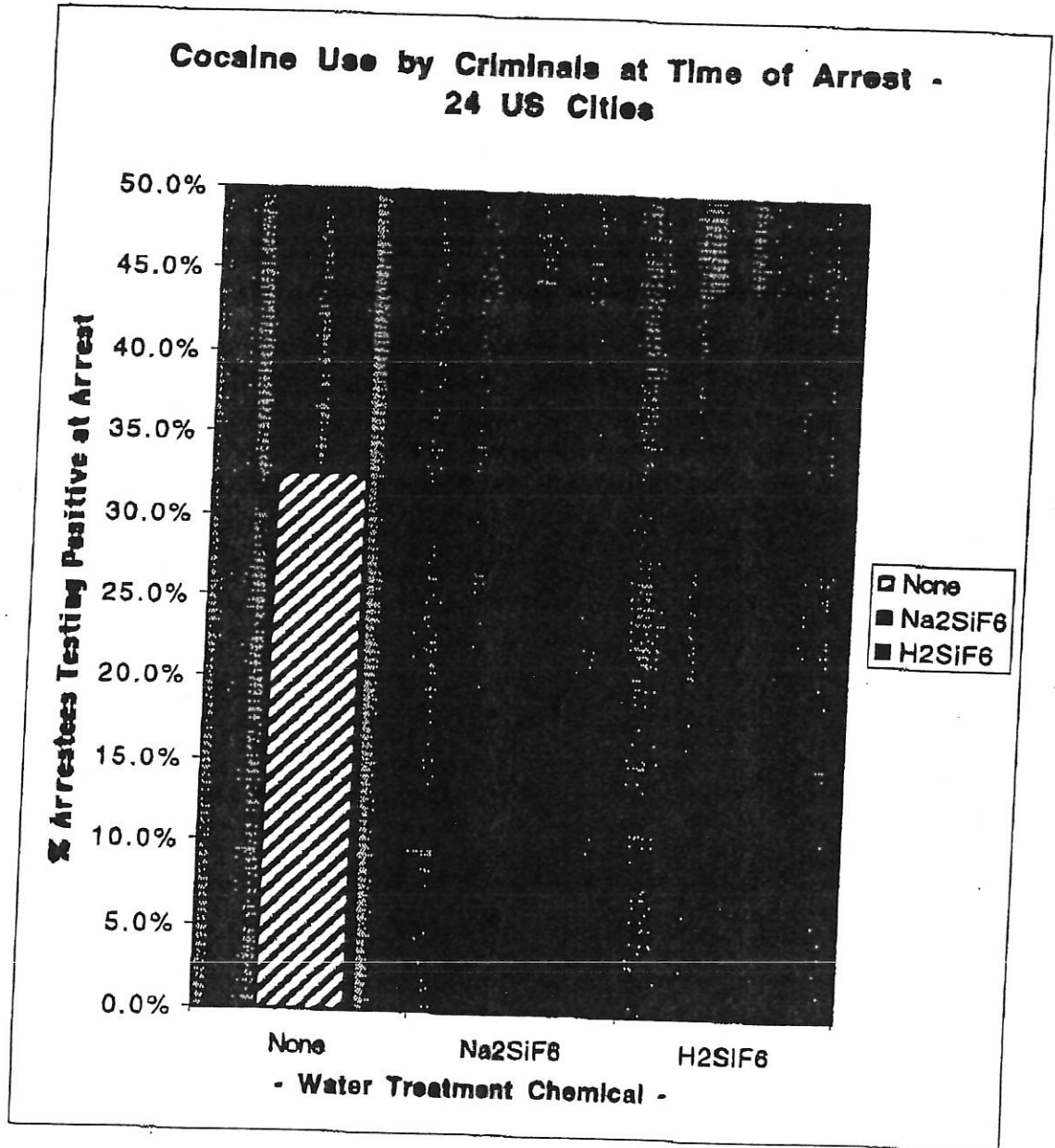
	Lead in Water	
	< 20ppm	>20ppb
No SiF	n=7	n=1
SiF	n=2	n=5

Average % Learning Disabled Students by SiF use:

No SiF = 10.2% (n=8)

SiF = 15.8% (n = 7):

Figure 13



Is Water Fluoridation with Silicofluorides Hazardous?

A New Issue Linking Science and Public Policy

Myron J. Coplan^a and Roger D. Masters^b

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^b Foundation for Neuroscience and Society; Dartmouth College HB 6108 Hanover NH 03755

ABSTRACT

Fluosilicic acid and sodium fluoride (“silicofluorides”), used for over 90% of U.S. water fluoridation, are untested toxins differing significantly from sodium fluoride. Differences in chemical properties and biological effects, confirmed by laboratory experimentation, make it essential to consider dangers to health and behavior for those exposed to silicofluoride treated water. Fluoridation supporters have rejected recent evidence that silicofluorides significantly enhance uptake of lead from environmental sources and increase behavioral dysfunctions associated with lead neurotoxicity. Two recent criticisms of research revealing these harmful effects misstate the evidence, preferring established policies to new scientific evidence.

I. Introduction

A major national public health policy was adopted around 1938 with the benign aim of suppressing tooth decay through chronic ingestion of fluoride ion (F) deliberately added to public water supplies. The first field trial began in 1945 using NaF as the source of F. In 1947, without testing for possible adverse health effects, fluosilicic acid (H_2SiF_6) or sodium silicofluoride (Na_2SiF_6), (herein silicofluorides or “SiFs”) were substituted for NaF. Today about 150 million Americans receive SiF treated water (SiFW) delivered in their own water supplies, whereas only 15 million receive NaF treated water (NaFW).

Despite occasional research evidence to the contrary, both supporters and opponents of fluoridation have asserted that “fluoride is fluoride is fluoride” in fifty years of polemic debate. However, new research published in the last 5 years has repeatedly confirmed significant differences between the effects of chronic ingestion of NaFW and SiFW (Masters, Coplan, Hone & Dykes, 2000). Such evidence notwithstanding, the CDC, the EPA, and dental professionals as a group dismiss this new evidence as irrelevant to their public policy to suppress tooth decay with ingested F.

Two studies reported to a meeting of the American Association for Dental Research division of the International Association for Dental Research (AADR/IADR) on March 12-15, 2003 in San Antonio, Texas, illustrate the unscientific quality of the belief that the chemical compounds used in water fluoridation have no bearing on health outcomes as long as the incidence of tooth decay is suppressed. The scientific fallacy of this notion and its negative impact on public policy are analyzed here.

II. Why Adding Silicofluorides to Public Water Supplies is an Issue

Considerable scientific evidence associates chronic ingestion of SiFW with adverse biochemical and behavioral effects (Coplan & Masters, 2001; Coplan & Masters, 1999; Manaocha, 1975; Knappwost & Westendorf, 1974a-b; Westendorf, 1975¹). Before assessing two instances in which this evidence is dismissed by fluoridation proponents, it is useful to identify some studies on which the original claims for SiF efficacy and health safety depend (McClure, 1950; Zipkin & McClure, 1950, 1954; Weddle & Muhler, 1957; Feldman, Morken & Hodge, 1957). SiFs were substituted for NaF because (i) SiFs were cheaper; (ii) they delivered the same amount of F to rat teeth as NaF; and (iii) chemical theory predicted "virtually total" SiF dissociation much like the 99.9+ % dissociation of NaF added to water at 1 ppm of F. Claim iii was disproved in 1975 by the research reported in ref 4 that found SiFW at F levels comparable to that in potable water contained incompletely dissociated SiF residues. Thus, while all of the original $[\text{SiF}_6]^{2-}$ (hexa-fluoro) anions may have dissociated to a substantial extent, as much as 1/3rd of the potentially available F remained bound to silicon in a species Westendorf thought to be $[\text{SiF}_2(\text{OH})_4]^{2-}$.

If Westendorf's findings are valid one may rightly ask, "Why do tests of water treated with SiFs routinely detect free F ion to be as much as 95-98% of the potentially available F originally injected into water plant water in the form of the SiF complex?" The most popular method for measuring free F ion uses the F ion electrode (Frant & Ross, 1966). in combination with TISAB (Skoog, West & Holler, 1966). This produces two effects that are not taken into account.

First, TISAB solution dilutes the test sample to half its original concentration, which dilution itself induces more dissociation than had actually occurred in the sample taken for test. Second, it adds buffering and sequestering agents to control pH and suppress F complexation. The bottom line is that no animal digestive tract or any water plant process performs the same chemical manipulations that yield free F in the same way or to the same extent that the use of TISAB does.

In experiments with cells and whole blood (Westendorf, 1975) found SiFW to be a relatively strong cholinesterase inhibitor. The enzyme acetylcholinesterase (AChE) breaks down acetylcholine (ACh), an important neurotransmitter with a major role in cognition and memory. Therefore, AChE inhibition increases ACh availability to the brain. This is far from hypothetical; another AChE inhibitor---Aricept--- is a contemporary medication used to slow cognitive decline from Alzheimer's Disease.

Because ACh is also a neurotransmitter for muscular excitation, excessive amounts of ACh at muscle end-plates due to AChE inhibition from chronic ingested SiFW could contribute to violent or agitated teen-age behavior, a matter of public concern.

Besides their capacity to inhibit AChE, Westendorf also found SiFs to be powerful inhibitors of the group of enzymes known as "pseudo" cholinesterases (PChEs), also known as serum ChEs, which includes butyrylcholinesterase. The exact functions of

this enzyme group have yet to be fully determined and described. However, they are believed to provide a first line of defense against toxins in the blood stream. Possible consequences of PChE inhibition include a number of non-neurological disorders.

Besides Westendorf's *in vitro* studies, other researchers have observed actual health and behavioral problems in live non-human animals exposed to SiFW that might be traced to enzyme inhibition. Some animals previously thriving with non-fluoridated water showed serious disease and deformity immediately after fluosilicic acid was added to that water (Burgstahler, Freeman & Jacobs, 2002).

In an inter-laboratory experiment in which eight strains of mice were tested on five behavioral tasks, despite rigorous attempts to use identical procedures on litter-mates at three different sites, higher rates of activity or excitability were repeatedly found in one laboratory. Although there was one environmental factor different in that laboratory, the authors of the study did not take that factor into account. All three labs used "tap water" but the increased excitability was only observed in Edmonton, Alberta, a community using fluosilicic acid. The other two laboratories, in Portland, OR and Albany, NY did not supply SiFW for their animals to drink (Crabbe, Wahlsten & Dudek, 1999; Wahlsten et al, 2003).

While controlled studies comparing health and behavior associated with water treated with SiF and NaF have not been done, these independent findings certainly suggest that chronic ingestion of SiFW can produce adverse neurological and non-neurological effects in man and other species. Consistent with this basic premise, our own research has provided evidence of a serious adverse health condition in children living in communities where SiFs are used to fluoridate public water supplies (Masters & Coplan, 1999; Masters, Coplan, Hone & Dykes, 2000).

In three large geographic samples totaling over 400,000 children, those living in SiFW communities were about twice as likely to exhibit blood lead levels over $10\mu\text{g}/\text{dL}$ than children in communities using NaF or those with unfluoridated water (Masters, Coplan, Hone & Dykes, 2000). Controlling for known factors associated with lead toxicity, a Risk Ratio of about 2 for blood lead $>10\mu\text{g}/\text{dL}$ in SiFW communities was highly significant ($p < 0.01$).

The lead levels in "90th percentile First Draw Water" as determined according to the EPA's protocol under their "Lead/copper Rule" were available for 260 communities in Massachusetts. However, only weak and questionable correlation was found between these water lead levels and blood lead levels of children living in those communities. We therefore believe that elevated blood lead need not be water-borne due to plumbing corrosion or original contamination of the SiF itself. We believe that lead paint in older housing or soil contaminated from leaded gas are just as likely to be the source. We believe SiF dissociation residues enhance gut-to-blood lead transport whatever the source of that lead may have been.

Since lead neurotoxicity has been linked to serious behavioral dysfunction (Needleman, 1992, 1996; Cory-Slechta, 1995; Tuthill, 1996; Gonzales & Jones, 1998), there is reason to be concerned that the effect of exposure to any form of environmental lead may be exacerbated if SiFW has also been ingested with that lead on a daily basis. FBI data on violent crime analyzed for different years and in different geographic samples also had significantly higher rates of violent crime in counties with high SiFW usage (Masters & Coplan, 1999; Masers, 2001, in press).

While reliable geographic data for other disorders are not as available, limited evidence suggests that ingestion of SiFW is also associated with higher learning disabilities rates, poorer educational outcomes, and more substance abuse. Besides these neurological problems, preliminary studies of the prevalence of asthma and other diseases indicate statistically significant evidence of adverse physical health effects associated with chronic ingestion of SiFW that suggest disruption of immune and endocrine functions.

Increasing media attention to our work probably explains two Abstracts prepared for an AADR meeting in March 2003. They may well represent the intellectual fruit of the first studies of SiF chemistry and biochemistry by dental researchers. Unfortunately, the topics, methods, and conclusions of their authors suggest the motive for their work was political rather than scientific. Both Abstracts speak of "critics" of SiFs or "opponents" of water fluoridation, not scientists with new evidence about the effect of their unique chemical properties on heretofore unstudied health effects. Since our publications are the only ones distinguishing the effects of SiFW and NaFW, one assumes we are the "critics" or "opponents" whose work is offensive and should be rejected.

As it happens, the two Abstracts reproduced below do not address our principal findings. Rather, they attribute to us claims we have never made and their tests of SiFs have nothing to do with our published findings. One is tempted to suggest that the public health establishment, with its long history of ardent support for delivering F in potable water as a means to suppress tooth decay, is allergic to the idea that they might have been mistaken for fifty years in accepting SiFW as a substitute for NaFW.

More likely, as a matter of faith, fluoridation proponents can't believe that the switch from NaF to SiF was endorsed by the highest US health authority, the United States Public Health Service, because it would save 5 cents per community resident per year even though neither of the SiFs had been studied for adverse health side effects. The only health criteria applied by the US PHS was that SiFW water delivered as much F to rat teeth as NaFW and the rats grew at about the same rate.

Enhanced uptake of lead in children's blood would surely qualify as an adverse side effect today. But, who was thinking about that in 1950? No studies we have encountered ever began to look at that issue... *whether as a side effect of NaFW or SiFW*. If no one ever looked for such an effect, how can a reasonable scientific position be taken today as to whether SiFW has an effect different from NaFW on lead uptake? On the other hand, chronic ingestion of SiFW might well be an important clue to an enigma about the hazard of exposure to environmental lead that has puzzled others for some time (Stapleton, 1994):

“There is a mystery in all of this. It’s clear that soil-borne lead contributes to lead poisoning---the number of childhood lead poisoning cases peaks during summer months, when children are playing more outdoors and outdoor activity brings lead-laced soil into the house. What’s not clear is why some soil-borne lead contamination contributes more to blood lead levels than others. Some Superfund sites, some communities even, register enormous levels of lead contamination, yet the potential risk is not necessarily reflected in people’s blood-lead levels. Different studies have determined wide-ranging differences in the relationship between soil-lead levels and children’s blood-lead levels. Theories abound, based on such variable as the size of the lead particles or chemical form of the lead, which would both affect the rate at which the body absorbs lead and the child’s behavior patterns, including hand-to-mouth activity, access to soil, or the presence of ground cover. In the meantime, since we don’t understand the relationship, prudence dictates that we do everything practical to either eliminate soil-lead contamination or put some barrier between it and our children.”

It is certainly easy to say “amen” to that. However, in addition to erecting barriers between sources of lead and children’s anatomy, it might also be prudent to remove an agent in the water a child drinks that seems to exacerbate the problem by facilitating lead transport from gut into bloodstream. As important as it may be to erect physical barriers to cope with external sources of lead it is also important to remove intellectual barriers impeding another corrective measure that is far less costly and immediately achievable. Stop using SiFs for water fluoridation.

III. Fluoride Metabolism

The first of the two presentations on SiFW prepared for the March 2003 meeting of the AADR/IADR apparently intends to refute our research (characterized as criticism of SiFs) by trying to show that there are no differences in metabolism of F from NaFW and SiFW. The entire Abstract of the Whitford and Johnson presentation follows with two particular phrases italicized by us for reasons that will become apparent:

(A). Whitford and Johnson Abstract for AADR/IADR Conference

"Comparison of Fluoride Metabolism When Administered as NaF or Silicofluorides to Rats

(G.M. WHITFORD, and N.A. JOHNSON, Medical College of Georgia, Augusta, USA)

Drinking water is fluoridated using NaF, fluorosilicic acid (HFS) or sodium fluorosilicate (SFS). Critics of the use of silicofluorides claim that they are metabolized differently from NaF and could *cause higher tissue F concentrations*. Objective: To compare the general features of fluoride metabolism when

administered as NaF, HFS or SFS to rats. Methods: Weanling, female SD rats (8/group) were given free access to AIN-76A food (0.7 ppm F) and deionized water containing 24-ppm F added as NaF or commercial grades of HFS or SFS for five months. While housed in pairs, five 48-h metabolic balance studies were done during the 4th and 5th months. Food and water intake and the output of urine and feces were determined gravimetrically. Water and urine *F concentrations were determined with the electrode after buffering with TISAB*; plasma, food and fecal concentrations were determined after HMDS-facilitated diffusion. Results: There were no significant differences among the groups for body weight gains during the study, plasma F concentrations, nor for the intake of food or water. The balance data (mean \pm SE, $\mu\text{g}/48\text{-h}$) are shown in the table. There were no significant differences among the groups for any of the six variables.

<u>Group</u>	<u>F Intake</u>		<u>F Excretion</u>		<u>F Balance</u>	<u>Retention (%)</u>
	<u>Food</u>	<u>Water</u>	<u>Urine</u>	<u>Feces</u>		
NaF	33.1 (\pm 1.6)	1507 (\pm 61)	379 (\pm 24)	129 (\pm 15)	1032 (\pm 67)	66.2 (\pm 2.2)
HFS	36.1 (\pm 1.7)	1532 (\pm 57)	336 (\pm 27)	153 (\pm 20)	1079 (\pm 74)	68.1 (\pm 2.7)
SFS	35.5 (\pm 1.3)	1655 (\pm 90)	407 (\pm 43)	165 (\pm 37)	1118 (\pm 95)	64.8 (\pm 4.0)

Conclusion: The chemical form used to fluoridate the drinking water had no effect on the intake, excretion, balance or *retention of fluoride*.

Seq #17 - Oral Tissues, Toxicology 2:00 PM-4:00 PM, Wednesday, 12 March 2003 Henry B. Gonzalez Convention Center Room 217D"

(B). Reliability of the Whitford and Johnson Conclusion

- (1). A sensible protocol would determine the nature of the F in the rats' food. Most "naturally" occurring F is in the form of fluosilicate. Thus, the NaFW exposed rats probably had a mixture of SiF with simple F in their diets.
- (2). If "F Retention (%)" means "F Balance"/"F Intake" (from water plus food), there are some questions about the arithmetic in the last column.
- (3). If all solutions of "fluoride" were at the same ppm of F ion, the water F intakes in the table should be in proportion to the amount of water ingested by the rats. Thus the rats fed SiFW drank between 2 and 10% more water than the rats fed NaFW. The authors don't offer any statistical reason to dismiss the 10% difference between the mean values 1655 and 1507 that suggest the SFS group was more thirsty than the NaF group. A primary symptom of F intoxication is increased demand for water.

(C). Relevance of Whitford and Johnson to Coplan and Masters research.

Differences in F retention in soft tissues due to differences in metabolism of the different chemical agents used in water fluoridation have never been central to our research. To be sure, we have cited the work on F excretion in feces and urine by Kick *et al.* (1935) which McClure (1950) referenced.

However, we have always pointed to the differences in the different distribution of excess F between excretion paths and possible effects of incompletely dissociated SiF residues on polypeptides, not to differences in soft tissue retention (Masters, 2002). It should be clear from line “b” in Table 2 below, that one of our principal claims would hardly be that soft tissues retained more F from SiFs than from NaF.

Table 2. Effect of 1 “Rat-Day” of Exposure to Fluoridated Water

Data derived by Coplan and Masters from Kick *et al* (1939), cited by McClure (1950)

	Fluoride Source		Na ₂ SiF ₆ /NaF Ratio
	Na ₂ SiF ₆	NaF	
(a) F ⁻ Ingested	4.00 mgm	3.91 mgm	1.02
(b) F ⁻ Retained	1.22 mgm	1.28 mgm	0.95
(c) = (a-b) Excess F-	2.78 mgm	2.63 mgm	1.06
(d) F ⁻ eliminated in feces	1.40 mgm	2.16 mgm	0.63
(e) F ⁻ eliminated in urine	1.38 mgm	0.48 mgm	2.67

It should be emphasized that damage to polypeptides is not necessarily detectable from measurements of F retained in “soft” tissues. The only way F can get to be eliminated in urine is by first entering the bloodstream. In Table 2, which is based on the data Kick and colleagues published in 1935, line (e) is the most important one as regards our work. About three times as much F must be carried by the bloodstream to the kidneys, whether the F remains in soft tissues or not. Our sources for those data (Kick *et al* and McClure) are not refuted by data in the Abstract table.

On the contrary, rather than refuting the data in Table 2, Whitford and Johnson’s data accord with one of the important items emphasized by us. The table in their Abstract shows that, although F retained in soft and hard tissues from ingested fluoridated water may be the same whether delivered by NaF, HFS or SFS, the excess F to be eliminated as urine in the latter two is greater, albeit by only a small margin. Nevertheless, the F from their SiFWs placed a greater burden on their animals’ kidneys and must also have had a more intense effect on plasma-borne peptides. The smaller difference they found can be accounted for and should have been understood by them. The reasons they could have given and did not will be elucidated here shortly.

At this point we would stress that a higher level of circulating F in the bloodstream of SiFW exposed rats is the issue, not a virtually immeasurable difference in F that might be found in a dead rat’s soft body tissues. Just one fluorine atom (atomic weight 19) as

an adduct on silicic acid can significantly influence folding of a polypeptide chain with a molecular weight at least several thousand times greater. So, the weight of F retained by soft tissue would tell very little about the risk of serious biological damage. The more important health issues from chronic ingestion of SiFW are quite likely to be caused by a strange form of silicic acid crossing into the bloodstream where it oligomerizes and deforms polypeptides, thereby disturbing structures and cell functions of various organs. This could occur without a detectable amount of retained F.

The difference between Kick's data and Whitford's has a very reasonable explanation. Kick's rats were "young males" exposed to fluoridating agents for 18 to 22 days and F balances were found from total F ingested and excreted over the entire exposure period. Whitford and Johnson examined female rats exposed to fluoridated water as weanlings and subjected to their fluoridating regimen for five months. F balances are only reported on samplings in the fourth and fifth months *post partum* when five 48-hour collections of excreted F were compared with F intake as measured by plasma F.

It is noteworthy that Whitford's own earlier publications (He, Ganapathy, Isales, Whitford, 1998; Whitford, 1994a, b, 1991, 1999; Whitford, Biles, Birdsong-Whitford, 1991) document several variables such as dietary differences, gastric pH, and the stage of animal development that could influence the excretory path of non-retained F. One in particular (Whitford, 1999) focuses on age as a crucial variable in F metabolism:

The rate at which fluoride is removed from plasma in infants and young children is several times faster than in adults when the data are factored for weight or surface area. This difference appears to be due almost entirely to the greater surface area provided by the numerous and loosely organized crystallites in the developing skeleton. (Whitford, 1999).

Thus, Whitford himself provides ample reason to expect F metabolism to differ between age groups irrespective of F source. One of the important secular markers is the onset of puberty (Howenstein et al, 2000; Ballabriga, 2000). But, there should also be a gender effect. The period of rapid bone growth ends earlier in the life of females than males. In the case of rats this occurs around 50 days *post partum* (Wang et al, 1999; Gilsanz et al., 1994; Carels, 1998).

Kick's experiments assayed F metabolism during the period of rapid bone growth of "young male rats" over a period of 18 to 22 days during which time all urine and feces was collected. On the other hand, in the experiment described in the Abstract, urine and feces excreted by females exposed to F treated water since birth was only collected in five two-day intervals 120-150 days *post partum*, long past rapid bone growth.

From Whitford's own statement quoted above, he should have been aware that the data on F metabolism reported in his Abstract was not appropriate for comparison with data on F metabolism reported by Kick. It is also noteworthy that Whitford's study of F metabolism in children (Whitford, 1999) cites a study of rats published in 1952 (Zipkin & McClure, 1952) but fails to mention work by the same authors published in 1956

concerning F metabolism in male humans (Zipkin, et al, 1956). Here urine samples were collected from boys separately from urine from men, all of whom had been drinking either SiFW or NaFW under “real world” conditions for up to ten years after water fluoridation began in two communities, one using NaFW the other SiFW.

Equilibrium between ingested water F and urine F levels in the older males was reached promptly in both communities for the reason given by Whitford, their bone structures were already mature. For the younger males it took substantially longer for urine F to reach equilibration with water F. In the NaFW group that occurred in three years; in the SiFW group, five years. The particulars of underlying biochemistry are not the issue here. The central issue is that evidence of a difference in the metabolism by young human males of F from SiFW and NaFW has been in the literature since 1956 and just as accessible to Whitford and his student as the reference Whitford cited in his 1999 article to work on rats published in 1952.

Regarding the experiment described in the Abstract copied in its entirety above:

Were samples of excreta collected for analysis soon after the weanlings started to ingest fluoridated water and at suitable intervals before the 50th day? If not, why not?

If not, did the authors understand that rapid bone development prior to puberty would influence F metabolism differently than bone status 120+ days *post partum*?

Do Whitford and Johnson believe F metabolism in adult mammals is a reliable indicator of health effects in newborns and pre-teen children exposed to the same sources of F?

If samples were collected and data analyzed for the first 50 days *post partum*, why were they not reported?

III. Lead Leached by SiFW

Again we quote an entire Abstract of another report prepared for the IARD/AARD meeting:

(A). Le V, et al Abstract for March 2002 AARD/IARD Conference

“Fluoride and Lead Concentrations Related to pH in Drinking Water
V. LE¹, S.A. GANSKY², and E. NEWBRUN¹, 1 University of California
San Francisco, USA, 2 University of California, San Francisco, USA

Opponents of water fluoridation claim hexafluorosilicic fluosilicic acid used in water fluoridation does not dissociate completely, specifically lowering pH, leaching lead from pipes, and thereby increasing lead exposure from ingested fluoridated water. OBJECTIVES: 1) assess the relation of fluoride concentration (F) to pH level in drinking water collected in the San Francisco Bay area (SFBA) before and after the addition of hexafluorosilicic acid, and 2) assess the relation

of lead concentration (Pb) and pH level from San Francisco Public Utility Commission (SFPUC) and Presidio Water Plant (PWP) data. METHODS: Drinking water samples (98) were collected in SFBA, from both fluoridated and nonfluoridated sites, in 50mL capped plastic tubes, labeled with random numbers. Collection sites were recorded separately and samples analyzed under blinded conditions. pH was measured <8 hours from collection. F was measured using fluoride ion electrode and a standard curve. Pb was determined using Graphite Furnace Atomic Absorption on 731 water samples SFPUC collected from 1992-2001 as a monitoring program. Pearson correlation estimated the association of pH with F. Partial Pearson correlation estimated the association of pH with Pb after adjusting for area (SFPUC/PWP) and date. Loess (local polynomial regression) smoothing examined departure from linearity. RESULTS: The correlation for F and pH level was 0.287 ($p = 0.004$), showing pH increased as F increased. The partial correlation for Pb and pH level was -0.043 ($p = 0.244$), not significant. Loess did not indicate departure from linearity. CONCLUSIONS: Water fluoridation using hexafluorosilicic acid is not associated with an acidity increase at the tap site. Fluoride concentration was modestly related to the pH level, but in the opposite direction that some opponents to water fluoridation previously claimed. In our samples there was no correlation between lead and pH levels. (Support: NIH Training Grant T35 DE07103 and U54 DE14251).

Seq #63 - Fluoride Treatments, Fluorosis 1:45 PM-3:45 PM, Thursday, 13 March 2003 Henry B. Gonzalez Convention Center Room 210"

B. Reliability of Le *et al*'s evidence refuting Coplan and Masters.

Although the presentation by Le *et al* is supposed to refute "criticism" of fluoridation by "opponents," the abstract is entirely devoted to plumbing corrosion issues distinguishing SiFW from untreated water. Our published articles are not particularly concerned with this issue, but it is hard to specify other research that is likely to be the subject of the Le *et al* research. However, in this case, as in the first Abstract, effects that are ostensibly reported by us are neither emphasized in our publications nor central to our conclusion that SiFs are associated with harmful effects on health and behavior. Indeed, in this instance, there is specific published evidence demonstrating that enhanced leaching of lead from household plumbing SiFs cannot be central to the data we have presented.

The Le *et al* Abstract begins by listing four claims attributable to "opponents of fluoridation" and inferentially also to be found in reports by Coplan and Masters:

First, "hexafluorosilicic acid used in water fluoridation does not dissociate completely;"
Second, silicofluoride has the effect of "specifically lowering pH;"
Third, this results in "leaching lead from pipes;"
Fourth, the second and third chemical actions have the effect of "increasing lead exposure from ingested fluoridated water."

Of these four statements, we unequivocally support the first one in light of empirical evidence of Westendorf (1975) and others (Rochow, 1973; Rochow, 1973; Edelman & Chow 1973; Busey et al, 1980; Kolthoff & Stenger, 1947). Thus, our position is based on scientific data not merely theoretical calculations or biased assertions. Regarding the last three claims attributed to us, we would respond by starting with a quote from the 1994 edition of the CDC Water Fluoridation Manual for water plant operators (Featherstone, 2000):

“The increase in the corrosivity of potable water as a result of the addition of the fluorosilicic acid or sodium fluorosilicate is negligible for most water systems, but where it is significant, it can be reduced by adding small amounts of lime or caustic soda.”

One would imagine that this caveat should speak for itself, but either its message has fallen on deaf ears or people who ought to know more about the subject aren't well informed. Le *et al* would not be alone in that respect, as is evident from the following:

(1). A 1997 letter written by the Senior Toxicologist and Chemical Manager for Fluorides at the ATSDRⁱⁱ claimed that it is not necessary to add neutralizing agents when sodium fluosilicate (the sodium salt of fluosilicic acid) is used because it is already in the form of a neutralized substance. That position is so far from a true appreciation of the intricacies of SiF dissociation that its author and his superiors, as government “experts” in the agency that promotes fluoridation, are guilty of ignorance that may well border on criminal negligence.

In sodium fluosilicate, the dissociation of the silicofluoride anion has yet to occur. When it does dissociate upon solution and dilution in water, twice as much acidity is produced than that which was neutralized in the initial conversion of fluosilicic acid into sodium fluosilicate. Thus, complete dissociation of sodium fluosilicate requires at least as much as 66% of the amount of neutralizer required to off-set the total acidity produced by the use of fluosilicic acid itself.

(2). In 1998 one of us (MJC) interviewed water plant managers in communities that draw their water from the Great Lakes. All of them used fluosilicic acid. None of them added neutralizer to deal with the acidity it produces because they believed that the lake water they were taking into their system at pH around 7 was “buffered” enough not to require any further attention to pH control.

(3). Tacoma fluoridates with fluosilicic acid. In 1993 it had a problem with water lead. In a well-managed protocol for measuring “90th percentile First Draw water lead” as required by the EPA's “lead/copper rule” Tacoma's water was found to have 32 parts per billion of lead. For unexplained reasons the fluoridation plant was shut down for six months. Water lead testing was repeated with the result that the lead level was then found to be 14 ppb. The measured pH at both times was 6.6

(4). In 1998, the Massachusetts Water Resource Administration (MWRA) announced its intention to start a "lead abatement program." The MWRA delivers water treated with fluosilicic acid to 2.5 million people in 28 communities including Boston. It pumps that water from a major pumping station through a 17-mile long tunnel built in 1944. The Hultman Aqueduct, hailed as an engineering marvel at that time, comprises over 5,500 reinforced concrete tubes ten feet long and ten feet in diameter joined together with lead seals weighing about a ton each. For some significant unspecified time the aqueduct was "leaking like a sieve."

During the period of interest, lead in the water of some mains under Boston streets was tested at over 50 ppb without ever coming into contact with lead service lines or inside plumbing. Without admitting responsibility for failure to deal with the "corrosivity of potable water as a result of the addition of the fluorosilicic acid" (quoting the CDC Manual cited above: Reeves, 1994), the MWRA started to add soda ash to its water in 1999 to raise its pH to 9. That's a very interesting development.

"Neutral" water has a pH 7. If mere "neutrality" is the answer to reduced corrosivity, why bother to add neutralizing agent to a pH 9 (100 times more alkaline than neutral)? That makes water "slippery" enough to be detectable. Is it possible that MWRA has learned what others have reported, namely that complete dissociation of the SiF anion does not occur in the usual pH range attained in water plants?

Without challenging the empirical findings of *Le et al* studies of water lead in the San Francisco Bay Area, we submit that such data are not reliable indicators of what the rest of the country has experienced using SiF fluoridating agents.

C. Relevance of *Le et al* to work of Masters and Coplan

Our published work does not state that the major problem with SiFs is that they increase the lead burden in potable water. That may or may not occur, but the SiF role in elevated blood lead is much more subtle. Our evidence suggests that SiFs leave behind some incompletely dissociated residual species that, when present with lead in the gut that got there from any source, enhances lead transport from the gut into the bloodstream. This hypothesis does not exclude the possibility that SiFs may also carry a small amount of contaminating lead. Nor does it conflict with the CDC's own warning that inadequate water plant treatment of SiFs may exacerbate lead corrosion. But we have little evidence of our own that these are important.

Our study of children's blood lead levels in New York State, for example, took no account of lead levels in public water supplies since relevant data were not available for analysis. Be that as it may, we found that the effect of SiF usage was to enhance the danger of other risk factors for high blood lead. Odds Ratios for blood lead > 10µg/dL were consistently 1.5-2.5 comparing communities above and below the median of several known factors associated with high blood lead.

Along with our data on children's blood in Massachusetts and the NHANES III

program, our results for New York State communities of population size 15,000 to 75,000 consistently showed that whatever the other environmental threat, SiFs had an independent association with higher blood lead - and that this effect was especially severe for Black children. As further evidence that the data produced by Le *et al* are not relevant to our work, it will be useful to quote from the final comment in the Discussion section of our study of children's blood lead levels in New York state (Masters, Coplan, Hone & Dykes, 2000):

"Finally, our findings ... indicate that SiF water probably exacerbates the risks of absorbing lead from other known environmental risk factors... For example, when the presence or absence of SiF water treatment is considered along with other risk factors for lead uptake dichotomized at sample median, the analyses of variance often show a significant interaction term ($p < .05$). Moreover, sometimes these interaction effects are different for children of different races. Whereas many studies of environmental toxins assume that variables of concern are causally independent, more attention thus needs to be devoted to multifactorial, interactive models of neurotoxicity...."

Nothing in our published articles on SiFs and blood lead is rebutted by the data collected by Le, *et al*. Indeed, when comparing our publications with their statement of the "objections" to SiFs, one can only wonder how they could imagine that leaching lead from water pipes was central to the mechanism on which our findings depend.

The issue goes even further, since our work seeks to link neurotoxicology and behavior in a manner dependent on recent findings in biochemistry and cognitive neuroscience. Dentists, of course, are generally unaware of research in these fields. The first two paragraphs of the Conclusion of our paper on children's blood lead levels in New York State illustrate how Le *et al* fail to address the mechanisms we have postulated as responsible for increased rates of educational failure, substance abuse, violent crime or physical health risks which we have been analyzing.

IV. Conclusion

There are two principal reasons for juxtaposing two Abstracts prepared for presentation of a meeting of the American Association for Dental Research in March 2003 with the research they purport to have refuted:

FIRST, the dangers of substituting SiFW for NaFW cannot be dismissed on the basis of unreliable evidence and irrelevant criticisms springing from a lack of understanding of the complexity of contemporary biochemistry and environmental toxicology.

SECOND, one cannot avoid asking why research focusing on two "red herrings" was undertaken and is being presented to the AADR/IADR. The actual work underlying these presentations is the first empirical effort to assess the safety of silicofluorides by the dental community. It is at least a gesture at abandoning the assumption that all F

compounds used in water supplies can be treated as though identical with NaF which has been tested. On the other hand, avoidance of all of the crucial issues that our research has identified, leads one to conclude that some members of the public health professions seek to justify existing practices and provide a rationale for dismissing our work without considering it in the light of objective evidence.

The reason for making these points is that the health and learning ability of American children and the safety of American communities are at stake. Although some might raise questions of scientific integrity, our concern is focused on the dangers of flawed "science" to our society. As a seasoned chemical engineer (MJC) and a specialist in neurotoxicology and behavior (RDM), we have not approached the issues related to silicofluoride usage as "antifluoridationists." Whatever the benefits to dental health may be from the use of fluorides, our concern is focused on evidence that adding fluosilicic acid or sodium silicofluoride to drinking water is also harmful.

Given such findings as the statistical pattern of higher rates of violent crime where these chemicals are used, it is important that a moratorium be declared on their use until multiple independent tests of the chemistry and biological effects of these compounds has definitely demonstrated their safety. Sloppy thinking, such as operating on the premise that the only health issue is how much F can be detected in soft tissue, or the only mechanism of harm is leaching of lead from plumbing will not suffice to protect our children from exposure to an environmental toxin that threatens their physical health, intellectual capacity, and rational behavior.

Beyond unanticipated adverse health consequences, however, there is also a question as to the efficacy of water fluoridation (Colquhoun, 1997). A substantial body of knowledge was recently summarized by a leading dental research scientist (Featherstone, 2000), confirming the fact that the benefits of fluoride are only achieved by its presence on the outer surface of tooth enamel and not by digestion. Moreover, topical application of fluoride was known to be effective 65 years ago (Bibby, 1964). These facts are important to public policy in light of recent evidence (Burt, Keels & Heller, 2000; Kunzel and Fischer 21000; Seppa & Karkkainen, 2000) and reliable health authority opinion that stopping fluoridation in large cities for unknown periods of time would "...not have a significant impact on dental health..."ⁱⁱⁱ

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NOTES

ⁱ Westendorf's chemical studies of silicofluorides are particularly central since such studies were never conducted in the U.S. For an English translation of this work, see <http://www.dartmouth.edu/~rmasters/ahabs/>. Although this research was conducted to prove the effectiveness of water fluoridation and available in abridged form in a prominent German scientific journal (Knappwost & Westendorf, 1975a, b), it is interesting that neither proponents nor critics of water fluoridation in the United States took note of it before we translated it and made it available on the internet.

ⁱⁱ Letter from John F. Risher, Senior Toxicologist and Chemical Manager for Fluorides, ATSDR Division of Toxicology, to Roger J. Wade, Director of Public Health, Natick, MA., August 4, 1997.

ⁱⁱⁱ T. R. Frieden, New York City Health and Mental Hygiene Commissioner, quoted by C. Sturcken in "New York City DEP Will Cease Fluoridation of Catskill/Delaware Water Supply System for Four Months to Complete Infrastructure Work," News Release issued by the NYC Dept of Environmental Protection Jan 17, 2003 <http://www.nyc.gov/html/dep/html/press/03-05pr.html>

Publications on Neurotoxicity, Silicofluorides, and Behavior

Masters, R., Hone, B, and Doshi, A. (1998). "Environmental Pollution, Neurotoxicity, and Criminal Violence," in J. Rose, ed., *Environmental Toxicology: Current Developments* (London: Gordon and Breach, 1998), pp. 13-48.

Survey of evidence linking lead and manganese neurotoxicity to aggressive behavior and crime, presenting multivariate analysis correlating Toxic Release Inventory for lead and manganese with crime data for 1991 from all 3141 US counties. Emphasizes effects of heavy metals on neurotransmitter function and behavior.

Masters, Roger D., with Baldwin Way, Brian T. Hone, David J. Grelotti, David Gonzalez, and David Jones (1998) "Neurotoxicity and Violence," *Vermont Law Review*, 22:358-382.

Legal implications of the evidence linking neurotoxicity and crime (including data from Toxic Release Inventory and crime for partial sample of US counties)

Masters, R. and Coplan, M. (1999a) "Water Treatment with Silicofluorides and Lead Toxicity," *International Journal of Environmental Studies*, 56: 435-49

First published analysis of data linking silicofluoride treatment of public water supplies with higher uptake of lead, focused on survey of children's blood lead in Massachusetts (by town).

Masters, R. and Coplan, M. (1999b) "A Dynamic, Multifactorial Model of Alcohol, Drug Abuse, and Crime: Linking Neuroscience and Behavior to Toxicology," *Social Science Information*, 38:591-624.

Articulation of the linkages between neurotoxicity, brain chemistry, environmental pollution, and behavior (with focus on substance abuse and crime), using data from National Institute of Justice study of drug use in over 30,000 criminal offenders at time of arrest). Data show that where silicofluorides are in use, criminals are more likely to consume alcohol, more likely to have used cocaine at time of arrest – and that communities have significantly higher crime rates.

Coplan, M.J. and Masters, R.D. (1999). "Is Silicofluoride Safe? Comments Re EPA Response to Rep. Calvert's Inquiry" Submission to Representative Kenneth Calvert, Subcommittee on Energy and Science, Committee on Science, U. S. House of Representative (August 12, 1999).

Analysis and rejoinder to letter dated 12 June 1999 from J. Charles Fox, Assistant Administrator, EPA, to Hon. Kenneth Calvert, U. S. House of Representative,

commenting on errors and omissions in a "Question and Answer" statement and "Fluorosilicate Fact Sheet" enclosed by Mr. Fox. This document contains a preliminary review of scientific data on the differences between sodium fluoride (NaF) and the silicofluorides (H_2SiF_6 and Na_2SiF_6), with an emphasis on the complex production process and chemical interactions of the latter compounds.

Masters, R. D. and Coplan, M. J., with Hone, B.T., Grelotti, D. J., Gonzalez, D. and Jones, D. (in press). "Brain Biochemistry and the Violence Epidemic: Toward a 'Win-Win' Strategy for Reducing Crime," in Stuart Nagel, ed., *Super-Optimizing Examples Across Public Policy Problems* (NOVA Science Publishers) (in press).

Review of the evidence linking neurotoxicity and crime, using data from both county-level study (correlating EPA Toxic Release Inventory with FBI crime reports) and Massachusetts data on silicofluorides and lead uptake.

Masters, R.D., Coplan, M. J., Hone, B.T., and Dykes, J.E. (2000). "Association of Silicofluoride Treated Water with Elevated Blood Lead," *Neurotoxicology* 21: 101-1100.

Follow-up epidemiological study of the association between silicofluoride treated community water and enhanced child blood lead parameters. This statistical study of 151,225 venous blood lead (VBL) tests taken from children ages 0-6 inclusive, living in 105 communities with populations from 15,000 to 75,000 in New York state, shows for every age and racial group a significant association between silicofluoride treated community water and elevated blood lead.

Masters, Roger D. (2001), "Biology and Politics: Linking Nature and Nurture" in Nelson W. Polsby, ed., *Annual Review of Political Science*, vol. 4, pp. 45-369.

A survey of the scope of the emerging subfield called "biopolitics," reflecting the activities of the membership of the Association for Politics and the Life Sciences. Four areas are discussed in some detail: 1). genetics and health; 2), toxins and behavior (including hyperactivity, depression, and violent crime), 3) the specific case of silicofluorides in water treatment and their effect in enhancing lead uptake; and 4) biopolitics and political theory.

Note: one-time e-print available at following URL:

<http://polisci.annualreviews.org/cgi/content/full/4/1/345?ijkey=0K1GnNcUKf2Gg&keytype=ref&siteid=arjournals>

Coplan, M. J. and Masters, R. D. 2001. "Guest Editorial: Silicofluorides and fluoridation," *Fluoride Quarterly Journal of the International Society for Fluoride Research*, 34: 161-220.

Masters, R.D. "MacLean's Evolutionary Neuroethology: Environmental Pollution, Brain Chemistry, and Violent Crime," in Russell Gardner and Gerald Cory Jr., eds., *The Evolutionary Neuroethology of Paul MacLean: Convergences and Frontiers*. (N. Y.: Praeger/Greenwood, 2002), pp. 275-296.

Survey of research on neurotoxicity, brain chemistry and behavior, including evidence of the role of lead and other heavy metal pollution and crime (as demonstrated by individual data, neurochemistry, and both geographic and longitudinal data) as well as survey of data linking silicofluorides to enhanced lead uptake. Behavioral effects of lead, particularly due to the special vulnerability of pregnant mothers and newborns to lead toxicity, is supported by findings on the extremely high correlation ($r = .90$) between gallons of leaded gasoline sold and the crime rates sixteen to eighteen years later.

IN PRESS or UNDER SUBMISSION

Roger D. Masters, "The Social Implications of Evolutionary Psychology: Linking Brain Biochemistry, Toxins, and Violent Crime," in Richard W. Bloom and Nancy K. Dess, eds., *Evolutionary Psychology and Violence: A Primer for Policymakers and Public Policy Advocates* (N.Y.: Praeger/Greenwood), Chapter 2, in press.

The lasting value of Paul MacLean's view of the triune brain (emphasizing the essential role the limbic system and hence emotion in human thought and behavior) is evident in findings of the behavioral consequences of alterations of brain chemistry due to environmental toxins. Earlier studies have shown that uptake of lead and manganese (which downregulate the function of the neurotransmitters dopamine and serotonin) is a risk factor in violent crime. Research summarized here has indicated that public water supplies treated with silicofluorides not only enhance uptake of lead from environmental sources (such as older housing with lead paint), but are significant risk factors for higher rates of violent crime in American communities. By terminating the use of silicofluorides, which have never been tested for safety, policy makers thus could probably improve social behavior (lowering rates of hyperactivity and substance abuse as well as rates of violent crime) at virtually no cost.

Masters, R.D. "Neurotoxins and Behavior: Applications of 'Toxicogenomics' for Public Policy," under submission to *NeuroToxicology*.

Many toxicants modify neurotransmitters with effects depending on genotype, development, and experience. For example, lead and manganese down-regulate dopaminergic or serotonergic function, weaken behavioral inhibition, and are positively correlated with hyperactivity (ADHD), substance abuse, or violent crime. Data are summarized linking: 1) children's blood lead levels with poor educational performance, 2) hair and blood levels of heavy metals with violent

crime, 3) harmful effects where silicofluorides are added to public water supplies, and 4) uptake of multiple toxicants with pollution from abandoned mines. Policy recommendations follow.

Web-site:

Overall site for Roger Masters' research: <http://www.dartmouth.edu/~rmasters/>
Address for research (with M. J. Coplan) on health and behavioral effects of silicofluorides: <http://www.dartmouth.edu/~rmasters/ahabs>

NOTE: this site includes an English translation of Westendorf's research (1975) on effects when silicofluoride is added to water.

IN PREPARATION

Roger D. Masters, "Science, Bureaucracy, and Public Policy: Can Scientific Inquiry Prevail Over Entrenched Institutional Self-Interest?" prepared for presentation at the 2002 annual meeting of the Association for Politics and the Life Sciences, Boston, MA. (AUG. 2002).

Critique of CDC's August 2001 publication of *Recommendations for the Use of Fluorides*, which recommends expansion of water fluoridation without reference to the scientific studies challenging this policy. This publication fails to mention the specific chemicals used in fluoridating public water supplies, whereas it describes the compounds used in toothpaste, tooth varnishes and gels, and mouthwash. The omission does not seem to be accidental since the CDC report carefully avoids any discussion of potential harmful effects of adding fluosilicic acid or sodium silicofluoride to public water supplies.

Myron J. Coplan and Roger D. Masters, "Is Water Fluoridation with Silicofluorides Hazardous? A New Issue Linking Science and Public Policy"

Neither side in the ongoing debates on fluoridation has considered that the silicofluoride chemicals ("SiFs") added to the drinking water of 150 million US residents do not deliver free fluoride ion ("F") "just like" sodium fluoride (NaF), the first compound used for that purpose when fluoridation began in 1945. The switch to SiFs was made in 1947 without any tests for possible adverse health effects. Reports of such effects having now been published, fluoridation proponents have for the first time in over 50 years done some laboratory studies on SiFs, the compounds they advocate for public consumption. The competence of these studies, explored below, suggests ab initio bias, not objective science.

Masters, Roger. "Silicofluoride Toxicity and Behavior: A Case Study of Science and Public Policy"

Dangers of gaps between policy-making and scientific research are illustrated by new findings that challenge habitual assumptions shared by both sides in debates over "fluoridation." Although originally accomplished by adding sodium fluoride to water supplies, today over 90% of fluoridated water in the U.S. is treated with two untested toxins (fluosilicic acid or sodium silicofluoride). The difference matters since recent studies show significant association between exposure to silicofluorides and harm to health and behavior. Inability to focus public debate on research showing unexpected risks illustrates the need to reinforce interdisciplinary links in universities as well as in policy-making.

Presentations to Scientific Conferences:

Masters, R.D. and Coplan, M.J. "Silicofluoride Usage and Lead Uptake," Presentation to XXIIInd Conference of the International Society for Fluoride Research, Bellingham, Washington, August 24-27, 1998.

Report on findings of elevated blood lead associated with communities using silicofluoride, based on sample of over 250,000 children in Massachusetts (see Masters and Coplan, 1999a)

Masters, R.D. and Coplan, M.J. "The Triune Brain, the Environment, and Human Behavior," to appear in Gerald Corey, ed. *Festschrift in Honor of Paul MacLean*. (first presented a meeting at Back Bay Hilton Hotel, Boston, Mass. – July 16, 1999 (see Masters and Coplan, 1999c).

Masters, R. D. . "Poisoning the Well: Neurotoxic Metals, Water Treatment and Human Behavior," Plenary address to Annual Conference of the Association for Politics and the Life Sciences," Four Seasons Hotel, Atlanta, GA (September 2, 1999).

Review of evidence linking heavy metal pollution with substance abuse and crime, including presentation of data linking ban on sales of leaded gasoline with decline in crime 16 years later. Summary of geographical data analyses contradicting the "null hypothesis" that there is no difference in the effects of sodium fluoride and the silicofluorides.

Coplan, M. J., Masters, R. D., and Hone, B. (1999) "Silicofluoride Usage, Tooth Decay and Children's Blood Lead," Poster presentation to Conference on "Environmental Influences on Children: Brain, Development and Behavior, New York Academy of Medicine, Mt. Sinai Hospital, New York, May 24-25, 1999.

Preliminary report on data from analysis of national sample of over 4,000 children in NHANES III, showing that while water fluoridation is associated with a significant increase in children's blood lead (with especially strong effects among minority children), data on tooth decay from the same survey show limited benefits that are no longer evident among those aged 15-17.

Coplan, M.J., Masters, R.D., and Hone, B. (1999) "Association of Silicofluoride Treated Water with Elevated Blood Lead," Poster presentation to 17th International Neurotoxicology Conference, Little Rock, AR, October 17, 1999

Preliminary report on data from analysis of sample of blood lead testing of over 150,000 children in New York State communities of 15,000 to 75,000 population. Once again, average blood lead levels were significantly higher ($p < .0001$) in communities using silicofluorides in water treatment than in those with unfluoridated water. The effect was found independently in every age group for three ethnic subsamples

Roger D. Masters, "Behavioral Effects of Water Toxicity: An Unexpected Problem in Experimental Methodology," Presented to Annual Meeting of Human Behavior & Evolution Society, Rutgers University, June 21, 2002:

Analysis of the experimental studies of Crabbe et al, who conducted six identical behavioral experiments on eight strains of mice in three laboratories. Although the reason for differences in results between Edmonton, Alberta and either Albany, NY or Portland Oregon was not clear, local tap water was used in all three sites. In Edmonton, public water supplies are treated with fluosilicic acid, whereas the other two experimental sites are in communities whose water is not fluoridated. Because the behavioral differences observed were consistent with the effects of silicofluorides in human populations, it is plausible to suggest that this factor may have been responsible for the experimental outcomes. As this hypothesis suggests, use of public water supplies containing behavioral toxins could be an unexpected confounding variable in experimental psychology.

Masters, R.D. "Neurotoxins and Behavior: Applications of 'Toxicogenomics for Public Policy,'" presented to XXth International NeuroToxicology Conference ("Emerging Issues in Neurotoxicology," Little Rock, ARK (Nov. 19, 2002).

Many toxicants modify neurotransmitters with effects depending on genotype, development, and experience. For example, lead and manganese down-regulate dopaminergic or serotonergic function, weaken behavioral inhibition, and are positively correlated with hyperactivity (ADHD), substance abuse, or violent crime. Data are summarized linking: 1) children's blood lead levels with poor educational performance, 2) hair and blood levels of heavy metals with violent

crime, 3) harmful effects where silicofluorides are added to public water supplies, and 4) uptake of multiple toxicants with pollution from abandoned mines. Policy recommendations follow.

Public Hearing on SB 530 Mar 2, 2004

SPEECH BEFORE THE PUBLIC HEALTH & WELFARE COMMITTEE
BY JOE WALKER

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Thank you for allowing me to speak to you. Everyone wants to help remedy the dental problems in our children. The difference is that we opposed to fluoridation (F), want to attack the real causes, which is not the lack of F. F is, and always has been ineffective. The entire F movement has rested, like a giant inverted pyramid, on two studies by Dr. Dean. They were the "Galesburg-Quincy study of 1938, and the "21 cities" done in 1939-40. On these was based the hypothesis of a 60-70% decay reduction if F wa implemented, and this was tested in the "experiments" at Grand Rapids, Newburgh, N.Y., & Branford, Ont. These experiments had no other base. By 1972, the hypothesis had been discredited. Dean testified under oath in two court cases, Orville 1955, and Chicago 1960 that the criteria for his studies had not been met and his results were in error. Newburgh fluoridated, was to be compared with Kingston, N.Y., non-F, for a 50 yr study. The results of that study: little or no difference in tooth decay, but Newburgh had a higher rate of dental fluorosis. Six major F and non F cities studied in New Zealand, same result. In Missouri, 6000 children compared in F and non F areas, same results: little if any difference. A major study done in the U.S., in 1986-87, of 39,207 children in 84 geographical areas at a cost of 3 million, showed no difference between F & non-F areas. This was done by the USPHS in an apparent attempt to justify F. When it didn't, the results of that study had to be obtained through the Freedom Info Act. Dr. Hardy Limeback, PhD in bio Chemistry, D.D.S., Head of Preventive Dentistry at the Univ of Toronto, and President of the Canadian Ass. of Dental Reaseach, in apologizing to the faculty and students because he had been misleading them for 15 years promoting F, stated, "Toronto has been F 38 yrs, yet Vancouver, never F., has a cavity rate lower that Toronto's. The ADA reported dentists make 17% more profit in F areas as opposed to non-F areas. It should be lower! (JADA, 1972)

Senate Public Health & Welfare Committee
Attachment 5
Date: March 2, 2004

2

Two dentists in Wichita seized the 2001 Oral Report Card of the states to point out that Ks' got a low grade on oral health of the children because of no F. They failed to cite in the same report, that out of nine states that got a F grade for no F., seven got a A for the children. Three states that got top marks for being F., Mich, Mn, and So. Carolina, only got a c grade.

Several F cities, Boston 22 yrs, NYC's Harlem 35 yrs, Seattle 30 yrs, Oakland 29yrs, and Tacoma 11 yrs, are declaring a tooth decay crisis! The clincher that F doesn't prevent cavities, comes from non other than the two biggest promoters: the CDC in 2001 admitting any benefits are topical, not systemic, and the ADA in their July 2000 JADA, which said ingestion of fluoride does not provide any significant reduction of tooth decay- that any beneficial effect is a result of topical application directly to the tooth. Obviously, the presence of F does not prevent cavities, nor its absence cause cavities. This is one of many reasons why many organizations previously supportive of F, no longer endorse it. Some of these are the FDA, USDA, Food & Nutrition Board, Mayo Clinic, National Cancer Institute, Society of Toxicology, Am. Diabetes Ass. Royal College of Physicians, (London)NY Academy of Medicine and others.

The Boston Globe pointed out that Mass has 4,700 dentists in the state, but only 800 take patients with medicade (known as Mass Health). This is a problem nationwide. Thus, this and a myriad of causes, baby bottle decay, poor nutrition, too much soda pop, lack of dental care , no brushing; these are what needs to be addressed. F. is no part of that equation.

Some dentists did a honorable service when they voluntarily went to western Ks to provide dental service to children who were not getting it. Instead of grant money being misused for F, it should be used for this type of dental care.

Instead of withholding grant money from Health agencies if they don't add F., the state should prohibit grant money being used for F and stipulate it be used to supplement dental care.

3

With all the evidence against fluoridation and the promoters admitting the inefficacy of adding fluoride to the water system, it is totally absurd to even consider it . This bill is unwarranted, egregious, and unjustified. I urge you kill it in committee. Thank You.

Joe Walker
206 No. Edwards
Wichita Ks 67203-5622
943-6283

Jan 4, 2003

Readers' Views
The Wichita Eagle
P.O. Box 826
Wichita Ks 67201

The Eagle, the grant money people, and the Health Board's adamant attitude in ignoring the evidence against fluoridation borders on the arrogant! What don't you understand about "NO?" Three times we said no in Wichita and four times in the State Legislature. Since this round started with the Eagle in 1997, the Eagle has carefully avoided printing any in depth evidentiary letters against F, in Sunday's Edition, albeit you did print brief e-mails on Sept 29, 1999 which ran 10-2 against.

Fluoridation is supported by the hypothesis that the concentration of F in drinking water is inversely related to tooth decay. By 1972, the hypothesis had been discredited. The last to do so was a peer reviewed report in none other than the July 2000 JADA. It said that ingestion of fluoride does not provide any significant reduction in the incidence of tooth decay—that any beneficial effect is a result of topical application directly to the tooth. And another advocate of F, the CDC, stated in an Aug 17, 2001 report, "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 caries." Well DUE!

Two dentists seized the Oral Health Report card of the states to support F, citing Ks low grade was because we lacked F. They failed to cite that out of nine states that got an f grade for no F, seven got an A for oral health of children, and 3 states that got top marks for F only got c grade. The indisputable fact is F doesn't prevent cavities, nor does the lack of it cause cavities. This has been proven over & over by comparing F cities with non-F cities. Five cities that we know are declaring a tooth decay epidemic have been F from 11-35 years.

The real causes, inadequate diets, and lack of dental care because roughly 80% of dentists in the U.S., refuse to treat children on Medicaid, should be addressed. This is where grant money should be used, instead of the "band aid" approach of F which harms the poor children we mean to bless.

The Eagle's beautiful cover on Christmas, & New Years wishes are appreciated, but are they sincere? Where is your compassion for diabetics, people with kidney and cardiovascular problems, elderly people with deficiency of calcium, magnesium, and/or vitamin c? The USPHS said they are at risks of adverse toxic effects of F.

As Co-Host of the Tucker Auto Club convention here in 1994, I was asked in advance if Wichita was F, and if so, was bottled water available. They were pleased to learn we were fluoridation free. The tourism Bureau could use that fact to attract conventions. It will indeed be a Happy year for all when the Eagle & others recognize they've been misled, and we elect candidates who will keep Wichita fluoridation free!

Respectfully,

Joe Walker
Joe Walker

206 No. Edwards
Wichita, Ks 67203-5622
943-6283

5-4

Feb 25, 2004

The Honorable Susan Wagle
State Senate of Ks
State Capitol 128 So.
Topeka Ks 66612

Dear Senator Wagle,

I understand SB 530, to dictate fluoridation (F) has been forwarded to your committee. This bill is nothing more than attempt by the promoters of F to circumvent the wishes of the citizens who have already voted against it. Four times in the legislature, 1970, 1973, 1975, & 1996, and three times in Wichita it has been defeated. Enough is Enough!

For 55 years, the F mantra has been "Safe & Effective." For 55 years it has been neither. As you are busy, it is not my intent to deluge you with all the evidence against F, but I am enclosing a piece written by Dr. Paul Connett, Chemistry Prof at St. Lawrence University, that answers the falsehoods of F. I'm also enclosing a copy of a letter I wrote to the ~~Wagle~~ Wagle Jan 4, 2003 which they didn't print. Enclosed too, is a brochure of the highlights of Dr. William Hirzy's Congressional Testimony of Jan 29, 2000.

Hopefully your committee will have the presence of mind to defeat this bill without a hearing because we've been there before and the pushers of the bill are hoping everyone against it won't show up and the hearing will be stacked in favor.

Late News: Honolulu (pop: little larger than Wichita) just passed an ordinance banning F., which brings the total since 1990 to about 120. The city of Escondido Calif citizens have filed a class action lawsuit against the city for implementing F against their will; scheduled to go before a jury this spring. Contributing to Ex Gov Davis downfall was that he signed into law mandating F for all CA. cities (10,000 or more). Many cities had referendums in place against F., LA being one of them. I urge you and the committee members to defeat this bill. Thank you for your time and consideration.

Respectfully Yours,

Joe Walker

Joe Walker

206 No. Edwards
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**The Absurdities of Water Fluoridation
This Practice Is Unethical, Unnecessary, Ineffective, Unsafe, Inequitable
and Undefendable.**
by Paul Connett, Ph.D.

Water fluoridation is a peculiarly American phenomenon. It started at a time when asbestos lined our pipes, lead was added to gasoline, PCBs filled our transformers, and DDT was deemed so "safe and effective" that officials felt no qualms spraying kids seated at picnic tables. One by one all these chemicals have been banned, but fluoridation remains untouched.

For over 50 years US government officials have enthusiastically claimed that fluoridation is "safe and effective." However, they are seldom prepared to defend the practice in open public debate. Actually, there are so many arguments against fluoridation that it can get overwhelming. To simplify things it helps to separate the arguments into several simple categories.

Fluoridation is UNETHICAL because:

- 1) It violates the individual's right to informed consent to medication.
- 2) The municipality cannot control the dose to the patient or track each individual's response.
- 3) It ignores the fact that some people are more vulnerable to fluoride's toxic effects than others.

As stated by the recent recipient of the Nobel Prize for Medicine (2000), Dr. Arvid Carlsson: "I am quite convinced that water fluoridation, in a not-too-distant future, will be consigned to medical history...Water fluoridation goes against leading principles of pharmacotherapy, which is progressing from a stereotyped medication - of the type 1 tablet 3 times a day - to a much more individualized therapy as regards both dosage and selection of drugs. The addition of drugs to the drinking water means exactly the opposite of an individualized therapy."

Fluoridation is UNNECESSARY because:

- 1) Children can have perfectly good teeth without being exposed to fluoride.
- 2) The promoters (CDC, 1999, 2001) admit that the benefits are topical not systemic, so fluoridated toothpaste, which is universally available, is a more rational approach to delivering fluoride to the target organ (teeth) while minimizing exposure to the rest of the body.
- 3) The vast majority of western Europe has rejected water fluoridation, but has been equally successful as the US, if not more so, in tackling tooth decay.
- 4) If fluoride was necessary for strong teeth one would expect to find it in breast milk, but the level there is 0.01 ppm, which is 100 times LESS than in fluoridated tap water (IOM, 1997).
- 5) Children in non-fluoridated communities are already getting the so-called "optimal" doses from other sources (Heller et al, 1997). Fluoridation is INEFFECTIVE because:

- 1) Fluoride's benefits are topical not systemic.
- 2) Major dental researchers also concede that fluoride is ineffective at preventing pit and fissure tooth decay, which is 85% of the tooth decay experienced by children (JADA 1984; Gray 1987; White 1993; Pinkham 1999).
- 3) Several studies indicate that dental decay is coming down just as fast, if not faster, in non-fluoridated industrialized countries as fluoridated ones (Diesendorf, 1986 and World Health Organization, Online).
- 4) The largest survey conducted in the US showed only a minute difference in tooth decay between children who had lived all their lives in fluoridated compared to non-fluoridated communities. The difference was neither clinically nor statistically significant (Brunelle & Carlos, 1990).
- 5) The worst tooth decay in the United States occurs in the poor neighborhoods of our largest cities, the vast majority of which have been fluoridated for decades.
- 6) When fluoridation has been halted in communities in Finland, former East Germany, Cuba and Canada, tooth decay did not go up but continued to

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go down (Maupome et al, 2001; Kunzel and Fischer, 1997, 2000; Kunzel et al, 2000 and Seppa et al, 2000).

Fluoridation is UNSAFE because:

- 1) It accumulates in our bones and makes them more brittle and prone to fracture. The weight of evidence from animal, clinical and epidemiological studies indicates that lifetime exposure to fluoride will contribute to higher rates of hip fracture in the elderly.
- 2) It accumulates in our pineal gland, possibly lowering the production of melatonin (Luke, 1997, 2001).
- 3) It damages the enamel (dental fluorosis) of a high percentage of children. Between 30 and 50% of children have dental fluorosis on at least two teeth in optimally fluoridated communities (Heller et al, 1997 and McDonagh et al, 2000).
- 4) There are serious, but yet unproven, concerns about a connection between fluoridation and osteosarcoma in young men (Cohn, 1992), as well as fluoridation and the current epidemics of both arthritis and hypothyroidism.
- 5) In animal studies fluoride at 1 ppm in drinking water increases the uptake of aluminum into the brain (Varner et al, 1998).
- 6) Counties with 3 ppm or more of fluoride in their water have lower fertility rates (Freni, 1994).
- 7) In human studies the fluoridating agents most commonly used in the US increase the uptake of lead into children's blood (Masters and Coplan, 1999, 2000).
- 8) The margin of safety between the so-called therapeutic dose for reducing dental decay and the toxic dose for many of these end points is either nonexistent or precariously low.

Fluoridation is INEQUITABLE, because:

- 1) The poor cannot afford to avoid it, if they want to, because they will not be able to purchase bottled water or expensive removal equipment.
- 2) The poor are more likely to suffer poor nutrition which is known to make children more vulnerable to fluoride's toxic effects (Marier & Rose 1977; ATSDR 1993; Teotia et al, 1998).
- 3) Very rarely, if ever, do governments offer to pay the costs of those who are unfortunate enough to get dental fluorosis which may require expensive treatment.

Fluoridation is INEFFICIENT and NOT COST-EFFECTIVE because:

- 1) Only a small fraction of the water fluoridated actually reaches the target. Most of it ends up being used to wash the dishes, flush the toilet or water our gardens.

(Fluoridation continued on page 13) 5-6

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(Fluoridation Continued from page 4)

2) It would be totally cost-prohibitive to use pharmaceutical grade sodium fluoride (the substance which has been tested) to treat the public water supply. Water fluoridation is artificially cheap because the fluoridating agent is an unpurified hazardous waste product from the phosphate fertilizer industry. Fluoridation is UNSCIENTIFICALLY PROMOTED. For example:

- 1) In 1950, the US Public Health Service enthusiastically endorsed fluoridation before one single trial had been completed.
- 2) The so called "optimal concentration" of 1 ppm has remained unchanged, even though today we get many more sources of fluoride.
- 3) The US Public health Service has never felt obliged to monitor the fluoride levels in our bones even though they know that 50% of the fluoride we swallow accumulates there.
- 4) Officials that promote fluoridation never check to see what the levels of dental fluorosis are in the communities before they fluoridate, even though this level indicates whether children are being overdosed or not.
- 5) Incredibly, The CDC's 1999, 2001 reports advocating fluoridation were both six years out of date in the research they cited to dismiss health concerns. Fluoridation is UNDEFENDABLE IN OPEN PUBLIC DEBATE.

The proponents of water fluoridation refuse to defend this practice in open debate because they know that they would lose that debate. A vast majority of US health officials who promote water fluoridation do so based upon someone else's advice and not upon their own study of the literature. Their position has more to do with faith than reason. Fluoridation, whether intended or not, has served to distract us from several key issues.

- a) The failure of one of the richest countries in the world to provide decent dental care for poor people.
- b) The failure of 80% of American dentists to treat children on Medicaid.
- c) The failure of the public health community to fight the huge over consumption of sugary foods by our nation's children, even to the point of turning a blind eye to the wholesale introduction of soft drink machines into our schools. Their attitude seems to be if fluoride can stop dental decay why bother controlling sugar intake.
- d) The failure to adequately address the health and ecological effects of fluoride pollution from large industry. Despite the damage which fluoride pollution has caused, few environmentalists see fluoride as a 'pollutant.'
- e) The failure of the US EPA to develop a Maximum Contaminant Level (MCL) for fluoride in water which can be defended scientifically.
- f) ~~The fact that more and more organofluorine compounds are being introduced into commerce in the form of plastics, pharmaceuticals and pesticides. Some of these compounds pose just as much a threat to our health and environment as their chlorinated and brominated counterparts, but are receiving less attention.~~

Unfortunately, because government officials have put so much of their credibility on the line defending fluoridation, it will be very difficult for agencies like the CDC to speak honestly about the issue. As with the case of

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mercury amalgams, it is difficult for institutions such as the American Dental Association to concede health risks because of the liabilities waiting in the wings if they do so. However, it is essential - in order to protect millions of people from unnecessary harm - that the US Government moves away from its anachronistic, and increasingly absurd, status quo on this issue. There are precedents. They were able to do this with hormone replacement therapy. Fortunately, a large data base of scientific information on this issue is readily available to citizens at www.fluoridealert.org. Most of the key studies (and references cited in this paper) are available at www.slweb.org/bibliography.html. With this new information, more and more communities are rejecting fluoridation at the local level. On the national level, there have been some hopeful developments as well, such as the EPA Headquarters Union coming out against fluoridation and the Sierra Club seeking to have the issue re-examined. However, there is still a huge need to make this the national issue it desperately needs to be. It is not going to be easy. Fluoridation represents a very powerful "belief system."

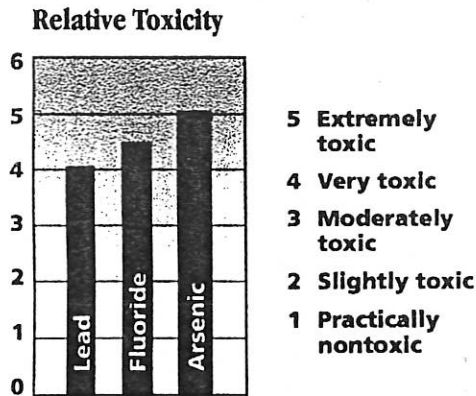
Dr. Paul Connett, Professor of Chemistry,
St. Lawrence University,
Canton, Ny 13617.

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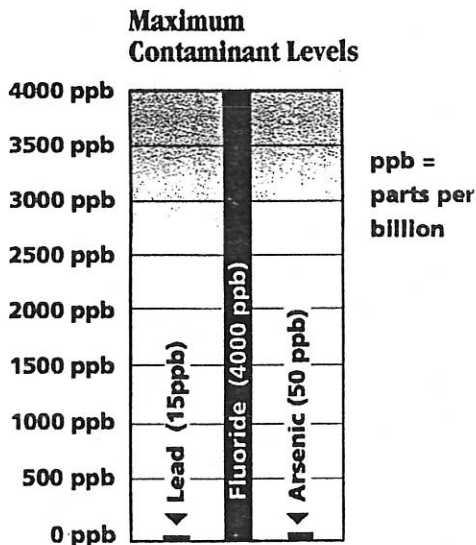
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What is wrong with this picture?

A comparison between the toxicity and maximum contaminant levels of lead, fluoride and arsenic



Based on LD50 data from Robert E. Gosselin et al, *Clinical Toxicology of Commercial Products* 5th ed., 1984



Standards established by the US Environmental Protection Agency

Two-thirds of kids in fluoridated communities display fluoride toxicity.

“According to a study by the National Institute of Dental Research, 66 percent of America’s children in fluoridated communities show the visible sign of over-exposure and fluoride toxicity, dental fluorosis... That effect occurs when children ingest more fluoride than their bodies can handle with the metabolic processes we were born with, and their teeth are damaged as a result. And not only their teeth. Children’s bones and other tissues, as well as their developing teeth are accumulating too much fluoride.”

Congressional Testimony by J. William Hirzy, Ph.D., Senior Toxicologist, representing the union of all professionals at U.S. EPA Headquarters, June 29, 2000

For more information, visit

www.fluoridealert.org

www.fluoridaton.com

www.citizens.org

www.earthisland.org/eijournal/fluoride/fluoride_index.html

To help keep our water pure, contact
Washington State Citizens
for Safe Drinking Water

360-556-1191 or typesmth@home.com
National contact: 1-800-728-3833

Question Fluoridation.

HIGHLIGHTS OF CONGRESSIONAL TESTIMONY ON FLUORIDE

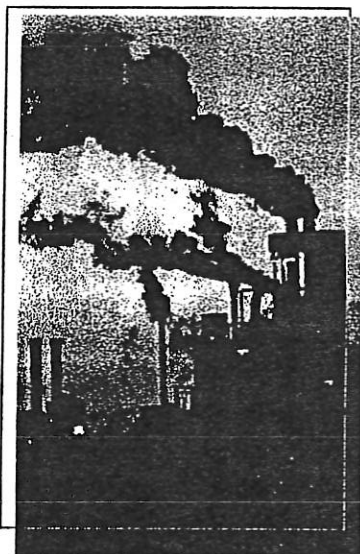


“Our lives begin to end the day we become silent about things that matter.”

Martin Luther King Jr.

Dr. J. William Hirzy, Senior Vice President of the union that consists of and represents all of the scientists and other professionals at EPA Headquarters, Washington, D.C. testified before the Senate Subcommittee on Wildlife, Fisheries and Drinking Water on June 29, 2000. This testimony brought the following points to light:

1. The results of the 1990 National Toxicology Program Cancer Study (mandated by Congress) were altered to protect water fluoridation programs.
2. "Since 1994 there have been six publications that link fluoride exposure to direct adverse effects on the brain."
3. The 50 year study of two New York cities now shows no health benefits to water fluoridation.
4. Three landmark lawsuits since 1978 show "findings of fact" that link fluoride to severe adverse health effects.
5. No studies on safety or effectiveness have been performed on the two waste products of the fertilizer industry that are now used in 90% of fluoridation programs.
6. Fluoride exposure in the US is excessive and uncontrolled.



"These chemicals come directly from the pollution scrubbers of the phosphate fertilizer manufacturing plants."

What do you really know about fluoridation?

The chemicals used for fluoridation are not manufactured in a laboratory under

strict conditions as most people, including doctors and dentists, believe. These chemicals come directly from the pollution scrubbers of the phosphate fertilizer manufacturing plants. "...waste products of the fertilizer industry are now used in 90% of fluoridation programs."

Congressional testimony by J. William Hirzy, Ph.D., June 29, 2000

Dr. William Marcus, Senior Science Advisor and toxicologist in the Office of Drinking Water, was fired by EPA for demanding an independent analysis of Congress-ordered toxicological data that was reclassified by EPA when fluoride was definitively linked to cancer. Dr. Marcus was reinstated after a court found that the EPA destroyed documents and lied about evidence in the case.

The Fredrick Post; Fredrick, Maryland, February 14, 1994

Existing data indicate that subsets of the population may be unusually susceptible to the toxic effects of fluorides. These populations include the elderly, diabetics, people with deficiencies of calcium, magnesium, and/or vitamin C, and people with cardiovascular and kidney problems.

A Toxicological Profile by the U.S. Dept. of Health and Human Services, Public Health Service, April 1993

Judge John P. Flaherty, now the Chief Justice of the Pennsylvania Supreme Court, in his review of a case never overturned on the merits, came to this conclusion about fluoridation: "In my view, the evidence is quite convincing that the addition of sodium fluoride to the public water supply at one part per million is extremely deleterious to the human body, and, a review of the evidence will disclose that there was no convincing evidence to the contrary..."

Judge Anthony Farris in Texas found:

"[That] the artificial fluoridation of public water supplies, such as contemplated by {Houston} City ordinance No. 80-2530 may cause or contribute to the cause of cancer, genetic damage, intolerant reactions, and chronic toxicity, including dental mottling, in man; that the said artificial fluoridation may aggravate malnutrition and existing illness in man..."

Congressional testimony by J. William Hirzy, Ph.D., June 29, 2000

Read Dr. Hirzy's testimony before the US Senate Subcommittee at:
www.keepers-of-the-well.org/bearings-investigations.html

6-9
5-9

5-9

www.fluoridealert.org/accidents.htm.

FLUORIDE INFORMATION WEB SITES (Partial List)

www.fluoridealert.org
www.fluoridation.com
www.fluoride-journal.com
www.orgsites.com/ny/nyscof
www.suite101.com/welcome.cfm/fluoridation
www.bruha.com/fluoride
www.penweb.org/fluoride

www.glenwalker.net (Australia)
www.fluoridefree.com (Ireland)

www.emporium.turnpike.net/P/PDHA/health.htm
www.garynull.com/issues/Fluoride/FluorideActionFile.htm
www.citizens.org/Food.water.safety/Fluoridation/fluoride.htm
www.members.home.net/davidkennedy-dds/index.htm
keepers-of-the-well.org/bearings-investigations.html
www.home.att.net/~gtigerclaw/fluorine.pollution.html
www.zerowasteamerica.org/fluoride.htm

www.npwa-freeserve.co.uk (United Kingdom)
www.fluoride.org.uk (United Kingdom)

5-10

PLEASE READ THE MOST RECENT INFORMATION ON FLUORIDATION CHEMICALS
US ENVIRONMENTAL PROTECTION AGENCY ADMITS FLUORIDATED DRINKING WATER
MAY BE HARMING MILLIONS OF AT RISK AMERICANS*

Excerpts from September 5, 2000 letter from US EPA responding to a US House Committee on Science inquiry into the safety of artificial drinking water fluoridation:

- EPA has made a requirement for public water systems to provide their consumers with information on health effects and contaminants, including fluoride, in their water supply.
- EPA is developing *medical fact sheets* for medical practitioners with health information on drinking water contaminants that can be used to counsel patients about waterborne contaminants, including fluoridation chemicals.
- The EPA letter also revealed that 'at risk' populations for exposure to fluorides in drinking water are in the tens of millions of Americans:

These populations include

- 55 years and older population - 52,000,000
- Kidney (renal) disorders - 2,000,000
- Magnesium deficiency - 37% of the population
- Cardiovascular disease - 22,000,000
- Vitamin C deficiency - 27% of the population
- Calcium deficiency - 44% of the population

• Poor nutrition increases the incidence and severity of dental fluorosis and skeletal fluorosis from ingestion fluoride."

—The action on fluoridated water was prompted by the 1993 "Toxicological Profile for Fluorides, Hydrogen Fluoride and Fluorine" (US Agency for Toxic Substances and Disease Registry (ATSDR), 1993), page 112 statement:

5-11

orig

Good Afternoon Honorable Senator Wagle, and Members of the Public Health and Welfare Committee. My Name is Wayne Logbeck. I am retired, from Hutchinson, Kansas and here to speak in opposition to SB 530

This body has received numerous letters and e-mails from around the world, some of which I have also seen. I hope you have time to read them all.

Here are a couple excerpts from a paper by Dr. J. William Hirzy Senior Vice President, NTEU Chapter 280 Washington office of the EPA.

May 1, 1999

"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

For governmental and other organizations to continue to push for more exposure in the face of current levels of over-exposure coupled with an increasing crescendo of adverse toxicity findings is irrational and irresponsible at best. Thus, we took the stand that a policy which makes the public water supply a vehicle for disseminating this toxic and prophylactically useless (via ingestion, at any rate) substance is wrong."

I do not believe that any amount of added fluoride is safe.
That is the reason I sent this letter to the following list 2 weeks ago.
I still have not received an answer from any of them.
I believe that these are reasonable questions that need answers before any law is passed.

17 February 2004
Teresa Schwab Oral Health Kansas, Inc.'s director

Dear Ms Schwab

The Kansas Public Health Association is pushing a bill through the State Senate concerning mandatory water Fluoridation,

I have a couple of questions for you.

1. How much fluoride are we ingesting each day from all sources in terms of milligrams? Can you provide me with the name of a recent study on total daily fluoride intake for both children and adults who live in similar areas?
2. How many milligrams per day are we supposed to have, and does it apply to everyone, regardless of age, weight or health issues?

Sincerely
Wayne Logbeck
Hutchinson, Ks 67501
Wlogbeck@yahoo.com
620 665 6343

cc
Kansas Public Health Association
215 SE 8th Avenue
Topeka, KS 66603-3906
Sally Finney
Executive Director
Phone: (785) 233-3103
Fax: (785) 233-3439
Email: kpha@networkplus

Senate Public Health & Welfare Committee
Attachment 6
Date: March 2, 2004

Senator Adkins
adkins@senate.state.ks.us

Senator Christine Downey
downey@senate.state.ks.us
Fax: (620) 543-2389

Senator Jean Schodorf
schodorf@senate.state.ks.us

Senator Dave Kerr
kerr@senate.state.ks.us

Representative Janice Pauls
pauls@house.state.ks.us

Thank you for you time

Senate Bill 530 – Fluoridation

Denny Burgess
on Behalf of the City of Wichita

Before the Senate Public Health & Welfare Committee
March 2, 2004

Chairman Wagle and members of the Committee, I thank you for the opportunity to address you concerning this very important issue today. The City of Wichita is not taking a position on the merits on the issue of fluoridation, but rather, the City is concerned that the state is denying local control through the wording of SB 530. This bill would take away the rights of a city's local control and would violate the spirit of the Home Rule. The Home Rule Amendment is the foundation of local government and the bedrock of our belief in independence.

The Wichita City Council has in the past reviewed the issue of fluoridation through input from citizen committees and public hearings. The current City ordinance reads as follows:

“That the Wichita public water supply shall not be fluoridated without a binding vote of the people.”

The issue of fluoridation was put to the vote of the people in 1978, in the form of the proposed ordinance quoted above. At the question-submitted election, the voters adopted the prohibitory ordinance 45,314 to 38,825. The Wichita City Council continues to feel that regulation on fluoridation should remain a local decision and not be regulated by the state.

In Conclusion:

The City of Wichita strongly believes that Cities should continue to have the local option to review the issue of fluoridation. The City is opposed to the state usurping the power of local government on this issue. The City of Wichita supports the local control as stated in the Kansas Constitution, Article 12, Section 5, pertaining to Home Rule and local empowerment.

Senate Public Health & Welfare Committee
Attachment 7
Date: March 2, 2004