



Response To Kathleen Krevetski Claims

In an email message sent to a large number of people, Kathleen Krevetski, has demonstrated a remarkable lack of understanding of the public health initiative of water fluoridation. She has presented the same type of false information, unsubstantiated claims, out-of-context information, misrepresented science, and misinformation as do all fluoridation opponents who rely solely on misinformation from activist groups and their websites.

The following is a point-by-point repudiation of Ms. Krevetski's claims, followed by a list of peer-reviewed scientific studies on the effectiveness of fluoridation, followed by footnoted references.

1. Krevetski: "This letter serves to inform the dental community of the grass root efforts to remove the chemical -fluorosilicic acid from our drinking water."

Facts:

Fluorosilicic Acid (Hexafluorosilicic Acid) does not exist in fluoridated water at the tap. Once introduced into drinking water, due to the pH of that water (~7), FA is immediately and completely hydrolyzed (dissociated). The products of this hydrolysis are fluoride ions identical to those which have always existed in water. After that point, FA no longer exists in that water. It does not reach the tap. It is not ingested. It is of no concern. (1)

From the Scientific Committee on Health and Environmental Risks:

"Fluoridation of drinking water is recommended in some EU Member States, and hexafluorosilicic acid and hexafluorosilicates are the most commonly used agents in drinking water fluoridation. These compounds are rapidly and completely hydrolyzed to the fluoride ion. No residual fluorosilicate intermediates have been reported. Thus, the main substance of relevance is the fluoride ion (F⁻)." (2)

2. Krevetski: "Fluoridationists led by the ADA wrongly call this manmade chemical natural. Fluorosilicic acid, is a hazardous waste harvested from the smoke stacks of the fertilizer industry and never meant for human consumption."

Facts:

A. Fluoride is a negatively charged atom (anion) of the naturally occurring element, fluorine. As groundwater flows over rocks, it picks up fluoride ions which have been leached from the compound calcium fluoride, and fluorosilicate compounds in those rocks. These fluoride ions are to what is commonly referred as being "naturally occurring" fluoride. The fluoride ions released from fluorosilicic acid during fluoridation are identical to those which have existed in water forever.

B. There is no "harvested waste" in fluoridated water. FA is a co-product of the process which extracts the other co-product, phosphoric acid, from naturally occurring phosphorite rock. Phosphoric acid is used in soft drinks we consume and in fertilizers which become incorporated into foods that we eat. The FA co-product is carefully diluted to an 23% aqueous solution which is utilized to fluoridate water systems. To irrationally fear one co-product of this process is to irrationally fear the other. (3)

C. Fluorosilic Acid does not exist at the tap in fluoridated water. It is not consumed by humans.

3. Krevetski: "How fluorosilicic acid is metabolized in the body is very different from calcium fluoride found naturally in our ecosystem . Many of us, including Vermont dentists, were not aware that this water contaminant was being used to fluoridate water. Calling fluorosilicic acid- fluoride -appears to be a cover-up, an attempt to hide this fact from the public."

Facts:

A. Fluorosilic acid is not ingested. Therefore, it is not "metabolized in the body".

B. Neither the ADA, the CDC, the EPA, nor any other knowledgeable source calls fluorosilic acid- fluoride. Fluoride is an atom of fluorine. Fluorosilic acid is a compound containing the fluoride ion. The ones who confuse fluorosilic acid with fluoride are those such as Ms. Krevetski, who lack an understanding of elementary chemistry.

C. The compound calcium fluoride does not exist in groundwater.

4. Krevetski: "Public drinking water is a basic human right and the FDA calls fluoride a drug."

Facts:

A. There is no "basic human right to public drinking water". Neither is there a "basic human right" to fluoride-free water. Having water piped into one's home and/or place of business is a convenience provided by communities for their citizens. This accords citizens the benefit of not having to go out regularly, and frequently, to haul back large quantities of water to be stored within their dwelling for use. No citizen has the right to personally dictate the content of any public water system. This responsibility falls under the jurisdiction of duly elected or appointed local officials. Any citizen who does not like the content of a local public water supply from which is sourced water piped into their homes is entirely free to obtain his or her water from an alternate source with a content more to his or her personal preferences.

B. The FDA has no jurisdiction over the contents of public water supplies. This jurisdiction falls entirely under the EPA. It therefore makes no difference what "the FDA calls" anything. Fluoride is simply a mineral that has always existed in water. Attempts by fluoridation opponents to suddenly proclaim this mineral to be a drug are obviously ludicrous. No court of last resort has ever affirmed the "forced medication" argument of fluoridation opponents.

From the CDC:

"The U.S. Environmental Protection Agency (EPA) has authority over safe community drinking water, as specified in the Safe Drinking Water Act. On the basis of the scientific study of potential harmful health effects from contaminated water, the EPA sets a Maximum Contaminant Level (MCL) concentration allowed for various organisms or substances." (3)

5. Krevetski: "To drug our municipal water with a hazardous waste product to benefit "poor children" when kidney patients, children, diabetics, seniors and the chronically ill are "susceptible sub populations" (EPA quote) who are vulnerable to harm from ingesting this poison. We now know better."

Facts:

There is no valid, peer-reviewed scientific evidence of any adverse effect on "kidney patients, children, diabetics, seniors and the chronically ill", or on anyone else, from optimally fluoridated water.....as evidenced by Ms. Krevetski's failure to produce any such evidence.

6. Krevetski: "We should never have allowed a drug in our drinking water in unregulated dosage without informed consent."

Facts:

A. Fluoride in drinking water is not a drug. It is simply a mineral which has always existed in water, and always will, fluoridated or not.

B. Informed consent applies to treatment rendered. There is no such consent required for local officials to approve the concentration level of minerals within public water supplies under their jurisdiction. As individuals drink and otherwise utilize tap water themselves, any informed consent they believe should be given would be from themselves to themselves prior to choosing to drink a glass of water, or otherwise utilize that water. This is obviously ludicrous.

7. Krevetski: "Unfortunately, the ADA continues to ignore valid up to date science. The EPA has acknowledged that fluoride does not work by putting it in our water."

Facts:

A. The EPA has made no such acknowledgement. This is a complete fabrication by Ms. Krevetski.

B. The American Dental Association depends upon, and provides, the most up-to-date information available on fluoridation. A list of peer-reviewed scientific studies can be found at the end of this report, most from within the past 5 years, right up to 2015. Ironically, fluoridation opponents are those who constantly cite long since discredited half century-old scientific literature as support for their position.

8. Krevetski: "Both sides in this debate promote fluoridated toothpaste, good diet and dental hygiene, and regular visits to the dentists. Let us start there working together."

Facts:

No one knowledgeable about healthcare has deemed water fluoridation to be in place of any other dental disease prevention measures. It is in addition to them. The problem with untreated dental decay in this country and most others is so overwhelming that we need all the help we can get in combatting it. Those such as Ms. Krevetski who naively believe we can simply cease the most cost-effective means we have available to prevent significant amounts of dental decay in entire populations, in lieu of other preventive measures which have been, are being, and will continue to be aggressively ongoing.....are a real threat to the health and well-being of their communities.

9. Krevetski: "The Public Health Precautionary principle essentially says to err on the side of caution and has not been considered with fluoridation. "When in doubt, take it out".

Facts:

The Precautionary Principle applies only when there is no scientific consensus as to the safety of an issue. With over 150 of the most highly respected healthcare and healthcare-related organizations in the world supporting fluoridation, obviously there is overwhelming scientific consensus of the safety of water fluoridation. On the other hand, there is not one, single respected organization in the world which opposes fluoridation. (4)

Obviously, there is no "doubt" about water fluoridation. Obviously, the Precautionary Principle does not apply to water fluoridation.

10. Krevetski: "For the Vermont Dental Society to promote the use of fluorosilicic acid by calling it fluoride is disingenuous at best and a recipe for failure that can contribute to the loss of the patients' trust in their dentists."

Facts:

It is highly doubtful that the Vermont Dental Society has ever "promote[d] the use of fluorosilic acid by calling it fluoride". Those who "contribute to the loss of the patients' trust in their dentists" are those such as Ms. Krevetski who knowingly disseminate false information in regard to fluoridation, and that which they falsely claim has been stated by dentists and dentistry.

11. Krevetski: "Vaugh Collins, spokesman for the VDS has refused dentists' participation in our PEG TV forums."

Facts:

While organized dentistry will readily provide accurate, authoritative information on fluoridation to anyone, and will most certainly engage in appropriate scientific forums, it has no desire, or need, to engage in "forums" with uninformed fluoridation opponents who refuse to properly educate themselves on this issue from trustworthy sources.

12. Krevetski: "The Vermont Department of Health also continues to ignore the Precautionary Principle of Public Health in the use of fluorosilicic acid which also has been found to leach lead into water."

Facts:

Invoking "lead in water" is a transparent attempt by fluoridation opponents to unconscionably exploit the troubles of the citizens of Flint, MI, in order to further their own, personal ideology against fluoridation. In actuality, the theory of lead leaching by fluoridation substances has no merit. It was debunked by Urbansky/Schock in 2000, and again by Macek in 2006. (5) (6)

13. Krevetski: "Erin Brockovich has also submitted a legal notice of accountability to the Institute of Medicine/National Academy of Sciences and the Food and Nutrition Board. For explanation, see fluoridealert"

Facts:

A. Erin Brockovich is not a healthcare provider, or expert. She is a legal clerk who works for legal firms which profit from filing personal injury lawsuits. While she is certainly welcome to her personal opinions on fluoridation, they are of no consequence on a healthcare issue. This is glaringly evident by the fact that her opinion is in direct contradiction to the overwhelming consensus of the worldwide body of respected science and healthcare.

B. Certainly Brockovich is as free as is anyone to send a letter to the Institute of Medicine, or to whomever else she desires. In order for any such letter to be of any importance, however, it must have valid facts and evidence. There are no such facts and evidence to support the arguments of Ms. Brockovich, or any other fluoridation opponent.

C. "Fluoridealert" is the biased website of the New York antifluoridationist group, "fluoride action network". The filtered and edited information found on this site, and others like it, is evidence of nothing, and typical of the "science" which fluoridation opponents claim to support their position. For those who desire accurate information on fluoridation, the websites of the CDC, the EPA, the American Dental Association, the World Health Organization, and the American Academy of Pediatrics, each has a wealth of such information readily available to anyone.

14. Krevetski: "See also the report: the Cochrane Collaboration, internationally acknowledged as the gold standard in evidenced based reviews of health science, which also confirms the doubts over the benefits of fluoridating water supplies."

Facts:

The Cochrane Review "confirms" no such thing. Fluoridation opponents frequently attempt to steer readers to out-of-context information plucked from the Cochrane Review, reported in dubious magazine articles and/or posted on antifluoridationist websites. Any who desire to read the Cochrane Review are encouraged to do so, in entirety, from its original source, unfiltered through antifluoridationist sites. This report may be found:

http://www.cochrane.org/CD010856/ORAL_water-fluoridation-to-prevent-tooth-decay

15. Krevetski: "The EPA lists fluoride as a neurotoxin".

Facts:

Fluoride has been on the EPA list of neurotoxins for years.....along with 150 or so other substances. On that same list are such commonly ingested substances as aspartame (sweetener), ethanol (beer and other alcoholic beverages), salicylate (aspirin), caffeine, and nicotine. Concentration is the difference between safety and toxicity of all substances known to man, including plain water. Fluoride at the optimal level at which water is fluoridated is no more neurotoxic than any of those other commonly ingested substances at their proper use levels.

16. Krevetski: "The U.S. National Toxicology Program (NTP) is presently looking at fluoride's adverse effects on the developing brain. Because fluoride affects the brain, the NTP plans to conduct new animal studies to determine the lowest dose at which this damage occurs. NTP will also be doing systematic review of all the existing scientific literature which includes 314 studies that have investigated fluoride's effects on the brain and nervous system which include 181 animal studies, 112 human studies, and 21 cell studies to date."

Facts:

Due to constant, unsubstantiated claims of association of fluoridated water with "adverse effects on the developing brain", the NTP has agreed to include fluoride in its upcoming review in order to put these claims to rest.

Will this review, when completed, satisfy fluoridation opponents? No. Fluoridation has been the most tested, poked, prodded, retested, repoked, reprodded, discussed, and rediscussed public health initiative in history. There have been countless studies, and countless comprehensive reviews of fluoride through the decades. In spite of all of this, in the entire 70+ year history of this initiative, there have been no proven adverse effects.

Fluoridation is simply the adjustment of fluoride which has always existed and been ingested in water, to that level at which maximum benefit will be obtained while so doing, and strictly maintaining that level well below the threshold of adverse effects.

16. Krevetski: "We ask that you look beyond the teeth and consider utilizing a holistic approach to fluoridation. Consider joining with us as an engaged community seeking better overall health for all of our community."

Facts:

Ms. Krevetski fails to understand that the head is attached to the rest of the body. Untreated dental decay which can be, and is, prevented by water fluoridation, results in lifetimes of extreme pain, debilitation, black discoloration and loss of teeth, development of serious medical conditions, and life-threatening infection....for tens of millions of our citizens. Those who truly seek "better overall health for all of our community" will do as Ms. Krevetski has not done....properly educate themselves on this issue from trustworthy, reliable sources of authoritative information on the public health initiative of water fluoridation.

Fluoridation Effectiveness Studies

1) 2015

Results

In the 3 areas the proportion of children who received a dental examination varied; 77.5% (n=825) for the fluoridated area, 80.1% (n=781) for the pre-fluoridated area and 55.3% (n=523) for the non-fluoridated area. The mean dmft was 1.40 for the fluoridated area, 2.02 for the pre-fluoridated area and 2.09 for the non-fluoridated area. These differences were statistically significant ($p < 0.01$). Differences were also noted in the proportion of children who were caries free, 62.6% fluoridated area, 50.8% for the pre-fluoride area and 48.6% for the non-fluoride location.

Conclusion

The children living in the well-established fluoridated area had less dental caries and a higher proportion free from disease when compared with the other two areas which were not fluoridated. Fluoridation demonstrated a clear benefit in terms of better oral health for young children.

---The Dental Health of primary school children living in fluoridated, pre-fluoridated and non-fluoridated communities in New South Wales, Australia

Anthony S Blinkhorn, Roy Byun, George Johnson, Pathik Metha, Meredith Kay, and Peter Lewis
BMC Oral Health 2015, 15:9 doi:10.1186/1472-6831-15-9http://www.biomedcentral.com/1472-6831/15/9

2) RESULTS:

The prevalence of dental caries was inversely related and the prevalence of fluorosis was directly related to the concentration of fluoride in the drinking water. The mean DMFS in the communities with 0.8 to 1.4 ppm fluoride was 53.9 percent to 62.4 percent lower than that in communities with negligible amounts of fluoride. Multivariate analysis showed that water fluoride level was the strongest factor influencing DMFS scores. The prevalence of fluorosis ranged from 1.7 percent to 15.4 percent, and the increase in fluorosis with increasing fluoride exposure was limited entirely to the milder forms.

----J Public Health Dent. 2000 Summer;60(3):147-53.

The prevalence of dental caries and fluorosis in Japanese communities with up to 1.4 ppm of naturally occurring fluoride.

Tsutsui A, Yagi M, Horowitz AM.

Department of Preventive Dentistry, Fukuoka Dental College, Fukuoka, Japan. tutuia@college.fdcnet.ac.jp

3) 2000

CONCLUSIONS:

Caries levels are lower among children with fluoridated domestic water supplies. Decay levels are much lower in 2002 than they were in 1984 and in the 1960s. The oral health of the less well off is worse than that of the rest of the population. The prevalence of dental fluorosis is higher amongst children and adolescents with fluoridated water supplies. Comparisons with 1984 data show an increase in the prevalence of fluorosis since that time.

----Community Dent Health. 2004 Mar;21(1):37-44.

Dental caries and enamel fluorosis among the fluoridated and non-fluoridated populations in the Republic of Ireland in 2002.

Whelton H, Crowley E, O'Mullane D, Donaldson M, Kelleher V, Cronin M.

Source

Oral Health Services Research Centre, University Dental School and Hospital, Wilton, Cork, Ireland.

4) CONCLUSIONS:

The ingestion of water containing 1 ppm or less fluoride during the time of tooth development may result in dental fluorosis, albeit in its milder forms. However, in these times of numerous products containing fluoride being available, children ingesting water containing 1 ppm fluoride continue to derive caries protection compared to children ingesting water with negligible amounts of fluoride. Thus, the potential for developing a relatively minor unesthetic condition must be weighed against the potential for reducing dental disease.

----J Public Health Dent. 1995 Spring;55(2):79-84.

Dental fluorosis and caries prevalence in children residing in communities with different levels of fluoride in the water.

Jackson RD, Kelly SA, Katz BP, Hull JR, Stookey GK.

Oral Health Research Institute, Indianapolis, IN 46202-2876, USA.

<http://www.ncbi.nlm.nih.gov/pubmed/15074871>

5) 2004

Conclusions:

The results of this study support existing work suggesting water fluoridation together with the use of fluoridated dentifrice provides improved caries prevention over the use of fluoridated dentifrice alone. The social gradient between caries and deprivation appears to be lower in the fluoridated population compared to the non-fluoridated population, particularly when considering caries into dentine, demonstrating a reduction in inequalities of oral health for the most deprived individuals in the population.

----The association between social deprivation and the prevalence and severity of dental caries and fluorosis in populations with and without water fluoridation

Michael G McGrady, Roger P Ellwood, [...], and Iain A Pretty

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3543717/>

6) 2012

CONCLUSIONS:

Fewer studies have been published recently. More of these have investigated effect at the multi-community, state or even national level. The dmf/DMF index remains the most widely used measure of effect. % CR were lower in recent studies, and the 'halo' effect was discussed frequently. Nevertheless, reductions were still substantial. Statistical control for confounding factors is now routine, although the effect on per cent reductions tended to be small. Further thought is needed about the purpose of evaluation and whether measures of effect and study design are appropriate for that purpose.

-----Community Dent Oral Epidemiol. 2012 Oct;40 Suppl 2:55-64. doi: 10.1111/j.1600-0528.2012.00721.x.

Effectiveness of water fluoridation in caries prevention.

Rugg-Gunn AJ, Do L.

Newcastle University, UK. andrew@rugg-gunn.net

<http://www.ncbi.nlm.nih.gov/pubmed/22998306>

7) 2012

CONCLUSIONS:

Data showed a significant decrease in dental caries across the entire country, with an average reduction of 25% occurring every 5 years. General trends indicated that a reduction in DMFT index values occurred over time, that a further reduction in DMFT index values occurred when a municipality fluoridated its water supply, and mean DMFT index values were lower in larger than in smaller municipalities.

----Int Dent J. 2012 Dec;62(6):308-14. doi: 10.1111/j.1875-595x.2012.00124.x.

Decline in dental caries among 12-year-old children in Brazil, 1980-2005.

Lauris JR, da Silva Bastos R, de Magalhaes Bastos JR.

Department of Paediatric Dentistry, University of São Paulo, Bauru, São Paulo, Brazil.

<http://www.ncbi.nlm.nih.gov/pubmed/23252588>

8). 2012

Abstract

The effectiveness of fluoridation has been documented by observational and interventional studies for over 50 years. Data are available from 113 studies in 23 countries. The modal reduction in DMFT values for primary teeth was 40-49% and 50-59% for permanent teeth. The pattern of caries now occurring in fluoride and low-fluoride areas in 15- to 16-year-old children illustrates the impact of water fluoridation on first and second molars.

----Caries Res. 1993;27 Suppl 1:2-8.

Efficacy of preventive agents for dental caries. Systemic fluorides: water fluoridation.

Murray JJ.

Source

Department of Child Dental Health, Dental School, University of Newcastle upon Tyne, UK.

<http://www.ncbi.nlm.nih.gov/pubmed/8500120>

9) 1993

CONCLUSIONS:

The survey provides further evidence of the effectiveness in reducing dental caries experience up to 16 years of age. The extra intricacies involved in using the Percentage Lifetime Exposure method did not provide much more information when compared to the simpler Estimated Fluoridation Status method.

-----Community Dent Health. 2012 Dec;29(4):293-6.

Caries status in 16 year-olds with varying exposure to water fluoridation in Ireland.

Mullen J, McGaffin J, Farvardin N, Brightman S, Haire C, Freeman R.

Health Service Executive, Sligo, Republic of Ireland.

<http://www.ncbi.nlm.nih.gov/pubmed/23488212>

10). 2012

CONCLUSIONS:

Children with severe dental caries had statistically significantly lower numbers of lesions if they lived in a fluoridated area. The lower treatment need in such high-risk children has important implications for publicly-funded dental care.

-----Community Dent Health. 2013 Mar;30(1):15-8.

Fluoridation and dental caries severity in young children treated under general anaesthesia: an analysis of treatment records in a 10-year case series.

Kamel MS, Thomson WM, Drummond BK.

Source

Department of Oral Sciences, Sir John Walsh Research Institute, School of Dentistry, The University of Otago, Dunedin, New Zealand.

References

- (1) Reexamination of Hexafluorosilicate Hydrolysis By F NMR and pH Measurement
William F. Finney, Erin Wilson, Andrew Callender, Michael D. Morris, and Larry W. Beck
Environmental Science and Technology/ Vol 40, No. 8, 2006

- (2) SCHER, Opinion on critical review of any new evidence on the hazard profile, health effects, and human exposure to fluoride and the fluoridating agents of drinking water –
16 May 2011.

- (3) Water Fluoridation Additives Fact Sheet
US Centers for Disease Control and Prevention
<http://www.cdc.gov/fluoridation/factsheets/engineering/wfadditives.htm>

- (4) https://en.m.wikipedia.org/wiki/Precautionary_principle

- (5) Blood Lead Concentrations in Children and Method of Water Fluoridation in the United States, 1988-1994
Environ Health Perspec. 2006 January; 114 (1): 130-134
Mark D. Macek, Thomas D. Matte, Thomas Sinks, and Delores M. Malvitz

- (6) Can Fluoridation Affect Lead (II) In Potable Water? Hexafluorosilicate and Fluoride Equilibria In Aqueous Solution
Urbansky, E.T., Schocks, M.R. Intern. J . Environ. Studies, 2000, Voi. 57. pp. 597-637