



Response To Paul Connett Power Point Presentation

Steven D. Slott, DDS
Information Director
American Fluoridation Society
April 14, 2016

Page 1.....Response to power point slides

Page 22.....References

Page 24.....Effectiveness Studies

Page 28.....Scientific Rebuke of Claims of Disorders

Page 33.....Statements of Support

Page 36.....Organizations which understand the effectiveness of fluoridation

Connett Slides

1. Slide #6: "[Connett's book] Contains 80 pages of references to the scientific literature"

Facts:

An analysis of these References, by Alison Campbell of the New Zealand group, "Making Sense of Fluoride":

"References are separated into two Appendices and the 'Endnotes', which together add up to around 80 pages. At least some sources of those in the appendices don't appear to be cited in the main body of the work, which surprised me a bit: if the material in them is relevant to the book's core thesis, then personally I'd expect to see them cited therein."

"On to the endnotes: the first thing I noticed is that a fair number of sources appeared to have been listed multiple times, even within a single chapter. This does have the effect of pumping up the size of the references section. How much? I sat down & did a quick count (& yes, I may have missed some)."

"Looking only at duplicate references within chapters (not between, although there was some duplication there), I found 389 examples where the same source is given multiple citation numbers: 31% of the total 1244 numbered references in the Endnotes are duplicates. That leaves 855 'single' citations, of which 32 are for newspaper stories, magazines, and newsletters; 25 letters, 20 testimonials/personal communications; and 17 videos. The remainder were for books (45) and various journal articles and reports."

"Now, I'd actually expect a number of 'non-traditional' sources in a popular science book, one that's hoping to get people to read more widely on the subject. But it's the first time I've seen TV

programs/videos, letters, and newspaper articles described as 'scientific literature'. (This is not to say anything about the content of the book, because I've only started looking through it. But it does show the commenters' claims to be somewhat hyperbolic.) ~ Alison Campbell"

<https://www.facebook.com/fluoridewater/posts/6056246594758822>.

2. Slide #8: "Poor Medical Practice"

Facts:

There is no "medical practice" involved in fluoridation. In the early part of the last century, researchers observed that, in areas of high fluoride content in the water, teeth were more resistant to decay. Along with this, however, were noted brown stains and mottling of the teeth. The researchers set out to determine if there was a concentration level of this naturally occurring fluoride at which the dental decay resistance would occur without the brown stains and mottling. After years of observing the incidence of dental decay in regions with varying levels of fluoride in the water, the researchers determined the concentration of 1 part per million to be the level at which significant dental decay resistance would occur, without the staining and mottling. In 1962, the US Public Health Service made this optimal concentration an official recommendation. It was set initially as a range of 0.7 ppm to 1.2 ppm in order to allow for different levels of water consumption due to climate differences. In 2015, due to recent scientific evidence that there no longer exists such a difference in water consumption, and to the greater availability of fluoride now than when the optimal level was initially set, the range was eliminated, with the optimal being reset to simply the low end of that range, 0.7 ppm.

Fluoridation is nothing but the attainment of maximum benefit of a mineral which has always existed in water, while strictly maintaining the concentration of that mineral well below the threshold of adverse effects. Ironically, as cessation of fluoridation does not result in cessation of ingestion of fluoride in water, those who advocate against this measure are advocating for removal of the benefit, and removal of strict controls over the concentration level, while accomplishing nothing in regard to any of the perceived adverse effects they constantly seek to attribute to ingestion of fluoride in water. In the United States, fluoride is maintained at a level of 0.7 ppm in fluoridated systems, while non-fluoridated systems are bound only by the EPA mandated maximum allowable level of 4.0 ppm.

3. Slide 8: "An inappropriate and inefficient practice"

Facts:

A. There is nothing inappropriate about ensuring the attainment of maximum benefit of a mineral we ingest in our water, fluoridated or not, while maintaining the concentration of that mineral well below the threshold of adverse effects.

B. i) Countless peer-reviewed scientific studies clearly demonstrate the effectiveness of fluoridation in preventing dental decay in entire populations. ii) In the entire 71 year history of fluoridation, there have been no proven adverse effects. iii) Peer-reviewed science has demonstrated there to be no adverse effects on the environment from optimally fluoridated water iv) At less than \$1 per person, per year for fluoridation, there is no dental decay

preventive measure which even approaches the cost-effectiveness of fluoridation in the prevention of dental decay in entire population. **(1)**

Water fluoridation does exactly what it is supposed to do, with no adverse effects, in the most cost-effective manner possible. It is therefore difficult to ascertain how anyone could deem this practice to be "inefficient".

4. Slide #8: "The Chemicals Used"

Facts:

The substance most widely utilized to fluoridate water systems is hydrofluorosilic acid (HFA). HFA 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 HFA 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.

Once introduced into drinking water, due to the pH of that water (~7), the HFA is immediately and completely hydrolyzed (dissociated). The products of this hydrolysis are fluoride ions identical to those which have always existed in water, and trace contaminants in barely detectable amounts that are so far below US EPA mandated maximum allowable levels of safety that it is not even a certainty that those detected aren't those that already exist in water naturally. After this point, HFA no longer exists in that water. It does not reach the tap. It is not ingested. It is therefore of no concern, whatsoever. **(2)**

There are no detectable levels of "radioactive isotopes and solvents" in fluoridated water at the tap. The amount of heavy metals, which includes arsenic, are in barely detectable amounts far below US EPA mandated maximum allowable levels of safety.

A complete list of the contents of fluoridated water at the tap including precise amounts of any detected contaminants and the EPA maximum allowable level for each may be found in the "Fact Sheet on Fluoridation Chemicals" on the website of NSF International. **(3)**

<http://www.nsf.org/newsroom/nsf-fact-sheet-on-fluoridation-chemicals>



Antifluoridationists claim that HFA is "scrubbed from the smokestacks of fertilizer factories". In actuality, a "scrubber" is sophisticated equipment which precipitates, useful substances out of gases. These substances would otherwise be wasted. To the left is a "scrubber" utilized in the process of extracting HFA from phosphorite rock. It "scrubs" the gases passing through.

5. Slide #8: "Who is in charge?"

Facts:

A. In the United States, the US EPA has sole jurisdiction over the contents of drinking water supplies. All drinking water at the tap must meet stringent, EPA mandated quality certification requirements under Standard 60 of NSF International. Standard 60 mandates that no contaminant be present in water at the tap in excess of 10% of the EPA maximum allowable level of safety (MCL) for that contaminant. Fluoridated water at the tap easily meets all Standard 60, requirements. **(3)**

B. In the United States, the US Department of Health and Human Services has oversight of the fluoridation program. US DHHS monitors the safety and effectiveness of the program, and establishes the official optimum level recommendation.

C. The decision to fluoridate or not is made by appropriate officials on the state and local level. The addition of fluoride and monitoring of the concentration level is performed by water treatment personnel on the local level, just as they do for chlorine and the myriad other substances routinely added to public water supplies. Decisions at all levels must be made in strict compliance with all local, state, and federal regulations.

6. Slide #8: "An experimental program"

Facts:

With hundreds of millions of people in various parts of the world having chronically ingested optimally fluoridated water over the past 71 years, obtaining significant reductions in dental decay in the process, with no proven adverse effects.....the public health initiative of water fluoridation can hardly be credibly termed an "experimental program".

7. Slide #8: "The evidence that fluoride is ineffective".

Facts:

A. There is no such "evidence" which is credible. A list of effectiveness studies is provided at the end of this document

B. The graph of "WHO data" which Connett claims to demonstrate an equal decline in caries incidence in fluoridated and non-fluoridated countries, is actually a graph created by "FAN" personnel which misrepresents WHO data. What they did was to cherry-pick a couple of data points for each country, out of clusters of data points all over the page, connected the dots and claimed that to be a "trend" for each country. New Zealand chemist, Ken Perrott, PhD, provides a detailed explanation of this "FAN" misrepresentation of scientific data:

<https://openparachute.wordpress.com/2015/08/12/fluoridation-connetts-naive-used-of-who-data-debunked/>

8. Slide 9: "The Evidence of harm"

Facts:

Peer-reviewed studies are provided at the end of this document which refute claims of association of various disorders with optimally fluoridated water.

In regard to studies probably cited by Connett:

A. "Harvard Study": Connett generally refers to what he proclaims to be a long list of human and animal studies which demonstrate IQ loss associated with fluoridated water. The studies to which he refers are either of no relevance to fluoride at the optimal level, or they are the infamous "27 Chinese studies" of the review by Grandjean and Choi, erroneously termed the "Harvard Study" by antifluoridationists. The only association of Harvard with this review is the fact that Grandjean and Choi both hold adjunct faculty positions with the Harvard School of Public Health.

The "reduced IQ studies" are a reference to a 2011 review of 27 Chinese studies dug out of obscure Chinese journals by researchers Phillippe Grandjean and Anna Choi. These studies were of the effects of high levels of fluoride (as high as 11.5 ppm) in the well-water of various Chinese, Mongolian, and Iranian villages.

After excluding studies which were so seriously flawed that they did not even warrant review, Grandjean and Choi ended up with 27 in their review. By their own admission these studies had key information missing, inadequate control for confounders, and questionable methodologies. These 27 studies were so seriously flawed that Grandjean and Choi were led to issue a public statement in March, 2012 that the studies should not be used to judge water fluoridation in the US. This obviously has not stopped "FAN" from doing so anyway.

"These results do not allow us to make any judgment regarding possible levels of risk at levels of exposure typical for water fluoridation in the U.S. On the other hand, neither can it be concluded that no risk is present. We therefore recommend further research to clarify what role fluoride exposure levels may play in possible adverse effects on brain development, so that future risk assessments can properly take into regard this possible hazard."

--Anna Choi, research scientist in the Department of Environmental Health at HSPH, lead author, and Phillippe Grandjean, adjunct professor of environmental health at HSPH, senior author **(4)**

B. "UK hyperthyroid study" Connett also refers to the recent hypothyroid study of Stephen Peckham, which has been widely discredited in the scientific literature. Stephen Peckham is a long-time antifluoridationist who is the former chair of the British antifluoridationist faction, "Hampshire Against Fluoride". This clear conflict of interest aside, his study has been widely criticized for having poor methodology, inadequate controls for variables, and reaching a conclusion that is not supported by his data or the peer-reviewed scientific literature.

Warren and Saraiva conclude:

"In summary, this study [Peckham] is an ecologic one that has several significant flaws, making it almost meaningless with regard to assessing any possible association between water fluoridation and hypothyroidism. As such, this study provides no evidence of a causal relationship between water fluoride concentration and hypothyroidism." **(5)**

Grimes concludes:

"A major weakness of this study is the fact that other potential confounding factors have not been taken into account; this makes the conclusions regarding the community health utility of water fluoridation problematic. The strong conclusion of the paper by Peckham et al is not supported by the published literature" **(6)**

C. "Malin ADHD study" Another study Referenced by Connett is the ADHD study by Malin, et al. Like Peckham, this study has been widely discredited in the scientific literature for its poor methodology, inadequate control for confounders, and conclusion not supported by the peer-reviewed science. A clear demonstration of the inadequate control by Malin is the 2015 Huber, et al study. Utilizing the same data as did Malin, Huber concluded the correlation of ADHD to be with elevation at which the children resided, not with fluoridation. **(7)**

From Fluoride Science:

"It's an ecological study design with 51 observations (50 states & DC), and is not appropriate to test a hypothesis. ADHD prevalence was based on self-reported data, and hence had a potential of misclassification of disorder status. State-wide fluoridation measures were used. Individuals' exposure to fluoridation were not measured. Due to ecological assessment of exposure to fluoride in drinking water and the use of prevalence data of self-reported ADHD and water fluoridation from different years, the findings are at high risk for ecological fallacy. Authors did not adjust for important confounders (smoking, low birth weight, age, sex etc.). Moreover, authors' poor literature review and skewed interpretation of literature concerning fluoride and neurodevelopmental defects may have introduced bias." **(8)**

9. Slide 10: "NRC 2006"

Facts:

Connett plucks out-of context information from this report, which is not relevant to fluoride at the optimal level, and presents it as evidence against fluoridation.

The 2006 NRC Committee on Fluoride in Drinking Water was charged to evaluate the adequacy of the EPA primary and secondary MCLs for fluoride, 4.0 ppm and 2.0 ppm respectively, to protect against adverse effects. The final recommendation of this Committee was for the primary MCL to be lowered from 4.0 ppm. The sole reasons cited by the Committee for this recommendation were the risk of severe dental fluorosis, bone fracture, and skeletal fluorosis, with chronic ingestion of water with a fluoride content of 4.0 ppm or greater. Nothing else. Had

this Committee deemed there to be any other concerns with fluoride at this level, it would have been responsible for stating so and recommending accordingly. It did not.

Additionally, the NRC Committee made no recommendation to lower the secondary MCL of 2.0 ppm. Water is fluoridated at 0.7 ppm. one third the level which the 2006 NRC Committee on Fluoride in Drinking Water made no recommendation to lower. **(9)**

In March of 2013, Dr. John Doull, Chair of the 2006 NRC Committee on Fluoride in Drinking Water made the following statement:

"I do not believe there is any valid, scientific reason for fearing adverse health conditions from the consumption of water fluoridated at the optimal level"

---John Doull, MD, PhD, Chair of the National Academy of Sciences, National Research Council 2006 Committee Report on Fluoride in Drinking Water. **(10)**

10. Slide 11: "Margin of Safety"

Facts:

A. The fact that hundreds of millions of individuals have chronically ingested optimally fluoridated water over the past 71 years, with no proven adverse effects provides the best possible evidence that the "margin of safety" between the minuscule amount of fluoride in optimally fluoridated water, and the threshold of adverse effects is entirely adequate.

B. Dose of fluoride associated with fluoridated water in combination with all other normal sources of daily fluoride intake is not an issue. Simply put, water is fluoridated at 0.7 mg/liter (ppm=mg/liter). Thus, for every liter of fluoridated water consumed, the "dose" of fluoride intake is 0.7 mg. The average daily water consumption by an adult is 2-3 liters per day. The US CDC estimates that of the total daily intake, or "dose", of fluoride from all sources including dental products, 75% is from the water.

The US Institute of Medicine has established that the daily upper limit for fluoride intake from all sources, for adults, before adverse effects will occur, short or long term, is 10 mg. as can be noted from a simple math equation, before the daily upper limit of fluoride intake could be attained in association with optimally fluoridated water, water toxicity would be the concern, not fluoride.

The range of safety between the minuscule few parts per million fluoride that are added to existing fluoride levels in your water, is so wide that "dose" is not an issue.

The daily upper limit is considerably less for infants and children aged 0-8 years, but only due to the risk of mild dental fluorosis during these teeth developing years. After age 8, the teeth have developed, dental fluorosis is no longer possible, and the daily upper limit jumps to 10 mg thereafter. Mild dental fluorosis is a barely detectable effect which causes no adverse effect on cosmetics, form, function, or health of teeth. **(11)**

11. Slide 11: "The Precautionary Principle"

Facts:

The "Precautionary Principle" applies when there is no scientific consensus of the safety of an initiative in question. Water fluoridation is supported by those such as the past 5 US Surgeons General, the Deans of the Harvard Schools of Medicine, Dentistry, and Public Health, Health Canada, the Canadian Dental Association, the US CDC, the US Institute of Medicine, the American Dental Association, the American Medical Association, the World Health Organization, the American Academy of Pediatrics, and over 150 of the most highly respected healthcare and healthcare-related organizations in the world. Clearly there is scientific consensus of the safety of water fluoridation. **(12)**

The "Precautionary Principle" does not apply to this public health initiative.

12. Slide 11: "Weak and Inadequate Science"

Facts:

A. Connett attempts to put responsibility onto fluoridation proponents to disprove the litany of unsubstantiated health claims antifluoridationists constantly put forth. It is not the responsibility of anyone to do so. In the absence of valid evidence that there is a problem, it is invalid science to demand proof that there is not. Connett can provide no valid, peer-reviewed scientific evidence that fluoride at the optimal level at which water is fluoridated is in any manner unsafe. Therefore, it is invalid science for him to demand proof that it is not unsafe.

Antifluoridationists are requesting the sudden cessation of a public health initiative which has benefited hundreds of millions of individuals over the past 71 years, with no proven adverse effects. It is therefore their responsibility to provide valid facts and evidence to support that request, not the other way around. They cannot provide any such evidence.

B. Antifluoridationists misrepresent the recent Cochrane Review as "evidence" to support their claims of inadequate science. In actuality, the 2015 Cochrane Review was an update of the 2000 York Review, neither of which reported any evidence to support antifluoridationist claims of adverse effects of optimal level fluoride, or of ineffectiveness. Being an update of York, Cochrane utilized the same narrow parameters for studies it chose to review, as did York. Of the over 4600 fluoride studies considered by Cochrane, it identified but 155 which fit within its narrow parameters. This immediately excluded thousands of quality, peer-reviewed cross-sectional and observational studies on fluoride which Cochrane chose not to review.

Within the 155 studies Cochrane chose to review, it deemed the majority to fall within the parameters it had established for them to be considered at high risk of bias. It did not state that the studies were biased, nor invalid. Cochrane also concluded that within these 155 studies there was insufficient information for them to assess effectiveness of fluoridation for adults, or across socio-economic strata.

Additionally, while Cochrane assessed the quality of the 155 studies against the "gold standard" randomized controlled trials, as did York, Cochrane recognized and reported the infeasibility of performing RCTs on large, population-based public health initiatives such as fluoridation, and that for this reason, RCTs would never be done for water fluoridation. Cochrane recognized the unfairness of grading observational studies on fluoridation against RCTs, and advised that decisions on fluoridation be made taking into account all factors, not simply scientific studies.

From Cochrane 2015:

"However, there has been much debate around the appropriateness of GRADE when applied to public health interventions, particularly for research questions where evidence from randomised controlled trials is never going to be available due to the unfeasibility of conducting such trials. Community water fluoridation is one such area."

and

"However, we accept that the terminology of 'low quality' for evidence may appear too judgmental. We acknowledge that studies on water fluoridation, as for many public health interventions, are complex to undertake and that researchers are often constrained in their study design by practical considerations. For many public health interventions, the GRADE framework will always result in a rating of low or very low quality. Decision makers need to recognise that for some areas of research, the quality of the evidence will never be 'high' and that, as for any intervention, the recommendation for its use depends not just upon the quality of the evidence but also on factors such as acceptability and cost-effectiveness (Burford 2012)." (13)

13. Slide 11; "Promoters Strategies and Tactics.....self-Serving Governmental Reviews.....A Response to Pro-Fluoridation Claims.....The Promoters' Motivations"

Facts:

In all likelihood this is all nothing but Connett's unsubstantiated skewed personal opinions and erroneous assumptions.

14. Slide 14: "The Use of Endorsements"

Facts:

There is not one, single, credible organization in the world which opposes fluoridation. Connett attempts to compensate for this by marginalizing the overwhelming support for water fluoridation from respected science and healthcare.

Over 150 of the most highly respected healthcare and healthcare-related organizations in the world fully recognize the safety and effectiveness of water fluoridation. One can be certain that those such as America's Pediatricians and Family physicians do not make statements in support of any public health initiative without a thorough understanding of the credible science. In fact the American Academy of Family Physicians performed their own systematic review in 2013.

To claim that such organizations would blindly support any public health initiative about which there were any credible concerns with safety and/or effectiveness.....is ludicrous.

A list of supporting organizations is provided at the end of this document.

15. Slide 14: "over 97% of Europe does not fluoridate its water."

Facts:

There are myriad reasons why different countries may not fluoridate their water systems, few, if any, related to concerns with safety or effectiveness.. These include such reasons as logistics of water systems rendering fluoridation cost-prohibitive, use of fluoridated salt and/or milk problems in lieu of water fluoridation, existing fluoride levels in water supplies already at or above the optimal level, and equal access to comprehensive dental care by all citizens.

The following is an outline of the situation with fluoridation throughout the world taken from a recent issue of the newsletter of the New Zealand National Fluoride Information Service:

"Countries with widespread water fluoridation programmes include Australia, the United States of America, Canada, the United Kingdom, Ireland, Spain, Israel, Brazil, Brunei, Chile, Argentina, Colombia, Hong Kong, South Korea, Singapore and Malaysia. Countries with limited water fluoridation programmes include Vietnam, Fiji, Papua New Guinea, and South Korea."

"Several countries are unable to introduce water fluoridation programmes due to technical, financial or sociocultural reasons. As an alternative, both salt and milk have been found to be reliable and convenient vehicles for increasing fluoride intake to an optimal level for hard to reach and low socio-economic communities. Studies have found them to be as effective as community water fluoridation schemes."

"Some European, Latin American, and Caribbean countries, including France, Switzerland, Germany, Costa Rica, Colombia and Jamaica currently use fluoridated salt schemes. Mexico and most Latin American and Caribbean countries (apart from Argentina, Brazil, Chile and French Guyana) have or have had salt fluoridation programmes."

"A smaller number of countries currently have fluoridated milk programmes, including Bulgaria, Chile, China, Peru, Russia, Thailand and the United Kingdom"

"Some country regions have optimal amounts of naturally occurring fluoride which provides good protection for oral health. examples of countries supplied with naturally fluoridated water at or around the optimum level needed to prevent dental decay include the United Kingdom (estimated 329,000 people), United States of America (estimated 10,078,000 people) Canada (estimated 300,000 people) and Australia (estimated 144,000 people)."

"It is estimated that 39.5 million people around the world have access to naturally fluoridated water at the optimal level although variations from one community to another over time make it difficult to calculate an accurate total."

16. Slides #17 and 18: "Tooth Decay Trends in Fluoridated and Non-fluoridated Countries"

Facts:

This is the graph created by "FAN" personnel which misrepresents WHO data. This was discussed in item #7 above.

17. Slide #19: "The Use of Dummy Reviews"

Facts:

This is nothing but a slanderous attack by Connett on highly respected organizations such as the Irish Expert Body on Fluorides and Health, the Australian National Health and Medical Research Council, and Health Canada. He has no grounds whatsoever for the allegations he levels against the integrity of these organizations.

18. Slide 20: "Health Canada panel.....4 of which were dentists and well-known to be pro-fluoridation! These included Dr. Jay Kumar, one of USA's most well-known fluoridation promoters".

Facts:

A. On a panel to review a dental/healthcare issue, whom exactly does Connett propose should comprise the membership....lawyers and accountants?

B. Given that dentistry fully understands and supports fluoridation, yes, dentists will be in favor of fluoridation. Connett's implication that dentists should be excluded from a panel to review a dental/healthcare issue because they know and understand the issue could not be any more absurd.

C. Dr. Jay Kumar is a highly respected dental researcher with peer-reviewed research on fluoridation published in respected scientific journals. He is the former Acting Dental Director, New York Department of Public Health, a member of the 2006 NRC Committee on Fluoride In Drinking Water, current Dental Director, California Department of Public Health, and dedicated public health dental leader.

19. Slides #23-27: "Use of Outright Propaganda Techniques"

Facts:

Given the misinformation, misrepresented science, and brazen fear-mongering with unsubstantiated claims about this disorder and that constantly employed by Connett and his group, this claim he levels against fluoridation proponents is completely outrageous. The devastating effects of untreated dental decay are very real, and very well documented. The speculation, personal opinions, and unsubstantiated claims made by Connett are not.

20. Slide #27: "Mother's Milk protects our babies from early exposure to fluoride"

Facts:

With this argument, Connett has anointed himself the sole arbiter of what "nature intends". By Connett's "logic", "mother's milk" protects against early exposure to iron, vitamin K and vitamin D, as well. As "mother's milk" is deficient in these nutrients to the point of requiring supplements for breast-fed infants, it seems that Connett's nature intends for our babies to be anemic, free-bleeders who develop Ricketts.

21. Slides #28 and 29: "fluoride toxicity to infants"

Facts:

Neither Connett nor anyone else can produce any valid, peer-reviewed scientific evidence of toxicity or adverse effect of any nature to infants, from optimal level fluoride.

22. Slide #32: "This [2006 NRC Report] shows that bottle-fed babies are exceeding the US EPA's safe reference dose for fluoride (0.06 mg/kg body weight per day)."

Facts:

The only concerns stated in the final recommendation of the 2006 NRC Committee in regard to fluoride at the level of 4.0 ppm were risk of severe dental fluorosis, bone fracture, and skeletal fluorosis, with chronic consumption of water with a fluoride content of 4.0 ppm or greater. Severe dental fluorosis does not occur attributable to a fluoride concentration in water of 2.0 ppm or below. In the 74.7% fluoridated US, skeletal fluorosis is so rare as to be nearly non-existent, and there is no valid, peer-reviewed evidence of bone fracture attributable to optimally fluoridated water. (9)

23. Slide #35: "Some Health Concerns.....damage to enamel, bone, pineal gland, thyroid, neurotoxicity."

Facts:

There is no valid, peer-reviewed scientific claims to support any of these claims of purported "health concerns" in association with optimally fluoridated water.

A. Mild dental fluorosis is the only dental fluorosis which may be attributable to optimally fluoridated water. Mild dental fluorosis is not "damage to enamel". It is simply a barely detectable effect which causes no adverse effects on cosmetics, form, function, or health of teeth. Was this effect a cause of "damage to enamel", the 2006 NRC Committee would have considered this to be an adverse health effect. The only dental fluorosis considered by this Committee to be an adverse health effect is severe. Severe dental fluorosis does not occur attributable to fluoride concentration of 2.0 ppm or lower. (9)

B. There is no valid evidence of any adverse effect on the pineal gland by optimal level fluoride.

C. There is no valid evidence of adverse effect on the thyroid from optimal level fluoride.

A statement from the British Fluoridation Society, approved by the British Thyroid Association:

"The available medical and scientific evidence suggests an absence of an association between water fluoridation and thyroid disorders."

"Many major reviews of the relevant scientific literature around the world support this conclusion. Of particular importance are:"

"an exhaustive review conducted in 1976 by an expert scientific committee of the Royal College of Physicians of England;"

"a systematic review in 2000 by the NHS Centre for Reviews and Dissemination at the University of York; and,"

"a 2002 review by an international group of experts for the International Programme on Chemical Safety (IPCS), under the joint sponsorship of the World Health Organisation (WHO), the United Nations Environment Programme (UNEP), and the International Labour Organisation (ILO)."

"None has found any credible evidence of an association between water fluoridation and any disorder of the thyroid." **(14)**

D. There is no valid, peer-reviewed scientific evidence of neurotoxicity of optimal level fluoride, Connett's discredited Chinese studies notwithstanding.

In a 2015 paper published in the American Journal of Public Health, Broadbent, et al concluded:

"These findings do not support the assertion that fluoride in the context of CWF programs is neurotoxic. Associations between very high fluoride exposure and low IQ reported in previous studies may have been affected by confounding, particularly by urban or rural status." **(15)**

24. Slide #38: "41% of ALL American children aged 12-15 (average from both fluoridated and non-fluoridated communities) had dental fluorosis"

Facts:

This "41%" is in reference to a 2010 CDC study by Beltran-Aguilar utilizing data from the National Health and Nutrition Examination Survey, 1999-2004 and the 1986-1987 National Survey of Oral Health in U.S. School Children, in which 41% of adolescents examined were observed to show signs of dental fluorosis.

This 41% was composed of 37.1% with mild to very mild dental fluorosis, both of which are barely detectable, benign effects requiring no treatment, and which have no effect on cosmetics, form, function, or health of teeth....with the other 3.8% being those with moderate dental

fluorosis, attributable to improper ingestion of toothpaste and/or exposure to abnormally high levels of environmental or well-water fluoride during the teeth forming years of 0-8. The amount of severe dental fluorosis noted was negligible.

The hypocrisy of this argument is that while Connert laments concern about benign, barely detectable mild dental fluorosis he callously ignores the lifetimes of extreme pain, debilitation, development of serious medical conditions, loss of teeth, and life-threatening infection directly resultant of untreated dental decay which can be, and is, prevented by water fluoridation. **(16)**

Mild Dental Fluorosis:



Livy DM, Brulter B, Marshall TA and colleagues. Associations between frequency of permanent incisors and fluoride intake from infant formula, other dietary sources and dentures during early childhood. JADA 2013;144(10):1188-1201. Copyright 2013 American Dental Association. All rights reserved. Reprinted by permission.



Livy DM, Brulter B, Marshall TA and colleagues. Associations between frequency of permanent incisors and fluoride intake from infant formula, other dietary sources and dentures during early childhood. JADA 2013;144(10):1188-1201. Copyright 2013 American Dental Association. All rights reserved. Reprinted by permission.



Livy DM, Brulter B, Marshall TA and colleagues. Associations between frequency of permanent incisors and fluoride intake from infant formula, other dietary sources and dentures during early childhood. JADA 2013;144(10):1188-1201. Copyright 2013 American Dental Association. All rights reserved. Reprinted by permission.



Livy DM, Brulter B, Marshall TA and colleagues. Associations between frequency of permanent incisors and fluoride intake from infant formula, other dietary sources and dentures during early childhood. JADA 2013;144(10):1188-1201. Copyright 2013 American Dental Association. All rights reserved. Reprinted by permission.

Four typical cases of mild fluorosis, seen in children participating in the Iowa Fluoride Study. (Images from ADA)

---<http://www.ada.org/en/member-center/oral-health-topics/fluorosis>

As can be noted from the ADA images, mild dental fluorosis is barely detectable. It is frequently not even known to those who have this effect unless it is pointed out to them by a dental professional.

Rozier, et al found that mild dental fluorosis had no negative effect on oral health-related quality of life (OHRQoL) in North Carolina schoolchildren and their families, while dental decay did have a negative impact on OHRQoL of this group. **(17)**

25. Slide #45: "Fluoride Level in Soil and Foliage in Cornwall, Ont. 1998"

Facts:

A. Fluoride has always existed naturally in the environment. It would be surprising not to find it in "soil and foliage".

B. Peer-reviewed science has demonstrated there to be no adverse effect on the environment from optimally fluoridated water.

Pollick concluded:

"Fluoridated water losses during use, dilution of sewage by rain and groundwater infiltrate, fluoride removal during secondary sewage treatment, and diffusion dynamics at effluent outfall combine to eliminate fluoridation related environmental effects. In a literature review, Osterman found no instance of municipal water fluoridation causing recommended environmental concentrations to be exceeded, although excesses occurred in several cases of severe industrial water pollution not related to water fluoridation. Osterman found that overall river fluoride concentrations theoretically would be raised by 0.001-0.002 mg/l, a value not measurable by current analytic techniques. All resulting concentrations would be well below those recommended for environmental safety." (1) (18)

26. Slide #50: "Peckham study"

Facts:

This is in reference to the widely discredited Peckham study discussed in item #8B above.

27. Slide #52: "Fluoride is neurotoxic. There are are over 300 animal and human studies that indicate that fluoride is neurotoxic. See www.FluorideAction"

Facts:

A. All substances known to man are toxic at improper levels, including plain water. There is no valid, peer-reviewed scientific evidence that optimal level fluoride is neurotoxic.

B. "Fluorideaction" is a redirect to "fluoridealert", the biased website of Connett's "fluoride action network". Connett seems not to understand that because a study has the word "fluoride" located in it somewhere does not make it relevant to optimally fluoridated water. He also seems not to understand that providing a link to his own webpage full of study titles, is valid evidence of nothing.

28. Slide #57: "The Harvard Meta-analysis"

Facts:

As discussed previously, this was not a Harvard study. It was a literature review conducted by two researchers who happen to be adjunct members of the faculty of the Harvard School of Public Health. The studies reviewed were conducted in regions of China, Mongolia, and Iran which have high levels of fluoride in groundwater and in the environment, due in large part to pollution from coal factories which release high levels of fluoride into the air, water, and ground.

From a recent news article:

"More than 80 percent of the water from underground wells used by farms, factories and households across the heavily populated plains of China is unfit for drinking or bathing because of contamination from industry and farming, according to new statistics that were reported by

Chinese media on Monday, raising new alarm about pollution in the world's most populous country."

"The latest study found that 32.9 percent of wells tested across areas mostly in Northern and Central China had Grade 4 quality water, meaning that it was fit only for industrial uses, National Business Daily said. An additional 47.3 percent of wells were even worse, Grade 5. The contaminants included manganese, fluoride and triazoles, a set of compounds used in fungicides. In some areas, there was pollution caused by heavy metals." (19)

This meta-analysis was a 2011 review of 27 Chinese studies dug out of obscure Chinese journals by researchers Phillippe Grandjean and Anna Choi. These studies were of the effects of high levels of fluoride (as high as 11.5 ppm) in the well-water of various Chinese, Mongolian, and Iranian villages.

As Grandjean and Choi are members of the faculty of the Harvard School of Public Health, antifluoridationists erroneously refer to this study as the "Harvard Study". After excluding studies which were so seriously flawed that they did not even warrant review, Grandjean and Choi ended up with 27 in their review. By their own admission these studies had key information missing, inadequate control for confounders, and questionable methodologies. These 27 studies were so seriously flawed that Grandjean and Choi were led to issue a public statement in March, 2012 that the studies should not be used to judge water fluoridation in the US. This obviously has not stopped "FAN" from doing so anyway.

"These results do not allow us to make any judgment regarding possible levels of risk at levels of exposure typical for water fluoridation in the U.S. On the other hand, neither can it be concluded that no risk is present. We therefore recommend further research to clarify what role fluoride exposure levels may play in possible adverse effects on brain development, so that future risk assessments can properly take into regard this possible hazard."

--Anna Choi, research scientist in the Department of Environmental Health at HSPH, lead author, and Philippe Grandjean, adjunct professor of environmental health at HSPH, senior author (4)

Given that the lead reviewers state that these studies are inadequate to use for judging fluoridated water in the US, it is a mystery why Connett constantly attempts to do so anyway.

29. Slide 72: "ADHD study"

Facts:

This is in reference to the widely discredited Malin study discussed in item #8C above.

30. Slide #76: "What primary studies can you cite that allow you to confidently ignore the evidence of fluoride's neurotoxicity? See the 300+ studies on fluorideaction"

Facts:

A. Connett's claim that there are "300+ studies." is meaningless. He properly cites not one of them. Providing a link to his own website on which are posted a litany of study titles is valid evidence of nothing.

B. In regard to "primary studies" which are indeed valid and relevant:

Broadbent:

"Conclusions.

These findings do not support the assertion that fluoride in the context of CWF programs is neurotoxic. Associations between very high fluoride exposure and low IQ reported in previous studies may have been affected by confounding, particularly by urban or rural status." (15)

31. Slide #77: "How can you claim that fluoridation is safe when there is no margin of safety to protect all our children from lowered IQ?"

Facts:

There is no valid, peer-reviewed scientific evidence of any "lowered IQ" associated with optimally fluoridated water.

32. Slide #78: "Phillippe Grandjean: Fluoride seems to fit in with lead, mercury, and other poisons that cause chemical brain drain."

Facts:

Yes, fluoride has been on the EPA list of neurotoxins for years. On that same list are such commonly ingested substances as aspartame (sweetener), ethanol (beer and other alcoholic beverages), salicylate (aspirin), caffeine, and nicotine. Fluoride at the optimal level at which water is fluoridated is no more neurotoxic than are these other substances at their proper use levels.

33. Slide #86: "Scottish Childsmile program"

Facts:

Childsmile does not even come close to being a viable replacement for water fluoridation.

From the British Fluoridation Society:

"The Scottish ChildSmile Program, while a good initiative, is saving no money. This program involves a supervised toothbrushing program in schools, twice yearly fluoride varnish applications in selected areas, and various education initiatives. The total number of children involved is 120,000. The total annual cost of the program is £15 million . This equals £125 per child per year."

"By contrast, the entire fluoridation programme currently serving 6 million people in England is costing around £2.1 million a year and is benefiting everyone with natural teeth, regardless of age, education or socio-economic status. Importantly, it is benefiting all children. The cost per person of fluoridation in England is therefore around 35 pence per annum."

"The fact that the British Dental Association in Scotland has recently come out publicly to call for Scottish communities to move towards introducing water fluoridation undermines the arguments of anti-fluoridation groups, whether in the United States or in the UK, that Childsmile is an adequate substitute for water fluoridation. The professional body representing dentists in Scotland does not see it that way."

"Childsmile is drastically more expensive than fluoridation, restricted to 120,000 school children, is dependent upon compliance of those children, has decay reduction no greater than fluoridation, and does not appear to have reduced SES inequalities." (20)

34. Slide #89: "In short, our kids need....."

Facts:

Connett hasn't the qualifications, credentials, or knowledge to make any credible recommendation on what "our kids", or anyone else needs, in regard to oral health. His naive, simplistic "solutions" assume that the overwhelming problem with untreated dental decay can be easily resolved just by telling everyone to eat better and brush their teeth. Yes, the bacteria causing dental decay feed on sugar. This is not news. Educational efforts on the role of nutrition in the prevention of dental decay have been ongoing for decades, as has education in proper home oral healthcare techniques, and other preventive measures. This will never cease. However, obviously it is not enough. Tens of millions of people suffer lifetimes of extreme pain, debilitation, black discoloration and loss of teeth, development of serious medical conditions, and life-threatening infection from untreated dental decay. We need all of the help we can get, and much more, if we are ever to make any inroads into this problem.

Constant efforts to undermine the most cost-effective means we have available to prevent significant amounts of dental decay in entire populations, is certainly not the way to proceed in dealing with the problem of untreated dental decay.

35. Slide #91: "The scientific evidence that swallowing fluoride causes a significant reduction in tooth decay is very weak"

Facts:

Countless, peer-reviewed scientific studies clearly demonstrate the effectiveness of fluoridation in the reduction of dental decay in entire populations. A list of such studies is provided at the end of this document.

36. Slide #92: "After 70 years there has been NO individual-based Randomized Controlled Trial (RCT) for water fluoridation!"

Facts:

.....and there never will be. RCTs are completely infeasible for large population-based public health initiatives, a fact fully recognized by the 2015 Cochrane Review. Cochrane acknowledged the unfairness of judging observational studies of public health initiatives against

the "gold standard" RCT, and understood that peer-reviewed observational studies are the best that will ever be attained for fluoridation. These observational studies are fully recognized by respected science and healthcare as being valid sources of information on fluoridation.

From Cochrane 2015:

"However, there has been much debate around the appropriateness of GRADE when applied to public health interventions, particularly for research questions where evidence from randomised controlled trials is never going to be available due to the unfeasibility of conducting such trials. Community water fluoridation is one such area."

"The quality of the evidence, when GRADE criteria are applied, is judged to be low. However, we accept that the terminology of 'low quality' for evidence may appear too judgmental. We acknowledge that studies on water fluoridation, as for many public health interventions, are complex to undertake and that researchers are often constrained in their study design by practical considerations. For many public health interventions, the GRADE framework will always result in a rating of low or very low quality. Decision makers need to recognise that for some areas of research, the quality of the evidence will never be 'high' and that, as for any intervention, the recommendation for its use depends not just upon the quality of the evidence but also on factors such as acceptability and cost-effectiveness (Burford 2012). In order to overcome some of the concerns around the use of GRADE within this review, a decision was made to omit the GRADE terminology of 'low quality' and discuss the findings in terms of our confidence level." (21)

37. Slides #95-98: "The Cochrane Review"

Facts:

This review has been misrepresented by Connett and his group since it was first released.

The Cochrane Review was an update of the 2000 York Review. As such, Cochrane set narrow parameters for fluoridation studies it would review, consistent with the parameters originally set by York. It then culled the scientific literature and found 155 studies, out of 4,600 fluoride studies considered, which fit within its parameters. This immediately excluded well over 4,000 quality, peer-reviewed fluoridation studies. Within the 155 studies Cochrane chose to review, it deemed the majority to fall within the parameters it had established for them to be considered at high risk of bias. It did not state that the studies were biased, nor invalid.

The Cochrane Review deemed that within the 155 studies it chose to review, there was insufficient data for Cochrane to assess the effectiveness of fluoridation on adults, its effective across SES, or the effect of cessation of fluoridation. It did not state that the science did not support any of this, simply that within the restricted number of studies it chose to review, there was insufficient data for Cochrane to offer an assessment of these aspects.

From Cochrane:

"Data suggest that the introduction of water fluoridation resulted in a 35% reduction in decayed, missing or filled baby teeth and a 26% reduction in decayed, missing or filled permanent teeth. It

also increased the percentage of children with no decay by 15%. Although these results indicate that water fluoridation is effective at reducing levels of tooth decay in children's baby and permanent teeth, the applicability of the results to current lifestyles is unclear because the majority of the studies were conducted before fluoride toothpastes and the other preventative measures were widely used in many communities around the world."

"There was insufficient information available to find out whether the introduction of a water fluoridation programme changed existing differences in tooth decay across socioeconomic groups."

"There was insufficient information available to understand the effect of stopping water fluoridation programmes on tooth decay. No studies met the review's inclusion criteria that investigated the effectiveness of water fluoridation for preventing tooth decay in adults, rather than children."

"The researchers calculated that, in areas with a fluoride level of 0.7 ppm in the water, approximately 12% of the people evaluated had fluorosis that could cause concern about their appearance." (21)

38. Slides #99-100: "Calgary Study"

Facts:

The allegations made by Connett and his followers about the McLaren study of fluoridation cessation in Calgary are slanderous and completely without merit.

What Connett falsely claims was "key data omitted" from McLaren was less sensitive data from a 2009-2010 survey which McLaren had utilized in a previous study which had also demonstrated adverse effect of cessation. The 2009-2010 data utilized decayed, missing, and filled *teeth* as its parameters, rather than the more sensitive decayed, missing, and filled *surfaces* which McLaren measured in the more recent study. Comparing DMFT with DMFS is apples and oranges. In addition, in the more recent study, McLaren had the advantage of having data from a similar Canadian city, Edmonton, which had not ceased fluoridation, to use as control group for Calgary, which had ceased fluoridation. The 2009-2010 data was for Calgary only. There was no data for Edmonton in that survey. Thus, no valid comparison could be made. Given the unsuitability of the 2009-2010 data, McLaren had to go back to data from a 2004-2005 survey in order to obtain DMFS data for both Calgary and Edmonton, which could then be compared against the 2014 DMFS data for Calgary and Edmonton.

In making such outlandish claims about the McLaren study, Connett demonstrates that he either has no real understanding of scientific study, that he hasn't bothered to read the McLaren study, or that he is intentionally spreading what he knows to be false information about this study.

39. Slide 106: "Not one of the people recommending that fluoride be added to Cornwall's water accepts any legal or fiscal responsibility for any harm that may occur."

Facts:

Water fluoridation is a widely accepted public health initiative that is utilized in 74.7% of the United States. Local governing bodies which act in what they believe to be in the best interests

of their constituencies, approving initiatives which have wide ranging acceptance in similar communities, and who have exercised due diligence in ascertaining the safety and effectiveness of such initiatives....have fulfilled their responsibilities.

Those on whom decision-makers rely for appropriate recommendations are not expected to "accept any legal or fiscal responsibility". If one accepts Connett's "logic" then it is noticeable that he does not "accept any legal or fiscal responsibility" for the lifetimes of devastating, astronomically expensive, effects resultant of untreated dental decay which can be, and is, prevented by the public health initiative he seeks to undermine through the constant, intentional dissemination of misinformation. There is far more legal and fiscal liability for one who acts as irresponsibly and callously as does Connett than for any who perform due diligence and act responsibly in accord with widely accepted practices.

In the 71 year history of fluoridation,with antifluoridationists having threatened frivolous legal action since the very beginning, no court of last resort has ever affirmed antifluoridationist contentions.

In the highly litigious, 74.7% fluoridated United States, was there any validity to threats of legal action against fluoridation there would have been a constant flow of such lawsuits having been tried and/or settled. There have been none. Why? Because water fluoridation is nothing but the simple adjustment of the concentration level of a mineral which has always existed in water.

40. Slide #106: "Councillors would need to have extensive scientific backgrounds and a lot of time to study the literature to reach a position one way or the other that they can support with scientific confidence"

Facts:

Yes. This is precisely why councillors must rely on the best available information and recommendations from those best qualified to render appropriate ones.

Thus, the question is.....

On whose recommendations do the councillors wish to rely? Those of a retired Chemistry professor, "senior advisor" to a New York activist faction, who has no healthcare education, training, or experience, who pushes sales of his book at every opportunity, who constantly attempts to steer people to the filtered and edited information on the biased website of his activist faction instead of to reliable, respected sources, and who has been clearly demonstrated to have presented patently false, misleading information, and misrepresented science to those councillors?.....or

On the recommendations of the local healthcare community, healthcare professionals, public health officers, and leading healthcare providers, experts, and organizations all of whom have the best interests of the community, and the peer-reviewed science solidly supporting their recommendations?

References

- (1)** Water Fluoridation and the Environment: Current Perspective in the United States
Howard F. Pollick, BDS, MPH
Int J Occup Environ Health 2004;10:343–350
- (2)** 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
- (3)** Fact Sheet on Fluoridation Chemicals
NSF International
<http://www.nsf.org/newsroom/nsf-fact-sheet-on-fluoridation-chemicals>
- (4)** Harvard Statement
https://cdn1.sph.harvard.edu/wp-content/uploads/sites/21/2012/07/Media-Statement_Fluoride-9-12-12-Revised2.pdf
- (5)** No Evidence Supports the Claim That Water Fluoridation Causes Hypothyroidism
J Evid Base Dent Pract 2015;15:137-139 1532-3382
Warren, J.J., Saraiva M.C.P.
- (6)** Commentary on “Are fluoride levels in drinking water associated with hypothyroidism prevalence in England?”
A large observational study of GP practice data and fluoride levels in drinking water”
Grimes DR. J Epidemiol Community Health
Published Online First: doi:10.1136/jech-2015-205708
- (7)** Atten Disord. 2015 Mar 25. pii: 1087054715577137. [Epub ahead of print]
Association Between Altitude and Regional Variation of ADHD in Youth.
Huber RS, Kim TS, Kim N, Kuykendall MD, Sherwood SN, Renshaw PF, Kondo DG.
- (8)** <http://www.fluoridescience.org/articles/exposure-to-fluoridated-water-and-attention-deficit-hyperactivity-disorder-prevalence-among-children-and-adolescents-in-the-united-states-an-ecological-association/#sthash.tQUCKMKJi.dpuf>
- (9)** Fluoride in Drinking Water: A Scientific Review of EPA's Standards
Committee on Fluoride in Drinking Water, National Research Council 2006
- (10)** Doull email
<http://www.ilikemyteeth.org/wp-content/uploads/2013/03/Doull-Email-on-CWF-March-2013.pdf> (American Academy of Pediatrics)
- (11)** Dietary Reference Intakes (DRIs): Tolerable Upper Intake Levels, Vitamins
Food and Nutrition Board, Institute of Medicine, National Academies
http://iom.edu/Activities/Nutrition/SummaryDRIs/~/_media/Files/Activity%20Files/Nutrition/. DRIs/ ULs%20for%20Vitamins%20and%20Elements.pdf

(12) The Precautionary Principle

https://en.m.wikipedia.org/wiki/Precautionary_principle

(13) Water fluoridation for the prevention of dental caries (Review)

Copyright © 2015 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

(14) BRITISH FLUORIDATION SOCIETY STATEMENT (January 2006) on the absence of an association between water fluoridation and thyroid disorders.

This statement has been reviewed and endorsed by the British Thyroid Association (BTA); however, the BTA would recommend that appropriate monitoring of thyroid status should be considered in areas where fluoridation is introduced to enable an ongoing epidemiological evidence base for thyroid status with fluoridation to be created.

(15) Community Water Fluoridation and Intelligence: Prospective Study in New Zealand

Jonathan M. Broadbent, PhD, W. Murray Thomson, BSc, PhD, Sandhya Ramrakha, PhD, Terrie E. Moffitt, PhD, Jiaxu Zeng, PhD, Lyndie A. Foster Page, BSc, PhD, and Richie Poulton, PhD

(Am J Public Health. Published online ahead of print May 15, 2014: e1–e5. doi:10.2105/AJPH.2013.301857)

(16) Prevalence and Severity of Dental Fluorosis in the United States, 1999-2004

Eugenio D. Beltrán-Aguilar, D.M.D., M.S., Dr.P.H.; Laurie Barker, M.S.P.H.; and Bruce A. Dye, D.D.S., M.P.H.

(17) J Dent Res. 2014 Oct;93(10):972-9. doi: 10.1177/0022034514548705. Epub 2014 Aug 25.

Effects of enamel fluorosis and dental caries on quality of life.

Onoriobe U1, Rozier RG2, Cantrell J3, King RS4.

(18) Osterman JW. Evaluating the impact of municipal water fluoridation on the aquatic environment. Am J Public Health. 1990; 80:1230-5.

(19) Asia Pacific

Rural Water, Not City Smog, May Be China's Pollution Nightmare

Chris Buckley and Vanessa Piao

April 11, 2016

(20) Paul Castle

British Fluoridation Society

(21) Water fluoridation for the prevention of dental caries

(Review)

Ihezor-Ejiofor Z, Worthington HV, Walsh T, O'Malley L, Clarkson JE, Macey R, Alam R, Tugwell P, Welch V, Glenny AM

The Cochrane Collaboration

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010856.pub2/abstract>

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:10.1186/1472-6831-15-9 <http://www.biomedcentral.com/1472-6831/15/9>

2) 2000

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

<http://www.ncbi.nlm.nih.gov/pubmed/11109211>

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) 1995

<http://www.ncbi.nlm.nih.gov/pubmed/7643331>

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.

Source

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.

Source

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.

Source

Department of Paediatric Dentistry, University of São Paulo, Bauru, São Paulo, Brazil. jrlauris@fob.usp.br

<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.

Source

Health Service Executive, Sligo, Republic of Ireland. joej.mullen@hse.ie

<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.

Research Design: Consecutive clinical case series: clinical details (diagnoses and the treatments provided) were recorded for children who had received comprehensive dental care under GA between 2000 and 2009. Age, gender, ethnicity, socio-economic status and fluoridation status (determined from the residential address) were also recorded.

<http://www.ncbi.nlm.nih.gov/pubmed/23550501>

Scientific Rebuke of Claims of Disorders

1. Cancer? No.

There is overwhelming consensus that there is no valid evidence linking water fluoridation to ANY cancer.

A review of worldwide studies by The International Agency for Research on Cancer (IARC) concluded there was no evidence of an increase in cancer rates associated with fluoride in drinking water.

-----International Agency for Research on Cancer, IARC Monographs on the Evaluation of Carcinogenic Risks of Chemicals to Humans, Volume 27. 1982

- The San Francisco Department of Public Health Occupational Health and Environmental Health Section states that within a search of relevant peer reviewed medical literature to September 2005, a total of seven (7) epidemiological studies were discovered, none of which showed a relationship between fluoride exposure and osteosarcoma

----- (Moss et al. 1995, Gelberg et al. 1995, Freni and Gaylor 1992, Grandjean et al. 1992, McGuire et al. 1991, Mahoney et al. 1991, Hrudey et al. 1990).

-----San Francisco Department of Public Health, Current Scientific Evidence: Water Fluoridation is not associated with osteosarcoma. 2005,

Three small case control studies of osteosarcoma (McGuire et al 1995, Gelberg et al 1995, Moss et al 1995) have been reviewed by the Australian National Health and Medical Research Council in 1999. None of these studies found any evidence of fluoride increasing the risk of osteosarcoma.

-----Ahokas, J., et al., Review of water fluoridation and fluoride intake from discretionary fluoride supplements: review for NHMRC. 1999. Royal Melbourne Institute of Technology and Monash University: Melbourne.

The York Review (2000), a systematic review of 214 studies of varying quality, found no clear association between fluoridation of water and osteosarcoma.

-----McDonagh M S, et al., Systemic review of water fluoridation. BMJ, 2000. 321.

A study by Hoover et al found no relationship between osteosarcoma and fluoridation. This study is important because of the large numbers involved (125,000 incident cancers, and 2.3 million cancer deaths).

-----Medical Research Council Working Group, Water fluoridation and health. 2002, Medical Research Council: United Kingdom.

In 2002 the British Medical Research Council agreed that overall, evidence does not suggest that artificially fluoridated water increase the risk of cancer.

-----Medical Research Council Working Group, Water fluoridation and health. 2002, Medical Research Council: United Kingdom.

A review of fluoride by the Scientific Panel on Dietetic Products, Nutrition and Allergies published by the European Food Safety Authority in 2005, found no increased risk of cancer from drinking fluoridated water.

-----European Food Safety Authority, Opinion of the Scientific Panel on Dietetic products, Nutrition and Allergies on a request from the Commission related to the Tolerable Upper Intake Level of Fluoride. The EFSA Journal, 2005. 192: p. 1-65.

2. Kidney? No

"Because the kidneys are constantly exposed to various fluoride concentrations, any health effects caused by fluoride would likely manifest themselves in kidney cells. However, several large community-based studies of people with long-term exposure to drinking water with fluoride concentrations up to 8 ppm have failed to show an increase in kidney disease."

-----https://www.kidney.org/atoz/pdf/Fluoride_Intake_in_CKD.pdf

"People exposed to optimally fluoridated water will consume 1.5mg of fluoride per day. Available studies found no difference in kidney function between people drinking optimally fluoridated and non-fluoridated water. There is discrepant information in studies relating to the potential negative effects of consuming water with greater than 2.0ppm of fluoride."

"Available literature indicated that impaired kidney function results in changes in fluoride retention and distribution in the body. People with kidney impairment showed a decreased urine fluoride and increased serum and bone fluoride correlated with degree of impairment; however, there was no consistent evidence that the retention of fluoride in people with stage four or stage five CKD, consuming optimally fluoridated water, resulted in negative health consequences."

-----Ludlow M, Luxton G, Mathew T. Effects of fluoridation of community water supplies for people with chronic kidney disease. Nephrol Dial Transplant 2007; 22:2763-2767

3. IQ Reduction? No

Results.

No significant differences in IQ because of fluoride exposure were noted. These findings held after adjusting for potential confounding variables, including sex, socioeconomic status, breastfeeding, and birth weight (as well as educational attainment for adult IQ outcomes).

Conclusions.

These findings do not support the assertion that fluoride in the context of CWF programs is neurotoxic. Associations between very high fluoride exposure and low IQ reported in previous studies may have been affected by confounding, particularly by urban or rural status.

---Community Water Fluoridation and Intelligence:

Prospective Study in New Zealand

Jonathan M. Broadbent, PhD, W. Murray Thomson, BSc, PhD, Sandhya Ramrakha, PhD, Terrie E. Moffitt, PhD, Jiaxu Zeng, PhD, Lyndie A. Foster Page, BSc, PhD, and Richie Poulton, PhD
(Am J Public Health. Published online ahead of print May 15, 2014: e1–e5. doi:10.2105/AJPH.2013.301857)

(4) Thyroid? No.

BRITISH FLUORIDATION SOCIETY STATEMENT (January 2006) on the absence of an association between water fluoridation and thyroid disorders.

This statement has been reviewed and endorsed by the British Thyroid Association (BTA); however, the BTA would recommend that appropriate monitoring of thyroid status should be considered in areas where fluoridation is introduced to enable an ongoing epidemiological evidence base for thyroid status with fluoridation to be created.

The available medical and scientific evidence suggests an absence of an association between water fluoridation and thyroid disorders.

Many major reviews of the relevant scientific literature around the world support this conclusion. Of particular importance are:

an exhaustive review conducted in 1976 by an expert scientific committee of the Royal College of Physicians of England;

a systematic review in 2000 by the NHS Centre for Reviews and Dissemination at the University of York; and,

a 2002 review by an international group of experts for the International Programme on Chemical Safety (IPCS), under the joint sponsorship of the World Health Organisation (WHO), the United Nations Environment Programme (UNEP), and the International Labour Organisation (ILO).

None has found any credible evidence of an association between water fluoridation and any disorder of the thyroid.

Report of Royal College of Physicians:

A scientific committee was established by the Royal College of Physicians to review whether, and to what extent, water fluoridation benefited people's teeth and whether there were any harmful effects to general human health. As well as confirming that water fluoridation reduces levels of tooth decay, the review also found that it was safe.

Specifically, the report concluded that "there is no evidence that fluoride is responsible for any disorder of the thyroid". It also confirmed that iodine deficiency was the root cause of goitre, and that fluoride does not significantly influence the thyroid's uptake of iodine.

The University of York Review:

Published in 2000, the York Systematic review identified over three thousand references in total. However, they found no scientific studies of an acceptable scientific standard that would support suggestions of an association between water fluoridation and thyroid disorders, including goiter, in the populations drinking fluoridated water.

When the Medical Research Council subsequently used the York report as a basis for determining whether further research on any aspect of water fluoridation was needed, it concluded on the basis of the evidence already available that new research on fluoride and thyroid disorders should be regarded as a low priority.

Review by the International Programme on Chemical Safety (IPCS):

The IPCS review of fluoride was one of several published by the World Health Organisation intended to "provide critical reviews on the effects on human health and the environment of chemicals and of combinations of chemicals ...", and to "assist national and international authorities in making risk assessments and subsequent risk management decisions." As such, it examined evidence on fluoride relevant to all aspects of human health.

The review, which included 788 original studies from the worldwide scientific literature – both published and unpublished - identified no evidence of an association between fluoride and thyroid dysfunction in humans.

Experience in the UK's most extensively fluoridated region:

The conclusions of these authoritative reviews are mirrored by the experience of specialist doctors diagnosing and treating thyroid disorders in hospitals in the West Midlands, which has had fluoridation schemes in operation since the mid-1960s and which is today the most extensively fluoridated region of the United Kingdom. Around seven out of ten people in the West Midlands now drink water whose natural fluoride content has been topped up to the optimum for dental health of one part of fluoride per million parts of water.

Dr. Andy Toogood, a consultant endocrinologist in the Department of Medicine at the Queen Elizabeth Hospital in Birmingham, says that he and his colleagues have seen nothing to suggest a rise in thyroid disorder cases resulting from water fluoridation.

Nor have public health officials who monitor trends in disease across the West Midlands detected any impact on the health of local populations drinking fluoridated water - other than a reduction in tooth decay levels which puts children living in the West Midlands among the best in the country for dental health.

Notes

Sources of fluoride

All drinking water and virtually all foodstuffs contain measurable amounts of fluoride; tea leaves are particularly rich in fluoride, as is fish. We are all, therefore, exposed to fluoride from natural sources on a daily basis.

Furthermore, around 400 million people worldwide drink fluoridated water – including 150 million in the US. Water supplies for many communities have been fluoridated for over 60 years. If fluoridation caused any adverse effects – including thyroid disorders - it is inconceivable that the reviews to date would have missed them.

Water fluoridation: Fluoride occurs naturally in all water supplies. In many parts of the world – for example Hartlepool in the North East of England, and many parts of East Anglia and Essex - the level is around the optimal for dental health (one part of fluoride per million parts of water – 1ppm). However many communities lack sufficient natural fluoride in their drinking water to prevent tooth decay, and because of the significant health benefits of the right amount of fluoride, the World Health Organisation recommends water fluoridation.

Water fluoridation takes place at the water treatment works. It is the controlled adjustment of the naturally occurring fluoride in the water to a level known to be safe, and to benefit dental health (1ppm).

References:

McDonagh, M., et al. (2000): A systematic review of public water fluoridation. York, The University of York NHS Centre for Reviews and Dissemination. Report 18.

Medical Research Council (2002): Working Group Report: Water fluoridation and health. London, MRC.

Royal College of Physicians (1976): Fluoride Teeth and Health. London, Pitman Medical: 83.

International Programme on Chemical Safety (2002): Environmental Health Criteria 227 FLUORIDES. Geneva, World Health Organisation.

Copyright © British Fluoridation Society. All rights reserved. Copyright and Disclaimer

http://www.bfsweb.org/facts/sof_effects/statementofflo.htm

Statements of Support

"Numerous reputable studies over the years have consistently demonstrated that community water fluoridation is safe, effective, and practical. Fluoridation has made an enormous impact on improving the oral health of the American people. "

"Our country is fortunate to have over 204 million Americans living in fluoridated communities and having access to the health and economic benefits of this vital public health measure."

Sincerely,

Jeffrey S. Flier, MD
Dean of the Faculty of Medicine
Caroline Shields Walker Professor of Medicine
Harvard Medical School

R. Bruce Donoff, DMD, MD
Dean and Walter C. Guralnick Distinguished Professor of Oral and Maxillofacial Surgery
Harvard School of Dental Medicine

Julio Frenk, MD, MPH, PhD
Dean of the Faculty, Harvard School of Public Health
T & G Angelopoulos Professor of Public Health and International Development,
Harvard School of Public Health and Harvard Kennedy School

"I do not believe there is any valid, scientific reason for fearing adverse health conditions from the consumption of water fluoridated at the optimal level"

---John Doull, MD, PhD, Chair of the National Academy of Sciences, National Research Council
2006 Committee Report on Fluoride in Drinking Water

"With the development of fluoridated drinking water and dental sealants, Americans are less likely to experience tooth loss and gingivitis by middle age ... Community water fluoridation continues to be a vital, cost-effective method of preventing dental [cavities]."

Dr. Regina Benjamin, Surgeon General (2009-current)

* * * * *

"Water fluoridation has helped improve the quality of life in the United States by reducing pain and suffering related to tooth decay, time lost from school and work, and money spent to restore, remove or replace decayed teeth."

Dr. Richard Carmona, Surgeon General (2002-2006)

* * * * *

“More than 50 years of scientific research has found that people living in communities with fluoridated water have healthier teeth and fewer cavities than those living where the water is not fluoridated. ... A significant advantage of water fluoridation is that anyone, regardless of socioeconomic level, can enjoy these health benefits during their daily lives — at home, work, or at school or play — simply by drinking fluoridated water or beverages prepared with fluoridated water.”

Dr. David Satcher, Surgeon General (1998-2002)

* * * * *

“Data consistently have indicated that water fluoridation is the most cost-effective, practical, and safe means for reducing the occurrence of tooth decay in a community.”

Dr. Audrey Manley, Surgeon General (1995-1997)

* * * * *

Fluoridation is “the single most important commitment a community can make to the oral health of its children and to future generations.”

Dr. C. Everett Koop, Surgeon General (1982-1989)

The American Dental Association

“Studies conducted throughout the past 65 years have consistently shown that fluoridation of community water supplies is safe and effective in preventing dental decay in both children and adults.”

The American Academy of Pediatrics

“Fluoride plays a very important role in the prevention of dental [decay]. Although the primary mechanism of action of fluoride in preventing dental [decay] is topical, systemic mechanisms are also important.”

The Centers for Disease Control and Prevention

“For many years, panels of experts from different health and scientific fields have provided strong evidence that water fluoridation is safe and effective.”

The American Academy of Family Physicians

“Fluoridation of public water supplies is a safe, economical and effective measure to prevent dental [decay].”

The Institute of Medicine

“Evidence continues to reaffirm that community water fluoridation is effective, safe, inexpensive, and is associated with significant cost savings.”

The American Public Health Association

“Much of the credit for the nation’s better oral health can be attributed to the decision in the 1940s to begin adding fluoride to public drinking water systems.”

Organizations Which Fully Understand The Importance of Fluoridation

The following is a list of over 150 prestigious fluoridation supporting organizations compiled by the Quebec National Institute of Public Health:

Academy of Dentistry International

Academy of General Dentistry

Academy for Sports Dentistry

Alzheimer's Association

America's Health Insurance Plans

American Academy of Family Physicians

American Academy of Nurse Practitioners

American Academy of Oral and Maxillofacial Pathology

American Academy of Orthopaedic Surgeons

American Academy of Pediatrics

American Academy of Pediatric Dentistry

American Academy of Periodontology

American Academy of Physician Assistants

American Association for Community Dental Programs

American Association for Dental Research

American Association for Health Education

American Association for the Advancement of Science

Institut national de santé publique du Québec 37

American Association of Endodontists

American Association of Oral and Maxillofacial Surgeons

American Association of Orthodontists
American Association of Public Health Dentistry
American Association of Women Dentists
American Cancer Society
American College of Dentists
American College of Physicians-American Society of Internal Medicine
American College of Preventive Medicine
American College of Prosthodontists
American Council on Science and Health
American Dental Assistants Association
American Dental Association
American Dental Education Association
American Dental Hygienists' Association
American Dietetic Association
American Federation of Labor and Congress of Industrial Organizations
American Hospital Association
American Institute of Nutrition
American Legislative Exchange Council
American Medical Association
American Nurses Association
American Osteopathic Association
American Pharmaceutical Association
American Pharmacists Association
American Public Health Association

American School Health Association

American Society for Clinical Nutrition

American Society for Nutritional Sciences

American Student Dental Association

American Veterinary Medical Association

American Water Works Association

Association for Academic Health Centers

Association of American Medical Colleges

Association of Clinicians for the Underserved

Association of Maternal and Child Health Programs

Association of State and Territorial Dental Directors

Association of State and Territorial Health Officials

Association of State and Territorial Public Health

Australian National Health and Medical Research Council NHMRC

Australian Dental Association ADA

Australian Health Ministers' Conference

Australia New South Wales Department of Health

Nutrition Directors

British Dental Association

British Fluoridation Society

British Medical Association

Center for Science in the Public Interest

Child Welfare League of America

Consumer Federation of America

Children's Dental Health Project
Consumer Federation of America
Council of State and Territorial Epidemiologists
Delta Dental Plans Association
European Organization for Caries Research
Fédération Dentaire Internationale FDI
Federation of American Hospitals
Food and Nutrition Board
Great Britain Ministry of Health
Health Insurance Association of America
Hispanic Dental Association
Indian Dental Association U.S.A.
Institute of Medicine
International Association for Dental Research
International Association for Orthodontics
International College of Dentists
March of Dimes Birth Defects Foundation
Mayo Clinic
National Academy of Science
National Association of Community Health Centers
National Association of County and City Health Officials
National Association of Dental Assistants
National Association of Local Boards of Health
National Association of Social Workers

National Cancer Institute
National Council Against Health Fraud
National Dental Assistants Association
National Dental Association
National Dental Hygienists' Association
National Down Syndrome Congress
National Down Syndrome Society
National Eating Disorders Association
National Foundation of Dentistry for the Handicapped
National Health Council
National Head Start Association
National Health Law Program
National Healthy Mothers, Healthy Babies Coalition
New Zealand Ministry of Health
Oral Health America
Pan American Health Organization
Public Health Association of Australia
Robert Wood Johnson Foundation
Royal College of Physicians London
Society for Public Health Education
Society of American Indian Dentists
Special Care Dentistry
The Children's Health Fund
The Dental Health Foundation of California
U.S. Department of Defense

U.S. Department of Veterans Affairs
U.S. Public Health Service
U.S. Surgeon General
Health Resources and Services Administration HRSA
Centers for Disease Control and Prevention CDC
Food and Drug Administration FDA
Indian Health Service
Health Resources and Services Administration HRSA
National Institute of Dental and Craniofacial Research NIDCR
World Federation of Orthodontists
World Health Organization
Quebec Order of dentists
Quebec order of dental hygienists
Quebec college of physicians
Québec Association of Pediatricians
Quebec order of pharmacists
Quebec Federation of family physicians
Coalition Of Physicians for Social Justice
McGill University Faculty of Dentistry
Montreal Public Health Department
Quebec association of public health dentists
Montreal Children's Hospital Council of Community Pediatricians
Montreal Children' Hospital Child Development Program
Quebec dental academy

St-Justine Hospital department of pediatrics

St-Justine Hospital university center

Table de concertation des hygienistes dentaires en sante communautaire des régions

Montreal, Laval, Laurentides et Lanaudiere

Montreal Research Centre on Social Inequalities in Health

University of Montreal department of social and preventive medicine

Dental association for disabled people

Quebec department of health and social services

Quebec department of environment

Canadian Association of Dental Public Health

Canadian Dental Association

Canadian Dental Hygienist Association

Canadian Medical Association

Canadian Nurses Association

Canadian Pediatric Society

Canadian Public Health Association

Health Canada