

Experts Confirm Extremely Low Levels of Fluoride Reduce IQ

Analysis by Stuart Cooper, Campaign Director, Fluoride Action Network

STORY AT-A-GLANCE

- › New studies find that fluoride levels four to five times lower than those found in pregnant women in fluoridated communities cause IQ loss for the child, and that older women in fluoridated communities have a 50% higher risk of hip fractures
- › Plaintiffs suing the EPA in federal court over fluoridation's neurotoxicity have continued to win legal victories and have shared deposition videos exposing CDC and EPA negligence
- › The former NTP director joined the chorus of scientific and public health experts raising alarms about neurotoxic risk, but the dental lobby responded by doubling their fluoridation expansion efforts

A landmark study by Grandjean, et al.,¹ has been published confirming that very low levels of fluoride exposure during pregnancy impair the brain development of the child and at a population level may be causing more damage than lead, mercury or arsenic.

The study found that a maternal urine fluoride concentration of 0.2 mg/L, which is exceeded four to five times in pregnant women living in fluoridated communities, was enough to lower IQ by one point. The authors stated that even this impact is likely underestimated and:

"These findings provide additional evidence that fluoride is a developmental neurotoxicant ... and the benchmark results should inspire a revision of water-

fluoride recommendations aimed at protecting pregnant women and young children.”

A urinary fluoride (UF) concentration of 0.2 mg/L is far below what a pregnant woman in a fluoridated community would have, as confirmed by two recent studies.

A study of pregnant women in fluoridated San Francisco, California,² found a mean UF concentration of 0.74 mg/L, and one with participants in fluoridated communities across Canada³ found a mean UF concentration of 1.06 mg/L. Both levels were significantly higher than those found in women in nonfluoridated communities.

Grandjean, et al.'s study, published in Risk Analysis, was a benchmark dose (BMD) analysis of the pooled data from the National Institutes of Health (NIH) funded ELEMENT and MIREC birth cohorts in Mexico and Canada. These are the birth cohorts that were used in the studies that found exposure to low levels of fluoride during pregnancy is linked to cognitive impairment in children.^{4,5,6,7}

A Benchmark Dose is used to identify a dose or concentration that would likely cause a defined amount of harm, in this case a loss of one IQ point.

What makes this paper so important is that BMD is part of the U.S. Environmental Protection Agency's (EPA) risk assessment methodology, and the paper's authors used a one IQ point drop as the adverse effect amount because the EPA has used this same level of IQ loss in their own risk assessments and has recommended use of such a level.

It has been well established that a loss of one IQ point leads to a reduced lifetime earning ability of \$18,000. Summed over the whole population we are talking about a loss of billions of dollars of earning ability each year.

It is estimated that over 72% of public drinking water systems in America are fluoridated; thus, millions of pregnant women are currently being exposed to levels of fluoride that have the potential to lower their children's IQ by at least four points and probably more.

Moreover, it's important to point out that in risk assessments using BMD methodology, it's standard practice to apply a safety factor on top of the calculated BMD in order to determine a safe reference dose (RfD) to protect the whole population (including the most vulnerable) from harm.

If that safety factor used was the standard safety margin of 10, to account for the variables in population-wide sensitivity, then the EPA might conclude that any urine fluoride concentration above 0.02 mg/L would be unacceptable and "unsafe." This is 35 times lower than what the American Dental Association and Centers for Disease Control and Prevention recommend for fluoridated communities.

Study Submitted to Judge in Federal Fluoridation Lawsuit

Michael Connett, the lead lawyer for the plaintiffs in the lawsuit against the EPA, has sent a copy⁸ of this BMD analysis to the judge presiding over the case currently in federal court. The Fluoride Action Network is involved in an ongoing federal lawsuit⁹ against the EPA seeking to prohibit the deliberate addition of fluoride to drinking water because of its neurotoxicity.

A trial was held in June 2020, which featured world-renowned experts¹⁰ testifying in court that fluoridation posed a danger on par with lead. At the conclusion, the judge stated that we had presented "serious evidence" that presents "serious questions" about the safety of fluoridation, and said, "I don't think anyone disputes that fluoride is a hazard."

The judge also noted that the EPA had used an incorrect standard for assessing the available science and offered them a second chance to review it accurately, which they have declined repeatedly.

Since last summer, we have also won several legal victories, including rulings against EPA motions to dismiss the case and a recent ruling in April 2021 granting our motion to amend our original 2016 petition to include the latest studies and a more detailed listing of plaintiffs.

In the written order,¹¹ the court dismantles the EPA's arguments one by one, showing that the judge is committed to ensuring that all of the science is considered and remains the focus, which is a very good sign for our side.

The ruling also sets a precedent for future environmental cases under the Toxic Substances Control Act (TSCA) by allowing petitioners to update and amend complaints to include the most up-to-date science during the trial, rather than restart the multiyear petition process over as the EPA attorneys wanted.

The court will hold the trial in abeyance until the final National Toxicology Program monograph on fluoride's neurotoxicity is published possibly later this year. The judge was also awaiting the release of the benchmark dose analysis mentioned above and at least one additional study due out later in 2021.

Once all of this new research is available to the court, the judge could potentially hold a second phase of the trial, allowing additional discovery and testimony only on this new evidence. In fact, during the April 22, 2021, status hearing, the judge said this was his preference, and in the court order it is written, "As this Court has indicated, the evolving science warrants reopening of expert discovery and trial evidence."

The court order indicated that once the judge has had the opportunity to see the new evidence and hear from both sides, the Fluoride Action Network will be able to resubmit our amended petition to the EPA for what will likely be one last opportunity for their reconsideration before a final ruling is made by the judge.

The next court hearing will be August 26, 2021, at 10:30 a.m. (Pacific U.S.). To get additional updates and links to view the hearing, follow FAN on [Facebook](#) and [Twitter](#) or sign up for our [weekly bulletin](#).

For those wanting to catch up on this precedent setting trial, we have several resources available for you. First is a [16-minute video](#) featuring our attorney, Michael Connett, providing a detailed background on the case and trial. Second, we have a [30-minute interview](#) of Connett by Robert F. Kennedy Jr. Third, FAN has a comprehensive database of documents, timelines, media coverage and materials about the lawsuit [on our website](#).

Damning Deposition Videos

The talking point we probably hear the most from proponents at council hearings, and repeated by policy makers, is that government agencies like the CDC and EPA vouch for fluoridation's safety and effectiveness, and regulate the practice responsibly, so therefore it must be true and we must be wrong.

Instead of verifying any of these claims, policy makers have put their blind trust in these agencies. The media outlets, on the other hand, which should be the nation's watchdog, have suspended their professionalism by not only blindly trusting these agencies, but also by discrediting those opposed to fluoridation.

Under oath, representatives from these agencies proved that their mantra of "safe and effective" is only a baseless claim used to promote a failed policy. In this first video, Casey Hannan, the director of the CDC's Oral Health Division, testifies that the CDC has no data¹² establishing the safety of fluoride's effect on the brain, despite decades of touting the safety of fluoridation for all citizens, including children.

In this second video, Hannan admits there is no prenatal or early-life benefit¹³ from fluoride despite its known neurotoxicity to this same sub-population. In the third video, Joyce Donohue, Ph.D., a scientist from the EPA's Office of Water, admits that the EPA's current fluoride risk assessment, and thus fluoridation regulations, are out of date and should be updated¹⁴ in response to the collection of studies showing neurotoxicity published over the past several years.

These three videos are just a small taste of what was admitted under oath by representatives of the government agencies responsible for protecting the health of Americans.

For example, during the trial we also watched a video of CDC's Hannan agreeing with the finding that "fluorides also increase the production of free radicals in the brain ... and increase risk of Alzheimer's disease," as well as agreeing with the National Research Council finding that "it is apparent that fluorides have the ability to interfere with the function of the brain and body by direct and indirect means."

FAN will be able to share much more of this video content with you after a ruling is made in the trial, exposing the failure of these agencies to protect the public from overexposure to fluoride.

Former NTP Director Warns Parents in Op-Ed

Along with the avalanche of new peer-reviewed studies showing harm and the lawsuit exposing government negligence, there has been an ever-growing chorus of warnings to the public and opposition to fluoridation from researchers and public health experts. This includes the former director of both the National Institute of Environmental Health Sciences and the National Toxicology Program of the National Institutes of Health.

Toxicologist and microbiologist Linda Birnbaum, Ph.D., co-authored an op-ed appearing in Environmental Health News with Christine Till, Ph.D., an associate professor of psychology at York University in Toronto, Canada, and Dr. Bruce Lanphear, MPH, a physician, clinical scientist and professor at Simon Fraser University in Vancouver, Canada.

Till is a co-author of several significant fluoride studies including the JAMA Pediatrics fluoride neurotoxicity study¹⁵ and others finding lowered IQ, increased diagnosis of ADHD and thyroid impairment. She received a leadership award from York University, in part, for this groundbreaking research.

Lanphear is also an award-winning researcher who has been a member of two National Academies of Science committees, is a member of the EPA's Lead Review Panel and is renowned for his research on low-level lead exposure and many other environmental neurotoxins.

The op-ed, titled "It Is Time to Protect Kids' Developing Brains From Fluoride,"¹⁶ highlights the mounting evidence that fluoride is impairing brain development and compares the response from the public health community to its delayed response to the obvious harm caused by lead. The authors call for the U.S. "to rethink this exposure for pregnant women and children," and state:

"Given the weight of evidence that fluoride is toxic to the developing brain, it is time for health organizations and regulatory bodies to review their recommendations and regulations to ensure they protect pregnant women and their children ... We can act now by recommending that pregnant women and infants reduce their fluoride intake."

The op-ed is accompanied by a powerful animated short video¹⁷ on the impact of fluoride on brain development produced by Little Things Matter, a nonprofit scientific organization composed of children's environmental health professionals. Dr. Till was also recently filmed giving an hour-long "must watch" presentation and Q&A on her fluoride neurotoxicity research.¹⁸

FAN has compiled quotes¹⁹ (and produced a video) from a variety of experts warning about fluoride's neurotoxicity, as well as a list of opinion pieces and journal articles²⁰ warning of harm.

From Womb to Tomb

An April 2021 study from Sweden found 50% higher rates of hip bone fractures in post-menopausal women in an area with up to about 1 mg/L fluoride in drinking water.²¹ It also found 10% to 20% higher rates of fractures for all types of bone fractures and for those types commonly associated with osteoporosis.

The high-quality cohort study used detailed information from more than 4,000 older Swedish women enrolled starting in 2004 and followed through 2017. Their largest source of exposure was from naturally occurring fluoride in drinking water, at concentrations at or below 1 mg/L. Their total exposures fell within the same range as women living in areas with artificial fluoridation.

Concern for fluoride's effect on bone quality was raised 25 years ago based on animal studies: "[O]ne cannot help but be alarmed by the negative effects of fluoride on bone strength consistently demonstrated in animal models."^{22,23} The animal findings prompted human studies. This new Swedish study builds on previous studies that found increased risk of bone fractures in older people with long-term fluoride exposure.^{24,25,26}

It is also consistent with extensive experience from randomized controlled trials (RCT) done in the 1990s that attempted to decrease fracture risk for those with osteoporosis by giving patients relatively high doses of fluoride.

Instead of decreasing fracture risk, those studies found increased risk, especially for hip fractures, and the attempts to use fluoride as a medication against osteoporosis have been largely abandoned. Researchers concluded that although fluoride can increase bone mineral density (BMD), it simultaneously decreases bone quality and bone strength, despite the greater density.

This ought to have serious implications for the practice of fluoridation. The study's findings suggest that long-term consumption of fluoridated water may be responsible for 50% or more of the hip fractures experienced by older people. There are about 2 million osteoporotic fractures in the U.S. per year, of which about 300,000 are hip fractures.²⁷ Hip fractures in the elderly are a leading cause of disability and death.

"About 30% of people with a hip fracture will die in the following year."²⁸ "Of those who survive, many do not regain their prefracture level of function. About 50% of patients with hip fractures will never be able to ambulate without assistance and 25% will require long-term care."²⁹

Water fluoridation may literally be killing older people, taking years off their lives or leaving them confined to wheelchairs. "Treating hip fractures is also very expensive. A typical patient with a hip fracture spends US \$40,000 in the first year following hip fracture for direct medical costs and almost \$5,000 in subsequent years."³⁰

Widespread fluoridation in the U.S. might help explain why, "Hip fracture rates among the U.S. population are the highest in the world."³¹ Just as with the fluoride neurotoxicity studies that are finally being taken seriously, and funded by government agencies, this new study could help spur more high-quality studies on bone effects of fluoride.

But there is already more than enough evidence of risk to the brain, and now to bone health, that there is no justification to continue intentionally adding fluoride to drinking water for the sole purpose of trying to reduce tooth decay.

Fluoridation Lobby Is Doubling Down

Unfortunately, in response to the abundance of new research, the landmark lawsuit, growing concern in the scientific community and the sustained advocacy and education efforts of FAN, the promoters of fluoridation have doubled-down on their efforts to expand the practice further in an effort to gaslight public officials into believing the practice isn't on the brink of extinction.

The United Kingdom and New Zealand³² are both being threatened with nationwide fluoridation mandates. In the U.K., the fluoridation lobby alongside the health secretary, Matt Hancock, are urging the government to take the power³³ over fluoridation from local councils so he can mandate it throughout the country.

While this threat is very real, the proposal doesn't seem to have made much progress since March, but FAN is tracking it and working with U.K. residents to mount opposition.

In New Zealand, the government has revived and amended a bill that was introduced in 2016 but lacked enough support for passage. As introduced, the bill would have moved fluoridation decisions from local councils – where they reside presently – to district health boards.

However, the current government has amended the language to centralize fluoridation authority even further, by giving full control³⁴ to the director-general of health, Dr. Ashley Bloomfield. Using this process has defied the normal democratic process, with no select committee, community consultation or public input.

Supporters of this proposal are trying to pass it into law by the end of the year, at which time local councils (and local taxpayers) will be responsible for all capital and operational costs. While a number of mayors have come out in opposition, as well as citizens and professionals led by Fluoride Free NZ,³⁵ the proposal appears to be moving forward. Learn more in [this new video](#) from FAN.

The dental lobby is also targeting large cities in North America. This past summer, a coalition led by Delta Dental worked behind the scenes to pressure the city council in Spokane, Washington, to pass a resolution to fluoridate their drinking water, despite the

public voting three times to reject fluoridation. Part of their sales pitch was that COVID was presenting an oral health emergency, to which this would be a solution.

It was eventually revealed that implementation would take at least five years, making their exploitation of the pandemic to sell their fluoridation chemicals apparent. A local citizens group assisted by FAN, Safe Water Spokane,³⁶ has fought this effort, and as a result the council has tabled their fluoridation resolution and will study the issue for the next year. [Click here](#) to learn more about Spokane.

Calgary, Alberta, is also being threatened with fluoridation despite voting numerous times to reject the practice. After hearing from the O'Brien Institute for Public Health that the practice causes cognitive impairment,³⁷ the cowardly council decided to put the issue to a public vote this October, rather than make a decision. FAN is working with local campaigners Safe Water Calgary³⁸ to ensure the public votes “no” on reintroducing fluoridation chemicals.

The CDC has even partnered with private industry, using your tax dollars to develop new fluoridation products³⁹ for rural water systems and private wells to expand the practice to every corner of the country (and likely beyond).

We can't count on the mainstream media or the public health authorities to tell the public or decision makers about what is happening. It's up to us to make this information go viral! It's up to us to bring it to our elected leaders and demand action! We need your support more than ever. Please help us get to the finishing line of a world without fluoridation.

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