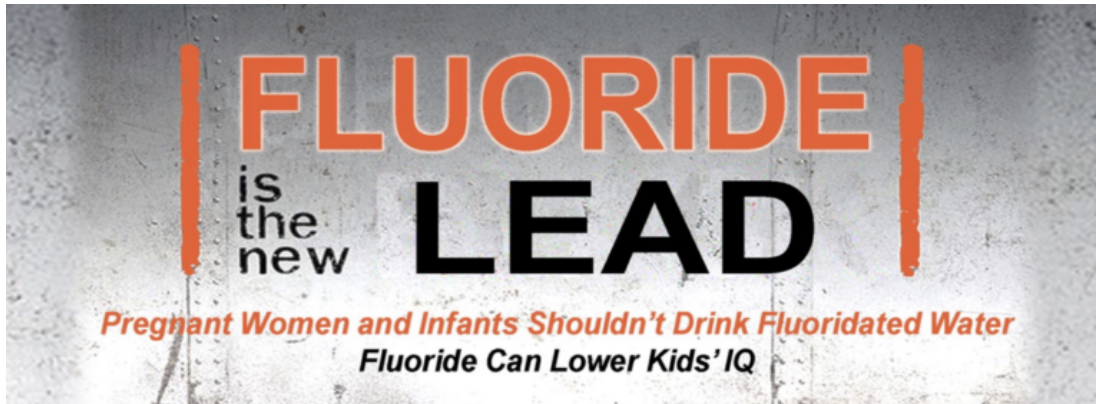


## Fluoride Action Network



### Lead Industry Denial Tactics Now Used by Dental Interests

#### Highlights:

- Similar Loss Of IQ From Fluoride As From Lead
- IQ Loss Seen At Doses From Fluoridated Water
- Same Industry Denials, Personal Attacks On Scientists
- Industry Tactic: Blaming The Victim
- Fluoride Is The New Lead But Worse

The National Toxicology Program (NTP) report on the neurotoxicity of fluoride confirms what experts have long been suggesting: that **fluoride is the new lead** in its ability to lower IQ in children. Over the past five years, experts in toxicology and epidemiology have equated the harm to developing brains from fluoride to that from lead.

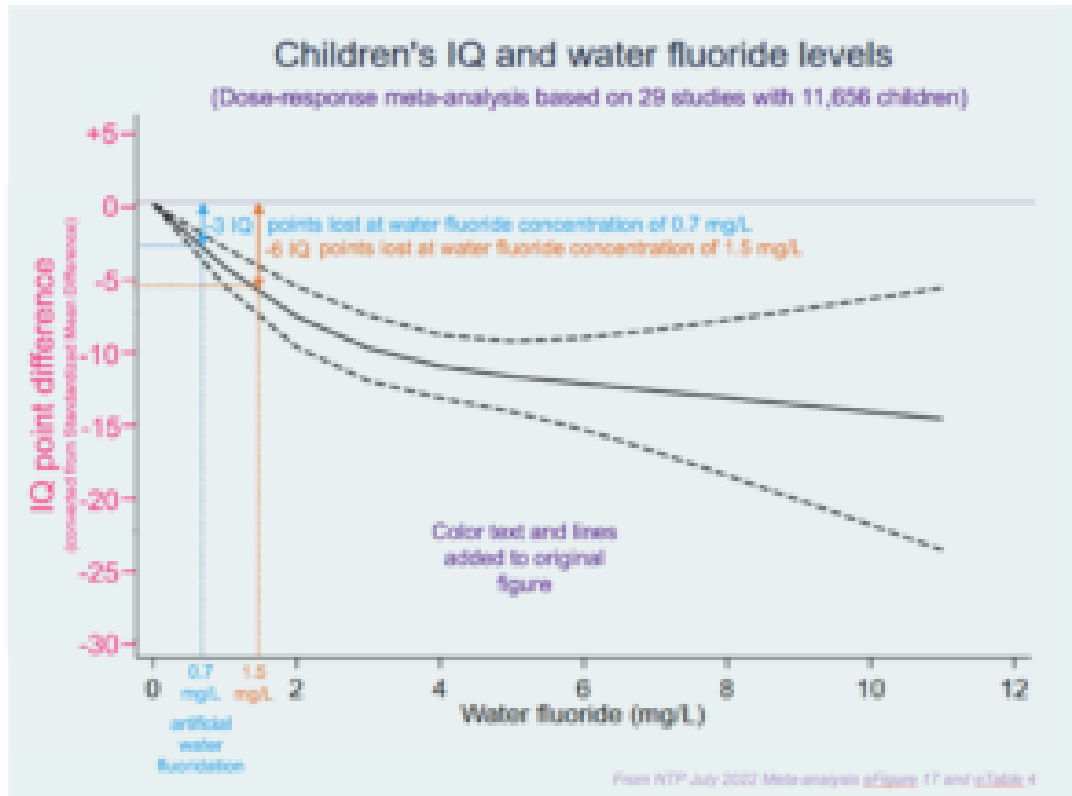
#### NTP final report confirms similar loss of IQ from fluoride as from lead

The NTP's final report on fluoride neurotoxicity supports these experts' conclusions. NTP found an average loss of 7 IQ points in 55 studies that compared child IQ of a higher fluoride group to that of a lower fluoride group. NTP also conducted a so-called dose-response meta-analysis to look at the relationship between fluoride dose and IQ loss by combining results from many studies at different exposure levels. They found that as water fluoride

concentrations rose from 0.0 to 1.5 mg/L (milligrams per liter, equivalent to parts per million or ppm), the average IQ dropped about 6 IQ points. Artificial fluoridation is generally at a concentration of 0.7 mg/L water fluoride, squarely in this range. The loss of IQ at 0.7 mg/L is predicted to be about 3 IQ points.

### NTP finds loss of IQ at doses from fluoridated water

The dose-response curve calculated by NTP, which shows how IQ drops as fluoride exposure increases, is shown in their eFigure 17, reproduced here:

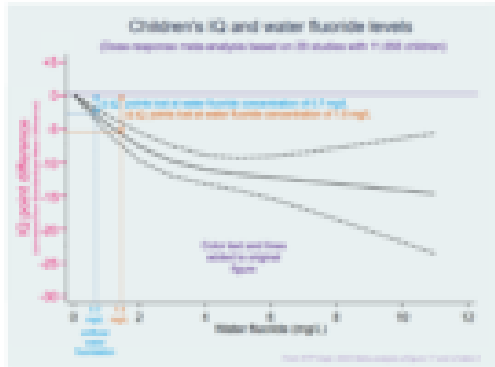


The graph shows no safe threshold and the slope of the solid line representing the relationship between exposure and loss of IQ is actually steepest in the low exposure range directly applicable to artificially fluoridated water. In the NTP's own words: "there was no obvious threshold as illustrated by [eFigure 17]".

The relationship between fluoride and IQ loss can be compared directly to that between lead and IQ as shown in the right-hand graph from a 2005 paper that pooled data from the 7 strongest studies [Lanphear 2005]:

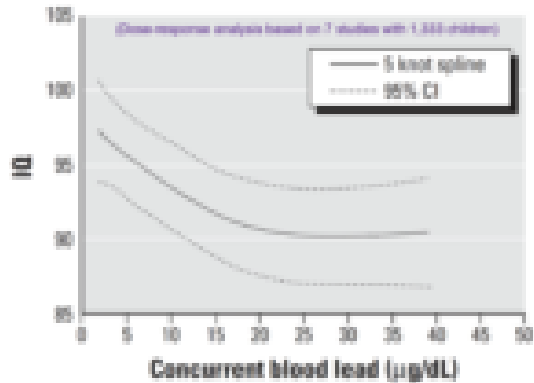
## Fluoride-IQ

(NTP 2022)



## Lead-IQ

(Lanphear 2005)



The paper and this Lead-IQ graph were largely responsible for the CDC halving its level of concern for child blood lead from 10 to 5 ug/dL (micrograms per deciliter), and for the EPA to declare there was no safe level of lead exposure. But for the strikingly similar fluoride dose-response graph in the NTP report, the fluoridation defenders at CDC deny relevance to artificial fluoridation. The EPA is also beholden to the dental lobby and hired chemical industry consultants to fight against a lawsuit which would require EPA to protect children from loss of IQ from fluoridation.

### Experts: Fluoride's IQ deficits “on par with lead”

Editors from the *Journal of the American Medical Association (JAMA)* described the IQ drop of -4.5 IQ points in one study [Christakis & Rivera 2019]:

“An effect size which is sizeable – on par with lead.”

David Bellinger, author of over 400 epidemiology papers on neurotoxic chemicals including over 100 on lead, said [NPR 2019]:

“It’s actually very similar to the effect size that’s seen with childhood exposure to lead.”

Christine Till, leader of a research team that has published rigorous studies of fluoride neurotoxicity funded by the National Institutes of Health (NIH) says [Canada CTV 2019]:

“4.5 points is a dramatic loss of IQ, comparable to what you’d see with lead exposure.”

And [Farmus 2021]:

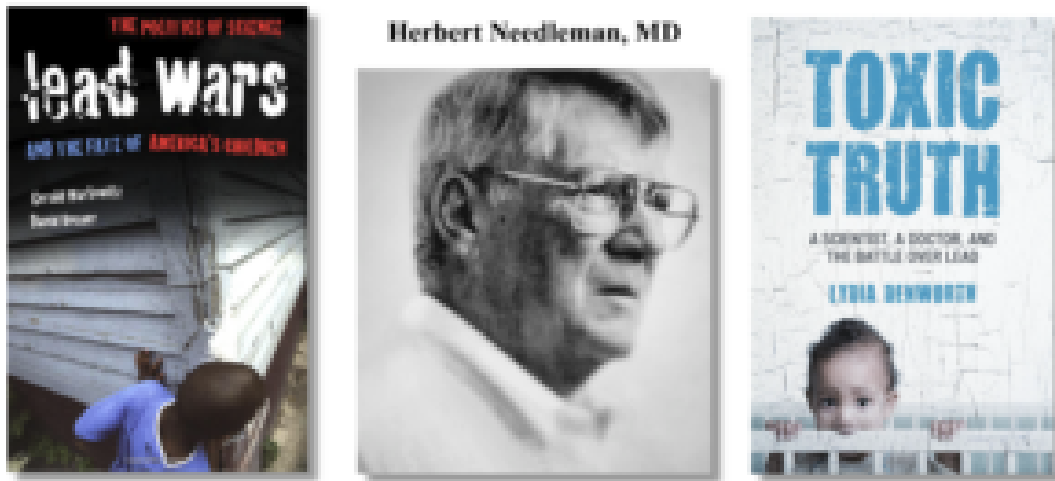
“A 2- to 4-point decrement in PIQ [Performance IQ] may seem like a small difference at the individual level. However, a small shift in the mean of IQ scores at the population level translates to *millions of lost IQ points* given the ubiquity of fluoride exposure.” (*emphasis added*)

Philippe Grandjean, editor-in-chief of the journal *Environmental Health*, and author of over 500 peer-reviewed papers on toxicity of fluoride, lead, mercury, perfluorinated compounds (like PFAS), and other chemicals says [[Grandjean 2013 book & website](#)]:

“Fluoride seems to fit in with lead, mercury and other poisons that cause chemical brain drain.”

### **Dental groups use same tactics as lead industry used to defend lead**

Fluoridation advocates, mostly dentists, have been falsely claiming the NTP review did not find evidence of neurotoxicity below 1.5 mg/L water fluoride, or that the evidence below 1.5 mg/L is unclear. Some have even claimed the NTP found a safe threshold at 1.5 mg/L water fluoride. Some fluoridation advocates go so far as to falsely assert there is no evidence fluoride is neurotoxic at any level, or that the only studies finding adverse effects are at levels “far higher” than pregnant mothers and children would get from fluoridated water.



Similar dismissals were made by the lead industry about what was called “low-level” lead exposures more than 30 years ago. The amount and quality of evidence available today showing fluoride causes IQ loss can be compared with what was available for “low-level” lead in 1990. At that time, a review and meta-analysis by Herbert Needleman, groundbreaking medical researcher in childhood lead poisoning, was published in the *Journal of the American Medical Association (JAMA)* [[Needleman 1990](#)]. There were only 12 human studies considered high-quality. It is worth noting that none were of designs considered as high quality as are available now with longitudinal cohort studies of fluoride. Furthermore, the lead studies were in populations with lead levels from 2x to 4x higher than the average childhood lead level at the time and up to 30x higher than average child blood lead levels today. The study children mostly had 30-60 ug/dL blood lead, whereas the average at the time was 15 ug/dL.

Today the average child blood lead is down to 1 ug/dL because of the banning of lead paint and gasoline. Those bans were largely a result of Needleman's research and his meta-analysis. A typical loss of IQ in the higher-lead-exposure groups compared with the lower-exposure groups was about 4 IQ points [[Needleman 1979a](#)]. Compare that to the 7 IQ point loss from fluoride found in the NTP's meta-analysis. The fluoride studies evaluated by NTP today show greater loss of IQ from a stronger body of evidence than was available for lead at the time of Needleman's 1990 meta-analysis.

### **Shoot the messenger**

There was heated controversy at the time over Needleman's findings on low-level lead and IQ, with the lead industry making many of the same arguments now being made by dental interests with fluoride [[Needleman 1979b letters](#), [Needleman 1982](#), [Needleman 2004](#)]. There were even scurrilous personal attacks against Needleman claiming scientific misconduct, but he was always vindicated [[Bill Moyers 2002 video](#), [Denworth 2008](#), [Markowitz 2013](#)]. That same lead industry tactic has now been used by dental interests against scientists who have conducted the most rigorous fluoride-IQ studies. But the personal attacks today are worse. With lead, the claims of scientific misconduct were against a single researcher, Needleman. With fluoride, the dental advocates lodged formal complaints of scientific misconduct against all nine members of a research team at five different universities. All five universities completely exonerated the scientists, but their work was severely disrupted by the need to defend themselves against the false accusations, on top of the personal stress that accompanies charges that can wreck a scientific career. The fluoridation advocates that filed the complaints had been advised by their own legal counsel that the accusations were false, yet they filed them anyway.

### **Blame the victim**

The lead industry also tried a tactic of "blaming the victim", arguing that blood lead was higher in low-IQ children not because the lead had caused the reduction in IQ, but because low-IQ children tended to eat more lead paint chips [[Cole 1979](#)]. This was easily proven wrong by Needleman [[Needleman 1979b](#), [Needleman 1982](#), [Needleman 2004](#)]. Today, some of the most extreme dentist defenders of fluoride are offering a similar "blame the victim" argument to try to explain away all the studies finding reduced IQ with higher fluoride.

"My Job Is To Promote Fluoridation"  
CA State Dental Director, Jayanth Kumar



Jayanth Kumar, the California state dental director who says “my job is to promote fluoridation”, is arguing that in studies in China where fluoride exposures cause high rates of severe dental fluorosis the smarter people move to areas with lower fluoride, thereby reducing the average IQ for the population of unfortunate people who are not smart enough to leave. Not only is Kumar’s “reverse causality” explanation pure speculation, it is easily disproven by the high quality studies in Canada and Mexico City [[Green 2019](#), [Bashash 2017](#)]. These were not in areas considered “endemic fluorosis” so there were no high rates of severe dental fluorosis.

The tactics now being used by dental interests to protect the policy of fluoridation are disturbingly similar to those used by the lead industry. They are also the same tactics used by the tobacco, asbestos, chemical, and many other industries making toxic products. Their intent is to delay action for years by manufacturing doubt about the science. A cigarette industry executive famously described this strategy, saying “Doubt is our product” [[Brown & Williamson 1969](#)].

If we squander years in debate on fluoride, we risk the same harm to brains of millions of children that resulted from delayed recognition of low-level lead harm. The evidence on fluoride is more than sufficient to begin taking protective action now.

### **Fluoridation today causing more lost IQ points amongst US children than lead**

Estimates of the total child IQ points currently being lost due to fluoridated water in the US are greater than those being lost from childhood lead poisoning [[Neurath 2020](#), [Neurath 2021](#)].

Fluoride truly is the new lead. Fluoride is causing substantially greater population-wide loss of IQ today than lead. Two-thirds of Americans receive drinking water that has had fluoride added and dental interests are calling for expanding fluoridation. In contrast, lead was

banned from paint and gasoline starting in the 1970s and as a result child blood lead levels have steadily declined to a tiny fraction of what they were before the bans. Only about 3% of children today exceed the latest CDC guideline of 3.5 ug/dL. In Needleman's day almost all children greatly exceeded today's lead guideline [Pirkle 1994].

To be clear, lead poisoning has not been eliminated. There are still tens of thousands of children who are lead poisoned, especially from old leaded paint or situations such as in Flint, Michigan. There, a switch to corrosive water leached lead from pipes and caused more than a doubling of the percentage of children with blood lead exceeding 5 ug/dL, from 5% to 12% [Zahran 2017, PBS 2017]. As terrible as the Flint case was, it is estimated that only about 500 children had their blood lead raised above the 5 ug/dL level. Compare that to 210 million people with fluoridated water in the US. They are exposed to fluoride which the new scientific evidence suggests is putting each new generation at risk for lowered IQ.

Fluoridation in the US is equivalent to 17,917 "Flints" every year, in terms of harm to kids' developing brains. That is the number of water systems where fluoride is added.

As the distinguished toxicologist and long-time director of NTP Linda Birnbaum wrote: [Lanphear 2020]:

"When do we know enough to revise long-held beliefs? We are reminded of the discovery of neurotoxic effects of lead that led to the successful banning of lead in gasoline and paint. Despite early warnings of lead toxicity, regulatory actions to reduce childhood lead exposures were not taken until decades of research had elapsed and millions more children were poisoned."

**Fluoride is the new lead, but worse.**