Fluoridation opponents often cite studies that had flawed methodologies, were not properly peer-reviewed, or were not relevant to fluoridation in the United States.

The Pew Center on the States agrees. The issue of community water fluoridation demonstrates how flawed studies sometimes can prompt or shape health policy decisions.

Over the past 18 months, fluoridation has made headlines in USA Today, The New York Times and other newspapers as the issue has arisen in a number of states and communities. Legislators in Arkansas passed a 2011 law expanding fluoridation across the state. Last fall, one of Florida’s largest counties voted narrowly to end the practice, and New Jersey’s legislature considered a bill this year to mandate fluoridation.

There is substantial evidence that fluoridated water reduces the rate of tooth decay in both children and adults.1 Numerous studies that were conducted after fluoride toothpaste became widely used reinforce earlier findings that fluoridated water reduces decay. A 1995 study of Illinois communities reviewed changes in decay rates during the 1980s and concluded that water fluoridation was “the dominant factor” in the decline of cavities.2 Over the past three years, studies from Nevada, New York and Alaska have provided additional evidence of fluoridated water’s health benefits.3 The Centers for Disease Control and Prevention (CDC) has praised fluoridation as one of “ten great public health achievements of the 20th century.”

Yet anti-fluoride activists persist in attacking the health practice, and they increasingly point to "studies" — research they claim shows that fluoridated water is harmful. However, a closer examination reveals that opponents often cite studies that had flawed methodologies, were not properly peer-reviewed, or were not relevant to water fluoridation in the United States.

Anti-fluoride groups sometimes cite one-of-a-kind case studies to help explain their opposition. For example, a New York-based anti-fluoride group posted an online statement in 2009 claiming that “even water fluoridation will cause arthritic-like symptoms in susceptible individuals.”4 But the anti-fluoride group provided no solid evidence linking the two. Instead, the group cited an article from a French medical journal, describing a peculiar case study that was not about water fluoridation. This French case study referred to a woman who brushed her teeth 18 times a day and swallowed the toothpaste — consuming a tube of toothpaste every two days.5 Using such an example to attack water fluoridation is not scientifically sound.

Fluoride, a publication managed by fluoride opponents, has published a number of flawed or scientifically incomplete studies. The articles in Fluoride do not undergo the rigorous level of peer-review by independent scientists that is standard protocol for reputable journals.6

A Web of Misinformation

Opponents have established a strong presence on the Internet. As New York Times reporter Kate Zernike noted, conspiracy theories about fluoridation “now thrive online, where anyone, with a little help from Google, can suddenly become a medical authority.”7

Dental fluorosis is a typical issue raised by anti-fluoride groups, which circulate photos from India or other countries that are not representative of

“Not all studies carry equal weight.”

fluorosis in America. Fluorosis is a change in the appearance of teeth enamel that can occur if children up to the age of 8 receive an excessive amount of fluoride.

Research shows that nearly all fluorosis in the U.S. is a mild, cosmetic condition that leaves faint white streaks on teeth. The condition is so subtle that only a dentist is likely to notice it. Mild fluorosis does not cause pain and does not affect the health or function of the teeth. Nonetheless, opponents refer to fluorosis as “damaged teeth,” an inflammatory term that paints a false picture of fluorosis in the U.S.

The new fluoride level recommended by HHS reflects two facts. First, Americans today get fluoride from more sources (such as toothpaste and mouth rinses) than they received when the original level was set. Second, a range was no longer necessary because research revealed that people who live in different U.S. climates consume similar amounts of water. This decision by HHS will continue to protect teeth from decay while minimizing the chance of fluorosis.

More than 3,000 studies or research papers have been produced on the topic of fluoride or fluoridation. The overwhelming weight of the evidence reinforces the safety and effectiveness of fluoride. As the CDC writes, “For many years, panels of experts from different health and scientific fields have provided strong evidence that water fluoridation is safe and effective.”

State and local officials have a critical role in making decisions about human health. Pew believes these decisions should be based on sound science, not unfounded fears.

For more information or to speak with a Pew expert, contact Matt Jacob at mjacob@pewtrusts.org or by phone at 202-540-6310.

Learn more about Pew’s oral health research and policy recommendations at: www.pewstates.org/dental
Sources:


10. “Oral Health Topics: Fluorosis,” American Dental Association, [http://www ada.org/5576.aspx?currentTab=1](http://www ada.org/5576.aspx?currentTab=1); this view is reinforced by a 2002 study, which noted that the faint streaks on teeth that mild fluorosis causes are typically “not noticed by most people or, indeed, by the individual himself or herself.” See: W.H. Bowen, “Fluorosis: Is it really a problem?” *Journal of the American Dental Association*, (October 2002), Vol. 133, 1406.


