



State and Consumer Initiatives

Q & A

Water Fluoridation: Frequently Asked Questions

National

November 11, 2011 Children's Dental Policy Contact Mary McNamara 202.540.6580

The Pew Charitable Trusts supports water fluoridation because it's one of the most cost-effective strategies for states and communities to improve the oral health of their residents. Although a number of communities in the U.S. have been fluoridating their public water systems for more than 60 years, this strategy has been called into question by anti-fluoride activists who have posted many online attacks against this health practice.

This FAQ, from Pew's children's dental policy project, is meant to answer many key questions about the benefits and safety of fluoridation.

Q: What is fluoride and how does it benefit dental health?

A: Fluoride is a mineral that exists naturally in drinking water. Research proves that at a certain level in drinking water, fluoride prevents tooth decay. This optimal level is reached when a public water system adjusts—either increasing or lowering—the level of fluoride.

Q: I recently found the website of a group that opposes fluoridation. This group claims that the connection between fluoridation and cavity prevention isn't solid. Is that true?

A: No, it is not true. There is solid, consistent evidence supporting fluoride's role in cavity prevention. Studies show that fluoridation reduces tooth decay by 25 percent. Two studies released in 2010 strengthened the already substantial evidence that fluoridated water prevents cavities. For example, a Nevada study examined more than 4,000 teenagers' oral health and found that living in a community without fluoridated water was one of the top three factors associated with high rates of decay and other dental problems.

Q: Does fluoride in drinking water protect only the teeth of children or does it benefit everyone?

A: People of all ages benefit from drinking water that is optimally fluoridated. Oral health is important throughout a person's life. In the 1950s, before water fluoridation was common, most people over the age of 65 had lost their teeth. Now, after decades of widespread fluoridation, more seniors are keeping most or all of their teeth. Between 1972 and 2001, the rate of edentulism—losing all of one's teeth—dropped 26 percent among lower-income seniors and fell 70 percent among upper-income seniors.

Q: What do leading medical and health organizations say about drinking water that is optimally fluoridated?

A: The American Academy of Pediatrics, the American Dental Association, the American Medical Association

and many other respected medical or health organizations recognize the health benefits of fluoridation. The U.S. Centers for Disease Control and Prevention called water fluoridation "one of 10 great public health achievements of the 20th century."

Q: Europe doesn't fluoridate its water, so why should we?

A: Anti-fluoride activists imply that European countries have rejected fluoridation, but this assertion is misleading because these nations use various means to provide fluoride to their citizens. For example, salt fluoridation is widely used in Europe. In fact, at least 70 million Europeans consume fluoridated salt, and this method of fluoridation reaches most of the population in Germany and Switzerland. These two countries have among the lowest rates of tooth decay in all of Europe. Fluoridated milk programs reach millions of additional Europeans. A number of areas in Italy have water supplies with natural fluoride levels that already reach the optimal level that prevents decay. This is a major reason why Italy does not have a national program for water fluoridation. Finally, some countries in Europe do elect to adjust fluoride levels in community water systems. Fluoridated water is provided to 12 million Europeans, mostly reaching residents of Great Britain, Ireland, and Spain.

Q: Federal health officials recommended that public water systems reduce the level of fluoride in drinking water. Exactly what was the recommendation and why was this new level set?

A: In January 2011, the U.S. Department of Health and Human Services (HHS) recommended that the optimal level of fluoride in public water systems should be 0.7 milligrams per liter (mg/L) of water. This is a change from the previous recommendation that the optimal level would vary by a region's climate (average temperatures) within the range of 0.7 to 1.2 mg/L. This new recommendation by HHS recognizes these scientific findings: 1) Americans today are getting fluoride from more sources than they were when the original level was set, and 2) the water intake of children does not vary by climate or region. This new fluoride level demonstrates that federal health officials are periodically reviewing research and relying on the best science to update—if and when appropriate—their recommendations on fluoridated water.

Q: Are many communities planning on removing fluoride from water because of the recent federal announcement on the fluoride level?

A: Many communities are reviewing their fluoride levels and planning to adjust those levels to meet the new recommendation. There is no sign that many communities plan to remove fluoride entirely. HHS and leading health experts do *not* support removing fluoride from water to a level below the recommended level because this would deprive people of cavity protection. In fact, the American Dental Association welcomed HHS' new fluoride level and said that water fluoridation remains "one of our most potent weapons in disease prevention."

In Grand Rapids, Michigan—the first U.S. city that optimally fluoridated its water system—the city's daily newspaper wrote an editorial noting that the new HHS recommendation "should not feed the flawed notion . . . that fluoride must be removed entirely from drinking water."

Q: What about the safety of fluoridated water? I found material on the Internet that claims there's a link between fluoride and bone cancer. Is that true?

A: A Harvard study released in July 2011 found there was not a link between fluoride and osteosarcoma, a bone cancer. In its 2006 report on fluoride, the National Research Council noted that if fluoride *might* be linked to cancer, osteosarcoma was the most likely type of cancer because fluoride tends to concentrate in bone. The fact that this Harvard study shows no such link means Americans can feel more confident that fluoride does not cause any form of cancer. For this study, the researchers analyzed hundreds of bone specimens for fluoride content, and the study's design was approved by the National Cancer Institute. The substantial body of research provides strong evidence that fluoridated water is safe.

Q. What impact will the new fluoride level have on Americans who are served by a public water system that's fluoridated?

A: The new optimal fluoride level that federal health officials have recommended will have a positive impact. First, it will continue to protect teeth by helping to reduce tooth decay. Second, the new level will minimize the chances of *dental fluorosis*.

Q. What is dental fluorosis?

Dental fluorosis is a change in the appearance of tooth enamel that occurs when someone is exposed to too much fluoride. In the U.S., fluorosis is typically a minor discoloration of teeth that is usually visible only to a dentist. It does not cause pain, and it does not affect the health or function of the teeth. The new HHS recommendation reflects the fact that Americans today receive fluoride from more sources (toothpaste, mouth rinses, and other products) than they were getting several decades ago.

Q: How many Americans receive water that is optimally fluoridated?

A: Roughly 74 percent of Americans whose homes are connected to a community water system receive fluoride-adjusted water. Some communities have been doing so for over 60 years.

Q: Water fluoridation helps to prevent tooth decay, but is that really a concern in the U.S. anymore?

A: Yes, it remains a concern. Although dental health has improved for many Americans, ~~tooth decay~~ remains the most ~~common chronic childhood disease~~—five times more prevalent than asthma. Tooth decay causes problems that often last long into adulthood, affecting kids' schooling and their ability to get jobs as adults.

Q: If I use fluoridated toothpaste, am I getting enough fluoride to protect against decay?

A: No. The benefits from water fluoridation build on those from fluoride in toothpaste. Studies conducted in communities that fluoridated water in the years after fluoride toothpastes were widely used have shown a lower rate of tooth decay than communities without fluoridated water. Powerful evidence comes from a 1998 study that examined small towns in Illinois and Nebraska—one was fluoridated and the others were not. Even though more than 94 percent of children in all of these communities were using fluoride toothpaste, the decay rate among children in the fluoridated town was 45 percent lower than the rate among kids in the non-fluoridated communities. The author of a 2010 study noted that research has confirmed "the most effective source of fluoride to be water fluoridation."

Water fluoridation provides dental benefits to people of all ages and income groups without requiring them to spend extra money or change their daily routine.

Q: Do any states have laws guaranteeing residents' access to fluoridated water?

A: Twelve states and the District of Columbia have laws designed to ensure access to fluoridated water. Forty-three of the 50 largest cities in the U.S. fluoridate their drinking water. Research shows that every \$1 invested in water fluoridation saves \$38 in unnecessary dental costs.

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