

# The Value and Positive Impact of Community Water Fluoridation

Community water fluoridation was recognized by the Centers for Disease Control and Prevention (CDC) as one of the ten “public health achievements” of the Twentieth Century. By the end of 2014, about 75 percent of the U.S. population on public water systems received fluoridated water. In South Carolina, approximately 93% of residents who are served by public water systems receive fluoridated water. In 2013, after reviewing 161 fluoride-related studies, the U.S. Community Preventive Services Task Force recommended water fluoridation “based on strong evidence of effectiveness” in cavity reduction. The Task Force’s recommendations are considered the “gold standard” by leading health and medical officials. On April 27, 2015 the U.S. Department of Health and Human Services issued a final rule recommending that drinking water be fluoridated at .7 milligrams per liter (mg/l).

## Why Oral Health Matters

Oral health is a key part of a person’s overall health and well-being throughout life. Good oral health includes our ability to chew, swallow, smile, speak, learn and work. Dr. F. Harold Wirth referred to the mouth as an “important and even wondrous part of our anatomy, our emotion, our life: if it is not the site of our very being... The mouth deserves the greatest care it can receive at any sacrifice.”

Although America’s (and South Carolina’s) dental health has improved significantly in recent decades, **tooth decay is the most common chronic disease of childhood** — five times more prevalent than asthma. Research shows that children with dental problems are three times more likely to miss school, and teens with a recent toothache are four times more likely to struggle academically.

When left untreated, dental diseases can lead to infections in other parts of the body and may be linked to broader health problems, as evidenced by the 2007 death of a twelve year old boy in Maryland. Also, dental diseases interfere with all aspects of a person’s health

and life such as nutrition; social interaction; physiological and psychological status; and employment and financial status. According to the U.S. Surgeon General, **approximately 164 million work hours are lost each year** due to dental issues, causing loss of income and ability to gain or maintain employment. Last year, a CNBC story pointed out one of the consequences for adults with unhealthy or missing teeth, “In America, most people — including employers — make instant judgments based on appearance, including someone’s smile and teeth.”

## What is Community Water Fluoridation and How Does it Support Oral Health?

According to the Water Fluoridation Issue Brief by the Network for Public Health Law (2015), “Water fluoridation is the adjustment of fluoride levels in a water system to prevent decay.” Fluoride is a mineral that exists naturally in nearly all water supplies such as rivers, lakes and oceans but usually at a concentration that is too low to prevent tooth decay. Fluoridation is one example of America’s tradition of fortifying foods and beverages to protect human health. For example, Vitamin D is added to milk, iodine is added to salt, and folic acid is added to breads and cereals.

CDC reports that fluoridated water **reduces tooth decay by approximately 25 percent** over a person’s lifetime. Water fluoridation has been practiced for 70 years and more than 210 million people in the U.S. are served by public water supplies containing sufficient fluoride levels to prevent decay. This strategy is a crucial part of prevention.



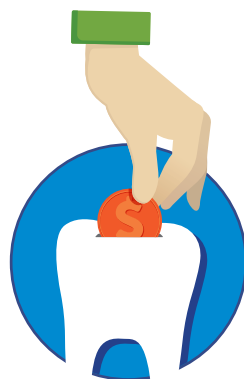
## Is Using Fluoride Toothpaste Enough?

Although regular tooth-brushing is important, numerous studies confirm that fluoridated water provides important, added protection against tooth decay. Drinking fluoridated water works in two ways. First, the fluoride that young children consume helps strengthen the enamel of their

teeth even before they fully appear in the mouth. For people of all ages, drinking fluoridated water or beverages significantly raises the concentration of fluoride in saliva — enabling fluoride to be absorbed on the surface of tooth enamel and making it more resistant to decay. As the CDC explains, fluoride in water “comes in contact with the teeth every time you drink tap water or beverages made from tap water, as well as foods prepared with tap water.” This regular, ongoing exposure to fluoride is crucial to protecting teeth from cavities. It’s not an either-or choice. According to the CDC, “Use of both fluoridated water and fluoridated toothpaste is recommended because fluoride in water and fluoride in toothpaste work differently to help prevent tooth decay.”

### How Fluoridation Saves Money

Fillings, crowns or other dental treatments can squeeze the household budget for many families. In fact according to the Network for Public Health Law **“the lifetime costs for treating a single decayed molar can be as much as \$6,105.”** Clearly, prevention is the best way to avoid the pain, cost and other negative impacts of tooth decay. This is what makes water fluoridation such an important strategy.



Community water fluoridation is not only safe and effective, but it is also cost-saving and the least expensive way to deliver the benefits of fluoride to all residents of a community, regardless of age, education level or socioeconomic status. By preventing tooth decay, community water fluoridation has been shown to save money, both for families and health care systems. Evidence shows that this health practice pays for itself in two ways. First, it saves taxpayers money by reducing the costs of dental care under state Medicaid programs. Research from Louisiana, New York and Texas has confirmed these savings. Second, families save money because lower rates of tooth decay mean they spend less money on fillings, crowns or other dental treatments.

The estimated annual return on investment for community water fluoridation ranged from \$5.03 in small communities of 5,000 people or less, to \$31.88 in large communities of 20,000 or more people. For larger communities of more than 20,000 people, on average, it costs about 50 cents per person to fluoridate the water. For example, the annual per-person cost to maintain fluoridation in Milwaukee, WI is approximately 63 cents. In Dallas, TX fluoridation costs only about 25 cents per resident, per year.

### A Strong Consensus

Fluoridated water’s ability to prevent cavities has been established by a large and growing body of studies and research papers. In fact, few topics have been as thoroughly studied as fluoride and fluoridation. This solid research is why the American Academy of Pediatrics, the American Dental Association, the Institute of Medicine and other respected medical and health organizations endorse fluoridation. U.S. Surgeons General — regardless of the president who appointed them — have consistently supported fluoridation. In 2013, the deans of Harvard University’s three leading health institutions called fluoridation “an effective and safe public health measure for people of all ages.” And also in 2013, the Defense Department issued an order directing military bases of a minimum size to fluoridate the drinking water and pointed out that the armed forces have determined that fluoridation “helps to improve and sustain the military readiness and health of military personnel.”

### Conclusion

In July 2015, the U.S. Surgeon General, consistent with the position of the four previous surgeons general, stated that **water fluoridation is the best method** for delivering fluoride to all members of the community regardless of age, race, education, income level, or access to routine dental care. Fluoride’s effectiveness in preventing tooth decay extends throughout life, resulting in fewer and less severe cavities. In fact, each generation born since the implementation of water fluoridation has enjoyed better dental health than the preceding generation. Sustaining a level of improved oral health across generations is an important goal to strive for and one that will continue to be supported within communities with fluoridated water.

#### For More Information:

##### DHEC Division of Oral Health

[www.scdhec.gov/Health/ChildTeenHealth/OralHealthforChildren/Fluoridation](http://www.scdhec.gov/Health/ChildTeenHealth/OralHealthforChildren/Fluoridation)

##### Centers for Disease Control and Prevention

[www.cdc.gov/fluoridation](http://www.cdc.gov/fluoridation)

##### Children's Dental Health Project (CDHP), Campaign for Dental Health

[ilikemyteeth.org](http://ilikemyteeth.org)