



Better Health With Fluoridated Water

Fluoridated Drinking Water Makes Sense and Costs Only Cents

Do Austin Residents Need Community Water Fluoridation? [Yes, and Here's Why](#)

Oral health and general health are not separate. Dental care is the most prevalent unmet health need of children in the United States and Dental Caries (the #1 childhood chronic disease causing tooth decay) is 5 times more common than asthma. Untreated dental decay can lead to malnourishment, bacterial infections, pain and even death.

In 2000, the Surgeon General described tooth decay as a silent epidemic. It only makes sense that communities do everything possible to protect their citizens from tooth decay, by utilizing proven evidence-based prevention strategies.

Dental disease is often misunderstood as a problem that affects individuals due to their own irresponsibility or ignorance, when in reality it is a complex health issue tied to education, access, insurance coverage, and many more confounding factors. Self-sufficiency and personal responsibility are important concepts regarding dental disease impact on overall health, but we urge Austin policy makers to continue utilizing community water fluoridation so that every resident has access to effective, low cost cavity prevention.

Water fluoridation is still necessary. Community water fluoridation and brushing with fluoride toothpaste complement each other, like seat belts and air bags in automobiles. Both work individually, but together they provide even better protection. At a time when more than 100 million Americans lack dental insurance, community water fluoridation has been demonstrated to be safe, cost-effective and beneficial through every stage of life.

Community water fluoridation is safe. The National Academies Advisers to the Nation on Science, Engineering and Medicine routinely conduct a scientific review of EPA's Standards of Fluoride in drinking water and to date have found no adverse health effects in the following studies regarding Musculoskeletal Effects, Reproductive and Developmental Effects, Neurotoxicity and Neurobehavioral, Effects on the Endocrine(Thyroid) System, Effects on the Gastrointestinal, Renal, Hepatic, and Immune Systems, Genotoxicity and Carcinogenicity.

Fluoridation is cost effective. The cost of fluoridation will be only **\$0.17** per year, per person, so that a lifetime of cavity prevention is less than **\$14**. According to ADA's 2016 Survey of Dental Fees, the average cost of a filling is **\$204**. The Centers for Disease Control and Prevention (CDC) estimates that every \$1 invested in water fluoridation saves \$38 in dental treatment costs. The CDC reports that if all water were fluoridated, it would save over \$1 billion annually.

Everyone should have the right to choose whether they drink fluoridated water or not. **People that oppose fluoridation are removing that choice for all residents** and are providing no options except for everyone to pay for more treatment at the dental office. When we fail to use proven preventive strategies like community water fluoridation, the consequences are felt by nearly everyone - not just those who say they don't want fluoridated water. In one way or another, the cost and impact of tooth decay affect virtually everyone in the community.

Community water fluoridation remains the most effective, cost efficient method for reducing dental disease in all populations regardless of age, gender, race, ethnicity, or family income levels and is a smart health strategy worth maintaining.

Is Fluoridation Effective?

Yes. The overwhelming evidence demonstrates the ability of fluoridated water to reduce tooth decay in both children and adults.

- Many years after fluoride toothpaste became widely used; an independent panel of experts examined the specific impact of water fluoridation and determined that fluoridation reduces tooth decay by about 29%.¹
- The Centers for Disease Control and Prevention (CDC) report that fluoridated water reduces tooth decay by about 25 percent over a person's lifetime.²
- In 2013, the U.S. Task Force on Community Preventive Services—an independent panel of experts—reviewed 161 studies before deciding to recommend fluoridation on the basis of “strong evidence of its effectiveness” for people of all ages, races and ethnicities.³ The Task Force's recommendations are considered the “gold standard” for public health prevention.
- In a 2013 letter, the Deans of Harvard Medical School, Harvard School of Dental Medicine and the Harvard School of Public Health stated that they “continue to support community water fluoridation as an effective and safe public health measure” and noted that fluoridation “has made an enormous impact on improving the oral health of the American people.”⁴
- Although brushing with fluoride toothpaste is important, numerous studies confirm that fluoridated water provides important, added protection against tooth decay. Over the past five years, studies in Nevada, Alaska and New York have demonstrated that kids in fluoridated communities have better oral health.⁵
- Fluoridation plays a key role in closing the gap in cavity rates between disadvantaged and affluent Americans. A 2002 research paper concluded that water fluoridation is “the most effective and practical method” for reducing the gap in decay rates between low-income and upper-income Americans.⁶ The Hispanic Dental Association has called fluoridation a valuable tool “in the reduction of oral health disparities.”⁷
- Low-fluoride water is associated with more tooth decay, and studies show that dental problems undermine children's performance in school.⁸
- Each year, hundreds of thousands of people seek emergency room treatment for non-traumatic dental conditions that were preventable. Many of these ER patients are enrolled in Medicaid or other taxpayer-funded programs.⁹
- One of the easiest ways to determine whether health-related statements are valid is to look for credible organizations who agrees with them. No widely respected health organization opposes community water fluoridation.¹⁰

Is Fluoridation Safe?

Yes. Over seventy years of experience and research have provided solid evidence that fluoridated water is safe. The following examples reflect this conclusion:

- In 2015, the Water Research Foundation examined the latest science and found no issues that pose a risk to public health from community water fluoridation in the U.S.¹¹
- “Expert panels consisting of scientists from the United States and other countries, with expertise in various health and scientific disciplines, have considered the available evidence in peer-reviewed literature and have not found convincing scientific evidence linking community water fluoridation with any potential adverse health effect or systemic disorder such as an increased risk for cancer, Down syndrome, heart disease, osteoporosis and bone fracture, immune disorders, low intelligence, renal disorders, Alzheimer disease, or allergic reactions.”^{12, 1, 13}
- The National Academies Advisers to the Nation on Science, Engineering and Medicine routinely conduct a scientific review of EPA's Standards of Fluoride in drinking water and to date have found no adverse health effects in the following studies regarding Musculoskeletal Effects, Reproductive and Developmental Effects, Neurotoxicity and Neurobehavioral, Effects on the Endocrine(Thyroid) System, Effects on the Gastrointestinal, Renal, Hepatic, and Immune Systems, Genotoxicity and Carcinogenicity.¹⁴ Fluorosis was noted as an adverse oral health effect for the first time at 4mg/L. This is 3 times more than in CWF. At 2mg/L, severe fluorosis is virtually zero.
- Committees of the National Research Council have produced five reports about fluoride or fluoridation—three since 1993—and none of these documents expresses concern about the safety of fluoride in the concentration used for community water fluoridations.¹⁵
- The Toxicology Excellence for Risk Assessment, an independent U.S. research organization, explains, “Medical scientists have agreed that small concentrations of fluoride have health benefits that vastly exceed any hypothetical health risk.”¹⁶

- A 2014 report by Public Health England examined the common safety concerns that critics raise—such as cancer and kidney problems—and reached this conclusion: “The report provides further reassurance that water fluoridation is a safe and effective public health measure.”¹⁷
- In 2014, a panel comprised of the Royal Society of New Zealand and the Prime Minister’s Chief Science Advisor issued a report concluding, “The safety margins are such that no subset of the population is at risk because of fluoridation.” The panel issued a unanimous statement that “the scientific issues raised by those opposed to fluoridation are not supported by the evidence.”¹⁸
- Opponents often cite IQ studies from China or other countries that are flawed and do not reflect how fluoridation is practiced in the U.S. The average fluoride level tested in these studies failed to account for lead, arsenic or other factors that could affect IQs. (This is noteworthy because many of China’s water supplies are severely polluted.¹⁹) The Harvard researchers who reviewed these studies publicly distance themselves from the way that anti-fluoride groups have tried to spin the results.²⁰ Finally, a peer-reviewed 2014 study published by the American Journal of Public Health has found no difference in IQ scores, in either children or adults, between those drinking fluoridated water and non-fluoridated water.²¹
- The fluoridation process is held to high standards of safety. The quality and safety of fluoride additives are ensured by NSF/ANSI Standard 60—a set of guidelines developed at the request of the Environmental Protection Agency. Hundreds of samples have been taken and tested under Standard 60 to confirm the quality and purity of fluoride additives.²²
- All products undergo stringent testing to assure that they meet the requirements of the Environmental Protection Agency (EPA) before adding to our water supply and the National Sanitation Foundation (NSF) International and American Water Works Association (AWWA) carry out these tests. Fluoride additives must meet the rigid requirements of Standard 60 of the NSF/ANSI rule and all products conform to these standards and meet or exceed them.
- NSF/ANSI Standard 60 certification operates worldwide and uses on-site inspections and even surprise “spot checks” and independent analyses to confirm these additives meet quality and safety standards.²³
- Texas requires that all of the water utilities purchase their fluoride additive that meets NSF/ANSI standards, so the public can be assured water suppliers follow industry-approved processes and use only products that meet national and international standards for purity.²⁴
- The addition of fluorosilicic acid to a water supply can be readily controlled to give a total fluoride (F) level of 0.7mg/L. This is the recommended level shown to be effective for reducing tooth decay.²⁵
- Texas water systems also report their data to the Texas Commission on Environmental Quality (TCEQ) and the public has access to this information http://www.tceq.state.tx.us/agency/water_main.html where they can find the Result List by Analyte for all of the substances (including fluoride) found in each water system. All chemical feed systems designs and processes must be approved by TCEQ with safety and security measures provided.

Is Fluoridation Worth the Investment?

Yes. Research shows that Community Water Fluoridation offers the greatest Return on Investment (ROI) for each \$1 spent on Health Programs including Childhood Vaccinations, Rural Health CHW Navigators, Tobacco Prevention, Asthma Disease Management and Employee Wellness Programs.²⁶ The following examples demonstrate why fluoridation saves money for consumers and taxpayers:

- “The Centers for Disease Control and Prevention estimates that every \$1 invested in water fluoridation saves \$38 in dental treatment costs. The reduction in just the costs of filling and extracting diseased teeth (not counting lost work time and dental pain) far exceed the cost of fluoridation. The CDC reports that if all water were fluoridated, it would save over \$1 billion annually.”^{27, 28}
- Community water fluoridation is the most cost-effective health measure for preventing decay.²⁹
- By reducing tooth decay, fluoridation reduces the dental treatment costs that families would otherwise pay. Many families lack dental insurance, and even those who are covered often pay significant out-of-pocket costs for fillings, crowns or other dental treatments.³⁰
- The average cost of a filling is **\$204**, according to the American Dental Association’s “2016 Survey of Dental Fees” regional data, that includes Texas. This average is based on a two surface anterior resin-based composite and a two surface posterior resin-based composite.³¹ The lifetime cost of treating one decayed molar is **\$6,105**.³²

- Taxpayers also benefit from fluoridation. In fact, the Texas 75th Legislature instructed the Texas Department of Health Services to conduct a study on the cost of publicly financed dental care in relation to community water fluoridation. The results of this study show a reduction in the average Texas Health Steps (EPSDT- Medicaid) dental care costs by \$19 could be realized if communities maintain optimal water fluoride levels.³³ According to the 2016 CMS-416, the total number of individuals in Texas eligible for EPSDT are 3,946,620.³⁴
- Texas residents benefit in other ways. For example, the performance of our schools has a long-term financial impact on our state's economic prosperity. School performance is indirectly affected by fluoridation because children with poor dental health are nearly three times more likely to miss school and are four times more likely to earn lower grades.³⁵
- Research shows adults with access to fluoridated water during childhood earn about 2% more each year, reflecting a positive impact on earnings.³⁶

In light of the above, we urge policy makers to continue maintaining community water fluoridation at the optimal fluoride level of 0.7 mg/L based on evidence-based science for the City of Austin. Community water fluoridation supports health equity and is a smart health strategy that will positively impact the health of all residents now and in the future.

This information has been provided by the Texas Oral Health Coalition, Inc.

Sources

- ¹ Community Preventive Services Task Force. Guide to Community Preventive Services: Preventing Dental Caries: Community Water Fluoridation website. <http://www.thecommunityguide.org/oral/fluoridation.html>.
- ² "Fluoridation Basics," Centers for Disease Control and Prevention, July 25, 2013, <http://www.cdc.gov/fluoridation/basics/index.htm>
- ³ "Preventing Dental Caries: Community Water Fluoridation," U.S. Community Preventive Services Task Force, April 2013, <http://www.thecommunityguide.org/oral/fluoridation.html>.
- ⁴ Flier, Jeffrey S, et al. Received by Dr. Myron Allukian, Jr, Harvard, 22 Mar. 2013, Harvard.
- ⁵ M. Ditmyer, G. Dounis, C. Mobley and E. Schwarz, "A case-control study of determinants for high and low dental caries prevalence in Nevada youth," *BMC Oral Health*, (2010), Vol. 10, No. 24, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2989299/>; "Dental Caries in Rural Alaska Native Children – Alaska, 2008," *Morbidity and Mortality Weekly Report*, Centers for Disease Control and Prevention, (September 23, 2011) Vol. 60, No. 37, 1275-1278, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6037a2.htm?s_cid=mm6037a2_x; J.V. Kumar, O. Adekugbe and T.A. Melnik, "Geographic Variation in Medicaid Claims for Dental Procedures in New York State: Role of Fluoridation Under Contemporary Conditions," *Public Health Reports*, (September–October 2010) Vol. 125, No. 5, 647-54.
- ⁶ B.A. Burt, "Fluoridation and Social Equity," *Journal of Public Health Dentistry*, (2002), Vol. 62, Issue 4, 195–255, <http://onlinelibrary.wiley.com/doi/10.1111/j.1752-7325.2002.tb03445.x/abstract>.
- ⁷ Position Paper by the Hispanic Dental Association, January 15, 2012, http://www.hdassoc.org/pdf/Community_Fluoridation.pdf
- ⁸ University of Southern California. Poor Oral Health Can Mean Missed School, Lower Grades. 2012. <http://dentistry.usc.edu/2012/08/10/poor-oral-health-can-mean-missed-school-lower-grades/>. Accessed October 19, 2017.
- ⁹ A Costly Dental Destination. The Pew Charitable Trusts website. 2012. <http://www.pewtrusts.org/en/research-and-analysis/reports/2012/02/28/a-costly-dental-destination>. Accessed October 19, 2017.
- ¹⁰ http://www.fluoridefortexas.txohc.org/Weight%20of%20Evidence_Fluoride.pdf
- ¹¹ "State of the Science: Community Water Fluoridation," Water Research Foundation, 2015, p. 26.
- ¹² Hannan, MPH, Casey, and Lorena Espinoza, DDS, MPH. *Statement On The Evidence Supporting The Safety And Effectiveness Of Community Water Fluoridation*. Center for Disease Control and Prevention, 30 Jan. 2017, www.cdc.gov/fluoridation/pdf/cdc-statement.pdf.
- ¹³ McDonagh MS, Whiting PF, Bradley M, et al. A Systematic Review of Public Water Fluoridation. University of York, York: NHS Centre for Reviews and Dissemination; 2000. http://www.york.ac.uk/inst/crd/CRD_Reports/crdreport18.pdf.
- ¹⁴ National Research Council. 2006. Fluoride in Drinking Water: A Scientific Review of EPA's Standards. Washington, DC: The National Academies Press. <https://doi.org/10.17226/11571>. Accessed October 19, 2017.
- ¹⁵ "National Academy of Sciences on Fluoride in Drinking Water," Centers for Disease Control and Prevention, July 10, 2013, <http://www.cdc.gov/fluoridation/safety/nas.htm>.
- ¹⁶ "Reader Question: Safe Level of Toxic Substance?" Toxicology Excellence for Risk Assessment, answer posted in June 2013 at <http://kidschemicalsafety.org/health/reader-question-safe-level/>.
- ¹⁷ "Water fluoridation: Health monitoring report for England 2014," Public Health England, March 2014, <http://www.dentalwatch.org/fl/england.pdf>

-
- ¹⁸ “Health effects of water fluoridation: A review of the scientific evidence,” Royal Society of New Zealand & Office of the Prime Minister’s Chief Science Advisor, August 2014, http://assets.royalsociety.org.nz/media/2014/08/Health-effects-of-water-fluoridation_Aug_2014_corrected_Jan_2015.pdf.
- ¹⁹ “Millions face arsenic contamination risk in China, study finds,” *The Guardian*, August 22, 2013, <http://www.theguardian.com/environment/2013/aug/22/china-arsenic-contamination-risk-water>.
- ²⁰ Dion Lefler, “Harvard scientists: Data on fluoride, IQ not applicable in U.S.,” *The Wichita Eagle*, September 11, 2012, <http://www.kansas.com/2012/09/11/2485561/harvard-scientists-data-on-fluoride.html>.
- ²¹ J.M. Broadbent et al., “Community Water Fluoridation and Intelligence: Prospective Study in New Zealand,” 2014, *American Journal of Public Health*, <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2013.301857>.
- ²² “NSF Fact Sheet on Fluoride Products,” NSF International, February 15, 2013, http://www.nsf.org/newsroom_pdf/NSF_Fact_Sheet_on_Fluoridation.pdf.
- ²³ E-mail communication from Kip Duchon, PE, U.S. Centers for Disease Control and Prevention (CDC), to Matt Jacob, Director of Communications & Outreach, Children’s Dental Health Project. December 4, 2014. (Note: Duchon is the National Fluoridation Engineer for the CDC.)
- ²⁴ Texas Administrative Code - TAC 290.42 (j). (n.d.). Retrieved from Texas Secretary of State Texas Register: [http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=T&app=9&p_dir=F&p_rloc=163791&p_tloc=44408&p_ploc=29582&pg=4&p_tac=&ti=30&pt=1&ch=290&rl=42](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=T&app=9&p_dir=F&p_rloc=163791&p_tloc=44408&p_ploc=29582&pg=4&p_tac=&ti=30&pt=1&ch=290&rl=42).
- ²⁵ U.S. Department of Health and Human Services Federal Panel on Community Water Fluoridation. “U.S. Public Health Service Recommendation for Fluoride Concentration in Drinking Water for the Prevention of Dental Caries.” *Public Health Reports* 130.4 (2015): 318–331. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4547570/?report=classic>.
- ²⁶ “Return on Investment (ROI) for Each \$1 Spent on Health Programs,” <http://www.fluoridfortexas.txohc.org/Comparing%20ROI%20of%20Fluoridation.pdf> (Note: ROI information taken from multiple sources, fluoridation information from J. O’Connell et al., “Costs and Savings Associated with Community Water Fluoridation in the United States,” *Health Affairs*, 2016.)
- ²⁷ Promoting Community Water Fluoridation. The Pew Charitable Trusts, 3 Feb. 2015, www.pewtrusts.org/en/research-and-analysis/collections/2015/01/promoting-community-water-fluoridation.
- ²⁸ Centers for Disease Control and Prevention, “Cost Savings of Community Water Fluoridation,” <https://www.cdc.gov/fluoridation/statistics/cost.htm>.
- ²⁹ Fluoridation’s status as the most-cost effective way to prevent tooth decay was noted by U.S. Surgeon General Richard Carmona in 2004, and it was the conclusion reached in a 2002 report by the National Institute of Dental and Craniofacial Research (NIDCR). For more information, see Dr. Carmona’s statement at <http://www.nidcr.nih.gov/OralHealth/Topics/Fluoride/StatementWaterFluoridation.htm>. The NIDCR’s conclusion can be accessed at http://drc.hhs.gov/report/2_0.htm.
- ³⁰ For more information on the lifetime treatment costs for decayed teeth, see “Lifetime Costs of a Cavity,” Children’s Dental Health Project, 2013, <https://www.cdhp.org/resources/298-lifetime-costs-of-a-cavity-by-delta-dental>.
- ³¹ *Dental Fees Results from the 2016 Survey of Dental Fees*. American Dental Association, Health Policy Institute, West South Central Division, Codes #D2331 & D2392 p.78-79.
- ³² Cost is from Delta Dental of California’s data of commercially insured patients (January-June 2012).
- ³³ “Water Fluoridation Costs in Texas: Texas Health Steps (EPSDT-Medicaid)”. May 2000, Texas Department of State Health Services, accessed January 26, 2015 at <http://www.dshs.state.tx.us/dental/Fluoride-Cost.shtm>.
- ³⁴ Centers for Medicare and Medicaid Services Annual EPSDT Participation Report-Form CMS 416 (State), Fiscal Year 2016. [Retrieved 1/14/2018]
- ³⁵ S.L. Jackson et al., Impact of Poor Oral Health on Children’s School Attendance and Performance,” *American Journal of Public Health* (October 2011), Vol. 101, No. 10, 1900-1906, <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2010.200915>; “Poor Oral Health Can Mean Missed School, Lower Grades,” *Ostrow School of Dentistry of USC*, August 2012, <http://dentistry.usc.edu/2012/08/10/poor-oral-health-can-mean-missed-school-lower-grades/>.
- ³⁶ Glied, Sherry and Matthew Neidell. “The Economic Value of Teeth,” *Journal of Human Resources*, 45(2), 2010, http://econpapers.repec.org/article/uwpjhriss/v_3a45_3ay_3a2010_3ai2_3ap468-496.htm.