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The Public Health Value of Community Water Fluoridation

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History of Community Water Fluoridation. Community water fluoridation (CWF) is widely regarded as one of the most significant public health achievements of the 20th century, providing a safe, cost-effective, and equitable approach to enhancing oral health across populations.^{1,2} Fluoridation of drinking water began in 1945 and, by 1999, had reached an estimated 144 million people in the U.S. Fluoridation safely and inexpensively benefits both children and adults by effectively preventing tooth decay, regardless of socioeconomic status or access to care. Fluoridation has played a crucial role in reducing tooth decay (40%-70% in children) and tooth loss in adults (40%-60%).³ CWF began right here in Michigan, in Grand Rapids, in 1945. Grand Rapids was the first city to intentionally add fluoride to its water supply to prevent tooth decay. Currently, at least a dozen states have laws mandating that larger communities fluoridate, among them California, Delaware, Georgia, Illinois

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Kentucky, Louisiana, Minnesota, Mississippi, Nebraska, Nevada, Ohio, and South Dakota.

Demystifying CWF. What many folks do not realize is that fluoride is naturally found in soil, plants, and water, but the levels can vary significantly. While fluoride is naturally present in water, it's often at levels too low to prevent cavities effectively. In many cases, the fluoride level in community water can also be too high, leading to adverse health consequences. The purpose of community water fluoridation is to adjust the fluoride level in drinking water to the optimal level for preventing dental caries. The current recommended level of fluoride for public health benefits is 0.7 mg/L (milligrams per liter), which is a small amount, about three drops in a 55-gallon barrel. This level is considered optimal for preventing tooth decay and recommended by the U.S. Public Health Service (PHS) and the Centers for Disease Control and Prevention (CDC).⁴⁻⁵ By adjusting the fluoride content in public water supplies to optimal levels, communities can significantly reduce the incidence of dental caries (tooth decay), particularly among vulnerable populations.

Continue Support for CWF. While there has always been some controversy surrounding CWF, recent discussions have centered on reversing mandates. The following provides evidence-based information on the benefits of community water fluoridation, as well as continued support from the American Dental Association (ADA), the Centers for Disease Control and Prevention (CDC), and the Public Health Service (PHS).

1. ***Health Benefits and Caries Prevention.*** Fluoride is a critical component in both preventing and reversing early-stage dental caries. It enhances the strength of tooth enamel, making it more resistant to acid produced by oral bacteria and sugars. CWF ensures consistent, low-level fluoride exposure, protecting against tooth decay throughout life. This is particularly important for children, as fluoride contributes to the development of strong, permanent teeth; it also benefits adults by continuing to remineralize and protect enamel.⁵⁻⁶ Extensive research supports the efficacy of fluoridation. Access to fluoridated drinking water reduces the incidence of tooth decay by approximately 25% among both children and adults, even in a context where fluoride toothpaste and other fluoride-containing products are widely used. This highlights the complementary role of water fluoridation in conjunction with individual oral health practices.⁶

2. **Equity and Access.** CWF is a uniquely equitable public health intervention. It provides universal benefits, regardless of age, income, education level, or access to dental services. Populations that face systemic barriers to oral health care, such as low-income individuals and underserved communities, gain particular benefit. Unlike other preventive measures that require active participation or behavioral change, fluoridation is a passive and inclusive measure, offering protection without requiring individual action.⁷
3. **Cost-Effectiveness.** Economically, CWF is highly efficient. An economic review of multiple studies found that benefits ranged from \$1.10 to \$135 of benefit for every \$1 invested.⁸ Per capita annual costs for CWF ranged from \$0.11 to \$24.38, while benefits ranged from \$5.49 to \$93.19.⁸ These savings arise from the reduced need for restorative procedures and fewer missed days from work and school due to dental issues. Larger communities typically see even greater financial returns due to economies of scale.
4. **Safety and Public Confidence.** Decades of scientific research affirm the safety of fluoridation when maintained at the recommended level of 0.7 mg/L in the United States. It is endorsed by major health organizations, including the U.S. Public Health Service, American Dental Association (ADA), American Academy of Pediatric Dentistry, Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), and the International Association of Dental Research (IADR).⁹⁻¹² Although some concerns about fluoride have emerged over the years, peer-reviewed evidence consistently shows that optimal fluoridation levels do not pose health risks. The report in January 2025, “Fluoride Exposure and Children’s IQ Scores: A Systematic Review and Meta-Analysis, conducted by the U.S. National Toxicology Program, did not provide any new evidence to warrant changing the current CWF practices. Caution is needed when interpreting the report. The cited report found that there was no risk found with exposure below 1.5mg/L. This supports the safety of the recommended level of 0.7mg/L. A 2024 study found that early childhood exposure to fluorides resulted in IQ scores that were equivalent to or slightly higher in the exposed group compared to the non-exposed group, consistent with previous evidence.¹³ Based on the recent information, many professional organizations have voiced their reaffirmation of CWF efforts.¹⁴⁻¹⁶

Conclusion. Community water fluoridation remains one of the most effective and equitable tools in public health. It significantly reduces the burden of dental caries, improves population oral health, and contributes to health equity across socioeconomic lines. As communities grapple with healthcare access and rising treatment costs, investing in and expanding water fluoridation remains a sound, evidence-based public health strategy. According to the ADA's expert committee that examined the report,¹⁷ the paper does not provide any new or conclusive evidence that should necessitate any changes in current community water fluoridation practices for public health policy consideration. As previously demonstrated, it confirms the safety of the current recommended levels. It should also be noted that the studies included in the paper were not conducted in the U.S. and were instead from areas with high levels of naturally occurring fluoride in water.

The CDC has established the 'My Water's Fluoride' site to provide general information on fluoridated water systems. While the site does not provide 'real-time' information, it is the best source of information on fluoride levels in community water systems, which are typically provided by your local water utility. [Click here to find information from your state.](#)

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