Water Fluoridation: Facts vs. Fears

January 2025

Authors:

Tiffany Turner, MBA, MPH
Interim Chief Executive Officer
Center for Oral Health

Robert Milam, MPH
Research and Evaluation Manager
Center for Oral Health

Prerana Gurudath, BDS, MPH
Texas A&M University

Abstract:

The Center for Oral Health (COH), founded in 1985, is a non-profit organization dedicated to promoting public oral health, with a focus on children and vulnerable populations. The Center collaborates with national, state, and local partners to develop innovative community-based strategies for improving oral health outcomes.

This white paper on "Water Fluoridation: Facts vs Fears" reflects COH's long-standing advocacy for fluoride-based preventive strategies. It highlights the evidence supporting water fluoridation as a safe, cost-effective, and essential public health measure, while also addressing misconceptions and emerging concerns.

Additionally, the paper features the Early Smiles Sacramento (ESS) program as a case study, illustrating the success of fluoride varnish applications combined with community water fluoridation in improving children's oral health outcomes.

Executive Summary
Water Fluoridation: Facts vs. Fears

Water fluoridation has recently garnered significant attention in the media, with some raising concerns about its potential links to health issues, including autism. A 2024 study suggested an association between prenatal fluoride exposure and neurobehavioral issues in children. However, experts emphasize that such findings require further research and do not negate the overwhelming evidence supporting fluoridation's safety and effectiveness in promoting public oral health. (Abrams, 2024).

The history of water fluoridation dates back to the early 20th century, when Dr. Frederick McKay in Colorado Springs first noted that residents with brown-stained teeth had fewer cavities. This condition, later known as "Colorado Brown Stain," was linked to high levels of naturally occurring fluoride in the water. In the 1930s, Dr. H. Trendley Dean's research demonstrated that fluoride could reduce dental decay without causing harm, leading to the establishment of safe, optimal fluoride levels in drinking water (National Institute of Dental and Craniofacial Research, 2000; Dean, 1938).

The first large-scale fluoridation program began in 1945 in Grand Rapids, Michigan, and showed significant reductions in cavities, which led to the widespread adoption of water fluoridation across the United States (Arnold, 1957). By 1974, the Safe Drinking Water Act granted the U.S. Environmental Protection Agency (EPA) authority over water quality, and fluoridation became a state and local responsibility (CDC, 2024). Today, about 73% of the U.S. population, or nearly 210 million people, have access to fluoridated drinking water, making it one of the most successful public health initiatives in the country (CDC, 2024).

Since 1985, the Center for Oral Health (COH) has been a leading advocate for water fluoridation, building on decades of scientific evidence and community-focused efforts. Today, we reaffirm our commitment to fluoridation as an essential public health measure. This white paper addresses prevalent misconceptions and negative attitudes toward fluoridation—both in water systems and as a preventive dental measure—and highlights its proven benefits for health equity and economic sustainability.

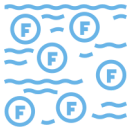
TIMELINE

HISTORY OF WATER FLUORIDATION IN USA

1 Early Discoveries and Research

1901-1930

Dr. Frederick McKay observes the connection between fluoride and dental health in Colorado Springs. In the 1930s, Dr. H. Trendley Dean identifies the optimal fluoride level for reducing tooth decay without harm.



2 Pioneering Public Health Initiatives

1945

Grand Rapids, Michigan becomes the first city to fluoridate its drinking water, showing a significant reduction in cavities.

1950

Major Health Organizations Endorse water fluoridation as a measure to prevent tooth decay.

1962

The U.S. Public Health Service endorses water fluoridation as a public health measure.

1964

The American Dental Association officially supports water fluoridation.

3 Legislation and Federal Support

1974

The Safe Drinking Water Act grants EPA authority over water quality, making fluoridation a state responsibility.

1995

California passes Assembly Bill 733, requiring fluoridation in communities with 25,000+ people or 10,000+ water connections.

4 Widespread Adoption and Recognition

1980

Half of the U.S. population receives fluoridated tap water.

1999

The CDC names water fluoridation one of the 10 greatest public health achievements of the 20th century.

2022

73% of the U.S. population (nearly 210 million people) has access to fluoridated water.

Center for Oral Health: A Legacy of Advocacy

The Center for Oral Health, formerly known as the Dental Health Foundation (DHF), has played a pivotal role in advancing water fluoridation in California. In 1985, **Dr. Ernest Newbrun** received a $50,000 grant from Knight-Ridder, Inc., to advance his work on community water fluoridation. Recognizing the importance of collaboration, he invited three other proponents of water fluoridation to join his efforts:

- **Dr. Joel Boriskin**, who successfully led the campaign to fluoridate the East Bay Municipal Utility District.
- **Dr. John Green**, former Assistant Surgeon General and Dean of the UCSF School of Dentistry.
- **Dr. Bob Isman**, experienced in Portland's fluoridation campaign and serving at the California State Health Department at the time.

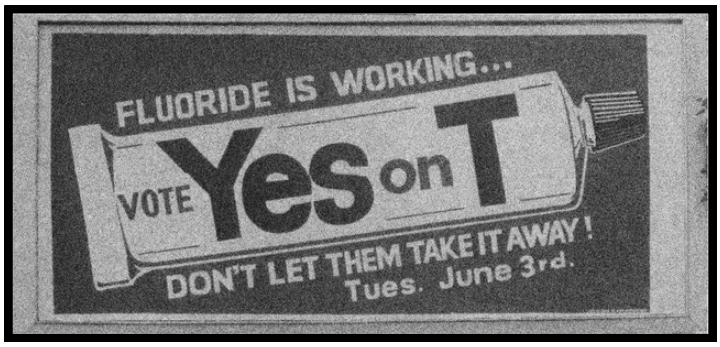
Pioneering Advocacy for Water Fluoridation

Dentists who would later establish the Dental Health Foundation, now known as the Center for Oral Health, played a leading role in advocating for water fluoridation within the East Bay Municipal Utility District (EBMUD). On June 3, 1980, EBMUD voters reapproved fluoridation through Measure T by a significant margin, with ***54.9% in favor*** and 45.1% opposed. This decision marked a major public health milestone, affirming fluoridation for a diverse population of ***over 1.1 million residents across 30 cities***, including Oakland, Berkeley, and Walnut Creek (Boriskin, 1981).

The campaign succeeded due to well-crafted political strategies and robust grassroots advocacy. Recognizing the heightened consumer activism of the 1970s and shifting political trends, the campaign committee, Citizens to Save Fluoridation, employed a strategic blend of direct voter engagement, media outreach, and coalition-building.

These efforts included recruiting volunteers, leveraging opinion leaders, and tailoring communications to resonate with voters from varied economic, cultural, and political backgrounds. This methodical approach reinforced public trust and maintained strong support for the fluoridation initiative.

The campaign not only preserved a critical public health measure but also highlighted the emerging political influence of the dental profession. By collaborating with community leaders, media outlets, and civic organizations, the dental community established lasting relationships that continue to impact public health advocacy today. The Measure T campaign stands as a case study in effective political action, exemplifying how professional expertise and community trust can advance public health goals (Boriskin, 1981).



PICTURE: BILLBOARD SHOWS SLOGAN OF SUCCESSFUL CAMPAIGN IN TWO COUNTIES NEAR SAN FRANCISCO TO MAINTAIN FLUORIDATION (BORISKIN, 1981)

Community	Population	Date	Outcome	Previously fluoridated
Abilene, Kan	6,661	4/80	Lost	No
Athens, Tex	9,582	4/80	Lost	No
Augusta, Kan	5,977	4/80	Lost	No
Bellaire, Mich	897	3/80	Lost	No
Berlin, NH	15,256	2/80	Lost	Yes
Camanche, Iowa	4,367	5/80	Lost	No
Duxbury, Mass	7,636	4/80	Won	No
East Bay Municipal Utility District	1,100,000	6/80	Won	Yes
Grand Island, Neb	33,400	5/80	Lost	No
Humboldt, Kan	2,249	4/80	Lost	No
Mancelona, Mich	1,255	3/80	Lost	No
Pentwater, Mich	933	3/80	Lost	No
Portland, Ore	619,523	5/80	Lost	No
Saint Albans, Vt	8,082	3/80	Lost	No
Show Low, Ariz	3,378	4/80	Lost	No
Verdigre, Neb	570	5/80	Lost	No
Wallingford, Vt	800	3/80	Lost	No
West Point, Neb	3,385	5/80	Lost	No
Winfield, Kan	11,000	4/80	Lost	No

*Successful referendums were also held in several communities in November 1980.

TABLE: SELECTED COMMUNITES HAVING FLUORIDATION REFERENDUMS JANUARY TO JUNE 1980 (BORISKIN, 1981)

Legislative Milestones in FluoridationIn

In 1995, the Dental Health Foundation (DHF) achieved a significant legislative victory with the passage of ***Assembly Bill 733***. This landmark bill required California communities with populations of 25,000 or more, or those served by 10,000 or more water connections, to implement water fluoridation once funding became available (AB 733, 1995).

The passage of AB 733 laid the foundation for expanded fluoridation efforts across the state. It spurred financial and logistical support from organizations like the California Endowment, which facilitated the formation of the ***Fluoridation Taskforce***. This task force became instrumental in advancing statewide fluoridation initiatives by securing critical measures for key water systems, including the Metropolitan Water District of Southern California—the largest water wholesaler in the world.

Through this collaboration, the benefits of water fluoridation were extended to millions of Californians, particularly in underserved communities. By reducing dental disease prevalence and promoting equitable oral health outcomes, these efforts underscore the long-standing commitment of DHF, now the Center for Oral Health, to improving public health through strategic advocacy, policy innovation, and partnerships.

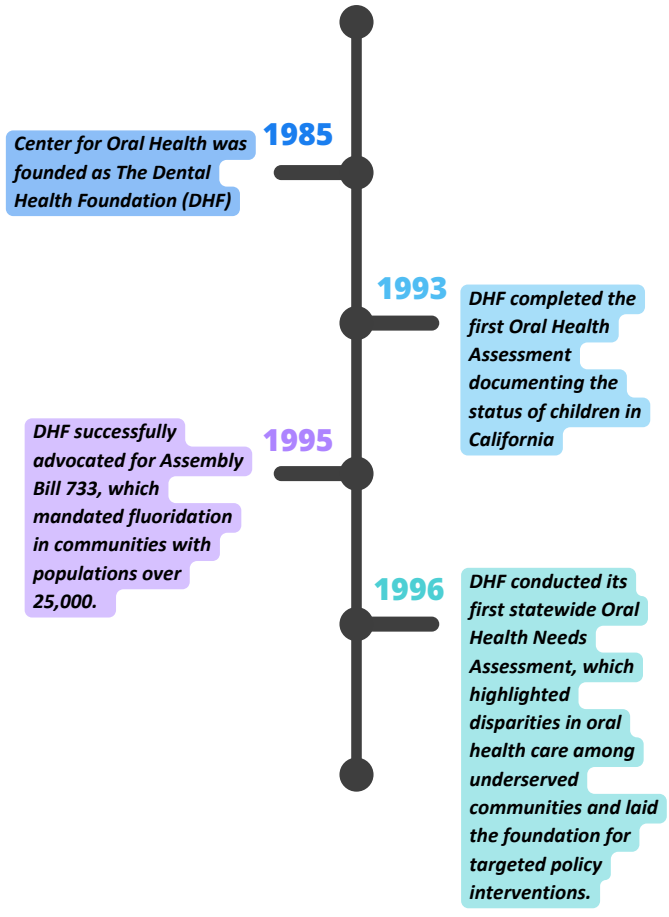
Growing Access to Fluoridated Water Across California

Since the mid-1990s, California has made remarkable strides in expanding access to fluoridated water, a critical public health measure for preventing dental decay. ***In 1994, only 17% of the state's population had access to fluoridated water.*** However, by 2012, this figure had risen significantly to 63.7%, showcasing the impact of progressive legislative measures, advocacy efforts, and strategic partnerships (California Department of Public Health, 2014).

This remarkable growth highlights the collective efforts of public health leaders, water utilities, and community advocates in addressing oral health disparities. Key milestones, such as the fluoridation of the Metropolitan Water District of Southern California in 2007, brought this preventive measure to millions of residents, particularly in urban and underserved communities (Stocks et al., n.d., 2022).

Today, California's achievements in fluoridation serve as a model for how targeted legislative action and cross-sector collaboration can improve public health infrastructure.

CENTER FOR ORAL HEALTH FLUORIDATION MILESTONES



Effects of Water Fluoridation and Fluoride Varnish

The Evidence for Fluoridation

Water fluoridation is a well-documented and effective public health intervention for reducing dental caries across all age groups. Decades of research highlight its preventive benefits, with fluoridated communities experiencing significantly lower rates of cavities compared to non-fluoridated areas. The American Dental Association (ADA) reports that ***fluoridation reduces dental decay rates by approximately 25%***, with ***children in fluoridated regions showing an average of 14.6% fewer dental caries*** (McDonagh et al., 2000). Additionally, the Cochrane Collaboration (2015) found that initiating ***water fluoridation led to a 26% reduction in decayed, missing, and filled permanent teeth (DMFT) among children***, demonstrating its sustained impact on oral health outcomes.

The community-wide benefits of water fluoridation extend beyond individual health to enhance the effectiveness of other fluoride-based interventions such as toothpaste and dental varnishes. This foundational public health measure ensures preventive care for all individuals, irrespective of their access to additional fluoride sources (Centers for Disease Control and Prevention [CDC], 2024; ADA, n.d.). The LOTUS study, analyzing dental health records from 2010 to 2020 in England, further highlighted fluoridation's benefits across lifespans, revealing a reduction in the need for invasive dental treatments among individuals in fluoridated areas. Such findings underscore fluoridation's critical role in advancing oral health on a population level.

Furthermore, water fluoridation addresses disparities in oral health outcomes, particularly among vulnerable groups such as children from low-income families and those with limited access to dental care. By providing a baseline level of cavity prevention, fluoridated water ensures equitable access to oral health benefits across socioeconomic groups. The CDC emphasizes that community water fluoridation not only prevents cavities but also promotes oral health equity, fostering overall community well-being and bridging gaps in access to preventive care (CDC, 2024). These attributes affirm its status as an essential public health measure.

The Cost-Effectiveness and Societal Benefits of Water Fluoridation

Water fluoridation is one of the most cost-effective public health interventions, ***with every dollar invested yielding approximately $38 in dental treatment cost savings*** (CDC, 2024). These savings include direct costs, such as reduced expenses for fillings, crowns, and extractions, as well as indirect costs, like fewer missed school and workdays due to dental issues. The affordability of fluoridation further enhances its appeal, with ***annual costs ranging from $0.62 to $3.90 per person*** depending on community size (CDC, n.d.). This low cost, coupled with a 20–40% reduction in cavities in fluoridated communities, underscores its significant impact on public health and economic efficiency (CDC, 2024).

Beyond financial savings, water fluoridation generates substantial societal benefits by improving oral health and reducing absenteeism. Children in fluoridated areas are more likely to attend school regularly due to fewer dental-related illnesses, while adults miss fewer workdays for dental treatment, enhancing productivity and educational outcomes (Spokane Regional Health District [SRHD], 2020). Furthermore, by reducing severe dental issues, fluoridation alleviates the burden on healthcare systems and promotes broader societal well-being. These collective benefits make fluoridation an essential public health measure with far-reaching implications for communities.

Fluoridation also advances health equity by ensuring universal access to preventive dental care regardless of socioeconomic status. Underserved populations, who often face barriers to routine dental care, derive significant benefits from fluoridation (Mariño & Zaror, 2020). By addressing disparities in oral health outcomes, fluoridation fosters healthier, more resilient communities. Economic evaluations, such as a scoping review published in BMC Oral Health, confirm that fluoridation reduces the financial burden of dental care while contributing to broader public health goals, including minimizing healthcare costs and enhancing population well-being (Mariño & Zaror, 2020). These findings reaffirm the importance of fluoridation as a cornerstone of community health initiatives.

COMMUNITY WATER FLUORIDATION MYTH VS FACTS

Community water fluoridation is one of the most debated public health measures, often surrounded by myths and misconceptions. While some believe it poses health risks or is unnecessary, decades of research consistently show that fluoridation is a safe, cost-effective way to prevent tooth decay and improve oral health for all.

MYTH	FACT
Fluoridation does not reduce tooth decay!	Numerous studies and over six decades of experience consistently demonstrate that fluoridation effectively reduces tooth decay.
Fluoridation causes cancer and other serious health issues!	Top health and medical organizations confirm that fluoridated water is safe and effective.
Fluoride is believed to be highly toxic for young children!	Medical experts refuse toxicity claims, with the American Academy of Family Physicians recommending fluoride supplements for children at risk of tooth decay.
Fluoridation can cause fluorosis, which may lead to brown, pitted teeth!	Excessive and extreme fluoride levels can cause fluorosis, but nearly all cases in the U.S. are mild.
Our city council could reduce costs by stopping the fluoridation of our water system!	Fluoridation is one of the most affordable and effective health strategies ever developed, providing long-term benefits for the entire community.
Fluoridation is often framed as a "freedom of choice" issue!	Fluoride is naturally found in most water supplies, making fluoridation a public health measure that benefits everyone with a small community investment.
Research indicates that fluoride is associated with lower IQ scores in children!	Anti-fluoride groups use poorly done studies with unreliable data, and there is not enough evidence to back their claims.
There are more effective ways to provide fluoride than adding it to water!	Community water fluoridation is the most affordable method to protect oral health, ensuring widespread benefits.

Center for Oral Health

Glimpse of Early Smiles Program

The Early Smiles Sacramento (ESS) program, developed by the Center for Oral Health in partnership with ***Access Dental, Inc., Health Net of California, Inc., and LIBERTY Dental Plan of California, Inc.***, is a school-based oral health initiative serving Sacramento County. Since its launch in 2016, ESS has provided essential preventive dental care to underserved children, ensuring they remain healthy and ready to learn.

ESS employs an innovative approach to minimize classroom disruptions by delivering onsite oral health services—education, assessments, and fluoride varnish applications. The program navigates all children, regardless of insurance status, toward a dental home for ongoing care. By building trust within communities and addressing logistical barriers, ESS has become an invaluable resource for improving children's oral health.

Impact and Reach

ESS operates in 17 school districts and attends at least one community event per month. In FY 2024, the program provided oral health education to over 112,000 students, emphasizing preventive care such as brushing with fluoridated tap water—a vital resource in Sacramento County. Notably, in January 2008, the Sacramento County Water Agency secured grant funding from the First 5 Sacramento Commission to install fluoridation equipment, further promoting oral health.

In addition to education, ESS applied 17,785 fluoride varnish treatments—an evidence-based method to reduce tooth decay—and conducted 26,562 oral health assessments, identifying needs for advanced care like sealants and urgent treatment.

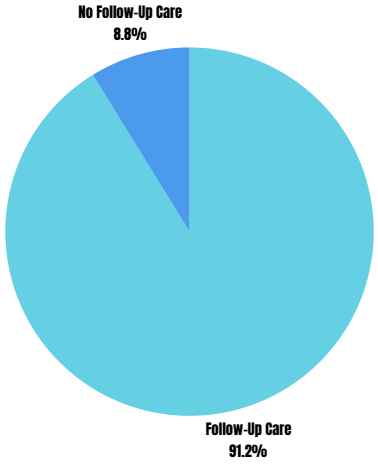
Outcomes and Successes

ESS has made a notable impact on improving oral health outcomes. In FY 2024, 63% of children screened through the ESS program established a dental home, and 91% of those requiring urgent care received follow-up treatment.

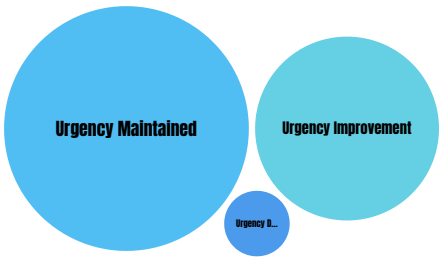
Furthermore, a comparison of repeat patients between Calendar Year 2022 and Calendar Year 2023 revealed that 34% of children demonstrated improvement in their urgency outcomes, while 61% maintained stable urgency levels.

By combining fluoride varnish applications with education on fluoridated water, ESS has contributed to a marked reduction in untreated tooth decay. These comprehensive preventive efforts underscore the transformative power of fluoride in promoting long-term oral health and reducing the need for costly urgent care.

EARLY SMILES SACRAMENTO PROGRAM STATISTICS



91% OF URGENCY 3S RECEIVED FOLLOW-UP CARE (CENTER FOR ORAL HEALTH, N.D.)



95% URGENCY IMPROVEMENT OR MAINTAINED CY 2023 (CENTER FOR ORAL HEALTH, N.D.)

Community Water Fluoridation - All you need to know!

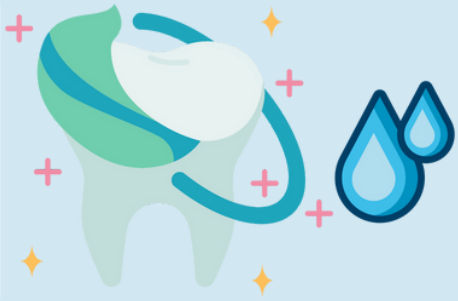
Community water fluoridation involves regulating the fluoride levels in drinking water to an optimal amount that helps prevent cavities.

1945

Grand Rapids, Michigan- first city to implement community water fluoridation.

0.7 ppm

The optimal fluoride concentration



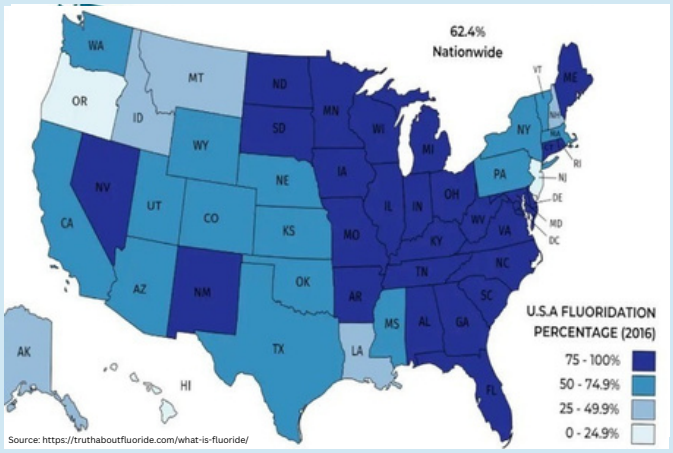
75 years

of research shows community water fluoridation is safe and healthy.

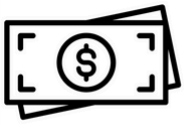
One of 10

Greatest Public Health Interventions of the 20th Century

Majority of the states in the U.S. receive fluoridated water from community water systems (CWS)



Every $1 invested saves $38 dental costs



$38

Reduces Tooth Decay by

25%

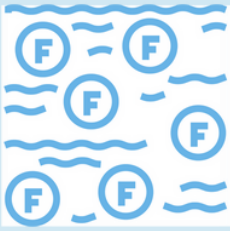
72% of the U.S. population receives fluoridated water

Say NO to cavities, fillings, and drillings- and YES to a healthy, confident smile!

Prevent dental problems and missed days from work or school with simple, effective measures.

Smiles Without Barriers

Helps everyone, no matter their age or income.



Fluoride in water works like a 24/7 shield for your teeth!

Strong Teeth, Bright Smiles, Better Lives!

Conclusion and Future Vision

Water fluoridation remains one of the most effective and evidence-based public health interventions for preventing dental decay. It has significantly improved oral health outcomes across communities, reducing disparities and promoting health equity. Programs like Early Smiles Sacramento (ESS) exemplify the transformative impact of fluoride by integrating fluoride varnish applications with education on the use of fluoridated water. ESS has successfully connected underserved children to dental homes, encouraged regular dental visits, and enhanced access to preventive care.

The economic benefits of water fluoridation are equally noteworthy. By preventing dental decay, fluoridation reduces treatment costs and generates broader societal advantages, including decreased school and workplace absenteeism. Integrating fluoride-based strategies into public health initiatives, especially in underserved communities, remains essential to advancing oral health equity and mitigating the long-term impact of dental diseases.

Fluoride Alternatives

While fluoride is a cornerstone of dental caries prevention, alternatives exist for individuals or communities with limited access to fluoride or those seeking fluoride-free approaches. These options include:

- ***Casein Phosphopeptide-Amorphous Calcium Phosphate (CPP-ACP)***: Found in certain dental creams and chewing gums, CPP-ACP enhances enamel remineralization by delivering bioavailable calcium and phosphate ions (Reynolds, 1997).
- ***Nano-Hydroxyapatite:*** A synthetic version of the natural mineral in teeth, nano-hydroxyapatite repairs enamel by filling microscopic cracks and creating a smoother, more resistant surface (Tschoppe et al., 2011).
- ***Xylitol:*** A natural sugar alcohol commonly used in sugar-free gum, lozenges, and syrups, xylitol inhibits decay-causing bacteria, reduces acid production, and promotes a neutral oral pH (Milgrom et al., 2006).

These alternatives can complement broader oral health strategies. For personalized advice, consult a dental professional to determine the most suitable options for you and your family.

Call to Action

To advance oral health equity and reduce the long-term burden of dental diseases, it is critical to prioritize water fluoridation at the state and national levels. Supporting initiatives like ESS and other school-based programs ensures that children, regardless of socioeconomic status, have access to essential preventive care.

Public health decisions should rely on evidence-based data, not fear or misinformation, particularly when addressing concerns about fluoride. The Center for Oral Health is dedicated to advocating for policies that expand fluoride access and integrate it into public health systems. By working collaboratively, we can build healthier communities, reduce the financial burden of dental care, and promote equitable oral health for all.

About the Authors

Tiffany Turner, MBA, MPH brings a wealth of experience and leadership to the Center for Oral Health. Currently serving as the Interim Chief Executive Officer at The Center for Oral Health, she oversees a wide array of responsibilities, including HR, IT/Facilities, Compliance, Quality Improvement, Development, Research/Data Evaluation, and the management of both a standalone clinic and a school-based program. With a distinguished career marked by strategic vision and operational excellence, Ms. Turner has consistently demonstrated a commitment to driving organizational success and achieving impactful outcomes. Tiffany Turner is a dynamic and results-driven leader, embodying the values and vision of the Center for Oral Health. Her strategic acumen, collaborative approach, and passion for healthcare make her an invaluable asset to the organization's executive leadership team.

Robert Milam, MPH serves as the Research and Evaluation Manager at the Center for Oral Health. He holds a Master of Public Health and brings over five years of experience in developing, implementing, and monitoring public health programs. Robert has expertise in conducting systematic reviews and meta-analyses, authoring publications, and presenting research findings at national conferences, demonstrating his proficiency in research methodologies. His data analysis skills include performing complex analyses to evaluate program outcomes, identifying trends, addressing gaps, and assessing the impact on target populations, particularly in areas such as HIV care and food insecurity. A strong advocate of evidence-based strategies, Robert collaborates with multidisciplinary teams to improve programs, ensuring they are data-driven and effectively meet community needs.

Prerana Gurudath, BDS, MPH graduated with a Master of Public Health in Epidemiology from Texas A&M University and a Bachelor of Dental Surgery from India. She has experience in both research and clinical practice, focusing on improving access to care for underserved populations. Prerana has authored research papers published in peer-reviewed journals and coordinated community care initiatives, enhancing operational efficiencies at dental clinics. Her goal is to improve oral health through clinical practice and evidence-based research, with a strong commitment to reducing oral health disparities and ensuring equitable access to care.

The views expressed in this brief do not necessarily reflect the views of the Center for Oral Health. This paper is a work in progress and/or is produced in parallel with other works contributing to other work or formal publications by Center for Oral Health. Comments are welcome; please direct them to Tiffany Turner at tturner@tc4oh.org

References

Abrams, Z. (2024, May 20). Fluoride exposure during pregnancy linked to increased risk of childhood neurobehavioral problems, study finds. *Newsroom*. Retrieved from https://keck.usc.edu/news/fluoride-exposure-during-pregnancy-linked-to-increased-risk-of-childhood-neurobehavioral-problems-study-finds/

American Dental Association. (1964). *Fluoride helps prevent tooth decay.* Patient Dental Health Education Brochures, 175.

American Dental Association. (n.d.). *Fluoridation FAQs.* American Dental Association. Retrieved January 10, 2025, from https://www.ada.org/resources/community-initiatives/fluoride-in-water/fluoridation-faqs

Arnold, F. A. Jr. (1957). Grand Rapids fluoridation study: Results pertaining to the eleventh year of fluoridation. *American Journal of Public Health and the Nations Health,* 47(5), 539–545. https://doi.org/10.2105/ajph.47.5.539

Assembly Bill 733 – Chaptered. (1995). *Ca.gov.* Retrieved December 20, 2024, from http://www.leginfo.ca.gov/pub/95-96/bill/asm/ab_0701-0750/ab_733_bill_951010_chaptered.html

Boriskin, J. M., & Fine, J. I. (1981). Fluoridation election victory: A case study for dentistry in effective political action. *The Journal of the American Dental Association,* 102(4), 486–491. https://doi.org/10.14219/jada.archive.1981.0121

California Department of Public Health. (2024). *California community water fluoridation fact sheet.* Retrieved December 20, 2024, from https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDCB/CDPH%20Document%20Library/Oral%20Health%20Program/CACommunityWaterFluoridationFactSheet.pdf

Centers for Disease Control and Prevention. (1999, April 2). Ten great public health achievements — United States, 1900–1999. *CDC.* Retrieved from https://www.cdc.gov/mmwr/preview/mmwrhtml/00056796.htm
Centers for Disease Control and Prevention. (2013). Water fluoridation: Questions and answers. Retrieved from CDC.gov.

Centers for Disease Control and Prevention. (2013). *Water fluoridation: Questions and answers.* Retrieved from CDC.gov.

Centers for Disease Control and Prevention. (2024, June 17). Community water fluoridation facts. *Oral Health.* Retrieved January 10, 2025, from https://www.cdc.gov/oral-health/data-research/facts-stats/fast-facts-community-water-fluoridation.html

Centers for Disease Control and Prevention. (n.d.). *Water fluoridation: Nature's way to prevent tooth decay.* Retrieved January 10, 2025, from https://stacks.cdc.gov/view/cdc/5198/cdc_5198_DS1.pdf

Center for Oral Health. (n.d.). *Early Smiles Sacramento annual screening statistics (2016–2024).* Center for Oral Health.

Cochrane Collaboration. (2015). Water fluoridation for the prevention of dental caries. *Cochrane Database of Systematic Reviews, 6,* Article CD010856. https://doi.org/10.1002/14651858.CD010856.pub2

Dean, H. T. (1938). Endemic fluorosis and its relation to dental caries. *Public Health Reports, 121*(Suppl 1), 213–219. PMID: 16550781.

Mariño, R., & Zaror, C. (2020). Economic evaluations in water fluoridation: A scoping review. *BMC Oral Health, 20*(1), Article 100. https://doi.org/10.1186/s12903-020-01100-y

McDonagh, M. S., Whiting, P. F., Wilson, P. M., Sutton, A. J., Chestnutt, I., Cooper, J., ... & Kleijnen, J. (2000). Systematic review of water fluoridation. *BMJ, 321*(7265), 855–859. https://doi.org/10.1136/bmj.321.7265.855

Milgrom, P., Ly, K. A., Roberts, M. C., Rothen, M., Mueller, G., & Yamaguchi, D. K. (2006). Mutans streptococci dose response to xylitol chewing gum. *Journal of Dental Research, 85*(2), 177–181. https://doi.org/10.1177/154405910608500211

Mullen, J. (2005). History of water fluoridation. *British Dental Journal, 199*(Suppl 7), 1–4. https://doi.org/10.1038/sj.bdj.4812863

Myths & Facts. (2024). Nevada Department of Public and Behavioral Health. Retrieved from https://dpbh.nv.gov/uploadedFiles/dpbhnvgov/content/Programs/OH/Fluoridation_and_Fluorides/Myths-Facts.pdf

National Institute of Dental and Craniofacial Research. (2000). *The story of fluoridation.* Retrieved from https://www.nidcr.nih.gov/health-info/fluoride/the-story-of-fluoridation

Reynolds, E. C. (1997). Remineralization of enamel subsurface lesions by casein phosphopeptide-stabilized calcium phosphate solutions. *Journal of Dental Research,* 76(9), 1587–1595. https://doi.org/10.1177/00220345970760091401

Sacramento County Water Agency. (2024). *Fluoridation program.* Retrieved December 20, 2024, from https://waterresources.saccounty.gov/Pages/Sacramento-County-Water-Agency---Fluoridation-Program.aspx

Stocks, M., Pollick, H., Jackson, R., & Kumar, J. (n.d.) (2022). California Oral Health Technical Assistance Center. https://oralhealthsupport.ucsf.edu/sites/g/files/tkssra861/f/wysiwyg/Fluoridation%20Manual_Online_PDF_Version.pdf

Spokane Regional Health District. (2020). *Community water fluoridation policy brief.* Retrieved January 10, 2025, from https://assets.srhd.org/assets/media/documents/CommunityWaterFluoridation.pdf

Tschoppe, P., Zandim, D. L., Martus, P., & Kielbassa, A. M. (2011). Enamel and dentine remineralization by nano-hydroxyapatite toothpastes. *Journal of Dentistry, 39*(6), 430–437. https://doi.org/10.1016/j.jdent.2011.03.008