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## Fluoride in 2025

There has been a lot of news lately about fluoride and community water fluoridation (CWF). Questions have arisen about whether fluoride presents a risk to the public. This is concerning since fluoride use is one of the many tools dental hygienists use to promote the prevention of dental decay. The good news is that evidence still supports the use of fluoride in promoting good oral health.

How did we first learn about the benefits of fluoride? In the early 1900s, a dentist by the name of Fred McKay discovered that the teeth of children in Colorado Springs were developing a dark brown, mottled appearance. And, although not appealing to look at, their teeth were stronger and resisted decay. Upon testing, it was discovered that they were receiving high levels of fluoride from the water. Studies were designed to determine how to implement CWF and in 1945, Grand Rapids, Michigan became the first community to employ the process. Due to the dramatic reduction of caries that resulted, other cities, states and even countries began to implement CWF programs. The Centers for Disease Control and Prevention (CDC) has cited CWF among the top 10 public health achievements of the 20<sup>th</sup> century as fluoridation has played an important role in reducing dental decay in children between 40% and 70%, and tooth loss in adults by 40% to 60%.<sup>1</sup> Studies continue to show that CWF prevents dental decay, and Grand Rapids celebrated 80 years of community water fluoridation this January.

Today the public does not consider dental caries or tooth decay as a serious health issue. However, when the “England Bills of Mortality” began keeping records for causes of death in the 1600s, “teeth” were listed

as the fifth and sixth leading causes of death. Even into the early 1900s, it’s estimated between 10% and 40% of deaths were dental infection related.<sup>2</sup> The implementation of CWF and the reduction in the severity of decay, along with increased messaging about the effects of fluoride in preventing decay, may have played a role in the perceived mindset that dental decay is now only a minor health issue.

Today, we are hearing more about oral health and its relation to overall health. There are well-documented relationships between poor oral health and cardiovascular disease, diabetes, lung diseases and many others. Untreated dental infections can travel throughout the body and even to the brain. Unfortunately, hospital emergency departments are not equipped to deal with non-traumatic dental issues.<sup>3</sup> In 2007, a young child named Deamonte Driver died of a brain infection that was the result of bacteria spreading to his brain from an untreated abscessed tooth. Some of the factors related to his death can be attributed to the lack of dentists that accept Medicaid.<sup>4</sup>

Community water fluoridation helps provide an equitable solution to preventing dental decay. According to the CDC, CWF provides a significant return on investment. Communities that fluoridate spend between \$0.11-\$1.50 per person per year to help prevent dental decay.<sup>5</sup> Anyone who has had a restoration or other dental work knows the financial costs of the treatment, plus the additional costs of missing school or work, as well as transportation, etc. That cost is even greater for those who can’t afford to see a dental provider. There are many people who cannot see a dental provider due to the lack of providers in rural areas, being uninsured or

on Medicaid, or lack of transportation. This includes the elderly, physically and developmentally disabled persons, persons of color, refugees and immigrants. Community water fluoridation is considered a preventive measure that is accessible to all.

Anti-fluoridation challenges have been around since the implementation of CWF. When patients, friends and family, or others start to ask questions about fluoridation, you can provide practical advice and support. One major point to take into consideration is that “we” are not the audience. Many individuals may not understand or relate to scientific authority or explanations; nor do they want to hear that it is a matter of public health.

We get fluoride in many ways and each works differently in the prevention of decay. Topical fluorides, like toothpaste, mouth rinse, and water have much lower concentrations than those applied in a dental setting. Small amounts of fluoride provided through drinking water act as a fresh protective guard for our teeth when it returns through our saliva.

When patients ask why they need CWF since they get fluoride through these other avenues, as well as through treatments via their dental hygienist, you can explain how fluoride in toothpaste and water work in different ways to keep teeth healthy. The analogy of airbags and anti-lock brakes on cars working together but differently to keep you safe is an example of the multi-layer protection of fluoride to keep teeth safe and healthy. Other concerns that have been raised include the freedom of choice issue, forcing mass medication on people, and reports that CWF lowers IQ in children. Some practical responses include:

- We all want quality drinking water for ourselves and families. Eighty years of experience and extensive research shows that the amount of fluoride used in America’s water keep teeth healthy while being safe and highly regulated. Frequent testing by water systems ensures residents receive what is needed for good oral health.
- Fluoride already exists naturally in water. Adjusting the fluoride in water makes sure all people in the community receive the benefit of keeping teeth healthy. Individuals may use filters to remove fluoride from tap water if that’s what they prefer.
- Fluoride is a natural mineral that is found in water and soil. Untreated oral disease can impact other major organs and chronic conditions. Fluoridation is one prevention measure to help keep people healthy.

Other countries offer fluoride in other products, like milk and salt. They also provide free and accessible dental care and nutritious meals, which results in fewer cavities. Adding fluoride to the water is an equitable solution for those who do not have access to dental care and/or cannot afford dental care.

It is important for dental hygienists to stay educated on evidence-based measures in order to educate individuals and answer their questions appropriately. For prevention on a large scale that is equitable, affordable and proven safe at low levels, community water fluoridation still is a proven best practice.

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