



Public Statement

Community Water Fluoridation and Dental Health in the U.S.

Statement of
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I am Dr. Bill Maas, the Director of the Division of Oral Health at the Centers for Disease Control and Prevention (CDC). Within the U.S. Department of Health and Human Services, CDC is recognized as the lead federal agency for protecting the health and safety of people, which it accomplishes by providing credible information to enhance health decisions and by promoting health through strong partnerships. CDC serves as the national focus for developing and applying disease prevention and control strategies, for environmental health, and for health promotion and education activities designed to improve the health of the people of the United States.

CDC has recognized the *Fluoridation of Drinking Water to Prevent Dental Caries* as one of 10 great public health achievements of the 20th century. Over the past 50 years, adjusted fluoridation of community drinking water has been a major factor responsible for the decline in tooth decay. Although other fluoride-containing products are available, water fluoridation remains the most equitable and cost-effective method of delivering fluoride to all members of most communities, regardless of age, educational attainment, or income level.

Our understanding of community water fluoridation is based on more than 60 years of research. CDC's endorsement of water fluoridation is based on assessment of that science base by many independent committees of experts, as well as review of the findings of individual studies and research conducted by our own scientists. It is this body of evidence, more than the findings of any single study, that affirms that community water fluoridation prevents tooth decay, is safe, reaches people from all walks of life throughout the lifespan, and is very cost-effective.

U.S. Surgeon General Richard Carmona recently joined many previous Surgeons General in issuing a personal statement endorsing fluoridation. In addition, at a national meeting in 2003, Surgeon General Carmona provided leadership by releasing *A National Call to Action to Promote Oral Health*. In that Call to Action he

challenged all sectors of society to work together to replicate what works, so that together we can promote oral health widely and effectively. Community water fluoridation is one of those interventions that works. Furthermore, the Surgeon General has affirmed that it is the responsibility of community leaders, whether their venue is at the state level or closer to home, to provide leadership for efforts to expand the reach of effective measures.

Community water fluoridation is effective in reducing tooth decay. This has been affirmed over the years by dozens of expert committees and task forces, in the United States and elsewhere, that have conducted independent reviews of the scientific literature. Their well-documented reports are available for reference. Each year the standards for review of the evidence are set higher. Recently, a non-Federal Task Force on Community Preventive Services was convened by the Department of Health and Human Services to provide leadership in evaluating community, population, and health care system strategies to address a variety of public health and health promotion topics. After a critical and thorough review of the scientific evidence of effectiveness, the Task Force strongly recommended community water fluoridation for prevention and control of tooth decay. Similar comprehensive reviews have been conducted in recent years in the United Kingdom and in Ireland. All these have reached the same conclusions regarding fluoridation's effectiveness.

Community water fluoridation is safe. The safety of fluoride in drinking water at the levels recommended for prevention of tooth decay has been affirmed by the National Research Council, an affiliate of the National Academy of Sciences. Because fluoride sometimes occurs naturally in water at levels many times higher than those recommended for preventing tooth decay, the Environmental Protection Agency (EPA) asked the National Research Council (NRC) to thoroughly review the health effects of these higher levels in drinking water and to advise the EPA regarding the maximum level to be permitted. This first review was conducted in 1993, and a periodic reassessment of this issue, which will consider new information available

since the previous report, currently is being conducted by the NRC. If any new recommendations arise from this current study they are likely to focus on health effects of fluoride when it occurs naturally at levels many times higher than the recommended levels. The safety of community water fluoridation at recommended levels is not seriously challenged.

Community water fluoridation is cost effective. CDC scientists estimate that for most cities considering the initiation of water fluoridation, the community can expect to save about \$38 in averted dental treatment costs for every \$1 invested in fluoridation. How many other public or private investments under consideration by communities are expected to yield that kind of return? Another study by CDC scientists was undertaken in Louisiana. A study of Medicaid costs for preschool children found that children in nonfluoridated parishes had Medicaid dental care costs that were twice as high, on average, as those of children living in fluoridated parishes. In addition the severity of their decay required children from nonfluoridated parishes to be hospitalized three times as often for dental treatment as the other children. Community water fluoridation is an investment that returns savings for both private and public dental care expenses.

Community water fluoridation is not just for children. Modern science has advanced our understanding of how fluoride works to prevent and control tooth decay. While incorporating fluoride into the developing teeth of young children has been shown to prevent tooth decay independently, fluoride's ability to work topically on the surface of the tooth is what provides its main effects and results in its effectiveness throughout the lifespan. CDC scientists recently reviewed a number of studies on the rate of new tooth decay in older adults and determined that the decay rate in older adults is much greater than the rate for children. With each new age group of older adults retaining more natural teeth than the generations before them, fluoridation's benefits across the lifespan become increasingly important.

It has been noted that the use of fluoride toothpaste, fluoride rinses, and professionally-applied fluoride products is now widespread in the United States - therefore, it is reasonable to ask whether fluoridation continues to be effective under these modern circumstances. CDC scientists have analyzed data from a large national study with data to address this issue, and have confirmed fluoridation's effectiveness. Our modern lifestyle also leads us to eat many meals outside the home, and provides convenient foods and beverages that were processed in other cities, the majority of which are processed with fluoridated water. This has resulted in a diffusion -- or halo -- effect, in which fluoridation provides benefits not only to those drinking water from their household tap, but also to others who, while they may not have fluoride in their drinking water, nevertheless receive partial benefits by eating foods and drinking beverages processed elsewhere with fluoridated water. Consequently, fluoridated communities provide benefits not only to their own residents, but to residents in neighboring communities as well.

If fluoride is available from all these sources, are people getting too much? No, not from their diet or drinking water. For people living in fluoridated communities, total fluoride intake has remained quite constant over the past couple of generations. Fluoride intake in nonfluoridated communities has risen, due to the diffusion effect of processed foods and beverages I mentioned, but it still remains lower than for those people living in fluoridated communities. We do not believe that anyone is getting too much fluoride from the use of optimally fluoridated drinking water. However, we do have evidence that some young children are using fluoride toothpaste inappropriately, without adequate adult supervision, and are swallowing too much. Some young children who reside in fluoridated communities are continuing to receive fluoride supplements, perhaps because their parents or physician or dentist has inaccurate information about the fluoride content of their drinking water source. In these conditions, cosmetic blemishes on the developing permanent teeth can occur. This condition, called enamel fluorosis, occurs in about one-fourth of American children.

In most cases the blemishes are so mild as to be neither a cosmetic nor functional problem. Moderate and severe forms, which occur in less than two percent of children, can be a cosmetic problem, but they are as likely to occur in low fluoride communities as in those that are fluoridated. To keep this from becoming a larger problem, CDC has encouraged more careful use of fluoride toothpaste. We recommend that health professionals reinforce to parents the importance of following the instructions found on the tube for careful supervision of toothpaste use by young children. We also have produced educational materials to inform parents on the right amount of fluoride toothpaste - a pea sized amount.

As people in communities across the nation begin to consider the various policy options available to promote oral health, they will hear from opponents of fluoridation. I want you to know that we have heard all of the arguments before. The opponents of fluoridation are very skilled in using words that are alarming. They are masters of communication, with the goal of planting doubts in your mind, not improving public understanding. A clear distinction needs to be made between so-called "experts", who rely on their own interpretation of articles and quote selectively from what other individual scientists have said, and scientists chosen for their expertise who debate evidence amongst themselves, and then have independent reviewers assess both the method they used in reaching conclusions and the conclusions they reached. We have high confidence in the assessment of the science base that occurs through such processes, whatever their findings might be. In the case of community water fluoridation, every such panel of experts that has met to review and critique the evidence has concluded that community water fluoridation is safe and effective.

The responsibility of CDC, like your health department and health profession associations, is to be a trustworthy source of information of how to improve health. We take that trust very seriously, and stand ready to be a continued

resource to you in this community, in your efforts to improve the oral health of your citizens.

For public health officials, policy makers, and consumers who desire more information about water fluoridation, I encourage you to visit the CDC oral health Web site at www.cdc.gov/OralHealth/index.htm. This site contains the Surgeon General's statement on water fluoridation and other useful information, including fact sheets and frequently asked questions about water fluoridation; national, state, and local data; and references to peer-reviewed scientific studies on fluoridation.

Thank you and best wishes with your efforts to promote oral health.