

# The dentist's role in promoting community water fluoridation

## A call to action for dentists and educators

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**F**luoride plays an important role in the prevention of dental caries, with the topical application of fluoride regarded widely as the most effective caries-preventive practice available.<sup>1</sup> However, research findings also have demonstrated that preeruption and posteruption exposure to fluoride in water is associated with caries reduction.<sup>2,3</sup> Along with vaccinations, motor vehicle safety and the control of infectious diseases, municipal water fluoridation has been hailed by the U.S. Centers for Disease Control and Prevention, Atlanta, as one of the 10 great public health achievements of the 20th century.<sup>4</sup>

Many countries now have fluoridated water, and at least a dozen countries have greater than 40 percent population coverage.<sup>5</sup> In 2008, fluoridated water in the United States reached an estimated 64 percent of the total population and approximately 72 percent of the population who had access to public water systems.<sup>6</sup> The percentage of people receiving fluoridated water has doubled in the last 50 years.<sup>7</sup>

## ABSTRACT



**Background and Overview.** Community water fluoridation is an important public health intervention that reduces oral health disparities and increases the health of the population. Promotion of its safety and effectiveness is critical to maintaining its widespread acceptance and ensuring its continued use. Dentists are a potentially important source of knowledge regarding the oral health benefits and safety of water fluoridation. However, few dentists regularly discuss fluorides, and water fluoridation in particular, with patients. The authors aim to describe and discuss the role and importance of dentists' promotion of public water fluoridation, barriers to dentists' involvement and some approaches that might influence dentists to promote water fluoridation more actively.

**Conclusions and Practice Implications.** Ongoing promotion of fluoridation by dentists is a key factor in ensuring sustained municipal water fluoridation. However, current undergraduate dental curricula do not adequately prepare dentists for this role, and continuing dental education may be insufficient to change clinical practice. Although smoking-cessation literature can shed some light on how to proceed, changing dentists' practice behavior remains a largely unstudied topic. Dental associations are a key resource for dentists, providing information that can assist them in becoming advocates for water fluoridation.

**Key Words.** Water fluoridation; advocacy; dental public health; community dentistry; public opinion.

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However, considerable variation exists across the United States in terms of coverage, ranging from 100 percent of residents in the District of Columbia to only 10.8 percent of residents in Hawaii.

### THE PUBLIC'S KNOWLEDGE AND SUPPORT OF WATER FLUORIDATION

Public awareness of preventive oral health-related interventions, including water fluoridation, is a major multinational public health goal<sup>8-10</sup> because of their widespread impact on individuals and communities, as well as their effect in reducing oral health disparities among children and poor or vulnerable adults.<sup>9</sup> It may be that people with negative views toward fluorides, and water fluoridation in particular, could turn their backs on this beneficial health agent by not drinking fluoridated water or using fluoridated toothpaste, resulting in a negative effect on their oral health.<sup>10</sup> At the community level, public knowledge of oral diseases has been shown to have a direct impact on the adoption of public health outcomes, such as water fluoridation.<sup>10,11</sup>

In the United States, as in most other countries in which water fluoridation has been instituted widely, support for the measure has tended to be high. National polls conducted by the Gallup Organization in 1991<sup>12</sup> and the American Dental Association in 1998<sup>13</sup> revealed that 78 and 70 percent, respectively, of American adults supported water fluoridation. Despite varying water fluoridation coverage across the United States, public support has been relatively consistent throughout the country.<sup>13</sup> This level of support is consistent with that found in countries such as Australia<sup>14</sup> that also have high levels of community water fluoridation, but slightly higher than that in Canada<sup>15</sup> and New Zealand,<sup>16</sup> where water fluoridation coverage is somewhat lower. In countries with low coverage of the population, such as England, canvassed support for water fluoridation in some areas may be considerably less than 50 percent.<sup>17</sup>

Despite water fluoridation's being used for more than one-half of a century to prevent dental caries, the results of studies from a number of countries have shown that a considerable degree of misunderstanding remains about its purpose and effects.<sup>10,18</sup> The results of a 2009 national mailed survey of U.S. adults showed that only 48 percent of respondents knew the purpose of community water fluoridation.<sup>19</sup> Researchers also have found that many adults have concerns about fluoridation.<sup>14-16</sup>

In addition, people often are unaware of the water fluoridation status of their place of residence. For example, despite widespread discussion in and around San Diego across a number of years regarding plans to fluoridate the water supply in 2011, a public opinion poll administered in 2006 found that 40 percent of respondents incorrectly believed that their local water supply was already fluoridated.<sup>20</sup>

Misinformation and unsubstantiated concerns regarding water fluoridation are critical public health issues because the introduction of fluoridation frequently relies on the outcome of community consultation, or more directly on a public referendum or plebiscite. Between 1950 and 1967, more than 1,000 public referenda were held in the United States regarding whether or not to fluoridate the public water supply, with only 41 percent of outcomes in favor of its introduction.<sup>21</sup> Between 1980 and 1988, 150 referenda were held, and the acceptance rate was only 36 percent.<sup>21</sup> More recent results have been little better. In Nebraska in 2008, 61 communities held public referenda on water fluoridation introduction, and only 12 communities (20 percent) voted in favor.<sup>22</sup> Furthermore, even where water fluoridation has been instituted, public referenda frequently are held to decide whether the practice should be discontinued.

### DENTISTS AS SOURCES OF INFORMATION

Dentists are a valuable source of accurate public health information regarding water fluoridation because they already are an important source of preventive dental information for the general public.<sup>10</sup> For example, Isman<sup>23</sup> found that 64 percent of an adult sample in Oregon obtained dental health information from their dentists, while investigators in Australia found that 65 percent of participants obtained preventive information from their private dental practitioners.<sup>10</sup> Furthermore, dentists regularly encounter a high percentage of the population. In the United States, for example, almost 62 percent of adults visited the dentist during 2011.<sup>24</sup> Other Western countries have reported similar or higher rates of dental visits.<sup>25,26</sup>

Unfortunately, researchers in several studies have indicated that the percentage of people who obtain information about water fluoridation from dentists is quite low.<sup>14,15</sup> Investigators in a

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**ABBREVIATION KEY.** CDE: Continuing dental education. EBD: Evidence-based dentistry. IOM: Institute of Medicine.

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