



Brian N. Feldman, DDS BA

Fluoridation:

Good or Bad?

It's been 60 years since the residents of Brantford, Ontario and Grand Rapids, Michigan turned on their taps and began drinking artificially fluoridated water. These communities were the first in North America to have fluoride added to the municipal water supply, mainly because the dental profession succeeded in convincing local authorities this measure would be safe, inexpensive and bring about a significant reduction in tooth decay. For the most part, these predictions have proven to be correct: fluoridation recently made the U.S. Centre for Disease Control's list of the *Top 10 Public Health Achievements* of the twentieth century.

Yet despite more than a half-century of scientific data and thousands of studies re-affirming the benefits, opposition to fluoride has not vanished but in fact has become even more strident. Some distinguished dental professionals now count themselves among the opponents of fluoridation. Web sites are flourishing with anti-fluoride messages, suggesting again that fluoride not only is a toxic poison (true, in high doses), but also that adding fluoride to the water may actually *cause* cavities rather than prevent them (very doubtful).

The history of fluoridation encompasses far more than a simple public health measure. In 1945, World War Two was finally ending and a new generation of young men, many having just witnessed unspeakable horrors and misery while overseas, returned to North America with quite a different outlook on the world around them. For most of these soldiers the war was their first experience away from home, and when they came back their focus was family, health, work and education. Scientists had already studied the safety and efficacy of fluoride in preventing tooth decay, especially in children, and the time was right for communities to start applying science for the benefit of their citizens. The early results were astonishing: residents of the first towns that added fluoride to the water had far fewer cavities and dental problems, and so impressive was some of the initial data that many other cities began fluoridating even before test results were completed.

Coupled with this was a slow but steady improvement

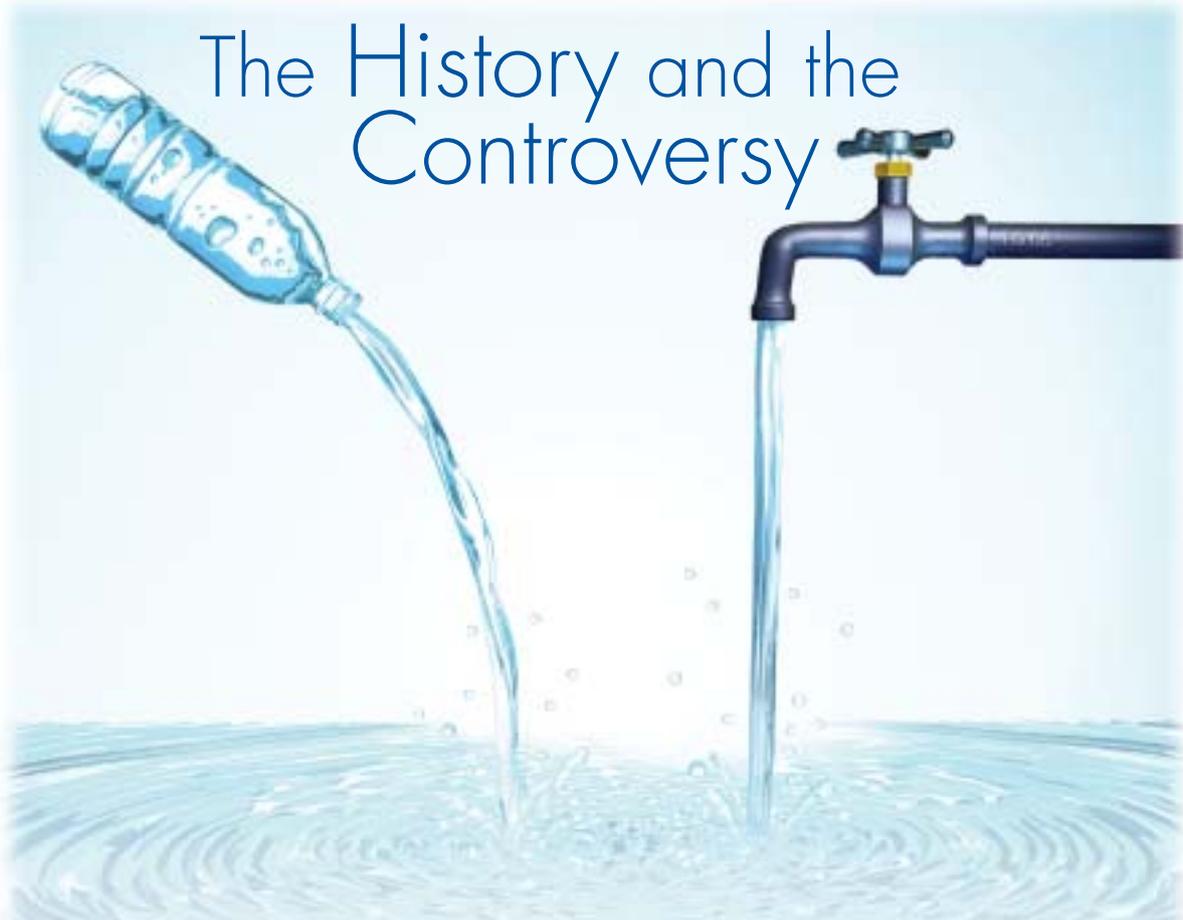
in nutrition, along with a better understanding of the importance of oral hygiene and professional care in maintaining healthy teeth. It's important to recall that fluoridation was and still is both a public health and a political issue, and it is the latter aspect that has been the source of much of the opposition almost from the very beginning. The early anti-fluoridationists such as Gordon Sinclair in Toronto (see page 15) succeeded in re-directing the debate by focusing on politics rather than health: he claimed the government had no right to force its citizens to take a drug without their approval. Sinclair's campaign proved very effective, and his views have been reinforced particularly in British Columbia, where the Health Action Network Society, a Burnaby-based consumer advocacy group, has succeeded in ensuring that fewer than five percent of British Columbians drink fluoridated water — the lowest rate in Canada. Similar opposition across the country has meant that only about 40 percent of Canadians receive the benefits of fluoride in their water, while in the United States the level is slightly higher — roughly 145 million Americans, or about one-half the U.S. population.

As dental professionals, we are obliged to review, continually update the evidence and analyze the benefits versus the risks of any therapeutic treatment that we may recommend. On balance, it still appears that adding fluoride to the drinking water is a good idea, with far more advantages than hazards. Nevertheless, besides promoting the benefits of fluoride with the backing of science, we must also be aware that the issue is often politically driven, and opposition to fluoridation, on whatever unscientific or capricious basis, is unlikely ever to disappear. ■

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Fluoridation

The History and the Controversy



This year marks the 60th anniversary of Canadian community water fluoridation, which began in Brantford, Ontario in 1945.

Community water fluoridation is cited by the US Centers for Disease Control and Prevention (CDC) as one of the 10 great public health achievements of the 20th century.

The ODA believes that when used appropriately, fluoride is a safe and effective agent that can be used to prevent and control dental caries.

The CDC recently stated that: "Fluoridation is the single most effective public health measure for preventing tooth decay and improving oral health over a lifetime. Because it reaches all people in a community regardless of education or income level, it is a powerful strategy in ... efforts to eliminate differences in oral health among ... citizens."

The ODA follows the CDA position on the benefits of community water fluoridation, which states that "50 years of extensive research throughout the world has consistently demonstrated the safety and effectiveness of fluorides in the prevention of dental caries."

The Debate Continues

Sixty years after the birth of fluoridation, the debate as to whether it prevents caries continues.

In 2000, the U.S. Surgeon General examined the oral health of Americans, with the intention of alerting individuals to the “full meaning of oral health and its importance to general health and well-being.”¹

One aspect of this report explored how oral health is promoted and maintained and how oral diseases are prevented. In part, this section of the report entitled *Oral Health in America* reviewed the results of preventive measures taken at the community level, most specifically, the efficacy and effectiveness of community water fluoridation. It was reported: “Community water fluoridation, an effective, safe, and ideal public health measure, benefits individuals of all ages and socioeconomic strata.”²

The Centres for Disease Control (CDC) in the United States similarly report that “Community water fluoridation has been ranked one of 10 great public health achievements in the 20th century.”³ According to the CDC, water fluoridation made a significant contribution to the decline in dental caries in the second half of the 20th century. Fluoridation of drinking water also is endorsed by Health Canada, the Canadian Public Health Association, the Canadian Dental Association, the Canadian Medical Association and the World Health Organization as a means of reducing the incidence of tooth decay.⁴

Despite these credible endorsements, the public debate about water fluoridation continues in jurisdictions across North America. Today, 60 years after Brantford, Ontario

and Grand Rapids, Michigan became the first Canadian and United States cities to fluoridate the drinking water, many North American communities still do not add fluoride to the public water supply. Health Canada estimates that fluoridated water is received by only 40 percent of Canadians.⁵ The numbers are higher in the United States where the CDC reports that 62 percent of the population receives fluoridated water.⁶

Canadian municipalities are guided by the *Guidelines for Canadian Drinking Water Quality* developed through the collaboration of the Federal-Provincial Subcommittee on Drinking Water. The maximum acceptable concentrations (MAC) for total daily intake (TDI) of fluoride for Canadian drinking water are currently established at 1.5 mg/L, with an optimal range of 0.8 mg/L – 1.0 mg/L,⁷ rec-

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ommended for communities fluoridating their water supply. The TDI is an important consideration for municipalities and individuals when examining all sources of dietary ingested fluoride that may also include fluoridated toothpastes.

The Ontario Ministry of the Environment recommends optimum fluoride concentrations of 0.5 mg/L – 0.8 mg/L where fluoride is added to the drinking water to control tooth decay.⁸

However, individual municipalities still decide on the use of fluoride in the local drinking water. With no enforceable standards in place, the patchwork of fluoridated water systems across the country provides for public debate within the various jurisdictions.

Despite the 40 percent estimate noted above, there is no reliable data base to confirm the precise level of water fluoridation in Canada. The recent appointment of Dr. Peter Cooney as Canada's Chief Dental Officer may soon lead

to a change in the current knowledge base because Dr Cooney lists completing a scan on the status of national water fluoridation as a project on his agenda.⁹

The Ontario Dental Association has a strong interest in health prevention and promotion measures implemented at all levels of government. As such, the ODA joins the Canadian Dental Association (CDA) and other dental and health organizations and officials in recognizing that the appropriate use of fluoride has been one of the most successful preventive health measures in the history of health care. Given the many sources of fluoride, it is important to understand and be aware of the TDI. In its 2005 statement, *The Use of Fluorides in Caries Prevention*, the CDA states: "CDA supports fluoridation of municipal drinking water (at minimum levels required for efficacy as recommended by the Federal-Provincial Subcommittee on Drinking Water) as a safe,

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effective and economical means of preventing dental caries in all age groups. Fluoride levels in the water supplies should be monitored and adjusted to ensure consistency in concentrations and avoid fluctuations. Communities considering water fluoridation are encouraged to review their individual circumstances carefully and in detail, giving attention to any available data on the dental health of community members, the size of the group not likely exposed to adequate fluoride from other sources, the minimum level of fluoride required to be beneficial, and any other information which would be helpful in making the required value judgment. The CDA recognizes and supports the need for continued research to determine optimal water fluoridation levels that can continue to provide protection from dental caries while reducing potential to contribute to fluorosis.”

Based on available evidence, the ODA continues to promote the importance of community water fluoridation. 

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Gordon Sinclair

VS

Fluoridation



Some readers may recall the bitter fight surrounding the 1963 introduction of fluoride to Toronto's water supply. The city council had approved fluoridation in 1955, but vigorous protests delayed the actual implementation for several years. Spearheading the opposition was the popular radio and television personality Gordon Sinclair. He objected to being forced to take medication he didn't want and that offered him no benefit. Mr. Sinclair viewed this issue as one of the government infringing on his basic rights as a citizen, and he repeatedly put forth these opinions on his regular broadcast on Toronto's CFRB radio station. Emotions ran high on both sides of the debate, with the proponents of fluoridation led by the Dean of the Faculty of Dentistry, Dr Roy Ellis. The issue became entangled in years of legal battles until the city finally ordered that a plebiscite be held in 1962. The final result was a paper-thin victory for fluoridation — 50.1 percent in favour and 49.9 percent opposed.

If you wish to listen to an audio clip of Gordon Sinclair's vitriolic diatribe against fluoridation, go to www.cbc.ca, then click on *CBC Archives*, then under *Search the Archives* type in “fluoridation”, then click on *The Fluoride Debate* and then click on *Gordon Sinclair's Rant*. ■

Bottled versus Tap?



The Ontario Dental Association regularly receives calls from the media about oral health issues that have suddenly become topical.

Usually, media interest is triggered following the publication of a research study, but reporters sometimes call to follow up on a casual conversation.

This past summer a number of reporters contacted the ODA wanting to learn if increased bottled water consumption was leading to a decline in oral health.

Calls of this nature are an opportunity for the ODA to educate news reporters and the public about the role of water in maintaining good oral health.

For starters, reporters and the public have largely forgotten the broad oral health initiative that began in the post-war years to introduce community water fluoridation. Tap water has been quietly providing protection against caries in many communities for years.

"Fluoride in the water is the most cost-effective way to avoid tooth decay," stated Dr. Ian McConnachie, President-elect of the ODA, in a recent interview with the *Toronto Star*. "This is totally preventable."

Community water fluoridation is cited as one of the 10 great public health achievements of the twentieth century, according to the US Centers for Disease Control and Prevention (CDC). The Ontario Dental Association believes that when used appropriately, fluoride is a safe and effective agent that can help to prevent and control dental caries.

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“It is time to remind people of the importance of drinking treated tap water,” says Dr. McConnachie. “We have had fluoridated water in Canada for 60 years. People forget what a wonderful thing it is.”

Given the many different sources of bottled water, the products available on store shelves may or may not contain the fluoride ion.

In 2001, recognizing that there was a trend towards bottled water consumption, the US Centres for Disease Control (CDC) called on producers of bottled water to label the fluoride concentration of their products to enable consumers to make informed decisions. As a result of their advocacy effort and company initiatives, some bottled water containing fluoride is appropriately marked.

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On the other hand, the benefits of bottled water are apparent when the thirst-quenching alternatives are pop and sports drinks containing high concentrations of sugar and acids, which may be detrimental to the oral health of children and adults alike.

The ODA's efforts are yielding results. In early September, our quick and thorough response turned a casual inquiry from a *Toronto Star* reporter about bottled water into a positive two-page feature on water, fluoridation and oral health.

For more questions and answers about bottled and tap water, please visit Health Canada's web site: www.hc-sc.gc.ca . 

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