

## BRIEF COMMUNICATIONS

## Successful fluoride plebiscite in the township of Deniliquin, New South Wales, Australia

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### Keywords

Australia; water fluoridation; fluoridation campaign; fluoridation plebiscite; community support; mass media; health promotion.

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Received: 3/19/2009; accepted 9/1/2009.

doi: 10.1111/j.1752-7325.2009.00154.x

### Abstract

**Objectives:** This article describes the strategies adopted to influence the outcome of a plebiscite held in March 2004 in favor of water fluoridation in Deniliquin, a rural town in New South Wales, Australia.

**Methods:** The health promotion strategies undertaken included the following: a) the skillful use of media to educate the community on the benefits of water fluoridation; b) disseminating contemporary local data to demonstrate oral health disparities with neighboring fluoridated townships; and c) a well-established lobbying machine to mobilize the community.

**Results:** Out of a total population of 5,280 on the electoral roll, 4,539 residents voted, giving a response rate of 86 percent. The wording of the plebiscite was “Do you support the addition of fluoride to Deniliquin town water supply?” There were 2,533 “yes” votes (55.8 percent), 1,879 “no” votes (41.4 percent), and 127 spoiled votes (2.8 percent).

**Conclusions:** The council resolved to implement water fluoridation and the residents received fluoridated water in January 2005.

### Introduction

Water fluoridation is not mandatory in New South Wales (NSW), Australia, as the executive decision rests with local government councils under the NSW Fluoridation of Public Water Supplies Act 1957. Although 90 percent of NSW (including all metropolitan areas) was fluoridated by the late 1970s, adoption in the remaining non-fluoridated rural communities was hindered because of concerted opposition, often resulting in failures at plebiscites. Plebiscites are non-binding public votes, similar to referendums, which advise the council on their constituents' support/nonsupport for a particular proposition. Since 2003, the NSW Health Department has undertaken a multifaceted strategy to promote water fluoridation to the remaining communities.

Deniliquin is a rural town located 723 km southwest of Sydney with a population of 7,715. Deniliquin's water supplies were fluoridated when the local water treatment plant was first commissioned in 1986. However, the council ceased fluoridation in 1988 because of a shift in the proportion of pro-fluoridation council members after the mayor's death. The local dental community campaigned unsuccessfully for the re-introduction of water fluoridation on two occasions,

the first immediately after the council's rescission motion in 1988 and the second in 2002.

In September 2003, a routine school dental screening reported that 40 percent of the children at a local primary school had carious lesions. Students were informed that this high-decay experience was due to the absence of water fluoridation and that their peers from neighboring fluoridated towns, which derived water from the same river, had significantly lower caries experience. Consequently, the student body wrote to the council requesting water fluoridation be re-introduced. The council decided to resolve the matter with a public forum (November 2003) and subsequently a plebiscite (27th of March 2004). The aim of this communication is to describe the strategies adopted to influence the plebiscite outcome in favor of water fluoridation in Deniliquin.

### Methods

The Deniliquin Council invited representatives from the NSW Health Department and Dr. Mark Diesendorf, a noted anti-fluoridationist in Australia and who was the principal challenger of fluoridation during the 1980s (1), to present their respective arguments for and against water fluoridation

**Table 1** Comparison of the Pro- and Anti-Fluoridation Arguments Contained in the Pamphlet that was Distributed to Every Household

Vote “yes” for fluoridation	Vote “no” for fluoridation
<p><b>1. Dental decay crisis in Deniliquin</b></p> <ul style="list-style-type: none"> <li>a. Local children have higher decay rates</li> <li>b. And higher general anesthetic rates for extractions or fillings</li> <li>c. Due to the absence of water fluoridation</li> <li>d. Treatment needs cannot be met by rural dentists alone</li> </ul> <p><b>2. Healthy mouths, healthy lives</b></p> <ul style="list-style-type: none"> <li>a. Poor oral health is associated with poor general health</li> <li>b. Dental decay is preventable</li> <li>c. Water fluoridation benefits anyone with natural teeth</li> </ul> <p><b>3. Water fluoridation – nature thought of it first</b></p> <ul style="list-style-type: none"> <li>a. Water has naturally occurring amounts of fluoride</li> <li>b. Water fluoridation is safe, effective, efficient, cost-effective and equitable</li> </ul> <p><b>4. Water fluoridation – top 10 public health achievements of the 20th Century</b></p> <ul style="list-style-type: none"> <li>a. Impeccable record of safety and effectiveness as a public health measure</li> <li>b. Unethical of anti-fluoridationists to impose their demands on community</li> </ul>	<p><b>1. Water fluoridation is unethical</b></p> <ul style="list-style-type: none"> <li>a. Never implemented in Europe</li> <li>b. Unscientific propaganda</li> <li>c. Violation of medical ethics</li> <li>d. Mass medication</li> </ul> <p><b>2. Water fluoridation is unsafe</b></p> <ul style="list-style-type: none"> <li>a. Associated health hazards</li> <li>b. Causes skeletal fluorosis and other diseases</li> </ul> <p><b>3. Water fluoridation is ineffective</b></p> <ul style="list-style-type: none"> <li>a. Reductions in dental decay rates not due to water fluoridation</li> <li>b. Fluoridated toothpastes more appropriate</li> </ul> <p><b>4. Who gains from fluoridation?</b></p> <ul style="list-style-type: none"> <li>a. Vested interests from corporations and politicians</li> <li>b. Unethical, unsafe, and ineffective</li> </ul>
Dr. Shanti Sivaneswaran. Principal Advisor, Oral Health Branch NSW Health	Dr. Mark Diesendorf. Director of Sustainability Centre Pty Ltd. Adjunct Professor of Sustainability Policy at Murdoch University and Adjunct Professor in the Environmental Science Program at the University of Sydney

at the public forum. In addition, pamphlets containing information from both perspectives were distributed to every household by the council. Table 1 shows the comparison of pro- and anti-fluoridation arguments contained in the pamphlets. The community fluoridation information program was further conducted via the local newspaper, radio, and television; the publication and airing of informative articles gradually peaked during the two weeks leading up to the plebiscite.

A key element of the community information program was the use of contemporary, epidemiological evidence to illustrate Deniliquin’s dental decay crisis. For example, residents were informed that decay rates in local children had increased by 75 percent from 1996 to 2000, while the decay rates had declined in children from two nearby fluoridated towns of relatively similar socioeconomic levels (Wagga and Albury) (2) that shared the Murray River as their source of drinking water. Furthermore, 5- to 14-year-old Deniliquin children had almost twice the hospitalization rate for extractions or restoration of teeth under general anesthetics compared with their peers in Wagga or Albury.

A local grassroots committee for carrying out the various campaign activities was formed under the leadership of a prominent local dentist. These activities included strategically placing water fluoridation posters endorsed by the NSW Health Department around various public venues, the printing of “how to vote” cards and distributing them on the day of the plebiscite.

On the eve of the plebiscite, a full-page advertisement was placed in the town’s only newspaper, listing the names of 50

people, of good standing within the community, who supported water fluoridation. The advertisement read: “Fluoride works. Fluoride is Safe. Vote Yes. Supported by these members of our community.”

## Results

Some 4,539 residents out of a total population of 5,280 on the electoral roll voted during the plebiscite, giving a response rate of 86 percent. The wording of the plebiscite was “Do you support the addition of fluoride to Deniliquin town water supply?” There were 2,533 “yes” votes (55.8 percent), 1,879 “no” votes (41.4 percent), and 127 spoiled votes (2.8 percent). Despite a flurry of anti-fluoridation activity, the Deniliquin Council resolved to reintroduce water fluoridation by a vote of all but one in favor of the motion. In January 2005, the residents of Deniliquin received fluoridated water again, after a hiatus of almost 17 years.

## Discussion

This is the first article to report on the strategies used in an Australian pro-fluoridation campaign. The positive plebiscite outcome in Deniliquin was achieved with minimal cost (approximately AUS\$1,000 in 2004) to the NSW Health Department. This sum covered the costs of printing posters, “how to vote cards,” and media advertisements. The cost of the plebiscite was borne by Deniliquin’s council, while the local health-care professionals gave of their time in kind. Plebiscites/referendums are often advocated by anti-

fluoridationists as a means for “letting the community decide,” while in fact, they are the most effective tactics used to oppose the introduction of water fluoridation (3).

Under normal circumstances, community support for water fluoridation is fairly high (4) and has been reported to be 76.2 percent for outer regional and remote NSW (5). However, public support for water fluoridation decreases during campaigns involving plebiscites/referendums because of the myriad of tactics and propaganda used by anti-fluoridationists’, which run the gamut of conspiracy theories to scare mongering (6). One such tactic is to call upon “experts”, some of whom might even have legitimate scientific or academic credentials, to lend credence to their claims (6), as was in this case. As a result, voters would often choose the safer option of not fluoridating because of the difficulty in sorting fact from fiction or to judge which “authorities” to believe (4,6).

It is not surprising, therefore, that the mere presentation of data on the benefits of fluoridation to Councilors did not sway their opinion, as was the case in previous Deniliquin campaigns, and it took the advocacy efforts of local school children for the council to reconsider the implementation of water fluoridation. In our opinion, children are very evocative public health advocates perhaps because of our inherent rule of rescue. The impetus for their action was, in turn, due to contemporary epidemiological data. The use of data to illustrate the local decay crisis and the resultant higher rates of dental treatment under general anesthetic played a part in educating and changing the perspective of the community and stakeholders (7).

During fluoridation campaigns, the media can be utilized to effectively educate multitudes of people. This requires campaigners to build rapport with the media early during the campaign (8) in order to achieve impartial reporting on water fluoridation. Fortunately, campaigners have been contributing letters and articles on dental health to the local newspaper since 2002. The timing of these publications was most opportune as the further away articles are published from the plebiscite date, the more likely they are to be perceived by readers as informative pieces on a health subject and less likely as campaign propaganda (8). Moreover, readers would deem a health topic worthy of attention, if the subject managed to maintain a long-term public profile via the media (9).

As reported by Lennon (10), water fluoridation is perceived by politicians to be a politically sensitive issue and should therefore be decided mainly on public opinion. In this regard, our responses to selected anti-fluoridationists’ letters to the editor always kept to the consistent framing of water fluoridation as a public health issue rather than as a political matter. The primary aim of responding was not to let the opposition have free reign of the media, otherwise, readers might mistake there was unanimous opposition.

Furthermore, a broad base of support engaging community leaders and major health organizations (8), such as the NSW Health Department, contributes to a “ground-swell” of support and comfort for councilors who decide on the implementation of fluoridation in a politically charged arena.

There are other contributing factors to the favorable plebiscite outcome. Firstly, the plebiscite was held on the same date as the elections of council members and any elector who failed to vote for the council elections could be fined as voting is mandatory in Australia. Both conditions contributed to a high voter turnout of 86 percent, which was significantly different from the traditional low voter turnout (“public voter apathy”) (4). Voter turnout rates are important because the margin of fluoridation votes are usually very close, and the greater the turnout, the higher the likelihood of a positive vote (8). Secondly, the wording of the Deniliquin plebiscite was simple and straightforward, as convoluted or complicated plebiscite wording has resulted in either outright failure or repeal of a positive vote because of a subsequent legal challenge (8). Lastly, we believe that the handing out of the “how to vote cards” by local health professionals and school children on the day of the plebiscite had a positive effect.

Our experiences in Deniliquin show that it is possible to influence the outcome of fluoridation plebiscites in favor of water fluoridation in the face of intense opposition.

## Acknowledgments

The authors would like to acknowledge the residents of Deniliquin who supported water fluoridation and without whom this campaign would not have been successful.

## References

1. Diesendorf M. The mystery of declining tooth decay. *Nature*. 1986 Jul;322:125-9.
2. Australian Bureau of Statistics. *New South Wales in focus, 2005* [Internet]. Cat No 1338.1. Canberra: ABS; 2005 [cited 2009 June 17]. Available from: [http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/DFEC868736725435CA25701B00760CC6/\\$File/13381\\_2005.pdf](http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/DFEC868736725435CA25701B00760CC6/$File/13381_2005.pdf).
3. Watson ML. The opposition to fluoride programs: report of a survey. *J Public Health Dent*. 1985;45:142-5.
4. Evans CA. Challenges to the adoption of community water fluoridation. *Fam Community Health*. 1980;3:33-40.
5. Population Health Division. *The health of the people of New South Wales – report of the Chief Health Officer* [Internet]. Sydney: NSW Department of Health [cited 2008 October 30]. Available from: [http://www.health.nsw.gov.au/publichealth/chorep/ora/ora\\_fluoagree\\_ahs.asp](http://www.health.nsw.gov.au/publichealth/chorep/ora/ora_fluoagree_ahs.asp).
6. Sapolsky HM. The fluoridation controversy: an alternative explanation. *Public Opin Q*. 1969;33:244-8.

7. Brumley DE, Hawks RW, Gillcrift JA, Blackford JU, Wells WW. Successful implementation of community water fluoridation via the community diagnosis process. *J Public Health Dent.* 2001;**61**:28-33.
8. Isman R. Fluoridation: strategies for success. *Am J Public Health.* 1981;**71**:717-21.
9. Chapman S, Dominello A. A strategy for increasing news media coverage of tobacco and health in Australia. *Health Promot Int.* 2001;**16**:137-43.
10. Lennon MA. Promoting water fluoridation. *Community Dent Health.* 1993;**10**(Suppl 2):57-63.