

Investing in professional advocacy: a case study of a successful fluoridation campaign in rural New South Wales, Australia

S. Sivaneswaran¹ and G.T.F. Chong¹

¹Faculty of Dentistry, The University of Sydney, NSW, Australia

In New South Wales (NSW), Australia, the responsibility to implement water fluoridation rests with local government Councils, partly accounting for the hindrance in its statewide implementation. Since 2003, the NSW Health Department has been actively promoting water fluoridation to the remaining unfluoridated rural communities. **Objectives:** To describe the community education and consultation strategies which led to the implementation of fluoridation in two rural NSW towns. **Methods:** In February 2005, the Mid-Western Regional Council and the NSW Health Department undertook a comprehensive community education process followed by a consultation process. The education process included the organization of public forums; distribution of fluoridation information packs; building rapport with the local media; and the use of local disease and treatment data to demonstrate oral health disparities with neighbouring fluoridated towns. The consultation process to determine support for fluoridation included seeking written submissions from the community and conducting interviews on a random sample of households by an independent research organization. **Results:** A total of 502 (N=1,012) interviews to determine support for fluoridation were completed, achieving a response rate of 49.6%. 54% of respondents wanted their water supplies fluoridated, 25% did not and the remaining 21% were unsure. In June 2005, the Mid-Western Regional Council resolved to implement water fluoridation and fluoride was added to the towns' water supplies in November 2007. **Conclusions:** This case study demonstrates that it is possible to garner community support for water fluoridation with the use of a multifaceted approach in educating and consulting communities and stakeholders.

Key words: water fluoridation, pro-fluoridation campaign, community consultation process, community education program, community fluoridation support

Introduction

In the state of New South Wales (NSW), Australia, the responsibility to implement water fluoridation rests with local government authorities (Councils) under the *NSW Fluoridation of Public Water Supplies Act 1957*. Water fluoridation was first introduced in NSW in 1956; and by the late 1970s, approximately 90% of the state's population (including all residents in metropolitan areas) had access to fluoridated water. However, since then, adoption in the remaining unfluoridated communities has been hindered by organized and vociferous opposition to water fluoridation (Diesendorf, 1986). By comparison, promotion of water fluoridation by health professionals has been limited, *ad hoc* and reactive rather than proactive. Despite more than half a century of water fluoridation in NSW, the extension of the measure to regional NSW has been challenging. Furthermore, the tactics of those opposed to fluoridation have become increasingly sophisticated in recent years (Armfield, 2007). The impasse in the fluoridation of remaining communities (approximately 45 Councils) in NSW can be partly attributed to the self-preservation exercised by the local councillors who opt to keep unfluoridation the status quo, rather than face a political backlash from their vocal anti-fluoride constituents.

Since 2003, the NSW Health Department has been proactive in promoting water fluoridation to unfluoridated

rural communities, in an attempt to reduce oral health inequalities (Armfield, 2005; Evans *et al.*, 2009) through a comprehensive, multifaceted approach in engaging the local communities rather than by legislative mandate. At the time of writing, fifteen Councils have since implemented water fluoridation extending population coverage to approximately 95%, and when the remaining twenty Councils that are in the midst of implementing fluoridation finally do so, some 98% of the state's residents will have access to fluoridated water.

The commitment to fluoridation is firmly enshrined in the NSW State Health Plan (NSW Department of Health, 2007) and the NSW Oral Health Strategic Plan 2005 - 2010 (NSW Department of Health, 2008). Numerous organizations both nationally (AHMAC, 2004) and internationally (FDI *et al.*, 2006) have also published contemporary policies urging the universal implementation of water fluoridation. However, despite these policies there have been few published reports on successful fluoridation implementation campaigns undertaken in the 21st century.

This paper is a case study describing the role of community education and consultation undertaken by the NSW Health Department during a successful fluoridation campaign in the adjacent rural townships of Mudgee and Gulgong (respective population as of 2006 census: 8,637 and 2,001). Both towns are located approximately 250km from Sydney, the state capital of NSW, and are under

the governance of the same local government authority, the Mid-Western Regional Council.

Methods

In September 2004, the Chief Health Officer of the NSW Health Department wrote to all unfluoridated Councils advising of the increase from 50 to 100% subsidy of the capital cost for the installation of fluoridation plants. This prompted the Mid-Western Regional Council, in February 2005, to consider the issue of fluoridating the towns' water supplies, via an education and consultative process with the Mudgee and Gulgong communities, with the assistance of the NSW Health Department.

Community education program

To inform the community about the benefits of water fluoridation as well as to provide an opportunity for residents to voice their queries, concerns or comments, public forums were held at Gulgong (March 2005) and Mudgee (April 2005), where NSW Health Department representatives were invited to present information on fluoridation. Information pertaining to the history, safety, effectiveness, efficiency, equity and ethics of water fluoridation in preventing and controlling dental caries was presented. The testimonies of local dental and medical professionals regarding their experiences with the adverse consequences of children's poor oral health were also presented during the public forums.

Fluoridation information kits prepared by the NSW Health Department containing relevant information on water fluoridation were also provided to the local media, Council offices as well as to those present at the public forums. In addition, a significant amount of information on water fluoridation was also provided to the community via the local newspapers, radio and television. For example, the NSW Health Department drafted an article entitled "Fluoride the case 'for': Nature thought of fluoride first" which was published in the only local newspaper (The Mudgee Guardian). Early during the campaign, NSW Health Department representatives met with the editor of the Mudgee Guardian to ensure balanced and impartial reporting of articles or editorial letters relating to water fluoridation and he (the editor) was also invited to the forum.

A key feature of the community education program was the availability of contemporary local data that highlighted the disparity of oral health between Mudgee and Gulgong children and those from nearby fluoridated communities. Residents were informed that compared with children living in nearby fluoridated towns, the caries experience in Mudgee children was 70% higher and that hospitalization rates for the extraction and restoration of teeth under general anesthetic for Mudgee and Gulgong children under 5 years old were 2 to 4 times greater than adjacent fluoridated towns.

The affirmative endorsement of water fluoridation by numerous national and international scientific, health and political organizations was emphasized during the community education program. For example, letters of support from these organizations were subsequently forwarded to the Council. These organizations included: the Australian

Dental Association, Arthritis NSW, Cancer Council of NSW, Diabetes Australia NSW, Heart Foundation, and Osteoporosis Australia.

Community consultation process

Following the education program, the Mid-Western Regional Council undertook an extensive community engagement and consultation process. An independent rural research organization in NSW, the Western Research Institute (WRI) was commissioned to conduct structured household surveys on randomly selected households in Mudgee and Gulgong to assess community support for fluoridating the water supply (WRI, 2005). The Council also invited residents and health professionals to provide written submissions on the issue.

The target population for the survey consisted of residents on the town water supply aged 18 and above. A random sample of 944 out of 7582 households was selected from a telephone directory (Desktop Marketing Systems Pty Ltd: Marketing Pro). Telephone interviews were conducted from the WRI offices under continuous interviewer monitoring and validation. An additional 68 people were approached in Mudgee and Gulgong for a face-to-face interview. These were for respondents whom interviewers found difficult to reach via the telephone. All interviews comprised a mixture of prompted and unprompted questions. On the commencement of each interview, the interviewer confirmed that the respondent had access to the town's water supplies and concluded by informing the participant that should they wish to discuss the matter further, they could present personally or write to the Council chambers.

Results

A total of 502 interviews were completed in the WRI survey. There were 460 completed telephone interviews from 944 households contacted and 42 face to face interviews out of the 68 residents approached in Mudgee and Gulgong: an overall response rate of 49.6%. Most, 397 or 79% of the respondents were from Mudgee, 105, 21%, from Gulgong. Statistically a sample size of 502 from a population of 7582 households has a 95% confidence interval of plus or minus 4.24%.

Participants of the survey were asked "Do you think fluoride should be added to the town water supply?" The survey found that 54.4% of the respondents said 'yes' to the proposition, 24.7% said 'no' and 20.9% stated that they were 'unsure'. This meant that 53.3% of the respondents from Mudgee and 57.3% of the respondents from Gulgong were in favour of fluoridating the towns' water supply.

Participants who responded 'yes' or 'no' to the above question were then asked reasons as to why they supported or opposed the proposed fluoridation of their water supply. This was an unprompted question and respondents could give more than one reason. Excluding responses from respondents who were 'unsure', the reasons for those who supported and did not support water fluoridation are shown in Table 1. The most frequently cited pro-fluoridation reason (n=103) was "Fluoride is good for children's teeth". This reason accounted for

Table 1. Reasons cited by residents (n=502) for supporting or not supporting water fluoridation*†

<i>Reasons for supporting water fluoridation</i>	<i>%</i>
Fluoride is good for children's teeth	20.5
Fluoride is good for dental health	15.7
Had it in the water when I was a kid and my teeth are really strong	9.0
It wouldn't hurt	7.0
It would improve the water	4.0
Local people have bad teeth	3.8
On balance, its good	3.0
Town water is bad	2.0
<i>Reasons for not supporting water fluoridation</i>	
Personal choice	7.0
Worried about chemicals	5.4
Leave the water alone	5.0
Get fluoride elsewhere	4.8
No one even drinks the town water	4.8
Tastes/smells bad	2.2
Waste of money	2.2
Don't believe it helps	2.0
Parents' responsibility to fluoridate	1.0
Poor previous experience with fluoride	0.8

* Excludes respondents who were 'unsure' if fluoride should be added to the towns' water supply. Respondents could cite more than one unprompted response.

† Source: Western Research Institute, 2005

approximately one-third of the respondents who were in support of the measure. The other commonly cited responses were: "Fluoride is good for dental health" (n=79) and "Had it in the water when I was a kid and my teeth are really strong" (n=45). The most frequently cited anti-fluoridation reasons were "Personal choice" (n=35), followed by "Worried about chemicals" (n=27).

Participants were also asked 'Have you gained information about fluoridation' and 'Where have you gained information about this'. 60% of the respondents indicated they had gained information about fluoridation compared with 40% who reported that they did not. The most common sources where respondents had gained information regarding water fluoridation were the newspaper (n=235), followed by the radio (n=115), word of mouth (n=85) and television (n=80). In addition, the survey indicated that 59% of participants who reported that they had gained information on fluoridation were supportive of the measure, compared with only 47% if they were not informed.

In June 2005, the Mid-Western Regional Council resolved to implement water fluoridation in Mudgee and Gulgong. In his letter to the Chief Health Officer requesting water fluoridation, the general manager of the Council wrote that the pro-fluoridation decision was influenced by the majority of community support for the measure as evidenced from the results of the independent WRI survey, the overwhelming support from local healthcare practitioners and finally, the information and evidence presented by the NSW Health Department. In November 2007, Mudgee and Gulgong residents had their towns' water supplies fluoridated.

Discussion

Despite the controversy and opposition traditionally associated with fluoridation campaigns, our experience in Mudgee and Gulgong demonstrate that with the use of a comprehensive, multifaceted approach in educating and consulting communities and stakeholders, it is possible to garner community support for water fluoridation and achieve a successful outcome in small rural communities.

In Mudgee and Gulgong, the WRI survey found that if people were informed about water fluoridation, they were more likely to be supportive of the measure. Therefore, it is imperative during a pro-fluoridation campaign, that the community and their leaders be educated on the health benefits and purported risks of fluoridation (CDC, 1992; Hastings *et al.*, 1998; Vered and Sgan-Cohen, 2002). Moreover, it is the moral and ethical responsibility of dental and health professionals to do so (Hastings *et al.*, 1998; Lowry *et al.*, 2000; Vered and Sgan-Cohen, 2002), much like clinicians have a duty to educate their patients on alcoholism and smoking.

The role of the media as a source of information on water fluoridation cannot be underestimated in any fluoridation campaign. This was confirmed by the WRI survey which reported that the newspaper and radio were the main sources of information from which respondents learnt about fluoridation. The importance of having the media on the proponent's side during fluoridation campaigns is well documented (Isman, 1981). To mitigate the risk of anti-fluoridationists abusing the media, the proponents established rapport early during the campaign with the editor of the local newspaper and key program producers of local radio, educated them on the benefits of water fluoridation and provided them with copies

of the fluoridation information kit. Fortunately for the proponents, state and national media seem to take no interest in fluoridation campaigns in rural New South Wales. Given that all major cities in Australia have been fluoridated for many decades, the single exception of Brisbane (which only fluoridated in December 2008) the issue of fluoridation in regional and remote parts of Australia is presumably not considered newsworthy and therefore not covered in state and national media.

The use of locally relevant evidence to emphasize the disparity of oral health between local children and those living in geographically nearby but fluoridated townships was especially critical during this campaign. Locally relevant data may have alerted the attention of residents and Councilors that poor oral health is due to the lack of fluoridated water and countered any claims put forth by anti-fluoridationists about the efficacy of fluoridation. The presentation of local data on dental treatment for children under general anesthetics resonates and may well have struck a chord with the general public and medical professionals, presumably because it is more emotive and easier to comprehend than 'dmft/dmfs' data. In NSW, such routinely collected data on hospital admissions are readily accessible and has been used to demonstrate oral health disparities in other fluoridation campaigns (Sivaneswaran *et al.*, 2010).

Support of the measure from the local health professionals provided further evidence that contrary to anti-fluoridationists' claims, water fluoridation was a universally accepted public health measure. This was demonstrated by their presence at the public forum where they unanimously voiced their support and submitted letters to the Council. Moreover, local support from health professionals gave the pro-fluoridationists a face and name that residents and decision makers (Councilors) could relate to and as a result, bolstered the credibility of pro-fluoridationists and called into question the credibility and motives of anti-fluoridationists. This sentiment was echoed by the author of a letter to the Mudgee Guardian which read "Why don't we listen to our health professionals? We trust these people and we put our lives in their hands." Letters of support from organizations that endorsed water fluoridation were also instrumental in demonstrating a groundswell of support. The endorsing organizations represented a myriad of healthcare professionals and support groups for various ailments and were chosen for the purpose of countering claims affronted by anti-fluoridationists concerning the plethora of maladies and side effects caused by drinking fluoridated water.

In an increasingly legal-conscious and consumer-oriented healthcare system, it is imperative that the community also be consulted about water fluoridation (Hastings *et al.*, 1998; Lowry *et al.*, 2000) after having been educated about the issue. Campaigns that have sufficiently engaged the local community and all the stakeholders, in this fashion, are less likely to fail (Neenan, 1996). However, "consultations on fluoridation are not plebiscites" (Lennon *et al.*, 2008) and this succinct statement reaffirms the need to distinguish between community consultation and fluoridation plebiscites. In this case study, the consultation process to determine support for fluoridation included seeking written submissions from the community and conducting interviews

on a random sample of households by an independent research organization.

An overwhelming majority of the comments raised during the forums and contained in the written submissions could be classified as anti-fluoridationist. Their arguments are by no means unique and are common themes expressed by anti-fluoridationists nationally and internationally (Forum on Fluoridation, 2002; Armfield, 2007). As was similar to the Irish Forum on Fluoridation (2002), the true value of these submissions and comments was in bringing to light the range of concerns that needed to be addressed during the community education program. The Council in making the decision to fluoridate felt that the concerns and issues raised in the written submissions received from those opposed to the introduction of fluoridation (some of whom do not even live in Mudgee or Gulgong) had been adequately addressed by the community education program and responses provided by the NSW Health Department. The Council also felt that residents who oppose the introduction of water fluoridation would have ready access to alternative sources of drinking water from either rainwater tanks or bottled water. In addition, it was noted that a large number of those persons who opposed water fluoridation had indicated that they did not drink the town water and some were not even residents of these towns.

Fluoridation plebiscites are traditionally unsuccessful (Easley, 1985; Isman, 1981; Neenan, 1996) because voter turnout disproportionately comprises the fringe minority who are against fluoridation ("public voter apathy") (Evans, 1980; Neenan, 1996) and whose opinions are not representative of the community's at large. Although it can be argued that the response rate for the survey described in this case study was only 49.6%, there were no significant differences in terms of age specific gender distribution of the sample when compared with that of the adult residents in these towns. Plebiscites should also be avoided as voters' decisions are made in a highly charged emotional and political arena, as was our experience of a plebiscite held in 2004 in Deniliquin (Sivaneswaran *et al.*, 2010), another rural town in NSW. Another advantage of the WRI survey was that it excluded households not supplied by the towns' water and those who did not reside in these towns.

The publication of Australia's National Oral Health Plan 2004-13 (AHMAC, 2004) calling for extension of water fluoridation to Australian communities, with populations of 1,000 or more, was the impetus to extend water fluoridation to unfluoridated regional and remote parts of Australia. In Australia, water fluoridation jurisdiction is essentially state and territory based, with the involvement of local government in some states (like New South Wales). In the state of Victoria, the Secretary to the Department of Health (formerly Department of Human Services) has the power under the *Health (Fluoridation) Act 1973* to direct water supply authorities to commence fluoridation. The strategies used to implement water fluoridation in Victoria include community information and education programs which target issues specific to each community and are broadly similar to those described in this paper, as well as empowering local health professionals to become effective fluoridation advocates. However in Victoria there is no community consultation process after the education

program. Once the community is informed of the plans to fluoridate and has had the opportunity to clarify any issues, the Secretary to the Department of Health then directs the water authority to fluoridate (Heywood S, personal communication, July 2008). Recently water fluoridation has been extended to many regional towns in Victoria. In 2008 the state government of Queensland, amended its legislation to mandate the implementation of water fluoridation after many failed attempts to fluoridate. Under the *Water Fluoridation Act 2008*, a statutory duty is placed on public water suppliers to add fluoride to public water supply. Brisbane, the capital city of Queensland, was until then the only unfluoridated Australian capital city and it was finally fluoridated in December 2008 as a result of the amended legislation.

The success of the approach described in this paper set the precedence for subsequent campaigns in the remaining unfluoridated Councils of NSW, many of whom were historically opposed to water fluoridation. The adoption of a similar strategy of community education followed with community consultation by an independent research entity on a random sample of households has resulted in 4 more unfluoridated NSW Councils progressing towards the implementation of fluoridation. This paper could inform the approach taken in other contentious health promotion matters.

Conclusion

The universal implementation of water fluoridation across rural NSW, Australia, has traditionally been hampered due to organized vehement opposition. However, Mudgee and Gulgong are two rural NSW towns that successfully implemented water fluoridation through an extensive community education program and consultation process. This paper offers practical advice and academic support to individuals charged with the task of persuading communities to adopt fluoridation.

Acknowledgments

The authors are appreciative of the advice given by Professor Anthony Blinkhorn, NSW Chair of Population Oral Health, Faculty of Dentistry, University of Sydney, on revising the manuscript.

References

Armfield, J.M. (2005): Public water fluoridation and dental health in New South Wales. *Australian and New Zealand Journal of Public Health* **29**, 477-483.

Armfield, J.M. (2007): When public action undermines public health: a critical examination of antifluoridationist literature. *Australia and New Zealand Health Policy* **4**, 25.

Australian Health Ministers' Advisory Council (AHMAC) National Advisory Committee on Oral Health (2004): *Healthy mouths healthy lives: Australia's National Oral Health Plan 2004-2013*. Adelaide: South Australian Department of Health. www.adelaide.edu.au/oral-health-promotion/resources/public/pdf_files/oralhealthplan.pdf

Center for Disease Control (1992): Knowledge of the purpose of community water fluoridation – United States, 1990. *Morbidity and Mortality Weekly Report* **41**, 919, 925-927.

Diesendorf, M. (1986): The mystery of declining tooth decay. *Nature* **322**, 125-129.

Easley, M.W. (1985): The new antifluoridationists: who are they and how do they operate? *Journal of Public Health Dentistry* **45**, 133-141

Evans, C.A. (1980): Challenges to the adoption of community water fluoridation. *Family and Community Health* **3**, 33-40.

Evans, R.W., Hsiao, A.C.Y., Dennison, P.J., Patterson, A. and Jalaludin, B. (2009): Water fluoridation in the Blue Mountains reduces risk of tooth decay. *Australian Dental Journal* **54**, 368-373.

FDI World Dental Federation, International Association for Dental Research and World Health Organization (2006): *Call to action to promote dental health by using fluoride*. Proceedings of the Global Consultation on Oral Health Through Fluoride, Geneva and Ferney-Voltaire, 17–19 November 2006. Geneva: FDI World Dental Federation and World Health Organization. www.who.int/oral_health/events/oral%20healthc.pdf

Forum on Fluoridation (2002): Dublin: Stationery Office. www.dohc.ie/publications/fluoridation_forum.html

Hastings, G.B., Hughes, K., Lawther, S. and Lowry, R.J. (1998): The role of the public in water fluoridation: public health champions or anti-fluoridation freedom fighters? *British Dental Journal* **184**, 39-41.

Isman, R. (1981): Fluoridation: strategies for success. *American Journal of Public Health* **71**, 717-721.

Lennon, M.A., Beal, J.F. and Rugg-Gunn, A.J. (2008): Do we let children's teeth decay just because some people object to topping up the natural fluoride that's already in our water? *Community Dental Health* **25**, 66-69.

Lowry, R.J., Thompson, B. and Lennon, M.A. (2000): How much do the general public want to be involved in decisions on implementing water fluoridation? *British Dental Journal* **188**, 500-502.

Neenan, M.E. (1996): Obstacles to extending fluoridation in the United States. *Community Dental Health* **13**, 10-20.

NSW Department of Health (2007): *A new direction for NSW. State Health Plan. Towards 2010*. North Sydney: NSW Department of Health. www.health.nsw.gov.au/pubs/2007/pdf/state_health_plan.pdf

NSW Department of Health (2008): *NSW oral health strategic directions 2005-2010*. North Sydney: NSW Department of Health. www.health.nsw.gov.au/pubs/2008/pdf/oh_direction.pdf

Sivaneswaran, S., Chong, G.T.F. and Blinkhorn, A.S. (2010): Successful fluoride plebiscite in the township of Deniliquin, New South Wales, Australia. *Journal of Public Health Dentistry* **70**: 163–166.

Vered, Y. and Sgan-Cohen, H.D. (2002): The fight over water fluoridation in Israel – potential modes of action in light of the “American experience”. *Journal of Public Health Dentistry* **62**, 67-69.

Western Research Institute (2005): *Fluoridation survey of Mudgee and Gulgong townships*. Prepared for the Mid-Western Regional Council. Report to Works Committee Meeting - 1 June 2005. Bathurst: Western Research Institute, Charles Sturt University.