Environmental Scan: an overview of recent water fluoridation activity in New Zealand

February 2011
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The National Fluoridation Information Service (NFIS) is a consortium funded by the Ministry of Health, led by Regional Public Health working in partnership with:

- Hutt Valley DHB Community Dental Services,
- Environmental Science and Research,
- Centre for Public Health Research at Massey University and
- National Poisons Centre

Our work includes:

- Following public debate and choices on water fluoridation
- Monitoring international research on the usefulness of water fluoridation
- Critically reviewing emerging research
- Working with District Health Boards and Councils to provide accurate and up-to-date information to their communities
- Providing clinical advice to the Ministry of Health
- Monitoring water fluoridation policy
- Providing access to New Zealand oral health data and research
- Sharing information via quarterly e-newsletters and e-briefings and the NFIS website
ACKNOWLEDGMENTS

This advisory was prepared by Penny Malden.
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INTRODUCTION

This environmental scan has been undertaken as part of the establishment phase of the National Fluoridation Information Service (NFIS). The purpose of this document is to provide a summary of fluoridation activity in New Zealand in the past five years.

The scan notes the decision-making processes used by councils but further discussion of the various options available is beyond the scope of this summary.

BACKGROUND

The oral health status of New Zealand is variable. Good Oral Health for All, for Life; The Strategic Vision for Oral Health In New Zealand (Ministry of Health, 2006) notes that:

“The most dramatic and consistent inequities in oral health status are those between children in fluoridated and non-fluoridated areas. Key to supporting an environment that supports good oral health is promoting the use of fluoride.”

The Ministry of Health’s (MoH) current policy promotes water fluoridation as a safe and effective means of improving oral health and recommends that the range of fluoride in drinking water to be 0.7 to 1 milligrams per litre of drinking water where technically feasible. The Drinking Water Standards for New Zealand (Ministry of Health, 2005) also state this recommendation and Good Oral Health for All for Life calls for District Health Boards (DHBs) to support and promote water fluoridation where feasible.

While both DHBs and local governments have responsibilities for the health of the populations they serve, the decision to fluoridate water supplies is held by local authorities. The requirements are set out in the Local Government Act 2002 and the Health Act 1956. Specifically, under section 23 of the Health Act, territorial authorities have a duty to improve, promote and protect public health, and under section 25, to provide sanitary works including drinking water supplies (Ministry of Health 2010a).

The Local Government Act 2002 also provides a framework for local authority decision-making and community consultation. It contains a greater emphasis on community involvement in decision-making than the 1974 Act it replaced and requires councils to take account of:

- The diversity of the community, and the community’s interests, within its district
• The interests of future, as well as current communities; and
• The likely impact of any decision on each aspect of well being (social, environmental, economical and cultural)

Most of the areas in New Zealand with fluoridated water supplies commenced fluoridation prior to either of these two Acts.

The requirements of DHBs and Public Health Units concerning water fluoridation are stated in the Service Specification for Public Health. These are to:
• Provide information on the benefits of water fluoridation when the issue becomes a significant issue in the community; and
• Assist and work with Maori and other ethnic groups and communities as appropriate to provide information around the benefits of water fluoridation.

In 2010 approximately 60% of New Zealanders had access to reticulated water supplies that are fluoridated: this is equivalent to about 50% of the total New Zealand population.

The map below shows fluoridated water supplies serving populations of 500 people or more. Since this map was published the towns of Tapanui and Milton have started fluoridating their water supplies and Kaitangata will do so in the near future.
Figure 1. Map of New Zealand’s fluoridated water supplies serving populations of 500 or more people as at 8 March 2010 (reproduced by permission) (ESR, 2010).
Recent Fluoridation Activity

Kapiti 2010
The most recent fluoridation activity occurred in Kapiti in 2010 following the Kapiti District Council’s proposal in their draft Annual Plan 2010/11 to remove fluoride from the Paraparaumu, Waikane and Raumati water supplies.

The proposal to cease fluoridation was discovered incidentally and while councils are legally required to follow procedures around decision-making, it would be time consuming and costly to pursue judicial proceedings if these are not followed.

The council received a large number of submissions both for and against fluoridation. The submission from the region’s Medical Officer of Health contained a health impact assessment, and the submission from Oral Health personnel from Hutt Valley DHB included use of local oral health statistics – which some councillors considered helpful when deciding how to vote (Ministry of Health 2010b).

The outcome of the council vote on the issue following consideration of the written and verbal submissions was tied - this meant the status quo was retained with fluoride continuing to be added to the water supplies under consideration.

The council did, however, resolve to lower the fluoride level to 0.7mg/l and it has put a request to the Parliamentary Health Select Committee that they enquire into the positive or negative effects of putting fluoride into the public water supply. The Council has also asked the National Ethics Committee to investigate whether fluoride is a medicine under the Health Act 1956 and if the adding of fluoride to the public water supply is an ethical act (note that under the Medicines Act 1981, the fluoride used to adjust fluoride levels in drinking water is not considered to be a medicine.)

Key points:
- The incidental finding of the proposal to cease fluoridation in the council’s draft annual plan which highlights a need to monitor such documents.
- The health impact assessment and the use of local dental statistics were considered to be helpful information for some councillors in deciding to support water fluoridation.

Risk
A number of local residents in the Kapiti region remain opposed to water fluoridation and are maintaining a presence in the local media as well as continuing to lobby the council (“The Anti-fluoride fight hots up”, 2011). The issue is likely to be raised again.
**Waipukurau 2009**
Waipukurau has had a fluoridated water supply since 1979. The Central Hawkes Bay District Council (CHBDC) was prompted to address water fluoridation in the town in 2009 when the fluoridation dosing system at the town’s water treatment plant needed replacing.

The council’s consultation process comprised seeking submissions on the issue and undertaking a community survey. The council also hosted a public on-line forum on their website and had a blog running from August to October 2009.

The council received 54 written submissions and of those 15 were followed up with verbal submissions at a council meeting in November 2009. Submissions in support of fluoridation were made by the Associate Minister of Health, Hon. Peter Dunne, and both Public Health and Oral Health personnel from Hawkes Bay DHB. Submissions in support of fluoridation were made individually, rather than as one omnibus, and a thorough health impact assessment describing the detrimental effects on the population’s health that could be expected if fluoridation ceased was prepared (Dr. N. Jones, personal communication, January 2011).

The community consultation undertaken was a postal survey of residential addresses in the town. The council provided information for residents that both the DHB and Fluoride Action Network New Zealand (FANNZ) had been invited to contribute to. Unfortunately an editing error in the pro-fluoridation information created an opportunity for fluoridation opponents to attempt to further discredit the fluoridation cause.

In the resulting poll, community votes against fluoridation outnumbered those for fluoridation 439 to 297. This represented a 40% response rate in total with no response being received from 1114 eligible voters.

The CHBDC resolved after the consultation process, and despite the results of the community consultation, to continue water fluoridation in Waipukurau.

**Key points:**
- Despite the results of the community survey, the council voted in favour of water fluoridation
- Water fluoridation became an issue following the need for upgrades at the town’s water treatment plant
• The individual submissions and the health impact assessment prepared by the DHB were considered to have been effective in influencing some councillors to vote in support of fluoridation
• Opponents to fluoridation took the opportunity to attempt to discredit the DHB after an error in the editing of an information sheet provided by the DHB was found – this error could have eroded some community support for fluoridation and led to additional work for the Medical Officer of Health

Northland 2006 - 2010
Northland has had a tumultuous experience of community water fluoridation in the past few years. The intervention was implemented in two towns in 2007 only to be removed 3 years later. The following information about Northland’s fluoridation activity is summarised from ‘The Northland Fluoridation Advocacy Programme: an evaluation (Gowda & Thomas, 2008).

The Far North District Council’s (FNDC) resolution to fluoridate the towns of Kaitaia and Kaikohe was the first initiative by any Territorial Local Authority (TLA) in 23 years and was followed a planned fluoridation advocacy programme by Northland DHB (with funding from the Ministry of Health) which had commenced 2001. However, the council’s decision was limited to a two year period and included the condition that an improvement in oral health would be evident within this time frame.

Fluoride advocacy programme
The overall goal of the programme was to advocate for fluoridation among 3 Northland TLAs: the Whangarei District Council, the Far North District Council and the Kaipara District Council using a ‘top down/bottom up’ approach. Submissions were made to the councils as part of the Long Term Community Council Plans (LTCCP), with the FNDC proceeding to include fluoridation into its annual plan in 2005.

The programme itself used a ‘top-down, bottom-up strategy which consisted of 3 streams:
• Policy advocacy among TLAs and key stakeholders (top down)
• Community action projects (bottom up)
• Media advocacy (both top down and bottom up)

Evaluation of the programme concluded that “a combined top-down/bottom-up approach which uses a holistic and collaborative approach (rather than disjointed, ill-timed and fragmented individual actions) appears to be a key factor for successful fluoridation advocacy”.

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**Policy advocacy**
A key policy outcome of the advocacy programme was adoption of fluoride position statement by Northland DHB in June 2004. This outcome is credited with initiating a number of robust policy advocacy activities in the region. Key stakeholders and organisations accepted the position statement and momentum of the fluoridation advocacy programme was gained.

**Community action projects**
A number of community action programmes were facilitated by the advocacy programme. These involved creating awareness of oral health and fluoridation, identifying community leaders and stakeholders, and maintaining a presence in the community by attending occasions such as ‘health expos’, meetings related to health and health promoting schools. Community awareness packs-comprising posters, brochures, support letter templates, and petition forms were also used to raise community support for fluoridation.

**Media advocacy**
The use of media was carefully considered and included the use of various outlets and formats for both proactive and reactive media releases. Of note, the programme deliberately kept a low profile around Letters to the Editor of newspapers and did not respond to all of these.

**Community consultation**
The community was consulted on a number of occasions while fluoridation was being considered in the far north. The FNDC carried out surveys in 2002, 2004 and 2006. In 2002 and 2004 postal ballots were used which had very poor response rates and suggest that at that time fluoridation was not considered to be of significance in the area.

In 2006 a phone survey was undertaken in Kaitaia and Kaikohe by an independent market research company. The table below shows the results of this survey.

<table>
<thead>
<tr>
<th></th>
<th>For (%)</th>
<th>Against (%)</th>
<th>Don’t know (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaitaia</td>
<td>53</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>Kaikohe</td>
<td>56</td>
<td>28</td>
<td>17</td>
</tr>
</tbody>
</table>

Following this survey the FNDC resolved to fluoridate these two towns for a period of two years. Funding was granted from the Sanitary Works Subsidy Scheme (SWSS) to cover 100% of the capital costs of installing fluoridation equipment.
**Reviewing fluoridation after two years**

There was always concern that two years of water fluoridation would not be sufficient time to markedly reduce dental decay levels in Northland. A 5-year period would have been a more realistic time frame to expect to see marked improvements in the oral health of children in the area (Northland District Health Board, 2009).

Oral health surveys were undertaken in Northland in 2007 and again in 2009, from which some improvements in the oral health of children receiving fluoridated water were reported and provided some optimism for the success of fluoridation.

A further oral health survey may be undertaken by Northland DHB in August of this year to contribute to the oral health data.

**Fluoridation plant issues**

The review of fluoridation at the end of the two year period showed that none of the plants managed to consistently fluoridate the water to the level required – and in the sustained manner – required for adequate caries prevention. The effect of this failure on the oral health outcomes of those children who were to have received fluoridated water is unknown.

**2010 decision**

A further community referendum on fluoridation was undertaken in 2010 with voting forms being posted out to around 5000 water bill payers and occupiers. Responses were received from 816 (16%) households, of which 327 supported fluoridation and 489 were opposed. TheFNDC had resolved to abide with the outcome of the vote, and while the number of votes against fluoridation represented only 9.6% of eligible votes, fluoridation of Kaikohe and Kaitaia has ceased.

**Key points:**

- The carefully planned advocacy programme resulted in initial success
- The DHB adoption of a fluoridation position statement contributed to the success of the advocacy programme
- The 2 year period for evaluating the effectiveness of fluoridation was not realistic
- Monitoring of fluoridation pumps and fluoride levels to ensure the correct level is being achieved is necessary. The poor performance of the fluoridation pumps undermines public confidence in the intervention as a whole.
- Council decision-making does not necessarily reflect the views of the majority of constituents even when community consultation has been undertaken.
• Ministry of Health contributed funds to the advocacy programme and fluoridation equipment

**Dunedin 2008**

Dunedin has had a fluoridated water supply since 1967. The Dunedin City Council received a submission to cease the practice in 2006, following which the local Public Health Dentist, Medical Officer of Health and Ministry’s Chief Dental Officer met with council officers. No councillors attended this meeting but the council later voted 6:4 in favour of fluoridation.

Despite having only addressed the issue 12 months previously, it was re-visited in 2008. The water supply from Dunedin was to be extended to Waikouaiti, an area which had had poor drinking water and often required boiling to make it safe for consumption.

A highly public campaign by opponents to fluoridation was launched. However, the council was influenced successfully by local health and council officials not to go to a community referendum and voted again in favour of fluoridation.

Dr. Dorothy Boyd (local Public Health Dentist) who had been involved in the ‘Vote Fluoride’ campaign - discussed in the next section - noted a great difference between the earlier campaign which was proactive, well supported, organised and funded compared to the reactive Dunedin campaign.

She noted an interesting comment in one report prepared by the council’s Water & Waste Services Manager at that time was “…it is apparent that the Elected Representatives are going to have to make a fundamental decision on who is most likely to provide the most credible advice on the benefits and risks. If Elected Representatives prefer the advice of anti-fluoride experts, it could call in to question the whole Drinking Water Standards framework (Dr. D. Boyd, personal communication, January 2011).

**Key point**

• Councils will re-visit fluoridation even when the issue has been resolved recently

• Promoting fluoridation can take a personal toll on those involved

**Methven 2008**

The Ashburton District Council agreed to hold a binding referendum on water fluoridation in Methven in response to a recommendation from the Methven
Community Board in 2008. It is unclear what prompted this recommendation but in the resulting poll, 627 voted in favour of fluoridation while 203 voted against it. The return rate was 75.5% of eligible voters.

During the weeks prior to the referendum, Methven’s community newspaper published a large amount of anti-fluoridation material and many anti-fluoridation leaflets were distributed. Local residents appeared to tire of the barrage of material and noted that the person distributing it was not a resident of the town (“Methven Says Yes to Fluoride”, 2007).

**Key point**
- On some occasions little countering of anti-fluoridation arguments is required – the relentless campaign launched in Methven by an opponent of fluoridation was detrimental to its own cause.

**Otago and Southland DHBs 2007**
In 2007 a health promotion social marketing project ‘Vote Fluoride’ was undertaken by the former Otago and Southland DHBs. It was a unique project in that it covered a large geographical area, was led by a DHB CEO and engaged social marketing expertise (Public Health South, 2008).

The project consisted of two phases. The first phase being to seek agreement from those councils responsible for areas with un-fluoridated water supplies to hold referenda on water fluoridation, and the second to promote fluoridation in order to achieve a ‘Yes’ vote. The district councils of Southland, Waitaki, Clutha and Central Otago subsequently agreed to hold referenda on fluoridation in tandem with the 2007 local government elections.

Phase two of the project comprised the development and implementation of a strategy to promote the benefits of fluoridation, provide voters with sufficient information so as to be able to make an informed choice on fluoridation, and achieve a ‘Yes’ vote in the referenda (Stewart, 2009).

A communications and marketing consultancy was contracted and the ‘Vote Fluoride’ project was launched. It consisted of five integrated strategies (Public education, Community relations, Media relations, Marketing and advertising, and Maori consultation). Also central to the campaign, was the deliberate intention to ensure it remained respectful and courteous. This stemmed from analysis of submissions made against fluoridation in the West Coast in 2005 (Public Health South, 2008).
The results of the referenda saw a ‘Yes’ vote achieved in the three towns in the Clutha District Council that were polled (Tapanui, Kaitangata and Milton), and in three areas in the Central Otago District (Alexandra, Cromwell and Maniototo).

The Clutha District Council subsequently sought funding from the Ministry’s SWSS scheme to cover 100% of the capital costs of implementing fluoridation. This was granted and following upgrades to the water treatment plants in Tapanui and Milton, fluoridation commenced on December 1, 2010. It is set to commence in Kaitangata when the upgrade of the water treatment plant is completed there in the near future (Clutha District Council 2010).

The Central Otago District Council referred further decision-making to the respective community boards and to date no further progress has been made. A report on fluoridation was prepared at that time for the community boards and the possibility remains that fluoridation could be progressed in these areas (Dr. D. Boyd, personal communication, January 2011).

**Evaluation of the ‘Vote Fluoride’ campaign**

Evaluation of the project included a team debrief meeting and a phone survey funded by the Ministry which addressed the effectiveness of the social marketing campaign. One team member also carried out an evaluation of the project as part of post-graduate study.

The resulting reports provide in-depth descriptions and analyses of the campaign. It was noted that challenges included the relatively tight time frames involved and the large geographical area over which the campaign took place. The benefit of developing and maintaining both formal and informal relationships with councils was also identified (Public Health South 2008; Stewart, 2009).

**Key points**

- The utilisation of a social marketing consultancy led to a successful campaign
- The SWSS scheme which funded the capital costs of implementing fluoridation is no longer available.
- Good relationships with councils are beneficial in promoting fluoridation

**Hamilton 2006**

Hamilton has had a fluoridated water supply since 1966. A referendum was undertaken in 2006 which resulted in the continued fluoridation of the city. This referendum took the form of a postal ballot that was combined with local body
elections which reportedly cost ratepayers $160,000. Of the 33,453 votes received, 23,235 (70%) were in favour of continuing the fluoridation and 10,218 against opposed (30%). The return rate was 38% of eligible voters.

The issue has since been raised again as a councillor in 2009 proposed at a LTCCP meeting to cease fluoridation. While councillors voted not to proceed at that time, there were a number who would support discontinuing fluoridation, if debated again. One councillor also commented that if it was to go to referendum, it should be held without any supporting information, as councillors were inundated with information from both sides on the previous occasion (Taylor 2009). A number of the city’s councillors present at the meeting in 2009 were re-elected in the 2010 local body elections.

**Key points**
- The council may consider ceasing water fluoridation despite the strong results in favour of it in the last referendum.
- It is unknown if the cost of the previous referendum may deter councillors from pursuing this option again.

**Ashburton 2002 and 2006**

**The 2002 decision**
The town of Ashburton had a fluoridated water supply 1966 to 2002. In 2002 the Ashburton District Council was presented with a petition calling for fluoridation to cease, which had been circulated in the community by a high-profile business man.

A council meeting was held where health officials had been invited to present, and the petition requesting the removal of fluoride was re-presented. Council officials had compiled a number of decision-making options for councillors to consider but these were all rejected in favour of a council vote.

The council then voted against fluoridation at a subsequent meeting. This surprised many in the community as indications had been that the status quo would be maintained. It was reported that those councillors who had voted against fluoridation did so on the basis that they did not want to impose it on those that didn’t want it. The Mayor at that time was also quoted as saying “I have not got the real knowledge to be able to dictate to a community…” (Barnett et al, 2008).

**The 2006 decision**
Canterbury DHB made a submission to the Ashburton District Council to have water fluoridation reconsidered in 2006. Child dental decay rates were shown to have
increased from 2002 to 2004 and a multi-disciplinary working group to promote fluoridation had been established by the DHB in 2005. Funding received from the MoH enabled the launch of an oral health education campaign ‘Smile for Life’. A telephone survey was also undertaken which sought public opinion on fluoridation. Of 200 respondents 56% supported fluoridation while 24% opposed and 21% didn’t know.

The council sponsored an additional telephone survey of Ashburton residents. Of the 400 respondents contacted, 56% supported fluoridation and 31% opposed it. The council then opted to consult with the community by way of a binding referendum. There was a relatively high return rate (64%) but in a turn around from prior surveys, 55% opposed fluoridation and 45% were in favour of it.

It was noted that while there was strong support from health and dental professionals, no broadly-based community statements of support emerged from the campaign. There was one vocal campaigner against fluoridation who used a variety of methods including the direct lobbying of individual councillors presenting inaccurate information (Barnett et al, 2008).

**Key points**
- Opposition to fluoridation tends to build as campaigns progress
- The number of opponents to fluoridation is often small, but they are usually highly vocal, persuasive and relentless
- MoH contributed funding to the oral health education campaign

**West Coast 2005**
(The following information is summarised from the account of the fluoridation activity on the West Coast in Barnett et al, 2008.)

In 2004 the West Coast DHB commenced an initiative to promote fluoridation of the local water supplies. A multi-disciplinary group (comprising a local dentist and staff from the local public health unit) was formed and a formal strategy was employed which included developing relationships with local media, undertaking research, conducting hui on oral health needs with Maori, liaising with staff of the 3 district councils, and making submissions to the LTCCP of the 3 councils. The group did not undertake any community awareness work and avoided any overt action during this general election year.
The following year, after positive results in a random-sample community surveys submissions were made to the Grey and Buller district councils. Both councils subsequently voted in support of fluoridation but final decisions to fluoridate were to be made after public submissions were sought and community consultation undertaken. No community education had been undertaken as it hadn’t been anticipated that the councils would proceed this quickly.

The Grey District Council issued a Statement of Proposal which included a one page summary that the DHB had been invited to provide. It also included a 43 page statement from a former councillor opposed to fluoridation – that dated from 1978 and contained inaccurate information. It has been commented that this was only able to occur due to a lack of relationship between DHB and council staff. However, the council did subsequently vote to fluoridate its water supply.

The Westland District Council consulted the community through its annual plan. Local opponents to fluoridation believed that they had not been properly consulted with and, following what has been described as a vocal and antagonistic meeting, the council voted against fluoridation.

Following the decision by the Westland council, a concerted effort to overturn the Grey decision was made. This consisted of misleading information being circulated in the community, a flawed ‘cost-benefit analysis’ being prepared by the spouse of a councillor, a petition launched, and some councillors and their families being harassed at home.

The council rescinded its decision and called for a referendum. The return rate from eligible voters was 16%, however 72% voted against fluoridation.

**Key points**

- Relationships between DHB and council staff should be fostered
- Opponents to fluoridation are vocal and relentless in campaigning for their cause.
- Those people publically promoting fluoridation (and their families) may become targets for harassment and abuse. The potential for this to occur in a campaign should not be ignored.

The following table summarises fluoridation activity in New Zealand over the past 5 years.
<table>
<thead>
<tr>
<th>Location</th>
<th>Year</th>
<th>Proactive</th>
<th>Reactive</th>
<th>Decision-making method</th>
<th>Outcome</th>
<th>Return rate</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kapiti</td>
<td>2010</td>
<td>✓</td>
<td>✓</td>
<td>Council vote</td>
<td>+</td>
<td>6:6</td>
<td>Written submissions from RPH and DHB personnel and verbal presentations at council meetings</td>
</tr>
<tr>
<td>Northland</td>
<td>2006</td>
<td>✓</td>
<td></td>
<td>Council vote</td>
<td>+</td>
<td>N/A phone survey</td>
<td>Planned fluoridation advocacy programme ('top-down, bottom-up' approach )</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>✓</td>
<td></td>
<td>Binding referendum</td>
<td>-</td>
<td>16% (40% for; 60% against)</td>
<td></td>
</tr>
<tr>
<td>Waipukurau</td>
<td>2009</td>
<td>✓</td>
<td></td>
<td>Council vote (Non-binding community survey also undertaken)</td>
<td>+</td>
<td>40% (40% for; 60% against)</td>
<td>Written and verbal submissions from the DHB including health impact assessment.</td>
</tr>
<tr>
<td>Dunedin</td>
<td>2008</td>
<td>✓</td>
<td></td>
<td>Council vote</td>
<td>+</td>
<td></td>
<td>Council decided not to go to community referendum</td>
</tr>
<tr>
<td>Methven</td>
<td>2008</td>
<td>✓</td>
<td></td>
<td>Binding referendum</td>
<td>+</td>
<td>75.5% (76% for; 24% against)</td>
<td>Relentless campaigning against fluoridation by an out of town resident went in favour of fluoridation</td>
</tr>
<tr>
<td>Otago and Southland DHBs</td>
<td>2007</td>
<td>✓</td>
<td></td>
<td>Referenda</td>
<td>+/-</td>
<td>Most areas &lt;50%</td>
<td>Social marketing 'Vote Fluoride' campaign</td>
</tr>
<tr>
<td>Ashburton</td>
<td>2002</td>
<td>✓</td>
<td></td>
<td>Council vote</td>
<td>-</td>
<td></td>
<td>Low-key approach providing info to councillors etc</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>✓</td>
<td></td>
<td>Binding referendum</td>
<td>-</td>
<td>64% (45% for; 55% against)</td>
<td>'Smile for Life' campaign</td>
</tr>
<tr>
<td>Hamilton</td>
<td>2006</td>
<td>✓</td>
<td></td>
<td>Binding referendum</td>
<td>+</td>
<td>38% (70% for; 30% against)</td>
<td>Details not sourced</td>
</tr>
<tr>
<td>West Coast Westland Grey</td>
<td>2005</td>
<td>✓</td>
<td></td>
<td>Council vote</td>
<td></td>
<td>16% (72% against)</td>
<td>Planned formal strategy with initial success. Campaign became more reactive over the duration</td>
</tr>
</tbody>
</table>

**Table 1. Summary of fluoridation activity over recent years**
FLUORIDATION PROMOTION

The New Zealand Dental Association is currently undertaking its own policy work around water fluoridation. This is independent of the Ministry of Health and the National Fluoridation Information Service, but collaboration is possible in the future.

There is potential for further fluoridation promotion to be considered in the following areas:

**Rotorua**
Lakes DHB has contracted business consultants, Zeal Partners Ltd. to promote water fluoridation in Rotorua. This is the fourth attempt by the DHB to persuade Rotorua District Council to fluoridate the city’s water supply.

The current strategy is focusing on using direct mail to inform people over a period of time leading up to the next council 10-year plan review, with the aim of creating a knowledge-based groundswell of support for councillors. This approach is being taken to avoid a media campaign that would also create a deal of publicity for the small group of people in Rotorua who are opposed to fluoridation (K. OcConnor, personal communication, January 2011).

There has been a degree of work undertaken around fluoridation over the past few years but progress to date has been limited and it is not likely to result in success in the near future.

**Wairarapa**
The Wairarapa DHB area includes three local authorities: the Masterton, Carterton and South Wairarapa District Councils. Masterton is the only town within these councils that has fluoridated water supply. The fluoride level is set at 0.8mg/l and the council has announced that it is not planning on adjusting this (K. OcConnor, personal communication, January 2011).

Local Carterton dentist Dr David Banks and former dental therapist Judy Cameron-King have spoken publicly in support of fluoridation (Fuller, 2010).

Some background work has been undertaken to date with a Health Impact Assessment ‘Impact on Whanau Ora of Not Fluoridating Water in Southern Wairarapa being completed in 2009 (Ministry of Health, 2009). The South Wairarapa District Council Community Plan (LTCCP 2009 – 2019) states that “Fluoridation of the towns water supplies will be investigated and consulted on in the next 3 years.”
Nelson
Other than the Woodbourne RNZAF base, none of the water supplies in the Nelson Marlborough DHB region are fluoridated. In addition to the towns of Nelson, Richmond and Blenheim, there are seven other water supplies in the area that service populations of over 1000 people (Hope/Brightwater, Motueka, Waimea/Mapua Ruby Bay, Wakefield, Picton/Waikawa, Renwick and Seddon).

Nelson Marlborough DHB’s Regional Oral Health Steering Group has considered running a fluoridation campaign in recent years. This included a telephone survey showing support for water fluoridation. The group sought advice from the MoH early in 2009 and following this it was decided not to proceed with the campaign. Routinely collected child oral health data show that on average the oral health of children in the area is better than the New Zealand average - this lessens concern for the need for fluoridation.

RISKS AND OPPOSITION TO FLUORIDATION

FLUORIDATED AREAS AT RISK
In addition to the areas noted in previous sections where fluoridation may be at risk (Kapiti, Hamilton, and Dunedin) there is potential for activity promoting water fluoridation in the following areas:

Auckland
The Waitemata DHB Hospital Advisory Committee is considering fluoridation at present. A copy of the report has recently been forwarded to NFIS from the Ministry but was not received in time for any comments to be made.

Allison Roe, elected member of the Waitemata DHB, has views opposing fluoridation and has submitted information to the DHB for their review and consideration. Ms Roe has a high public profile as a former sportswoman and potentially could be successful in swaying public opinion on fluoridation.

Dr Sathananthan Kanagaratnam, Public Health Dentist for the Auckland Regional Dental Service has also been in contact with the Ministry of Health and is anticipating being asked to present to the Board in the near future.

It could be anticipated that any decision-making on fluoridation would be made by local boards within the Auckland Council which are responsible for non-regulatory decision-making on local matters, including negotiating the standards of services
delivered locally (Auckland Council, 2011). However, there is a risk that it could be positioned with the Auckland Council affecting the whole it’s wider jurisdiction or that fluoridation could become an issue in other local boards under the council.

**Hastings**

The Hastings District Council addressed water fluoridation in June 2010 at which time Hawkes Bay DHB were invited to present to Council. They voted 7:6 in favour of continuing fluoridation without going to a referendum. While voting to continue fluoridation the council did reduce the fluoride level from 0.9 to 0.7 mg/litre.

The council did not seek a counter opinion to the DHB at that time and a number of local residents who considered that the council did not consult properly on the issue protested outside the council offices in December 2010. Mayor Lawrence Yule indicated that water fluoridation would be addressed again with the new council accepted a request for Dr Paul Connett to present to the council on April 5, 2011. An invitation was made to Hawkes Bay DHB to present at this meeting for 30 minutes prior to Dr Connett.

Feedback was received from Hawkes Bay DHB that after having presented to the council last year, and to Central Hawkes Bay District Council in the previous year, they would appreciate having a ‘fresh’ face to support them. NFIS provided this support with presentations from two of its consortium partners, Dr. Michael Beasley and Dr. Robin Whyman.

The council did not indicate the full intention of the April meeting to the DHB but it is assumed there will be further decision-making around fluoridation. There is a significant likelihood that community involvement will be favoured given the close council vote in 2010. There were 2 new councillors elected in the local body elections and anecdotal evidence suggests that newer councillors tend to vote in favour of options such as community referenda rather than taking the decision themselves on contentious issues.

While the DHB has requirements to provide advice on water fluoridation under the Service Specification for Public Health, there is a risk that the enthusiasm and commitment of the individuals who would be called on to promote the issue will wane.

**Key points**

- Councils will re-visit the issue of fluoridation even when it has been addressed quite recently.
• While this is a matter to be resolved at the DHB level it should be noted that public health officials may tire of promoting fluoride as the issue continues. Continued attention to fluoridation may lead to increased pressure on staff involved as it leads to competing time and energy pressures with other work requirements.

New Plymouth
New Plymouth has had a fluoridated water supply since 1969. However, in 1993 the District Council ceased fluoridation of the water supplies to the towns of Otako, Inglewood and Urenui following a poll of the residents. The fluoride level for the water supply is set at 0.7mg/l (New Plymouth District Council, 2009).

FANNZ made a submission in 2010 to the New Plymouth District Council requesting that fluoride is removed from the city’s drinking water and the council has resolved to address the issue using a ‘special consultative procedure’ during the current term.

Former District Councillor, Russell Gilmer had been keen to see fluoridation become an issue in the 2010 local body elections prior to the elections anti-fluoridation posters were erected around New Plymouth which was effectively an illegal act under council by-laws. At that time Mr Gilmer claimed that the posters had been erected by out-of-town FANNZ members who were not aware of council by-laws and merely trying to get their message across (Keith, 2010).

A public meeting was held in New Plymouth in November 2010 to increase support for the discontinuation of fluoridation. FANNZ member Mary Byrne considered this meeting to be a success despite it being attended by 12 members of the public only (Lynch, 2010).

OPPOSITION TO FLUORIDATION
In most areas of New Zealand there are small but vocal and persistent groups of people who oppose water fluoridation. Usually these people will be associated with an organised group such as the FANNZ, which has links to the Fluoride Action Network based in the US.

The Health Freedom New Zealand Trust is another group opposed to fluoridation. They describe themselves as a consumer rights advocacy and action group dedicated to reinstating and protecting consumer rights to make healthcare decisions. Water fluoridation is one of a number of issues they campaign on (Health Freedom New Zealand, 2009).
These groups are extremely active in lobbying local councils, promulgating anti-fluoridation material and making submissions to have fluoride removed from drinking water during council planning processes. They are also becoming increasingly well organised with ongoing activities including holding public meetings, running petitions such as the e-petition currently open on the FANNZ website and maintaining a Facebook page (Fluoride Action Network, 2011). FANNZ in particular are practiced at gaining media attention and will often have press releases being made quickly after any fluoridation-related event.

Websites of opponents in New Zealand which may indicate potential ant-fluoridation activity include:

- [www.faanz.org.nz](http://www.faanz.org.nz)
- [www.healthfreedom.co.nz](http://www.healthfreedom.co.nz)
- [www.banfluoride.org.nz](http://www.banfluoride.org.nz)

Armfield, (Armfield, 2007) provides a useful commentary of the tactics often employed by opponents of water fluoridation. These were summarised in Table 2 which was prepared by Dr Stephen Palmer in his submission to the Kapiti District Council in (Ministry of Health, 2010b).

**Breaches of advertising standards**

Advertising standards have been breached during two campaigns in recent years by opponents to fluoridation. In 2005, the Advertising Standards Authority (ASA) upheld two complaints by the West Coast DHB against newspaper advertisements published by a councillor and by Coasters Against Fluoride (Advertising Standards Authority, 2005a; Advertising Standards Authority, 2005b).

Again in 2008 the ASA upheld a complaint made by the NZDA about anti-fluoridation pamphlets that were being distributed in Waitati (near Dunedin) by FANNZ (ASA 08/280).
<table>
<thead>
<tr>
<th>Techniques and methods used by opponents to water fluoridation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Denying the benefits of water fluoridation</strong> One of the fundamental tactics of water fluoridation opponents is to either deny or to besmirch the benefits of water fluoridation. It is argued that water fluoridation is either not effective or, at best, only minimally effective. It has even been argued that water fluoridation actually harms teeth, making them more susceptible to caries.</td>
</tr>
<tr>
<td><strong>Selective reporting of studies</strong> Handpick studies to cite. Findings not supporting their viewpoint are entirely disregarded while other findings may be prominently utilized.</td>
</tr>
<tr>
<td><strong>Selective reporting of results</strong> Specific results within specific studies are reported while any disconfirming results are ignored.</td>
</tr>
<tr>
<td><strong>Downplaying or ignoring the evidence</strong> Claim that there is either no 'significant' or no 'substantial' reduction in tooth decay resulting from exposure to fluoridated water.</td>
</tr>
<tr>
<td><strong>Using ecological comparisons</strong> Use ecological comparisons in an effort to demonstrate that water fluoridation is ineffective.</td>
</tr>
<tr>
<td><strong>Fear mongering</strong> One of the easiest ways to discredit water fluoridation is by raising potentially dangerous or fearful consequences associated with fluoridation. Fluoride exposure has been linked by opponents of fluoridation to: poisonings; various accidents; allergies; brain dysfunctions such as Alzheimer's disease; hyperactivity; low intelligence; arthritis; bone diseases including hip fractures and osteosarcomas; cancers; dental fluorosis; gastrointestinal problems; diseases of the kidney, pineal gland, thyroid gland; reproductive issues; AIDS; increased tooth decay; birth defects; perinatal deaths; increased crime; used by governments to 'dumb down' the population to help spread communism and prepare the way for a 'new world order'.</td>
</tr>
<tr>
<td><strong>Misrepresentation of the truth</strong> Involves taking information out of the context in which it is presented in order to make it support a viewpoint which the author or authors did not intend. Statements are taken out of context, and results are selectively reported. Misrepresentation often takes place by omission.</td>
</tr>
<tr>
<td><strong>The big lie</strong> Involves making a claim that water fluoridation causes a number of serious ailments that people fear. It involves telling a lie so large that it defies anyone to believe that someone would distort the truth to such an extreme extent, and is aided in its effectiveness by constant repetition.</td>
</tr>
<tr>
<td><strong>Half-truths</strong> A statement that is only partly true and is generally intended to deceive.</td>
</tr>
<tr>
<td><strong>Innuendo</strong> Involves an indirect or subtle, usually derogatory, implication in expression. Water fluoridation opponents often link water fluoridation to other medical and government sanctioned practices that have led to aversive and unexpected consequences.</td>
</tr>
<tr>
<td><strong>Follow the leader</strong> Water fluoridation opponents argue that many countries do not have fluoridation and directly or by insinuation make the argument that there must be something wrong with water fluoridation for these countries to have not implemented the practice.</td>
</tr>
<tr>
<td><strong>Enforced medication</strong> Water fluoridation opponents use scare words, such as &quot;pollutant&quot;, &quot;chemical&quot; and &quot;toxic waste&quot; that reinforce the idea of harm. The idea of &quot;enforced medication&quot; is used repeatedly putting forward the notion that fluoride is medicine and that taking a medicine should only be a function of individual choice, and therefore water fluoridation is an impingement on our freedom of choice. Use of the term medicine implies something which should only be administered by a doctor acting for the good of an individual. Terminology such as &quot;mass medication&quot; or &quot;forced medication&quot; is often picked up on and used by local government officials who are responsible for decision making.</td>
</tr>
<tr>
<td><strong>Bamboozling with science</strong> Overwhelm people with claims about scientific research, with figures and statistics, and with scientific terms and buzzwords. Unpacking such a dense presentation of facts, quotes and figures is beyond most people, who have neither the time nor capacity to access most of the publications required to check on the plethora of claims. This can take the form of using language, often verging on nonsensical, yet purveying a sense of drama and foreboding.</td>
</tr>
</tbody>
</table>
Moving the goalposts

Ultimately, whatever research is released showing that water fluoridation is not associated with aversive outcomes will be judged as unacceptable by fluoridation opponents. The goalposts have now been moved to such an extent that satisfying calls for supporting studies is practically impossible.

Paranoia, conspiracy theories and extremism

Conspiracy theories relating to water fluoridation are Common. Extremist or paranoiac views are propounded by some opponents of fluoride.

DISCUSSION AND CONCLUSIONS

Oral health in New Zealand has experienced a heightened profile in recent years following its inclusion as a population health objective in the New Zealand Health Strategy (Ministry of Health, 2000). In addition to the funding being invested into the Community Oral Health Services and oral health being Health Target under the previous government, DHBs were also urged to pursue water fluoridation in their areas. Funding was made available to support a number of oral health promotion campaigns as mentioned in previous sections and the Sanitary Works Subsidy Scheme (SWSS) was established. As health priorities and the economic climate have changed, it is unlikely that similar funds will become available in the future.

Sanitary Works Subsidy Scheme

The SWSS was established in 2002 to assist with the provision of water treatment and sewage treatment plant upgrades for small to medium sized communities. For fluoridation, the subsidy was initially set at 50% of the capital costs for installing fluoridation plant but was later increased to 100%. Councils making use of this subsidy were still required to fund the operational costs of fluoridation themselves.

Areas to benefit from this scheme included Northland and the Clutha district.

There are no longer funds available under the SWSS scheme but the MoH has indicated that they may consider applications for financial assistance for fluoridation on a case by case basis.

This cut in the funding available to support the capital costs of water fluoridation may become a deterrent to councils considering the option.

Decision-making options

The decision-making methods used by councils in this review are split almost equally between council vote and referenda. Of note is the Central Hawks Bay District Council for its decision going against the results of the community survey.
Referenda have previously been noted as being a flawed mechanism for decision-making, with poor response rates not being truly representative of the community (Barnett et al, 2008; National Fluoridation Information Service, 2002). This review has reported a wide range in response rates (16 – 76%), and that despite anecdotal suggestions that fluoride referenda usually result in defeat, some successes have occurred.

However, alternative processes for decision-making such as community tribunals or citizen juries exist and warrant further consideration. This is beyond the scope of this document but could be pursued in the future.

Relationships with councils
As both DHBs and councils have responsibilities for the health of their local populations, it would appear logical that relationships between them are developed and maintained. Councils have a responsibility to take seriously the expert health role of DHB officials but on some occasions appear to have reduced this role to that of a stakeholder with no more influence than members of the public (Barnett et al, 2008). Fostering relationships with council prior to any fluoridation activity may aid in preventing this occurring and relieve some of the contention that often exists around water fluoridation.

Conclusions
There is no doubt that water fluoridation will remain a contentious issue and it can probably be assumed that the numbers of people actively opposing fluoridation will grow. Their efforts are becoming more organised as linkages develop between groups such as FANNZ and Health Freedom NZ. Phrases such as “if in doubt, keep it out” are becoming increasingly common as the notion of individual autonomy is weighed up against the benefits of a public health intervention.

The responsibility for decision-making on water fluoridation will continue to lie with local authorities for the near future at least and as fluoridation debates continue around the country, it is vital that the strategies and submissions used by PHUs and DHBs are reviewed, shared and developed. NFIS potentially can take a lead role in facilitating this collaboration.
REFERENCES


