

COMPLAINT NUMBER	15/470
COMPLAINANT	A. Chang
ADVERTISER	Fluoride Free New Zealand
ADVERTISEMENT	Fluoride Free Pamphlet
DATE OF MEETING	26 January 2016
OUTCOME	Upheld

SUMMARY

The pamphlet by Fluoride Free New Zealand was headed "Real Facts on Water Fluoridation" and was part of a letterbox drop during the Thames fluoridation referendum. The pamphlet contained various statements about harmful effects of water fluoridation and included the Advertiser's website details (www.fannz.org.nz) and (www.fluoridealert.org.nz).

The Complainant said the entire pamphlet was full of "egregious misinformation and scaremongering" and designed in such a way as it mimicked pamphlets from reliable institutions such as the Ministry of Health and DHBs.

The Complaints Board acknowledged the Advertiser's view that: "the role of ASA is not to arbitrate science but to ensure that advocacy opinions, as expressed in a leaflet like this, are prepared with a due sense of social responsibility..."

The Complaints Board agreed it was not an arbiter of science. It relied on the opinions of experts such as the Chief Science Advisor to the Prime Minister, Sir Peter Gluckman, who evaluated many of the studies provided by the Advertiser and found them inconclusive. However, the Complaints Board emphasised that this did not automatically mean oppositional evidence was not valid.

It acknowledged water fluoridation was a contentious public issue and there was growing body of evidence that challenged the benefits and the effects of water fluoridation. However, the Complaints Board emphasised care needed to be taken in advocacy environment about the context in which the evidence was placed.

In this instance, the Complaints Board said the Advertiser had posited its evidence as being the "real facts," which it said was misleading. As such, the Complaints Board found the Advertiser had unjustifiably played on people's fear and went beyond the latitude provided for under the rules of advocacy.

Accordingly, the Complaints Board ruled to Uphold the complaint.

[Advertisement to be removed]

Please note this headnote does not form part of the Decision.

COMPLAINTS BOARD DECISION

The Chairman directed the Complaints Board to consider the advertisement with reference to Basic Principle 4 and Rules 2, 6 and 11 of the Code of Ethics. This required the Complaints Board to consider whether the advertisements created an overall impression which directly or by implication, omission, ambiguity or exaggerated claim is misleading or deceptive, or likely to deceive or mislead the consumer, or without justifiable reason, played on fear. The Complaints Board was also required to consider if the advertisement had been prepared with a due sense of social responsibility to consumers and to society.

The Complaints Board considered the provisions of Rule 11 of the Code of Ethics which allows for expression of opinion in advocacy advertising, provided that the expression of opinion is robust and clearly distinguishable from fact.

The Complaints Board noted also relevant were the Advocacy Principles, developed by the Complaints Board in previous Decisions for the application of Rule 11. These said:

1. That Section 14 of the Bill of Rights Act 1990, in granting the right of freedom of expression, allows advertisers to impart information and opinions but that in exercising that right what was factual information and what was opinion, should be clearly distinguishable.
2. That the right of freedom of expression as stated in Section 14 is not absolute as there could be an infringement of other people's rights. Care should be taken to ensure that this does not occur.
3. That the Codes fetter the right granted by Section 14 to ensure there is fair play between all parties on controversial issues. Therefore in advocacy advertising and particularly on political matters the spirit of the Code is more important than technical breaches. People have the right to express their views and this right should not be unduly or unreasonably restricted by Rules.
4. That robust debate in a democratic society is to be encouraged by the media and advertisers and that the Codes should be interpreted liberally to ensure fair play by the contestants.
5. That it is essential in all advocacy advertisements that the identity of the advertiser is clear.

The Complaints Board said the pamphlet before it was clearly an advocacy advertisement against water fluoridation in Thames. It noted the Advertiser was clearly identified as Fluoride Free New Zealand and included two website addresses; www.fannz.org.nz and www.fluoridealert.org.nz). The Complaints Board confirmed the identity of the Advertiser on the advertisement was clearly displayed and therefore, met the identification provision.

The Complainant said the entire pamphlet was full of "egregious misinformation and scaremongering" and designed in such a way as it mimicked pamphlets from reliable institutions such as the Ministry of Health and DHBs.

Leaflet design

When considering the Complainant's concern the pamphlet mimicked those from reliable institutions such as the Ministry of Health and DHBs, the Complaints Board noted where the Advertiser stated: "...The blue colour used is often used with advertisements related to water and is not the sole prerogative of the MOH or advocates of fluoridation. In fact the leaflet does not mimic that of the current MOH/NZDA leaflet published in 2015 as it predates their leaflet and in fact is quite a different blue ..."

The Complaints Board agreed and accepted the response from the Advertiser that the leaflet predated the Ministry's pamphlet design. Therefore, the Complaints Board was of the view there was nothing misleading about the design of the pamphlet that would breach the Advertising Codes.

It then turned to consider the four headings selected by the Complainant individually.

"Fact: Fluoride is harmful to health"

The Complainant stated in part: "While technically true that fluoride may be linked to harm (as can an overdose of just about *anything*), the leaflet's main title is Water Fluoridation and the leaflet's authors are making a purposeful semantic and mischievous link by using the word 'fluoride' (rather than fluoridation) in this subheading."

The Complaints Board noted the Advertiser stated, in part: "...the issue with fluoride in water fluoridation is chronic toxicity... The health effects talked about in this leaflet, like dental fluorosis, are examples of chronic toxicity arising from relatively low dose fluoride exposure over time. Chronic relatively low dose exposure of fluoride is relevant to water fluoridation..."

We believe it is important for people to be made aware that fluoride is not an essential nutrient but a chemical that is indisputably harmful to health. People need to know this if they are to make an informed opinion on whether this substance should be added to the drinking water."

The Complaints Board acknowledged the process of water fluoridation and its benefits was a contentious issue. However, it expressed two concerns with this statement.

Specifically, the Complaints Board said the use of the word "fact" in the statement "*Fact: Fluoride is harmful to health*" made the statement an absolute which was misleading given the accepted opinions of experts based on extensive research and endorsed by the Ministry of Health fluoridation experts.¹

The Complaints Board also said the likely consumer takeout of the statement would be fluoridated water was unsafe which, taking into account the findings of experts such as Sir Peter Gluckman in the Gluckman/Skeggs Report 2014 and endorsed by the Ministry of Health, was not supported.

¹ In Complaints Board Decision 13/501, the Complaints Board accepted Professor Sir Peter Gluckman, the Chief Science Advisor to the Prime Minister, as being an authority on the subject of the risks regarding water fluoridation. The Gluckman/Skeggs Report 2014 - which were endorsed by the Ministry of Health - stated: "It is absolutely clear that at doses used in New Zealand ... there is no risk from fluoride in the water... Water fluoridation continues to provide dental health benefits to the population of New Zealand, with no evidence of serious adverse effects after many decades of exposure...."

Therefore, the Complaints Board said the headline *"Fact: Fluoride is harmful to health"* went beyond the provisions allowed under advocacy as it had presented an opinion as a statement of fact in a manner that was misleading and was likely to exploit consumers' lack of knowledge. It said the statement had also unjustifiably played on fear. Therefore the Complaints Board ruled the heading was in breach of Basic Principle 4 and Rules 2, 6 and 11 of the Code of Ethics.

"Infants are especially at risk"

The Complainant said heading No. 2: "is untrue and clearly designed to be emotive and to frighten vulnerable parents, caregivers or anyone concerned about the well-being of infants ...The official NZ Ministry of Health position is that it is perfectly safe for babies to drink fluoridated tap water and to make baby formula with fluoridated water."

The Advertiser stated: "Dental fluorosis is a visible sign of excess fluoride ingestion (MOH, 2010). Dental fluorosis is a defect in the teeth that arises from exposure to excess fluoride between the ages of 0 and 8 years ...Dental fluorosis appeared in New Zealand after the introduction of water fluoridation and nowadays swallowing of fluoride tooth paste by young children also contributes to the amount ingested (New Zealand Report, 2014).

Formula fed infants will exceed the Upper Limit (set with moderate fluorosis as the endpoint) 93% of the time if the formula is reconstituted with fluoridated water at 1ppm; and 32% of time if 0.7ppm ... During periods of development infants and children are particularly vulnerable to developmental toxins. The traditional toxicological paradigm is that 'the dose makes the poison'. The size to weight ratio of a child means their dose is always more per kilogram of body weight than an older child or an adult. A more recently recognized toxicological paradigm is 'the timing makes the poison' (Grandjean et al, 2007). Even relatively low doses can be toxic at vulnerable times of development, doses that would have minimal or no effect on an adult ..."

The Complaints Board noted fluorosis resulted in mottling of the teeth. However, it said the consumer takeout of the heading, especially for parents was that it implied infants were exposed to serious health risks from water fluoridation. However, it referred back to the government-endorsed opinions of experts based on the results of extensive research by Chief Science Advisor that found fluoridated water was safe for infants.

Therefore, the Complaints Board said the headline, "Infants are especially at risk," positioned as the real facts was misleading, had unjustifiably played on fear and was likely to exploit consumers' lack of knowledge. As such, the Complaints Board said it had not been prepared with a due sense of social responsibility to consumers and to society.

Therefore, the Complaints Board ruled the advertisement was in breach of Basic Principle 4 and Rules 2, 6 and 11 of the Code of Ethics.

"Fluoridation does not reduce dental decay"

The Complainant stated: "Again, this is an opinion contrary to the position of the WHO and the overwhelming scientific evidence ... There is a wealth of credible data proving the efficacy of fluoridation in reducing dental decay by an average of one third, regardless of what you eat and regardless of whether you brush your teeth..."

The Complaints Board noted where the Advertiser stated: "The Complainant implies that FFNZ cannot hold a contrary opinion. FFNZ does hold an opinion that is not shared by the

Complainant and is entitled to do so. These opinions are based on scientific evidence and are shared by many scientists, doctors and dentists around the world.”

The Complaints Board reiterated that the advocacy principles enabled opposing viewpoints to be robustly debated. It also allowed for selective use of evidence. What it did not allow for was a statement of opinion to appear as fact or statements that were likely to mislead the consumer.

The Advertiser continued: “The Cochrane Review on topical fluoride use found robust evidence of the effectiveness of fluoride toothpaste with no difference in tooth decay reduction with a background of fluoridation or not, suggesting that water fluoridation gave no extra benefit to those brushing with fluoridated toothpaste (Marinho, 2009). In the current climate of widespread topical fluoride use (eg toothpaste) and strong evidence of its effectiveness there is no need for water fluoridation as it provides no benefit. There is no need for fluoride to go beyond the mouth for benefit of its treatment effect.”

The Complaints Board acknowledged the findings of the Cochrane Review with regards to the benefits of fluoridated toothpaste. However, the Complaints Board said the statement that “*Fluoridation does not reduce dental decay*” was misleading given the Cochrane Review found that fluoridated toothpaste reduced tooth decay.

The Complaints Board said there was substantial evidence by expert bodies that fluoridation, whether it be via the water supply (Gluckman/Skeggs 2014) or by fluoridated toothpaste (Cochrane Collaboration), reduced dental decay. Therefore, the Complaints Board said to posit oppositional evidence as the “real facts” was misleading. As such, the Complaints Board said it had not been prepared with a due sense of social responsibility to consumers and to society.

Therefore, the Complaints Board ruled the advertisement was in breach of Basic Principle 4 and Rules 2, 6 and 11 of the Code of Ethics.

“Strong Evidence Fluoride Causes Bone Cancer in Young Men”

The Complainant stated: “Virtually all public health organisations in the western world support fluoridation, which would be gravely irresponsible if fluoridation were linked to bone cancer or indeed to any other cancer or health problem. The world’s largest organisation solely dedicated to cancer research, the National Cancer Institute of the National Institutes of Health (US) has responded to the charge that fluoride causes cancer. “Opponents to fluoridation have spent enormous amounts of time attempting to link adverse effects with fluoridation. Given enough attempts, someone should be able to link some condition with fluoridation in some group, using some methodology.” <http://www.cancer.gov/search/results>

This has been the case with a 2006 paper, which is the source cited by the leaflet. However, the leaflet fails to report on the limitations of the study - or that the results have never been replicated despite major epidemiological reviews in several countries involving millions of cancer patients. Osteosarcoma is a rare bone cancer usually affecting teens and investigators warn the small numbers mean the conclusions of any single study must be treated with caution.”

In response, the Advertiser stated: “During periods of human development when cells are dividing and multiplying they are very vulnerable to toxins, developmental toxins. Fluoride is well known to cause dental fluorosis, an example of developmental toxicity resulting from fluoride interfering with the normal development of the tooth enamel ... It is entirely plausible that fluoride increases the risk of osteosarcoma in boys during their boney growth spurt and that is what the Bassin study has shown ... There are many reputable doctors, dentists and

scientists around the world that interpret the science as showing fluoride, even at levels from fluoridated water, is a risk factor for osteosarcoma and that the Bassin study provides strong evidence to this effect.”

The Complaints Board noted the Gluckman/Skeggs report 2014 directly referred to the Bassin study of 2006. It stated: “the report has been the source of many claims linking fluoridated water with osteosarcoma.” However, the Gluckman/Skeggs report 2014 it said investigators warned that the findings of this preliminary study were not replicated in larger studies. That report stated:

“Patients recruited later than those in the preliminary subset agreed to provide bone samples in which the levels of fluoride could be tested, as fluoride levels in bone serve as an objective biomarker of chronic fluoride exposure. It has since been reported that bone fluoride levels in these samples did not correlate with the occurrence of osteosarcoma.

Systematic reviews including the 2006 NRC review,[46] the 2007 NHMRC review,[91] and the 2011 SCHER report[34] all concluded that based on the best available evidence, fluoride could not be classified as carcinogenic in humans.”

The Complaints Board accepted the expert view found by the Gluckman/Skeggs 2014 review of the evidence about the apparent link between cancer and fluoridated water and noted specifically, the findings of the Bassin study could not be replicated in a larger study.

Given these findings, the Complaints Board said it was alarmist to include such a heading based on the Bassin study that had significant limitations. Therefore, the Complaints Board said the Advertiser had gone beyond the provision for advocacy by unjustifiably playing on fear. Therefore, it said the above statement under the heading the “real facts” was likely to deceive or mislead the consumer or exploit consumers’ lack of knowledge. As such, the Complaints Board said it had not been prepared with a due sense of social responsibility to consumers and to society.

Therefore, the Complaints Board ruled the advertisement was in breach of Basic Principle 4 and Rules 2, 6 and 11 of the Code of Ethics.

Summary. When considering the complaint, the Complaints Board acknowledged the Advertiser’s view that: “the role of ASA is not to arbitrate science but to ensure that advocacy opinions, as expressed in a leaflet like this, are prepared with a due sense of social responsibility.”

The Complaints Board agreed it was not an arbiter of science. It relied on the opinions of experts such as the Chief Science Advisor to the Prime Minister, Sir Peter Gluckman, who evaluated many of the studies provided by the Advertiser and found them inconclusive.² However, the Complaints Board emphasised that this did not automatically mean oppositional evidence could not be robust enough to substantiate a claim in an advocacy advertisement.

It acknowledged water fluoridation was a contentious public issue and there was growing

² The Gluckman/Skeggs Report 2014 found: “It is absolutely clear that at doses used in New Zealand ... there is no risk from fluoride in the water... Water fluoridation continues to provide dental health benefits to the population of New Zealand, with no evidence of serious adverse effects after many decades of exposure...”

body of evidence that challenged the benefits and the effects of water fluoridation. However, in this instance, by positing such evidence in the context of being the “real facts,” was misleading.

The Complaints Board also said the alarmist statements made in the pamphlet on the evidence provided, meant the Advertiser had unjustifiably played on people fear. As such it said the advertisement went beyond what was provided for under the rules of advocacy.

Accordingly, the Complaints Board ruled to Uphold the complaint.

DESCRIPTION OF ADVERTISEMENT

The pamphlet by Fluoride Free New Zealand was headed “Real Facts on Water Fluoridation” and was part of a letterbox drop during the recent Thames fluoridation referendum. The pamphlet contained various statements about harmful effects of water fluoridation and included the Advertiser’s website details (www.fannz.org.nz) and (www.fluoridealert.org.nz).

COMPLAINT FROM A. CHANG

I wish to complain about Fluoride Free NZ’s leaflet ‘Real Facts on Water Fluoridation’ which was part of a letterbox drop during the recent Thames fluoridation referendum campaign.

The entire leaflet is a testimony of egregious misinformation and scaremongering designed to mimic leaflets from reliable intuitions such the Ministry of Health & DHBs (even using the same colour theme on the front page as a current MOH/NZDA pamphlet) which I believe breaches rules 2, 6 and 11. For ease of processing, I have selected a handful of specific statements to form the basis of the complaint.

1. ‘Fact: Fluoride is harmful to health’

I believe this subtitle is a breach of rule 2, 6 and 11. While technically true that fluoride may be linked to harm (as can an overdose of just about *anything*), the leaflet’s main title is Water Fluoridation and the leaflet’s authors are making a purposeful semantic and mischievous link by using the word ‘fluoride’ (rather than fluoridation) in this subheading.

The leaflet goes on to qualify this statement with a range of adverse health study claims which have all been rejected by credible institutions as either flawed or having no relevance to the issue of community water fluoridation - where the dose of fluoride is 0.7 parts per million, a level widely considered to be completely safe to human health.

Therefore, I believe the intent of the subheading is to present and reinforce a message that is not true: that the statement and its qualifiers are designed not to inform but to frighten consumers away from fluoridation; and to support an opinion purporting to be fact.

From *Health effects of water fluoridation: A review of the scientific evidence*, A report on behalf of the Royal Society of New Zealand and the Office of the Prime Minister’s Chief Science Advisor <http://www.pmcsa.org.nz/publications/>

‘All of the panel members and ourselves conclude that the efficacy and safety of fluoridation of public water supplies, within the range of concentrations currently recommended by the Ministry of Health, is assured. We conclude that the scientific

issues raised by those opposed to fluoridation are not supported by the evidence.'

Further and more recent evidence reinforcing this view has come from the world renowned Dunedin longitudinal study which has followed 1000 people from birth to age 38 - and has found children who grow up in fluoridated areas have better development overall because it reduces the burden of decay.

<http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2013.301857>

2. 'Infants are especially at risk'

I believe the leaflet breaches the same rules, 2, 6 and 11 with this second subheading which is untrue and clearly designed to be emotive and to frighten vulnerable parents, caregivers or anyone concerned about the well-being of infants.

The material to support this statement goes on to use phrases like 'NOT SAFE FOR BABIES' citing references used out of context; and attempts to create unwarranted fear of dental fluorosis, calling it a 'sign of FLUORIDE POISONING' to further justify the subheading.

The official NZ Ministry of Health position is that it is perfectly safe for babies to drink fluoridated tap water and to make baby formula with fluoridated water. Even moderate fluorosis is rare in NZ and when fluorosis does occur, causing a mild cosmetic effect at worst, the rates are the same in fluoridated or unfluoridated areas (meaning it is probably caused by ingesting toothpaste rather than by fluoridated water).

From the same Gluckman/Skegg NZ report:

'Recommendations in the US previously suggested that powdered infant formula should be reconstituted with low-fluoride water to reduce the risk of dental fluorosis, but updated recommendations are to use water fluoridated at around 0.7 mg/L.[136] Advice from Australia indicates that infant formula is safe for consumption whether reconstituted with fluoridated or non-fluoridated water.[137] Fluoridated water supplies in New Zealand are also considered safe for use in infant formula, though as with recommendations elsewhere, if parents are concerned with the risk of mild fluorosis, low-fluoride bottled water can be used for reconstitution in order to reduce fluoride exposure in this age group.'

Regarding fluorosis, the report says:

'the rarity of cosmetically concerning dental fluorosis in New Zealand indicates that such excess intake is not generally a safety concern.'

And:

'It is important to note that the seemingly high prevalence of fluorosis reported in some studies and systematic reviews includes mainly mild and very mild (and sometimes questionable) degrees of fluorosis, with only a small proportion that would be considered to be of aesthetic concern. Surveys have shown that very mild to mild dental fluorosis is not associated with negative impact on perception of oral health, and that adolescents actually preferred the whiteness associated with mild fluorosis.'

Common sense and a glance at the teeth of any average sample group will quickly dispel the myth that NZ is in the midst of a fluorosis epidemic. Everyone wants to do their best for

their baby and it is highly irresponsible to imply babies are at risk from fluoridation when in fact, as cited above, NZ researchers have found that children who grow up in a fluoridated area have, in fact, better development overall.

And finally, fluoridation is endorsed by the Royal NZ Plunket Society, a trusted institution for infant health.

3. 'Fluoridation does not reduce dental decay'

Again, this is an opinion contrary to the position of the WHO and the overwhelming scientific evidence, and as such I believe it is in breach of rules 2 and 11.

There is a wealth of credible data proving the efficacy of fluoridation in reducing dental decay by an average of one third, regardless of what you eat and regardless of whether you brush your teeth, with the greatest benefit to the most vulnerable in our community.

As summarised in the Gluckman/Skeggs report:

'Analysis of evidence from a large number of epidemiological studies and thorough systematic reviews has confirmed a beneficial effect of CWF on oral health throughout the lifespan. This includes relatively recent studies in the context of the overall reduced burden of caries that has resulted from the widespread use of topical fluoride products (e.g. toothpastes, mouth rinses, and fluoride varnishes). In New Zealand, significant differences in decay rates between fluoridated and non-fluoridated communities continue to exist, despite the fact that the majority of people use fluoride toothpastes. These data come from multiple studies across different regions of the country conducted over the last 15 years, as well as from a national survey of the oral health status of New Zealanders conducted in 2009. Various studies indicate that CWF has an additive effect over and above that of fluoride toothpaste and other sources of fluoride that are now in common use. The burden of tooth decay is highest among the most deprived socioeconomic groups, and this is the segment of the population for which the benefits of CWF appear to be greatest.'

I anticipate the advertiser will respond with the Cochrane Fluoridation Review 2015, which has proved controversial because of its narrow study selection criteria. The review's criteria favour randomised controlled trials, which is the norm for trialling new pharmaceuticals, rather than the observational trials common (and considered desirable and ethical) for use in public health research. As a result, hundreds of recent cross-sectional and observational trials (confirming the beneficial additive effects of fluoridation) were not included in this review – and it's been gleefully cherry-picked by opponents to imply fluoridation doesn't work or that there are no studies that do prove it is effective. Yet even with the criteria limitations, the review still concluded water fluoridation is effective at reducing caries:

'Our review found that water fluoridation is effective at reducing levels of tooth decay among children.' <http://onlinelibrary.wiley.com/enhanced/doi/10.1002/14651858.CD010856.pub2>

4. 'Strong Evidence Fluoride Causes Bone Cancer in Young Men'

This is a disturbing subheading that is meant to alarm to the public, and I believe breaches rules 2, 6 and 11. It is negligent not to offer context for this heading; instead the advertiser aims to frighten the public into believing fluoridation is linked to bone cancer when the evidence actually says otherwise.

Virtually all public health organisations in the western world support fluoridation, which would be gravely irresponsible if fluoridation were linked to bone cancer or indeed to any other cancer or health problem. The world's largest organisation solely dedicated to cancer research, the National Cancer Institute of the National Institutes of Health (US) has responded to the charge that fluoride causes cancer. "Opponents to fluoridation have spent enormous amounts of time attempting to link adverse effects with fluoridation. Given enough attempts, someone should be able to link some condition with fluoridation in some group, using some methodology." <http://www.cancer.gov/search/results>

This has been the case with a 2006 paper, which is the source cited by the leaflet. However, the leaflet fails to report on the limitations of the study - or that the results have never been replicated despite major epidemiological reviews in several countries involving millions of cancer patients. Osteosarcoma is a rare bone cancer usually affecting teens and investigators warn the small numbers mean the conclusions of any single study must be treated with caution.

The leaflet also fails to mention a follow-up in 2011 to the original study, which investigated the fluoride levels in patients with osteosarcoma and compared them to controls. Researchers found no difference between the fluoride levels of the two groups. <http://www.ncbi.nlm.nih.gov/pubmed/21799046>

The Gluckman/Skegg report also comments extensively on the 2006 study as a source of claims linking fluoridated water to osteosarcoma, detailing the many world-side systemic reviews and recent studies including data on NZ cancer registrations. All conclude there is: 'no evidence of association between osteosarcoma incidence and residence in water fluoridated areas.'

The NZ Cancer Society considers fluoridation to be 'an important public health action' and notes there has been no change in the number of osteosarcoma cases diagnosed each year in NZ - which would be expected if there was a link, given 50 years of CWF in some areas.

To proclaim 'strong evidence' between fluoridation and bone cancer is misleading in the extreme and could certainly frighten consumers who are not exposed to appropriate factual balance.

Conclusion

There so many statements in the leaflet that I believe breach the ASA's rules it is difficult to narrow it down to just 4. Statements such as 'it's unsafe', 'water fluoridation is unethical', 'almost all of Western Europe has rejected fluoridation' are also untrue.

While of course opponents are free to publicise their opinions about fluoridation, the leaflet is a collection of ideology masquerading as fact, doing a grave disservice to consumers seeking genuine information. Thank you for your consideration.

CODE OF ETHICS

Basic Principle 4: All advertisements should be prepared with a due sense of social responsibility to consumers and to society.

Rule 2: Truthful Presentation - Advertisements should not contain any statement or visual presentation or create an overall impression which directly or by implication, omission, ambiguity or exaggerated claim is misleading or deceptive, is likely to deceive or mislead the consumer, makes false and misleading representation,

abuses the trust of the consumer or exploits his/her lack of experience or knowledge. (Obvious hyperbole, identifiable as such, is not considered to be misleading).

Rule 6: Fear - Advertisements should not exploit the superstitious, nor without justifiable reason, play on fear.

Rule 11: Advocacy Advertising - Expression of opinion in advocacy advertising is an essential and desirable part of the functioning of a democratic society. Therefore such opinions may be robust. However, opinion should be clearly distinguishable from factual information. The identity of an advertiser in matters of public interest or political issue should be clear.

RESPONSE FROM ADVERTISER, FLUORIDE FREE NZ

Response to Complaint 15/470

1. Complainant details

A. Chang was part of a group in Thames campaigning to continue water fluoridation in the lead up to the Thames fluoridation referendum on 5 November, 2015.

2. The Complaint

The complaint is about a Fluoride Free New Zealand leaflet entitled 'Real facts on Water Fluoridation' which formed part of a letter box drop in the lead up to the Thames fluoridation referendum.

The complaint claims breaches of the following ASA code of ethics:

Code of Ethics - Basic Principle 4. All advertisements should be prepared with a due sense of social responsibility to consumers and to society.

Code of Ethics – Rule 2. Truthful presentation – Advertisements should not contain any statement or visual presentation or create an overall impression which directly or by implication, omission, ambiguity or exaggerated claim is misleading or deceptive, is likely to deceive or mislead the consumer, makes false and misleading representation, abuses the trust of the consumer or exploits his/her lack of experience or knowledge. (Obvious hyperbole, identifiable as such, is not considered to be misleading).

Code of Ethics – Rule 6. Fear – Advertisements should not exploit the superstitious, nor without justifiable reason, play on fear.

Code of Ethics – Rule 11. Advocacy Advertising – Expression of opinion in advocacy advertising is an essential part of the functioning of a democratic society. Therefore such opinions may be robust. However, opinion should be clearly distinguishable from factual information. The identity of an advertiser in matters of public interest or political issue should be clear.

3. Response to Complaint

3.1 Response to: Introduction

Complainant says:

“The entire leaflet is a testimony of egregious misinformation and scaremongering designed to mimic leaflets from reliable intuitions such as the Ministry of Health and DHBs (even using the same colour theme on the front page as the current MOH/NZDA pamphlet) which I believe breaches rules 2, 6 and 11.”

The leaflet is clearly an advocacy leaflet. Reference is made to Fluoride Free New Zealand through website addresses www.fannz.org.nz, www.fluoridealert.org.nz clearly visible on the front panel and also to Fluoride Free NZ on Facebook on another panel. The content of the leaflet also clearly identifies it as advocating opposition to water fluoridation.

The leaflet contains evidence-based facts that are designed to inform readers, not to play on fear, and provide links to sources of further information. It has been prepared with a due sense of social responsibility. A referendum on water fluoridation is the nearest thing to individual informed consent. This leaflet was used as part of a campaign to provide information so that the people of Thames could make an informed choice about how to vote.

The claim that the leaflet is designed to mimic the Ministry of Health (MOH) leaflets is ridiculous. The blue colour used is often used with advertisements related to water and is not the sole prerogative of the MOH or advocates of fluoridation. In fact the leaflet does not mimic that of the current MOH/NZDA leaflet published in 2015 as it predates their leaflet and in fact is quite a different blue (see attached).

The leaflets used for the letterbox drop are in fact about 2 years old. They were produced in 2013 around the time of the Hamilton referendum. With a new leaflet in production the old leaflets were gathered together and donated to the Thames campaign which was working on a small budget. The old web address www.fannz.nz which has since been replaced with www.fluoridefree.org.nz is testament to this. The old address still connects to the new website.

The main issue for the Complainant seems to be that she does not agree with Fluoride Free New Zealand's (FFNZ) views and interpretation of the science. In this way she finds the content of the leaflet misleading and fear mongering. However, FFNZ is entitled to hold an alternative opinion to the Complainant and the content of the leaflet is evidence-based. The leaflet's aim is to raise awareness and provide information about an important issue of water fluoridation that affects many people in New Zealand. The leaflet was prepared with a due sense of social responsibility to the public.

3.2 Response to: 1. 'Fact – Fluoride is harmful to health'

The Complainant says:

“While technically true that fluoride may be linked to harm (as can an overdose of just about anything), the leaflet's main title is Water Fluoridation...”

Advocates of water fluoridation often make the point that it is possible to overdose on anything and they often compare fluoride with water saying it is possible to drown in water or die from drinking too much. These are both acute events and it is possible to die from an acute overdose of fluoride but the issue with fluoride in water fluoridation is chronic toxicity.

Drowning in water is an acute event involving a lot of water, perhaps equivalent to inhaling or drinking the concentrated form of hydrofluorosilicic acid (HFA).

Water intoxication is also an acute event from drinking over 6 litres in a short space of time, 2-3 hours. The equivalent would be an acute fluoride poisoning involving consuming a large dose of fluoride over a short period of time. Two cases spring to mind: a young boy who

instead of spitting out the high concentration fluoride dental treatment he had at the dentist swallowed it and died shortly thereafter; and the man who lived in a town where the fluoride in the water accidentally reached a concentration of 150 ppm and in response to his symptoms of vomiting and diarrhoea he drank more and more and died before the problem had been identified (Gessner et al, 1994).

The health effects talked about in this leaflet, like dental fluorosis, are examples of chronic toxicity arising from relatively low dose fluoride exposure over time. Water does not cause chronic toxic effects because it is essential to human life and the body recognises it and controls it homeostatically. Fluoride is not an essential nutrient and is not homeostatically controlled by the body (NRC, 1993; NRC, 2006; SCHER, 2011).

Chronic relatively low dose exposure of fluoride is relevant to water fluoridation.

The Complainant says:

"The leaflet's authors are making a purposeful semantic and mischievous link by using the word "fluoride" rather than fluoridation."

In the early days of fluoridation, health authorities promoted fluoride as an essential nutrient and many people still believe that today. We believe it is important for people to be made aware that fluoride is not an essential nutrient but a chemical that is indisputably harmful to health. People need to know this if they are to make an informed opinion on whether this substance should be added to the drinking water.

We have also formed the opinion that the dose of fluoride many people are receiving via fluoridation is harmful to health.

The Complainant says:

"The leaflet then goes on to qualify the statement with a range of adverse health study claims which have all been rejected by credible institutions as either flawed or having no relevance to the issue of community water fluoridation - where the dose of fluoride is 0.7parts per million, a level widely considered to be completely safe to human health."

It needs to be noted that the Complainant is confusing "dose" with "concentration" as the dose a person receives is milligrams per day (or more precisely mg/kg body weight/day) whereas 0.7ppm is the concentration at which fluoride is added to the water in some places. In most fluoridated parts of New Zealand (the leaflet is for use throughout New Zealand) the concentration of fluoride is based on the Ministry of Health recommendation of between 0.7ppm and 1ppm with most places aiming at 0.85ppm.

People in New Zealand will be receiving varying doses of fluoride depending on how much water they drink, how many foods they consume that have been made using fluoridated water, if the food itself contains fluoride, if they use a fluoride toothpaste and if so how often they brush their teeth and how much they swallow, if they use any other fluoride dental treatments and if they use any medications containing fluoride.

The following scientific evidence relates ill health effects and exposure to fluoride through water fluoridation concentrations of 0.7-1mg/L and other typical fluoride sources as noted above.

When a treatment is delivered via the water supply, it is not possible to control the dose that any individual has, because everyone will drink as much or as little as they like. Small children will be more at risk of having too much, especially if they are exclusively formula fed using fluoridated water to reconstitute the milk, because of their small size and because children still undergoing development are particularly vulnerable to toxins.

Fluoride has been classified as a developmental neurotoxin, and has been associated with reduced IQ and Attention Deficit and Hyperactivity disorder (Grandjean and Landrigan, 2012; Choi et al, 2012; Malin and Till, 2015). It has been estimated that formula fed infants will ingest fluoride levels that exceed the Upper Limit for safety up to 93% of the time if fluoridated water is used to reconstitute the milk (ESR, 2009).

Dental fluorosis is a visible sign of excess fluoride consumption (MOH, 2010. See Appendix for extract). The 2009 New Zealand Oral Health Survey found 44.5% with some level of dental fluorosis and 2% with moderate and a few with severe dental fluorosis(MOH, 2010. See Appendix for extract). Dental fluorosis is a defect in the teeth that arises from exposure to excess fluoride between the ages of 0 and 8 years. Fluoride interferes with the natural development of the teeth resulting in white flecks or brown mottling that last a life time. Dental fluorosis appeared in New Zealand after the introduction of water fluoridation and nowadays swallowing of fluoride tooth paste by young children contributes to the amount ingested (New Zealand Report, 2014)

There is no threshold, below which there is no risk of dental and bone fluorosis (SCHER, 2011).

In adults up to 60% of fluoride ingested is retained in the body, mainly in the bone, and in children this can be as much as 90% (WHO, 2002). The accumulation over time is reflected in a higher blood fluoride levels in older people who have been exposed for much of their life (WHO, 2002). There are many factors affecting the metabolism of fluoride in the body including diet, age and health status, for example those with poor kidney function will retain more and therefore be more susceptible to fluorosis (New Zealand Report, 2014).

It is thought that much arthritis is possibly early stages of bone fluorosis as it is not possible to distinguish the two on symptoms alone (WHO, 1970). More hip fractures have been associated with exposure to fluoride through water fluoridation (Jacobsen et al 1992; Kurttio et al 1999, Li et al, 2001). A rare bone cancer in boys, osteosarcoma, has been found to be five times more likely in those exposed to fluoride through drinking water during their growth spurt, 6-8 years of age(Bassin et al, 2006).

The National Research Council (US) declared fluoride was an endocrine disruptor, causing hormonal imbalance most notably in the thyroid at levels of exposure expected from drinking fluoridated water and with the risk at lower exposure levels in the presence of iodine deficiency (NRC, 2006). Iodine deficiency is a well-known problem in New Zealand. New research this year from Kent University found increased likelihood of high levels of hypothyroidism (under active thyroid) in areas with water fluoridation (Peckham et al 2015).

Appendices 1 – 7 reproduce information available on the Fluoride Free New Zealand website about the scientific information which supports each of the claims in the leaflet.

It is not true, as the Complainant says, that it is widely believed that the “dose” of 0.7ppm is safe:

1. The vast majority of Western European countries have rejected fluoridation, many of them citing the unknown long term health effects.
2. The UK Government’s York Review (2000) did not find fluoridation safe. In a letter from the Chair of the Advisory Group, Prof Trevor Sheldon, says “The review did not show water fluoridation to be safe. The quality of the research was too poor to establish with confidence whether or not there are potentially important adverse effects” (see appendix 8)

3. In the USA the Department of Human Health Services lowered the maximum concentration in water to 0.7ppm because of the high rates of dental fluorosis showing that people have been getting too much fluoride.

Last month, the US National Toxicology Program accepted a proposal to undergo a systematic review of the literature on fluoride's toxicity in respect of neurological impairment ie IQ reduction and also complete their own study on neurological behaviour. (Watch the video here <https://www.youtube.com/watch?v=lytzqSyGV2E>).

A very telling comment (1hr7m) regarding fluoride exposure and IQ was made at the end of that committee meeting by Linda S. Birnbaum, Ph.D. Director, National Institute of Environmental Health Services & National Toxicology Program.

"I just want to make the comment that both John and I served on the HHS effort that revised what the recommendation was and brought it down. From a high as possibly 1.2 down to .7. And part of that had to do with the fact that when you looked at all of the literature there was evidence for effects occurring certainly as low as about 2.5, maybe lower than that and going from 1.2 to 2.5 is only a margin of exposure of about 2 fold. And we know nothing, as I said before about differential susceptibility and vulnerability that occurs within the population. And that was part of the justification for taking it down to .7."

As Dr Birnbaum says, the truth is, health authorities in fluoridating countries actually know nothing about differential susceptibility and vulnerability.

With regard to 'credible' institutions rejecting study claims because they are flawed or have no relevance we would like draw attention to Professor Sheldon's letter in appendix 8. He wrote the letter because "I am concerned that the results of this review have been widely misrepresented. The review was exceptional in this field in that it was conducted by an independent group to the highest international scientific standards and a summary has been published in the British Medical Journal. It is particularly worrying then that statements which mislead the public about the review's findings have been made in press releases and briefings by the British Dental Association, British Medical Association, the National Alliance for Equity in Dental Health and the British Fluoridation Society. I should like to correct some of these errors:"

The Complainant quotes the New Zealand Report on health effects of water fluoridation here and repeatedly through the complaint. It needs to be noted that this report was commissioned on behalf of Local Authority Councils to provide them with the evidence to show that water fluoridation was safe and effective. It was not an independent scientific review and has not been published in a peer-review journal. Whilst it was peer-reviewed the reviewers were selected for their known pro-fluoridation stance as were the scientific panel. The following comment by Dr James Beck MD PhD sums this up:

"This report is a clear example of cherry picking, where only select studies that support the 'safe and effective' viewpoint were cited. It is far from a really critical review of the literature."

Attached is a critique of the New Zealand Report by Thiessen et al if you wish to read more.

3.3 Response to: 2. Infants are Especially at Risk

The Complainant says:

"I believe the leaflet breaches the same rules, 2, 6 and 11 with this second subheading which is untrue and clearly designed to be emotive and to frighten vulnerable parents, caregivers and anyone concerned about the well-being of infants."

We believe the statement is true and is not designed to be emotive or frightening but designed to inform caregivers so they can make healthy choices especially for formula fed infants.

Dental fluorosis is a visible sign of excess fluoride ingestion (MOH, 2010). Dental fluorosis is a defect in the teeth that arises from exposure to excess fluoride between the ages of 0 and 8 years. Fluoride interferes with the natural development of the teeth resulting in white flecks (mild and very mild) or brown mottling (moderate fluorosis) that last a life time.

A number of New Zealand studies have reported dental fluorosis in relation to water fluoridation (Schluter et al 2008; MacKay et al 2005; Kanagaratnam et al 2009). The 2009 New Zealand Oral Health Survey found 44.5% with some level of dental fluorosis including 2% with moderate and a few with severe dental fluorosis (MOH, 2010). Dental fluorosis appeared in New Zealand after the introduction of water fluoridation and nowadays swallowing of fluoride tooth paste by young children also contributes to the amount ingested (New Zealand Report, 2014).

Formula fed infants will exceed the Upper Limit (set with moderate fluorosis as the endpoint) 93% of the time if the formula is reconstituted with fluoridated water at 1ppm; and 32% of time if 0.7ppm; none of the time if non-fluoridated water is used or the infant is breast-fed and there are no other fluoride sources ingested (ESR, 2009).

During periods of development infants and children are particularly vulnerable to developmental toxins. The traditional toxicological paradigm is that 'the dose makes the poison'. The size to weight ratio of a child means their dose is always more per kilogram of body weight than an older child or an adult. A more recently recognized toxicological paradigm is 'the timing makes the poison' (Grandjean et al, 2007). Even relatively low doses can be toxic at vulnerable times of development, doses that would have minimal or no effect on an adult.

Dental fluorosis is an example of this. During tooth development (0-8 years of age) swallowed fluoride reaches the unerupted tooth and can interfere with the normal development. The result is areas of under-mineralized or thin enamel. The more fluoride extensive the defects; mild levels appear as white flecks; and moderate levels as brown mottling resulting from the enamel being so thin the brown dentin can be seen through it.

Dental fluorosis is a visible sign of excess fluoride consumption and this is acknowledged by the Ministry of Health (MOH, 2010).

Fluoride has also been recognised as a developmental neurotoxin (Grandjean and Landrigan, 2014). The brain is still developing in infants and young children and is susceptible to toxic exposures. The Harvard review looked at 27 studies on fluoride and neurotoxicity and concluded that children in high-fluoride areas had significantly lower IQ scores than those who lived in low-fluoride areas (Choi et al, 2012). One 'high' fluoride area had a fluoride water concentration of 0.88mg/L. More recently Attention Deficit Hyperactivity Disorder (ADHD) has been associated with fluoride exposure from fluoridated water in the United States (Malin and Till, 2015) and other cognitive deficits linked with moderate dental fluorosis (Choi et al, 2015).

So this is the concern that dental fluorosis is an outward sign of fluoride poisoning in infants and young children that could be reflecting health effects like reduced IQ that would be impossible to diagnose on a case by case basis but may be limiting that child's potential.

Most of the fluoride consumed by infants and young children is from an attempt to prevent tooth decay whether from fluoridated water, fluoride toothpaste (commonly swallowed by children) or other fluoride applications from the dental clinic like varnish. This makes the effects iatrogenic (caused [genic] by treatment [iatro]), and particularly concerning because the evidence is that water fluoridation offers no benefit if brushing with fluoride tooth paste (Marinho, 2009). Any level of dental fluorosis is a concern from a medical and toxicological point of view because it indicates unnecessary, iatrogenic, excess fluoride.

The European Review on water fluoridation noted there was no threshold below which there is no risk of dental and bone fluorosis (SCHER, 2011).

The Complainant cites the New Zealand Report as concluding that it is safe to reconstitute infant formula with fluoridated water but if parents are concerned about the risk of dental fluorosis they can use low-fluoride bottled water but this message is not being conveyed to the public and certainly was not in the MOH and NZDA leaflet (2015) that the Complainant referred to (attached).

The Complainant also cites the New Zealand report as saying that the dental fluorosis in New Zealand is *“mainly mild and very mild (and sometimes questionable) with only a small proportion that would be considered to be of aesthetic concern”* and *“Surveys have shown that very mild to mild dental fluorosis is not associated with negative impact on perception of oral health, and that adolescents actually preferred the whiteness associated with mild fluorosis”*.

We believe superficial appearance and its perception are not the issue but the fact that normal development has been affected.

Another citation by the Complainant is *“the rarity of cosmetically concerning dental fluorosis in New Zealand indicates that such excess intake is not generally a safety concern”*. We presume the 2% moderate dental fluorosis and some severe dental fluorosis reported by the 2009 Oral Health survey is being referred to here (MOH, 2010). From a pharmacological perspective 2% would be considered a common side-effect and is certainly not rare (British National Formulary). 2% is a safety concern for the 2% affected.

The Complainant says: *“the [dental fluorosis] rates are the same in fluoridated or unfluoridated areas (meaning it is probably caused by ingesting toothpaste rather than by fluoridated water).”* This evidence comes from the 2009 New Zealand Oral Health Survey which by its own admission is not a fluoridation study because no account is taken of historical fluoride exposure but is a “snap shot” in time (MOH, 2010). It reflects only the fluoridation status of the participant’s address at the time of the survey and not where they lived when they developed the fluorosis. Other New Zealand studies have shown water fluoridation is associated with dental fluorosis as stated above. This is not to deny that toothpaste probably plays a role as we mentioned above but to be clear that it is total swallowed fluoride that is the issue from whatever source.

The Complainant refers to the Broadbent (2015) study and claims it *“found that children who grow up in a fluoridated area have, in fact better development overall.”* We found no evidence in the paper that this was their conclusion. The conclusion was no statistically significant difference in IQ between the 891 study members who lived in fluoridated areas and the 99 who had not lived in a fluoridated area but may have taken fluoride tablets.

In summary we believe infants are especially at risk of excess fluoride consumption as attested by the level of dental fluorosis reported in New Zealand and that this outward sign may reflect developmental health effects elsewhere in the body. This section like the rest of

the leaflet was designed to be informative and socially aware and as such is not misleading nor does it unjustifiably play on fear.

3.4 Response to: 3. 'Fluoridation does not reduce dental decay'

The Complainant says:

"Again, this is an opinion contrary to the position of the WHO and the overwhelming scientific evidence, and as such I believe it is in breach of rules 2 and 11."

The Complainant implies that FFNZ cannot hold a contrary opinion. FFNZ does hold an opinion that is not shared by the Complainant and is entitled to do so. These opinions are based on scientific evidence and are shared by many scientists, doctors and dentists around the world.

The subheading for the section that contains this quote is 'Does water fluoridation prevent tooth decay?' The section is reproduced here to put the quote into context:

Does water fluoridation prevent tooth decay?

The original theory behind fluoridation was that it needed to be swallowed to harden the enamel of teeth as they were forming. However, all of the top fluoride promoters now say that fluoride's primary benefit is topical rather than systemic. i.e. that it works by applying to the tooth surface, not by swallowing.

Consider this analogy: If you wish to prevent sunburn, you don't drink sunscreen lotion. You apply it topically.

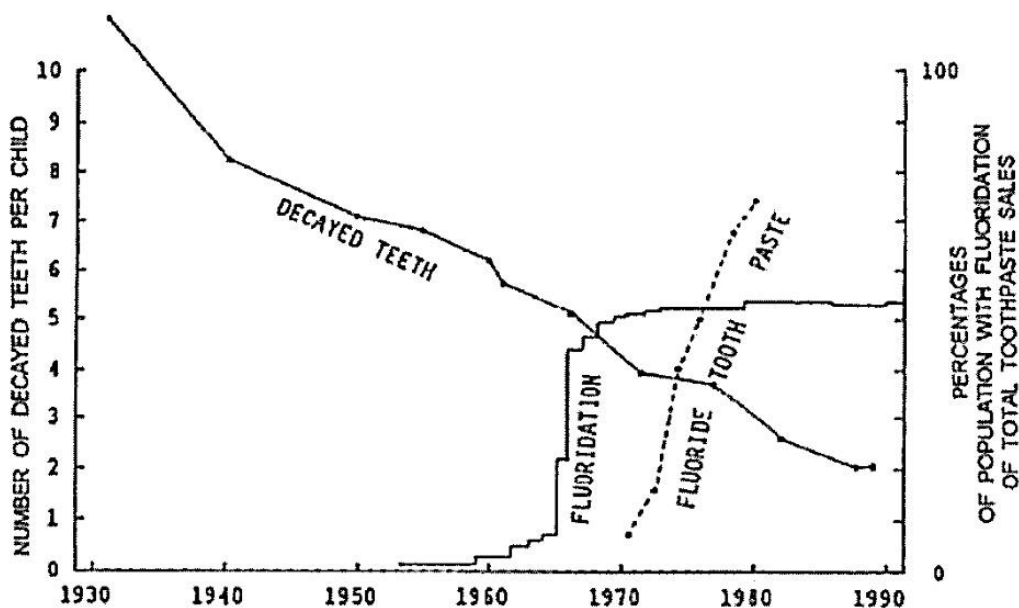
*Fluoridation **does not** reduce dental decay*

All large scale studies show there is very little difference in tooth decay between fluoridated and non-fluoridated areas. The latest (internationally published) Australian study showed negligible benefit to the permanent teeth from fluoridated water.

NZ Government figures also show no statistically significant difference. WHO figures for Western countries show the same 30 year improvement between fluoridated and non-fluoridated countries.

Pre-European Maori had dental decay occurring in only 1 tooth out of 2000, proving that NZ water does not need added fluoride to protect teeth.

The following chart shows no effect on dental health improvement from fluoridating in NZ.



50-year decline in tooth decay of 5-year-olds, showing steady drop in decay rates long before fluoridation. (Compiled from Health Department records).

Fluoride works mainly post-eruptively and topically not systemically (Featherstone, 1999): "fluoride works primarily via topical mechanisms... The level of fluoride incorporated into dental mineral by systemic ingestion is insufficient to play a significant role in caries prevention. The effect of systemically ingested fluoride on caries is minimal."

Featherstone, 1999.

Fluoride in fluoridated water is proposed to work topically on the teeth as it passes through the mouth (Featherstone, 1999). There is no evidence that demonstrates a causal association between systemic fluoride levels and caries reduction. Fluoride incorporated into the tooth during tooth development gives no measurable benefit against acid induced dissolution (Featherstone, 1999).

The Iowa study found that while dental fluorosis was dependent on fluoride intake a caries-free (no tooth decay) status had little to do with fluoride intake (Warren et al, 2009).

The Centres for Disease Control and Prevention (US) note that fluoride incorporated into saliva through the salivary glands as a result of systemic absorption (swallowing) from fluoridated drinking water was insufficient to have any effect on reducing tooth decay:

"The concentration of fluoride in ductal saliva, as it is secreted from the salivary glands, is low – approximately 0.016 parts per million (ppm) in areas where drinking water is fluoridated and 0.006 in non-fluoridated areas. This concentration of fluoride is not likely to affect cariogenic activity."

CDC, 2001.

The 'latest Australian study' referred to was conducted by Slade et al (2013). They looked at tooth decay in adults and found only a negligible difference, of 1 DMFT (decayed missing or filled teeth), when comparing prolonged (> 75%) versus negligible (< 25%) lifetime fluoridation exposure of adults born between 1960 and 1990. Whilst they took into account

many confounding factors this type of study cannot prove causality between fluoridated water and reduced tooth decay.

We find it difficult to accept the claim that fluoridated water flowing over the teeth at 1ppm can have a benefit when the MOH finds no evidence that over-the-counter low-strength fluoride mouth rinse (100 ppm fluoride) has any benefit:

Summary of findings

Compared to placebo or no treatment, fluoride mouthrinse solutions containing strengths at or above 0.05% sodium fluoride (225 ppm fluoride) are effective in preventing dental caries. There is no evidence of therapeutic benefit from low-strength fluoride mouthrinse preparations available without prescription. Compared to other fluoride interventions and in combination with other interventions, the place of fluoride mouthrinse is unclear.

MOH, 2009.

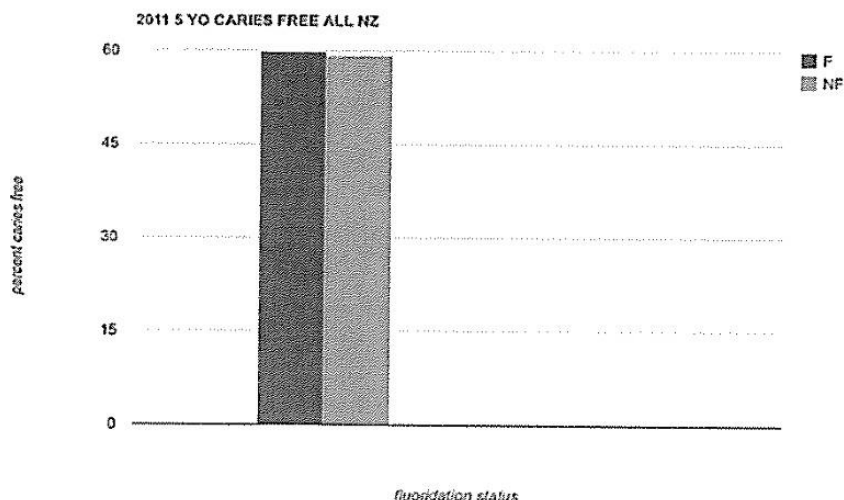
The Cochrane Review on topical fluoride use found robust evidence of the effectiveness of fluoride toothpaste with no difference in tooth decay reduction with a background of fluoridation or not, suggesting that water fluoridation gave no extra benefit to those brushing with fluoridated toothpaste (Marinho, 2009). In the current climate of widespread topical fluoride use (eg toothpaste) and strong evidence of its effectiveness there is no need for water fluoridation as it provides no benefit. There is no need for fluoride to go beyond the mouth for benefit of its treatment effect.

NZ Government figures show no statistically significant difference:

Number 44,653 5YO 44,659 Y8	2011 FLUORIDATED	2011 NOT FLUORIDATED	DIFFERENCE
5YO% CARIES FREE	59.91%	59.18%	0.73%
Y8 % CARIES FREE	55.17%	51.79%	3.38%
5YO dmft	1.77	1.9	0.13
Y8 DMFT	1.14	1.37	0.23

This 2011 real life child data shows that the difference in decay incidence and severity between children living in fluoridated and unfluoridated areas in NZ is insignificant.

Data sourced from: [www.health.govt](http://www.health.govt.nz)

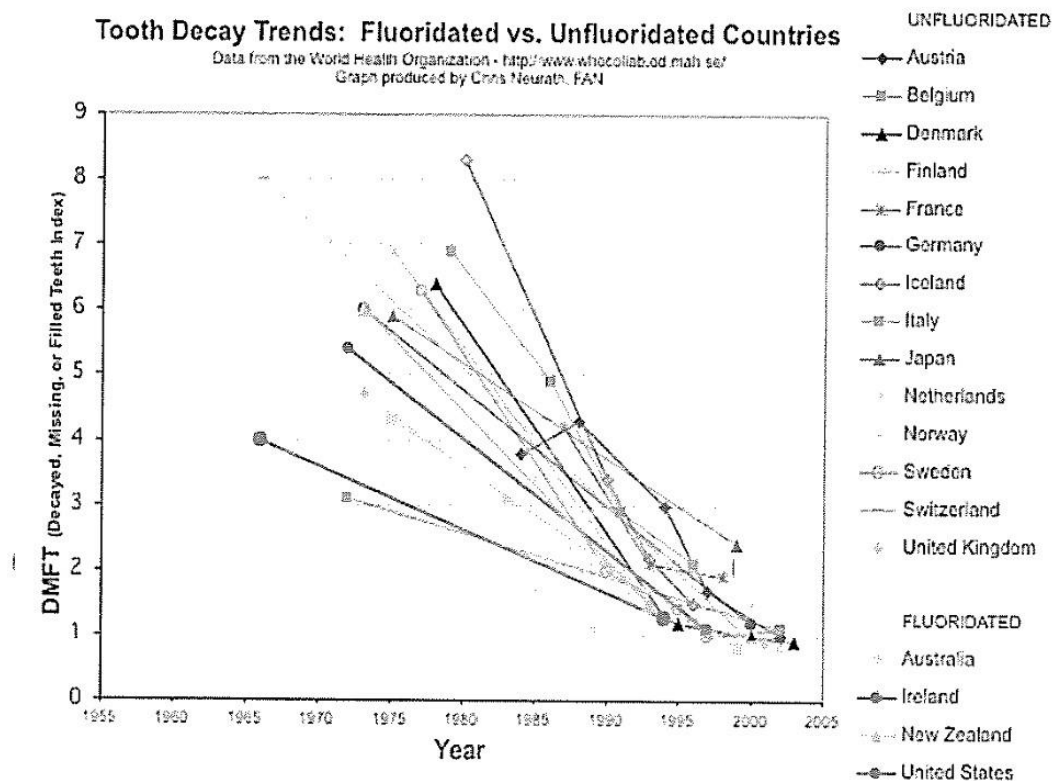


Small apparent differences could be accounted for by other factors such as delayed eruption of teeth in fluoridated communities, therefore less time in the mouth exposed to plaque acids, ethnic distribution and urban/rural differences.

Thiessen et al, 2014.

WHO figures for Western countries show the same 30 year improvement between fluoridated and non-fluoridated countries:

Globally, fluoridation is seen to make no difference to reduced decay rates, there being no difference between the few countries which use artificial fluoridation, and those that don't. (8,7)



Thiessen et al, 2014.

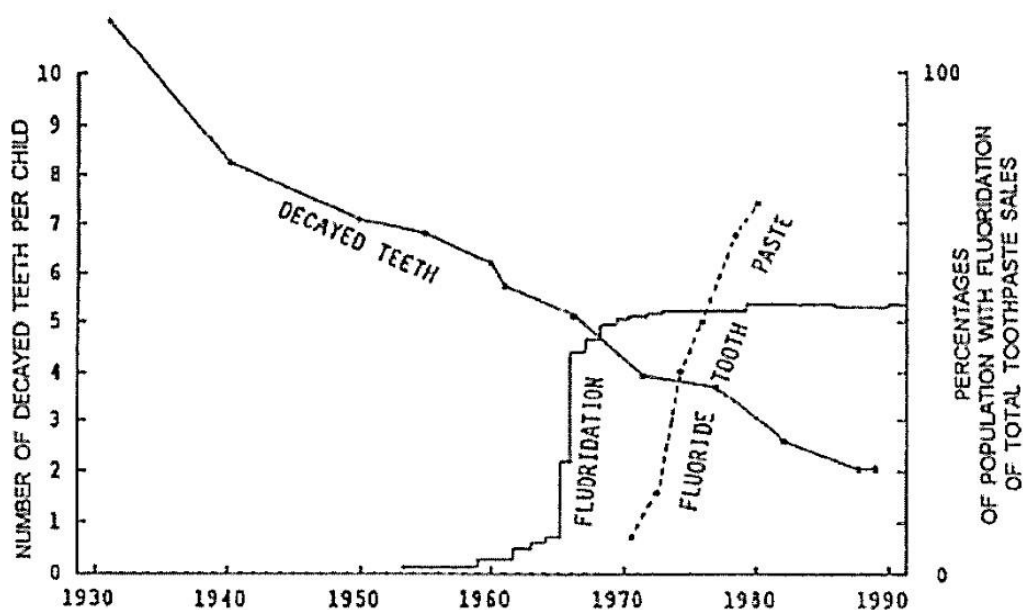
Pre-European Maori had dental decay occurring in only 1 tooth out of 2000, proving that NZ water does not need added fluoride to protect teeth. This information comes from Weston A. Price's 1939 study comparing primitive and modern diets where he references Pickerill's 1914 study on the prevention of dental caries and oral sepsis:

These data are in striking contrast with the condition of the teeth and dental arches of the skulls of the Maori before contact with the white man and the reports of examinations by early scientists who made contact with the primitive Maori before he was modernized. These reports revealed only one tooth in 2000 teeth attacked by dental caries with practically 100 per cent normally formed dental arches.

Price, 1939.

This highlights the fact that the western industrialized diet (with its high sugar content) is the root cause of dental decay and not the lack of naturally occurring fluoride in New Zealand water.

The chart is from the article published in *Perspectives in Biology and Medicine* by former Principal Dental Officer of Auckland, and former advocate of fluoridation, John Colquhoun entitled "Why I changed my mind about water fluoridation". The chart shows that tooth decay rates had been falling since the 1930's, many years before the introduction of water fluoridation, and that the trend continued after its introduction with no obvious impact created by it:



With regard to the Complainants comments about the Cochrane Review on water fluoridation, (Ihezor-Ejiofor et al, 2015) being controversial we would like to disagree and point out that the Cochrane Reviews are considered the gold standard of reviews because of their scientific rigor. They are conducted in an unbiased way and follow strict criteria that give them their reputation. Studies that were not included did not reach a basic level of scientific quality required to answer the questions being asked. The lack of studies post 1975 when fluoride toothpaste was introduced means they have not been able to confirm if water fluoridation has any benefit when fluoride toothpaste is widely used in a population, which is

the situation in western industrialized nations today. The Cochrane Review on topical fluorides, including toothpaste, (Marinho, 2009) found no difference in the efficacy of the fluoride toothpaste with a background of fluoridated water or not and so it was an important question in the water fluoridation review.

The reality is that far from there being “overwhelming scientific evidence” that “proves” that water fluoridation reduces tooth decay there is only evidence that suggests there is a link between tooth decay reduction and water fluoridation in children. However, no plausible mechanism has been proven. The topical effect from water flowing over the teeth is a theory and does not seem a plausible explanation. Some research has linked fluoride with delayed tooth eruption and this seems more plausible. However, given the high risk of bias in the studies reported by the Cochrane Review it seems likely that unaccounted confounding factors are the reason some studies suggest a link.

In summary FFNZ holds the opinion that fluoridation does not reduce dental decay particularly in today’s climate of widespread fluoride toothpaste use. The information in the leaflet was intended to raise awareness and provide important information in a socially responsible manner.

3.5 Response to: 4. ‘Strong Evidence Fluoride Causes Bone Cancer in Young Men’

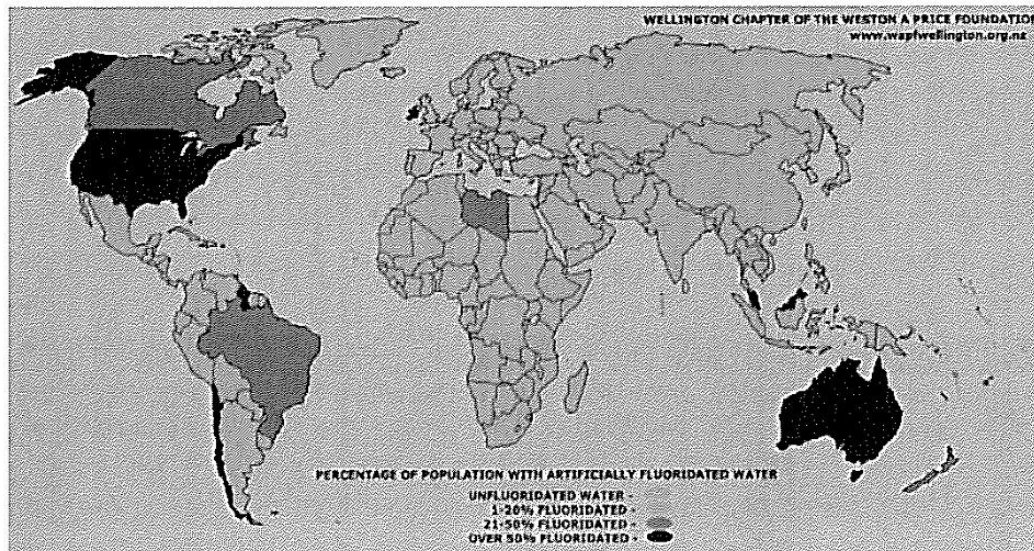
The Complainant claims this is a “*disturbing subheading that is meant to alarm the public*” and that no context is offered but instead the “*advertiser aims to frighten the public into believing fluoridation is linked to bone cancer when the evidence actually says otherwise.*”

The subheading is supported by context “A study published in “Cancer Causes and Control, May 2006” gives strong evidence that boys exposed to fluoridated water between the ages of 6 and 8 years are 500% to 700% more likely to get osteosarcoma before the age of 20 than boys drinking non-fluoridated water.” The reputable journal Cancer Causes and Control published this peer reviewed research paper and the results of the study are accurately described. The aim was not to alarm or frighten public but to inform them by providing evidence based information.

The Complainant goes on to claim “*virtually all public health organisations in the western world support fluoridation*”.

We do not know the basis of this claim but would question its veracity given that most of the western world including 93% of Europe is not fluoridated. The world map below shows which countries are fluoridated:

It must be noted that only a handful of countries fluoridate their water supplies, and fewer still fluoridate more than 10% of their population. More than half of all artificially fluoridated people live in the USA.



Thiessen et al, 2014.

The Complainant quotes the National Cancer Institute (US) suggestion that opponents of fluoridation have spent a lot of time attempting to link adverse effects with fluoridation and that given enough attempts they would be able to find a link. She suggests the Bassin study quoted in the leaflet is an example of this. She complains we have failed to report the limitations of the study and failed to mention a "follow-up in 2011".

The Bassin study was designed to look at age-specific fluoride exposure in relation to osteosarcoma a rare bone cancer, in adolescents (Bassin et al, 2006). The study was the subject of Bassin's PhD. It found a statistically significant five-fold increased risk of osteosarcoma in adolescent boys exposed to fluoride at water fluoridation levels during their boney growth spurt around the age of 6-8 years. The results were consistent with the pattern seen in the National Toxicological Program (NTP) animal study and two ecological studies (Bucher et al, 1991; Hoover et al 1991; Cohn, 1992).

As Bassin points out in the paper (see below) there is a biologically plausible link between fluoride exposure and osteosarcoma: fluoride accumulates in the bone; it is a known mitogen (stimulates cell division and multiplication) increasing the proliferation of bone cells; and its uptake into bone is increased during the boney growth spurt.

It is biologically plausible that fluoride affects the incidence rate of osteosarcoma, and that this effect would be strongest during periods of growth, particularly in males. First, approximately 99% of fluoride in the human body is contained in the skeleton with about 50% of the daily ingested fluoride being deposited directly into calcified tissue (bone or dentition) [13]. Second, fluoride acts as a mitogen, increasing the proliferation of osteoblasts [12, 38] and its uptake in bone increases during periods of rapid skeletal growth [13]. In the young, the hydroxyapatite
Bassin et al 2006

During periods of human development when cells are dividing and multiplying they are very vulnerable to toxins, developmental toxins. Fluoride is well known to cause dental fluorosis, an example of developmental toxicity resulting from fluoride interfering with the normal development of the tooth enamel. Fluoride has also been recognised as a neuro developmental toxin and has been linked with reduced IQ, ADHD and impairment of other cognitive functions (Grandjean and Landrigan, 2015; Choi et al 2012, Malin and Till, 2015; Choi et al, 2015). It is entirely plausible that fluoride increases the risk of osteosarcoma in boys during their boney growth spurt and that is what the Bassin study has shown.

The Complainant refers to a "follow-up" study in 2011. There was no "follow-up" of the Bassin study and no attempt to reproduce the findings. The Kim study, which we believe the Complainant is referring to is often claimed to negate the Bassin results, does not consider age-related fluoride exposure (Kim et al, 2011). The Kim study only looks at cumulative fluoride concentrations in bone. The Kim study was not designed to consider this window of developmental vulnerability which the Bassin study does. No study, including the Kim study, has refuted the findings of Bassin.

The Complainant quotes the New Zealand Report as concluding *"no evidence of association between osteosarcoma incidence and residence in water fluoridated areas"*.

As mentioned above the New Zealand Report was commissioned to supply evidence to Local Authority Councils that fluoridation was safe and effective and is not an independent review. The Report claimed that the Kim study refuted the Bassin study which it does not. There are many reputable doctors, dentists and scientists around the world that interpret the science as showing fluoride, even at levels from fluoridated water, is a risk factor for osteosarcoma and that the Bassin study provides strong evidence to this effect.

The Complainant says *"The NZ Cancer Society... notes there has been no change in the number of osteosarcoma cases diagnosed each year in NZ – which would be expected if there was a link, given 50 years of CWF in some areas."*

Although the New Zealand Cancer registry was first established in 1948 it is only since 1993 that it has been compulsory for pathology laboratories to report on cancers. So it is not possible to compare the pre fluoridation (pre- 1960s and 1970s) rates of osteosarcoma with post fluoridation rates with any confidence. Osteosarcoma is also relatively rare. In New Zealand between 2000 and 2008 there were only 33 cases of adolescent boys (10-19 years of age) diagnosed with osteosarcoma, an average of 3.7 per year. This is a rate of 11.5 per million per year or 0.001%. This smaller number of cases would make it difficult to see any significant difference between years or between areas when looked at in this way.

The Bassin study however is a case-control study based in an area with a large population, by comparison to the New Zealand population, and thus provides the strongest evidence of all the studies because of its design and statistically significant results.

The Complainant concludes this section by saying *"To proclaim 'strong evidence' between fluoridation and bone cancer is misleading in the extreme and could certainly frighten consumers who are not exposed to appropriate factual balance"*.

We believe parents have a right to know that there is evidence of a link between fluoridated water and bone cancer in young men. We do not believe this frightens people unnecessarily but provides them with important information.

3.6 Response to: Conclusion

The Complainant says:

“There so many statements in the leaflet that I believe breach the ASA’s rules it is difficult to narrow it down to just 4. Statements such as ‘it’s unsafe’, ‘water fluoridation is unethical’, ‘almost all of Western Europe has rejected fluoridation’ are also untrue.

While of course opponents are free to publicise their opinions about fluoridation, the leaflet is a collection of ideology masquerading as fact, doing a grave disservice to consumers seeking genuine information.”

The Complainant, as an advocate of water fluoridation, has an opinion about it that is diametrically opposed to that held by FFNZ. Her active role in the campaign to promote water fluoridation in the lead up to the Thames fluoridation referendum is testament to this. So it is not surprising that she is unable to accept the content of the leaflet. However, the role of ASA is not to arbitrate science but to ensure that advocacy opinions, as expressed in a leaflet like this, are prepared with a due sense of social responsibility. The content is evidence based, and we believe that by informing people about water fluoridation in this way it is fulfilling a social responsibility that would be otherwise lacking.

The information provided above supports our view that water fluoridation is ‘unsafe’. And the fact that: it is not possible to control the ‘dose’ when delivering fluoride via the public water supply and therefore deliver the right treatment, at the right dose at the right time; that it is impossible to have individual informed consent; that there is no monitoring for side-effects despite the Oral Health Survey finding 44.5% have evidence of excess fluoride consumption by the existence of dental fluorosis; and it is difficult and costly to opt-out; makes water fluoridation not only an unsafe but an ‘unethical’ public health practice. About 97% of Western Europe is not fluoridated and the map above in section 3.5 shows this. Only the Republic of Ireland has about 80% fluoridated, UK around 10%, and Madrid in Spain. The Netherlands had some for a while then banned it. So to say ‘almost all of Western Europe has rejected fluoridation’ is reasonable.

4. Summary

This FFNZ leaflet has been prepared with a due sense of social responsibility to provide people with evidence based information about water fluoridation. It is clearly an advocacy leaflet, identifying the advocate, Fluoride Free/ Fluoridealert/ Fluoride Action Network New Zealand (FANNZ) by website and Facebook. For those interested it offers sources for more information. The preparation of this response was done in a short time frame due to preparing other responses for ASA as well as other commitments and we hope it is sufficient to demonstrate the complaint is unfounded.

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