**Health Select Committee**

**Submission on Health (Fluoridation of Drinking Water) Amendment Bill**

By: Fluoridegate Legal Action NZ

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| **Key points**Parliament cannot knowingly enact a statute giving statutory decision making power to an organisation (DHB in this case) that cannot lawfully exercise that power under the tenets of current accepted Administrative Law. And it would be repugnant in a rule-of-law system for a Select Committee to recommend that Parliament enact such a statute. This Select Committee must therefore reject this Bill on that ground.This Bill should be replaced by one proposing constitutional law prohibiting the use of the public water supply for administering a medical intervention, as it breaches all tenets of modern pharmacology.The RIS seriously fails in the Ministry’s fiduciary duty of full disclosure and consideration of all alternatives, under the precautionary approach. It contains multiple demonstrable misrepresentations of fact.The introduction of this Bill is proof that the Ministry of Health has lost the scientific debate, so it is now trying to force its discredited policy on the NZ public by ‘mandatory fluoridation via the back door’. |

Although submissions are required to be about the Bill, not about the pros and cons of fluoridation, the reality is that the two are inextricably connected – this Bill would not be being proposed if it were not for the (scientifically unsubstantiated) claims that fluoridation is safe and effective.

We also note that a number of false claims were made during speeches at the First Reading of this Bill. These are addressed below as they are fundamental to the issue.

The key points about how fluoride (not fluoridated water) can reduce decay, and it risks are set out below:

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| Water fluoridation is based on the incorrect assumption that ingested fluoride is needed to harden teeth against decay while the tooth is forming. All major fluoridation promoters agree this is untrue.Fluoride helps address a demineralization-remineralisation imbalance, so long as it is not too great, by being at sufficient concentration at the tooth surface constantly throughout the day.Water fluoridation does not achieve this, as the fluoride concentration is too low, and the slight increase in fluoride drinking fluoridated water causes in saliva is also too low.There is no known biological pathway by which fluoridated water can reduce tooth decay.There is no reliable research proving fluoridated water reduces tooth decay.There is scientific evidence it just delays decay temporarily until you reach the mid-teens. This gives a false illusion of a reduction in decay. It is why the Oral Health Survey found no decay difference in adults (over age 18).Conversely, the amount of research showing adverse health effects from fluoride was “too vast” for the Gluckman-Skegg Report to cope with, according to Prof. Skegg.The Gluckman-Skegg Report was not a review, and its claims of effectiveness and safety are contradicted by the only independent quality international reviews of recent times: York 2000, Cochrane 2015, US National Research Council 2006.The Gluckman-Skegg Report has been heavily criticized by international scientific experts as lacking scientific integrity. |

**Brief summary of the basis of fluoridation policy**

Fluoridation policy was based on the study by H Trendley Dean, purporting to show that when total fluoride intake from water was 1 mg per day (against a background of 0 – 0.5 mg/day, making a total intake of 1 – 1.5 mg/day) tooth decay was reduced, and dental fluorosis increased to 10% of the population with mild or very mild fluorosis.

Note that this was based on total daily intake; not a concentration of 0.7 to 1 mg/litre in the water. It was based on the belief that fluoride had to be ingested and built into the forming tooth enamel, which would harden it against decay. This mechanism is now known to be false (since 1999 in fact). This was also the basis for people taking fluoride tablets. The Ministry of Health no longer recommends the use of fluoride tablets, as they do not reduce tooth decay (contrary to the attribution made in one of the speeches at the first reading).

Dean later admitted under oath before the US Congress that he had falsified his research to meet the political requirements of his sponsors. He selected only those cities that would show the trend desired. Plotting all cities (fluoride levels against tooth decay) showed no correlation.

This is now further confirmed by recent US research (the “Iowa Study”, Warren et al 2009, Chankanka et al 2011) which shows there is no correlation between fluoride intake and tooth decay rates.

In 1957 US Surgeon-General Dr Leonard Scheele became Chair of WHO’s Fluoridation Committee. He staffed the committee with fluoridation promoters, who prepared a monograph for WHO. All research submitted that was unfavourable to fluoridation was rejected and returned to the submitters – only pro-fluoridation research was included.

In spite of this, the eventual debate in the WHO General Assembly was described as “violent at times”, and no decision could be reached. At the end of the session, when there was no longer a quorum as many representatives had left, fluoridation was put into an ‘omnibus bill’ with other unresolved issues, and passed.

NOTE: No quorum of the WHO General Assembly has ever endorsed fluoridation.

The endorsement is by the fluoridation committee. That endorsement was that WHO recommends fluoridation when total daily intake is less than optimal. This has never changed. It is based on the disproven belief that fluoride needs to be ingested.

In fact there are other parts of WHO that do not support fluoridation (the unit that works on dental fluorosis for example).

Of the 190+ member states of the WHO General Assembly, only 25 have any fluoridation, and only 14 fluoridate more than 20% of their populations.

All of this is hardly consistent with the claim that “WHO supports fluoridation”.

In 1999 it was finally confirmed that fluoride, only in sufficient concentrations, assists remineralization of tooth enamel by surface contact. It specifically does not harden tooth enamel against decay, on two bases: 1) the total percentage of enamel that is converted to fluorapatite is around 1 to 2 % of the total enamel, and 2) it has since been demonstrated that fluorapatite is no more resistant to acid decay than hydroxtapatite. The concentration required for surface benefit is greater than that delivered by saliva in fluoridated individuals, and a minimum of 1.5 to 2 ppm in water directly contacting the tooth is required – double the concentration we currently use.

It works best when present for prolonged periods. This is provided by the use of fluoride toothpaste, as the high fluoride levels in the mouth slowly subside over several hours. It is never provided by fluoridated water.

This is indirectly confirmed by a recent WHO-based Journal article:

Petersen E., Ogawa H “Prevention of Dental Caries through the use of fluoride – the WHO approach” Community dental Health (2016) 33, 66-68

“Fluoride is most effective in dental caries prevention when a low level of fluoride is constantly maintained in the oral cavity.

Meanwhile, there are some undesirable side-effects of excessive fluoride exposure…

Public administrators must therefore seek to maximize caries reduction while minimizing enamel fluorosis.

It is important that fluoride exposure be known and health administrators be made aware of exposure before introduction of any fluoridation or supplementation programmes for prevention and [sic] dental caries (WHO 2014).”

So this would make knowledge of total daily exposure a mandatory consideration. We do not have that information available in NZ, except that it is estimated that it is around 3 mg/day, which is already excessive and would preclude water fluoridation.

Further, there is no demonstrated biological pathway by which fluoridated water can maintain the required minimum level of fluoride in the oral cavity (specifically in contact with the enamel surface) throughout the day.

Accordingly, WHO is indirectly acknowledging that water fluoridation is pointless. (The article itself is otherwise pro-fluoridation propaganda – Petersen is a well-known political fluoridation promoter.)

**Research into dental decay rates**

*The York Review 2000*

The York Review in 2000 found no good quality research to support the claim that water fluoridation reduced tooth decay (or that it was safe). Fluoridationists immediately misrepresented this review as confirming safety and effectiveness.

*The Cochrane Review 2015*

In 2015 the Cochrane Collaboration revisited the issue, to determine if there was any better research available 15 years after the York Review. They found there was none. In particular they found no evidence that fluoridation reduced social inequalities in dental health (i.e. it does not help the poor ‘catch up’), and that there was no quality research supporting the claim that fluoridation reduces decay in adults.
This is consistent with:

1. Griffin, 2007, which noted that no systematic review has ever found that fluoridation reduces decay in adults;
2. The NZ Oral Health Survey (which states it is not a scientific study and is NOT to be used for policy development), which found no difference in decay rates (between fluoridated and unfluoridated individuals) over the age of 18. This is misrepresented by fluoridationists, relying on a statement about reduced tooth decay rates “above age 2”, but which obviously all occurs between 2 and 17. There is no indication of when these reductions occur, which is critical as we know there is an apparent reduction until the early to mid teens, when it disappears. This is consistent with a temporary delay in decay of about 1 year, but with no lasting benefit (or cost savings). This is confirmed by the following study and report;
3. Armfield and Spencer 2004, which found that any temporary reduction in decay rates disappeared by age 12 – 13;
4. NZ ESR’s 1999 report, which showed a temporary artifact of benefit to the poor, which disappeared by age 14. The chart shows the claimed additional benefit from fluoridation to the poor:



*The Iowa Study*

This longitudinal study follows children from birth. It has to date (by age 12) found no correlation between total fluoride intake (whether from drinking water or other sources) and tooth decay rates.

**Conclusion**

As the current state of science is that fluoridated water provides no identifiable mechanism for reducing decay, and there are no sound scientific studies showing water fluoridation does in fact reduce tooth decay, the whole basis of this Bill is scientifically untenable.

**NZ political history leading to this Bill**

In the early 2000’s, then Health Minister Annette King organized closed “Fluoridation Forums” on how to extend water fluoridation, as local decisions were tending to go against fluoridation (e.g. Petone 1999, Onehunga 2001). Attendance was by invitation only. According to an Official Information Act response, no official records were kept of these proceedings.

However, it was publicly reported that three key tactics were proposed by the fluoridationists (the term adopted by early fluoridation promoter Col. J J Ferris-Fuller, Chair of the government’s fluoridation implementation committee):

1. Charge councils for the alleged extra costs of treating tooth decay if they did not fluoridate the water;
2. Encourage councillors to also stand for DHBs, so they could be indoctrinated to act as DHBs’ “inside voters” when councils made the decision;
3. Transfer “decision making” to DHBs.

Tactic 1 never got off the ground, though there were public mutterings. It shows how fanatical and anti-democratic fluoridationists are.

Tactic 2 appears to have met with limited, if any, success.

Tactic 3 is represented by this Bill.

**Decision making since 2000.**

During the Onehunga debate in 2001, the local DHB identified through its survey that the more informed people were about the two sides of the fluoridation argument the more they were likely to vote against it.

Also in 2001 the New Plymouth District Council almost voted to end fluoridation, but were persuaded at the last minute by a local Maori dentist that they would be disadvantaging Maori by doing so, and the vote swung.

The increasing success of fluoridation opponents led the Ministry of Health to commission the “Winstanley Report” on what influenced councilors in voting on this issue, with the intent of being more pursuasive.

The Ministry of Health entered into contracts with the Hutt Valley DHB to form a fluoridation promotion group and operation. This was unsuccessful.

In 2009 the Kapiti Coast District Council would have ended fluoridation but for the absence of one councillor (who had been given the wrong meeting date by Council officials).

This sent a shock wave through the fluoridationists, who then set up the “National Water Fluoridation Support and Co-ordination Service” again through the Hutt Valley DHB, to try to counter the success of antifluoridationists in bringing he science to Councils and the public. This was publicly misrepresented as a neutral organization called the National Fluoridation Information Service (NFIS), although it was really just a front for the Ministry of Health. (Note that the then Minister refused to seek additional funding ($1.25 m) for this organization)

In 2011 the New Plymouth Council held another tribunal-style hearing, as recommended as best practice in the Winstanley Report. The fluoridationists effort was backed by the NFIS. They lost resoundingly.

The same thing happened in Hamilton in 2013. NFIS was subsequently disbanded.

What these two tribunals show is that when councillors (and the public) get to hear the science on both sides of the debate on a level playing field, the balance of scientific evidence becomes clear – that fluoridation in ineffective and poses potential health risks – and fluoridation is rejected.

Some councils decided that they didn’t like being the “meat in the sandwich” and a majority voted to get LGNZ to seek a move of decision making to DHBs. We doubt that the Councils or LGNZ expected the dictatorial proposals now being made via this Bill – we expect they thought that DHBs would be required to follow the same democratic consultative decision making process that Councils had taken. We address this in our recommendations.

**Reviews relevant to this Bill**

*The York Review 2000*

Already referred to above, the Chair of the Scientific Advisory Committee subsequently stated, following misrepresentation of the review findings:

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**Professor Trevor A. Sheldon
Head of Department**

In my capacity of chair of the Advisory Group for the systematic review on the effects of water fluoridation recently conducted by the NHS Centre for Reviews and Dissemination the University of York and as its founding director, I am concerned that the results of the 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, the 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.

**1** Whilst there is evidence that water fluoridation is effective at reducing caries, the quality of the studies was generally moderate and the size of the estimated benefit, only of the order of 15% (*% caries-free, not DMFT - ed*), is far from "massive". (*Editor’s note: This is saying the studies were not classified as “reliable” – see 7 below. Also, the studies did not allow for the 1 year delay in tooth eruption caused by fluoridation, giving a false impression of “benefit”. This is acknowledged in the Report.)*

**2** The review found water fluoridation to be significantly associated with high levels of dental fluorosis which was not characterised as "just a cosmetic issue".

**3** 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 in addition to the high levels of fluorosis. The report recommended that more research was needed.
**4** There was little evidence to show that water fluoridation has reduced social inequalities in dental health.

**5** The review could come to no conclusion as to the cost-effectiveness of water fluoridation or whether there are different effects between natural or artificial fluoridation.

**6** Probably because of the rigour with which this review was conducted, these findings are more cautious and less conclusive than in most previous reviews.

**7** The review team was surprised that in spite of the large number of studies carried out over several decades there is a dearth of reliable evidence with which to inform policy. **Until high quality studies are undertaken providing more definite evidence, there will continue to be legitimate scientific controversy over the likely effects and costs of water fluoridation.**  (*Emphasis added – Ed*)

(Signed) T.A. Sheldon,
Professor Trevor Sheldon, MSc, MSc, DSc, FMedSci.

*The Cochrane Review 2015*

Note that the RIS/Disclosure statement misrepresents Cochrane. In particular it provides the following misquote:

“The introduction of water fluoridation resulted in a 35% reduction in decayed, missing or filled baby teeth and a 26% reduction in decayed, missing or filled permanent teeth. It also increased the percentage of children with no decay by 15%. These results indicate that water fluoridation is effective at reducing levels of decay in both children’s and permanent teeth.”

The full information, with the deliberately excluded final line that completely negates this as a current assessment is provided below with further context contradicting the false impression given in the RIS.

Extracts from the Cochrane Review:

## Objectives

1. To evaluate the effects of water fluoridation (artificial or natural) on the prevention of dental caries.
2. To evaluate the effects of water fluoridation (artificial or natural) on dental fluorosis.
3. We also recorded data on any other adverse effects (e.g. skeletal fluorosis, hip fractures, cancer, congenital malformations, mortality) reported in the included studies. However, this review did not aim to provide a comprehensive systematic review of adverse effects other than dental fluorosis.

Regarding the above quote given in the RIS, the full information is as follows. The critical point is highlighted in bold underline:

“Our review found that water fluoridation is effective at reducing levels of tooth decay among children. The introduction of water fluoridation resulted in children having 35% fewer decayed, missing and filled baby teeth and 26% fewer decayed, missing and filled permanent teeth. We also found that fluoridation led to a 15% increase in children with no decay in their baby teeth and a 14% increase in children with no decay in their permanent teeth. **These results are based predominantly on old studies and may not be applicable today.”**

The findings in fact refer to the York Review 2000. This review rejected over 90% of the 3000 studies selected on the basis of poor methodology and unreliability. Only 29 studies were included in the analysis above. York noted that the results varied markedly, from 5% increase in tooth decay from fluoridation to 64% decrease, were of only moderate reliability, and did not allow for confounding factors such as the possibility that fluoridation merely caused a temporary delay on eruption. Further, the results were merely the median score for the range of studies: they were not considered a scientifically substantiated benefit.

**Conclusions**

“There is very little contemporary evidence, meeting the review's inclusion criteria, that has evaluated the effectiveness of water fluoridation for the prevention of caries.

The available data come predominantly from studies conducted prior to 1975, and indicate that water fluoridation is effective at reducing caries levels in both deciduous and permanent dentition in children. Our confidence in the size of the effect estimates is limited by the observational nature of the study designs, the high risk of bias within the studies and, importantly, the applicability of the evidence to current lifestyles.

The decision to implement a water fluoridation programme relies upon an understanding of the population's oral health behaviour (e.g. use of fluoride toothpaste), the availability and uptake of other caries prevention strategies, their diet and consumption of tap water and the movement/migration of the population.

There is insufficient evidence to determine whether water fluoridation results in a change in disparities in caries levels across SES.

We did not identify any evidence, meeting the review's inclusion criteria, to determine the effectiveness of water fluoridation for preventing caries in adults.

There is insufficient information to determine the effect on caries levels of stopping water fluoridation programmes.

There is a significant association between dental fluorosis (of aesthetic concern or all levels of dental fluorosis) and fluoride level. The evidence is limited due to high risk of bias within the studies and substantial between-study variation. Overall, the results of the studies reviewed suggest that, where the fluoride level in water is 0.7 ppm, there is a chance of around 12% of people having dental fluorosis that may cause concern about how their teeth look.”

**Quality of the evidence**

We assessed each study for the quality of the methods used and how thoroughly the results were reported. We had concerns about the methods used, or the reporting of the results, in the vast majority (97%) of the studies. For example, many did not take full account of all the factors that could affect children’s risk of tooth decay or dental fluorosis. There was also substantial variation between the results of the studies, many of which took place before the introduction of fluoride toothpaste. This makes it difficult to be confident of the size of the effects of water fluoridation on tooth decay or the numbers of people likely to have dental fluorosis at different levels of fluoride in the water.

This found no benefit generally, and no benefit to the poor. It also found no quality research showing benefit to adults.

It did not investigate potential health risks, and states so.

As with York, it confirms that no good quality research is available to support claims of benefit from water fluoridation. Note that it was commissioned by US Government fluoridation promoting agency, the CDC. Has it been independently funded, we expect it would have been harder hitting in its statements.

Points to note:

*The review identified only three studies since 1975—of sufficient quality to be included—that addressed the effectiveness of fluoridation in the population at large. These papers determined that fluoridation does not reduce cavities to a statistically significant degree, says study co-author Anne-Marie Glenny, a health science researcher at Manchester University in the United Kingdom.*

*One 2001 study covered in the Cochrane review of two neighboring British Columbia communities found that when fluoridation was stopped in one city, cavity prevalence actually went down slightly amongst schoolchildren, while cavity rates in the fluoridated community remained stable.*

*Nearly all these papers were flawed in significant ways. For example, 70 percent of the studies made no effort to control for important confounding factors such as dietary sources of fluoride other than tap water, diet in general or ethnicity.*

*“Frankly, this is pretty shocking,” says Thomas Zoeller, a scientist at UMass-Amherst uninvolved in the work. “This study does not support the use of fluoride in drinking water.”*

*Trevor Sheldon concurred.  The lack of good evidence of effectiveness has shocked him. “I had assumed because of everything I’d heard that water fluoridation reduces cavities but I was completely amazed by the lack of evidence,” he says. “My prior view was completely reversed.  There’s really hardly any evidence [the practice works]”, Sheldon adds. “And if anything there may be some evidence the other way.  When you have a public health intervention that’s applied to everybody, the burden of evidence to know that people are likely to benefit and not to be harmed is much higher, since people can’t choose,” Sheldon says. Everybody drinks water, after all, mostly from the tap. “Public health bodies need to have the courage to look at this review…and be honest enough to say that this needs to be reconsidered.”*

*Overall the review suggests that stopping fluoridation would be unlikely increase the risk of tooth decay, says Kathleen Thiessen, a senior scientist at the Oak Ridge Center for Risk Analysis, which does human health risk assessments of environmental contaminants.*

*“The sad story is that very little has been done in recent years to ensure that fluoridation is still needed [or] to ensure that adverse effects do not happen,” says Dr. Philippe Grandjean, an environmental health researcher and physician at Harvard University.*

NOTE: this, the “Gold Standard” review contradicts the Gluckman Report published only a few months earlier.

*The US National Research Council Review 2006*

This is the only comprehensive review of health risks from fluoride. It identifies a number of health risks at the current levels of water fluoridation (0.7 to 1 ppm). It is consistently ignored by fluoridationists, on the false ground that it is allegedly irrelevant to fluoridation because its purpose was to assess the US EPA’s maximum allowable level of 4 ppm (only if naturally occurring – 1.5ppm was the Maximum if adding fluoride; now 0.7ppm). However, the studies reviewed included fluoridated communities with 0.7 to 1 ppm, so the claim of irrelevance is seen to be a smokescreen. I minority report (originally promised but ultimately disallowed by the (pro-fluoridation) Chair, would have recommended a temporary MAV of 0.4 ppm until a safe level could be scientifically determined, which was expected to be lower.

The Chair subsequently made the following statement:

*What the committee found is that we’ve gone with the status quo regarding fluoride for many years—for too long really—and now we need to take a fresh look . . . In the scientific community people tend to think this is settled. I mean, when the U.S. surgeon general comes out and says this is one of the top 10 greatest achievements of the 20th century, that’s a hard hurdle to get over. But when we looked at the studies that have been done, we found that many of these questions are unsettled and we have much less information than we should, considering how long this [fluoridation] has been going on*.

*The Gluckman-Skegg Report 2014*

This is included even though it was not a scientific review – it was only a report, as it states.

First, this report did not address risks from fluoridation – Prof Skegg stated that the amount of research in this area was too vast to be able to be addressed. So the claim that this report found fluoridation to be safe is completely false.

The other worrying part of this statement is that if the science on adverse effects is so vast, it cannot all be so poor as to be rejected out of hand (it is published in post 1995 internationally recognized peer-reviewed scientific journals.)

Second, this was not an independent scientific review. It has been internationally criticized as political propaganda using cherry-picked studies to reach a predetermined conclusion. The emails between Prof Skegg and Prof Gluckman support this criticism:

1. There was no review of scientific studies;
2. The report was managed by two committed fluoridationists (Prof Skegg and Prof Gluckman), with Prof Gluckman admitting (indirectly) in a OIA response that he relied in his views on the old studies found to be “junk science” by the York Review;
3. They assembled a panel of known fluoridationists, who wrote their own opinion pieces and forwarded them to the ‘author’. These were collated and fed back to the original writers for ‘peer review’;
4. The final report was sent for ‘peer review’ to unspecified individuals in two heavily fluoridated countries – Ireland and Australia;
5. The ‘author’ claims to have read all the scientific articles referenced, yet could not have read and digested them in the timeframe, and repeats a lie about the Choi (IQ) study that was put out by fluoridationists following that study’s release – that the IQ drop was less than 1 point when in fact it was 7 points. If the author has read the study, how did she come to repeat a lie that had been publicly exposed as such?

Note: the way this review was conducted according to official information released (as above) is quite different from the way it was publicly claimed it was conducted. The critique is attached to this submission.

A full critique by international experts is appended to this submission.

**New Zealand Data**

There has to date not been a well-constructed reliable NZ study on the effectiveness of fluoridation. The 2004 Wellington-Canterbury study by Lee and Dennison was fundamentally flawed on numerous counts, has never been published in an internationally recognized journal, and was essentially contradicted by the 2004 Armfield and Spencer study from Australia (which was of a good standard).

The 2005 Southland study is also dubious. Having found no difference in either dmft scores or percent of children caries-free (the two main measures), it then conducts a ‘black box’ (unspecified) ‘multivariate analysis’, on a small sample size, with indistinct categories (some ‘unfluoridated children’ were actually partially fluoridated) to declare a significant benefit that was in fact only 0.5 dmfs (out of 120).

*Research under way*

Detailed data across the full spectrum of tooth decay has been obtained from those DHBs that operate a modern database. The outcome appears reasonably consistent on initial analysis. We present below the Auckland results while the full study is being prepared for publication. Most importantly, the data show that there is a ‘tail’ of children with extreme decay- the level that would require extraction under general anaesthetic – in all communities, fluoridated and unfluoridated alike (actually, in Auckland there are more in fluoridated than unfluoridated areas).

One key question the Select Committee needs to address is “what will DHBs be doing for these children while spending their resources on fluoridating other children?” This is the true travesty of fluoridation – the opportunity cost of addressing those most in need, by using effective programmes. The fluoridated ‘tail’ cannot be fluoridated any more than they are now, so what will the Committee propose?

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| 5 yr olds | Maori/Pacific |   |   | 5 yr olds | Other |   |
|   | Non-F | F |   |   | Non-F | F |
| 0-2 DMFT | 58.7% | 58.7% |   | 0-2 DMFT | 83.5% | 84.3% |
| 3-6 DMFT | 25.9% | 25.9% |   | 3-6 DMFT | 11.5% | 10.8% |
| 7 - 10 DMFT | 12.9% | 11.9% |   | 7 - 10 DMFT | 4.1% | 3.7% |
| >=11 DMFT | 2.6% | 3.5% |   | >=11 DMFT | 0.9% | 1.2% |

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| 12 -1 3 yr olds | Maori/Pacific |   |   | 12 -1 3 yr olds | Other |   |
|   | Non-F | F |   |   | Non-F | F |
| 0-2 DMFT | 75.5% | 75.0% |   | 0-2 DMFT | 89.1% | 89.0% |
| 3-6 DMFT | 20.5% | 22.0% |   | 3-6 DMFT | 10.3% | 10.3% |
| >=7 DMFT | 4.0% | 3.0% |   | >=7 DMFT | 0.6% | 0.8% |

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**The Bill - Introduction**

The expectation was that the decision making on fluoridation would transfer to DHBs, but that they would make decisions in much the same way that a territorial authority has made such a decision to date. This would include the openness and consultative requirements of the Local Government Act. This is the impression given in the Bill’s Disclosure Statement.

What we are seeing instead is a dictatorial regime of closed proceedings with a massive penalty regime for non-compliance. The wishes of the community, made clear in such communities as Petone, Timaru, Whangarei etc. are not considerations.

This is not democratic decision making – it is dictatorship, to enforce a failed policy on those who often know more about this subject than the DHBs.

DHB Board members have no particular competence to assess scientific research. Under the OIA we have had a number of DHBs respond that they do not have the scientific expertise to answer our questions. Some of the elected members are also city councillors.

As some councillors are also DHB members, two questions need to be addressed:

1. How do they suddenly gain ‘expertise in a health issue’ as a DHB member they don’t have as a councillor?
2. Why are they more likely to vote for fluoridation as a DHB member than as a councillor – is it the bullying of members reported in two DHBs in 2016?

**The explanatory statement**

1. Why would transferring decision making be expected to extend fluoridation unless DHBs have a predetermination or predisposition on the issue? This is an admission that the directive power is replacing a decisionmaking power. In fact the note states this. That is, it is not transferring a decisionmaking process for local councils to the DHBs: it is displacing a democratic decisionmaking process with back door mandatory imposition of fluoridation on those who would otherwise choose not to be subject to it, based on science and the position of the public they represent.
2. The reasons for the DHB’s direction are only made public after the direction has been given; not after the decision has been made. There is no opportunity for public comment.

**Analysis**

This Bill does not transfer decision making power from Councils to DHBs on an equivalent basis. It gives DHB a power to direct Councils on fluoridation:

DHBs are to conduct a behind-closed-doors “assessment” of fluoridation’s alleged effectiveness in reducing tooth decay. They are not to consult with the public or local Councils, or receive public submissions. So where will they get this “scientific research” from? The Ministry of Health of course - one-sided poor quality research. They certainly won’t get any research adverse to fluoridation.

They are also not to consider any scientific research on health risks from fluoridation – why not? In fact, they must consider this under section 22(1)(a) of the NZ Public Health and Disability Act 2000.

Finally, if a Council tries to support its ratepayers’ wishes not to be fluoridated, it faces a $200,000 fine plus $10,000 per day for failing to carry out the DHB’s directive to fluoridate. This is an extraordinary measure for such a controversial health issue – it is reminiscent of the Crimes Act and the Resource Management Act.

In addition, this Bill is clearly intended to enable introduction of mandatory fluoridation by the Minister of Health, via the Drinking Water Standards. Otherwise, there would be no need to repeal section 69(O)(c), which prohibits this. This paragraph was inserted by the Health Select Committee as part of the 2007 Drinking Water Amendment Bill, but only for the avoidance of doubt, specifically to make it clear that an over-zealous Minister of Health could not inappropriately mandate fluoridation by the back door (at the instigation of Mark Atkin, now of Fluoridegate Legal Action NZ). Fluoridation is NOT a water treatment – it is a medical intervention in humans (confirmed by the High Court). Accordingly it is not appropriate to include the addition of fluoride in drinking water standards. In fact before 1999 addition of fluoride was required to get an “A+” water grading, even if the water was already “A” grade. This was repealed in 1999 following a working party that correctly identified that fluoridation was not a water quality issue.

Repealing this paragraph is unnecessary if the aim is to transfer power to DHBs. Further, repeal is arguably moot, as the Drinking Water Standards can, under section 69A, only be used to protect health, not provide a coincidental treatment for a human disease. However, challenging such a move by a dictatorial Minister this would require judicial review – precisely what the insertion of 69O(3)(c) was intended to avoid – this was the key argument accepted by the Select Committee in recommending it.

*Inability of DHBs to make an intra vires decision.*

The (in)ability of DHBs to make an objective decision is not addressed in the RIS. As noted above, the Minister determines the NZ Health Strategy under section 8. Technically this cannot include fluoridation, as it is not provided by the health sector, but in practice it does.

1. The Minister determines the NZ Health Strategy under section 8. Technically this cannot include fluoridation, as it is not provided by the health sector, but in practice it does.
2. The DHBs are indirectly required to promote fluoridation via their Crown Funding Agreements, which require them to promote those Ministry of Health policies, including the NZ Health Strategy, that include fluoridation.
3. DHBs have promoted fluoridation on every occasion on which a Territorial Authority has addressed the issue. How can they suddenly become impartial - a requirement for *intra vires* decision making?
4. There were two reports in 2016 of bullying by DHB staff of elected members opposing fluoridation.
5. Attempts to raise questions about fluoridation have historically been blocked by DHB Chairs.
6. Some DHBs have for many years stated their intent to fluoridate certain communities where the public have rejected it (e.g. Timaru, Petone). Any decision by these DHBs will be *ultra vires* for predetermination, and other grounds.

In short, any decision by a DHB to fluoridate a community will be challengeable on a range of administrative law grounds. This is not addressed in the RIS other than to say that litigation is expected.

We further note that at the Capital and Coast DHB ‘meet the candidates’ meeting, it became apparent that the Public Health Association’s tactic was to try to stack DHBs with pro-fluoridation members. They even put out a flyer denigrating anyone with an antifluoridation position.

Many candidates had a public health background. This is not surprising, but the point is that in gaining public health qualifications you are taught fluoridation propaganda, and cannot work in public health unless you accept that propaganda.

One young candidate stood up and said “I have a PhD. And all the good science says fluoridation works”. This was just a few months after the Cochrane Review said there was no good science, just has the York Review said in 2000.

Consequently, the farcical situation would arise under the proposed legislation where the DHBs would have to remove themselves from any part in the decision-making about fluoridation in their area of jurisdiction – as they are compromised in terms of independence, objectivity, predetermination, bias, and constraint: all grounds for challenge under Judicial Review.

Parliament cannot knowingly enact a statute giving statutory decision making power to an organisation that cannot lawfully exercise that power under the tenets of current accepted Administrative Law. And it would be repugnant in a rule-of-law system for a Select Committee to recommend that Parliament enact such a statute. This Select Committee must therefore reject this Bill on that ground.

***Recommendations***

1. This Bill be rejected and replaced with a Bill proposing constitutional law that the public water supply must never be used for delivering a medical intervention.

***Reasons:***

* Using the public water supply to deliver a medical intervention is contrary to all tenets of modern pharmacology – to deliver the right dose to the right person at the right time:
* It breaches, in practice, the right to refuse medical treatment (e.g. someone in institutional care cannot avoid it)
* It ignores those with a chemical intolerance to fluoride (or any other chemical) as “collateral damage” – that there are such persons is scientifically well established but constantly denied by fluoridationists.
* There is no proof of safety in the case of fluoride. In fact the research showing risk of harm is overwhelming (see the notes on the current challenge in the US)

***Specific issues with fluoridation:***

* Whatever phrase is used, “First do no harm,” “Better safe than sorry,” “The Precautionary Principle,” etc., most would agree that if there’s reasonable doubt if a substance is safe, the public shouldn’t be intentionally exposed to it;
* Considering all the recent neurotoxicity studies – not to mention fluoride’s other NRC- identified health risks – the sheer weight of scientific evidence has far exceeded reasonable doubt. It’s difficult to see how anyone can continue to believe that water fluoridation is safe (see notes from US challenge to EPA below).

*Public scientific discussion*

1. The Select Committee recommend that a public scientific discussion take place before any further fluoridation regimes are implemented; that this discussion consider not just fluoridation, but other approaches to oral health (e.g. the Childsmile programme and similar).

***Reasons***

* This issue will never go away until the public at large is in agreement (one way or the other);
* Ireland has had mandatory fluoridation since the 1960s. Opposition is even stronger there than it is here (with the Greens being at the front of it).
* The UK passed legislation equivalent to this Bill to give the decision making power to Strategic Health Authorities. The first time fluoridation came up, the SHA held a sham consultation, commissioned a self-serving private report in secret, and voted to impose fluoridation against almost unanimous (and later unanimous) opposition from local councils and the populace. The result was judicial review.
* Trevor Sheldon, one of the world’s most authoritative experts on this issue (having chaired the scientific advisory committee of the York Review) states that the lack of good evidence of effectiveness has shocked him. “I had assumed because of everything I’d heard that water fluoridation reduces cavities but I was completely amazed by the lack of evidence,” he says. “My prior view was completely reversed.  There’s really hardly any evidence [the practice works]”, Sheldon adds. “And if anything there may be some evidence the other way.  When you have a public health intervention that’s applied to everybody, the burden of evidence to know that people are likely to benefit and not to be harmed is much higher, since people can’t choose,” Sheldon says. Everybody drinks water, after all, mostly from the tap**. “Public health bodies need to have the courage to look at this [Cochrane] review…and be honest enough to say that this needs to be reconsidered.”**
* From the first Reading (Hansard): WHO makes a statement: "Unless serious efforts are made to tackle the social inequity by modifying risk factors and by establishing effective caries prevention programmes, the level of dental caries in disadvantaged populations and countries will unduly increase." WHO talks today about tooth-brushing and education programmes as being essential, regardless of fluoridation.

If this Bill is to proceed:

***Flaws with the current Bill:***

1. The Bill only requires the DHB to consider the scientific evidence on the effectiveness (or otherwise) of fluoride levels in water in reducing tooth decay;
2. Under this regime, the DHB can ignore, in theory, absolute proof that fluoride causes any adverse health effect (e.g. osteosarcoma), should such proof be available. This is untenable. In fact HBs must consider such matters under other provisions, so this should be confirmed in this Bill;
3. There is no requirement for consultation as there is under the Local Government Act;
4. This Bill is clearly intended to enable introduction of mandatory fluoridation by the Minister of Health. Otherwise, there would be no need to repeal section 69(O)(c);
5. This Bill does not address commercial effects of fluoridation. DHBs have no expertise in considering the commercial implications of water fluoridation. Although it is legal in NZ to use fluoridated water for food and beverage manufacture:
* it does not follow that this is acceptable to the manufacturer or the manufacturer's customers;
* it does not follow that it is acceptable to export market that do not fluoridate their water.
1. There is the further consideration of the effect on tourism, as many tourists are from unfluoridated countries such as Germany, once it is publicized that ‘clean green NZ’ will be subjecting them to toxic industrial waste fluoride almost everywhere they visit? How are DHBs qualified to make that decision?
2. It does not respect decisions already made by territorial authorities or by referenda on this issue. A minimum 10 year return cycle is common - see New Plymouth for example.
3. It contradicts the findings of the “Winstanley Report” commissioned by the Ministry of Health in 2002. The Ministry has since promoted the tribunal approach used in New Plymouth and Hamilton as ‘best practice’. What has changed (other than the Ministry losing the scientific debate at both tribunals).
4. It contradicts the findings of the Commission of Inquiry into Fluoridation published in 1956/7. This stated that the decision should be made at the local level (repealing S69O(3)(c) breaches this), using the special consultation process, and seeking public input. The proposals go completely against this recommendation.

***Recommendations:***

1. The same special consultation requirements that apply to territorial authorities when making a decision on fluoridation should apply to DHBs.
2. That the DHB must consider:
	1. The total daily intake of fluoride from all sources by those in the community under consideration;
	2. Any potential adverse health effects of the level of fluoride proposed to be the level under clause 8(1)(a) of this Bill;
	3. The potential adverse health effects of any contaminants in the fluoridation chemicals used, at the level they would cause to occur in the drinking water if the fluoride level were increase to the level proposed under clause 8(1)(a) of this Bill;

*Public right to call for referendum*

1. If a DHB gives a direction under section 69ZJA(1), any member of the public may, within x days, give notice that a petition for referendum on fluoridation will be circulated;
2. Such a petition must be lodged within x days of giving notice, carrying x% of affected residents’ signatures;
3. The DHB’s directive shall be void until the day set for lodging the petition;
4. If a petition is lodged with sufficient signatures, the DHB must arrange for a referendum by an independent organization acceptable to the petitioner;
5. The costs of such referendum will be met by the DHB;
6. Until the referendum results are known, the DHB’s direction remains void. Any direction under section 69ZJA(1) must be reissued after the referendum results are known, and must be consistent with the simple majority of votes cast.

*Minister’s power*

1. Section 7 to be removed (Section 69O(3)(c) not to be repealed);

*Reason*

1. This Bill attempts to enable the Minister of Health to require fluoridation via the Drinking Water Standards – compulsory fluoridation at the Minister’s whim – by repeal of paragraph 69O(3)(c). This bypasses even the sham ‘decision making’ of DHBs. However, this paragraph was only inserted for the avoidance of doubt, and to avoid the cost of judicial review proceedings. Requiring the addition of fluoride is ultra vires under section 69A, as it is not for the protection of health – the only valid use of the Drinking Water Standards.

*New clause:*

1. The Minister cannot, directly through directive, or indirectly via the NZ Health Strategy and Crown Funding Agreements, require DHBs to promote fluoridation.

(This will require amendments to existing legislation.)

*Reason*

1. If the Minister can fetter the DHB’s decision making power, and decision will be ultra vires, defeating the purpose of the proposed legislative changes.

*Commercial users of water.*

1. No directive to fluoridate a water supply may be given section 69ZJA(1) if there is objection from food or beverage manufacturers who are commercial users of that water supply without consent of the territorial authority.

*Transitional provision*

1. No directive may be given under section 69ZJA(1) within ten years of a Territorial Authority making a decision on water fluoridation, or the fluoridation status of a community being determined by referendum, prior to this Bill being enacted.

**The RIS statement – critique and comment.**

This is to be read in conjunction with the analysis of the Cochrane Review, and the misrepresentation of that review in the RIS, discussed above.

**Transferring decision-making on the fluoridation of drinking-water from local authorities to district health boards**

This regulatory impact statement was developed to inform policy decisions on whether to transfer decision-making on the fluoridation of drinking-water supplies from territorial local authorities in order to improve oral health outcomes and reduce disparities between groups and communities.

The practice of fluoridation in New Zealand is based on the advice of the World Health Organization and **other international health authorities**. The case for extending fluoridation is based on a number of studies, including those published by **the Cochrane Collaboration**, and the Prime Minister’s Chief Science Advisor and the Royal Society of New Zealand. The latter comments on ‘the compelling evidence that fluoridation of water at the established and recommended levels produces broad benefits for the dental health of New Zealanders’.

The case for extending fluoridation is also based on cost-effectiveness studies published by J. C. Wright et al (1999), the National Fluoride Information Service (2012) and the Sapere Research Group (2015). There is consistent evidence that the fluoridation of water-supplies for populations of more than 1000 people is cost-effective (ie, the savings resulting from fluoridation exceed the costs). The Sapere report estimates that extending water fluoridation to those areas that are currently unfluoridated would be associated with net savings of over $600 million over 20 years, with most of the savings to consumers and a small amount to Vote Health. The conclusion that fluoridation and extended fluoridation would result in net savings was shown to be robust under a range of assumptions.

Sapere was not able to clearly isolate the incremental operating costs of adding fluoridation systems from general plant operations. It has estimated the annual costs of fluoridation for plants of various sizes, based on costing information from 17 water treatment plants.

The Ministry of Health has considered a range of options for managing fluoridation and increasing the proportion of the population having access to fluoridated water supplies**. It concluded that the DHB option represents a significant advance on the current arrangements through territorial local authorities** and could achieve the potential health gains that have been identified. The proposed regulatory framework would support DHBs and it would ensure that the **process is more robust than it is at present.** The Ministry also notes that the risk of legal challenge would remain, but that this is a feature of the status quo.

This analysis was conducted in light of the Government’s commitment to improvements in oral health, outlined in its strategic vision for oral health in New Zealand.

**Our comment (on highlighted text):**

1. The Cochrane Collaboration found no reliable evidence of benefit.
2. What other international health authorities? Some of these “authorities” represent the commercial interests of the fluoridation industry, not the public (e.g. Federation Dental Internationale [FDI]).
3. If based on WHO recommendations, the DHBs must consider total daily intake as part of their decisionmaking.
4. The process is not robust – it occurs behind closed doors, conducted by, in the most part, closed minds, by organizations compelled to support fluoridation. This is a breach of section 3(1)(c) of the NZ public Health and Disability Act 2000.[[1]](#footnote-1)

*Sapere Report*

The RIS claims the Sapere report found fluoridation reduced tooth decay. It did not find fluoridation reduced decay, as it was not a scientific review: it assumed it did, based on non-science like the Oral Health Survey, and then calculated savings based on those false assumptions.

The RIS is merely a repetition of Ministry propaganda and its policy position.

The Ministry adopted fluoridation policy in the 1950s, based on flawed science and a fundamentally wrong assumption – that fluoride needed to be swallowed to be incorporated into growing tooth enamel to harden the tooth against acid decay. This was fundamentally wrong. Yet it continued its policy once it was internationally proven wrong. Why? And why doesn’t it explain itself? Further, the original policy basis meant there would be no benefit to adults. And no systematic review since had found benefit to adults. Cochrane could find no reliable research to support this. Yet the Ministry and Sapere proceed on the unscientific claim that it does.

The New Plymouth and Hamilton Councils had no problem deciding on the science when presented with both sides on a level playing field. It found DHBs’ science unsubstantiated. So how are DHBs going to objectively evaluate the science. The answer is they cannot. They are entrenched and committed to this flawed policy and promoting the junk science that it is based on – that is the junk science they put to councils and which the two mentioned saw right through.

The problem is not that councils cannot judge the science – the problem for the Ministry is that they can.

The relevant legislation requires that the Ministry of Health, DHBs, and Territorial Authorities protect the public health, as well as promote it.[[2]](#footnote-2) This is also the purpose of the Drinking water standards.[[3]](#footnote-3) The RIS therefore needed to address possible health risks from water fluoridation, on a precautionary approach basis. It totally fails to do so. It makes bland statements that CWF is safe, even misrepresenting the Cochrane Review as finding CWF safe.

It ignores completely the NRC 2006 Review, which raised concerns about potential health risks, especially to vulnerable subsets of the population.

It relies on the Gluckman Report, which did not examine health risks as the amount of research was considered “too vast” to analyse in the short timeframe with limited resources. (Correspondence from Prof Skegg to Prof Gluckman)

**The Precautionary Approach**

The precautionary approach does not require absolute proof, or even the civil standard of proof. It only requires ‘reasonable likelihood’.

In relation to neurotoxicity the evidence that water fluoridation causes some level of harm has passed the civil standard and is approaching the beyond reasonable doubt standard.

That water fluoridation is likely responsible for a proportion of medically diagnosed ‘arthritis’ is at the ‘beyond reasonable doubt level’. WHO acknowledged this.

In relation to age-related exposure for boys, increase in osteosarcoma is at the civil standard of proof, there being no studied contradicting Bassin’s exemplary work, which is supported by an earlier though less robust study.

That fluoridation induces an increased number of pre-term births is at the civil standard. Pre-term birth is the leading cause of neonatal death. Further, such harm is differentially visited upon ethnic minorities (Maori and Polynesian in NZ) while providing no special benefit. On this basis, water fluoridation is racially discriminatory. Further, it breaches section 3(1)(b) of the NZ Public Healt hand Disability Act 2000.[[4]](#footnote-4)

Accordingly, in failing to address these issues the RIS fails to meet the Ministry’s fiduciary duty of disclosure.

*Application of the precautionary approach to policy and decision making*

The precautionary principle is increasingly discussed in circumstances where there is some evidence that a particular activity may result in health or ecosystem damage, but great uncertainty as to the potential magnitude or nature of those impacts.

Rather than presume that specific substances or activities are safe until proven dangerous, the precautionary principle establishes a presumption in favor of protecting public and environmental health in the face of uncertain risks. This places the responsibility for developing information, regular monitoring, demonstrating relative safety, analyzing alternatives, and preventing harm on those undertaking potentially harmful activities.”[[5]](#footnote-5)

The limitations in scientific methods to quantify causal relationships are often misinterpreted as proof of safety. While the fine points of the scientific evidence are debated, often nothing is done about the potential hazards.

Unfortunately even when data are available, uncertainties raised about the nuances of the risk can stall action. For example, it took the Occupational Safety and Health Administration nearly a decade to finalize a standard for methylene chloride.

Biologist John Cairns has noted that scientists and policy makers often discount highly uncertain risks, while concluding that “Unrecognized risks are still risks, uncertain risks are still risks, and denied risks are still risks.”

A widely cited definition of the precautionary principle is the 1998 Wingspread Statement on the Precautionary Principle.

“When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”

**All have a common theme: if there is uncertainty, yet *credible scientific evidence or concern* of threats to health, precautionary measures should be taken. In other words, preventive action should be taken on early warnings even though the nature and magnitude of the risk are not fully understood.**

Decision makers on public health issues have a responsibility to be aware of the adverse affects of the practice under consideratione on health and environment, both direct and indirect, and to prevent such affects wherever possible, while maintaining a high level of care.

Instead of asking, “What level of risk is acceptable?” or “How much contamination can a human or ecosystem assimilate before demonstrable harm?”, the approach the Ministry of Health takes with fluoridation, we must ask, “How much contamination can we avoid while still achieving our goals? What are the alternatives or opportunities for prevention?” and “Is this activity needed in the first place?” these are the questions that must be asked of water fluoridation, and in particular this Bill, that seeks to extend fluoridation in the face of undeniable scientific evidence of harm (NRC Review 2006) without any reliable evidence of benefit (York 2000, Cochrane 2015).

**Focusing on seeking safer alternatives may also allow decision-makers to partially bypass contentious and costly debates over proof of harm and causality, and instead dedicate scarce public health resources to solutions.** This is precisely the problem in NZ, and with this Bill – instead of allocating scarce resources to improving dental health, such as through the school dental service, the Government is wasting those resources flogging the dead horse of fluoridation trying to cover up the truth, just so it can continue to pretend a now discredited practice is still valid.

When designing a health study, scientists make concerted efforts to avoid reaching the false conclusions that a hazardous effect exists when in fact it does not. But, an inherent consequence of minimizing this error is increasing the chances of another kind of error: missing a risk that is real.8

As the late Dr Albert Schatz noted, scientists often focus research on the “average” individual even though there might be individuals or populations at much higher risk due to their higher exposures, genetic susceptibility, or developmental vulnerability, such as children. This was highlighted by the American Dental Association’s 2006 warning on infant formula, previously stated in the 1999 NHMRC review, and the Australia New Zealand Standard 2.9.1 for the level of fluoride in infant formula.

Fluoridation

While there are many peer-reviewed studies supporting the efficacy of fluoridation, these have been found to be of poor to moderate reliability only – there are no good quality studies. There are also many reputable sources questioning it. The National Institute of Dental Research, for instance, conducted the largest study of its kind in 1989 and found that there was little difference in the incidence of cavities between children receiving fluoride and those who were not. Further, studies have shown that the incidence of cavities has fallen throughout the western industrialized world regardless of fluoride use.

Studies indicate that fluoride does not help to prevent pit and fissure decay, which is estimated to cause more than 85% of tooth decay in the United States, nor baby bottle tooth decay, which is prevalent in poor communities.

Given the widespread use of fluoride, there is a second cumulative exposure from many other sources, (toothpaste, pesticide residues on foods, mechanically deboned meat, and many processed foods and beverages made with fluoridated water). The result is a total exposure level that can, in some cases, equal this “optimal” fluoridation level without ever consuming treated water. Despite these additional sources of fluoride exposure, the amount added to drinking water continues at the same level as was established in the 1940s. In the face of uncertain evidence it is important to act in a manner that protects public health. A precautionary approach to fluoridation would consider all the available evidence on efficacy, safety, and alternatives.

Given the temporal (throughout a lifetime) and spatial (broad population exposure) exposure to fluoride in drinking water, a more detailed analysis of potential impacts, including population variability and identification of potentially vulnerable populations would be prudent under a precautionary framework.

The RIS totally fails to do this.

Equally importantly, it fails to address the consideration of safe, effective alternatives to fluoridation. It simply repeats the mantra that fluoridation is the most cost effective means of addressing tooth decay, which cannot be substantiated when there is no reliable evidence that water fluoridation is ineffective in treating tooth decay, in today’s society if ever.

**Errors of fact in speeches at the First Reading**

**New Zealand’s fluoride levels in water**

New Zealand’s fluoride levels are the same as is normal throughout the world – under 0.3ppm. This is contrary to the claim in the RIS and as made publicly by Minister Coleman and Associate Minister Dunne. In his response under the Official Information Act, Minister Dunne referred to the Gluckman Report, which in turn relied on a table published by a political fluoridation-promoting organization – not a scientific body. On analysis, this table showed that, in general, about 98% of drinking water supplies in those countries were below 0.7ppm – just like New Zealand, establishing their claim as a lie. Plus there were only 23 other countries listed, out of about 200 in the world. Since the European countries Sweden, Germany, Switzerland, and the Netherlands all trialled fluoridation, we must presume their water-fluoride levels are also below 0.7ppm.

By Minister Dunne’s own reference he proves himself and the Ministry of Health, through the RIS, liars.

Moreover, there is no minimum bodily requirement for fluoride. Hence there is no such thing as fluoride deficiency, either in the body or in the water supply.

**Fluoride tablets taken as a child responsible for good teeth**.

The Ministry of Health no longer recommends fluoride tablets as swallowing fluoride is ineffective – fluoride needs to be in contact with the tooth surface throughout the day.

Whatever the reason is for your good teeth, it isn’t the fluoride tablets you were given as a child.

**These children, as well as adults and older people, can be helped cheaply and effectively by the fluoridation of drinking water. We know from the international evidence, and from our own experience, that fluoridation is safe, it is effective, and it is cost-effective. Fluoridation offers significant gains at little cost compared with other interventions, and all age groups benefit from fluoridation.**

As discussed above, all these statements are false – just fluoridationist propaganda contradicted by York, Cochrane, and NRC.

**There is nothing left to debate on this issue. It is over; science has won. The Government's website www.fluoridefacts.govt.nz provides comprehensive information and responses on community fluoridation, and I encourage anyone interested in the issue to take a look,** and **there is no doubt about the science (A king).**

The science is that fluoridation is ineffective and unsafe. The Fluoride facts website is just propaganda, unsupported by the real science. York and NRC and Cochrane reviews all found the science far from settled – an alarming and inexcusable paucity of reliable science to back fluoridationists’ claims.

**This bill is expected to extend fluoridation coverage in New Zealand. It will improve oral health and reduce the burden of disparities associated with poor oral health.**

The claim of benefit is contradicted by York and Cochrane.

**This is not a water measure; it is a public health measure. (Annette King)**

It is correct that fluoridation is not a water measure. We would see it as a private health measure delivered via the public water supply – it is not a contagious disease threatening the public health.

**The Prime Minister's Chief Science Advisor and the Royal Society of New Zealand, assisted by a panel of experts, said in 2014**

This was not a panel of experts – it was a panel of fluoridationists set up to deliver a predetermined conclusion. Its findings were refuted only months later by the Gold standard Cochrane Review.

**A quote from Professor Sir Peter Gluckman, who is the Prime Minister's Chief Science Advisor, says that "It is absolutely clear that at doses used in New Zealand to adjust the natural level to one that is consistent with beneficial effects [0.7 to 1.0 parts per million] there is no risk from fluoride in the water."**

The Gluckman team never investigated harm, so how can Gluckman reach this conclusion? It is simply his personal opinion based on refusal to examine the science.

**It is known to have a protective effect on teeth when used at the correct levels.**

There is no ‘correct level’. Fluoridation was based on total daily intake. The levels were varies dependent on climate to achieve a specific daily intake. Hong Kong uses 0.5ppm and Queensland uses 0.6, for example. These are obviously outside the 0.7 to 1ppm recommended by the Ministry of Health. There is nothing ‘magic’ about the level of fluoride in the water. This is ploy used by fluoridationists to keep fluoridation going once it was determined that intake was irrelevant – a ‘bait and switch’. WHO never set a concentration as optimal, or recommended fluoridation on that basis.

**We do look at the fact, and know, that the Ministry of Health does currently hold all of the scientific evidence on the fluoridation of drinking water, and that is fine—that is fine and I have got that**

The Ministry of Health does not hold all the facts on fluoridation. It refuses to accept the legitimate science, and clings to its policy position, come hell or high water. That it is out of touch with the science is shown by York, Cochrane, and NRC.

**I dispute her contention that by transferring responsibility for decision making around the fluoridation of water, delegating it to district health boards (DHBs), that somehow this decreases the democratic ability of New Zealanders to make decisions around their health. I am just noting for the member that district health boards, of course, are made up of elected members. This is a health issue and rightly belongs with the DHB, which has got elected members who care enough to put their names forward to stand for that and, therefore, have a close interest in the oral health of their particular population.**

This is untrue – only some members are elected.

Many of those have a public health background, which requires them to believe in fluoridation. (See the appalling propaganda used by the Wellington PHA at DHB public meetings). If you don’t support fluoridation you will not be able to pursue a career in public health in NZ.

If a DHB member opposes fluoridation they are bullied (as we have seen in 2 DHBs in 2016) and told they do not represent the electors but are answerable only to the Minister of Health. If they work for the DHB they are told to find employment elsewhere.

DHBs are widely known as the most undemocratic unaccountable organisations in NZ. Former DHB members have stated this.

Any debate on fluoridation science is quashed by the DHB Chair and/or CEO.

**Fluoridation is supported globally.**

This is incorrect. Only a tiny minority of countries support fluoridation. Virtually nowhere in continental Europe practices it (and only 4 countries have fluoridated milk or salt available for those who choose it).

Those countries cite three reasons for rejecting it:

1. No proof of effectiveness
2. No proof of safety
3. Ethical considerations

That is, all the things the NZ MoH arrogantly claims ‘are settled’. Tell it to the health ministries in Sweden and Germany – who would you consider more likely to be right?

When Annette King claimed that no reputable scientists agreed with Dr Paul Connett’s antifluoridation views she was asked to substantiate that under the OIA. She ran and hid behind the Ministry, who conceded that there were reputable scientists holding views against fluoridation.

**After many decades of fluoridation in our major cities there is no evidence whatsoever of an adverse health effect caused to the many hundreds of thousands, if not millions, of people in New Zealand who are already drinking fluoridated water and have been doing so for decades now**

The Ministry of Health never researches adverse health effects from fluoridation. There is ample scientific evidence from overseas. We do know that dental fluorosis is excessive. And it is not ‘just cosmetic’. It is caused by fluoride poisoning of body cells. That is an adverse health effect. There is one piece of NZ research that shows bottle-fed infants exceed the allegedly safe daily dose of fluoride. Apparently the speaker is not familiar with fluoridation research.

WHO acknowledges that in fluoridated countries a proportion of ‘arthritis’ is in fact Stage I skeletal fluorosis, but undiagnosed as such. ‘Arthritis’ is a major part of a $2 billion per year cost to the health sector. How much of that is actually skeletal fluorosis.

**But at the low concentrations that are needed to improve oral health for your teeth there is no adverse effect, and, if it were otherwise, it would be proven around the world by now, given that millions of people already have been, if you like, experimenting on fluoridated water for decades so far.**

Experiments have been conducted overseas. It is very difficult to get funding in fluoridated countries, for political reasons. Much research is done in India and China, where natural fluoride levels can be very high, though in some cases daily intake overlaps with fluoridated western communities. This research shows multiple adverse health effects. The problem is that for political reasons health agencies in fluoridated western countries will not admit they have been harming people for decades, and for no benefit.

**But the Government should not allow the interests of the more than 99 percent of the population whose health we can improve to be held hostage by a few people who are being unscientific…**

In unfluoridated communities referenda go roughly 70:30 against fluoridation. Even in Hamilton, Hastings, and Whakatane, already fluoridated, with propaganda blitzkriegs by the DHBs, 30% of people voted against fluoridation.

This is not 1% vs 99%. If you believe that the level of opposition to fluoridation is going to go away by passing mandatory fluoridation legislation, you are not only wrong: it will only increase. You are not representing the public and you do not deserve to be in Parliament.

**Why are we kicking this down the road [instead of enacting mandatory fluoridation]?**

Ireland has had mandatory fluoridation since the 1960s. The battle against it is even stronger there than it is here. Queensland Australia introduced it some years ago. Reaction was so strong they had to repeal it. This will never be resolved until the public is involved in an inquisitorial style open scientific debate.

**US challenge to EPA to prove safety:**

The Toxic Substances Control Act (TSCA) invests EPA with the authority to take certain actions if it determines that “the manufacture, processing, distribution in commerce, use, or disposal of a chemical substance .presents an unreasonable risk of injury to health.” In making this determination, TSCA commands that EPA consider not only risks to the general public, but to “susceptible subpopulation[s]” as well. Further, TSCA commands that EPA conduct the risk evaluation “without consideration of costs or other non-risk factors.”

At EPA’s request, the National Research Council (NRC) reviewed fluoride toxicology research and concluded in 2006, “It is apparent that fluorides have the ability to interfere with the functions of the brain.”

Since NRC’s review, 196 fluoride/brain studies have been published, including 61 human studies.

Contrary to claims that only high doses of fluoride are linked to brain damage, studies of fluoride-exposed human populations consistently find neurotoxic effects at water fluoride levels well below the EPA’s “safe” level (4 mg/L).

A petition has been lodged with the EPA to either disprove all the scientific research provided (some 2500 pages) to it or ban the addition of fluoride to public water supplies based on the proven risk. The outcome will likely be known before this Select Committee process is finished.

***The EPA Petition to End Water Fluoridation****January 11, 2017*

(Note: we are aware of the comments on this by Steven Slott – a fluoridationist ‘hatchet man’. We do not give any credence to his claims.

The sheer weight of scientific evidence has far exceeded reasonable doubt, and it’s difficult to see how the EPA, or anyone else, can continue to believe that water fluoridation is safe

Six weeks ago, the Fluoride Action Network, Food and Water Watch, Organic Consumers Association, American Academy of Environmental Medicine and several others petitioned the EPA to ban fluoridation chemicals because they’re neurotoxic – they harm the brain.

The petition cites 196 peer-reviewed studies published over the last ten years, including over 2,500 pages of supporting documents. Out of 61 human studies, 57 found that fluoride caused harm, including behavioral problems and lowered IQ in children. Out of 115 animal studies, 112 found harm. Out of 17 cellular studies and three reviews, all found harm.

These eye-opening numbers may be a revelation to most of the health and medical community, but significant evidence on fluoride’s neurotoxicity has been building for years.

The National Research Council (NRC) of the National Academy of Sciences published Fluoride in Drinking Water, a 507-page review of over 1,000 studies that took three years to complete. Compiled by a blue-ribbon committee of 12 leading scientists, it’s considered the most comprehensive, authoritative resource ever written on the subject.

The NRC’s objectives were to assess if the maximum level of fluoride allowed in water, 4 parts per million (ppm), was safe (it determined it wasn’t) and assess fluoride’s toxicity in general, including its risk in relation to total exposure. It linked fluoride with known or possible health risks, including endocrine disruption, fluorosis, kidney and thyroid disease, diabetes and bone fractures, among others.

It was unequivocal on neurotoxicity: “it is apparent that fluorides have the ability to interfere with the functions of the brain . . .“ In addition to numerous animal studies, it cited five Chinese studies linking higher levels of fluoride in water with lowered IQ in children. The studies varied in quality and detail, but the NRC concluded “the consistency of the collective results warrants additional research . . .”

Following the NRC review, several scientists on the committee openly voiced their opposition to fluoridation. To quote just two, the late neurobehavioral science specialist Robert Isaacson, PhD, said “I had no fixed opinion on whether or not fluoride should be added to drinking water . . . The more I learned the more I became convinced that the addition of fluorides to drinking water was, and is, a mistake.” Hardy Limeback, DDS, PhD, both a scientist and former head of preventive dentistry at the University of Toronto, said “In my opinion, the evidence that fluoridation is more harmful than beneficial is now overwhelming.”

**HARVARD META-ANALYSIS – 2012**

This Harvard-funded meta-analysis led by Anna Choi, PhD and published in Environmental Health Perspectives found that children in China exposed to higher levels of fluoride tested lower for IQ in 26 out of 27 studies. The average difference was significant – 7 IQ points lower. Potential confounding causes such as lead and arsenic were noted in some studies, but controlled for in others, and the authors determined that “it seems unlikely that fluoride-attributed neurotoxicity could be due to other water contaminants.”

The higher fluoride villages had higher concentrations of fluoride in water than in the U.S., where artificial fluoridation is typically 0.7 ppm. Nine, however, had concentrations lower than 3 ppm and one high fluoride village had only 0.88 ppm.

The Harvard meta-analysis was further reinforced by a study published in The Lancet by Philippe Grandjean, MD and Philip Landrigan, MD. In 2006, their first review identified six chemicals as known developmental neurotoxins (harming the brains of children), including lead, arsenic and PCB’s. Their 2014 study named six more. Fluoride was one of them. These chemicals are especially dangerous because they can cause brain damage that is often untreatable and permanent, including behavioral problems and lower IQ.

The authors are world-renowned. Grandjean is a Harvard professor of environmental health, head of environmental medicine research at the University of Southern Denmark and toxicology advisor to the Danish National Board of Health. Landrigan is a professor at the Mt. Sinai School of Medicine and previously worked for the Centers for Disease Control and National Institute for Occupational Safety and Health. He was awarded the Meritorious Service Medal of the US Public Health Service.

**THE ARGUMENTS AGAINST**

In the face of this compelling and continuously growing body of evidence, promoters still argue that fluoridating water is safe for everyone. This ignores three indisputable facts. First, standard toxicology (and the EPA’s own guidelines) requires consideration of individual variability by taking the lowest dose or level showing harm and dividing it by at least 10 to determine a safety level protecting more vulnerable subgroups in a population. This lowers the bar far below current fluoridation practices.

Dose is the second factor, because toxin levels are only half the equation determining risk. Children, for instance, typically consume more water per pound of body weight than adults. The EPA petition documented that some children drinking just two liters of 0.7 ppm fluoridated water a day were at risk of significantly lowered IQ. Other subpopulations, like kidney disease and diabetic patients, athletes and manual laborers also drink higher amounts of water, increasing their health risks.

Third, apologists ignore other sources of fluoride, including children’s all-too-familiar swallowing of fluoridated toothpaste. Environmental exposure is common, such as in pesticide residues and air pollution. Intel, for example, was fined $143,000 in 2014 for illegal fluoride emissions in Hillsboro, and industrial discharges of fluoride, even when legal, are widespread throughout the country. Finally, anything made with fluoridated water, such as soft drinks, baby formula and processed food, can add significantly to our toxic load.

Whatever phrase is used, “First do no harm,” “Better safe than sorry,” “The Precautionary Principle,” etc., most would agree that if there’s reasonable doubt if a substance is safe, the public shouldn’t be intentionally exposed to it.

Considering all the recent neurotoxicity studies – not to mention fluoride’s other NRC- identified health risks – the sheer weight of scientific evidence has far exceeded reasonable doubt. It’s difficult to see how the EPA, or anyone else, can continue to believe that water fluoridation is safe.

**More Researchers Acknowledge Fluoridation’s**
**Lack of Effectiveness Data**

“Fluoridated water [does] not seem, based on the existing literature, to hold sufficient evidence for the reduction of dental caries,” report Italian researchers in the *Journal of Clinical and Experimental Dentistry*(December 2016), reports the New York State Coalition Opposed to Fluoridation, Inc. (NYSCOF)

Sicca, et al. analyzed thirty systematic reviews on tooth decay prevention, from 2002 – 2015, and report “there is not sufficient evidence to determine whether the use [of] water fluoridation has a significant impact in the reduction of caries." Other scientists concur. Swedish researchers, in PLOS one, February 2015, reported “out of 81 systematic reviews meeting the inclusion criteria, 38 were judged to have a low or moderate risk of bias. Half of them concerned caries prevention. The quality of evidence was high for a caries-preventive effect of **daily use of fluoride toothpaste and moderate for fissure sealing with resin-based materials.** **For the rest the quality of evidence for the effects of interventions was low or very low.**”

[A Systematic Map of Systematic Reviews in Pediatric Dentistry—What Do We Really Know? Ingegerd A. Mejàre, Gunilla Klingberg,  Frida K. Mowafi,  Christina Stecksén-Blicks,  Svante H. A. Twetman,  Sofia H. Tranæus ]

In July 2012, Cagetti, et al. reported “Studies of the effectiveness of water fluoridation have been based on observational study designs… these studies are regarded as low in quality and the weight of the evidence derived from cross-sectional and observational studies can be questionable”

Fluoridation’s foundation is based on human experimental studies which began in 1945.  Errors and omissions in those studies were pointed out, but ignored, as early as 1959 by dental researcher Phillip Sutton and others.

In 2011 the West Virginia University Rural Health Research Center reported "...it was found that fluoridation rates were not significantly related to the measures of either caries or overall condition of the teeth for urban or rural areas."

In 2015,  the independent and trusted UK-based Cochrane group of researchers could not find any quality evidence that proves fluoridation changes the “existing differences in tooth decay across socioeconomic groups.” or that fluoridation cessation increases decay rates.

In 2009, attempting to prove that fluorosed teeth are less decayed, Kumar reveals 1986-1987 National Institute of Dental Research (NIDR) data which, upon analysis, shows similar cavity rates in permanent teeth whether the water is fluoridated or not.



**The Sapere Report – critique.**

This report is a classic example of the GIGO principle – garbage in – garbage out. Its claimed cost saving is based on false assumptions; not robust evidence.

P vii - Says 0.2ppm low compared with other countries, but in fact this is pretty standard throughout most of the world. Levels higher than 0.3ppm are relatively rare, and cause health problems where they occur above 2-3ppm.

Gives no evidence to support its claim.

Claims death is due to tooth decay. First, one or two decayed teeth more or less is not going to make a life or death difference. Even if fluoridation reduced decay, it would not make a significant difference to someone with a mouth full of rotting teeth causing blood poisoning.

Moreover, the tail of extreme tooth decay is about [5%] in fluoridated areas – the same as in non-fluoridated areas.



This is untrue. The 60 years of research/evidence is a PR propaganda position of the fluoridationist community.

York and Cochrane reviews confirm the science Sapere relies on is essentially junk science. Cochrane states it has no relevance to modern society.

Both said there was no evidence of benefit in adults.



There are no high quality NZ studies at all, and none showing lifetime benefit.



But there is no difference in extreme decay in NZ based on fluoridation status. There are more GA extractions in NZ in F’s areas than in non-F’d areas



The OHS is not comprehensive re fluoridation. It has a specific waiver on this at p167 (2010 report):

“It is important to note that it was not one of the objectives of the 2009 NZOHS to compare the oral health status of people by fluoridation status, and therefore the survey cannot be considered a fluoridation study as such. The following results are for a snapshot in time, and constitute an ecological analysis based on current place of residence. As such, they do not take into consideration lifetime exposure to fluoridated and non-fluoridated water supplies. Individuals who currently live in fluoridated areas may have spent time in non-fluoridated areas, and the reverse is also true. Furthermore, there may be other confounding factors that have not been taken into account in this analysis, such as the usual reason for visiting a dental professional, and other sources of fluoride such as fluoride toothpaste.”

Refers to the Gluckman report, which is contradicted by York and Cochrane. Does not mention the international critique of this poor quality report.



This is contrary to modern science. The report does not address the fundamentals of how fluoride works – and it is not through the water supply.

History:

Fluoridation was based on the belief that fluoride needed to be incorporated into the tooth enamel during formation, converting hydroxyapaptite in fluorapaptite, which was believed to be more resistant to acid decay.

An ‘optimum daily intake’ was set at 1 – 1.5 mg/day, based on a balance between increased dental fluorosis (a damage to the enamel structure), which is caused by total fluoride intake, and the benefits of reduced tooth decay, which we now know is not related to total fluoride intake. This latter is confirmed by Warren and Levy (‘the Iowa study’).

It is important to note that there is nothing magic about the concentration range of 0.7 – 1ppm. The concentration was set at between 0.6ppm and 1.2 ppm depending on climate to attain a total daily intake from water of 1 mg/day, against a backdrop of only 0 – 0.5 mg/day from other sources. In hot climates the lower concentration was and is used to allow for a higher daily water consumption, and the higher levels used in colder climates to allow for lower water consumption, to achieve the target intake of 1 mg/day. In temperate climates the range was set at 0.7 – 1 mg/l. As people drink more water today than they did 50 years ago, the lower level is generally preferred and is now the fixed level used in the USA. Queensland Australia uses 0.6 ppm. Today we get about 3 mg/day without fluoridating the water – more than the ‘optimal level’ originally set. So why do we keep fluoridating and how do those who promote it justify it? By ignoring the original basis and pretending there is something special about the concentration of 0.7 – 1 ppm.

We now know that fluoride works by surface contact, favourably shifting the remineralisation/demineralisation balance to reduce decay (although this appears to only be true if the imbalance is only marginally unfavourable; not once it becomes significant). We also now know that 1) there is not a significant difference in fluorapatite levels between fluoridated and nom-fluoridated people, and that fluorapatite is no more resistant to decay than hydroxylapatite. In other words, the whole theoretical basis for fluoridation was wrong. This fundamental point is not addressed in the Sapere report.

We know that fluoridated water is too weak to provide topical benefit, as the minimum concentration needs to be 1.5 – 2 ppm. We know the fluoride levels in the saliva as it is produced in the salivary gland of fluoridated people is too weak to provide topical benefit (0.016ppm vs 0.006ppm, with 0.03ppm being the minimum required to confer benefit).

In short then, there is no known biological mechanism by which fluoridate water can reduce tooth decay. The situation is quite different for fluoride toothpaste, where the fluoride remains in the cheeks and is re-emitted into the saliva for several hours, providing benefit.

The other issue not addressed by Sapere is that the alleged benefit appears to be due to a temporary delay in decay, which disappears in the early to mid teens. This possibility was mentioned by one of the researchers in the Hastings experiment, is shown by Feltman and Kosel 1061, is supported by ESR’s 1999 report, and Armfield and Spencer 2004. It was recognised as a potential confounding factor by the York Review, and acknowledged by NHMRC in its 1999? Review. Again, none of this is discussed by Sapere.

2.1.2 and 2.2 contradict themselves and the core thesis. Tooth decay has reduced equally in both Fluoridated and non-Fluoridatedd OECD countries.

The rate of decay reduction in NZ has been steady since 1950 once you allow for the cessation of unnecessary filling of teeth by school dental nurses.

Also, the OHS is not comprehensive. It does note that decay has fallen in non-Fluoridated areas and increased in Fluoridated areas over 2003-2007.

Disparities. There is more disparity between poor/affluent in Fluoridated vs non Fluoridated areas.

The most comprehensive data is that which we obtained under the OIA. If Sapere had asked, we could have provided it. But they seem to have tunnel vision – they didn’t come to the NZ experts on fluoridation (FFNZ/NZFIS)

3.1 Who were the ‘dental experts’ they worked with? All confirmed fluoridation believers? Did they ask Hardy Limeback – more highly qualified than anyone in NZ? What about other dental experts like Andrew Harms form Australia?

There is constant reference to the unscientific NZOHS.

The NZ studies are only superficially referenced. There are significant issues with all of these. Sapere does at least acknowledge that Northland was inconclusive.

Figure 4. It is good that Sapere acknowledges that the Fluoridated v non-Fluoridated areas have different demographics. They could have done a quick analysis of the National data but didn’t. This would have confirmed no difference in decay rates within each group (high SE and ‘the rest’).





I would think there is more access in urban than non-urban areas for this. Where is their evidence?

The York review is misrepresented. Did they ask Trevor Sheldon to comment on their analysis? See his public statement, and our discussion of York.

Griffin was not a systematic review. It was a PR job by the CDC. It acknowledges that no systematic review has found benefit to adults. It then took a number of reviews finding no statistical difference, and one that is irrelevant to fluoridation, and claimed they collectively showed benefit. See our analysis available at ffnz.org.nz.

7.2

York found possible inconclusive benefit for 1 out of 4 groups – the younger group as I recall – which means there was no permanent benefit. Cochrane said there was no evidence.

ESR 1999 shows temporary ‘benefit’ trending to zero permanent benefit by age 14.

Their assumption of greater benefit to Maori is contradicted by actual data, which show less difference in non-Fluoridated areas.

Figure 13 of the report shows there is now essentially no benefit to non-Maori, and the alleged benefit to Maori is decreasing. Without socioeconomic control, any claimed benefit is meaningless, as unfluoridated Maori will largely be in Northland and Tairawhiti other than Gisborne. Fluoridated Maori will be in urban communities, with higher SE status.

1. to provide a community voice in matters relating to personal health services, public health services, and disability support services—

 (iii) by providing for consultation on strategic planning: [↑](#footnote-ref-1)
2. Health Act ss3A, 23; Health and Disability Services (Safety) Act 2001 s3; NZ Public Health and Disability Act 2000 s3(1)(a)(i). [↑](#footnote-ref-2)
3. Health Act 1956 S69A (1) The purpose of this Part is to protect the health and safety of people and communities by promoting adequate supplies of safe and wholesome drinking water from all drinking-water supplies [↑](#footnote-ref-3)
4. The purpose of this Act is ...(b) to reduce health disparities by improving the health outcomes of Maori and other population groups [↑](#footnote-ref-4)
5. “What Does the Precautionary Principle Mean for Evidence-Based Dentistry?” Joel Tickner, ScD, Melissa Coffin, BA, From the Department of Community Health and Sustainability and Lowell Center for Sustainable Production, University of Massachusetts Lowell, Lowell, MA. *J Evid Base Dent Pract* 2006;6:6-15 [↑](#footnote-ref-5)