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Clerk of the Health Select Committee: -

**Submission on Health (Fluoridation of Drinking Water) Amendment Bill
On behalf of the Physicians and Scientists for Global Responsibility (PSGR)**

Lead author and contact for communications – M.E. Godfrey

PSGR wishes to appear before your committee to speak to this submission

Author background

Michael Godfrey qualified as a doctor at London University in 1963. After seven years in British hospitals he acquired a medical general practice at Mt. Maunganui in 1971.

By 1985, he had developed a major interest in environmental chemical and metal toxicity research that led him to a new career direction that included developing clinical treatments for associated ailments.

On both research and clinical treatment matters, he has been an invited speaker at medical conferences in the USA, Germany, India and Australia.

He has also been an author and co-author on a number of related published papers in peer-reviewed, indexed journals.

Michael was invited by the Hon. Jenny Shipley, Minister for Health, to co-author the 1996 NZ Government White Paper “Dental Amalgam and Human Health.”

He is a Trustee of the PSGR.

PSGR background

Physicians and Scientists for Global Responsibility (PSGR) has evolved from a group of medical and scientific professionals who were concerned that government policy-making about man-made chemistry and its uses in the environment was not taking into account and giving adequate weight to many relevant considerations of public and environmental safety.

PSGR has an affiliation with an international group, Physicians and Scientists for the Responsible Application of Science and Technology (PSRAST).

PSGR activities include the emerging technologies of nanotechnology, synthetic biology, bio-geo-engineering, and other pressing issues of public and environmental safety.

PSRG made a submission to the 2000/2001 Royal Commission on Genetic Modification and presented expert witnesses in this field. Other submissions have subsequently been made on Applications to New Zealand's regulatory authorities.

SUBMISSION

Summary

The deliberate addition of fluoride and related bio-accumulative and highly-toxic contaminants to municipal water supplies is neither cost-effective nor safe.

The previously claimed and accepted scientific basis for adding fluoride to public water supplies has changed.

Now, evidence suggests that New Zealand populations are already being over-exposed to fluoride from other sources with epidemiological evidence of skeletal fluorosis and other adverse effects.

Therefore, the present Ministry of Health (MoH) policy and the now proposed Bill before your Committee to give statutory powers to District Health Boards to require fluoridation of public water supplies is, on the weight of probability of evidence, against the public interest; it is therefore also a prospective legislative public breach-of-trust and a use of legislative powers in an unconscionable manner.

REASONS

1. No proven benefit

- 1.1 International peer-reviewed dental research involving much larger studies than possible in New Zealand has been unable to show any worthwhile benefit from fluoridation of public water supplies.
- 1.2 While the NZ Ministry of Health (MoH) claims an impressive 40 per cent reduction in dental decay from fluoride, that extraordinary claim is at variance with peer-reviewed international dental research.
- 1.3 Pro-fluoride American and Australian dentists who undertook research into the effects of water fluoridation were only able to show that doing so resulted in a reduction of one dental surface of a child's 128 dental surfaces (Brunelle and Carlos (USA)1990 (0.6 surface in 80,000 children) [1], Spencer and Slade (Australia)1996 (0.3 surface) [2] and Armfield and Spencer (Australia) 2004 (1.5 surfaces in 10,000 children) [3].
- 1.4 The latest findings (Slade et al. 2013) on a lifelong (45 years) exposure to fluoride in Australia had a maximum benefit of 1 tooth saved – but even that was with reportedly questionable statistical relevance (their words) [4].
- 1.5 Notwithstanding this evidence of *de minimus* or miniscule reductions in dental decay, pro-fluoridation believers have been left with recourse to arguably misleading and deceptive conduct: a highly questionable claim of a 40 per cent benefit that appears to have been taken from a publication titled *Our Oral Health* (2009) involving a total of 987 children (195 aged 2-4; 438 aged 5-11; and 354 aged 12-17 years). The authors specifically stated that as a short “snap shot” in time the findings could not be used to quantify any fluoride benefits (5).
- 1.6 Why has the MoH done that? As an example, if a procedure improved the death rate from 2:1000 to 1:1000, only 1 in a1000 lives are saved: but expressed as a percentage this can be 'spun' and promoted as a 50 per cent reduction. To avoid being deceived by statistics requires some basic understanding of terms and methods. There are two main ways to present the change (effect) caused by an action (intervention). These are ‘relative’ and

'absolute' measures of change. Presenting only relative or absolute measures in isolation, or without adequate context is misleading. The studies (1,2,3,4) provide absolute figures of the benefit of water fluoridation ranging from 0.3 teeth surfaces = 0.23% benefit (0.3 teeth surfaces/128 total teeth surfaces) to one tooth = 3% benefit (1 tooth / 32 total teeth) prevented from decay. This absolute figure is between 13 and 174 times less than the MoH 40% relative figure. It is arguably unconscionable to mislead Parliament and the people of New Zealand in that way over this dental matter.

- 1.7 The obvious policy issue arising from poor child dental status is about consumption of sugar-laced drink and sugary-food consumption aided by poor nutrition. That is arguably the issue to be addressed because it not only leads to poor dental hygiene at an early age – it leads quickly to general ill-health, obesity and diabetes Type II; and a consequential enormous cost to government and society.
- 1.8 Thus it seems reasonable to claim that the MoH is clinging to and still trying to assert a fluoridation of public water supplies policy when it is demonstrably the *wrong* policy because it does not address dietary factors from impoverishment and malnourishment of children. Indeed, the “Our Oral Health” paper revealed a 1.6 DMFS (Decay, Missing, Filled, Surface) difference between the most and least deprived children [5]. Therefore, the MoH is not addressing its established statutory duty to pursue the purposes of existing health statutes: it does not need more statutes; it just needs a proper duty of care to its existing administrative statutory duties.
- 1.9 Research in the 1930s by Dr. W. Price (the Director of Dental Research of the American Dental Association, Chicago) revealed that less than 1:2000 teeth of the indigent Maori on their ancestral diets had revealed any decay. Notably, they did not have any fluoride. Price showed that within a generation of Maori adoption of Pakeha foods based on white flour and sugar, a 40 per cent level of decay had developed.

2. Material adverse health effects

- 2.1 No bio-monitoring of fluoride levels in the population has been done by MoH despite over 50 years of water fluoridation. However, extensive international research has confirmed that painful joints and chronic arthritis is not only associated with increased fluoride intake but can frequently be misdiagnosed [6].
- 2.2 Dental fluorosis is widespread with the rates of mild and moderate levels being double those seen in non-fluoridated Auckland areas (29 vs. 14%) at age 9 years [7]. However, dental fluorosis is not a minor cosmetic defect as it indicates increased *skeletal* fluoride uptake and as such needs to be viewed as a marker of pre-clinical skeletal fluorosis.
- 2.3 The currently available, albeit still very limited, New Zealand evidence indicates that the population could already be overdosed with fluoride as shown by elevated fluoride levels confirmed in a patient with chronic arthritis and another with coronary calcification and plaque. (Clinical and laboratory results available.)

3. Other relevant policy factors

- 3.1 Other sources of fluoride in peoples' diets are already arguably a significant problem in New Zealand – without the public policy advanced in this Bill adding to the problem. These include, tea, toothpaste and numerous frequently-prescribed medications.

3.2 In addition, this country is still one of the top importers of tea with the most commonly-consumed brands (Bell and Supermarket Home brands) having sufficient fluoride levels to potentially cause fluorosis when consumed at over 1 litre/day as shown below. A single 300ml mug of tea can contain more than 1.0mg of fluoride.

Tea brands, weight of tea bag and fluoride content in tea infusions

	Brand name	tea bag Wt.(g)	Fluoride in tea 0.8 mg/L fluoridated water (mg /L)	Fluoride (mg) in tea per 250ml cup
1	Bell Kenya Bold	3.3	4.0	1.0
2	Bell Original Tea	2.3	3.5	0.87
3	Pams-New World Supermarket Tea	2.4	3.2	0.80
4	Pak-n-Save Supermarket Budget Tea	2.1	2.9	0.72
5	Choysa Extra Strong	2.3	2.8	0.70
6	Twinings English Breakfast Extra Strong	2.7	2.7	0.67

(Adapted from: *Assessment of health risks of fluoride intake from black tea consumption in New Zealand: musculoskeletal effects and the influence of genetic susceptibility and nutrition*. Waugh DT, Godfrey ME, Limeback H and Potter W. Research paper currently undergoing peer-review)

4. Some significant adverse effects of fluoride in more detail

- 4.1 Internationally, the most reported adverse health effects of chronic fluoride toxicity are chronic pain and musculo-skeletal disorders. [8]
- 4.2 Notably, arthritis is the leading cause of disability in NZ, affecting nearly 1 in 6 people [9]. In 2010, the total financial cost of arthritis in NZ was estimated to be \$3.20 billion [9]. The cost in the Republic of Ireland with a similar population level and an even greater tea consumption, was reported as €5.34 billion in 2012 [10].
- 4.3 Furthermore, the latest NZ Health survey found that the prevalence of chronic pain and arthritis is increasing [10]. About 620,000 adults (17%) had arthritis with more than half of adults aged 75 years and over (54%) affected. Moreover, one in five adults were found to be suffering from chronic pain. The prevalence of chronic pain was also found to increase with age affecting 32% of adults aged 65-74 years of age [11].
- 4.4 Importantly, Swain and Johnson reported that among New Zealanders who experienced chronic pain, the most common complaint was pain in the lower back [12]. There is evidence to suggest that lower back pain could be deemed as the early stage of mild skeletal fluorosis caused by joint or bone degeneration [13].
- 4.5 Stage 1 and stage 11 skeletal fluorosis occurs with bone levels exceeding 3,500ppm [14]. Notably, bone levels can reach between 3,000 and 4,000ppm with long-term consumption of water at 1ppm of fluoride (>12 years) in the absence of any other sources [14].
- 4.6 Fluoride is rendered more toxic with deficiencies of both iodine [15.16] and calcium [17] – and both deficiencies are endemic in New Zealand; the calcium deficiency stems from NZ

characteristic 'soft' waters lacking calcium. Additionally, fluoride competes with iodine uptake resulting in hypothyroidism an increasingly common chronic illness requiring lifelong medication [18]. International research indicates that fluoride is also associated with neurotoxicity [19] and asthma and/or chronic obstructive airway disease (COPD) [20] amongst other chronic inflammatory conditions.

- 4.7 It is now widely accepted by dental authorities that any purported benefit of fluoride is topical and not via systemic ingestion. The facts also indicate that any claimed dental benefit from fluoridated public water supplies may be more than offset by likely bio-accumulative toxicity adverse effects both in people and the environment. That concern has led to international directives to reduce the upper level in water from 1.2mg/L to 0.7mg/L [21] although NZ regulators have yet to take this precautionary action.
- 4.8 The latest Medsafe (Dec. 2014) Guidance document for labelling of fluoride tablets (see below) renders the uncontrolled availability of fluoridated water at up to 1mg/L at significant variance with Medsafe limits [22]. However, consumption of tea containing high proportions of fluoride may require an MoH advisory to people to avoid such tea consumption – especially in areas with fluoridated public water supplies.

Fluorides	In products for external use other than paste/powder/gel for cleaning teeth	<ul style="list-style-type: none"> Do not use in children under 6 years old. Do not swallow. 	1/08/2011						
	For oral use	<ul style="list-style-type: none"> Dosage: <table data-bbox="710 1064 1252 1209" style="margin-left: 20px;"> <tr> <td>3 to 5 years old</td> <td>0.25mg fluoride per day</td> </tr> <tr> <td>6 to 8 years old</td> <td>0.5mg fluoride per day</td> </tr> <tr> <td>9 years old and over</td> <td>1.0mg fluoride per day</td> </tr> </table> Fluoride tablets should be chewed thoroughly or dissolved in drinking liquid before swallowing. Use of this product is not necessary in areas supplied with fluoridated water. Contact your dental professional or local water authority for information on the fluoride content of your water supply. Do not use if you are pregnant. 	3 to 5 years old	0.25mg fluoride per day	6 to 8 years old	0.5mg fluoride per day	9 years old and over	1.0mg fluoride per day	
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- 4.9 The fluoride added to drinking water is not pharmaceutical grade NaF (Sodium fluoride); that grade is too expensive. Rather, the product added to public drinking water is a toxic-metal-contaminated waste-product from fertilizer and aluminium industries which also contains fluoride. Given that only a tiny fraction of fluoridated water is consumed by humans, the vast bulk of this water – and its *bio-accumulative* toxins - is washed into our treatment plants, streams, rivers and coastal ecosystems. The net effect is taxpayers and local councils are paying industry sources to pollute our people and our environment with imported toxic materials.

5. RECOMMENDATIONS

- a) That your Committee recommends to the House, on the bases of the evidence and related referenced authorities set out in this Submission, that this Bill should not proceed on the grounds that the 'relevant considerations' mentioned in this Submission have not been considered; or otherwise have not been accorded 'due weight'; and that the Bill and its prospective adverse effects is demonstrably contrary to public and environmental safety and therefore contrary to the public interest.
- b) That the MoH advises the medical profession that bio-monitoring for fluoride levels needs to be considered in all cases showing clinical symptoms suggestive of fluorosis.

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