



AUSTRALIAN DENTAL
ASSOCIATION INC.

**Submission to
Food Standards Australia New Zealand (FSANZ)
on the
Initial Assessment Report – Application A588
Voluntary Addition of Fluoride to Packaged Water**

28 April 2008

**Authorised by
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The Australian Dental Association Inc (ADA) thanks Food Standards New Zealand (FSANZ) for the opportunity to provide comment on the Initial Assessment Report – Application A588, Voluntary Addition of Fluoride to Packaged Water.

The Australian Dental Association (ADA) is the peak national professional body representing about 10,000 registered dentists engaged in clinical practice. ADA members work in both the public and private sectors. The primary objectives of the ADA are to promote the practice of evidence-based dentistry and encourage access for all Australians to affordable preventive oral care. There are Branches in all States and Territories other than in the ACT, with individual dentists belonging to both their home Branch and the national body. Further information on the activities of the ADA and its Branches can be found at www.ada.org.au

The ADA provides the following comments in relation to the Initial Assessment Report.

Application received from Australian Beverages Council Ltd

The ADA understands that Food Standards Australia New Zealand (FSANZ) has received an application from the Australian Beverages Council Ltd which proposes an amendment to Standard 1.3.2 – Vitamins and Minerals of the Australia New Zealand Food Standards Code to permit the voluntary addition of fluoride to packaged water, as a claimable nutrient. The Applicant is seeking permission to voluntarily add sodium fluoride and sodium fluorosilicate to packaged water up to a maximum claimable amount of 1.5 mg fluoride/L.

The Australian Beverages Council Ltd advises that permission to voluntarily add fluoride to packaged water would enable bottlers to offer fluoridated packaged water to consumers as an alternative to fluoridated tap water, or as a source of fluoride for those who do not have access to fluoridated tap water.

General comments

Fluoride is a naturally occurring compound that helps to prevent dental decay. Fluoride is the ion that comes from the naturally occurring element, fluorine. Fluorine is never encountered in its free state in nature because it combines with other elements as fluoride compounds in the earth. Water dissolves these compounds, creating fluoride ions that are present in all water sources, including the oceans.

Clear solid scientific evidence exists that water fluoridation has proven to be an efficient, effective and an equitable public health measure for reducing the prevalence of dental decay in all age groups. This is reflected in the Australia's National Oral Health Plan 2004-2013¹, signed off by all government Health Ministers.

Fluoride reduces dental decay by making teeth less susceptible to the acids formed by micro-organisms living on and around the teeth. Fluoride can also assist in reversing the process of decay once it has commenced.²

Given the use of fluorides in dentistry is one of the most important ways of preventing dental caries, the ADA supports water fluoridation. The ADA recognises that the fluoridation of public water supplies has proven to be one of the most significant public health initiatives in Australia and as such our policies have been developed to reflect this.

Fluoridated bottled water

The optimal fluoride concentration of Australia's community water supplies are normally in the range of 0.6 to 1.1 milligram per litre [mg/litre] of water [commonly known as parts per million or ppm]. This range is given to take account of the likely consumption of water and climatic conditions that exist in Australia. For example, the higher the temperature, the more fluid is consumed, so the less the concentration of fluoride that is needed for optimum effect. This is important as overconsumption of fluoride in the water may result in fluorosis.

The ADA therefore supports packaged or bottled water being fluoridated to the same concentrations as public drinking water, in the range of 0.6 parts per million to 1 part per million (ppm), in order to reduce tooth decay. The ADA notes the submission seeks to voluntarily add sodium fluoride and sodium fluorosilicate to packaged water up to a maximum claimable amount of 1.5 mg fluoride/L which we feel is too high.

The ADA also recommends that the fluoride content of bottled water be clearly stated on the label.

These proposals are reflected in the ADA's policy statement 1.2.1 *Community Oral Health Promotion, Fluoride Use* (attached).

FSANZ may also wish to consider changing the terminology in the Assessment Report. Whilst negligible, given there are many brands of still bottled water on the Australian market³ that contain fluoride content, the term 'adjusting' rather than 'adding' fluoride may be more applicable. The term 'adding' suggests coming from a zero base whereas 'adjusting' (which may be increasing or decreasing) suggests the element is already there. This is the case for many brands of bottled water on the market.

¹ National Advisory Committee on Oral Health (2004) *Healthy Mouths Healthy Lives: Australia's National Oral Health Plan 2004-2012*

² Armfield, JM., Slade, GD. and Spencer, AJ (2007) *Water fluoridation and children's dental health – The Child Dental Health Survey, Australia 2002*, AIHW Cat. No. DEN 170, Dental Statistics and Research Series No. 36, p 26

³ Cochrane NJ, Saranathan S, Morgan MV and Dashper SG (2006) Fluoride content of still bottled water in Australia, *Australian Dental Journal*, 51:3

Supporters of water fluoridation

The ADA has been a strong advocate of water fluoridation along with other highly reputable and respected international and Australian health, research and education organisations. These include the World Health Organization, the International Association for Dental Research, the US-based Centers for Disease Control and Prevention (CDC), British National Health Service, the National Health and Medical Research Council, the Australian Institute of Health and Welfare, the Public Health Association of Australia and the Australian Medical Association.

Recent Australian research

Extensive research and studies have been published to support water fluoridation. Recent Australian research includes:

1. A report released by the Australian Institute of Health and Welfare (AIHW), *Water Fluoridation and children's dental health: The Child Dental Health Survey, Australia 2002*, shows children in Australia have better oral health than children in many other countries, due largely to fluoridated water. Of the 44 countries with comparable national data available, Australian 12 year olds have the seventh lowest average number of decayed, missing and filled permanent teeth.⁴

Comparisons amongst Australian children found that across all age groups, in both baby teeth and permanent teeth, children who lived in areas with optimal fluoridated water had less tooth decay than those from areas with low concentration of fluoride levels. The differences in the mean dmft (decayed, missing, filled teeth) or disease experience between fluoridated and non-fluoridated areas were as high as 66% for seven year olds.⁵

It was also evident that large differences in the average number of decayed, missing and filled teeth were found between areas with differing concentrations of fluoride in drinking water for both 5 to 6 year old and 11 to 12 year old children from all socio-economic backgrounds. Water fluoridation was associated with better dental health, regardless of whether children lived in the least or most socio-economically disadvantaged areas.⁶

2. A publication released in 2007 by the National Health and Medical Research Council titled *A Systematic Review of the Efficacy and Safety of Fluoridation* shows that the existing body of evidence strongly suggests that water fluoridation is beneficial at reducing dental caries.⁷

3. The *2004-06 National Adult Oral Health Survey* has shown that members of the 'fluoride generation' (those born after 1970) had about half the level of decay that their parents' generation had developed at about the same age.⁸

⁴ Armfield, JM., Slade, GD. and Spencer, AJ (2007) *Water fluoridation and children's dental health – The Child Dental Health Survey, Australia 2002*, AIHW Cat. No. DEN 170, Dental Statistics and Research Series No. 36, p 34

⁵ Ibid, p 27.

⁶ Ibid, p 29.

⁷ National Health and Medical Research Council (2007) *A Systematic Review of the Efficacy and Safety of Fluoridation*, Australian Government

⁸ Australian Institute of Health and Welfare. Slade GD, Spencer AJ, Roberts-Thomson KF (2007) *Australia's dental generations – The National Survey of Adult Oral Health 2004-06*, DSRS No. 34, p. xvi

4. In New South Wales, a major 2005 study conducted by Jason Armfield, from the Australian Research Centre for Population Oral Health, examined the dental records of nearly a quarter of a million schoolchildren aged 3-15, and found that those living in areas of fluoridated water were significantly less likely to have decayed, missing or filled teeth than children living in areas without added fluoride in the drinking water.⁹

5. A cross-sectional study of 973 Australian Army recruits in 2002-2003 found that those with no exposure to water fluoridation had significantly more filled, missing or decayed teeth than recruits who had grown up with fluoridation.¹⁰

Queensland Government

The State Government of Queensland has also recognised the fluoridation of public water supplies as a significant public health initiative in Australia. In a bid to tackle the poor condition of Queensland's oral health on the 13 March 2008 the State Parliament passed legislation to introduce fluoride into Queensland's water supplies.

Tooth decay has ranked as one of Queensland's most expensive health problems. Research shows that tooth decay in children in Queensland is higher than the national average¹¹ - 6 year olds have 30% more decay in their baby teeth, with a similar result for permanent teeth in 12 year olds.

Children in Townsville, one of the few Queensland towns to begin fluoridation (in 1964), have 45% less tooth decay than their counterparts in Brisbane, a city of nearly 1.8 million people that have no fluoride in its public water.¹²

Opponents of fluoridation

The ADA is aware that fluoridation has been subject to much debate lately however there has been no convincing or credible scientific evidence exists that fluoride when supplied at the optimum level (1 part per million) in drinking water causes any adverse health effects.

The most recent fluoride guidelines make it clear that using fluoridated water to reconstitute baby milk formula is safe in Australia and New Zealand.

The claims of those opposing fluoridation are based on outdated information and selective studies that support their case; or they engage in coordinated campaigns to portray water fluoridation as ineffective and highly dangerous. It is important that public health officials are aware of the tactics employed so that they can better counter their negative effect. The ADA notes that Jason Armfield, from the Australian Research Centre for Population Oral Health, has published an article, *When public action undermines public health: a critical*

⁹ Armfield, J (2005) *Public water fluoridation and dental health in New South Wales*, ARCPHO, Australian and New Zealand Journal of Public Health, Vol. 29. No. 5. p 477

¹⁰ Hopcraft, M and Morgan MV. (2005) *Dental caries experience in Australian Army recruits 2002-2003*, Australian Dental Journal, 50(1), p 16

¹¹ Robertson 2006a in AIHW in Slade GD, Spencer AJ, Roberts-Thomson KF (2007) *Australia's dental generations — The National Survey of Adult Oral Health 2004-06*, Australian Institute of Health and Welfare, DSRS No. 34, p 58

¹² Slade et al. 1996 in Slade GD, Spencer AJ, Roberts-Thomson KF (2007) *Australia's dental generations — The National Survey of Adult Oral Health 2004-06*, Australian Institute of Health and Welfare, DSRS No. 34, p 58

*examination of antifuoridationist literature*¹³ which examines the multiple techniques employed by water fluoridation opponents to try and undermine the scientifically established effectiveness of water fluoridation which may be of interest to FSANZ.

Still bottled water contributing cause of dental decay in children

Fluoride has been added to tap water in Australia for over 50 years. The ADA credits this measure with a steady decrease in tooth decay. However the popularity of bottled water (Australians spent more than \$627 million drinking bottled water in 2007) has since been blamed for a reversal of this trend.¹⁴ In particular, increased and regular consumption of still bottled water has been blamed for causing dental decay in children.

The ADA acknowledges that one of the many possible contributing factors for the growing rate of dental decay amongst children may be the increased use of bottled water as a source of drinking. However, other contributing factors such as a poor diet of products high in salt, fat and sugar and a reduced fluoride intake since dentists have been advocating low fluoride toothpastes for children, must also be taken into consideration.

Consumer's Choice

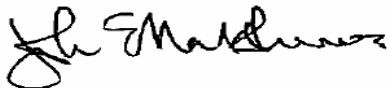
There are two distinct consumer groups to be considered: those with access to fluoridated tap water and those with no access to fluoridated tap water. At present consumers who do not have access to fluoridated tap water do not have a choice to consume fluoridated water. Fluoridated packaged water would give choice to those consumers. Fluoridated bottled water in those regions would not be consumed instead of fluoridated tap water but instead of non-fluoridated tap water.

Recommendation

The ADA recommends:

1. Packaged/bottled water being fluoridated in the range of 0.6 parts per million to 1 part per million (ppm), in order to reduce tooth decay.
2. The fluoride content of bottled water should be clearly stated on the label.

Thank you for the opportunity to comment.



Dr John E Matthews
Federal President

¹³ Armfield J (2007) *When public action undermines public health: a critical examination of antifuoridationist literature*, Australia and New Zealand Health Policy, 4:25

¹⁴ Barry E (2008) *Fluoride push, Bottle plans get teeth*, Sunday Herald Sun, 23rd March, p 14

COMMUNITY ORAL HEALTH PROMOTION FLUORIDE USE

1 Introduction

1.1 The use of fluorides in dentistry is one of the most important ways of preventing dental caries and has the support of all peak public health and dental authorities. International bodies such as the US-based Centers for Disease Control and Prevention [CDC], the World Health Organisation [WHO] and the US Surgeon General actively promote water fluoridation. The CDC placed water fluoridation in the top ten public health achievements of the 20th Century. Similarly, scientific bodies in Australia, recognised public health groups and professional organisations support water fluoridation. Community water fluoridation continues to be the most cost-effective, equitable and safe means to provide protection from tooth decay and has been successfully utilised in Australia for over 50 years. The effect of water fluoridation is predominantly topical, with some systemic influence in children.

1.2 **Definitions**

1.2.1 WATER FLUORIDATION is the treatment of community water supplies for the purpose of adjusting the concentration of the free fluoride ion to the optimum level for maximum caries prevention and minimal occurrence of dental fluorosis.

1.2.2 FLUORIDE SUPPLEMENTS are those products that seek to achieve a similar effect on the individual as fluoridation of the water supply. The term is generally limited to fluoride tablets and drops.

1.2.3 ADDITIONAL SOURCES OF FLUORIDE is an all-encompassing term to include all sources of fluoride other than water fluoridation – fluoride drops, rinses, tablets, toothpastes, gels and fluoride in foods and beverages.

1.2.4 DENTAL FLUOROSIS is the staining or mottling of the teeth as a result of greater than optimal fluoride exposure while a child's teeth are developing.

2 Policy

2.1 **Water Fluoridation**

2.1.1 Water fluoridation is the most effective, equitable and efficient measure for achieving reduction in dental caries incidence across a community.

2.1.2 Fluoridation of community water supplies is preferred as a safe and effective means of reducing the prevalence of dental caries in all age groups and should be implemented and maintained in those communities where there is an insufficient natural fluoride content for this purpose.

2.1.3 The optimum level of fluoride to be achieved in a water supply should take into account climatic conditions.

- 2.1.4 Where fluoridation of water supplies is effected, there must be adequate control and supervision of the procedure.
- 2.1.5 Governments must adopt water fluoridation as part of Health Policy and actively promote its introduction, where it is feasible, as a public health measure.
- 2.1.6 Manufacturers and producers of bottled water should be encouraged to ensure that their products contain fluoride at approximately 1 milligram per litre [mgm/L] and that the fluoride content is included in labelling.
- 2.1.7 Only water filters that do not remove fluorides should be recommended.
- 2.1.8 Manufacturers of water filters or water filtering systems should include information on their products as to whether or not fluoride is removed.
- 2.1.9 Australian infant formula is safe to be used with fluoridated water.

2.2 Additional Sources of Fluoride

- 2.2.1 For children, there is a need to use fluorides to strive for optimal caries prevention while ensuring the prevalence of dental fluorosis is minimised.
- 2.2.2 Whilst fluoridation of community water supplies is the preferred method of fluoride delivery, fluoride supplements can be used in areas that are not optimally fluoridated to promote a reduction in dental caries. However, their use should take into account the assessment, conducted by a dentist, of an individual's caries risk. Fluoride supplements should not be taken directly by adults or children but should only be added to non-fluoridated water to mimic community water fluoridation.
- 2.2.3 Because of the variable presence of fluoride in foodstuffs, particularly processed foods and beverages, supplementary fluoride must be carefully prescribed and should take into account the assessment, conducted by a dentist, of an individual's caries risk.
- 2.2.4 Toothpastes containing fluoride should be used as an important method of further reducing dental caries incidence, regardless of whether or not the area water supply is optimally fluoridated. Fluoride toothpastes should be used as recommended by a dentist who should take into account the age of the patient, the access to fluoridated water and an assessment of an individual's caries risk. Special care must be taken with very young children to limit the amount of toothpaste used and, thereby, the ingestion of fluoride.
- 2.2.5 Professional topical application of fluorides should be selectively used on patients who, as a result of an evaluation conducted by a dentist, are assessed as having a high caries risk.

2.3 Dental Fluorosis

- 2.3.1 Dental fluorosis occurs as a result of interference in the formation of the enamel matrix. It varies from very thin, almost invisible, white patches or lines over the tooth surface to significant areas of brown staining and/or pitted enamel defects. Dental fluorosis can be a significant and unwanted effect on teeth if a child is exposed to high levels of fluoride when the teeth are forming, although instances of severe dental fluorosis are now rare in Australia. There are numerous causes of hypo-mineralisation blemishes, or mottling, in teeth other than fluorosis.

- 2.3.2 The control of additional fluoride sources, rather than the reduction or removal of the optimum fluoride level in drinking water, is the preferred strategy for maintaining the low incidence of dental fluorosis.

Policy Statement 1.2.1

Adopted by ADA Federal Council, November 15/16, 2001.

Revised version adopted by ADA Federal Council, November 11/12, 2004.

Amended by ADA Federal Council, April 7/8, 2005.

Revised version adopted by ADA Federal Council, November 15/16, 2007.

GUIDELINES FOR THE USE OF FLUORIDE

[APPENDIX TO POLICY STATEMENT 1.2.1]

1 Water Fluoridation

- 1.1 Water fluoridation is a proven method for reducing the prevalence of dental caries in communities.
- 1.2 Surveys of dental caries and dental fluorosis should be undertaken regularly, taking into account all fluoride sources and patterns of consumption in a community, in order to confirm the most appropriate water fluoridation concentration for that community or region.
- 1.3 The optimal fluoride concentration of community water supplies will normally be in the range of 0.6 to 1.1 milligram per litre [mg/litre] of water [commonly known as parts per million or ppm].
- 1.4 The fluoride content of bottled water should be clearly stated on the label.

2 Fluoride Supplements [in the form of drops or tablets]

- 2.1 Fluoride supplements should not be taken [swallowed] directly by an adult or child in the form of drops or tablets.
- 2.2 An alternative method to the administration of fluoride supplements [tablets or drops] in areas where optimally fluoridated water is unavailable should seek to imitate water fluoridation by adding the fluoride to the drinking water at a rate that is equivalent to the water concentration in fluoridated regions. This can be achieved by carefully adding the fluoride to a container of known quantity of water that is used for drinking, mixing and food preparation by all members of the household.
- 2.3 Fluoride supplements should be packaged in child-proof containers, and the total sodium fluoride content of a container should not exceed 120 mg.
- 2.4 Support must be given to ongoing research into the epidemiology of dental caries and the use of fluoride to ensure assessments of safety, effectiveness and efficiency of all methods of delivery of fluoride are up to date.
- 2.5 All dental practitioners must maintain awareness of the latest science as it affects the use of all forms of fluoride.

3 Fluoridated Toothpaste

3.1 The following table represents the current recommendations regarding the use of toothpaste by various age groups in the community:

Table 1 - Recommendations for the use of fluoride-containing toothpaste

Local water supply fluoride content and caries risk	Age		
	From the eruption of the first tooth to 17 months	From 18 months to 5 years inclusive	From 6 years onwards
Water supply optimally fluoridated for the climatic conditions* or Natural water supply is at or close to what is considered optimal fluoride content for climatic conditions	Teeth to be cleaned WITHOUT TOOTHPASTE	Twice daily cleaning. Use a small pea-sized amount of child-strength toothpaste [0.4-0.55 mg/g of fluoride].	Twice a day cleaning - use adult strength toothpaste [1 mg/g fluoride].
Water supply not optimally fluoridated or An individual has been assessed as having an elevated risk of caries	Dentist may advise to use child-strength toothpaste at a younger age	Dentist may advise that adult strength toothpaste be used at a younger age	Dentist may advise brushing more frequently with adult strength toothpaste

* Climatic conditions are measured by mean average daily temperature. The higher the temperature, the more fluid is consumed so the less the concentration of fluoride needed.

3.2 Fluoride toothpaste containers should carry advice that reflects the principles of dose and age, adult supervision for children and the use of recommended increments [eg pea-sized].

3.3 Ingestion of fluoridated toothpaste should be discouraged.

3.4 Manufacturers should be encouraged to standardise and restrict the toothpaste tube orifice to allow a more accurate and consistent amount of toothpaste to be dispensed.

3.5 Teenagers and adults with elevated caries risk may use toothpaste strengths that are greater than 1 mg/g only on the prescription and supervision of a dentist.

3.6 Manufacturers should be encouraged to avoid flavours that imitate too closely popular food tastes to avoid accidental ingestion of large amounts of paste by very young children.

4 Application of Topical Fluoride

4.1 Concentrated forms of fluoride should only be applied by suitably-qualified dental practitioners and should only be used after taking into account an assessment conducted by a dentist of an individual's caries risk.

4.2 Varnishes with high concentrations of fluoride may be applied occasionally to selected teeth or tooth surfaces where it is considered an appropriate choice.

4.3 Gels, foams and pastes with high concentrations of fluoride should only be used on the prescription of a dentist and are not to be used on children under the age of 10 years

because of the likelihood of ingestion of large amounts. They may be used on individuals 10 years of age and older where there is evidence of a high decay risk and where it is considered an appropriate choice.

5 Fluoride Mouth Rinses

- 5.1 Fluoride mouth rinses should not be used by children under the age of six years due to the likelihood that they will ingest large amounts and increase their risk of dental fluorosis.
- 5.2 Fluoride mouth rinses may be used by people over the age of six years under the direction of a dentist where it is considered an appropriate choice for preventing caries in high risk individuals and where there is certainty that the individual will understand that the product should be rinsed as directed and spat out, not swallowed.

6 Fluoride, Diet, Cleaning Routines and Smoking

- 6.1 The beneficial effects of fluoride must be understood in conjunction with all the major risk factors for dental caries.
- 6.2 A person's inappropriate dietary and other habits have the potential to overcome the beneficial effect of fluoride, with smoking, poor oral hygiene habits, and high frequency or prolonged exposure to dietary sugars, starches and acidic foods and beverages, posing the highest risk.

Appendix to Policy Statement 1.2.1

Adopted by ADA Federal Council, November 15/16, 2001.

Revised version adopted by ADA Federal Council, November 11/12, 2004.

Revised version adopted by ADA Federal Council, November 15/16, 2007.