

Auckland Regional Public Health Service

Rātonga Hauora ā Iwi o Tamaki Makaurau



Working with the people of Auckland, Counties Manukau and Waitemata

Position Statement

Water fluoridation

December 2008

ARPHS's position

Auckland Regional Public Health Service (ARPHS) supports the Ministry of Health's (MoH) recommendation that water fluoridation be continued in currently fluoridated areas and introduced in non-fluoridated areas where technically feasible.

Fluoridation of water supplies is considered to be the most cost effective population-based strategy for dental caries prevention.

ARPHS is committed to addressing health inequalities. As fluoridated water acts irrespectively of an individual's behaviour, ethnic or socio-economic status, ARPHS considers that it is effective in addressing some of the inequalities that exist in oral health in the Auckland region, predominantly in the most disadvantaged populations. Children from low socioeconomic positions, Māori and Pacific in particular, suffer from poorer oral health compared to other groups.

Key information

What is water fluoridation?

Water fluoridation is the process of adjusting the natural level of fluoride in the water supply with the intention of reducing tooth decay. In New Zealand, fluoride in a concentration between 0.7–1.0 milligrams per litre (mg/L) is considered the optimal level that provides protection against tooth decay (Ministry of Health, Drinking-water standards 2005)

How fluoride works

Fluoride works in three ways to help protect teeth from decay (Ministry of Health website):

- Fluoride strengthens teeth making them more resistant to decay.
- Fluoride interferes with the growth of the bacteria which cause cavities.
- Fluoride helps to repair the early stages of tooth decay.

Although fluoride incorporated into forming tooth enamel before tooth eruption may help to prevent decay, the presence of fluoride at the surfaces of teeth after eruption has been shown to be the main method of action. This is why the beneficial effect of fluoride is available to all individuals of all ages with natural teeth.

The lifetime benefit from drinking fluoridated water is estimated to be the prevention of 2 -12 decayed, missing or filled teeth per person. (Public Health Commission, 1994)

Fluoride in drinking-water accounts for approximately one-quarter of the average daily intake in young children and approximately half of the total intake in adults (MoH website). Fluoridated drinking water is not the only source of fluoride. Common sources of fluoride for people include food and drink, toothpaste and fluoride supplements such as tablets.

Health risks

Some opponents of water fluoridation have argued that fluoride consumption can result in a number of adverse health

affects such as cancer, damage to bones, and thyroid and brain disease. Recent reports by the National Health Medical Research Council of Australia (NHMRC, 2007) and the World Health Organisation (Fawell J, 2006) have addressed these concerns and found that many of the articles that raise fears about water fluoridation lack substance or repeat previous statements already shown to be without scientific validity.

Many of the studies that link water fluoridation to health risks relate to countries where water fluoridation levels are much higher¹ than the accepted levels in New Zealand. At the levels of fluoride recommended here, to reduce dental decay, these health effects have not been shown to occur.

Fluoride toxicity does not occur from drinking-optimally fluoridated water. The Drinking-Water Standards for New Zealand 2005 specifies that the maximum acceptable value (MAV) of fluoride concentration in drinking-water is 1.5 mg/L which is a level at which fluoride toxicity is avoided.

Tooth enamel fluorosis

Tooth enamel fluorosis can be associated with excessive quantities of fluoride during the years of tooth development (while they are growing in the jaw bones). This condition has a range of presentations from an increase in the number of white flecks on tooth enamel through to discolouration and damage to the enamel. Water fluoridation has been associated with enamel fluorosis (NHMRC, 2007).

There is evidence of a dose dependent increase in dental fluorosis which may occur at between 0.9 and 1.2 g/L, resulting in mild cases. Even though the maximum acceptable concentration of fluoride is 1.5 mg/L, (MoH Guidelines, 2005), for oral health reasons, both, the Ministry of Health and ARPHS recommend a lower fluoride concentration in drinking water (up to 1.0 mg/L).

In areas with water fluoridation, New Zealand research shows an increase in very mild and mild dental fluorosis but this has not been confirmed for 'unaesthetic' defects. (Public Health Commission, 1994).

Minimising the risk of enamel fluorosis

In order to minimise the risk of enamel fluorosis during the development of teeth before eruption, the following measures, among others, have been adopted (MoH website):

- In New Zealand the recommended range for optimal fluoride levels in drinking water is narrower and the upper limit is lower than in other countries, for instance, the United States.
- Toothpaste is, with the exception of fluoridated water, the other most common source of fluoride. Two fluoride toothpaste concentrations are available nationally with one specifically for use in childhood.
- Fluoride is not permitted as an additive to infant formula marketed here. Breastfeeding infants exclusively until around six months of age is recommended by MoH. However, if they are not breastfed, then infant formula is the only appropriate alternative to be used during the first year of life. (MoH Guidelines, 2008).

In New Zealand, infant formula can be reconstituted with fluoridated water.

Fluoridated bottled water

ARPHS considers that the voluntary addition of fluoride to bottled water would represent an alternative for those who do not otherwise have access to tap fluoridated water.

¹ 4 – 11 mg/L

Is fluoridated water enough to totally prevent tooth decay?

Although studies have shown that water fluoridation provides benefits above and beyond those from other fluoride vehicles alone (for example, toothpaste), fluoridated water is not a replacement for other oral health care measures and healthy eating habits.

Recommendations

- That water fluoridation programmes are continued and extended where technically feasible to areas not currently fluoridated.
- That the key messages relating to the safety and efficacy of water fluoridation continue to be promoted by the Ministry of Health, public health service providers, oral health and other health professionals.
- That access to fluoridated water be acknowledged as a key determinant of oral health for disadvantaged populations, particularly children.
- That fluoridated water be promoted as an effective measure to reducing and addressing some oral health inequalities.
- That any voluntary addition of fluoride to bottled or packaged water in New Zealand be supported, with fluoride concentration between 0.7-1mg/L. Concentration must be included as part of the labelling.

References

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For further information:

MoH website www.moh.govt.nz/fluoride

Review Date

December 2010