

## Fluoridation of Drinking Water

### Introduction

The following is a position statement on fluoridation of drinking water prepared by Population Health for Waikato District Health Board (Waikato DHB).

### Waikato District Health Board's position

The Waikato District Health Board affirms the Ministry of Health's position on the fluoridation of drinking water supplies to provide protection against tooth decay.

The Waikato DHB will support fluoride, at accepted safe levels being introduced into non fluoridated reticulated drinking water supplies to increase access to fluoridated water. Fluoride should be maintained in already fluoridated supplies.<sup>i</sup>

The Waikato DHB agrees with the Ministry of Health that fluoridation of drinking water supplies is the most cost effective population-based strategy to assist in the prevention of dental caries in communities of over 1000 people.

The Waikato DHB is committed to reducing health inequalities<sup>ii</sup>. As fluoridated water acts irrespectively of an individual's behaviour, ethnic or socio-economic status, Waikato DHB considers that it is effective in addressing some of the inequalities that exist in the Waikato region, predominantly in the most vulnerable population groups. Children from low socio-economic status areas, Maori and Pacific peoples in particular, experience poorer oral health outcomes compared to other population groups.

### Key information

Over 300 million people in 39 countries have access to fluoridated drinking water<sup>iii</sup>. These include Australia, Canada, Ireland, Israel, Singapore, Spain, the United Kingdom, and the United States. Currently, approximately 56 percent of New Zealand's population on reticulated water supplies receive fluoridated water.

Water fluoridation is the process of adding fluoride into a community's drinking water supply with the intention that it will decrease the levels of tooth decay. The aim is to achieve maximum oral health benefit while avoiding risk.

In 1994 the New Zealand Public Health Commission published a report on water fluoridation in New Zealand, which, in part, dealt with the evidence of possible adverse effects<sup>iv</sup>. This report found that evidence for adverse health effects such as bone fracture and cancer was inconclusive, and recommended that more research be carried out. The Ministry of Health commissioned a further review of studies on the potential adverse effects of fluoridation, and this was published in 2000<sup>v</sup>. The report stated: "No persuasive evidence of harmful effects of optimal water fluoridation was revealed, and, generally, the evidence has strengthened that there are no serious health risks associated with the practice. That was particularly the case for bone fracture risk."

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In New Zealand, the recommended level of total fluoride concentration in the drinking water supply is between 0.7 and 1 milligram per litre (the maximum level allowed in 1.5 milligrams). This is considered the optimal concentration level that provides protection against tooth decay<sup>i</sup> while minimizing public health risk<sup>vi</sup>.

The Ministry of Health states that fluoride works in three ways to protect teeth from decay, this includes:

- strengthening teeth to increase their resistance to decay,
- interfering with the bacteria that cause decay, and
- helping repair the early stages of tooth decay<sup>i</sup>

Fluoride in drinking water accounts for up to half the daily intake for fluoride in adults. Fluoridated water is not a person's only source of fluoride. Common sources of fluoride for people include food and drink, toothpaste, and fluoride supplements (e.g. fluoride tablets).

Water fluoridation is a cost effective public health strategy that also helps to reduce health inequalities<sup>vii</sup>, as the benefit of dental health outcomes (preventing dental caries) will be greater for disadvantaged population groups<sup>i</sup>.

Excessive fluoride intake can sometimes be associated with adverse health effects such as cancer, damage to bones and thyroid and brain disease.<sup>viii</sup> However, many of the studies that link fluoridation to negative health effects have been conducted in countries where the natural levels of fluoride are much higher (4-11mg) than the maximum allowed level accepted in New Zealand<sup>ix</sup>.

Water fluoridation has been associated with tooth dental fluorosis. Dental fluorosis (a form of discolouration of the tooth enamel) is a well-recognised condition and an indicator of overall fluoride absorption, whether from natural sources, fluoridated water or the inappropriate use of fluoride toothpaste at a young age. Dental fluorosis is thought to be caused by excessive amounts of fluoride during the years of tooth development<sup>viii</sup>.

In order to minimise the risk of dental fluorosis the following measures have been taken in New Zealand:

- The recommended range for optimal fluoride levels in drinking water is lower than other countries including the United States<sup>ix</sup>.
- Toothpaste being the other most common source of fluoride is available in two different types of concentrations, one especially designed for children.
- It is not permitted to add fluoride to infant formula that is marketed here due to problems arising from concerns of infants having increased exposure if water is also fluoridated.

Fluoridation alone cannot entirely prevent tooth decay meaning it is not an alternative to oral health care. However fluoridation along with brushing twice a day, eating healthy foods and visiting a dental provider will have significant oral health benefits<sup>i</sup>.

### **Statement of Waikato DHB position**

- Recognition that water fluoridation is the most cost-effective, practical and safe means for reducing and controlling the occurrence of tooth decay in communities of over 1000 people.
- Existing drinking water fluoridation programmes be continued and extended where technically feasible.

<sup>i</sup> This level is low enough to avoid fluoride toxicity

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- Support further research into the risks and benefits of water fluoridation, and into appropriate alternatives to water fluoridation in communities where fluoridation is not feasible.
- Access to fluoridated water is acknowledged as a key determinant of oral health for disadvantaged populations.
- All parts of the organisation (Waikato DHB) continue to promote messages that relate to the safety of fluoridated water systems.

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<sup>i</sup> Ministry of Health. (2009). *Fluoridation in New Zealand*. Retrieved May 20, 2009 from <http://www.moh.govt.nz/fluoride>

<sup>ii</sup> Waikato District Health Board. (2005). *District Strategic Plan*. Retrieved 8 June 2009 from: <http://www.waikatodhb.govt.nz/file/fileid/7089>

<sup>iii</sup> Centres for Disease Control. (1999). *Achievements in public health, 1990 - 1999: fluoridation of drinking water to prevent dental caries*. M.M.W.R. 48, 933-940.

<sup>iv</sup> Public Health Commission. (1994). *Water Fluoridation in New Zealand*. Public Health Commission, Wellington.

<sup>v</sup> Bates, M. (2000). *Fluoridation of water supplies – an evaluation of the recent epidemiological evidence*. Institute of Environmental Science and Research, Porirua.

<sup>vi</sup> Ministry of Health. (2005). *Drinking water standards for New Zealand*. Wellington: Ministry of Health.

<sup>vii</sup> Ministry of Health. (2004)

<sup>viii</sup> National Health and Medical Research Council of Australia (NHMRC). (2007). *A systematic review of the efficiency and safety of fluoridation*. Canberra: NHMRC

<sup>ix</sup> Auckland Regional Public Health Service. (2008). *Position Statement – Water fluoridation*. Auckland: Auckland Regional Public Health Service

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