

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 supports fluoridation 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.ⁱ

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 inequalitiesⁱⁱ. 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, Māori, and Pacific peoples experience poorer oral health outcomes compared to other population groups.

Key information

Hundreds of millions of people in around 60 countries have access to fluoridated drinking waterⁱⁱⁱ. These include Australia, Canada, Ireland, Israel, Singapore, Spain, the United Kingdom, and the United States. Currently, over 50 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.

A review of studies regarding fluoridation was undertaken by the National Fluoridation Information Service (NFIS), and published in 2011^x. A total of 25 international papers were reviewed, and the NFIS reports that water fluoridation reduces the prevalence of tooth decay in children and adults, there is no evidence that fluoridation is linked to bone fractures or cancer, and there is insufficient evidence to suggest a link between fluoride and any other adverse health effects.

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 is 1.5 milligrams

Date Issued: February 2013	Review Date: February 2016	Version 1.0
Adopted by Waikato District Health Board: 28 November 2011		Page 1 of 3

per litre). This is considered the optimal concentration level that provides protection against tooth decay¹ while minimizing public health risk^{iv}.

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,
- helping repair the early stages of tooth decayⁱ

Fluoride in drinking water accounts for up to half the daily intake for fluoride in adults. Other common sources of fluoride 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^v, as the benefit of dental health outcomes (preventing dental caries) will be greater for disadvantaged population groupsⁱ.

Excessive fluoride intake can sometimes be associated with adverse health effects such as cancer, damage to bones and thyroid and brain disease.^{vi} 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 per litre) than the maximum allowed level in New Zealand^{vii}.

Water fluoridation has also been associated with tooth dental fluorosis. This is a form of discolouration of the tooth enamel and 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^{vi}.

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 in other countries including the United States^{vii}.
- Toothpaste (which is a common source of fluoride) is available in two different concentrations of fluoride, one is 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 benefitsⁱ.

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.

¹ This level is low enough to avoid fluoride toxicity

Date Issued: February 2013	Review Date: February 2016	Version 1.0
Adopted by Waikato District Health Board: 28 November 2011		Page 2 of 3

- Support further research into the benefits and potential risks 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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- ⁱ Ministry of Health. (2009). *Fluoridation in New Zealand*. Retrieved May 20, 2009 from <http://www.moh.govt.nz/fluoride>
- ⁱⁱ Waikato District Health Board. (2005). *District Strategic Plan*. Retrieved 8 June 2009 from: <http://www.waikatodhb.govt.nz/file/fileid/7089>
- ⁱⁱⁱ 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.
- ^{iv} Ministry of Health. (2005). *Drinking water standards for New Zealand*. Wellington: Ministry of Health.
- ^v Ministry of Health. (2004)
- ^{vi} National Health and Medical Research Council of Australia (NHMRC). (2007). *A systematic review of the efficiency and safety of fluoridation*. Canberra: NHMRC
- ^{vii} Auckland Regional Public Health Service. (2008). *Position Statement – Water fluoridation*. Auckland: Auckland Regional Public Health Service
- ^x National Fluoridation Information Service (2011), Review of scientific reviews relating to water fluoridation published between January 2000 and July 2010. National Fluoridation Information Service Advisory May 2011, Wellington, New Zealand.

Date Issued: February 2013	Review Date: February 2016	Version 1.0
Adopted by Waikato District Health Board: 28 November 2011		Page 3 of 3