Community Water Fluoridation Policy statement

The Public Health Association of New Zealand supports community water fluoridation as an effective, ethical public health measure which protects and promotes oral health, and reduces inequities in Aotearoa New Zealand. Government should mandate water fluoridation in community supplies, and should hold the responsibility for the implementation on water fluoridation.

Overview

Good oral health is an essential part of overall physical, psychological and social wellbeing throughout life. It is essential for everyone's wellbeing, including basic needs such as the ability to eat, speak, smile and socialise.

Although oral health in New Zealand has improved, there are still significant ethnic and socioeconomic disparities. Poor oral health continues to have a significant negative impact on population health.[1] Dental caries is one of the leading causes of hospital admissions for children aged 0-14 years; there were 9,267 dental and hospital events (K00 – K14) in 2019, equating to 4.6% of all children's hospital events.[2] Dental caries (K02) was the most common principal diagnosis (7,161 children) from all children's hospital events.[2] For adults (aged 15 years and over), 45.5% have had one or more teeth removed in their lifetime due to dental caries in 2021, with increased prevalence for Māori (51.5%) and Pacific Islanders (48.9%).[3] Dental caries is also a risk factor for heart infections, particularly in people with underlying heart conditions including rheumatic heart disease.[4]

Community water fluoridation is an effective, safe, affordable population health strategy to protect and promote oral health at all ages, and has the potential to reduce oral health inequities. Considering around 40% of children and 35% of adults self-reported not brushing twice daily with the recommended fluoride toothpaste[3], community water fluoridation is particularly important.

Community water fluoridation is an important public health intervention for Aotearoa New Zealand

Fluoride is naturally present in soil and water. In drinking water, fluoride is taken up by saliva, washes around teeth, reduces demineralisation and promotes remineralisation of tooth enamel, hence preventing dental caries.[5, 6] The protective benefits of fluoride extends throughout life. In New Zealand, naturally occurring fluoride levels in water are generally lower (0.2 mg/L) than the optimal level of

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between 0.7 to 1.0 mg/L to achieve these protective effects.[7] A maximum acceptable value in drinking water is 1.5 mg/L.[8] Community water fluoridation is the process of adjusting the natural level to meet the optimum level.

Effectiveness

International[5, 9-11] and New Zealand research[7, 12] confirm that community water fluoridation reduces the prevalence and severity of dental caries. The NZ Oral Health Survey found a 40% reduction in dental caries among children and adolescents in New Zealand communities with water fluoridation compared to those without.[1, 7] For adults, a 21% reduction in dental caries for those aged 18 to 44 years and a 30% reduction for those aged 45 and over, based on the Australian National Survey of Adult Oral Health.[7] Community water fluoridation has particular benefits for people who do not use, or cannot afford, fluoridated toothpaste.[13, 14]

Safety

Overseas, some parts of the world have very high concentrations of fluoride in the water where adverse effects such as dental and skeletal fluorosis have been reported, and water may be treated to lower fluoride levels.[7] Dental fluorosis can occur as a result of swallowing too much fluoride while permanent teeth are developing.[7, 11] Most fluorosis is characterised by mild opaque white streaks or spots in the enamel. In more advanced cases, fluorosis manifests as mottling of the teeth, brown staining or pitting of the enamel.[11]

Yet, there have been no reported cases of disfiguring fluorosis associated with the New Zealand fluoride levels in community water supplies.[7, 15] Furthermore, there is no significant difference in dental fluorosis prevalence between fluoridated and non-fluoridated areas in New Zealand.[1, 15] Similar results have also been found in Australia, and fluorosis has declined over time while community water fluoridation in Australia expanded.[16]

A robust review has not found any evidence of adverse health effects from community water fluoridation at optimal levels such as those in New Zealand. In particular:

- Current evidence shows no association between water fluoridation and osteosarcoma (a bone cancer)[17-20]
- Evidence does not support an association between fluoridation of water supplies at levels between 0.7 and 1.0 mg/L and impaired neurodevelopment of children[21]
- Current evidence shows that water fluoridation at levels to prevent dental caries does not increase the likelihood of bone fractures; rather, some studies have found reduced fracture risk with optimal water fluoridation.[22-24]

Affordability

Community water fluoridation remains highly cost-effective for New Zealand communities.[7, 25-27] An independent research group in Australasia estimated the net discounted saving 20 years to be $1,401 million for New Zealand.[26] It was estimated community water fluoridation would result in 8 million fewer teeth affected by dental caries, which is an average of 2 per person per 20 years for all New Zealanders.[26]

Equity

Fluoridating water supplies is an essential upstream policy measure to reduce oral health inequalities.[28] Community water fluoridation is regarded as one of the most effective interventions to reduce oral health inequities.[12] New Zealand has considerable ethnic and socioeconomic disparities in both oral health status and access to dental services. Community water fluoridation will improve overall health, resulting in fewer days lost at school and works, and reduced pain and suffering.

Te Tiriti o Waitangi obligation

The 2019 Hauora report recommends the Crown "to act, to the fullest extent practicable, to achieve equitable health outcomes for Māori" .[29] Māori adults and children not only have higher rates of dental caries but lower access to dental services than non-Māori.[3] In 2021, 50.1% of New Zealand European adults (aged 15 years and over) and 74.4% of children (aged 0 to 14 years) had dental visits compared to only 37.1% of Māori adults and 71.3% of children.[3] This inequity in oral health care access led to an increased hospitalisation rate due to the increased dental-related hospital admissions. Out of 8475 dental hospitalisation events in 2019, 38.9% of dental hospitalisation due to dental caries for all ages were Māori.[2]

Based on strong evidence of community water fluoridation in preventing dental caries prevalence, the government should apply principles of equity and active protection to achieve equitable health outcomes for Māori by supporting community water fluoridation.[29] Tino rangatiratanga should be upheld and the government and decision-makers should work with Māori communities and marae to ensure access to fluoridated water supplies.[30]

Recognising that a significant proportion of the Māori population may not live in areas with community water supply, a comprehensive strategy to reduce inequalities in oral health is also needed, including alternative sources of fluoride and better access to free dental services.[31]

Principles

We conclude that the benefits of community water fluoridation undoubtedly outweigh the minimal risks. It is consistent with our ethical principles of beneficence and equity. As water fluoridation provides benefits for the wider community and is concerned with others' wellbeing, it is also consistent with the principles of whanaungatanga and manaakitanga.[32] It reflects a stewardship model of public health, acknowledging the role of government in actively working to create conditions which sustain good health, have special regard children's health, and aim to reduce inequities.[32]

The *Health (Fluoridation of Drinking Water) Amendment Act 2021* transferred the decision-making authority from local authorities to the Director-General of Health. This enables the Director-General to direct local authorities to add fluoride to drinking water supplied through its local authority supply. We welcome the enactment of the Act and the direction from the Director-General of Health to order 14 local authorities to fluoridate some or all of their drinking water supplies in July 2022.[33] However, most local water suppliers have not consistently achieved optimum community water fluoridate levels.[34] Some largest and most resourced councils could not consistently maintain the fluoride level primarily due to the implications of aging infrastructure and the resourcing deficit. [34]

Priorities

The Public Health Association recommends that the central government:

- Continue supporting community water fluoridation to protect the health benefits that have been achieved, and extend it across New Zealand where possible
- Consider issuing directions to further local authorities to fluoridate their drinking water supplies
- Implement a standardised quality assurance system to maintain the fluoride level between 0.7 and 1.0 mg/L and ensure centralised monitoring of water quality
- Provide accessible, appropriate and accurate information on community water fluoridation
- Work to provide alternatives for people not able to access community water supplies
- Continue investigating scientific evidence on the effectiveness of adding fluoride to drinking water in reducing the prevalence and severity of dental caries
- Implement an updated *Strategic Vision for Oral Health in New Zealand.*[35]

PHANZ actions to support this policy

The Public Health Association will:

- Work with health practitioners, other public health organisations, Te Whatu Ora (Health New Zealand), Te Aka Whai Ora (Māori Health Authority), local government and central government to ensure the public gets accurate information on community water fluoridation
- Actively support open, evidence-informed and transparent decision-making about fluoridation
- Support the decision of the central government and continue to advocate for central responsibility
- Work with members and local branches to support Medical Officers of Health, National Clinical Director of Oral Health, and other health and community leaders when fluoride issues are raised locally
- Revise this policy in light of new evidence as it emerges.

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