

NHMRC Public Statement

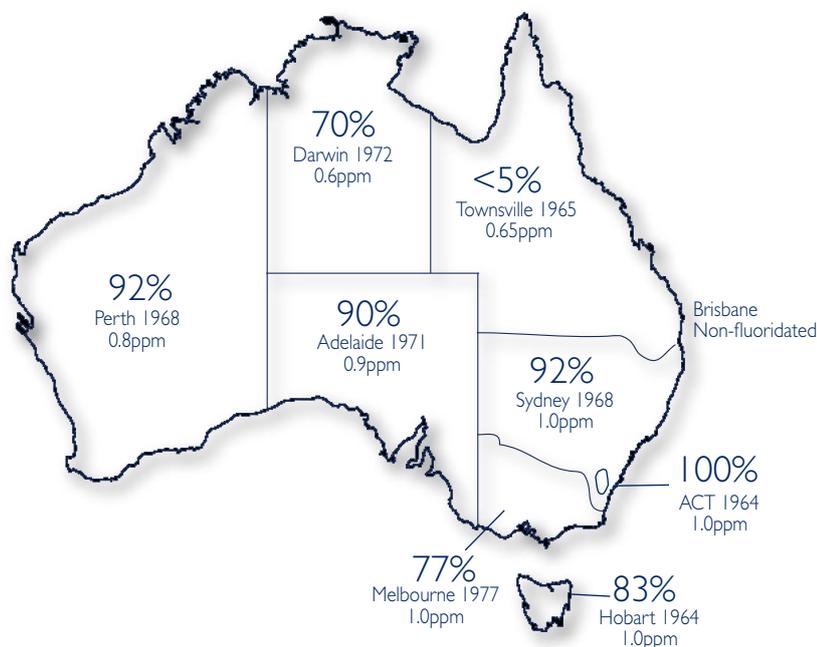
The Efficacy and Safety of Fluoridation 2007

The existing body of evidence strongly suggests that fluoridation is beneficial for reducing dental caries (NHMRC 2007).

The aim of a recent NHMRC systematic review of fluoride and health was to synthesise high level evidence in relation to the efficacy and safety of different forms of fluoridation, with emphasis on those able to be delivered as a widespread public health initiative. Methods of fluoride delivery reviewed were water, milk, salt and topical agents such as toothpaste and gels, though the evidence for water fluoridation is the most extensive.

Water Fluoridation

The aim of water fluoridation is the adjustment of the natural fluoride concentration in fluoride-deficient water to that recommended for optimal dental health. The figure below shows the dates of introduction of water fluoridation to Australian capital cities, target fluoride levels and percentage of the population who have access to fluoridated water.



Adapted from: *Water fluoridation information for health professionals*, State of Queensland, Queensland Health 2005. Percentages confirmed from personal communication with State/Territory offices in September 2007.

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NHMRC Recommendation

Fluoridation of drinking water remains the most effective and socially equitable means of achieving community-wide exposure to the caries prevention effects of fluoride. It is recommended that water be fluoridated in the target range of 0.6 to 1.1 mg/L, depending on climate, to balance reduction of dental caries and occurrence of dental fluorosis.

Additional information

Infant Formulae

Recent Australian research does not show an association between use of infant formulae and dental fluorosis. The critical period for development of dental fluorosis is after the first twelve months of life, by which time the majority of Australian children have ceased exclusive formula consumption.

Measurements were made of 49 samples of formula available at supermarkets, finding that the fluoride concentrations have fallen considerably to allow reconstitution with fluoridated water.

Fluoride supplements, including toothpastes

When using the parameter of 'fluorosis of aesthetic concern' (in contrast to 'any fluorosis'), there was no statistical significance between those using fluoride toothpaste and controls. Australia has been at the forefront of the use of a low fluoride children's toothpaste by children up to the age of six years, including giving advice on the appropriate use of toothpaste. This has been associated with significant reductions in the prevalence of any fluorosis (especially very mild and mild fluorosis) in Australian children.

Risks associated with Fluoridation

Fluorosis

There is consistent evidence that water fluoridation results in the development of dental fluorosis, however, the majority of dental fluorosis is not considered to be of 'aesthetic concern'. The prevalence of fluorosis has been significantly reduced with more appropriate use of other fluoride sources.

Skeletal effects

Water fluoridation at levels aimed at preventing dental caries has little effect on fracture risk. Fluoridation at 0.6 to 1.1 mg/L may lower overall fracture risk compared to both no fluoridation and fluoridation at levels well above those experienced in Australia.

There is currently no evidence to determine the impact of milk and salt fluoridation, or other fluorides used to prevent dental caries, upon fracture risk and osteoporosis.

Cancer

There is no clear association between water fluoridation and overall cancer incidence or mortality. The evidence shows variations on either side of the effect, however only two studies present statistically significant results, one showing an increase and one a decrease in cancer incidence.

Other

There is insufficient evidence to reach a conclusion regarding other possible negative effects of water fluoridation. There is currently no evidence available to determine the other possible negative effects of milk, salt or topical fluoride supplementation.

The report is available at:
www.nhmrc.gov.au/publications/synopses/eh41syn.htm