



THE PUBLIC HEALTH BENEFITS OF WATER FLUORIDATION

Despite the objections of some, fluoridation of drinking water has proved to be highly successful in preventing dental disease. The United States' Centres for Disease Control has rated fluoridation of drinking water as one of that country's top 10 public health achievements of the twentieth century.¹ Fluoridation is an important public health initiative that prevents dental decay and is a policy with broad support from Australia's major health groups.

The debate

Despite its demonstrated benefits, there have been many failed attempts to criticise fluoridation over the years. In the 1950s it was claimed fluoridation was a communist plot; in the 1960s it was argued fluoridation was an environmental pollutant; in the 1970s fluoridation was claimed to be part of a conspiracy by the US government, dentists, the medical profession and industry; in the 1980s it was said to be a cause of AIDS and Alzheimer's disease; while in the 1990s fluoridation was claimed to cause cancer and hip fractures.² In addition to making false claims, some critics make the mistake of falsely interpreting the results of scientific studies to base their arguments.³

In 2000 a systemic review of 214 studies examining fluoridation found there was no association between fluoridation and negative effects such as cancer and bone fractures.⁴ A further study⁵ found reduced rates of hip fractures in older women with long-term exposure to fluoridation compared to those not exposed to fluoridation. The study concluded by saying:

"If fluoridation does reduce the risk of hip fracture it may be one of the most cost effective methods for reducing the incidence of fractures related to osteoporosis. In addition, our results support the safety of fluoridation as a public health measure for the control of dental caries."

Recent research

Recent Australian research has again highlighted the benefits of water fluoridation.⁶ Using population data from the NSW School Dental Service, the study compared the caries experience of 248 944 children aged 3-15 years with and without the availability of

fluoridated water within Area Health Services. The study also examined the child caries by disadvantage using two indicators: the Socio-Economic Indexes for Areas (SEIFA) and Indigenous status.

The study showed that the caries experience of children residing in fluoridated areas is significantly lower than those in areas without fluoridation. The analysis of child caries within Area Health Services found:

"There were [15] instances where there were higher caries indices in non-fluoridated areas and 12 of these were statistically significant. In contrast, there were only three instances where there was higher caries indices in fluoridated compared to non-fluoridated areas and none of these differences were statistically significant."

The comparison of caries experience by social disadvantage highlighted two key findings. Firstly, caries was higher for children in more disadvantaged areas. This was the case for those with and without access to fluoridated water. Secondly, for each SEIFA category of disadvantage, caries was higher for children without fluoridation compared to those with fluoridated water. For 5-6 year olds, the study found "the per cent difference in dmft (decayed, missing, filled and treated teeth) between non-fluoridated and fluoridated areas ranged from 47.6% to 75.0%".

For Indigenous children the results showed a marked difference in caries experience. Again, for 5-6 year olds, the study found:

"The DMFT of Indigenous children was 45.7% higher than for non-Indigenous children in optimally fluoridated areas and 69.2% higher in non-fluoridated areas."

Further information

Such findings provide a strong evidence base to support the health benefits of fluoridation as an effective, equitable and efficient way to reduce dental caries across the community. Further information about the benefits of water fluoridation can be found on the ADA's website by following the links to 'Fluoridate Now' – www.ada.org.au/_FNHome.asp.

Contacts: Dr Bill O'Reilly, President Mr Robert Boyd-Boland, Chief Executive Officer



AUSTRALIAN DENTAL ASSOCIATION INC.

References

1. Centres for Disease Control and Prevention. Ten Great Public Health Achievements – United States 1900-1999. MMWR (Morbidity and Mortality Weekly Report) April 2, 1999, Vol 48, No.12.
2. American Dental Association (2005) *Fluoridation Facts*, pp.48-49.
3. Spencer AJ. New, or biased, evidence on water fluoridation? Aust NZ J Public Health 1998;22:149-154.
4. McDonagh MS, Whiting PF, Wilson PM, et al. Systematic review of water fluoridation. BMJ 2000;321:855-859.
5. Phipps K, Orwoll ES, Mason JD, Cauley JA. Community water fluoridation, bone mineral density, and fractures: prospective study of effects in older women. BMJ 2000;321:860-864.
6. Armfield J. Public water fluoridation and dental health in New South Wales. Aust NZ J Public Health 2005;29:477-483.