

Community Water Fluoridation and Oral Health

Do children aged five to twelve who live in fluoridated drinking water areas have a decreased risk of developing dental caries compared with those living in non-fluoridated drinking water areas of New Zealand?

Practice issue

Children's oral health in New Zealand is poor, with dental caries becoming the norm for many. Dental caries can easily be prevented by receiving the right amount of fluoride. Fluoride is found naturally in water supplies but at levels too low to provide dental protection. As a result, Community Water Fluoridation (CWF) has been implemented in many parts of New Zealand. CWF is a public health intervention and has the potential to effect health at a population level.

Research

- CWF is the simplest way of reaching all children and the most effective way of preventing dental caries.
- A study conducted in Wellington and Christchurch showed the occurrence of dental caries and their severity was reduced in children living in fluoridated areas of Wellington compared to non-fluoridated areas of Christchurch. (2.6 decayed, missing or filled teeth (DMFT) compared to 3.8 DMFT)
- Five-year-olds attending schools in fluoridated areas had an average DMFT of 1.6, those attending school in non-fluoridated areas had DMFT of 2.2.
- Dental fluorosis can occur if exposed to too much fluoride over an extended period of time, causing small white flecks on tooth's surface. Research shows that throughout New Zealand the prevalence of dental fluorosis is very low (2%), and there is no notable variance in the statistics between differing fluoridation status's.
- The cost of fluoridation is estimated to be around 50 cents per person/year, the cost of a single filling can cost upwards of \$100.

Recommendations

- New Zealand adopt a nation wide CWF programme, starting by targeting areas that are most at risk of dental decay.
- Nurses need to have an awareness regarding this topic and keep up to date with the current literature and know the fluoridation status of their area they work in.
- Nurses should continue to work with the community and target health promotion and caries prevention activities to parents with school aged children. E.g. giving out free tooth brushes in schools, demonstrations of how much tooth paste to use and proper techniques for children brushing their teeth.
- Families living outside of CWF areas should be educated on other sources of fluoride, such as mouthwash, toothpaste and fluoride tablets.

Conclusion

The research question that was developed allowed for a comprehensive review of the research around CWF, both the positive and negative's. After conducting the literature review it is clear that the benefits of CWF are significant. It results in fewer children presenting at school dental clinics with dental decay and thus saves families, communities and our health care system vast amounts of money. This is important from both a public health perspective and for individual children. If fluoride is removed from water supplies we can expect higher costs for the health care system treating decay and higher prevalence of dental caries among children.

References:

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- Ministry of Health. (2013a). Fluoride and safety. Retrieved March 28, 2014 from: <http://www.health.govt.nz/our-work/preventative-health-wellness/fluoridation/water-fluoridation/fluoride-and-safety>
- The New Zealand Dental Association. (2012). Statement on water fluoridation. Retrieved from: <http://www.healthysmiles.org.nz/assets/NZDAFluoridationStatementupdate2012.pdf>

Research Question:

Are children aged five to twelve who live in fluoridated drinking water areas at a decreased risk of dental caries compared with children who live in non-fluoridated drinking water areas of New Zealand?”

PECOT category	Information relating to question	Explanation
Population	Children aged five to twelve	Fluoride has pre-eruptive systemic benefits important for children.
Exposure (Intervention)	Children living in areas of CWF	Articles from epidemiological studies where oral health in children was compared between those living in fluoridated and non-fluoridated areas will be used.
Comparison / Control	Children living in areas where drinking water is not fluoridated	To see if CWF decreases the prevalence of dental caries in children.
Outcome	Number of decayed, missing or filed teeth (DMFT)	This is what each study used to measure the oral health status in children
Time	N/A	

(Schneider, Whitehead, LoBiondo-Wood & Haber, 2013).

References:

Schneider, Z., Whitehead, D., LoBiondo-Wood, G., & Haber, J. (2013). *Nursing and midwifery research methods and appraisal for evidence-based practice*. (4th ed.). Sydney, Australia: Mosby.