



Water Fluoridation

Case Study

Case Study: Water Fluoridation Over 25 Years - UK

Fluoridation of Newcastle upon Tyne, UK, (0.9-1.1 mg F/L) was initiated in 1969. Program evaluation of its influence on the experience of dental caries among 5-year-olds was conducted in 1976¹, 1981² and 1987³ by comparing their disease profiles to those living in a non-fluoridated community (<0.1 mgF/L), Northumberland. However, in 1994 Northumberland decided to fluoridate its Southeast region.

Researchers conducted a final comparison of dental caries experience between the two communities prior to fluoridation.⁴ They sought to compare the mean dmft and dmfs indices, missing teeth, lifetime experience of dental caries and prevalence of toothache, extractions and general anesthesia for extractions between a continuously fluoridated area over the past 25 years (1976-1994) to a non-fluoridated community. Furthermore, investigators sought to evaluate how the trends in dental caries may have changed over time in the two communities.

The fluoridation of the Northumberland was funded by the Northumberland Health Authority. Newcastle upon Tyne and Northumberland Education Authorities and teachers were key to providing programmatic success. The Northumberland Community Health Trust provided support for study planning. However, the source of funding to support the study was not clearly stated.



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Similar studies had been conducted in 1976, 1984 and 1987; therefore, a similar design was utilized to maximize comparability of estimates across studies over time. Twenty-eight schools from both Newcastle (fluoridated community) and Southeast Northumberland (non-fluoridated) recruited Caucasian children 5 years of age who had lived in the communities since birth, resulting in a final sample of 932. Children received a dental examination and parents were asked to complete a questionnaire regarding dental care utilization. (The same questionnaire was administered in 1976, 1981 and 1987.)

The dmft index was 45% lower among those living in fluoridated compared to non-fluoridated areas (fluoridated: mean dmft=1.33 vs. non-fluoridated: mean dmft=2.41). Similarly, dmfs indices were 52% lower among children living in fluoridated compared to non-fluoridated areas (fluoridated: mean dmfs=2.80 vs. non-fluoridated: dmfs=5.77). Children living in the non-fluoridated areas were twice as likely to have teeth removed than those living in fluoridated areas (15% vs. 7%). When comparing data from previous years, although dental caries declined in both groups, the relative decline was larger for those children living in the fluoridated community.

This study highlighted the importance of water fluoridation in reducing dental caries experience among young children. When compared to previous data in the same communities, despite a trend in dental caries reduction over time, children living in fluoridated areas experienced a greater reduction in dental caries than those living in non-fluoridated areas.



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More information can be obtained from:

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References:

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