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2440 Water fluoride concentration and fluorosis in Hong Kong in 1960-2001

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BACKGROUND: Water fluoridation was implemented in Hong Kong in 1961 and there had been several changes in the fluoride concentration, being 0.8 parts per million (ppm) in 1961-1967, 1.0 ppm in 1967-78, 0.7 ppm in 1978-1988, and 0.5 ppm since 1988. OBJECTIVES: Aim of this study was to describe the changes in prevalence and severity of dental fluorosis and dental caries among the Hong Kong school children in relation to changes in the water fluoride concentration. METHODS: Epidemiological surveys of representative samples of school children were conducted in 1960, 1968, 1980, 1986 and 2001. Dental caries experience of the children was measured by the DMFT index and dental fluorosis by the Dean's fluorosis index. Information was extracted from the reports to describe the caries experience and fluorosis situation of the children at age 9-12 years in the surveys. RESULTS: The mean DMFT score of the children decreased from 4.4 in 1960 to 1.5 in 1968, stayed at this level in the 1980 and 1986 surveys, and further decreased to 0.8 in 2001. The prevalence of dental fluorosis among the children surveyed in 1960 was 1%, and this increased to 59% and 70% in 1968 and 1980 respectively. It was found in the 1986 and 2001 surveys that the prevalences of fluorosis were 47% and 9% among children whose teeth developed at the time when the respective water fluoride concentrations were 0.7 ppm and 0.5 ppm. CONCLUSIONS: There has been a significant decrease in the caries experience of the Hong Kong school children after water fluoridation and the mean DMFT score remained low despite a few changes in the water fluoride concentration within the range of 0.5 to 1.0 ppm. The changes in the prevalence of fluorosis have been large and followed closely the changes in the water fluoride concentration.

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