GREEN LIGHT FOR WATER FLUORIDATION IN NEW ZEALAND

SUMMARY: Although a series of legal judgements in New Zealand have upheld the legality of water fluoridation, at a level of 0.7–1.0 mg F/L, they have been based, in part, on the understanding that the associated adverse effects are minimal. In contrast to the finding of a 2014 report, Health effects of water fluoridation: A review of the scientific evidence. A report on behalf of the Royal Society of New Zealand and the Office of the Prime Minister's Chief Science Advisor, there is evidence that in order to prevent neurotoxicity to all, including the iodine deficient, the level of fluoride in drinking water should not exceed 0.1 mg/L. In this situation, where the science is unsettled and uncertainty about the neurotoxicity risks of community water fluoridation is present, the precautionary principle should be applied and the fluoridation of drinking water put on hold.

Keywords: Legal judgements; Neurotoxicity; New Zealand; Precautionary principle; Water fluoridation.

Following a number of legal judgements on fluoridation in New Zealand in the High Court of New Zealand Te Koti Matua O Aotearoa (High Court) and the Court of Appeal of New Zealand Te Koti Pira O Aotearoa in 1964,1 in the Privy Council in 1965,2 and in the High Court on 7 March 2014,3 14 May 2014,4 26 June 2014,5 and 2 October 20146, a further High Court judgement was made on 4 September 20156 by the Hon Justice Kós. The judge found that amendments to regulations that specified that fluoridating agents used for the fluoridation of drinking water are not medicines for the purposes of the Medicines Act 1981 were lawfully made. The Court found: (i) it was not an improper purpose to use executive power to confirm the legal status of the compounds; (ii) the decision to regulate was not inconsistent with s 27(2) of the Bill of Rights; (iii) the Minister undertook adequate consultation; (iv) no error of law was made and the matter was res judicata (a matter that has been adjudicated by a competent court and which therefore may not be pursued further by the same parties); (v) the use of the regulatory power in this instance was not irrational; and (vi) the Minister did not fail to take into account relevant considerations.

With respect to the last point, Hon Justice Kós noted that the Minister gave consideration to the August 2014 review, by a panel established by the Office of the Prime Minister’s Chief Science Advisor and the Royal Society of New Zealand, and introduced by a letter to Dr Roger Blakeley, Chief Planning Officer, Auckland, by Sir Peter Gluckman, Prime Minister’s Chief Science Advisor, and Sir David Skegg, President, Royal Society of New Zealand, Health effects of water fluoridation: A review of the scientific evidence. A report on behalf of the Royal Society of New Zealand and the Office of the Prime Minister’s Chief Science Advisor,8 some submissions that supported that review, and a great majority of submissions that did not. There was no evidential basis for a suggestion that relevant considerations were not before the Minister and overlooked. The Hon Justice Kós noted that the reality was just that, “unsurprisingly (and consistently with past policy),” the Minister preferred the analysis commissioned by the Royal Society of New Zealand and the Office of the Prime Minister’s Chief Science Advisor.7
The executive summary of *Health effects of water fluoridation: A review of the scientific evidence* concluded that from a medical and public health perspective, water fluoridation at the levels used in New Zealand, 0.7–1.0 mg/L, poses no significant health risks and is effective at reducing the prevalence and severity of tooth decay in communities where it was used. The report also concludes that, on the available evidence, there is no appreciable effect on cognition arising from community water fluoridation. It noted that although studies from China and other areas, where fluoride levels in groundwater are naturally very high, claimed an association between high water fluoride levels and minimally reduced intelligence (measured as IQ) in children, they mostly failed to consider other factors that might influence IQ, including exposures to arsenic, iodine deficiency, socioeconomic status, or the nutritional status of the children. In contrast, the review noted a New Zealand study of a group of people born in the early 1970s, whose IQ was assessed in childhood at the ages of 7, 9, 11 and 13 years and in adulthood at the age of 38 years, revealed no evidence that exposure to water fluoridation in New Zealand affects neurological development or IQ.

Making sound legal judgements on water fluoridation is dependent, in part, on having an accurate assessment of the risks involved. In the New Zealand IQ study, the relatively small size of the low-fluoride group of subjects resulted a low likelihood of the study adequately assessing the effect of community water fluoridation on IQ. An analysis of eight studies on fluoride and IQ found that an MCLG (Maximum Contaminant Level Goal) of 0.1 mg/L was appropriate with the only assuredly safe level being zero. The MCLG of 0.1 mg/L matches the recommendation of Babbitt and Doland in 1939 to the American Water Works Association. Although the studies by Xiang et al. considered the confounding factors of exposures to arsenic and lead, iodine deficiency, family income, and the educational level of the parents, the 2014 review *Health effects of water fluoridation* made no attempt to estimate a safe level of fluoride in drinking water based on the Xiang et al. studies. When this is done, using a safety or uncertainty factor of 10 in order to allow for within- and between-subject variations in absorption, water consumption, and iodine status, an MCLG is obtained of 0.185 mg/L, considerably less that the levels used in community water fluoridation in New Zealand of 0.7–1.0 mg/L.

At present, widely different views are held on the neurotoxic effects of fluoride. Where the science is unsettled and uncertainty about the neurotoxicity risks of community water fluoridation is present, as in the current situation, the precautionary principle should apply with the benefit of the doubt being given to the water consumer and water fluoridation being put on hold.

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**REFERENCES**

1 Attorney-General v Lower Hutt City [High Court of New Zealand and Court of Appeal of New Zealand judgments] [1964] NZLR 438 (HC) and (CA). Available from: https://forms.justice.govt.nz/jdo/Search.jsp

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