



## OFFICE OF THE PRIME MINISTER'S CHIEF SCIENCE ADVISOR

Professor Sir Peter Gluckman, KNZM FRSNZ FMedSci FRS  
Chief Science Advisor

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20 October, 2014

Mary Byrne  
99 Longwood Rd East  
Featherston

### Information requested under the Official Information Act

Dear Ms Byrne,

I am writing in response to your requests for information relating to the report *Health effects of water fluoridation: A review of the scientific evidence*. By way of this letter, I will respond to each of the distinct requests that you made to our office over the course of several weeks.

Below, I have collated your requests and provided a response where it is within the scope of obligations under the Act to do so. Where it is not within our obligations, I have nonetheless tried to provide further explanation in the interest of clarity.

I note that according to interpretive advice from the Office of the Ombudsman, it is not within the scope of our obligations, when responding under the Act, to generate new material that is not already held by our office. Nor do we have the resources to do so. Specifically, The Ombudsman's Office Case Notes W37709 point to the "crucial distinction, for the purposes of the Official Information Act, between holding information at the time a request is received and 'being able to create' information in response to a request." The case justifies the refusal of a request under Section 18(g) of the Act on the basis that the information is not held by the department to which the request was made.

- 1) *A list of all studies relied upon in this review which showed there are no significant or realistic risks for bone fractures or bone development problems with water fluoridated at 1ppm or less, noting whether these studies were reviewed by the York Review and whether the York review deemed them to be of low validity or not.*

Data on this topic published since the York review was analysed in the report. In addition to the systematic reviews listed in Appendix table A2 (including the York

review), the following publications were assessed, some of which were also assessed in the systematic reviews:

- Chachra, D., Limeback, H., Willett, T. L., & Grynpas, M. D. (2010). The long-term effects of water fluoridation on the human skeleton. *J Dent Res*, *89*(11), 1219-1223. doi: 10.1177/0022034510376070
- Demos, L. L., Kazda, H., Cicuttini, F. M., Sinclair, M. I., & Fairley, C. K. (2001). Water fluoridation, osteoporosis, fractures--recent developments. *Aust Dent J*, *46*(2), 80-87; quiz 143.
- Hillier, S., Cooper, C., Kellingray, S., Russell, G., Hughes, H., & Coggon, D. (2000). Fluoride in drinking water and risk of hip fracture in the UK: a case-control study. *Lancet*, *355*(9200), 265-269. doi: 10.1016/S0140-6736(99)07161-5
- Levy, S. M., Warren, J. J., Phipps, K., Letuchy, E., Broffitt, B., Eichenberger-Gilmore, J., . . . Pauley, C. A. (2014). Effects of life-long fluoride intake on bone measures of adolescents: a prospective cohort study. *J Dent Res*, *93*(4), 353-359. doi: 10.1177/0022034514520708
- Li, Y., Liang, C., Slemenda, C. W., Ji, R., Sun, S., Cao, J., . . . Johnston, C. C., Jr. (2001). Effect of long-term exposure to fluoride in drinking water on risks of bone fractures. *J Bone Miner Res*, *16*(5), 932-939. doi: 10.1359/jbmr.2001.16.5.932
- Nasman, P., Ekstrand, J., Granath, F., Ekblom, A., & Forell, C. M. (2013). Estimated drinking water fluoride exposure and risk of hip fracture: a cohort study. *J Dent Res*, *92*(11), 1029-1034. doi: 10.1177/0022034513506443
- Park, E. Y., Hwang, S. S., Kim, J. Y., & Cho, S. H. (2008). [Effects of long-term fluoride in drinking water on risks of hip fracture of the elderly: an ecologic study based on database of hospitalization episodes]. *J Prev Med Public Health*, *41*(3), 147-152. {{ABSTRACT ONLY}}
- Phipps, K. R., Orwoll, E. S., Mason, J. D., & Cauley, J. A. (2000). Community water fluoridation, bone mineral density, and fractures: prospective study of effects in older women. *BMJ*, *321*(7265), 860-864.

2) *A list of all programmes/studies which are monitoring populations receiving fluoridated water, noting where in the world these activities are being carried out and what exactly they are monitoring.*

Kindly note that it is not within the scope of our obligations under the Act to provide such a list as it is not pre-existing information held by our office. Although we appreciate the interest in such information, we do not have the resources within our Office to generate such new information.

3) *A list of published epidemiological studies (conducted on populations exposed to CWF at 1ppm or less and which considered effects other than dental fluorosis) which were relied on to make the following statement on page 19: "...epidemiological data have been gathered and scrutinized for over six decades, and vast amounts of research into its positive and negative effects have been published. Suggestions of harmful effects are put forth regularly, and the scientific and health communities regularly assess the risk with the best available laboratory and epidemiological tools."*

As is the practice in academic writing, this statement provides context about the general field of research in the topic area. The first part of this statement was intended as a general reflection on the fact that early research in fluoridation began in the 1940s and continues apace to the present day, with now more than 16,500 records available in the world's largest scholarly database. The second part,

regarding regular assessment of the risks, is also a general statement based on primary source material available on the websites of public health and regulatory bodies in New Zealand and at sentinel sites around the world (WHO, CDC, NRC, NHS, NHMRC, EPA, SCHER, IARC, Public Health England, Health Canada, etc.). We do not have the resources within our office to provide a list of studies from over six decades of work, nor is this within the scope of our obligations under the Act, as it is not pre-existing information held by our office.

4) *Information about “what intake of fluoride over 40 years might cause first stage skeletal fluorosis.”*

I note that this is a research question rather than a request for existing information, that may fall within the scope of the Act, and that may be held by our office. Although the Act does not oblige a response, in the interests of clarity, we can provide the following further explanation for your reference.

The level to which you refer is not known. Skeletal fluorosis is a known risk of high F exposure, but the lowest concentration of exposure over a 40 year period that would lead to early-stage fluorosis has not been determined. Skeletal fluorosis has not been reported in New Zealand, and US studies indicate that it does not occur with long-term exposure to F at concentrations less than 4mg/L (see Kaminsky et al 1990 for review). According to the US Institute of Medicine, “most epidemiological research has indicated that an intake of at least 10 mg/day for 10 or more years is needed to produce clinical signs of the milder forms of the condition.” Hodge (1979) reported that evidence of crippling fluorosis “was not seen in communities in the United States where water supplies contained up to 20 ppm.”

1. Kaminsky LS et al. Fluoride: Benefits and risks of exposure. *Crit Rev Oral Biol Med.* 1990;1:261–281
2. Institute of Medicine, Food and Nutrition Board, *Dietary reference intakes for calcium, phosphorus, magnesium, vitamin D, and fluoride*, 1997, Standing Committee on the Scientific Evaluation of dietary reference intakes, Food and Nutrition Board, Institute of Medicine: Washington, D.C.
3. Hodge HC. The safety of fluoride tablets or drops. In: Johansen E, Taves DR, Olson TO, editors. *Continuing Evaluation of the Use of Fluorides*, AAAS Selected Symposium 1. Boulder, CO: Westview Press; 1979. pp. 253–274.

5) *Information about “what bodily requirement would be met by [the recommendation for fluoride intake in adults in Australia and New Zealand is 3mg per day for women and 4 mg per day for men],” which appears on page 29 of the report.*

The recommendations are based on intake levels that promote optimal dental health in the stated sub-populations.

Thank you for this opportunity to clarify elements of the report that may not have been well understood.

Section 28(3) of the Official Information Act describes how you may request the Ombudsman to review this response.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Allen', written in a cursive style.

Kristiann Allen  
Chief of Staff  
Office of the Prime Minister's Chief Science Advisor