

Professor Patrick Cunningham

Chief Scientific Advisor to the Government

26th March 2012

Response to my Report on Human Toxicity, Environmental Impact and Legal Implications of Water Fluoridation.

Dear Sir,

Thank you for your letter and kind words regarding my report on *Human Toxicity, Environmental Impact and Legal Implications of Water Fluoridation*.

In your letter you request that I provide you with the best study or review of animal studies on water fluoridation.

Fluoride has too many diverse effects to allow it to be evaluated based on one health study but if there was just one study to start with it would be the United States **National Research Councils** (NRC) **Scientific Committee on Fluoride in Drinking Water Review 2006**, which is examined and summarized in detail within my own report. The NRC Scientific Committee members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine in the United States of America. The NRC report is the least biased, most authoritative, and widest ranging review of the toxic effects of fluoride anywhere. I think it is by far the best summation of the evidence available. The NRC report is free and available online from the National Academy Press web site.

While I appreciate the demands on your time, I would ask that you read chapters 5 to 8 of my report which include some of the findings of the NRC Review along with more recent scientific research that is also of great importance. Chapter 14 of my report summarizes the main findings of the NRC Review in five pages which may also provide a good starting point.

I would recommend that you read the short personal statement by **Professor Robert Isaacson**, who was a member of the *National Research Council Scientific Committee*, which is provided in **Appendix 3** of my report. This provides an excellent summary of the salient points regarding the human health risks of water fluoridation.

I respectfully ask that you also read the personal statement by **Professor Trevor Sheldon**, *Chair of the NHS York Advisory Group* for the systematic review on the effects of water fluoridation, which is provided in **Appendix 2**. The opening comments are deeply disturbing as it demonstrated a deliberate distortion of science by pro-fluoridation groups, as found by the Chairman of the Scientific Review body who undertook the study.

I personally found the findings of both the NRC and NHS scientific studies to be most alarming and in complete disagreement with the very limited and biased opinions of the Irish Forum for Fluoridation Review of 2002. Their views are not supported by scientific or expert groups advising any other European country and do not support the latest EU scientific assessments, which are detailed in my report, including the European Commissions Scientific Committee on Cosmetic Products and Non-Food Products (SCCNFP) intended for consumers, who undertook a study of the safety of fluorine compounds for children under six years of age and the European Commission's Scientific Committee on Health and Environmental Risks (SCHER), who were unable to demonstrate the benefit of fluoridation of drinking water for dental health, while at the same time finding that systemic fluoridation leads to overexposure of the population to fluoride which is clearly now evident in Ireland.

I would draw to your attention the latest studies by **O Mullane et al.**¹ (2003) **Browne et al.**² (2005) and **Verkerk et al.**³ (2010) who found that the prevalence of dental fluorosis, representing chronic overexposure of the population to fluoride, has now reached endemic proportions in Ireland and that water fluoridation is the principle cause of the increased incidence. Remarkably the study by O Mullane et al. identified that the prevalence of dental fluorosis in communities with no fluoridated water was as low as 1.5% compared to 37% in fluoridated communities. It was also documented that no children were observed with moderate or severe dental fluorosis in non-fluoridated communities it was found that both moderate and severe dental fluorosis was evident in children living in fluoridated communities. The damage that dental fluorosis causes to the teeth is permanent and not reversible. Unfortunately the longterm damage to internal organs of the body or to the physical well being of a individual are not as visible.

In regard to animal studies they tend to focus on one area rather than examining all the effects of fluoride. A number of studies would need to be referred to get an overall picture. When human studies are available they may be more relevant to human health than the animal studies. One of the present areas of concern is the effect of fluoride on brain development. Several human studies of this are now available. One animal study which pointed to the need to look more closely at this area is the study by **Mullinex et al.**⁴ on page 112 of my report.

¹ O'Mullane DM, Harding M, Whelton HP, Cronin MS, Warren JJ. Dental Fluorosis in Primary Teeth of 5-year-olds in Ireland. Paper presentation at American Association for Dental Research conference, San Antonio, USA in March 2003.

² Browne D, Whelton H, O' Mullane D, Oral Health Services Research Centre, University Dental School, Cork. Fluoride metabolism and fluorosis, *Journal of Dentistry*, Volume 33 Issue 3, March 2005, Pages 177-186

³ Verkerk, Robert H.J. The paradox of overlapping micronutrient risks and benefits obligates risk/benefit analysis, *Journal of Toxicology*, Feb 2010.

⁴ Mullenix PJ, Denbesten PK, Schunior A, Kernan WJ. Neurotoxicity of sodium fluoride in rats. *Neurotoxicology and Teratology* 17 (2) 169-177 1995.

Notwithstanding the human health implications of water fluoridation my report details the various legal and environmental policy violations that exist regarding fluoridation that have not been addressed previously.

It also addressed the long-term exposure of the population to the health effects of silicafluoride compounds used in drinking water, as well as their co-toxicity with other compounds such as aluminum and lead. It is important that the you are aware, as noted in my report, that the health hazards associated with the enhanced incorporation of lead and aluminum are increased by the addition of silicafluorides to our drinking water supplies.

The primary legislation governing fluoridation of water supplies is the European Council Directive on Medicinal Products for Human Use (2004/27/EC). As noted in Chapter 10 of my report legal precedence exists within Europe establishing clearly that fluoridated water is defined as a medicinal product. The State is required under EU law- to undertake detailed risk assessment and performance of tests and clinical trials including toxicological and pharmacological tests to demonstrate the effectiveness and risks associated with water fluoridation for the protection of public health. Despite this, the Government of Ireland or its agencies have never undertaken risk assessments on the fluoridation products in use in Ireland. This would constitute a flagrant and serious violation of Directive 2001/83/EC.

In respect of EU Food Law, the EU Commission and expert scientific bodies have found that fluoridated drinking water is not safe for consumption by infants, as it results in contamination of baby infant formula milk with fluoride levels far in excess of recommended safety standards. This is deeply disturbing especially given the findings of international research demonstrating the long term neurological impact of fluoride on humans.

As detailed in my report in an attempt to quantify the potential public health risk from fluoridation of drinking water, in excess of fifty comprehensive epidemiological, toxicological, clinical medicine, and environmental exposure assessments were identified requiring further testing by the U.S. National Research Council (NRC) and the European Commission's Scientific Committee on Health and Environmental Risks (SCHER). The undertaking of these studies is regarded as of paramount importance for the protection of public health in communities where water fluoridation is practised, the details of which have been examined in my report. The completion of these studies is also a requirement of EU Law, as noted previously.

In response to parliamentary questions on my behalf, the Minister for Primary Health Care, Deputy Shortall T.D., has confirmed the findings of my report, that the Department of Health has no information on the mutagenic, teratogenic, developmental neurotoxicity, cytotoxicity, carcinogenic effects, cogenotoxicity, short-term and sub-chronic exposures or synergistic/antagonistic effects of fluoride or Hexafluorosilicic acid or silicafluoride compounds on human beings. This is despite the numerous recommendations from scientific bodies that efforts be made to determine the toxicity of fluoride and silicafluoride products.

Furthermore, the Ministers confirms on behalf of the Department of Health that no human or animal health risk assessments have ever been completed on its behalf on silicofluorides and that the biological or toxicological impacts have never been fully examined by the Department.

In addition, the Minister confirms on behalf of the Department of Health that no studies have been undertaken examining the interactive co-toxicity public health risks associated with silicafluoride compounds when mixed with other water treatment chemicals such as aluminium compounds.

As Chief Scientific Advisor I ask that you please raise these concerns with the Government. I also request in the interests of public health that you seek for an immediate cessation to the water fluoridation policy in line with the European Commissions and World Health Organization recommendations.

The recommendations of the World Health Organisation⁵ and UNICEF Report on feeding and nutrition of infants⁶ noted that while there appears to be general consensus that an optimal fluoride intake should be secured through either water fluoridation, fluoride supplements or the use of fluoridated toothpaste, this recommendation is based on **either one** of the above intake pathways not both or all together.

In Ireland consumers use fluoridated toothpaste and have no choice but to consume fluoridated water.

We are therefore exposed to much higher levels of fluoride compounds than any other consumers or citizens within Europe. This is resulting unfortunately in what may be an epidemic of health related complications that we are now witnessing in Irish society, many of these have been examined in detail in my report.

As regards your final request regarding reports on population level data between Northern Ireland and the Republic of Ireland, unfortunately very little data is available. I have however found a number of studies of interest, that are addressed in my report, examining Osteosarcoma bone cancer levels which found a 30% increased prevalence in the Republic compared to Northern Ireland. This is discussed in page 135 of my report. I would also add that the incidence of Sarcoidosis in the Republic of Ireland is twice that found in Northern Ireland, further details of this can be found on page 49 of my report, with scientific references.

Yours sincerely

Declan Waugh

⁵ Nutrients in Drinking Water, Water, Sanitation and Health Protection and the Human Environment World Health Organization, Geneva, 2005.

⁶ Unicef Report on Feeding and Nutrition, WHO regional publications European Series No 87.