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Public Health Risks from Dietary Overexposure to Fluoride Compounds.

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Dear Dr. Margaret Chan and Ms. Zsuzsanna Jakab

I previously forwarded you a report entitled *The Human Toxicity, Environmental Impact and Legal implications of Water Fluoridation*. I await an acknowledgement that you have received my report and letter post-dated the 8th March 2012.

One of the main concerns expressed in this report was the overexposure of large portions of the population to fluoride from silicofluoride chemicals used for the artificial fluoridation of drinking water. This is particularly the case for sensitive subgroups of the population especially babies and diabetics, notwithstanding the aggregate health risks posed to the wider community from cumulative fluoride overexposure from fluoridated water in addition to other dietary sources of fluoride. The report highlighted many important issues including how fluoridation of public water supplies combined with other dietary exposure is resulting in systemic toxicity to fluoride amongst the wider population.

It is evident that the concerns of the scientific community regarding exposure to fluoride are similar to those expressed by healthcare professionals and environmentalists regarding metal contaminant levels for other parameters such as lead, cadmium or arsenic or indeed from the overuse of antibiotics or prescribed medication which is now also systemic amongst populations especially, in developed countries. It is acknowledged and accepted that fluoride is a contaminant of not just water but food and beverages such as rice or tea. It is also a major component in many pharmaceutical drugs. Recent scientific studies have confirmed that fluoride contamination of foodstuffs has reached a critical tipping point for consumer safety. This is due to a combination of sources including fluoride-based pesticides (there are over one hundred and fifty fluoridated pesticides), herbicides and fumigants such as Sulfuryl Fluoride, in addition to airborne fluoride from industrial atmospheric pollution and the application of certain phosphate-based fertilisers which can also contain high levels of fluoride, in combination with anthropogenic fluoride from artificially fluoridated drinking water which contaminates any food which it comes in contact with. As a consequence, fluoride is now ubiquitous in food and water, and the potential for human exposure is substantial. While it is now acknowledged by scientific bodies including the U.S. Agency for Toxic Substances and Disease Registry (ATSDR) and the U.S. National Research Council (NRC) that subsets of the population including the elderly, people with deficiencies of calcium, magnesium, and/or vitamin C, and people with cardiovascular and kidney problems may be unusually susceptible to the toxic effects of fluoride, these very individuals cannot limit their exposure to this toxin if they live in a geographic areas where public water supplies are artificially fluoridated.

The WHO have stated that elevated fluoride intakes can have serious effects on skeletal tissues. The WHO *Guidelines for Drinking Water 2004* found that there is a clear excess of adverse skeletal effects for an individual with a total intake of 14 mg/day and suggestive evidence of an increased risk of effects on the skeleton at total fluoride intakes above 6 mg/day.

As with antibiotics, it is now acknowledged that widespread overexposure to the toxin fluoride is now occurring at dangerously high levels that are clearly impacting negatively on the health and wellbeing of consumers as well as natural ecosystems. While the recent public statement of warning by the Chief Executive of WHO on the overuse of antibiotics is to be welcomed, as is the WHO concern about the future mental health crisis regarding the increased prevalence of dementia within the population, it is now also absolutely clear from the vast amount of published scientific information readily available, that overexposure to fluoride has also become a serious public health problem. This is particularly the case in countries such as Ireland and the USA where there is systemic fluoridation of drinking water supplies. The exposure of the population to dangerously high levels of fluoride compounds from fluoridated drinking water combined with dietary intake from processed food, cooked food, beverages and pharmaceutical medications, as well as other major sources of fluoride in dental hygiene products such as toothpaste or mouthwashes must be urgently addressed in order to prevent a further crisis in healthcare at an international level.

The WHO have consistently and correctly stated that *"in the assessment of the safety of a water supply with respect to the fluoride concentration, the total daily fluoride intake by the individual must be considered."* The WHO Guidelines for Drinking Water similarly recommend that *"when setting national standards for fluoride that it is particularly important to consider volume of water intake and intake of fluoride from other sources."* Unfortunately these recommendation were never applied by the Health Authorities in Ireland. The Department of Health continue to misrepresent the WHO recommendations by stating that the WHO have found fluoridation of drinking water to be safe, without acknowledging that the WHO also clearly state that this cannot be found as fact unless the *the total daily fluoride intake by the individual is first considered.* The Health Authority have further failed to acknowledge the findings of both the ATSDR and the NRC which found that subgroups of the population remain susceptible to the toxic effects of fluoride, even at relatively low concentrations. In the interests of public health and safety it is necessary for the WHO to reaffirm these facts.

Unlike other countries no dietary fluoride assessment of foodstuffs has ever been undertaken in Ireland. **No data is available for consumers or healthcare practioners to accurately calculate total dietary exposure.** In the absence of such necessary information it is clearly an unacceptable practice to continue to impose mandatory fluoridation of all public water supplies, it is evident that to support such a policy would not only be inappropriate but potentially dangerous but must be discouraged by the WHO. Continuation of mandatory systemic fluoridation of public water supplies in the absence of necessary epidemiological, toxicological or environmental exposure data cannot be recommended as a safe preventative health policy.

It is evident that no competent physician would prescribe for a person they have never met and whose medical history they do not know, a substance which is intended to create bodily change, with the advice that they take as much as they like with no prescription, medical checkup or ongoing medical surveillance and continue to do so regardless of that individual's health status or their possible sensitivity to fluoride compounds; furthermore that they would do so regardless of the individual's total fluoride dietary exposure, while demanding that the patient must continue to self administer this medication for the rest of their lives, because some children may suffer from tooth decay. Every right-minded individual would accept that this is a preposterous notion especially as both the NHS York Review and the EU SCHER Review among others found fluoridation of drinking water to be of questionable benefit to anyone, while also observing as fact that it is a harmful toxin that causes bodily harm. Yet ironically this is exactly what the policy of artificial fluoridation of drinking water entails.

As with the threat posed by over medication of prescription drugs or antibiotics it is now well-established that overexposure to fluoride is endemic in society, especially in countries where systemic fluoridation of public water supplies continues to be practised. Sensitive subgroups of the population who are at risk of developing skeletal or dental fluorosis and who have no requirement or need for additional exposure to this toxin by consumption of artificially fluoridated drinking water nevertheless are unnecessarily placed in harms way and exposed to additional fluoride that they have no manner or means of removing safely from their drinking water supply.

It has been found and accepted that the topical application of fluoride with toothpaste, not the systemic fluoridation of drinking water, is the most efficient and beneficial mode for preventing dental caries. In communities where children use fluoridated toothpaste in addition to consuming fluoridated water they are unnecessarily put in harm's way of developing harmful, permanent and potentially crippling health effects. Some of the public health implications relating to systemic water fluoridation are well documented, for example, it is now generally accepted worldwide that babies under twelve months of age should never be exposed to fluoride or consume fluoridated water with formula milk. Yet, this practice is endemic in some countries especially Ireland, which has the lowest level of breastfeeding of any country in the world. Incredibly the Health or Food Safety Authorities in Ireland have never raised any concerns nor informed parents of the potential health risks associated with using fluoridated water to feed infants, a practice that is now universally regarded as unsafe. Consequently some 75% of infants, representing 50,000 babies in 2012 alone, are exposed to excessive levels of fluoride daily, at a time when their kidneys are not fully functioning. Recent scientific studies have warned that it could take twenty years or more for the toxicological effects of this to become evident in humans. The WHO may be aware that the Department of Biomedical science, College of Veterinary Medicine in Cornell University an ivy leaggu top five world university found that horses fed fluoridated water from community water schemes at fluoride levels ranging from 0.3-1.3mg/L developed chronic fluoride poisoning that resulted in crippling skeletal fluorosis and other diseases. It is interesting to note that the most prevalent medical condition for people living in Ireland over fifty years of age has been found to be musculoskeletal chronic pain.

After over forty years of water fluoridation it is therefore deeply disturbing to discover that no comprehensive human health risk assessment has ever been undertaken to examine the toxicological or human health impacts of fluoridation of drinking water on children or amongst the wider population. It is equally disturbing that both the NHS, the European Commission and the U.S. National Research Council have all noted that the silicofluoride chemical used for water fluoridation has never been tested for human toxicology.

In total more than fifty-nine epidemiology, toxicology, clinical medicine and environmental exposure assessments have been identified as necessary to be undertaken in order to fill data gaps in the hazard profile, the health effects and the exposure assessment of silicofluoride compounds. Not one of these studies has yet been undertaken by the responsible Regulatory Authorities in Ireland or anywhere else. The attitude appears to be, better to leave alone rather than to further incriminate those that may be held responsible and open the risk of litigation. The potential risks posed for society of using an untested chemical compound to artificially fluoridate water supplies are enormous and may yet reflect the enormous level of ill health which is present within the Irish population as a whole compared to non-fluoridated communities.

In the context of existing EU and national regulatory legislation concerning the environment, health and food, it has been found that the policy of water fluoridation contravenes thirteen EU Directives, three EU Food Regulations, four Statutory Regulatory Instruments, one EU Medical Directive, one EU Product Directive, seven international Treaties, three European Conventions and six European Action Policies, totalling thirty-eight separate acts of legislation or common policy.

It is now certain that in countries where fluoridated toothpaste is widely available that the majority of individuals do not benefit or require fluoride in their drinking water. It is evident that the majority of individuals already have adequate if not excessive fluoride dietary levels in the absence of fluoridated water. Fluoridated drinking water acts as a tipping point for many individuals that can and does result in them having harmful and permanent health effects.

In addressing the concerns expressed in my report one would hope that Health Authorities would err on the side of caution and follow a precautionary approach rather than wait to have the risks confirmed which is the approach that the Health Authority in Ireland is pursuing. Given the scientific uncertainties presented by international scientific committees regarding the health risks from fluoridation of water, in particular the acknowledged inadequate toxicological risk assessments, I request that the WHO recommend in the interest of public safety that artificial fluoridation of drinking water using silicofluoride based chemicals cease until all the necessary epidemiology, toxicology, clinical medicine and environmental exposure assessments have been completed. It is extremely alarming that despite the repeated concerns raised by international scientific bodies there is still no information available 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.

In 2007 the (BMJ) Review of Fluoridation found that *“if fluoride is a medicine, evidence on its effects should be subject to the standards of proof expected of drugs, including evidence from randomized trials”* the BMJ also found that *“there have been no randomized trials of water fluoridation.”*

Surely the only appropriate course of action to take must be to await the findings of comprehensive scientific toxicological and ecological risk assessments, as recommended by the U.S. National Research Council (NRC) and other scientific bodies including the EU Commission, the NHS and British Medical Journal. Furthermore that the completion of accurate health surveillance epidemiological studies examining the total dietary fluoride intake of the population, as recommended by the WHO, must be undertaken before any national health authority or Government may endorse the systematic fluoridation of public water supplies.

While already highlighting the lack of toxicological data for silicofluoride chemicals it is necessary to also highlight the co-toxicity risks posed from fluoride with other toxins such as lead or aluminium both of which are present in drinking water and foodstuffs. For example, it is now known that fluoride binds with aluminium to form aluminium fluoride, a compound that is ten times more soluble in the human body than aluminium on its own. This may have major implications for the increased prevalence of neurological disorders now present in society generally. The dramatic rise in dementia is a health concern that the WHO have recently raised warning of a global crisis for health authorities in addressing this disease in the future. The precautionary approach must be to limit any potential environmental toxin that may contribute to neurological disease, clearly therefore fluoridation of drinking water must be discontinued in the interests of public safety.

It is now absolutely certain that the ingestion of excessive amounts of fluoride has become a serious public health problem, particularly in fluoridated communities such as in Ireland. This is largely due to the exposure of infants to fluoride from contaminated formula feed constituted with fluoridated tap water. It is now known that up to 400,000 youths under the age of 18 years have dental fluorosis with 1% exhibiting severe dental fluorosis requiring extensive dental surgery. In Ireland this amounts to 40,000 children. In any context this is completely unacceptable. Within the wider community **the degree of dietary exposure to fluoride by individuals clearly explains the prevalence of diagnosed chronic musculoskeletal pain and osteoporosis within the population as a whole.**

For example Ireland per capita is the largest consumer of tea in the world. In analytical testing of beverage samples which I recently commissioned an accredited analytical laboratory to undertake the concentration of fluoride was found to be in excess of 25 mg/l in one of the most popular tea beverages sold in Ireland. That represents in excess of 30 times the current maximum recommended level of fluoride in drinking water. This level of fluoride from one source alone represents dangerously high exposure levels for the population far in excess of the 14 mg/day and 6 mg/day levels noted by the WHO that would cause adverse skeletal effects.

For many individuals in Ireland the major portion of fluid intake is not by consumption of drinking water but by consumption of tea followed by beer, wine or other beverages. It is not uncommon for many individuals to consume up to six to

eight cups of tea per day all made up from boiled fluoridated tap water. Add to this an extraordinarily high dietary intake of fluoride, the additional dietary exposure from foodstuffs processed in fluoridated water (which contain more fluoride than foodstuffs processed or cooked in non-fluoridated water) and further significant exposure from residues of fluoride pesticide, herbicides and fumigants in foodstuffs and the total exposure level is truly alarming. For many individuals their dietary fluid intake of fluoride could easily be in excess of 50 mg per day, multiples of the WHO guidelines to prevent chronic fluoride poisoning. In every respect such levels of dietary exposure to fluoride represent a clear public health risk for the development of crippling musculoskeletal fluorosis, with chronic joint pain and arthritic symptoms – with or without osteoporosis. It is important to note that, for persons with kidney disease such as diabetics, the health risks are much greater because the majority of fluoride will not be eliminated from the body due to malfunctioning kidneys.

Even in the United States of America, where the policy originated, the problems of chronic overexposure of the population in particular of infants has become so endemic that it is now the policy since 2006 of the American Dental Association, the American Academy of Pediatric Dentistry, and the American Academy of Pediatrics that fluoride should not be given to infants under 6 months, in any circumstance, and that the limit for children up to 3 years of age should be <0.25 mg/day for children from 6 months to 3 years of age. Dr. Howard Koh, Assistant Secretary for Health, U.S. Department of Health and Human Services (HHS) recently confirmed that in fluoridated communities all infant formulas are contaminated with fluoride from fluoridated water at levels that present a toxic threat to babies and infants.

It is now evident due to the systemic fluoridation of drinking water supplies in Ireland combined with the widespread contamination of the human foodchain with fluorides that there is clearly now no safe limit for fluoride in drinking water and the artificial fluoridation of drinking water must cease immediately. To protect public health and the environment every effort must be made by regulatory authorities to immediately reduce the level of exposure to this toxic in both drinking water and foodstuffs. This can only be effectively achieved by ending the policy of fluoridation of drinking water supplies. It is also evident based on current exposure levels, that the WHO and the European Commission must act urgently to limit the exposure of citizens to fluoride in food (drinking water is classified as a food in EU Law). Furthermore the WHO and EU Commission must recommend that the implementation and continuation of systemic fluoridation of public water supplies cannot continue without the Health Authorities undertaking public health screening of the population to establish accurate dietary exposure levels. To support this I would ask the WHO recommend that National Health Authorities should immediately establish a database for fluoride in beverages and foods consumed within their country. Such action must be undertaken urgently as a preventative health policy for protection of human health in order that consumers and medical practitioners may be more knowledgeable on dietary fluoride exposure.

In ending, I request that the WHO issue new policy advice or safety guidelines for the fluoridation of drinking water supplies that will address the concerns expressed in this letter and additional concerns including environmental toxicity as documented in the report. I look forward to your considered reply to this letter and my report.

Yours sincerely