

**Submission
No 25**

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Date: 5/3/05 6:35am
Subject: Submission on Infrastructure Provision in Coastal Growth Areas

From Patricia Wheeldon (Mrs)
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To Natasa Tasic
Submission on
3rd May, 2005

Dear M/s Tasic,

I am writing to make a submission on the Infrastructure Provision in Coastal Growth Areas Inquiry and would like to advise the following:

1. The fluoridation of public water supplies is being aggressively campaigned and promoted by NSW Health who claim its safety and benefits. This is being gazetted for delicate wetland areas.

Fluoride is accepted as a health hazard if taken without due caution, by World Health Organisation, National Health and Medical Research Council - and NSW Health admit the problem of overdose. This chemical has been tested and found problematic in NSW Health Department's own reference - EHC 227 which states adverse effects in humans, domestic animals, wildlife and the environment.

Despite this, NSW Health DO NOT test the population for fluoride intake before implementing fluoridation of public water supplies - even though NHMRC and WHO state the necessity of this precaution and NHMRC has also stated their concerns about the lack of testing undertaken by government departments prior to installing fluoridation.

See following research from EHC 227 (document advised by NSW Health as being the peak document referred to by all governments in the world when implementing fluoridation:

Environmental Health Criteria 227

Fluorides

1.4 Environmental levels and human exposure

"Fluoride accumulates in the bone tissue of terrestrial vertebrates. Virtually all foodstuffs contain at least traces of fluoride. "Elevated levels present in fish."

". . . individual exposure to fluoride is likely to be highly variable."

". . . estimated intakes of fluoride in adults as high as 27 mg/day have been reported, principle source being drinking water."

1.5 Kinetics and metabolism in humans and laboratory animals

"Fluoride is rapidly distributed by the systemic circulation to the intracellular and extracellular water of tissues; however, in humans and laboratory animals, approximately 99% of the total body burden of fluoride is retained in bones and teeth."

"Fluoride crosses the placenta and is transferred from mother to fetus."

"Concentrations of fluoride in whole blood of individuals residing in a community in the USA receiving

fluoridated drinking water ranged from 20 to 60 micrograms/litre.

"Statistically significant trend of an increased incidence of osteocarcinomas in male rats with increasing exposure to fluoride. However, the incidence was within the range of historical controls."

"Fluoride has both beneficial and detrimental effects on tooth enamel."

"The prevalence of dental fluorosis is highly associated with the concentration of fluoride, with a positive dose-response relationship."

"Fluoride has both positive and negative effects on human health, but there is a narrow range between intakes that are associated with these effects."

8.1 General Population

8.1.1 Acute toxicity

Gessner et al (1994) reported the case of a death due to acute fluoride poisoning resulting from improperly fluoridated drinking water; the individual was estimated to have ingested approx. 17.9mg fluoride/kg body weight prior to death."

"Generally the more soluble salts of inorganic fluorides (eg sodium fluoride) are more toxic than those that are weakly soluble or insoluble (eg calcium fluoride) (WHO 1984).

8.1.3.2 Skeletal fluorosis

There have been no systematic studies of the prevalence of this disease in the USA.

8.1.3.8 Dental effects2

2) Dental fluorosis

"Even at low fluoride intake from water, a certain level of dental fluorosis will be found (Fejerskov et al. 1996)

"Over the past 30-40 years, increase in prevalence of dental fluorosis among populations consuming fluoridated and non-fluoridated drinking water"

9.2.3.3 Vertebrates

lists ongoing problems with domestic animals

"stiffness of joints, dental & skeletal fluorosis" and "lowered milk production and detrimental effects on reproductive capacity of animals."

10.1 Evaluation of human health risks

10.1.1 Exposure

Estimates of total fluoride intake needed in order to derive accurate estimates of daily total fluoride intake in humans living in fluoridated as well as non-fluoridated areas.

10.1.2 Hazard identification

"Compared with many other chemicals, there is a relatively narrow range between intakes associated with beneficial effects and exposures causing adverse effects."

"In children, intakes of fluoride associated with beneficial effects on dentition overlap with those that lead to an increased prevalence of dental fluorosis."

"Evidence from ecological studies suggests that there may be an association between the

consumption of fluoridated drinking-water and an increased incidence of hip fracture (based on hospitalisation rates), particularly among the elderly. These results should be interpreted with caution, however, in view of the limitations of epidemiological investigations of this design. Moreover, owing to the lack of data on individual exposure in such studies, it is difficult to derive meaningful conclusions concerning the exposure-response relationship for possible skeletal effects associated with exposure to fluoride from these studies."

"Although the weight of evidence does not support the view that fluoride causes cancer in humans, the data on bone cancer are relatively limited."

11.2 Recommendations

"Considerations should be given to the levels of fluoride and the means of application required to maximize the beneficial effects of fluoride while minimizing the potential for adverse effects on the skeleton and teeth.

It is recommended that international and national agencies identify areas in which health effects related to fluoride are found, identify the primary sources of fluoride exposure and take appropriate action(s) to reduce exposure.

It is recommended that international and national agencies support research to better characterize total fluoride exposure, exposure-health relationships and the various factors that modify and influence these.

In areas exposed to increased fluoride from anthropogenic sources, fluoride levels in the environment should be monitored for changes using appropriate bioindicators."

12. FURTHER RESEARCH

"There is a need to improve knowledge on the accumulation of fluoride in organisms and on how to monitor and control this."

"The biological effects associated with fluoride exposure should be better characterized."

12.1 Health effects research

"There is a need:

- a.. to determine total dietary fluoride intakes and bioavailability and elucidate the relative contribution of water and foodstuffs to fluoride intake;
- b.. to develop robust markers of fluoride exposure and effects in animals and humans to further elucidate the mechanisms (including work on a molecular level) of fluoride's effects on bone, and how these might be reversed;
- c.. to design high-quality studies at population and individual levels, to characterize the adverse effects of fluoride on bone, cancer and reproductive outcomes; available data sets should be exploited to generate sound epidemiological observations - for example, through a linkage between population registries in high-exposure areas and cancer or other disease registries;
- d.. to characterize the potential interactions of fluoride with other elements - aluminium, copper, lead, arsenic, selenium - in the environment and their influence on fluoride bioavailability and mobility;
- e.. to clarify quantitatively and mechanistically how environmental factors (e.g., atmospheric pollution, coal burning, climate, rainfall, altitude) and lifestyle (including occupation) influence fluoride exposure;
- f.. to characterize the short- and long-term turnover of fluoride in the body and how factors such as bone remodelling and renal function influence this;
- g.. to improve the routine quantitative analysis of fluoride in body fluids;
- h.. to develop robust biomarkers in animals and humans;
- i.. to investigate the passage of fluoride through the food-chain from the geochemical environment to the diet;
- j.. to determine if fluoride has potential adverse effects on other systems, including the neurological system;

k.. to investigate what factors (age, genetic polymorphisms, diet, etc.) might make particular population subgroups more susceptible to the effects of fluoride; and
 l.. to determine the mechanisms associated with the clastogenicity of fluoride.
 "Additional research needs include studies on the interactions of fluoride with nuclear proteins (i.e., histones) and polyamines as well as on factors influencing the membrane transport of fluoride."

12.2 Environmental effects research

"There is a need:

- a.. for the identification of more fluoride-sensitive species from different environmental compartments for use as bioindicators;
- b.. to define critical measures of fluoride concentrations in soil to assess plant fluoride availability (i.e., when plant fluoride concentrations increase significantly from background or, to a lesser extent, become toxic to plants);
- c.. to determine the bioavailability of fluoride in animals that ingest significant quantities of soil in their diet (e.g., cattle);
- d.. for the standardization of the assessment of the effects of fluoride on wild animals; and
- e.. to improve the quantitative routine analysis of fluoride in soil and plants."

13. PREVIOUS EVALUATIONS BY INTERNATIONAL BODIES

"The WHO recommended guideline value for fluoride in drinking-water is 1.5 mg/litre (WHO, 1993, 1996b). It was also noted that "in setting national standards for fluoride, it is particularly important to consider climatic conditions, water intake and intake of fluoride from other sources (e.g., from food and air). In areas with high natural fluoride levels, it is recognized that the guideline value may be difficult to achieve in some circumstances, with the treatment technology available" (WHO, 1996b).

"An expert consultation of the WHO on trace elements in human nutrition and health (WHO, 1996c) categorized fluoride among "potentially toxic elements, some of which may nevertheless have some essential functions at low levels." Fluoride was regarded as "essential," since the consultation "considered resistance to dental caries to be a physiologically important function." The consultation indicated that total intakes at 1, 2 and 3 years of age "should, if possible, be limited to 0.5, 1.0 and 1.5 mg/day, respectively," with not more than 75% coming in the form of soluble fluorides from drinking-water. It was also noted that "adult intakes exceeding 5 mg of fluoride per day from all sources probably pose a significant risk of skeletal fluorosis."

2. A visible warning sign of overdosing on fluoride is dental fluorosis - a problem which is rising in the fluoridated areas of this State. Dental fluorosis is one of a number of health problems associated with fluoride overdose (skeletal fluorosis and thyroid problems also connected). Note - now being presented are thyroid deficiencies in the population, suggestions being put forward to add iodine to milk. If iodine depletion is due to fluoridation, why are there no tests being undertaken to determine whether there is a possible connection?

3. NSW Health have advised concerned residents that there is no double blind, scientific, peer reviewed research being undertaken to address safety concerns relating to this product merely that there was, at one time, research begun but discontinued as unviable.

4. Most water is used for laundry, bathing, flushing toilets, car washing and other domestic/industrial activities. All this waste water dispersed to delicate coastal environment.

5. Although NSW Health claims that fluoride is 'safe' and 'natural' I note that silicofluoride is the common chemical for use in fluoridation public water supplies. This is an industrial by-product containing impurities of heavy metals, all dispersed into coastal environment.

6. Dental decay in some unfluoridated north coast areas is less than in neighbouring long-term

fluoridated areas yet area gazetted for fluoridation regardless.

7. NSW Health claims approximately 50% of fluoride ingested is retained - World Health Organisation states 75-90% 'avidly' taken up by bone and retained. Micro-organisms and plantlife adversely affected - see EHC227.

8. Chemical most often used in fluoridation systems (silicofluoride Hydrofluorosilic acid $[H_2SiF_6]$ or Sodium silicofluoride $[Na_2SiF_6]$) has never been properly tested for its effects on human or animal health - see EHC227.

Thank you for your attention and for making this submission a part of your Inquiry. I am hoping to be advised as to the outcome of this Inquiry at its conclusion.

Yours sincerely

Patricia Wheeldon (Mrs)