

Review of the New Zealand Report Released August 2014

Review undertaken by Paul Connett, PhD,
Director, Fluoride Action Network
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Part Two

Background

When historians write about our age they will be very puzzled by the fact that for over 60 years health agencies in a handful of countries (particularly English-speaking countries like Australia, Canada, Ireland, New Zealand, the UK and the US) have pursued with such vigour a public health practice as foolish as putting a known toxic substance (i.e. fluoride) into the public water supply (and at levels which are approximately 200 times the level that occurs in mothers' milk).

Still even more puzzling is why this promotion has continued even after the biggest promoter of this practice in the world - the Oral Health Division of the CDC - finally admitted in 1999 that the predominant action of this substance as far as any benefits are concerned is *topical* not *systemic* (CDC, 1999). With this admission the practice should not have continued for another day, let alone another 15 years! *Let me be very clear here, according to fluoridation promoters - if it works at all -it works largely on the surface of the teeth and thus there is little need to swallow fluoride when it is freely available in fluoridated toothpaste. Moreover there is no rationale whatsoever to excuse the arrogance of forcing it on people who don't want it, especially those who can't afford to avoid public drinking water.*

Hand picked governmental review panels

Time and time again when this practice is under political or scientific threat pro-fluoridation governments hand pick panels (usually containing a mix of government employees and scientists who are known to be pro-fluoridation) to "review" the literature and thence deliver a rubber-stamp for government policy. In chapter 24 of our book *The Case Against Fluoride*, my co-authors and I we discuss three recent examples of this

- 1) The Irish Fluoridation Forum (2002);
- 2) Health Canada's selection of 6 experts to review the literature in 2007 (four of which were pro-fluoridation dentists) and
- 3) the Australian National Health and Medical Research Council of 2007 (NHMRC, 2007).

The NHMRC's whitewash review in 2007

The NHMRC review followed by just a few months one of the most comprehensive reviews of the toxicity of fluoride in water ever attempted, namely the 500-page review by the US National Research Council of the National Academies (NAS or NRC, 2006). What was remarkable about the NRC review panel was that every effort was made to find a balanced panel to do the job. Of the 12 panel members, 3 were pro-fluoridation, 3 were anti-fluoridation and 6 had not declared their position publicly. The panel was expected to take one year to review the toxicity of fluoride in water, but instead took three and half years. The end result was very comprehensive. The 500-page report contained a mine of information gleaned from animal studies, human case studies, clinical trials and epidemiological studies as well as mathematical modelling in the case of fluoride's impact on the bone. The US NRC panel didn't look at the benefits or risks of fluoridation per se but it was a wonderful platform from which the NHMRC could have started. However, instead of mining this invaluable report, the NHMRC panel, casually "dismissed its relevance" to its task, with these two sentences:

The reader is also referred to recent comprehensive reports regarding water fluoridation by the World Health Organization (WHO, 2006) and the National Research Council of the National Academies (NAS, 2006). The NAS report refers to the adverse health effects from fluoride at 2–4 mg/L, the reader is alerted to the fact that fluoridation of Australia's drinking water occurs in the range of 0.6 to 1.1 mg/L.

There are a number of problems with this cavalier "dismissal."

- 1) It is inaccurate, the NRC did not restrict itself to studies between 2 and 4 ppm.

- 2) In chapter 2 the NRC panel performed an exposure analysis and showed that a number of subsets of the population drinking water at 1 ppm would exceed the EPA's safe reference dose (0.06 mg/kg bodyweight/day, see the figure on p.85). These subsets included bottle-fed infants.
- 3) The NHMRC panel, like many other fluoridation promoters (see the NZ review discussed in part 1) have confused *concentration* and *dose*. For example, high water drinkers in a communities drinking water in the range of 0.6 to 1.2 ppm fluoride, could easily get a higher *dose* of fluoride than low-water drinkers in a 2 or even 4 ppm community.

NHMRC, 2014

We are told by FAN Australia that the panel selected for this current review by the NHMRC has at least nine members who are known to be pro-fluoridation and have other conflicts of interests. Not one of the experts offered by citizens to help with this review were accepted.

The significance of one of the highly restrictive criteria laid out by the NHMRC panel may not have been obvious to a layperson. They are only accepting for review any study published after Oct 1, 2006. This means that they have found a way to ignore the NRC review *again*, because this review was published in *March* 2006! So now they have managed to avoid the most important toxicological review ever carried out– not once but twice!

The key thing to watch out for

Nearly all pro-fluoridation reviews dismiss studies that have found harm, by using sloppy descriptions like “the concentration at which the study was carried out was high” without defining what they mean by high and without applying the discipline of a **margin of safety** analyses which is so critical whenever any study finds harm. This involves

- 1) Translating the concentration where harm is found into a dose or range of doses.
- 2) Then determining the lowest dose where that harm was found.
- 3) Then applying standard safety factors to that dose in order to predict a safe dose that would protect all members of society from that harm.

It is not accidental that such *margin of safety analyses* are not attempted by fluoridation apologists. They know that if they were to apply the standard safety factors used by toxicologists working for regulatory agencies to the harm documented in the NRC (2006) report- and several other studies published since - that fluoridation would have to be rejected.

There simply is no adequate margin of safety to protect all citizens drinking fluoridated water from lowered IQ (Xiang et al., 2003 and several other studies reviewed by Choi et al, 2012); possibly lowered thyroid function (Bachinski et al, 1985; Lin et al., 1991); the first symptoms of skeletal fluorosis which has symptoms almost identical to arthritis (NRC, 2006) and increases in bone fractures in children (Alarcon-Herrera et al, 2001) and hip fractures in the elderly (Li et al, 2001).

So watch out for the words “margin of safety” in any review of fluoridation’s safety. If they are not there then the review is not serious. They weren’t there in the whitewash review by the NHMRC in 2007, will they be in 2014? And if they are check to see what safety factors they use.

The key safety factor is the factor used to extrapolate from a *small* human study to allow for the full range of sensitivity to any toxic substance in a *large* population. This safety factor is referred to as the “intra-species variation” safety factor and the value used is usually ten. In other words if you are trying to protect a whole population from harm from a toxic substance you divide the value that found harm in a human study by ten. Actually, the US EPA is supposed to be even more protective than that. They don’t just divide the Lowest Observable Adverse Effect Level (LOAEL) by ten, they try to find a No Observable Adverse Effect Level (NOAEL) and divide that by ten. If they don’t have a NOAEL then they are supposed to divide the LOAEL by 100!

We have discussed “margin of safety” analyses in chapter 20 of our book for those who are interested in more details.