

Review	York	US National Research Council	Cochrane	NZ
Timeframe	1 year (1999-2000)	3 years (2003 – 2006)	2015	3 months (April - July 2014)
Budget	£ 1 million	\$US 6 million		\$ NZ 50 thousand
Chair	Advisory panel: neutral; Review panel: pro-fluoridation	Pro-fluoridation	Independent organisation	Two co-chairs, publicly committed to fluoridation
Panel makeup	There were two panels – a fully pro-fluoridation review panel and a mixed advisory panel: pro-, anti- and neutral.	13. Balanced: pro-, anti-, and neutral	Internationally recognized as the highest standard in evidence-based health care resources.	5. All pro-fluoridation. Some panellists declined/resigned due to procedural concerns.
Methodology	Systematic review of original published research (approx 3,300). This was established by the UK Health Department “to prove once and fall the safety and effectiveness of fluoridation”, as it was intended to launch a renewed push for expanding fluoridation. Excluded animal studies on toxicity, and medical case histories. Parameters were deliberately narrowed to exclude 100 case histories of fluoride-poisoned children received by the review Board.	Systematic review of original published research on adverse health effects of fluoride, from 1ppm upwards. 512 page report. Included animal studies on toxicity, and medical case histories. Focus was solely on health risks from fluoride; not claimed benefits.	Researchers from the Cochrane Oral Health Group reviewed the evidence - up to 19 February 2015 - for the effect of water fluoridation. They identified 155 studies in which children receiving fluoridated water (either natural or artificial) were compared with those receiving water with very low or no fluoride. Twenty studies examined tooth decay, most of which (71%) were conducted prior to 1975. A further 135 studies examined dental fluorosis. No review of health risks.	Some original research allegedly reviewed. No record of what was rejected. No record of “anti-fluoridation” studies not cited. Pro-fluoridation panel members wrote their own summaries, gave these to the writer to consolidate, and peer-reviewed their own work. Co-chair Skegg admits that the research on toxicity is so ‘vast and complex’ that they could not possibly review it – second hand pro-fluoridation reviews were adopted instead, contrary to the statements in the public report. Excluded most studies on toxicity, just like York.
Transparency	Review was publicized before being conducted. Information provided openly to the public during the review. Pre-publication peer review included those opposed to fluoridation.	Open, transparent process. The existence and membership of the committee (including a short summary of the project) were all online. Parts of the first meetings were open to the public and some public submissions were heard. Wide canvassing of external community for relevant research. Members of the public also submitted studies/papers for the NRC committee to include, and at least some of those were used.	This was an in-house systematic review, which is the way the organisation works. It is considered the ‘gold standard’ of scientific analysis on health matters.	Conducted in secret, with no external input. Peer reviewers appear to have been selected for pro-fluoridation views. No attempt to have a balanced panel, and evasive when asked what experts with views against fluoridation were approached.
Outcome	In spite of the bias with which it was established, this review presents a summary of the best available and most reliable evidence on the alleged efficacy of water fluoridation. “Given the level of interest surrounding the issue of public water fluoridation, it is surprising to find that little high quality research has been undertaken.” No conclusive evidence on safety, or benefit to the poor. Evidence for general benefit in reducing tooth decay was based on few studies, of mediocre quality, with wide-ranging conclusions (including fluoride <u>increasing</u> tooth decay). “Legitimate scientific controversy will remain until better quality research is done.”	The level (of natural fluoride only) allowed in the US of 4ppm is not safe. A promised but disallowed minority report would have recommended a maximum level of 0.4ppm until a truly safe level could be scientifically determined. The Chair stated in an interview for Scientific American “What the committee found is that we’ve gone with the status quo regarding fluoride for many years—for too long really—and now we need to take a fresh look . . . In the scientific community people tend to think this is settled. But when we looked at the studies that have been done, we found that many of these questions are unsettled and we have much less information than we should, considering how long this [fluoridation] has been going on.”	97% of all research at high risk of bias, and variability in results, makes firm conclusions about benefit impossible. Studies relied on for claims of benefit were all old, and irrelevant to modern day society. Modern research is required to determine whether water fluoridation confers any additional benefit over other oral health measures in today’s society. There was no evidence of fluoridation mitigating social inequalities in oral health. There was no evidence of benefit to adults. There appeared to be a benefit to children, but this was based on old unreliable studies. (35% in deciduous teeth, 26% in permanent teeth, and 15% more caries-free children) (Note: these last two findings are consistent with a temporary delay in decay during childhood, disappearing in the teenage years.) There was no consistent reliable evidence as to whether tooth decay increases or decreases when fluoridation is ceased. At 0.7ppm, fluoridation causes dental fluorosis at a severity of personal concern in 12% of the population. Note: these conclusions are essentially the same as the York Review.	Concluded that there was general consensus that fluoridation is ‘safe and effective’, as the two co-chairs had publicly proclaimed before the review. This was shortly after the head of the National Poisons Centre, Michael Beasley, stated publicly that the “I think the jury is still out regarding the safety of Fluoride.” Claimed there was an adequate margin of safety in spite of repeated statements throughout the report identifying there was not.