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**FLUORIDATION:
DECISIONMAKING IN NEW ZEALAND.
IS IT REALLY FREE FROM DECAY?**

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ABSTRACT

Fluoridation of public water supplies has been controversial since its inception in the 1950's and, internationally, is becoming increasingly so. As a public law issue it involves questions of State power and responsibilities within public health law, and individual rights and civil liberties, in addition to medical ethics considerations. The purpose of this paper is to examine the practice of public decisionmaking against a public law background; the process by which decisions on the implementation of fluoridation in New Zealand at both the macro and micro levels have been and are being made. This is viewed from the perspective of the decisionmaking process including the inputs to decisions, and how both affect the substance of those decisions. The paper first identifies the appropriate standards and limitations on State public health decisionmaking. The key reports which have informed decisionmaking on this subject are critiqued along with the case of *Attorney General; ex parte Lewis v Lower Hutt City* where the vires of fluoridation was determined. The reports being of a technical nature the writer's ability to authoritatively critique that aspect of them derives from his Bachelor of Science degree in Analytical Chemistry. The paper traverses recent local body decisions with emphasis on the level of public consultation and reliability of information. The paper identifies serious concerns regarding the processes at all levels of this issue concluding that the standards identified at its outset are not met.

Word length.

The text of this paper (excluding contents page, footnotes, bibliography, and annexures) comprises exactly 11993 words.

The main countries are New Zealand, Australia, USA, Great Britain/Ireland and Canada.
See World Health Organisation figures at <http://www.who.int/diseases/diseases/diseases.html> (last accessed 14 August 2002). See also New Zealand figures in J. A. Matheson and R. Mann, 'The Fluoridation Experiment: Science or Swindle?' *Am. J. Public Health* 76, No. 6, 1986, 343.

I INTRODUCTION

Water fluoridation has been a controversial issue since it was first mooted in the 1940's. New Zealand is one of a minority of countries who fluoridate their public water supplies.¹ Dental health was a major health issue at that time, the rate of tooth decay being at least ten times today's level² with downstream effects of gum and even blood infection. Fluoridation was proposed as a response.

The amount of published research on this issue is vast. It is not the purpose of this paper to argue the pros and cons of fluoridation although some factual matters are necessarily discussed where relevant. Rather, this paper examines the decisionmaking process adopted in New Zealand, the quality of that process's outputs, and the consequent results. Although the focus is on fluoridation, important lessons are demonstrated regarding other high profile issues, most currently Genetic Engineering. This paper first discusses the fundamental public law issues inherent in State-enforced public health measures and identifies minimum standards of State conduct. It then reviews the key historical decisions and reports which inform fluoridation decisions in New Zealand. By way of comparison it refers to how the decision has been and is made in other jurisdictions. It then analyses the approaches taken in four recent local body decisions. This paper then identifies specific issues and statutory obligations as constraints on the decision-making function. It finally assesses the past and current standard of decisionmaking, and the current situation, against the standards initially identified.

The three key questions with fluoridation or any addition to the water supply are:

- 1) Is the measure effective in promoting health; what are the benefits
- 2) Are there any adverse health effects or dangers

¹ The most prominent are New Zealand, Australia, USA, United Kingdom/Ireland and Canada.

² See World Health Organisation figures at <http://www.whocolab.od.mah.se/euro.html> (last accessed 14 August 2002). See also New Zealand figures in J. Calquhoun and R Mann "The Hastings Fluoridation Experiment: Science or Swindle?" *The Ecologist* vol 16, No. 6, 1986, 243.

3) Is such compulsion a breach of civil rights and if so is it demonstrably justifiable

Where answers to the first two points depend on assessment of technical or scientific studies, the question of both capacity and competence of proposed decisionmakers arises. Not only individuals, but local councils or even area health boards will not be in a position to make such assessments themselves; they must necessarily rely on the opinions of "experts".

The civil rights question is however a different matter. As will become apparent, regardless of the technical arguments, citizens will insist on their right to ultimately make this decision for themselves on this basis.³ Whether citizens or the State should make that decision is a matter of ongoing debate. A further relevant issue is, where it is decided that a measure such as fluoridation is justified, what is the State's consequent responsibility in safeguarding citizens, including minority groups, both immediately and in terms of maintaining a "watching brief" over population effects and research into health effects.

II MEDICAL TREATMENT AS STATE POLICY; PUBLIC AND PRIVATE INTEREST CONSIDERATIONS

The issue is whether it is appropriate for the State to effectively prescribe medical treatment for the population (regarding fluoridation in an indiscriminate and uncontrolled manner) in pursuit of a public health objective. In any such instance the

³ This position reflects that of philosopher John Stuart Mill (1856): One very simple principle [justifies state coercion]. That principle is, that the sole end for which mankind is warranted, individually or collectively, in interference with the liberty of action of any of their number, is self protection. That the only purpose for which power can be rightfully exercised over any member of a civilised community, against his will, is to prevent harm to others... His own good, either physical or moral is not a sufficient warrant. He cannot be rightly compelled to do or forbear because it will be better for him to do so, because it will make him happier, because, in the opinion of others, to do so would be wise, or even right.

government biologically alters an individual to conform with some public objective.⁴ Even when the objective is worthy, such as preventing disease, the practice raises civil liberties issues, as "the government transforms individuals into instruments of state policy."⁵ Such a measure is of even greater concern when, in the case of fluoridation, it is only exposure up to around 10 years of age that can have any benefit, yet the entire population including those without teeth are treated: that is the majority of the population is exposed in targeting a specific sector in pursuit of State policy.⁶

Where the mere taking of a blood sample is considered medical treatment under the Bill of Rights Act,⁷ measures such as vaccination and fluoridation go further: the State does not merely invade the body but reconstitutes a person's physical constitution to suit its purposes. The leading American cases recognise a right of human biological integrity and that biological alteration constitutes a unique breach of that right.⁸ The case of *Jacobsen*⁹ revolved around compulsory vaccination in the pursuit of eradicating smallpox, upholding the State's right *where the individual posed a risk to the public*. In this context the court held that even beneficial State intervention must have a "real and substantial relation" to protection of the *public* health, and cannot be a "plain, palpable invasion of rights."¹⁰ In New Zealand vaccination is not compulsory

⁴ Sheldon Gelman "The Biological Alteration Cases" *William and Mary Law Review* May 1995, 1203. (Gelman)

⁵ Gelman above n4, 1204. See also *Olmstead v United States* 277 US 438, 479 Brandeis J dissenting: "Experience should tell us to be most on our guard to protect liberty when the Government's purposes are beneficent."

⁶ See the United States National Primary Drinking Water Regulations; Fluoride, 50 Fed. Reg. 47,156, 47,171 (Appendix A-proposal for a new warning notice to the public, which reads: "Fluoride, at the appropriate levels in the drinking water of children up to the age of nine, reduces cavities."). See also Am. Jur. 3d Proof of Facts Taber's Cyclopedic Medical Dictionary 682 (16th ed. 1989), which states that "fluoride taken after the age of 8 to 10 will have little effect on the prevention of dental caries." Cited in D. A. Balog "Fluoridation Of Public Water Systems: Valid Exercise Of State Police Power Or Constitutional Violation?" *Pace Environmental Law Review* Summer 1997, 645.

⁷ New Zealand Bill of Rights Act 1990 s11. See also *Ministry of Transport v Noort* [1992] 3 NZLR 260.

⁸ *Jacobsen v Massachusetts* 197 US 11 (1905), *Buck v Bell* 274 US 200 (1927), *Skinner v Oklahoma* 316 US 535 (1942), *Washington v Harper* 494 US 210 (1990).

⁹ *Jacobsen v Massachusetts* 197 US 11 (1905).

¹⁰ *Jacobsen* above n9, 31.

and individual "biological alteration" cases have required extreme consequences before the courts will sanction such State compulsion.¹¹

There are three basic judicial approaches in balancing individual rights with State powers. First is the "rational basis" approach which allows for State policy intervention so long as there is a rational reason, even absent scientific proof, commonly applied regarding public health measures. Second is the "intermediate" approach where the State must show a substantial, rather than simply reasonable, relation between the means and the end, which must be an important, not just legitimate State interest, commonly applied where discrimination arises from a measure. Finally is the "strict scrutiny" approach applied where a measure infringes fundamental rights and freedoms.¹² In *Lewis*¹³ as in the United States fluoridation was approached under the minimum standard of scrutiny, the "rational basis" approach. Conversely, many governments, most notably in continental Europe,¹⁴ apply the stricter standards. The writer concurs that "since risk assessment and scientific evidence are so important in evaluating public health measures [the rationality basis] hardly seems sufficient."¹⁵ Nevertheless that is the ongoing situation under which the decisionmaking process in New Zealand is examined in this paper.

A State Rights and Responsibilities in Medical Intervention

The European *Convention for the Protection of Human Rights and Dignity of the Human Being with Regard to the Application of Biology and Medicine* 1997 is useful

¹¹ See for example *Re J (an infant): B and B v Director-General of Social Welfare* [1996] 2 NZLR 134 involving refusal of a life-saving blood transfusion; *Healthcare Otago Ltd v Williams-Holloway* [1999] NZFLR 804, 809 involving refusal of chemo therapy for a critical cancer condition; *In the matter of BEW (no 2)* [1995] NZFLR 89 regarding compulsory sterilisation of an intellectually handicapped adult woman; *Re S* [1992] NZFLR 208, 214 Twaddle J declining the application for forced electric shock treatment as not meeting the "least intervention" standard.

¹² For discussion see L Gostin *Public Health Law* (University of California Press, Berkeley, 2000) 77-81. (*Public Health Law*)

¹³ See *Lewis Attorney-General; ex parte Lewis v Lower Hutt City* [1964] NZLR 438, 444 MacGregor J.

¹⁴ See the official position of European countries at <http://www.fluoridealert.org/govt-statements.htm> (last accessed 12 September 2002).

¹⁵ *Public Health Law* above n12, 79.

in establishing appropriate standards for intervention, including State intervention, in individual health. Article 5 provides as a general standard:¹⁶

An intervention in the health field may only be carried out after the person concerned has given free and *informed* consent to it.

This person shall beforehand be given appropriate information as to the purpose and nature of the intervention *as well as on its consequences and risks*.

“Intervention” in this context includes any preventive health measure applied to a human being by any means. It is consequently irrelevant whether added fluorides are “medication”¹⁷ as their use nevertheless constitutes a “medical intervention”. Although this highlights a number of key points, the focus for this discussion is that it places a responsibility on the entity conducting the “health intervention” to provide information to the recipient on which to make an informed decision. This is the position also stated by the Fluoridation Commission discussed below. This would require information as to possible consequences for those with hypersensitivity, as well as the population at large. It is important that a *risk* must be advised, not just proven harm, contrary to the Ministry of Health’s position that harm must be proven beyond doubt before it will act. Most importantly, it consequently falls on those promoting fluoridation to, for example, at least publicise the risks to hypersensitive persons, and how they may be identified,¹⁸ or risks regarding the use of fluoridated water for reconstituting baby milk formula. The Convention also requires ongoing

¹⁶ *Convention for the Protection of Human Rights and Dignity of the Human Being with Regard to the Application of Biology and Medicine* 1997 Art (5). (emphasis added)

¹⁷ Both the Fluoridation Commission and the Privy Council in *Lewis* found that they were not but did not address either medical treatment or medical intervention: *Report of the Commission to Inquire Into the Desirability or Otherwise of the Fluoridation of Public Water Supplies* 1957, 140; *Attorney-General; ex parte Lewis v Lower Hutt City* [1965] NZLR 116. Contradictorily, the Ministry of Health’s proposed definition would clearly encompass Fluoride: see *A Proposal for a Trans Tasman Agency to Regulate Therapeutic Products* (Ministry of Health discussion paper, 2002) 11.

¹⁸ See the recommendation of the PHC 1995: Public Health Commission *Fluoride and Oral Health* 1995 (PHC Report 1995), 24.

quality assessment of any health intervention and an intervention must meet criteria of relevance and proportionality between the aim pursued and the means employed.¹⁹

fluoridation, either to the public directly or to those who ultimately make the decision.

The *Jacobsen*²⁰ case canvassed the arguments weighing private rights against the public interest, the parameters for justifying State intervention and concomitant responsibilities, and identified four factors: public health necessity, reasonable means, proportionality, and harm avoidance.²¹ Whilst all four factors are controversial regarding fluoridation, for the focus of this paper the “avoidance of harm” issue is particularly addressed. The *Jacobsen*²² court held firmly that the control measure itself should not pose a health risk to its subject emphasising that Jacobsen was a “fit subject” for smallpox vaccination, but holding that requiring a person to be immunised who would be harmed would be “cruel and inhuman in the last degree.”²³ Other cases of this era reiterate that public health actions must not harm subjects. For example, quarantining a San Francisco district was held unconstitutional, in part, because it created conditions likely to spread bubonic plague amongst inhabitants.²⁴ In parallel with the issue of harm from fluoridation, especially to hypersensitive persons, the *Jacobsen* court held:²⁵

“We are not to be understood as holding that the statute [mandating compulsory smallpox vaccination] was intended to be applied to such a case [involving an unfit subject], or, if it was so intended, that the judiciary would not be competent to interfere and protect the health and life of the individual concerned.”

¹⁹ For further discussion see D Cross “Fluoridation and Human Rights” (8 September 2000) available at <http://www.nofluoride.com/reports/FluoridationandHumanRights.pdf> last accessed 9 September 2002.

²⁰ *Jacobsen* above n9.

²¹ For further discussion see Lawrence O. Gostin “Public Health Theory And Practice In The Constitutional Design” (2001) 11 *Health Matrix: Journal of Law-Medicine* 265, 297-299 and *Public Health Law* above n12, 66-69.

²² *Jacobsen* above n9.

²³ *Jacobsen* above n9., 39 Harlan J.

²⁴ See *Jew Ho v. Williamson* 103 F 10 (C.C.N.D. Cal. 1900), 22: “It must necessarily follow that, if a large . . . territory is quarantined, intercommunication of the people within that territory will rather tend to spread the disease than to restrict it.” See also *Kirk v. Wyman* 65 SE 387, 391 (S.C. 1909); and more recently *Youngberg v. Romeo* 457 U.S. 307, 319 (1982).

From the above discussion we can identify key responsibilities on those promoting fluoridation, either to the public directly or to those who ultimately make the decision:

- 1) All citizens must be provided with full information on benefits and risks;
- 2) Research into both beneficial and harmful effects must be continuously monitored and impartially publicised to achieve #1;
- 3) Where a person does not consent it is arguably the responsibility of those fluoridating the water to ensure the person's autonomy; it is not the responsibility, or at the cost, of the individual;
- 4) Citizens must not be harmed by the measure.²⁶ Where it is known that an identifiable person or group will be harmed it is the responsibility of the body fluoridating the water to ensure their safety, or if impossible to refrain from the measure.

Additionally, the rules of natural justice, described as "due process" in United States jurisprudence, require provision of a fair process for individuals subjected to

²⁵ *Jacobsen* above n9, 36 Harlan J. Henning Jacobsen did allege that, when a child, a vaccination had caused him "great and extreme suffering."

²⁶ See for example the proposed City of Erie (USA) Safe Drinking Water Product Quality Control Ordinance due for final reading on 2 October 2002:

In order to ensure that the public water of Erie is safe to drink, it shall be unlawful and a public nuisance for any person, agent, or any public or private water system, to add any product, substance, or chemical to the public water for the purpose of treating or affecting the physical or mental functions of the body of any person, rather than to make water safe or potable such as in the use of chlorine, unless the substance meets the following criteria:

- 1) The substance must have been specifically approved by the U.S. Food and Drug Administration for safety and effectiveness with a margin of safety that is protective against all adverse health and cosmetic effects at all ranges of unrestricted consumption.
- 2) The substance, at Maximum Use Levels, must contain no contaminants at concentrations that exceed Pennsylvania public health goals or U.S. Maximum Contaminant Level Goals, whichever is more protective.

State coercion.²⁷ These are the standards against which this paper assesses the New Zealand situation.²⁸

B Compulsion

The New Zealand Bill of Rights Act affirms individuals' rights both to refuse medical treatment²⁹ and not to be subject to non-consensual medical experiment.³⁰ It is outside the scope of this paper to analyse these two issues in depth which, however, must be considered in any decision on fluoridation.³¹

We draw our jurisprudence predominantly from countries which fluoridate their water supplies. Those Courts have found against fluoridation being a breach of the rights against compulsory medical treatment on the basis, not that it is not medical treatment, but that it is not *compulsory*: a person can choose to treat it or drink other water.³² That this is not possible in practice for some was recently highlighted in San Antonio, Texas, where a poor family with children hypersensitive to fluoride was eventually provided with a filter free of charge, while other poor inhabitants were not.³³ This approach runs against the weight of Rights jurisprudence which holds that

²⁷ Guaranteed by the 5th and 14th amendments to the United States Constitution, upheld strongly in *Collins v Harker Heights* 503 US 115 (1992) and *Washington v Glucksberg* 521 US 702 (1997) discussed in *Public Health Law* above n12, 72-77.

²⁸ Items #1 and #2 are particularly relevant to the quality of reports reviewed in this paper; items #3 and #4 are more relevant to the status quo which results from the decisionmaking process, including the input of those reports. "Natural justice" relates to the process itself.

²⁹ New Zealand Bill of Rights Act 1990 s11.

³⁰ New Zealand Bill of Rights Act 1990 s10.

³¹ P Joseph *Constitutional and Administrative Law in New Zealand* (2 ed, Brookers, Wellington, 2001), 784.

³² See *Quiles v The City of Boynton Beach, Florida* (DCA Case No. 4D01-71, July 2001): "Importantly, the city proposes to fluoridate the water before it enters each household in the city; it is not seeking to introduce the mineral directly into Quiles's bloodstream. Therefore, the city's fluoridation of its water stops with Quiles's water faucet. The city is not compelling him to drink it. He is free to filter it, boil it, distill it, mix it with purifying spirits, or purchase bottled drinking water. His freedom to choose not to ingest fluoride remains intact."

³³ See San Antonio Express News (26 July 2002) at <http://news.mysanantonio.com/story.cfm?xla=saen&xlc=768845> last accessed 3 August 2002.

a right must be *effectively* protected to be *effectively* enjoyed.³⁴ Further, to give effect to the rights of those who choose not to use, or are sensitive to, fluoridated water all manufacturers and purveyors of food or beverages for public consumption would need to be required to use unfluoridated water, unless specifically labelled as fluoridated. Any practice less than this undermines, in practice, the non-compulsion basis of such judicial decisions.³⁵ Such considerations have not been canvassed either by the Fluoridation Commission, the *Lewis*³⁶ courts, or any case study reviewed in this paper.

Regarding medical experimentation, both the PHC report³⁷ and the Melbourne Review³⁸ acknowledge that the hip fracture issue is unresolved and recommend study of any trends under fluoridation. This is arguably a medical experiment and, being studied without citizens' knowledge, must necessarily be without their informed consent. Again, this issue has not been addressed in any decision or report reviewed in this paper.

III DECISIONMAKING MODELS

In some jurisdictions the fluoridation decision is ultimately made by Parliament by legislation, addressing the key issues of benefits, harm, and civil liberties discussed above, either mandating or banning fluoridation.

³⁴ "These [provisions] call for a generous interpretation avoiding what has been called the 'austerity of tabulated legalism', suitable to give to individuals the full measure of the fundamental rights and freedoms referred to." *Minister of Home Affairs v Fisher* [1980] AC 319, 328-329 (PC); followed in *Sooriamarthy Darmalingum v The State* [2000] 1 WLR 2303 (PC) and *Flickinger v Crown Colony of Hong Kong* [1991] 1 NZLR 439.

³⁵ These views are supported by the Irish Fluoridation Report which sought ethical opinion, finding that although fluoridation constituted "justifiable State paternalism", "[I]f the State were concerned about real choice, then consideration would have to be given to supplying an alternative source of water." and "all products containing fluoride should be so labelled": *Report of the Forum on Fluoridation* (10 September, 2002). See Chapter 13, Appendices 16, 17.

³⁶ *Attorney-General; ex parte Lewis v Lower Hutt City* [1964] NZLR 438; [1965] NZLR 116. (*Lewis*)

³⁷ Public Health Commission *Water Fluoridation in New Zealand: an Analysis and Monitoring Report* 1994, 49.

³⁸ *Review of Water Fluoridation and Fluoride Intake from Discretionary Fluoride Supplements* (National Health and Medical Research Council of Australia, Melbourne, 1999) 4, 12. (NHMRC Review)

In the Netherlands for example, after early trials the Supreme Court ruled fluoridation unlawful in 1973.³⁹ The ensuing bill to permit fluoridation⁴⁰ was withdrawn as Parliament considered it would constitute mass medication and did not support it.

Ireland, conversely, enacted compulsory fluoridation. In Australia, after the Victorian High Court had found the local council decision unlawful,⁴¹ fluoridation was enforced or enabled by state legislation.⁴² The state legislature of Tasmania went further and banned local councils from holding referenda on fluoridation⁴³ and, in 1995, the lower house passed a bill banning the holding of public meetings to discuss fluoridation⁴⁴ which was quashed by the upper house. Such an extreme approach would be in breach of the rights to freedom of expression, association, and peaceful assembly under New Zealand Bill of Rights Act 1990.⁴⁵

Another approach is to leave the matter to government agency policy. Sweden passed the Water Fluoridation Act in 1962, repealing it in 1971. Fluoride is not included in the permitted chemical additives to drinking water⁴⁶ on the basis that there is insufficient evidence to justify fluoridation.⁴⁷ In Denmark in 1977 the National Agency of Environmental Protection recommended fluoridation not be permitted as questions of effects on human health and the environment could not be adequately proven. The Danish Minister of the Environment legally has power to do so under the Water Supply Act but agency policy is against its use.⁴⁸

³⁹ *Budding & Co. v City of Amsterdam* (Supreme Court 22 June 1973) Case No. 10683. (Netherlands)

⁴⁰ Amendment to the Water Supply Act, Tweede Kamer 1975-1976, 12738 No. 24 (Netherlands).

⁴¹ *Kelberg v City of Sale* [1964] VR 383. (*Kelberg*)

⁴² In some states it is mandatory, in others local councils are empowered to make the decision.

⁴³ Fluoridation Act 1968 s13 (Tasmania).

⁴⁴ Local Government Consequential Amendments Bill 1995. (Tasmania)

⁴⁵ New Zealand Bill of rights Act 1990 ss 14, 16, 17.

⁴⁶ Drinking Water Ordinance SLV FS 1993:35 under the National Food Administration, Ministry of Health.

⁴⁷ <http://www.fluoridation.com/c-sweden.htm> last accessed 28 June 2002.

⁴⁸ <http://www.fluoridation.com/c-denmark.htm> last accessed 28 June 2002.

In the United States and Canada the decision is up to local authorities, although California has legislated for compulsory fluoridation of towns of more than 5,000. Local authorities in the United States are, by a peculiarity of the Constitution, immune to injunction on judicial review as was demonstrated in the leading case of *Aitkenhead v City of Westview*.⁴⁹

England has a peculiar regime, where the statutory decision is made by private water supply companies, but only upon request from Area Health Authorities, responding to the position of local councils.⁵⁰ Due to concerns over both the ethics of water suppliers making health decisions and potential exposure to civil liability, water suppliers are reluctant to implement such a controversial programme.

In New Zealand, the decision is made by local authorities under the Local Government Act 1974.⁵¹ Such decisions may or may not involve public vote or referendum. One issue discussed in this connection is the weight to be given to public vote.

IV THE DECISIONMAKING PROCESS IN NEW ZEALAND

New Zealand was the first country after the United States to trial fluoridation. The process began in 1953 with the fluoridation trial in Hastings, with a Commission of Inquiry appointed in 1956.⁵² Meanwhile the Department of Health⁵³ established a Fluoridation Committee comprising Departmental staff and dental personnel. Fluoridation's legality was challenged unsuccessfully in the courts in 1964. Whilst the decision rests with local councils, review of published literature has been undertaken

⁴⁹ *Aitkenhead v Borough of West View* 442 A 2d 364.

⁵⁰ Water (Fluoridation) Act 1985 (UK) subsequently incorporated into the Water Industry Act 1991 (UK).

⁵¹ Local Government Act 1974 s 379(a).

⁵² Commission to Inquire Into the Desirability or Otherwise of the Fluoridation of Public Water Supplies, N.Z. Gazette, 15 Nov. 1956 no. 62, 1608.

⁵³ As it then was.

in 1994/1995 and 2000. This section reviews these measures as they relate to the decisionmaking process.

A The Hastings Experiment 1954

As had been begun in the United States, New Zealand embarked on an experiment to determine the effectiveness of fluoridation, though without also studying any adverse health effects. In the writer's view this would constitute a breach of section 10 of the New Zealand Bill of Rights Act if conducted today; that is a nonconsensual medical experiment.⁵⁴

A local dentist, on behalf of the Hastings branch of the New Zealand Dental Association (NZDA) approached the Hastings Borough Council (as it then was) in 1951 to persuade the Council to introduce fluoridation. The Council then sought the advice and assistance of the Department of Health, through the Minister. The Department approved the project, which it funded in 1952.⁵⁵ The plant was commissioned in 1953.⁵⁶

Because Hastings had decided to fluoridate anyway, and was considered "typical" of the New Zealand population, it was chosen as the basis for study. Neighbouring Napier was chosen as the control city. This is a critical point of the study. The need for a control in scientific study is to ensure that any effects can be attributed to the variable under examination (fluoride in this case): if both groups show a change, that change cannot be attributed to the variable as it must have been caused by a factor common to both groups.

The study was conducted by T. G. Ludwig, under the direction of the Health Department's Fluoridation Committee, beginning in 1954. Mr. (later Dr.) Ludwig is

⁵⁴ New Zealand Bill of Rights Act 1990 s 10.

⁵⁵ LHCC CE 28782/53/24 Vol 1.

prominent throughout the history of this subject. The first follow-up survey occurred in 1957. Both this and the initial survey showed lower decay rates in the unfluoridated Napier. Napier was immediately removed from the study, thus invalidating it, but allowing the Hastings results to be reported on a "before and after" basis only, falsely supporting the fluoridation theory.⁵⁷ This experiment has been cited throughout the world in support of fluoridation, as well as being considered by the Commission of Inquiry discussed in the next section,⁵⁸ obviously without looking into the methodology. This invalidity replicates that of the (United States) Grand Rapids experiment, which used the same approach to report the desired results, also forming part of the basis of the Fluoridation Commission's findings.⁵⁹ The Hastings experiment was extolled by the Department of Health as proving the efficacy of fluoridation until it was exposed as methodologically unsound and the results misrepresented in its published report by Dr. Calquhoun in 1986.⁶⁰

There was considerable anecdotal evidence of many people suffering mouth ulcers and other digestive complaints which disappeared upon switching to unfluoridated water (bottled or while on holiday) and returning upon return to Hastings, however little seems to have been medically verified, and that which was disregarded by the Commission. One resident attempted to sue on this basis, however he represented himself and led no medical evidence. The case was dismissed.⁶¹

⁵⁶ However due to fluctuations in the equipment, the "optimal" level of 1ppm was not achieved until late 1954.

⁵⁷ Much of the reduction was due to a change in the directions as to the level of decay at which fillings were to be placed, from 1957 ie after Napier had been removed as a control: J. Calquhoun and R Mann "The Hastings Fluoridation Experiment: Science or Swindle?" *The Ecologist* vol 16, No. 6, 1986, 243. Dr Calquhoun's analysis is universally accepted as correct. Note: Dr. Calquhoun was the Chief Dental Officer in Auckland and a leading proponent of fluoridation until he was sent on a world tour and found that the research revealed little or no benefit from fluoridation, despite what had been officially published. He subsequently became New Zealand's leading opponent of fluoridation in spite of attempts to silence him.

⁵⁸ Of course this was only the first 3 years results.

⁵⁹ *Report of the Commission to Inquire Into the Desirability or Otherwise of the Fluoridation of Public Water Supplies 1957*, 176-177. (*Fluoridation Commission Report*)

⁶⁰ Above n 57.

⁶¹ *Hannah v Mayor, Councillors and citizens of Borough of Hastings* (9 May 1956) Supreme Court Napier A1058.

B *The Commission of Inquiry 1956-1957*

In light of opposing views on fluoridation a three man Commission⁶² was appointed under the Commissions of Inquiry Act 1908 to address whether there were benefits, whether there were health dangers, whether there were other methods of providing fluoride, and whether local councils should make the decision on behalf of residents. It comprised Stilwell J(Arbitration Court judge, Chairman), N. Edson (a biochemist) and P. Stainton (layman, merchant). Although rarely cited, it is apparent that the Commission's findings have informed the entire history of fluoridation in New Zealand, in particular forming the basis for the ruling in *Lewis*⁶³ which is the sole legal authority for councils' authority to fluoridate public water supplies without specific legislation.

Public meetings were held in the four main centres plus Hastings, being the experimental city. Material supporting fluoridation was presented by members of the Department of Health's Fluoridation Committee, drawing on overseas research, predominantly the original United States studies published in international journals. This team effectively brought fluoridation to New Zealand, being prominent throughout the early controversy, including the case of *Lewis*⁶⁴ discussed below. Those opposed were largely private individuals presenting predominantly personal views, some of which could hardly stand as in any way scientific, and were often confused.⁶⁵ A small number presented the work of overseas research and opinion, predominantly that of a Dr. Exner. At the time there was little if any research available

⁶² Commission to Inquire Into the Desirability or Otherwise of the Fluoridation of Public Water Supplies, N.Z. Gazette, 15 Nov. 1956 no. 62, 1608.

⁶³ *Lewis* above n 36.

⁶⁴ *Lewis* above n 36.

⁶⁵ See for example *Fluoridation Commission Report* above n 59, 52-53.

on adverse health effects; those promoting fluoridation, who were the only bodies with the financial resources to conduct research, had not done any.

Commissions of Inquiry are supposed to be expert, objective, and generally politically independent of Government, however this does not appear to have been the case. The commissioners were not expert,⁶⁶ and the lack of objectivity is supported by inconsistencies in the Commission's report.⁶⁷ As for political independence, it was the clear understanding of those who opposed fluoridation that it was not⁶⁸ which is seemingly confirmed in a letter from the New Zealand Dental Association to the Minister of Health:⁶⁹

We wish to extend to you our sincere thanks for your valuable assistance
in *establishing and guiding* the Commission on Fluoridation.

1 The Problem Being Addressed

Dental decay and consequent disease had been a matter of major concern across the western world. Following initial work in the United States fluoridation was seen as a means of improving dental health. The side effect of dental fluorosis was seen as merely cosmetic, in spite of animal health problems indicating otherwise, and a balance was struck at a recommended intake of 1 mg fluorine (as fluoride) per day.⁷⁰

The Commission found that attempts at improving dietary habits through education had been ineffective and that "the incidence of dental decay in New Zealand is so widespread and severe that it constitutes a major problem in public health and is

⁶⁶ Although Edson was a biochemist there is no indication that he had medical or toxicological expertise, and the Commission's analyses fall far short of "expert", or even competent in many instances.

⁶⁷ *Fluoridation Commission Report* above n 59, 90-91, 97, 109-112, 114.

⁶⁸ *The Fluoridation Report Answered* (Hastings Anti-Fluoridation Society), 1. LHCC CE 28482 Vol 1.

⁶⁹ Letter from E. W. Williams, Honorary Secretary, NZDA to The Hon J. R. Hanan, Minister of Health, 24 July 1957, tabled in the House of Representatives 19 (sic) July 1957. H 125 299/6 Archives New Zealand (emphasis added).

⁷⁰ *Fluoridation Commission Report* above n 59, 29.

matter for grave concern.”⁷¹ The question of whether tooth decay is a public or private health matter is relevant to interpretation of councils’ powers under the Health Act and the Local Government Act,⁷² is contested, but was not discussed by the Commission.

2 Terms of Reference Findings

(a) Benefits

It is interesting to note that the Commission identified a general improvement in dental health from 1930 to 1950,⁷³ which should have alerted the Commission to the necessity of retaining control cities in the research they considered, yet the Newburgh, Michigan, and Hastings studies were reported only on a “before and after” basis, the control cities’ figures having been removed once their better dental health (compared with the fluoridated cities) became known. The Commission found that these were conducted with great thoroughness and proved “beyond doubt” that fluoridation greatly reduced dental decay⁷⁴ yet contradictorily in the same passage notes that Muskegon (the control city in the Grand Rapids experiment) was fluoridated after only 5 years based on the initial indications of a planned 10 year study. It is relevant to note the findings of the Swedish government in 1972 that the early results were “over-optimistic” and that prolonged study did not bear out early hopes.⁷⁵ It also highlights the need for a thorough understanding of scientific methodology in assessing scientific research.⁷⁶

⁷¹ *Fluoridation Commission Report* above n 59, 27.

⁷² Then the Public Health Act 1920 and Municipal Corporations Act 1954; today the Health Act 1956 and the Local Government Act 1976.

⁷³ *Fluoridation Commission Report* above n 59, 23.

⁷⁴ *Fluoridation Commission Report* above n 59, 30.

⁷⁵ Swedish Parliament debate as advised by the Swedish Royal Ministry of Foreign Affairs Information Service to the Lower Hutt City Council, December 1971: LHCC CE 53/24/1 Vol 5.

⁷⁶ It is difficult to understand how a competent biochemist could fail to properly evaluate such material, yet this is clearly the case.

The mode of fluoride's action is central to the question of benefit from fluoridating drinking water: only if the effect is systemic, as opposed to topical, could ingestion of fluoride be considered beneficial. The Commission held as a matter of fact that fluoride affected teeth primarily through systemic effect, by ingestion during tooth calcification, as well as by later topical effect.⁷⁷ This was an assumption asserted by supporters of fluoridation, carrying the "authority" of the American Dental Association, but had never been researched let alone proven. It is accepted universally today that this was an error and that the sole effect of fluoride is topical, not systemic.⁷⁸ This error of fact is not necessarily fatal to the Commission's findings however if benefits can be shown regardless, but raises an evidential onus to show an alternative pathway. Again, for such a pivotal issue, a thorough inquiry would have required an evidential basis for the belief.

Further, since the Commission found that the systemic effect was only during tooth formation, on what basis could it conclude that fluoridation was beneficial to adults, as opposed to topical application?⁷⁹ This point is not addressed by the Commission.

(b) Adverse Health Effects

This term of reference threatened a veto on fluoridation, hence a responsible Commission would have actively sought the best information available. The recent GE Commission, for example, received submissions from around the world. Conversely, the Fluoridation Commission made no effort to examine relevant research on possible adverse health effects. The only material was presented by unassisted lay persons, the Commission accepting unilaterally the Fluoridation Committee's critiques of that research without seeking input from the original researchers.

⁷⁷ *Fluoridation Commission Report* above n 59, 31.

⁷⁸ For acceptance by the American Dental Association see J Featherstone "The Science and Practice of Caries Prevention" (2000) *Journal of the American Dental Association* 131, 887-899.

⁷⁹ Even today there is no research to show topical effects during ingestion of water at 1ppm Fluoride.

The Commission made key findings of the absence of bone or soft tissue accumulation,⁸⁰ cancer, or Central Nervous System damage. Studies, where referred to at all, were of such short duration and/or sample size as to be invalid.⁸¹

(c) Other Means of Dental Care

The Commission considered toothpaste less ideal than fluoridation, partly because poor people could not afford it: it was appropriate only where fluoridated water was not available.⁸² Tablets were opposed because of the need to take them daily for the first 8 years of life. Also the topical effect of drinking water would not be present. No studies were cited into topical effects of 1ppm water; toothpaste is typically 1000-1500ppm.⁸³ The Commission concluded that no effective alternative existed.

(d) Councils' Decision

Regarding decision by public referendum the Commission held that:⁸⁴

[Fluoridation] is [] a complex and highly technical [subject] and many aspects of it are difficult to explain. Moreover, a referendum inevitably means that the will of the majority prevails and occasionally on inadequate information. The method was criticised by witnesses on both sides of the argument. We are of the opinion that it is an unsatisfactory method of arriving at a decision on [this] matter.

⁸⁰ Such accumulation, in the Pineal Gland and retarding Melatonin production, was proven in 1997: J Luke *The Effect of Fluoride on the Physiology of the Pineal Gland* (Ph.D. thesis, University of Surrey, 1997); J Luke "Fluoride Deposition in the Aged Human Pineal Gland" (2001) 35 *Caries Res* 128.

⁸¹ *Fluoridation Commission Report* above n 59, 61,62,75,76.

⁸² *Fluoridation Commission Report* above n 59, 132.

⁸³ *Fluoridation Commission Report* above n 59, 133.

⁸⁴ *Fluoridation Commission Report* above n 59, 144.

Yet the Commission also held that where fluoridation was proposed the public should have a reasonable opportunity to consider the matter.⁸⁵ In the result, it recommended the decision be made by the local council after formal public consultation.⁸⁶ This just shifts the concern expressed above, however. As Mr. (later Sir) Dove-Meyer Robinson⁸⁷ put it in submission to the Dunedin City Council: "Should lay members of local bodies [act] as medical referees on such an important issue when recognised medical and scientific authorities are so strongly and widely disagreed on fundamental questions?"⁸⁸

The Commission held that councils had the power to fluoridate water under that Act⁸⁹ and a duty to promote public health under the Act⁹⁰ and the Public Health Act 1920.⁹¹ These provisions have been the subject of debate over the meaning of "public health" however in its summary⁹² the Commission rephrased its finding, holding that local authorities are established to make *community decisions* which is wider than just those relating to public health.⁹³

Regarding the interpretation of "pure" and "wholesome" in these provisions it held that they essentially meant "potable" and that fluoridation would not detract from the purity and would make the water more "wholesome". It is interesting to note that this is a more tenable interpretation than that of the Court of Appeal in *Lewis*⁹⁴ discussed

⁸⁵ *Fluoridation Commission Report* above n 59, 145.

⁸⁶ *Fluoridation Commission Report* above n 59, 145 in line with s77 Municipal Corporations Act 1954

⁸⁷ Later to become Mayor of Auckland

⁸⁸ D. M. Robinson *Submission to Dunedin City Council*, 26 May 1958. LHCC archive document LHCC CE 28482/53/24 Vol 3.

⁸⁹ Municipal Corporations Act 1954 s 240.

⁹⁰ Municipal Corporations Act 1954 s 288.

⁹¹ Public Health Act 1920 s20.

⁹² *Fluoridation Commission Report* above n 59, 153.

⁹³ The *Lewis* court held without analysis that "any matter which affects the health of a substantial proportion [] of the public is a matter of public health": *Lewis* above n 36, 444 MacGregor J. However this is overly simplistic. There is no clear answer to the question of whether mass treatment of dental caries constitutes public or individual health care: strong arguments can be made either way. The crucial point is that on either view fluoridation is a "health intervention" attracting the ethical constraints outlined in section IIA, p 5 above. For further discussion and definition of the boundaries between "public" and "individual" health see L Gostin *Public Health Law* (University of California Press, Berkeley, 2000) 11-14.

⁹⁴ *Lewis* above n 36, 450 North P.

below, which equated "pure" with "wholesome" and held that fluoridation made water more pure: a logical impossibility.⁹⁵

The Commission noted that the Department of Health had a duty to advise councils on matters of public health under the Health Act.⁹⁶

The consultation approach recommended was per section 77 of the Municipal Corporations Act 1954⁹⁷: publicly notified special meetings. In contrast the Lower Hutt City Council in 1958 ignored this procedure and forced fluoridation on its ratepayers without such consultation, leading to *Lewis*,⁹⁸ New Zealand's only case on this issue.

3 Civil Liberties

The Commission opined that any right to refuse such water treatment is not a personal constitutional right but can only be based on possible adverse health effects, which it had found do not exist. They limited such rights to absence of *arbitrary* interference only.⁹⁹ They found that fluoridation did not constitute medication, as it was a nutrient (being naturally present in food and water) not a medicine, and that because people were not *compelled* to use the public water supply it was not "compulsory".¹⁰⁰ Such a facile statement is inappropriate for a Commission charged with such an important duty though it is repeated today as discussed above.¹⁰¹ The

⁹⁵ Any substance dissolved in water is an "impurity" regardless of how beneficial it may be. To increase the amount is to increase the level of *impurity* even if the water becomes concomitantly more beneficial.

⁹⁶ Health Act 1920 s 12(b).

⁹⁷ Municipal Corporations Act 1954 s77.

⁹⁸ *Lewis* above n 36.

⁹⁹ *Fluoridation Commission Report* above n 59, 139.

¹⁰⁰ *Fluoridation Commission Report* above n 59, 140 (emphasis in original).

¹⁰¹ See above II, p3.

¹⁰² *Fluoridation Commission Report* above n 59, 136.

Commission adopted a "majority rules" approach to democracy as opposed to the following submission, which the writer considers the more enlightened proposition:¹⁰²

"Democracy is the maintenance of a way of liberty by a *mutual* regard for personal freedom (as between the majority and minority)."

The Commission considered leading United States cases on this issue which had held that fluoridation was not unconstitutional.¹⁰³ In particular it drew on *Jacobsen v Massachusetts*,¹⁰⁴ discussed above, which was based on a claim to refuse smallpox vaccinations. However smallpox is a communicable disease, which was central to the ruling on the grounds of "necessity", whereas tooth decay is not, hence it is inappropriate to apply the same principle.¹⁰⁵ The judgment referred to (the absence of) the right of minorities to detract from the welfare and safety of the majority. Taking even welfare on its own, this does not negate an obligation on the majority to cater for the minority to an extent reasonable, which is possible in many ways regarding fluoridation. Notably, the Commission simply adopted the *outcome* in the case without any discussion of the *basis* for the decision, discussed above. The civil liberties issue was not one of the terms of reference even though it was a major point of contention.

4 General Analysis¹⁰⁶

The Commission seemed to take the view that vocal opposition to fluoridation somehow affected the credibility of those who conducted research adverse to fluoridation. Hence any researcher who found adverse facts and formed a view on that

¹⁰³ *Fluoridation Commission Report* above n 59, 138.

¹⁰⁴ *Jacobsen v Massachusetts* (1905) 197 US 11.

¹⁰⁵ *Fluoridation Commission Report* above n 59, 139.

¹⁰⁶ The writer is supported in this analysis by that of Dr. Spira (M.D., Ph.D) whose work was presented to the Commission, and who subsequently reviewed its report reaching the same conclusions: Dr. L Spira, private letter to W. A. G. Penlington (co-ordinator of the submissions against fluoridation) 12 October 1957), LHCC archive document LHCC CE 53/24/1 Vol 2.

basis was ipso facto disadvantaged before the Commission – catch 22.¹⁰⁷ Yet no such assumption was indicated regarding those who supported fluoridation. This approach calls the Commission's findings into question.

The Commission acknowledges that the case against fluoridation was conducted by lay persons¹⁰⁸ who received no financial assistance as compared with the State-backed Fluoridation Committee. They were also denied the assistance of counsel which they had requested in order to properly put the case before the Commission.¹⁰⁹ As discussed regarding adverse health effects the Commission not only called no overseas researchers to appear, but accepted criticism of such research by the comparatively unqualified representatives of the Fluoridation Committee without any opportunity for response by the researchers concerned. Such a procedure cannot, in the writer's view, be considered to discharge the Commission's duty to assess possible health dangers as a term of reference.

In the writer's view the reality is that the Commission was either obliged or determined to support a political decision which had already been made and was not going to be reversed.

The Commission had also received evidence of the adverse reactions of some Hastings residents.¹¹⁰ It remains unexplained why, in this light, it did not take the responsible approach and recommend at least further investigation into or monitoring of adverse health effects once fluoridation had been implemented, as the Public Health Commission do in part in their 1995 report¹¹¹ and, interestingly, the Ministry of Health propose currently regarding (comparatively risk-free) herbal remedies and other natural health supplements.¹¹² In this vein, such a measure was statutorily

¹⁰⁷ *Fluoridation Commission Report* above n 59, 44.

¹⁰⁸ *Fluoridation Commission Report* above n 59, 15.

¹⁰⁹ *The Fluoridation Report Answered* (Hastings Anti-Fluoridation Society), 2. LHCC TC 28482 Vol 1.

¹¹⁰ *The Fluoridation Report Answered* (Hastings Anti-Fluoridation Society), 2. LHCC TC 28482 Vol 1.

¹¹¹ Public Health Commission *Fluoride and Oral Health* 1995.

¹¹² *A Proposal for a Trans Tasman Agency to Regulate Therapeutic Products* (Ministry of Health discussion paper, 2002) 109.

imposed upon the Irish Government when compulsory fluoridation was mandated in 1960.¹¹³

5 *Summary of Findings*¹¹⁴

The Commission made the following findings regarding fluorides:

- (i) All fluoride ions act the same, regardless of origin.
- (ii) Fluoride at 1ppm reduces tooth decay by at least 50%.
- (iii) There is no significant fluorosis at 1ppm.
- (iv) Painstaking and thorough scientific observations had been conducted for over 40 years regarding positive effects.
- (v) fluoridation does not add a foreign substance to water.
- (vi) No harmful effects will ensue from fluoridation at 1ppm.

With almost 50 years of research each of the Commission's findings, which have formed the basis of the justification for fluoridation, have been challenged and can no longer be accepted as authoritative.¹¹⁵

¹¹³ Fluoridation Act 1960 s6 (Ireland). In fact no such action has been taken by the Irish Government.

¹¹⁴ *Fluoridation Commission Report* above n 59, 47.

¹¹⁵ Regarding (i) the original substance used was Sodium Fluoride which releases solely free Fluoride and Sodium ions, in line with this finding. Today, Silicofluorides are used instead. The available research evidence is that they do not dissociate completely into solely free fluoride ions. (See Masters & Coplan "Water Treatment with Silicofluorides and Lead Toxicity," *International Journal of Environmental Studies* (July-August 1999) 56: 435-449.)

(ii) This figure is overoptimistic; current estimates are around 20%, which may not be statistically significant given the minute differences in *absolute* terms – in a USA study by the National Institute for Dental Research an improvement of 0.6 DMFS (out of 128 tooth surfaces): J Brunelle & J Carlos (1990) 69 J Dent Res (special edition), 723. In Australia the lifetime difference was found to be 0.12-0.3 DMFS: A J Spencer et al. "Water Fluoridation in Australia" (1996) *Community Dental Health* 13 (Suppl 2), 27.

(iii) The York Study in Great Britain in 2000 contradicts this.

(iv) All early studies have been found methodologically flawed and unsound. The Newburgh study on which the Commission relied shows better teeth today in the unfluoridated city as claimed by the opponents before the Commission but rejected by the Commission. Kumar, Swango, Lininger, Leske, Green, and Haley "Changes in Dental Fluorosis and Dental Caries in Newburgh and Kingston, New York" (1998) 88(12) Am J Public Health, 1866.

(v) The Silicofluoride ion added today does not occur naturally in water. If Aluminium is present, the resultant Aluminium Fluoride ion is also a foreign substance.

C *Fluoridation Symposium 1958*

In May 1958 the Health Department convened a conference of Medical Officers of Health and Principal Dental Officers to “educate” them on fluoridation and develop strategies for implementing fluoridation. Contrary to the Fluoridation Commission’s recommendation of proper public consultation, which support the criteria identified as minimum standards above,¹¹⁶ the recommendation was to “avoid fluoridation becoming a public issue”, to “avoid fuss in the community – work quietly in the small community groups” and generate a demand by convincing small groups, then promoting these to the council as representing mass public opinion. Promoters of fluoridation were advised not to allow the issue to be discussed in the Press, and above all, to avoid open public debate.¹¹⁷ (A position maintained today).¹¹⁸ The symposium report was distributed privately among health and medical personnel but not made public. A Health Department spokesman stated that the views quoted were the personal views of Colonel Ferris-Fuller, not those of the Department. However Colonel Ferris-Fuller was (later) chairman of the Department’s Fluoridation Committee and an influential figure in the Department’s cause.¹¹⁹ The allegations were not denied by the Minister,¹²⁰ also this approach was confirmed during the *Lewis*

(vi) Sensitive and allergic reaction were known at the time, negating this. Regarding the general population, there had been insufficient research at the time to state this categorically; research since has disproved it.

¹¹⁶ Section IIA, p 5.

¹¹⁷ All quotes are taken from the report *Fluoridation Symposium*, 411/58, extracts published in *The Hawke’s Bay Herald-Tribune*, 8 January 1959. (Copy held in LHCC archives; page numbers not shown) LHCC CE 28482/53/24Vol 1. The original document is no longer in existence.

¹¹⁸ For example such an invitation to debate with a leading authority, Dr. Connett of the USA, during his tour in May-June 2002 was firmly declined. Dr. P Connett, fluoridation lecture (Wellington, 29 May 2002).

¹¹⁹ Above n 117.

¹²⁰ The *Hawke’s Bay Herald-Tribune* 15 January 1959. (Copy held in LHCC archives; page numbers not shown)

case.¹²¹ The format of the symposium and the proposed course of action parallels that of a conference of state dental directors held at the outset of fluoridation in the United States in 1951.¹²²

D *The Lewis*¹²³ Case

Following the Commission of Inquiry report, the Lower Hutt Council, on 17 September 1957, met with a number of local “experts” on fluoridation, including members of the Health Department’s Fluoridation Committee (whose views the report reflected), to consider it.¹²⁴ Having been “firmly convinced”, the decision to fluoridate Lower Hutt was made by the Council, without consultation, via two resolutions in 1958¹²⁵ with the plant commissioned on 27 July 1959. The Department of Health advised a preference to introduce fluoride without public consultation because of the (then) recent difficulty experienced in introducing Potassium Iodide to salt to prevent goitre.¹²⁶ Mayor Dowse was of the firm view that citizens should not be allowed input into the decision because they were incompetent to consider the technicalities of the matter, which expertise the Council consider it had, by meeting only with those whose job was to promote fluoridation, and because a vote may go against the Council’s decision. He considered that holding of referenda was a means for anti-fluoridationists to “block progress”.¹²⁷

¹²¹ Record of Proceedings: *Lewis v Lower Hutt City* (Supreme Court, Wellington) 31. The reason given was the difficulty in getting approval for iodisation of salt following public opposition.

¹²² Excerpts from *Proceedings of the 4th Annual Conference, State Dental Directors with the Public Health Service and The Children’s Bureau* (Federal Security Building, Washington D.C., 6-8 June 1951) LHCC archive document LHCC CE 53/24/1 Vol 1.

¹²³ *Lewis* above n 36.

¹²⁴ Mayor P. Dowse *Statement on Fluoridation* (11 August 1959) LHCC CE 53/24/1 Vol1.

¹²⁵ 27 January and 3 June 1958.

¹²⁶ Record of Proceedings: *Lewis v Lower Hutt City* (Supreme Court, Wellington) 31.

¹²⁷ Mayor P Dowse, letter to The Hon A. Nordmeyer (21 June 1963) in response to his call for referenda in all towns prior to fluoridation. LHCC CE 53/24/1 Vol 3.

Mayor Dowse had embarked on a personal "crusade" to fluoridate Lower Hutt,¹²⁸ seriously suggesting that once fluoridation had been operating successfully for five years (later softened to ten) legislation should be passed preventing any future Council from overturning the decision.¹²⁹ Having been provided with a filter for removal of fluoride by those who wished to exercise this option (one of the reasons given by the Commission for not finding a breach of civil rights) Mayor Dowse withheld public information regarding this as he considered it may raise "psychological problems".¹³⁰ The Council relied on the Hastings study as showing a 50% decrease in tooth decay¹³¹ and on Ministerial statements regarding the "spectacular" effects.¹³²

In 1959 the Council was made aware of referenda held in 7 other towns, voting roughly 2:1 against fluoridation.¹³³ The Fluoridation Commission had recommended public consultation in terms of section 77 of the Municipal Corporations Act 1954¹³⁴ which both the Council and the Health Department were determined to avoid.

In light of the Council's dictatorial and entrenched position, Mr. Elliott, president of the Lower Hutt Ratepayers' Association, sought an injunction to stop them fluoridating the water. The Attorney-General refused to be joined so a declaration was sought under the Declaratory Judgments Act 1908. It was held that the Attorney-General had to be joined for that also.¹³⁵ Interestingly, Elliott was not personally averse to fluoride; he took a stand on the civil liberties issue.¹³⁶

¹²⁸ Mayor P Dowse, letter to D Kennedy, Chairman, Board of Health (12 July 1965) LHCC TC 337/4/1.

¹²⁹ Above n 128.

¹³⁰ Mayor P Dowse, letter to Dr. R. Lewis, Deputy Director General of Health (22 June 1961) LHCC TC 28482 vol 3.

¹³¹ Lower Hutt Town Clerk, letter to the Mayor (9 April 1965) LHCC TC 337/4/1 Vol 1.

¹³² Minister of Health, Letter to Mayor Dowse (16 June 1959) LHCC CE 53/24/1 Vol 1.

¹³³ LHCC archive doc LHCC TC 337/4/1 vol 1.

¹³⁴ Municipal Corporations Act 1954 s 77.

¹³⁵ *Collins & Elliott v Lower Hutt Municipal Corporation* (28 October 1960) Supreme Court Wellington M 128/60.

¹³⁶ *The Dominion* 17 May 1961. LHCC archives, TC 28482 Vol 3, page number missing.

Subsequently, following a community meeting, the Lower Hutt Ratepayers' Association, of which Mr. Lewis was also an official, requested a referendum on the matter at the 1962 Local Body elections,¹³⁷ which was declined.¹³⁸

The Attorney General subsequently changed his mind and agreed to be joined. Lewis and Elliott sought an injunction restraining the Council from adding fluoride to the water supply.¹³⁹ This came before the Supreme Court in 1963, which declined the petition. It was appealed without success and appealed again to the Privy Council, whose decision and findings of alleged fact are still relied upon today. The National Archive file has been destroyed by fire, hence the writer can only surmise what evidence may have been led by the minimal records held in the Lower Hutt City Council Archives.

The case seems to have been essentially a repetition of the exercise before the Commission of Inquiry, part of whose report was introduced in evidence. It also relied strongly on the Hastings experimental results, now much further advanced than before the Commission. In fact passages of MacGregor J's Supreme Court judgment are verbatim from the Commission's report though without acknowledgement.¹⁴⁰ The bulk of evidence and testimony was principally provided by the Fluoridation Committee as before the Commission. The only witness for Lewis was an unqualified researcher who, although his statements have proven to be essentially correct by history, could realistically have had no credibility before the Courts. The applicants' case was privately funded. The basis of the case was that fluoridation was *ultra vires* the Council's statutory authority under section 240 of the Municipal Corporations Act.¹⁴¹ The relevant provisions are sections 240 and 288 of the Municipal Corporations Act 1954;¹⁴² those which were also considered by the Commission.

¹³⁷ Elliott, letter to Mayor Dowse (2 July 1962) TC 28482 Vol 3.

¹³⁸ Mayor P Dowse, letter to Elliott, (18 July 1962) TC 28482 Vol 3.

¹³⁹ Lewis above n 36.

¹⁴⁰ Lewis above n 36, 439 lines 24-27 MacGregor J.

¹⁴¹ Municipal Corporations Act 1954 s 240, replaced by the Local Government Act 1974 s 379.

¹⁴² Municipal Corporations Act 1954 ss 240 & 288.

The Supreme Court held that section 240 did not empower the Council to fluoridate but section 288 did. Regarding section 240,¹⁴³ North P acknowledging that the Canadian statute is wider than New Zealand's criticised the majority judgment of the Canadian Supreme Court (with which the New Zealand Supreme Court judgment concurred on this point) and held that the Council could do anything it liked by way of introducing medication into the water supply under this provision.¹⁴⁴ McCarthy J concurred, but basing his decision on the ground that the added substance is one which occurs naturally (if it is not necessary).¹⁴⁵ As a matter of *statutory interpretation* this cannot be correct, bearing no relation to the wording. Both North P and McCarthy J also take the view that the Canadian majority interpretation was somehow flawed because they found fluoridation *ultra vires*. Yet the Canadian court found fluoridation *ultra vires* because of their interpretation. Turner J, dissenting, concurred with the Supreme Court ruling on section 240.¹⁴⁶ In considering section 288, he rejected this as empowering fluoridation on the basis that "time to time" meant *ad hoc* measures only, fluoridation was not *necessary* for the *preservation* of public health, though desirable for its improvement, and such a construction would provide no limit to what a Council could do regarding mass medication.¹⁴⁷ He saw this as an attempt to misuse a statute for a purpose never intended by Parliament by stretching statutory interpretation to meanings the provisions could not reasonably bear.¹⁴⁸ *Lewis*¹⁴⁹ was ruled on as a statutory interpretation issue, however the evidence and testimony led was on the presence or absence of alleged benefits and alleged harms, effectively a repeat in miniature of the Commission of Inquiry. The Court also states that it had never seen such a convincing case of benefit¹⁵⁰ which was only relevant to section 288 as the Supreme Court noted and on which it relied:¹⁵¹ it was irrelevant to the basis of finding of the higher courts. The writer considers North J's

¹⁴³ Municipal Corporations Act 1954 s 240.

¹⁴⁴ *Lewis* above n 36, 455-456.

¹⁴⁵ *Lewis* above n 36, 466-468.

¹⁴⁶ *Lewis* above n 36, 459-460.

¹⁴⁷ *Lewis* above n 36, 460-461.

¹⁴⁸ *Lewis* above n 36, 461.

¹⁴⁹ *Lewis* above n 36.

¹⁵⁰ *Lewis* above n 36, 439 MacGregor J.

¹⁵¹ *Lewis* above n 36, 440 MacGregor J.

dissent the more cogently argued statutory interpretation and the more correct and lucid of the three judgments.¹⁵²

By comparison, both the Canadian Supreme Court and the Supreme Court of Victoria (Australia) found fluoridation *ultra vires* on the same principles. The Canadian decision was on the words "pure" and "wholesome" as was *Lewis*.¹⁵³ The Australian statute detailed the types of equipment which could be used, which are separately described in the New Zealand statute and were discussed in *Lewis*.¹⁵⁴ Again the judgment revolved around precisely the same statutory interpretation issue. The Court held, as the New Zealand Supreme Court and Turner J in the Court of Appeal, that the equivalent of section 240 did *not* confer power to operate "water works" for any purpose other than the supply of water; that is the addition fluoride was *ultra vires* the Council's authority under the statute.¹⁵⁵

The Privy Council upheld the Appeal Court majority. Consequently the law as it stands is that local bodies are held empowered by section 379 of the Local Government Act 1974¹⁵⁶ to fluoridate water supplies. Neither the Court of Appeal nor the Privy Council rendered a judgment on section 288, on which the Supreme Court relied.

1 *Effects of Arguing the Case Instead of Enacting Legislation*

¹⁵² The purpose of the waterworks provisions was to replace individual supply by rainwater collection or private bore with a reliable safe reticulated supply, not the administration of medication or dietary supplements, as supported by *Village of Forest Hill v Municipality of Metropolitan Toronto* (1957) 9 DLR (2d) 113 and *Kelberg* above n 41.

¹⁵³ *Lewis* above n 36.

¹⁵⁴ Municipal Corporations Act 1954 s 239 discussed in *Lewis* above n 36, 441 (Supreme Court)

¹⁵⁵ *Kelberg* above n 41, 413-414.

¹⁵⁶ Formerly the Municipal Corporations Act 1954 s 240 as ruled on.

The Court essentially followed the Fluoridation Commission's findings, some of which at least had been presented in evidence.¹⁵⁷ The case having arisen spontaneously at Lewis's instigation and there being no pressure for legislation, combined with strong public controversy, the respondent's arguments were simply run notwithstanding the Canadian caselaw,¹⁵⁸ successfully as it transpired.¹⁵⁹ Nevertheless the effect of the ruling was that although fluoridation was a Health Department policy, the power to implement that policy, or not, was in the hands of local councils. Council responses have ranged from unquestioning obedience¹⁶⁰ to absolute defiance.¹⁶¹ This was an uncertain approach for such a strongly promoted policy, and has resulted in the Department (now Ministry) trying in some cases to coerce councils to impose the Ministry's decision without question,¹⁶² paradoxically after making those Councils the statutory decisionmakers.

The outcome raises a further issue: reliance on the Municipal Corporations Act¹⁶³ (now the Local Government Act¹⁶⁴) as authority for fluoridation potentially leaves decisionmakers open to civil liability should harm result to a ratepayer whereas specific fluoridation legislation typically provides immunity in similar terms to the Health Act.¹⁶⁵ No such immunity is provided under the Local Government Act.

¹⁵⁷ See *Lewis Record of Proceedings*, above n 126.

¹⁵⁸ *Village of Forest Hill v Municipality of Metropolitan Toronto* (1957) 9 DLR (2d) 113, *R v Fredericton* (1956) 2 DLR (2d) 551.

¹⁵⁹ Advice of D L Mathieson QC, counsel for the respondent, private communication to the author, 26 September 2002. Interestingly, the case was won in the Supreme Court on s 288 due in large part to the lack of any cogent case by the applicant against expert testimony for the respondent (with assistance from the Health Department) while the s 240 argument on which the higher courts determined the case was considered less than convincing by the respondent's counsel, in line with MacGregor J's finding, the Canadian decisions and the later Australian decision in *Kelberg* above n 41.

¹⁶⁰ As for example the Manukau Council: Mayor of Manukau City, letter to the author, 8 September 2000.

¹⁶¹ As for example the Napier Council: Mayor of Napier, letter to the author, 21 August 2000.

¹⁶² See the Onehunga decision below section IVH2, p 38.

¹⁶³ Municipal Corporations Act 1954.

¹⁶⁴ Local Government Act 1974.

¹⁶⁵ Health Act 1956 s129 provides that no proceedings may be brought against any person exercising their duty under the Act without leave of the High Court, which is only to be granted where the incumbent's actions have been conducted in bad faith or without reasonable care. Victorian legislation goes further, providing absolute immunity: Health and Community Services (Further Amendment) Act 1993 s 9 (Vict).

E Public Health Commission (PHC) Reports

The PHC was a Government body, separate from the Ministry of Health, established under the 1991 health reforms, with non-regulatory health responsibilities. It published two key reports on fluoridation, frequently cited today.

1 Water Fluoridation in New Zealand: an Analysis and Monitoring Report 1994

Like the Fluoridation Commission's report, this report looks prima facie thorough and impressive, but in looking below the surface the same fundamental flaws emerge: the Commission acknowledges that it has not reviewed methodologies or research itself – it has adopted the critiques of those in favour of fluoridation rather than the research of those opposed (discussed below). Yet this report is quoted today as authoritative. It contains material errors of fact, yet itself forms part of a “body of expert opinion” which a decisionmaker could claim as legitimising a decision.

In searching for studies it used standard medical databases, which, though returning 1592 listings from 1989-1993 it recognised as having some bias in being unlikely to list adverse research, which it was required to review under its terms of reference.¹⁶⁶

In its favour, it also lists “anti-fluoridation” publications, though there is little reference to their content. Only hip fracture, cancer, and dental fluorosis are examined in any depth, as with the ESR review in 2000. Regarding other issues it accepts without question the opinions of other reviews. As such the review is hardly comprehensive.

¹⁶⁶ Public Health Commission *Water Fluoridation in New Zealand: an Analysis and Monitoring Report 1994*, 4. (PHC Report 1994).

It acknowledges that some early studies were methodologically unsound,¹⁶⁷ but claims the more recent studies are valid, whilst contradictorily stating it is beyond the scope of the review to examine them. It also acknowledges there has been a decline in effectiveness over the previous 40 years, putting this down to fluoride from other sources, but that is conjecture.¹⁶⁸ Contrary to the Ministry of Health's public position, but in line with the Australian¹⁶⁹ and Great Britain¹⁷⁰ reviews, it finds the issue of bone fracture unresolved.¹⁷¹

The dangers of reviewing reviews rather than original research, (a common practice regarding this issue) is highlighted in this report: in reviewing the Burk-Yiammouyannis cancer studies the Commission accepts criticisms¹⁷² which the National Cancer Institute spent 5 ½ months in a US court making, yet which were listed one by one in the judgment as disproven completely.¹⁷³

In the writer's view, this unsound approach to reviewing such issues undermines the reliability the public has a right to expect in public body decisionmaking, or when exercising its right to make informed decisions itself when voting on such issues.

It makes one important finding however: it cites¹⁷⁴ studies showing that adult males in New Zealand consume a total of 1.8 mg per day and teenage males 2.7 mg per day. (including fluoride from water). If this is so, we are already close to the optimal level without fluoridating water, and in the toxic level during teenage years. (As at 1992)

¹⁶⁷ PHC Report 1994 above n 166, 21.

¹⁶⁸ PHC Report 1994 above n 166, 25.

¹⁶⁹ NHMRC Review above n 38.

¹⁷⁰ National Health Service Centre for Reviews and Dissemination *Fluoridation of Drinking Water: a Systematic Review of its Efficacy and Safety* (York University, September 2000) 47-53. (York Review)

¹⁷¹ PHC Report 1994 above n 166, 49.

¹⁷² PHC Report 1994 above n 166, 50.

¹⁷³ *Aitkenhead v Borough of West View* (16 November 1978) Allegheny County Court of Common Pleas Civil Division, Pennsylvania, GD 78-4587, 2: "Point by point every criticism [] made [] was met and explained []. Often the point was turned around against the defendants." (*Aitkenhead*)

¹⁷⁴ PHC Report 1994 above n 166, 15.

It also found, interestingly, "Aspects of the controversy over water fluoridation have probably led to some loss of public trust in public health authorities and dental professionals"¹⁷⁵ reflected during the Onehunga debate discussed below.

2 Fluoride and Oral Health 1995¹⁷⁶

This addressed the use of both fluoride tablets where fluoridated water was unavailable¹⁷⁷ and toothpaste at 1000 ppm, recommending the latter as most effective. It states, without reasons, that it does not consider milk substitutes for babies, made with water fluoridated at 0.8 ppm, as harmful, although citing this as 50 times more fluoride than breast milk.¹⁷⁸ However this simple ratio is irrelevant. Based on the recommended 1mg per day for adults, a child from birth to 4 months will receive the equivalent of an adult drinking water at between 6 and 11 ppm, well within the acknowledged toxic range. In comparison a breast fed baby receives the adult equivalent of 0.07 - 0.13 ppm approximately.¹⁷⁹ The NHMRC Review specifically recommended fluoridated water not be used for infant formula in 1999, for this reason.¹⁸⁰

The then recent reduction of the fluoride limit to 0.7 ppm was actioned due to there being more fluoride from other sources;¹⁸¹ assessment of total fluoride exposure was accordingly recommended.¹⁸² It also recommended that procedures be developed for identification and assessment of allergic persons.¹⁸³

¹⁷⁵ PHC Report 1994 above n 166, p2.

¹⁷⁶ Public Health Commission *Fluoride and Oral Health* 1995 (PHC Report 1995).

¹⁷⁷ PHC Report 1995 above n 176, 10.

¹⁷⁸ PHC Report 1995 above n 176, 12. Quoting without analysis Department of Health and Social Security (UK) *Artificial Feeds for the Young Infant* (London, 1980).

¹⁷⁹ Average weights according to Plunket published scales, feeding rates per manufacturer's instructions, adult average weight assumed at 65kg.

¹⁸⁰ NHMRC Review above n 38, 9.

¹⁸¹ PHC Report 1995 above n 176, 13.

¹⁸² See also World Health Organisation *Fluorides & Oral Health* (Geneva, 1994): "Dental and public health administrators should be aware of the total fluoride exposure in the population before introducing any additional fluoride programme".

¹⁸³ PHC Report 1995 above n 176, 24. Note in this context that the hypersensitive children in the San Antonio case were under doctor's instruction not to use fluoridated water. (Above n 33)

This report was subtitled "advice to the Minister".¹⁸⁴ The PHC was independent of the Ministry: whilst supporting fluoridation in general, these recommendations reflect a responsible approach, which the writer considers are statutorily required to meet the Ministry's public duty under the Health Act.¹⁸⁵ They have not been actioned.¹⁸⁶

F ESR Review¹⁸⁷

In 2000 the Ministry of Health commissioned ESR to provide a review of research since the PHC review in 1994. The terms of reference included review of *any* internationally published peer reviewed studies into adverse health effects of fluoridated water.¹⁸⁸ The review is limited to the same issues addressed by the PHC 1994 review and omits leading research such as that of Mullinex¹⁸⁹ and Masters and Coplan.¹⁹⁰ It covers only 14 studies from the 6 year period,¹⁹¹ reaching a general conclusion that no harmful effects have been shown from fluoridation since the 1994 PHC report. Yet it had focussed on only two areas of concern and sourced the same databases as the PHC had noted were unlikely to adequately cover adverse research.¹⁹²

¹⁸⁴ Specifically "The Public Health Commission's Advice to the Minister of Health": PHC Report 1995 above n 176.

¹⁸⁵ Health Act 1956 s 3A.

¹⁸⁶ In this regard it is interesting to note that recently, in San Antonio, Texas, a poor family was provided a free filter due to the hypersensitivity of the children, whose measured intake was 1.54 mg per day (before fluoridation) which was sufficient to cause symptoms. See San Antonio Express News (26 July 2002) above n 33.

¹⁸⁷ Institute of Environmental Science and Research Ltd. *Fluoridation of Water Supplies – an Evaluation of the Recent Epidemiological Evidence* (September, 2000) (ESR Review).

¹⁸⁸ Official Information Act response (Minister of Health, 3 April 2001), 2.

¹⁸⁹ Mullinex PJ, Dembesten PK, Schunior A, Kerman WJ "Neurotoxicity of Sodium Fluoride in Rats" (1995) 17 (2) *Neurotoxicology and Teratology* 169.

¹⁹⁰ Masters & Coplan "Water Treatment with Silicofluorides and Lead Toxicity," *International Journal of Environmental Studies* (July-August 1999) 56: 435-449.

¹⁹¹ Compare the 1592 the PHC identified for a comparable timeframe.

¹⁹² This is of particular concern. These are the two principal medical databases used by the medical fraternity: if they selectively exclude fluoride-adverse research as the PHC suggest and that same medical fraternity promotes fluoridation, how can any decisionmaker be properly and objectively informed of all the issues?

It also evidences bias and factual errors. Firstly, in reviewing hip fracture studies it respectively accepts a pro-fluoridation study and rejects an anti-fluoridation study after identifying in identical terms the same methodological defect.¹⁹³ To be scientifically objective it would have to reject both studies if its criticism was sound. As an example of factual error, ESR state that their view that there is no relationship between hip fracture and fluoridation is supported by the Melbourne review 1999,¹⁹⁴ yet this review specifically found that the question remained unresolved and recommended further epidemiological study on Australia's population.¹⁹⁵

In the writer's view, this review fails to meet its terms of reference and is potentially misleading to any decisionmaking body.

G *Reviews as Inputs Into The Decisionmaking Process*

The decision is made by local councils. Typically they will be lobbied by both the Area Health Board (on behalf of the Ministry of Health) promoting fluoridation and opponents, usually private citizens' groups. In support of their position the Health Board will refer to studies and reviews, such as the PHC studies. These studies in turn will have based their recommendations typically on other reviews¹⁹⁶ or critiques of

¹⁹³ ESR Review above n 187; compare at 14 & 16.

¹⁹⁴ ESR Review above n 187, 33.

¹⁹⁵ NHMRC Review above n 38.

¹⁹⁶ See the PHC's repetition without evaluation of baby formula: above n 178.

¹⁹⁷ See the PHC's use of critiques of the Burk-Yiamouyannis study without evaluation: above n 172.

¹⁹⁸ For example, when Masters and Coplan (Masters & Coplan "Water Treatment with Silicofluorides and Lead Toxicity," *International Journal of Environmental Studies* (July-August 1999) 56: 435-449) published their research showing increased Lead uptake with Silicofluorides, Urbanski and Schock were commissioned to critique it, publishing an academic theoretical opinion without any research basis. (E.T. Urbansky & M.R. Schock "Can fluoridation Affect Lead (II) in Potable Water? Hexafluorosilicate and Fluoride Equilibria in Aqueous Solution" (1999) *International Journal of Environmental Studies* Vol 57, 597-637). This *opinion* is already being cited as authority refuting the *research* of Masters and Coplan: Auckland Healthcare Services, Official information Act response to the author (6 August 2002).

original research but will rarely examine original research themselves.¹⁹⁷ Further, when any fluoride-adverse research is published, a proponent body will commission a critique, which may or may not be valid and its validity is not itself assessed.¹⁹⁸ That critique may then enter the review system unchecked, resulting in a perhaps baseless critique being accepted first by one review, then that review being cited by another, and so on, leading to a "body of expert opinion" which is supported by no more than its own "bootstraps". Such reviews cannot meet the standard of informed decisionmaking discussed above.

H *Recent Decisions*

This section examines four recent decisions with differing decisionmaking models and outcomes.

1 *Petone 1999-2000*

In 1998 the Lower Hutt City Council (LHCC) commissioned a new reservoir to supply Petone and Korokoro. This was at a higher elevation than the original, and the pumping station would have required upgrading to deliver Petone's artesian water, on which the community placed a high intrinsic value. Rather than incur this expense the Wellington Regional Council (WRC) decided to supply the reservoir from its main pipelines, which included treated Wainuiomata catchment water. The decision was made purely on grounds of engineering expedience. Petone residents strongly objected to this; the WRC was adamant. It was subsequently discovered that an unused pipeline could be used to transport artesian water from the Waterloo pumping station to the reservoir, but this water was also fluoridated.¹⁹⁹ Following disagreement with the

¹⁹⁹ It should be mentioned that the situation in the Wellington Region differs from the rest of New Zealand by virtue of the Wellington Regional Water Board Act 1972. The WRC has the sole authority to extract water and supply it to its four "customers", the City Councils. Consequently, although the WRC, as the authority extracting and treating water, has the sole authority to decide on fluoridation, it

WRC, the LHCC commissioned a public opinion survey by default. Its position was that fluoridation is a public health issue, not a water supply issue, hence it was inappropriate for the WRC water supply engineers to decide such a matter. It also maintains that it is inappropriate for the Council (LHCC) to dictate health measures to the public.²⁰⁰

Prior to the poll, the LHCC promoted public consultation via public meetings and publication of both sides of the argument in as balanced a way as possible,²⁰¹ similar to the approach in Onehunga discussed below. Throughout the discussion the LHCC maintained that it would support the decision of residents. The WRC, in the writer's view to deflect adverse public opinion which was mounting against it due to its entrenched position,²⁰² stated that it would do what its customer (LHCC) wanted. As decisionmaker, this arguably gave rise to a legitimate expectation which would have been an avenue for challenge had it not complied.²⁰³ The poll was conducted by Colmar-Brunton on one third of residences, with a 74% vote against fluoridation.

2 Onehunga 2001

Central to this decision was questioning by the Auckland City Council as to who should properly make the decision. This was also addressed in the Health Board's independent survey.

The issue arose due to the mistaken belief by a doctor who had moved to the outskirts of the area that the water supply to her address was unfluoridated. The Area Health Board became involved and approached the Community Board and Auckland City Council Works Committee to fluoridate without public consultation, on the basis

also has some accountability to its local Councils, the implications of which are unclear: Wellington Regional Water Board Act 1972 ss 26 & 38(1).

²⁰⁰ Interview with S. Garlick, Water Manager, Lower Hutt City Council (the author, 21 June 2002).

²⁰¹ See *The Hutt News* 6 July 1999, 9.

²⁰² Personal observations of the author at the time.

²⁰³ *A-G of Hong Kong v Ng Yuen Shiu* [1983] 2 AC 629 (PC).

that the Ministry of Health recommended fluoridation and it was inappropriate for the Council to make its own decision. This is contrary to the Fluoridation Commission's recommendation discussed above. This request was declined. The Board then approached the Council's water supply contractor to fluoridate contrary to the Council's position. They properly declined this invitation and referred the Board back to the Council as the appropriate decisionmaker.²⁰⁴ The matter was considered by the Works Committee who decided they required more information and wished to gauge community views. A number of consultation measures were undertaken. A display was also mounted in the Local Council building, with both groups allowed to promote their views without limit to the amount of material. The Council sent out a questionnaire, including one A4 page allocated to each of the Health Board and the anti-fluoridation lobby to put their case. Both parties also put out privately their own material, each subsequently accusing the other of scaremongering tactics.

(a) Community Consultation

The Council commissioned the National Research Bureau (NRB) to undertake community consultation.²⁰⁵ Each resident on the Electoral Roll, and each business, was sent a pack including the "pro" and "con" material referred to above, a covering letter, a preference paper, and reply paid envelope. It was made clear that this was an expression of preference, not a referendum vote, and not binding on the Council. Approximately one third replied, a total of 4741, with the preference against fluoridation of 62.2% to 33.2%. (4.6% showed no preference). Interestingly, slightly over half the businesses preferred fluoridation. As the alleged benefits and harms affect human beings, not businesses, the writer questions whether they should be considered in this matter. Moreover, who makes the decision on behalf of the business?

²⁰⁴ Telephone interview with K Harland, Auckland City Councilor, Ward Committee member, Works Committee member (the author, 9 May 2002).

(b) Health Board Survey

The Auckland Area Health Board conducted its own telephone survey in August 2000, the sample comprising 282 residents and 50 businesses.²⁰⁶ This survey found that 48% of residents favoured fluoridation compared with 21% opposed and 30% "don't know". These figures vary considerably from the NRB survey. The sample size is much smaller but possibly more random than the NRB survey which may have received responses primarily from polarised community sectors. The more interesting result of this survey is in relation to the decisionmaking process: 65% of residents wanted the matter decided by referendum; only 15% supported the Council making the decision. Comparing this with the Fluoridation Commission's recommendation, the writer concludes that with the subsequent increase in access to information, demand for accountability of public bodies, and desire for autonomous decisionmaking, the paternalistic approach of the 1950's is no longer appropriate. This is in line with the attitude of both the Councils involved in Onehunga and Petone: if the Ministry of Health thinks fluoridation is a good idea, let them convince the public of it.

(c) The Council Vote.

Some Councillors voted according to their entrenched (predetermined) personal view in favour of fluoridation. Others who personally supported fluoridation considered the community opposition such that they voted in line with community wishes, against fluoridation. It was also considered relevant that the community had expressed a view that it was inappropriate for the Council to make the decision on their behalf. The decision rested on the mayor's individual (tying) and then casting vote. The mayor considered that community opposition was such that it would be

²⁰⁵ National Research Bureau *Onehunga Fluoride: Resident Preference Survey, Report to the Maungakiekie Community Board*, (12 February 2001).

²⁰⁶ L Holbrook and P Watson Fluoridation "What the Public Know and What They Want" (June 2001) *The Australian and New Zealand Journal of Public Health*, 2001 vol 25 No. 4, 346.

improper to decide the matter in this way and abstained from voting: the vote was lost by one and Onehunga remains unfluoridated.

3 *The Conflicting Vires Issues Between The Petone and Onehunga Decisions*

In the Onehunga debate, the Area Health Board submitted that the Council could not base its decision on such a referendum alone; that it was required to consider its obligations under the Health Act also or its decision would be *ultra vires* for failing to have regard to relevant considerations.²⁰⁷ Conversely, if a council had given an undertaking to abide by such referendum, as was the case in Petone, such would create a legitimate expectation following *A-G of Hong Kong v Ng Yuen Shiu*²⁰⁸ and implementation of fluoridation would be *ultra vires* on that ground. There is of course a resolution, as the Onehunga decision generates: it is within a council's discretion as decisionmaker to give more weight to one factor than the other, reaching such a decision before or after a referendum.

4 *Whakatane 2001*

Through the persistence of a single resident, gathering support from the community, the fluoridation question was again put to referendum at the 2001 local body elections.²⁰⁹ Unlike Petone and Onehunga, the Council took no role in publicity; each party was left to its own resources. The anti-fluoridation lobby essentially had none. The Bay of Plenty District Health Board launched an extensive advertising campaign. One newspaper advertisement can only be described as blatant and deliberate misrepresentation and scaremongering, in the writer's view inappropriate and unconscionable behaviour for a public body, as well as contravening advertising

²⁰⁷ Auckland Healthcare Services *Submission to the Auckland City Council* (23 August 1999) 5.

²⁰⁸ *A-G of Hong Kong v Ng Yuen Shiu* [1983] 2 AC 629 (PC).

²⁰⁹ Telephone interview with Mrs. D Kirkwood, the petitioner (the author, 25 June 2002). The same organiser had gained a referendum 6 years earlier, however the question was apparently phrased unclearly.

standards.²¹⁰ The advertisement depicted a person with excellent teeth “with fluoride” and another whose teeth were literally rotting out labelled “without fluoride”.²¹¹ No fluoride research supports such a disparity.²¹² The vote was to continue fluoridation.

5 *New Plymouth 2001* 1956 AND LOCAL GOVERNMENT ACT 1974

The lobby to raise the issue was conducted by a single resident who gained necessary public support. The New Plymouth District Council was approached to hold a referendum in conjunction with the local body elections, which they declined. Instead they undertook to appoint a tribunal with the necessary expertise to consider the facts.

In fact the “tribunal” comprised the whole council. The Area Health Board and Ms. Hodson, the resident, each were given 1 hour to present their case. The Health Board had 5 staff with a “standard issue” PowerPoint presentation. Ms. Hodson had to rely on her personal resources. Public submissions were also received, the majority opposing fluoridation, though the nature of the issue is such that this could not be considered a representative cross-section. The Council met, as the Council not the Tribunal, one week later. Although indications from the councillors at the time of the hearing were approximately equally for and against, the vote was for continuing fluoridation with only one dissent. Interestingly, one councillor from Inglewood, which is unfluoridated, after voting *for* fluoridation in New Plymouth advised that she would “fight tooth and nail” if the Council tried to reintroduce it there.²¹³ This raises an issue as to the *basis* for her vote: if it was not on the health risk/benefit basis (as her personal opposition would suggest) what was it? A further issue with this process was the relationship between the “tribunal” and the Council. There would be nothing wrong with the Council hearing the submissions in its own capacity, or appointing a sub-committee to hear these and report to the Council. The full Council would still need to make the decision, not just “rubber stamp” the committee’s findings following

²¹⁰ *Advertising Codes of Practice* (Advertising Standards Authority Inc., Wellington, 2001), 13.

²¹¹ *The Whakatane Beacon* (Whakatane, 26 September 2001) 8.

²¹² See above n 115 (ii).

Jeffs v NZ Dairy Marketing Board.²¹⁴ The undertaking to appoint a “suitably qualified tribunal” but failing to do so raises concern over “good faith” aspects of this decisionmaking example.

V THE HEALTH ACT 1956 AND LOCAL GOVERNMENT ACT 1974

This section discusses the limits and responsibilities of decisionmakers under these Acts. Section 392 of the Local Government Act prohibits “pollution” of water supplies where the pollution endangers human health.²¹⁵ Section 2 defines a pollutant as a substance which contaminates water changing its chemical condition so as to make it detrimental to the health, safety, or welfare of persons using it.²¹⁶ Section 23 of the Health Act requires local authorities to improve, promote, and protect public health within their jurisdiction.²¹⁷ Section 3A similarly charges the Ministry of Health with improving, promoting, and protecting public health.²¹⁸ Consequently any proven harm would automatically end fluoridation.^{219, 220} One question is the onus of proof. In registering pharmaceuticals, and possibly mineral supplements²²¹ in the near future, the onus is on the manufacturer to prove safety. Regarding fluoridation however, the Ministry’s position is that harm must be proven before removing the chemical. However there is a more specific issue. It is not disputed that a sector of the population is sensitive to fluoride and suffer adverse health effects and who can be identified, as discussed above: does the Health Act then allow for harm to one sector

²¹³ Telephone interview with Ms. Joy Hodson, campaign organiser (the author, 24 June 2002).

²¹⁴ *Jeffs v NZ Dairy Marketing Board* [1967] NZLR 1057 (PC).

²¹⁵ Local Government Act 1974 s 392(a).

²¹⁶ Local Government Act 1974 s2.

²¹⁷ Health Act 1956 s 23.

²¹⁸ Health Act 1956 s 3A.

²¹⁹ Such was briefly referred to in *Lewis* addressing the Municipal Corporations Act s 254. The Court held without discussion that artificial fluoridation was harmless, a matter on which little reliable evidence seems to have been led and on which there is much more today, as discussed in this paper: *Lewis* above n 36, 442-443 MacGregor J.

²²⁰ A further issue is the heavy metal contaminants of the fluoride solution used, which vary with the source of rock phosphate of which fluoride is a contaminant. The solution used is not food grade but partly processed industrial waste.

²²¹ The Ministry has maintained the position that fluoridation is mineral supplementation to correct a deficiency, however it falls within the definition of “medicine” in current proposals: see above n 112.

²²² There is no relevant case law under this Act that the writer has been able to uncover.

of the public in promoting the health of others?²²² Further, harm to "persons using" the water supply brings added fluoride within the definition of a "pollutant" hence breaching section 392 of the Local Government Act.

There is also the issue of civil liability to consider although it is outside the scope of this paper to analyse tort liability in depth. Unlike the general population, hypersensitive persons could prove causation between a specific harm and fluoridation. Given that warning about this group was both made public and specifically given to the Minister of Health in 1995, not only may councils be liable under the Local Government Act, but the Minister of Health also may be liable under the Health Act, the immunity provision not extending to acts in bad faith or failure to take reasonable care.²²³ There is no immunity from civil liability under the Local Government Act,²²⁴ and case law has established liability regarding water supplies.²²⁵ Similar litigation is being prepared in the United States currently, following the "tobacco" litigation.²²⁶ This involves a deliberate strategy of supplying promoters of fluoridation with research on adverse health effects specifically to preclude a defence of being unaware of such effects. Further, those who promote fluoridation are targeted for litigation, in addition to those who impose it, on a "negligent misstatement" basis. Although New Zealand is a less litigious society than the United States, such concern needs to be addressed and is one reason for reticence on the part of private water supply companies in England.²²⁷

VI TOTAL FLUORIDE EXPOSURE: A CRITICAL CONSIDERATION

²²³ Health Act 1956 s 129.

²²⁴ See procedures for filing suit: Local Government Act 1974 s 702. See also S Todd *The Law of Torts in New Zealand* (3 ed Brookers, Wellington, 2001) 420.

²²⁵ *Read v Croyden Corporation* [1938] 4 All ER 631 due to the council's failure in its duty to provide a "pure and wholesome" water supply (caused by contamination). See also *Pease v Eltham Borough* [1962] NZLR 437, 442, MacGregor J referred to in Todd above n 224, 423.

²²⁶ See IFIN Bulletins #645 & #648.

²²⁷ As noted above in section III, p 10.

Whoever makes the decision the total level of Fluoride exposure is necessary information for an *informed* decision. The "optimal" amount of fluoride was determined at 1 mg per day; the World Health Organisation set a maximum limit of 1.5 mg per day.²²⁸ It must be emphasised that there is nothing magic about 1ppm; it is the total daily intake which is critical. As discussed above, New Zealanders may already be obtaining enough or excessive fluoride.²²⁹ Accordingly, in making a decision to fluoridate a water supply, the current intake of fluoride, at least on an averaged basis, would seem to be not just a relevant consideration but a mandatory one. This approach is further supported by the principles of the Biomedical Convention discussed above.²³⁰ The writer is not aware of any local authority which has considered this matter, nor any Area Health Board which has addressed it in either submissions or publicity. Neither are the public made aware of it when voting on this issue.

VII WHO SHOULD MAKE THE DECISION

With the amount of research existing today, and the complexity of biochemistry, it is unlikely that any body other than a specifically selected panel with the necessary expertise could weigh the evidence. However this does not affect the civil liberties issue, and does not appear to deter any body, including the lay public, from claiming the right to make this decision. If no-one is competent on these grounds, then the playing field is as level as if all were. As regards the public, whose health choice is directly in issue, an interesting perspective is offered by philosopher and author J R Saul in discussing Genetic Engineering. His position is that it is unnecessary to understand the intricacies so long as there is a sufficient period (measured in years) of *clear* public debate by experts such that the public can get a reasonable grasp of the

²²⁸ Expressed as 1.5ppm in water on the assumption that water consumption was 1 litre per day.

²²⁹ PHC Report 1995 above n 176, 13; PHC Report 1994 above n 166, 15. United States studies have shown that even in unfluoridated areas, populations are receiving between 2 and 3 mg per day (in fluoridated areas it is as high as 6mg per day): Dr. Paul Connett, fluoridation lecture (Wellington, 29 May 2002).

²³⁰ *Convention for the Protection of Human Rights and Dignity of the Human Being with Regard to the Application of Biology and Medicine* 1997.

issues. As he identifies with GE however, the debate is often *not clear*, and perhaps deliberately obfuscated, undermining this process.²³¹

VIII COUNCILS AS DECISIONMAKERS

Councils take differing approaches. Some promote full public consultation; others say "The Ministry of Health are the experts so we do what they say. If the Ministry says that those who disagree with them are wrong and we should ignore them, they ought to know." Although *Lewis*²³² held that councils had the power to fluoridate under existing legislation, that legislation does not direct them to make the decision. It does mean, however, that they are the only bodies with the authority to do so.

It is well known that many councillors have made up their minds on fluoridation before the question is raised.²³³ Those who oppose fluoridation simply accept this and attempt to convince those with open minds of their view, as is their right, hoping to get enough numbers to outvote the former. Should those who vote in this manner be disqualified on the grounds of predetermination?²³⁴ Councils, like national governments, are elected. When a party contesting the national election stands on a policy platform, a majority vote is a mandate to enact that policy.²³⁵ As Parliament has supreme lawmaking power it can do so. Councils, conversely, are constrained by various statutes. Is election of a council or councillor a mandate to pursue a policy at the local level or would failure to consider relevant information render a decision *ultra*

²³¹ "That's Saul Folks" (Matt Nippert, Interview with John Ralston Saul) *Salient* (Victoria University of Wellington Students' Association, 8 July 2002) 18, 19-20.

²³² *Lewis* above n 36.

²³³ See the Onehunga decision discussed above at IVH2(c) page 40. This was also evident during the Petone debate, especially when it was subsequently suggested Lower Hutt should cease fluoridation: the author's personal observation.

²³⁴ See generally Joseph above n 31, 885.

²³⁵ For example the Irish Green Party stood on an anti-fluoridation platform in the 2002 Irish elections, much as the New Zealand Green Party stood on an anti-GE platform.

vires? Following *Lovelock*²³⁶ the crucial issue is what obligations are mandated by the empowering legislation, in particular whether the substantive decision, as opposed to the process, is circumscribed. In relation to fluoridation, the Local Government Act only empowers authorities to construct waterworks for providing "pure" (interpreted as "wholesome") water,²³⁷ free from "pollution".²³⁸ Further, the reader will recall Auckland Healthcare's legal opinion that councils must consider their obligations under the Health Act 1954 regardless of public vote. Consequently, neither councils nor councillors have free rein to follow a policy on this issue: they must consider information relevant to health.

Neither may councils abdicate their decisionmaking function. In June 2000 the Minister of Health sent a form letter to all water supply authorities alleging general health detriment to residents through the absence of fluoridation, and urging authorities to fluoridate on that basis.²³⁹ Some councils indicated to the writer an approach which questions the *vires* of their decisions. Their position was that they relied solely on the Ministry's assurance that those who disagreed with the Ministry's view were wrong, and effectively abdicated their decision to the Ministry by way of following their recommendation without question.²⁴⁰ Although in some cases Government policy may be a relevant consideration it is incumbent on any decisionmaker to make the decision themselves; rubber stamping the Ministry's view is not a decision.²⁴¹ Also, failing to consider fluoridation anew, on new pivotal information, because there was no need to question the Ministry's view, could be *ultra vires*.²⁴² This view raises a practical issue however: is it reasonable to expect every council to assess the same technical evidence when the Ministry has already done so. This would seem a waste of resources, not to mention a task for which the

²³⁶ *Waitakere City Council v Lovelock* [1997] 2 NZLR 385, 390-391.

²³⁷ Local Government Act s 379.

²³⁸ Local Government Act s 392.

²³⁹ Minister of Health, letter to all water authorities (13 June 2000).

²⁴⁰ Mayor of Manakau City, letter to the author, 8 September 2000.

²⁴¹ *Jeffer v NZ Dairy Production Marketing Board* [1967] NZLR 1057 (PC); See also Joseph above n 31, 806-807.

²⁴² *Padfield v Minister of Agriculture, Fisheries and Food* [1968] AC 997 (HL).

council would be ill-equipped. A further issue is that the Ministry will probably *not* have assessed such matters as it keeps no ongoing watching brief.²⁴³

IX THE MINISTRY OF HEALTH AS INFORMATION PROVIDER

The 1957 Fluoridation Commission noted that the Department of Health had a duty to advise councils on matters of public health under the Health Act 1920.²⁴⁴ As the Ministry provides much of the pro-fluoridation information in New Zealand to decisionmakers, and is held as an authority on the issue, its level of actual as opposed to perceived credibility is central. It should be noted that the Ministry does not conduct any research itself; it relies on reviews of research by others. The Ministry has continually insisted unequivocally that fluoride at 1ppm in water supplies is safe, yet local and overseas authorities refuse to do so. The United States Food and Drug Administration for example withdrew this claim in 1977.²⁴⁵ Regarding hip fracture risks the Ministry relies on three reviews, all of which, contradictorily, find the issue unresolved.²⁴⁶ The Ministry also evidences, as did the PHC discussed above, a practice of accepting critiques of fluoride-adverse research without evaluation of the validity of either.²⁴⁷ Such a stance does not comply with the Commission's finding and breaches the Ministry's responsibilities under the Health Act regarding public health.²⁴⁸

²⁴³ For example the Ministry was unaware in 2001 of the leading research of Mullinex in 1995: Minister of Health, Official Information Act response to the author, 18 July 2001.

²⁴⁴ Public Health Act 1920 s12(b).

²⁴⁵ Following the decision in *Aitkenhead* above n 49. Personal communication Dr. Paul Connett.

²⁴⁶ PHC Report 1994 above n 166, 49; NHMRC Review above n 169; the York review above n 170.

²⁴⁷ Minister of Health Official Information Act response to the author 18 July 2001: email response copy dated 20 June 2001, including a "critique" (supplied to the Ministry by email dated 22 June 2001) acknowledging that it was a "face value impression" based on a quick look at no more than the scientific abstract.

²⁴⁸ Health Act 1956 s3A.

X CONCLUSION

In the writer's view, the standard of decisionmaking on this issue falls far short of the standard against which it is to be assessed, particularly regarding the information on which decisions are based, whether by councils or the public. Although the macro level approach involving a Commission of Inquiry, monitoring reports such as those by the PHC and ESR, and public consultation, cannot be criticised on process grounds, the internal procedures of the bodies involved have been found inadequate, contributing to substantive errors which may undermine the substantive decisions of downstream bodies, regardless of their own procedures. As we have seen, the reports which inform decisionmakers in New Zealand accept critiques and the conclusions of other reviews without evaluation of the reliability of those opinions, or evaluation of original research, leading to material errors of fact in their findings. The only review addressing such original research was that by ESR, unpersuasive due to its omissions, limited scope (assessing only 14 studies from a 5 year period), lack of credible analysis,²⁴⁹ and failure to meet its terms of reference. Any review body considering this issue ought reasonably be expected to comprise the best available expertise and access the best available information. Yet the Fluoridation Commission was not such a body and made no effort to obtain such information.²⁵⁰ It is of further concern that the two main medical databases, which inform medical opinion on this and other issues, were identified by the PHC as not presenting a balanced view of the available research.²⁵¹

The decisionmaking process within local councils ranges from genuine efforts to promote a fair and balanced portrayal of the issues to the voting public as in Onehunga and Petone, to questionable practices such as New Plymouth, and refusal to

²⁴⁹ Compare for example the standard of assessment used in the York Review above n 170 which allocated each study with a "reliability rating" based on a number of criteria, and subjected each to three different statistical analyses.

²⁵⁰ Similarly, the review board appointed by the Wellington Regional Council in 1993, not discussed in this paper, comprised lay persons: Wellington Regional Council, *Water Supply Fluoridation Review* (June 1993) Publication No. WRC/BW-G-93/24.

²⁵¹ See PHC 1995 above n166.

²⁵² The 1957 - 1962 era, not today: see the Petone analysis.

allow debate or public participation as in Manukau and Lower Hutt.²⁵² As Onehunga showed, even the attempts at "best practice" by councils as a whole can be undermined by the predetermined position of individual councillors.

As identified, a high quality of public information is required to support informed consent. As discussed the available reviews studied do not provide full or up to date information and the public must rely on their own efforts to get a balanced picture, though in some instances assisted by local councils. With the paucity of balanced objective information publicly available no vote for or against fluoridation can in the writer's view be described as *informed*.

No effort is made by the State to enable persons to exercise their right to access unfluoridated water, especially relevant to those of lower socio-economic status who may not be able to afford filters or to pay for bottled water, as espoused in the Irish Fluoridation Forum's ethics opinion²⁵³ and highlighted in San Antonio.²⁵⁴

Of particular concern is decision to withhold information regarding hypersensitive persons, whose existence was evidenced with the first fluoridation programme in Hastings in 1953, is not questioned by any world authority, and was specifically recommended by the PHC. As identified above as a key responsibility it was incumbent on the Government to implement the means of identifying, warning, and safeguarding such individuals as a minimum requirement of State responsibility.

²⁵³ See above n35.

²⁵⁴ See above n33.

²⁵⁵ The writer has no means of assessing whether or to what extent this may have occurred in relation to this issue. It is disconcerting however that such an approach was recommended regarding a Texas University cancer study during the 1951 United States conference of state dental directors, above n 122, 8.

How then is any informed decision to be made today and who should make it? As the PHC acknowledge, there is public distrust of health authorities. The Auckland Healthcare survey showed a strong public opinion in favour of public polls, rather than councils making the decision as recommended by the Fluoridation Commission. The public do not accept public bodies making personal health choices for them and do not see the technical aspects of the issue as precluding them from making a considered choice. But decision by majority vote, in this light, contains an inherent paradox: if public bodies should not make decisions for individuals, why should other individuals do so with respect to their neighbours. Moreover, the issue of protecting hypersensitive persons remains, and is not going to be addressed under any current option. In the writer's view, this issue alone requires, following the principles identified at the outset of this paper, a moratorium on fluoridation until it can be resolved.

In the wider context of standards for decisionmaking and information provision, this issue has some valuable lessons. Reliance on the opinions of other reviewers, without examining source material is inherently unsound. Whilst it is unrealistic to expect each piece of research to be examined by every reviewing body, acceptance of opinions should be conditional on that other body establishing the grounds on which the original research is upheld or refuted, including critiques from both "pro" and "con" viewpoints. As a minimum, absence of a response from the researcher should automatically preclude acceptance. This would avoid the opinion "bootstrapping" described above. Perhaps the gravest concern is that such practices, while circumventing review of decisions on administrative law grounds, yet undermine the standard of decisionmaking promoted by administrative law rules for the safeguarding of the public interest during exercise of this statutory function by public bodies. In particular this potentially enables an unscrupulous vested interest to introduce false material into the arena "legitimising" it by the review process.²⁵⁵

Overall the decisionmaking process and the consequent status quo fall short of the standards identified at the outset of this paper. Meanwhile increasing amounts of

information, on both sides of the issue and of varying reliability, are now publicly available via the internet. In the writer's view, the final decision on fluoridation will be made, not by any public body, but by the public themselves with whatever information is available. This is far from satisfactory for any medical decision but especially when the individual's personal health choice is effectively enforced on others.

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