QUESTION that was asked:

> **Why do older Kiwis have more dental fillings than younger Kiwis?**

ANSWER:

> **Fluoridation is not the cause of declining tooth decay over the 20th century:**
> **Explained by fluoridation academics and public health doctors:**

Dr Betty De Liefde, Bachelor of Science, Doctor of Dental Surgery, Diploma in Dental Public Health
Dr John Colquhoun, Former Principal Dental Officer of Auckland, Former Chairman of the NZ Fluoridation Promotion Committee, Doctor of Dental Surgery, PhD Dissertation: *Education and Fluoridation in New Zealand: An historical study*

Below are summary points and updated graphs, followed by supporting quotations from these two published papers, which are attached:

1) **The Decline of Caries in New Zealand Over the Past 40 Years** (Dr De Liefde)
2) **Why I Changed My Mind About Fluoridation** (Dr Colquhoun)

In the first publication from the NZ Dental Journal, Dr De Liefde clearly outlines that fluoridation is not the reason why New Zealanders born before 1970 have more dental fillings than younger generations. She discusses the declining number of fillings over the twentieth century, and the reasons for that.

In the excerpts from the second paper, Dr. Colquhoun expands on these points and describes his discoveries while serving as Former Principal Dental Officer of Auckland. He was sent to, ***"make fluoridation the subject of a world study tour in 1980 — after which I would become their expert on fluoridation and lead a campaign to promote fluoridation in those parts of New Zealand which had resisted having fluoride put into their drinking water."*** He discovered an insider's list of reasons why he could no longer support fluoridation.

Please note: Colquhoun's graph contain figures for NZ 5-year-olds, and De Liefde's figures are for NZ 12-year-olds.

In Layman's Terms, Summary Points

1) Tooth decay rates were dropping at the same rate in NZ (and around the world) for decades, before fluoridation was introduced. They have continued to drop at the same rate in non-fluoridated and fluoridated areas.

"Tooth decay was declining without water fluoridation" – Dr John Colquhoun

Decreasing decay rates are clearly not due to fluoridation.

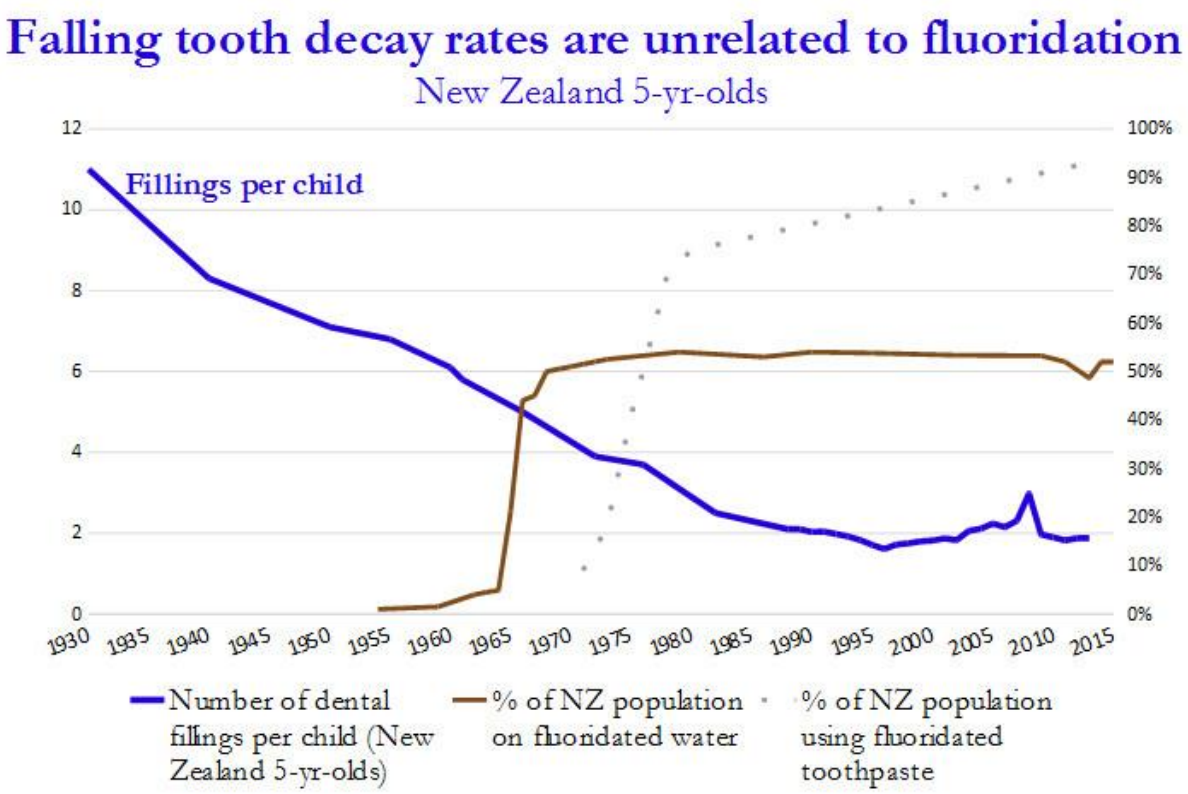
Tooth decay was declining over generations at a steady pace before the introduction of fluoridated water and fluoride toothpaste. (See below graph for 5-year-olds). This decline has continued at the same rate in fluoridated and non-fluoridated communities, regardless of the introduction of water fluoridation and fluoride toothpaste. We need to re-assess the claims made for fluoride.

> "Thus an explanation of the convergence of caries prevalence in fluoridated and non-fluoridated areas since the 1970s may require a re-assessment of the fluoride effect."

"Diet, particularly sugar, is a key factor in caries aetiology…dietary changes in the last 30 years have gathered momentum in the past decade. The types of foods eaten have changed and this has been linked to documented socio-economic changes in society [4].

"Food production techniques have also changed, and intensive farming often involves the use of antibiotics which are then in the food-chain. The use of antibiotics for childhood ailments is widespread and could add further to a dietary intake. Some evidence suggests that medicinal antibiotic use does have an effect on the oral flora [3]."

– Dr Betty De Liefde



2) Healthy teeth used to be given 'protective' fillings before 1976 in New Zealand. These 'unnecessary fillings' were phased out shortly after fluoridation started.

It was standard dental procedure before 1976, to give children metal fillings on the natural crevices and uneven surfaces of healthy teeth. At that time, these were considered necessary 'preventive fillings.'

From 1976, these were considered 'unnecessary fillings.' So the number of fillings in children's mouths decreased dramatically from that time.

This diagnostic change took place after fluoridation levels in New Zealand had been stable for a decade. As a result of this diagnostic change, many people incorrectly associated younger generations' fewer fillings with fluoridation. A close look at the timeline shows no correlation to fluoridation.

Specifically, in 1976, there was a new directive in the NZ School Dental Service, instructing dental nurses to cease putting these 'unnecessary' fillings on the healthy natural crevices and uneven surfaces of healthy teeth, and only to put fillings on dentine cavities. The next year, the rate of fillings (for 12-

year-olds) was 33% lower nationwide, and over the next five years, it was 64% lower (shown in below graph for 12-year-olds). This is an enormous reduction in the number of fillings, as the different nurses adopted the new directive, starting in this period.

Which teeth need fillings?

Illustrating results of different opinions

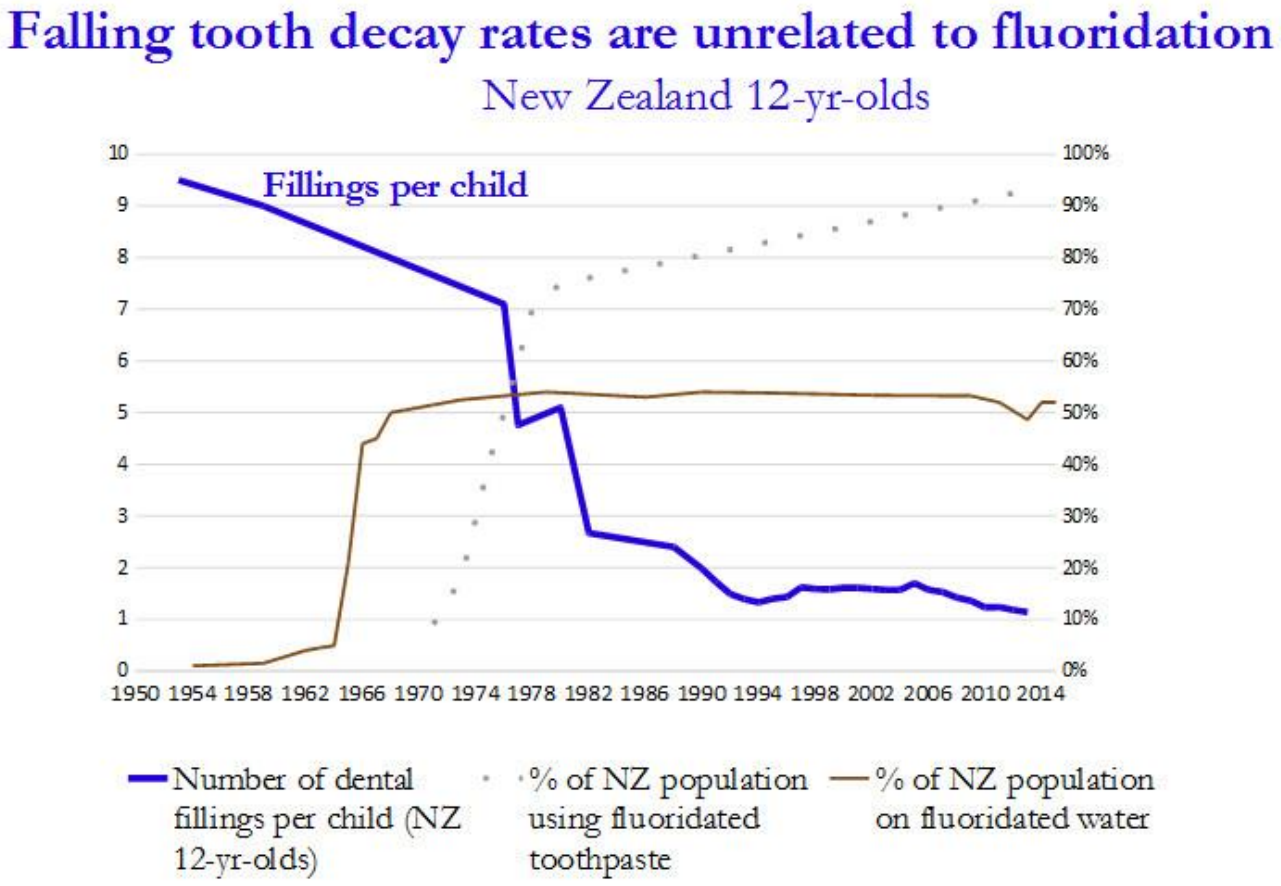
Although the School Dental Service's directive was to stop putting these unnecessary fillings on healthy teeth in 1976, some dental nurses were slower than others to adopt the change. Hence, the number of fillings varied widely, from one dental nurse to another in the transition period. The very large difference in nurses' yearly fillings rate is illustrated in the case below.

TWO CLINICS:

Located only 2 km apart, in the same town
Supervised by the same managerial dentist
Same socio economic area
With different dental nurses treating patients

One clinic averaged 1.3 fillings per child, and the other clinic averaged 4.7 fillings per child, which is an enormous difference. Unnecessary fillings were finally 'phased out' completely in the early 1980s.

After 1982, the "over-use of restorative treatment" reduced. – Dr De Liefde



3) Non-fluoridated areas often have less tooth decay than fluoridated areas in New Zealand and overseas

Although many people believed fluoridated water was the reason for the decline in tooth decay, the evidence and statistics do not support this.

There was no dramatic drop in the rate of fillings over the first decade of NZ fluoridation. This would have been the key test for fluoride to make good on its promise, but it failed. A decade after fluoridation levels in New Zealand had been stable, there was **only seven-tenths of one filling** average reduction rate for 12-year-olds.

Starting in the 1950s, most people assumed the fluoride and tooth decay theory was valid. Since the 1980s, the fluoride and tooth decay relationship has become less demonstrable, and since the 1980s, it "**has ceased to exist**." – Dr De Liefde

During the 1980s, the national rate of fillings (for 12-year-olds) dropped by about half (5.1 to 2.4) and in the early 1990s it dropped yet again by about half (2.4 to 1.4). This huge improvement clearly has nothing to do with water fluoridation, because the number of people drinking fluoridated water has slightly decreased since 1985. These improvements require an explanation other than water fluoridation.

> "It is certain that, in 12-year-old children, caries prevalence almost halved between 1988 and 1995, from an already low level and without any known additional fluoride supplementation."
>
> "Epidemiological evidence of change in prevalence does not correlate well with the timetable of the introduction of the various fluoride supplements."
> – Dr De Liefde

Why I Changed My Mind about Fluoridation

By Dr John Colquhoun, Former Principal Dental Officer of Auckland, Former Chairman of the NZ Fluoridation Promotion Committee, Doctor of Dental Surgery, PhD Dissertation: *Education and Fluoridation in New Zealand: An historical study*

Below are relevant excerpts from this paper, first published:
Colquhoun J. (1997), Perspectives in Biology & Medicine 41(1):29-44.
Also published by University of Chicago Press.

Full paper and references can be viewed online at: http://www.fluoridation.com/colquhoun.htm

FORMER ADVOCATE

To explain how I came to change my opinion about water fluoridation, I must go back to when I was an ardent advocate of the procedure. I now realize that I had learned, in my training in dentistry, only one side of the scientific controversy over fluoridation. I had been taught, and believed, that there was really no scientific case against fluoridation, and that only misinformed lay people and a few crackpot professionals were foolish enough to oppose it. I recall how, after I had been elected to a local government in Auckland (New Zealand's largest city, where I practised dentistry for many years and where I eventually became the Principal Dental Officer) I had fiercely — and, I now regret, rather arrogantly — poured scorn on another Council member (a lay person who had heard and accepted the

case against fluoridation) and persuaded the Mayor and majority of my fellow councillors to agree to fluoridation of our water supply.

INFORMATION CONFIDED

My public service superiors in our capital city, Wellington, approached me and asked me to make fluoridation the subject of a world study tour in 1980 — after which I would become their expert on fluoridation and lead a campaign to promote fluoridation in those parts of New Zealand which had resisted having fluoride put into their drinking water.

Before I left on the tour my superiors confided to me that they were worried about some new evidence which had become available: information they had collected on the amount of treatment children were receiving in our school dental clinics seemed to show that tooth decay was declining just as much in places in New Zealand where fluoride had not been added to the water supply.

WORLD STUDY TOUR

My world study tour took me to North America, Britain, Europe, Asia, and Australia [4]. Although I visited only profluoridation research centers and scientists, I came across the same situation which concerned my superiors in New Zealand. Tooth decay was declining without water fluoridation.

SURPRISE: TEETH BETTER WITHOUT FLUORIDATION?

I looked at the new dental statistics that had been collected while I was away for my own Health District, Auckland. These were for all children attending school dental clinics — virtually the entire child population of Auckland. To my surprise, they showed that fewer fillings had been required in the nonfluoridated part of my district than in the fluoridated part. When I obtained the same statistics from the districts to the north and south of mine — that is, from "Greater Auckland", which contains a quarter of New Zealand's population — the picture was the same: tooth decay had declined, but there was virtually no difference in tooth decay rates between the fluoridated and non fluoridated places. In fact, teeth were slightly better in the nonfluoridated areas. I wondered why I had not been sent the statistics for the rest of New Zealand. When I requested them, they were sent to me with a warning that they were not to be made public. Those for 1981 showed that in most Health Districts the percentage of 12- and 13-year-old children who were free of tooth decay — that is, had perfect teeth — was greater in the nonfluoridated part of the district. Eventually the information was published [4].

Over the next few years these treatment statistics, collected for all children, showed that, when similar fluoridated and non-fluoridated areas were compared, child dental health continued to be slightly better in the nonfluoridated areas [5,6].

Some years later, Dr John Yiamouyiannis obtained the results by then collected by resorting to the U.S. Freedom of Information Act, which compelled the authorities to release them. The surveys showed that there is little or no differences in tooth decay rates between fluoridated and nonfluoridated places throughout America [7].

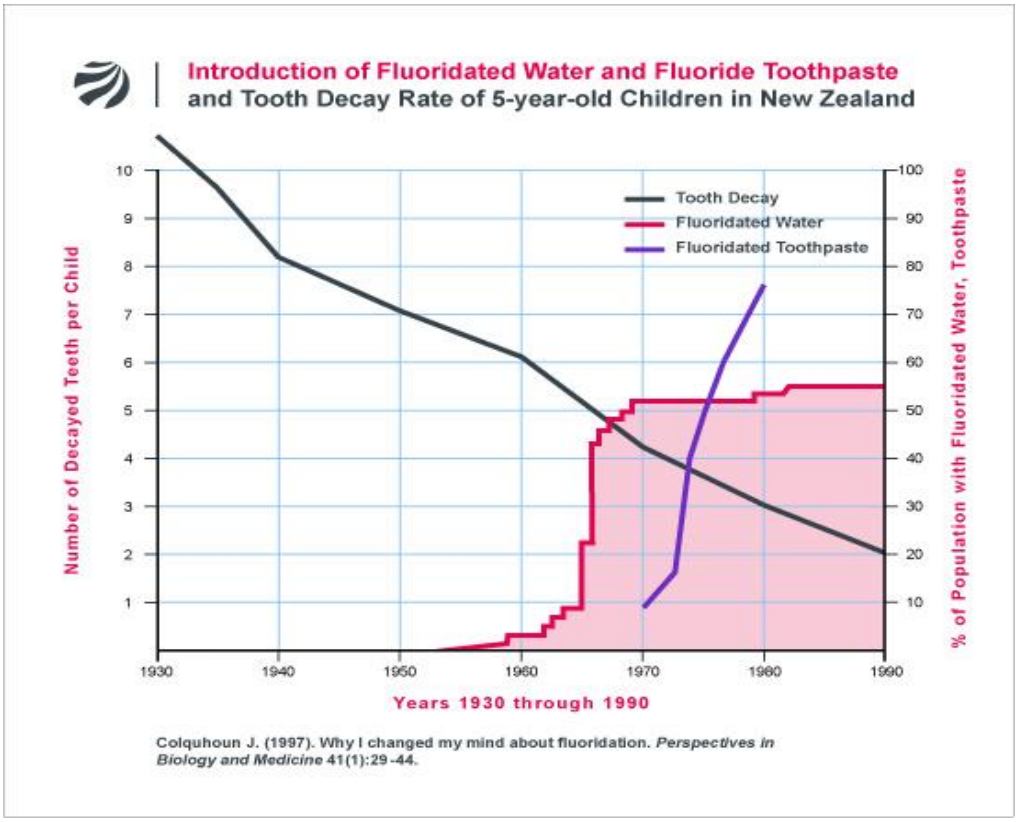
Other large-scale surveys from United States, from Missouri and Arizona, have since revealed the same picture: no real benefit to teeth from fluoride in drinking water [9, 10]. For example, Professor Steelink in Tucson, AZ, obtained information on the dental status of all schoolchildren — 26,000 of them — as well as information on the fluoride content of Tucson water [10]. He found: "When we plotted the incidence of tooth decay versus fluoride content in a child's neighborhood drinking water, a positive correlation was revealed. In other words, the more fluoride a child drank, the more cavities appeared in the teeth" [11].

From other lands — Australia, Britain, Canada, Sri Lanka, Greece, Malta, Spain, Hungary, and India — a similar situation has been revealed: either little or no relation between water fluoride and tooth decay, or a positive one (more fluoride, more decay) [12- 17]. For example, over 30 years Professor Teotia and his team in India have examined the teeth of some 400,000 children. They found that tooth decay increases as fluoride intake increases. Tooth decay, they decided, results from a deficiency of calcium and an excess of fluoride [17].

CAUSE OF DECLINE IN TOOTH DECAY

At first I thought, with my colleagues, that other uses of fluoride must have been the main cause of the decline in tooth decay throughout the western world. But what came to worry me about that argument was the fact that, in the nonfluoridated part of my city, where decay had also declined dramatically, very few children used fluoride toothpaste, many had not received fluoride applications to their teeth, and hardly any had been given fluoride tablets. So I obtained the national figures on tooth decay rates of five-year-olds from our dental clinics which had served large numbers of these children from the 1930s on [18]. They show that tooth decay had started to decline well before we had started to use fluorides (Fig. 1). Also, the decline has continued after all children had received fluoride all their lives, so the continuing decline could not be because of fluoride.

(Colquhoun's original data graphed in colour below [updated version above on page 2]):



So what did cause this decline, which we find in most industrialized countries? I do not know the answer for sure, but we do know that after the second world war there was a rise in the standard of living of many people. In my country there has been a tremendous increase in the consumption of fresh fruit and vegetables since the 1930s, assisted by the introduction of household refrigerators [19]. There has also been an eightfold increase in the consumption per head of cheese, which we now know has anti-decay properties [19, 20]. These nutritional changes, accompanied by a continuing decline in tooth decay, started before the introduction of fluorides.

The influence of general nutrition in protection against tooth decay has been well described in the past [21], but is largely ignored by the fluoride enthusiasts, who insist that fluorides have been the main contributor to improved dental health. The increase in tooth decay in third-world countries, much of which has been attributed to worsening nutrition [22], lends support to the argument that improved nutrition in developed countries contributed to improved dental health.

FLAWED STUDIES

Throughout New Zealand there is a range of tooth decay rates, from very high to very low, occurring in both fluoridated and nonfluoridated areas. The same situation exists in other countries.

When I obtained the decay rates for all children in all the fluoridated and all the nonfluoridated areas in that part of New Zealand, as well as the decay rates for all children in the recently defluoridated town, they revealed that there are virtually no differences in tooth decay rates related to fluoridation

EARLY FLAWED STUDIES

The school dentists in the area of the experiment [Hastings] were instructed to change their method of diagnosing tooth decay, so that they recorded much less decay after fluoridation began. Before the experiment they had filled (and classified as "decayed") teeth with any small catch on the surface, before it had penetrated the outer enamel layer. After the experiment began, they filled (and classified as "decayed") only teeth with cavities which penetrated the outer enamel layer. It is easy to see why a sudden drop in the numbers of "decayed and filled" teeth occurred. This change in method of diagnosis was not reported in any of the published accounts of the experiment.

ENDORSEMENTS NOT UNIVERSAL

Concerning the oft-repeated observation that fluoridation has enjoyed overwhelming scientific endorsement, one should remember that even strongly supported theories have eventually been revised or replaced. From the outset, distinguished and reputable scientists opposed fluoridation, in spite of considerable intimidation and pressure [68, 69].

Most of the world has rejected fluoridation. Only America where it originated, and countries under strong American influence persist in the practice.