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Dear Mayor Nenshi and the City of Calgary Aldermen

After many years of dormancy, the issue of city of Calgary municipal water fluoridation has emerged again with a full force. As reported in the Calgary Herald on January 31, “*A survey of aldermen suggests a nearly even split between those who want to vote "no" immediately and be done with it and others who want the issue studied by a University of Calgary panel of public-health experts.*”

To my great surprise, during the long ranging debate among politicians, media, and the general public, there has never been a mention that actually there was an *Expert Panel for Water Fluoridation* appointed in 1997 by the *Standing Committee on Operations and Environment, City of Calgary*. Fluoridation at the time of appointment was at 1.0 ppm. There were 5 members on the panel: three professors from the Faculty of Medicine, one from the Faculty of Environmental Design, and myself. I am a professor of biostatistics in the Department of Mathematics and Statistics, Faculty of Science, U of C, where I have been teaching and carrying research in environmental biostatistics for the past 43 years. After extended and heated discussions, the panel submitted a Final Report to the City of Calgary in March 1998.

During the lengthy deliberations, all medical experts stood quite firmly behind retaining the fluoridation at the existing level. This is quite understandable because benefits of fluoridations were strongly supported by Health Canada, Canadian Medical Association, Canadian Dental Association, and other similar professional certifying and controlling authorities in the areas of medical and dental practice. These authorities are a part of the conservative medical establishment, operating more in the mode of historical precedence, political correctness, and mental inertia rather than dynamically reflecting new results of current up to date scientific research. It is not surprising that such strong influence was respected by professionals within the mentioned areas, resulting in a monophonic chorus of four voices striving for a consensus in favour of continued fluoridation.

I spent an enormous amount of time and effort on actual biostatistical analysis of all available up to date peer reviewed published research papers investigating the effects of fluoridation on human health and the statistical significance of their findings. As a matter of fact, the question of statistical significance may be the most important factor in any area when dealing with systems affected by a large degree of uncertainty. This fact is reflected in the Final Report of the Panel: findings of four experts supporting fluoridation are represented on 22 pages, while my findings cover full 10 pages. In my analyses I found statistically significant detrimental effect of water fluoridation in several areas of human health, including bone biomechanical quality and fractures. Most striking were studies reporting statistically significantly increased rates of hip fractures among aging populations. This is obviously important factor with today's increasing numbers of elderly residents of Calgary. (Strangely enough, this issue has never entered this year's fluoride debate). Based on these findings, I refused to support the majority findings of my colleagues supporting further fluoridation. The final report came with quite mixed conclusions. After very extended heated debate we agreed to disagree and I filed a *Dissenting Minority Report*. In this report I stated (page 40):

It is recommended that water fluoridation in Calgary should not continue at its present concentration of 1 ppm. Should it continue at all, then the fluoride concentration in drinking water should decrease to at most .5 - .7 ppm.

It may be more appropriate to provide required dental benefits using other means such as oral care and nutritional education and increased availability of dental care for lower socioeconomic strata of the society.

Calgary Regional Health Authority should collect detailed data on dental health in Calgary region which should be analysed for temporal trends, its relation to general health and wellness and other important factors allowing to clarify the problems raised in this report.

I admit that my minority report caused certain apprehension among other members of the panel and after further discussions, they filed a *Majority Report* representing their effort for a compromise with my Minority Report. The Majority Report states (page 43 top):

The panel recommends that the City of Calgary reduce the concentration of fluoride in treated water to 0.7 ppm. (This is basically compatible with the similar recommendation in the dissenting section.)

As a result of the Final Report, City of Calgary has lowered fluoridation of municipal water supply to .7 ppm. Consequently many other Alberta and Canadian communities have followed the suit and over the time have lowered their fluoridation to the same concentration. However, the most stunning development was announced on January 7, 2011. The Reuters agency reported that “[U.S. government officials lowered recommended limits for fluoride in water. ... The Health and Human Services Department lowered its recommended levels to 0.7 milligrams of fluoride per liter of water \(0.7 ppm\).](#)” Thus the visionary recommendation from my 1998 *Dissenting Minority Report* to the City of Calgary is now reaching continent wide acceptance.

I have summarized the above facts to clarify a very important point: *It is very difficult to appoint a truly impartial and ethically unbiased scientific panel, when investigating uncertainties related to politically and ethically strongly charged major societal issues, particularly when the potential experts are unilaterally selected from a homogenous group tied together by similar vital interests, membership in controlling groups and associations, professional background and collegial allegiances. An extreme caution must be exercised in expert selection in order to guarantee true impartiality and required ethical unbiasedness.* Current controversies affecting the Alberta government appointed scientific panel on environmental issues of Athabasca Oil Sands Region clearly document seriousness of this problem.

There are several other important additional points:

1) I consider the effect of fluoridation on significantly increased rates of hip fractures among aging populations as very troubling. However, this point was discounted in the Majority Final Report stating only a weak association between fluoridation and bone fractures in studies prior to the *Final Report deadline*. However, there have been many new studies since 1998 which should be analysed and their relevance to Calgary problems assessed. There is also quite extensive new scientific evidence related to other effects of fluoridation on human health which should be analysed. Striking a balanced, impartial, and ethically

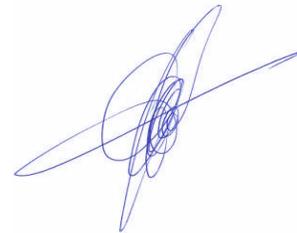
unbiased panel to analyse and assess these new scientific findings may be a very good idea.

2) Considering my professional qualifications, up to date familiarity with the problem, and track record of ethical unbiasedness, I would like to offer my service if a new scientific panel will be appointed.

3) I have been involved in a research study assessing transdermal absorption of fluoride from fluoridated water. The current results indicate that skin absorption from the bathing water is quite significant. This shows that people who want to avoid fluoride in drinking water by buying bottled water containing no significant concentration of fluoride cannot avoid fluoride unless they stop washing and bathing themselves. This research is being finalized for a publication in a peer refereed scientific journal.

4) The last point of the Minority Report recommended that Calgary Regional Health Authority should collect detailed data on dental health in Calgary region which should be analysed for temporal trends, its relation to general health and wellness and other important factors. With due diligence, I would expect that such data should be now available and corresponding analyses should be performed as soon as possible before making any final conclusions.

Sincerely

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

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and Statistics
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