

April 4, 2012

Dear Mayor Bratina and Hamilton Councillors,

Please see attached a brief critique of the Health Canada 2010 Technical Guideline on Fluoride that I have written.

Please, particularly note the hip fracture and thyroid issues.

Dr. Miloslev Nosal has given me permission to attach his letter to Calgary Council. He is a biostatistician from the University of Calgary who studied this issue in detail and concluded water fluoridation does increase the incidence of hip fractures. He told me he is presently studying how much fluoride is absorbed through the skin when bathing and that it is considerable.

No human thyroid studies were reviewed for this report and Health Canada has misrepresented the intake of iodine by inferring, probably through negligence, that Canadian intake was studied in 2001, when this reference actually referred to a 1987 Canadian government report. It is hard to believe that Canadians are ingesting three to five times the iodine that Americans are, and that our iodine intake is protecting our thyroids as Health Canada asserts in its executive summary.

I hope that Hamilton councillors will take these facts into consideration when making their decision on water fluoridation.

Thank you.

Diane Sprules, BSc, MSc.  
Oakville, Ontario



# Health Canada - Guidelines for Canadian Drinking Water Quality

## Guideline Technical Document – Fluoride – December 2010

Critique by Diane Sprules, BSc, MSc.

Apr 2012

1. Expert Panel
2. Hydrofluorosilicic acid
3. Hip Fractures
4. Thyroid Gland
5. Dental Fluorosis
6. Fluoride Not a Nutrient
7. Omissions from panellist Tardif's Report
8. Pineal Gland
9. Osteosarcoma
10. Infant Formula
11. Conclusion

1. HC – *States that the Chief Dental Officer of Health, Dr. Peter Cooney, sought external expert advice from the dental community (pg 2 of report).*

**But fluoride affects the whole body not just the teeth.** This panel of six consisted of four dentists, two of whom are public health dentists, a public health doctor and a PhD in community health. All were known profluoridationists. Dr. Cooney did NOT pick an impartial panel.

2. HC – *Did not discuss the chemical, hydrofluorosilicic acid (HFSA), which is used to fluoridate most communities and which has never been tested for safety and efficacy.*

It is a highly toxic waste product collected from the scrubbers of the smokestacks of phosphate fertilizer plants.

3. HC – *Concludes that evidence does not support a link between water fluoridation and any adverse health effect (pg 1 of report).*

Yet its own report finds the preponderance of hip fracture studies in seniors over 50 years old showed artificial water fluoridation to be associated with hip fractures (pg 28-29 of report).

7 studies showed a higher hip fracture rates in fluoridated communities

3 studies showed no difference.

2 studies showed fewer hip fractures in fluoridated communities

These results are consistent with Dr. Miloslev Nosal's analysis of hip fractures and water fluoridation. Dr. M.Nosal is a biostatistician at the Univ of Alberta who wrote a letter to this effect to the city of Calgary which recently voted to stop fluoridating its water. <http://www.fluoridation.com/CalgaryFluoride/Calgary-Fluoridation-ProfNosal.pdf>. He was the one member of the expert panel who voted against fluoridation for the city of Calgary in 1999 and he wrote a dissenting report based on the hip fracture data.

Hip fractures are increasing. Fluoride increases in bone with age. Fluoride makes bones more brittle.

*4. HC – Did not show fluoride to be safe for the thyroid gland.*

**There were no human studies on the thyroid and fluoride reviewed.** There were two animal studies that showed harm at high levels.

Sodium fluoride was used in the past century to treat **hyperthyroidism**. Today in Canada we have an epidemic of **hypothyroidism**, or low thyroid. Synthroid, used to treat hypothyroidism, is as of 2010, the most prescribed drug in Canada.

[http://www.imshealth.com/deployedfiles/ims/Global/North%20America/Canada/Home%20Page%20Content/Pharma%20Trends/Top50Dispensed\\_En\\_11.pdf](http://www.imshealth.com/deployedfiles/ims/Global/North%20America/Canada/Home%20Page%20Content/Pharma%20Trends/Top50Dispensed_En_11.pdf)

*HC - Says Canadians will not suffer effects of fluoride on the thyroid because we ingest more than 1mg/day of iodine (pg 39 of report)*

This is 3-5 times the iodine intake of Americans (over 1 mg/day compared to 0.2-0.3 mg/day in the U.S.). This "fact" cited from the Institute of Medicine (IOM) 2001, sounds pretty current. Either HC did not check this reference or chose to omit the fact that the iodine intake was based on a much older Canadian government report printed in 1987. Data from that time and earlier may have reflected the use of iodate in bread and as a disinfectant and a very different diet than most Canadians presently eat. Iodized salt is available in both countries and diets are not that dissimilar. It is likely that iodine intake is similar to that in the U.S. and much lower than HC states.

Hypothyroidism can be a serious condition as the thyroid gland affects many bodily functions. Low thyroid poses a risk to the fetus and a recent study in NY State has shown preterm births to be higher in fluoridated communities.

<http://apha.confex.com/apha/137am/webprogram/Paper197468.html>

Dr. John Doull, the panel chair of the NRC 2006 Report on Fluoride in Drinking Water (U.S.) stated regarding water fluoridation, "The thyroid changes do worry me."

*5. HC - Finds moderate dental fluorosis an adverse effect based on its potential cosmetic concern (pg 1 of report).*

*Based on a recent HC survey of 15 Canadian fluoridated and unfluoridated cities, HC says that fewer than 0.3% of Canadian children 6-12 years old have moderate - severe dental fluorosis. HC found only 60% of children had normal enamel. 16% had fluorosis and 24% were "questionable" – had some white spots (pg 55 of report). HC did not document which cities in its study were fluoridated and what the fluorosis rates were by city.*

When surveying dental fluorosis rates it is important to compare rates between fluoridated and unfluoridated cities yet HC has not disclosed these details.

Over the last 10 years Halton public health has documented between 4.6 and 10.8% of teenagers with moderate-severe fluorosis. **This is 15 to 36 times the rate HC found. Or 1500-3600% higher.** Dental fluorosis is very apparent in our community and moderate fluorosis can be very costly to fix with veneers.

*6. HC – states correctly that fluoride is not essential for growth and reproduction (pg 24 of report).*

This is **unlike** iodine in salt, vitamin D in milk or folic acid in bread. Often Public Health officials will wrongly compare fluoridation with other supplementation of nutrients.

*7. HC – omitted important facts from the toxicology report prepared by one of its panel, Dr. Robert Tardif of the University of Montreal.*

In that report (Toxicology of Fluoride, 2006) Tardif reviews the uterine cancer studies from Okinawa, Japan (<http://www.ncbi.nlm.nih.gov/pubmed/9002384>). Uterine cancer was shown to have increased significantly in 20 municipalities in Okinawa after they were were fluoridated. Japan no longer fluoridates.

Tardif also states in his report that the impact of fluoride on intelligence (cognitive effects) seems to occur at levels **less than 1.0 ppm** and that further investigation is needed. Since 2006 more than 20 studies have shown a relationship between fluoride and intelligence. They are from India and China and they have been discredited by Health Canada (pg 37 of report). A recent Indian study showed that IQ levels in children with no fluorosis were higher than those with fluorosis and the lowest IQ's were associated with more severe fluorosis.

<http://www.ncbi.nlm.nih.gov/pubmed/21911949>

Yet **no** intelligence studies have been done in Canada or the U.S. which Tardif suggests are needed.

*8. HC- included Dr. Jennifer Luke's study that showed the effect of fluoride on the pineal gland of gerbils. This study showed that fluoride lowered melatonin levels and caused early female maturation (pg 23 of report).*

HC did not report that early human female maturation was found after only five years in the Newburgh – Kingston NY study, a study which HC chose not to review even though it was set up to compare the health consequences in two cities, one fluoridated and one unfluoridated.

9. HC – *Takes more credence than warranted from a letter written in 2006 by Dr. Chester Douglass promising an upcoming publication that says it would refute his own student's published thesis (pg 34 of report).*

Douglass' paper (<http://www.ncbi.nlm.nih.gov/pubmed/19390788>) was published more than five years after Bassin's (<http://www.ncbi.nlm.nih.gov/pubmed/16596294>) and after the HC report. It was not comparable to Bassin's study, which is considered to be of high quality, and it did not weaken Bassin's conclusions.

Bassin concluded that there is approximately a five times higher chance of getting osteosarcoma for young males living in a fluoridated city. Osteosarcoma is rare but it is frequently fatal. There have been cases in Halton.

10. HC – *Table B3 of the report: [http://hc-sc.gc.ca/ewh-semt/consult/\\_2009/fluoride-fluorure/b-table-b-tableau-eng.php#tab3](http://hc-sc.gc.ca/ewh-semt/consult/_2009/fluoride-fluorure/b-table-b-tableau-eng.php#tab3)*

This table shows that babies fed milk-based formula made with fluoridated water will receive a fluoride intake that is **3300% higher** than the adequate intake (AI) set by the Institute of Medicine (IOM).

In the U.S. the American Dental Association and the Centers for Disease Control both advise using unfluoridated water to mix formula if mothers wish to avoid dental fluorosis. But not Health Canada.

## 11. Conclusion

This report does not reassure Canadians that artificial water fluoridation is safe and effective.

There is evidence that hydrofluorosilicic acid may be negatively affecting many organ systems of the human body, including the teeth.

In the last 14 months, 13 Canadian communities, totalling approximately 1,638,000 people, have voted to stop artificial water fluoridation in their communities. No Canadian communities have started fluoridation during this period.

The Precautionary Principle should be applied.

# STATSCON



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Calgary, 2011-02-02

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



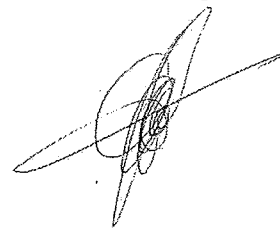
unbiased panel to analyse and asses these new scientific findings may be a very good idea.

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 black ink, appearing to read 'Miloslav Nosal', with a long horizontal stroke extending to the left.

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