THE BOARD OF HEALTH PRESENTS REPORT 12-003 AND RESPECTFULLY RECOMMENDS:

1. Communicable Diseases and Health Hazard Investigations Quarterly Report (Q3) (July 1, 2011 to September 30, 2011) BOH11019(b) (City Wide) (Item 5.1)

That Report BOH11019(b) respecting Communicable Diseases and Health Hazard Investigations Quarterly Report (Q3) (July 1, 2011 to September 30, 2011), be received.
2. Communicable Diseases and Health Hazard Investigations Quarterly Report (Q4) (October 1, 2011 to December 31, 2011) BOH11019(c) (City Wide) (Item 5.2)

That Report BOH11019(c) respecting Communicable Diseases and Health Hazard Investigations Quarterly Report (Q4) (October 1, 2011 to December 31, 2011), be received.

3. Water Fluoridation: New Data and Recent Developments BOH08024(c) (City Wide) (Item 7.1)

That report BOH08024(c), respecting Water Fluoridation: New Data and Recent Developments, be received.

4. Water Fluoridation: New Data and Recent Developments BOH08024(c) (City Wide) (Item 7.1)

That the General Manager of Public Works, and Legal Services, report to the Public Works Committee respecting the pending changes to the Safe Drinking Water Act.

FOR THE INFORMATION OF THE COUNCIL:

(a) CHANGES TO THE AGENDA (Item 1)

1. ADDED DELEGATION REQUESTS

   (i) Terry Wilson respecting the social and economic problems associated with water fluoridation (Added as Item 4.10)
   
   (ii) Peter Ormond representing the Green Party of Canada, Hamilton Centre Riding, respecting fluoridation in other jurisdictions and requesting that Hamilton remove fluoride from Hamilton’s water (Added as Item 4.11)
   
   (iii) Sheldon Thomas representing the Clean Water Legacy respecting the chemical fluorosilicic acid in the practice of water fluoridation, with specific attention to the health effects of certain contaminants that are known to accompany the fluorosilicic acid product (Added as Item 4.12)
   
   (iv) Bob Green Innes respecting concurs of potential health and environmental hazards associated with water fluoridation (Added as Item 4.13)
(v) Tim Burton respecting how water fluoridation discriminates against those living in poverty (Added as Item 4.14)

(vi) Victoria Wondergem respecting health concerns with respect to fluoride in the City of Hamilton’s water supply (Added as Item 4.15)

(vii) Gerald Cooper representing People for Safe Drinking Water respecting the safety and legality of fluoridating Hamilton’s drinking water (Added as Item 4.16)

(viii) Simon J Kiss representing Wilfrid Laurier University respecting research into the politics and public options towards fluoridation in the City of Waterloo (Added as item 4.17)

2. ADDED CORRESPONDENCE WITH RESPECT TO WATER FLUORIDATION

(i) Correspondence from Mary Pearson respecting concerns with water fluoridation (Added Item 7.1(b)(viii))

3. ADDED GENERAL INFORMATION

(i) CORRESPONDENCE

(a) Ministry of Health and Long-Term Care Public Health Accountability Agreement with the City of Hamilton dated January 1, 2011 (Added Item 11.1(a))

The agenda was approved, as amended.

(b) DECLARATIONS OF INTEREST

None

(c) MINUTES (Item 3)

(i) March 5, 2012 (Item 3.1)

The minutes from the March 5, 2012 Board of Health Meeting were approved, as presented.
(d) DELEGATION REQUESTS (Item 4)

(i) Lorna Moreau respecting health concerns related to neighbourhood air quality (Item 4.1)

The delegation request by Lorna Moreau respecting health concerns related to neighbourhood air quality, was approve to speak at the May 5, 2012 meeting of the Board of Health.

(ii) Dr. Peter Cooney representing Health Canada, Office of the Chief Dental Officer, respecting Health Canada’s position on water fluoridation (Item 4.2)

(iii) Dr. Ron Yarascavitch representing the Royal College of Dental Surgeons of Ontario (RCDSO), respecting the RCDSO’s support of the use of fluoridation as a method for good oral health (Item 4.3)

(iv) Peter Van Caulart representing the Environmental Training Institute respecting new information regarding drinking water fluoridation (Item 4.4)

(v) Paul Connett representing the Fluoride Action Network respecting stopping water fluoridation as it unnecessary, unethical, ineffective and potentially dangerous (Item 4.5)

(vi) Anthony Matthews representing the Council of Canadians – Hamilton Chapter respecting water fluoridation in Hamilton (Item 4.6)

(vii) Dr. Raymond Ray respecting his research on water fluoridation in Europe (Item 4.7)

(viii) George Pastoric representing Hydro-Logic Environmental respecting concerns about water fluoridation in Hamilton (Item 4.8)

(ix) Heather Dawn Gingerich representing the International Medical Geology Association (Canada) respecting the presentation of recent peer-reviewed research concerning municipal water fluoridation and maternal child health outcomes (Item 4.9)

(x) Terry Wilson respecting the social and economic problems associated with water fluoridation (Added as Item 4.10)

(xi) Peter Ormond representing the Green Party of Canada, Hamilton Centre Riding, respecting fluoridation in other jurisdictions and requesting that Hamilton remove fluoride from Hamilton’s water (Added as Item 4.11)
(xii) Sheldon Thomas representing the Clean Water Legacy respecting the chemical fluorosilicic acid in the practice of water fluoridation, with specific attention to the health effects of certain contaminants that are known to accompany the fluorosilicic acid product (Added as Item 4.12)

(xiii) Bob Green Innes respecting concurs of potential health and environmental hazards associated with water fluoridation (Added as Item 4.13)

(xiv) Tim Burton respecting how water fluoridation discriminates against those living in poverty (Added as Item 4.14)

(xv) Victoria Wondergem respecting health concerns with respect to fluoride in the City of Hamilton’s water supply (Added as Item 4.15)

(xvi) Gerald Cooper representing People for Safe Drinking Water respecting the safety and legality of fluoridating Hamilton’s drinking water (Added as Item 4.16)

(xvii) Simon J Kiss representing Wilfrid Laurier University respecting research into the politics and public options towards fluoridation in the City of Waterloo (Added as item 4.17)

a) Delegation request 4.2 through to 4.17 were approved to speak at today’s meeting, as they are respecting a matter on today’s agenda;

b) The delegations were renumbered 7.1(a)(iii) through 7.1(a)(xvii) respectively.

(e) CONSENT ITEMS

The following Advisory Committee meeting minutes were received:

(a) Community Food Security Stakeholder Advisory Committee meeting of October 5, 2011

(b) Community Food Security Stakeholder Advisory Committee meeting of November 2, 2011

(c) Community Food Security Stakeholder Advisory Committee meeting of December 7, 2011

(d) Community Food Security Stakeholder Advisory Committee meeting of January 4, 2012
(f) PRESENTATIONS (Item 7)

(i) **Water Fluoridation: New Data and Recent Developments**

Dr. Mackie addressed the Board with the assistance of a PowerPoint presentation. His Comments included but were not limited to the following:

Dr. Mackie indicated that Health Services (PHS) have completed a review of recent studies on water fluoridation. The results of the review continue to show that fluoridating water lowers the risk of tooth decay, and contributes to better oral health.

The Clerk retained a copy of Dr. Mackie’s presentation.

Dr. Arlene King, Chief Medical Officer of Health, for the Province of Ontario, gave a presentation to the Board. Her Comments included but were not limited to the following:

Dr. King spoke to the Board respecting fluoridation as a safe, effective, economical, and equitable means of preventing dental decay.

The Clerk retained a copy of Dr. King’s presentation.

The Board asked questions of the presenters. Their questions included but were not limited to the following:

The Board inquired on the safety and alternative means to delivering safe oral health. The Board expressed some concern with the polarized views on fluoridation, and the variations in available literature on the topic.

The delegation requests by Dr. Peter Cooney representing Health Canada, Office of the Chief Dental Officer, and Dr. Yarascavitch representing the Royal College of Dental Surgeons of Ontario, were reordered and permitted to speak as 7.1(a)(i) and 7.1(a)(ii) respectively.
(i)(a) Delegates respecting water fluoridation (Item 7.1(a)):

(i) Dr. Peter Cooney representing Health Canada, Office of the Chief Dental Officer, respecting Health Canada’s position on water fluoridation (Item 4.2)

Dr. Cooney gave a presentation in support of water fluoridation. A copy of his presentation was retained for the record.

(ii) Dr. Ron Yarascavitch representing the Royal College of Dental Surgeons of Ontario (RCDSO), respecting the RCDSO’s support of the use of fluoridation as a method for good oral health (Item 4.3)

Dr. Ron Yarascavitch gave a presentation in support of water fluoridation. A copy of his presentation was retained for the record.

At 3:10 p.m., the Board of Health lost quorum.

(iii) Shane Coleman respecting issues surrounding fluoridation of water, City of Calgary vote to remove fluoride and new information on the effects of fluoride on children (Item 7.1(a)(i))

(iv) Cindy Mayor respecting new information on water fluoridation and water fluoridation in Hamilton (Item 7.1(a)(ii))

At 3:27 p.m., the Board of Health attained quorum.

(v) Peter Van Caulart representing the Environmental Training Institute respecting new information regarding drinking water fluoridation (Item 4.4)

Mr. Van Caulart was not in attendance at the meeting.

(vi) Paul Connett representing the Fluoride Action Network respecting the stopping of water fluoridation as it unnecessary, unethical, ineffective and potentially dangerous (Item 4.5)

Mr. Connett gave a presentation in opposition of water fluoridation. A copy of his presentation was retained for the record.
(vii) Anthony Matthews representing the Council of Canadians – Hamilton Chapter respecting water fluoridation in Hamilton (Item 4.6)

Mr. Matthews spoke to the Committee in opposition of water fluoridation. A copy of his speaking notes was retained for the record.

(viii) Dr. Raymond Ray respecting his research on water fluoridation in Europe (Item 4.7)

Dr. Ray was not in attendance at the meeting.

(ix) George Pastoric representing Hydro-Logic Environmental respecting concerns about water fluoridation in Hamilton (Item 4.8)

Mr. Pastoric gave a presentation in opposition to water fluoridation. A copy of his presentation was retained for the record.

(x) Heather Dawn Gingerich representing the International Medical Geology Association (Canada) respecting the presentation of recent peer-reviewed research concerning municipal water fluoridation and maternal child health outcomes (Item 4.9)

Ms. H.D. Gingerich gave a presentation in opposition to water fluoridation. A copy of her presentation was retained for the record.

(xi) Terry Wilson respecting the social and economic problems associated with water fluoridation (Added as Item 4.10)

Mr. Wilson gave a presentation in opposition to water fluoridation. Mr. Wilson indicated his concern with fluoridation and submitted a petition to the Board requesting that Hamilton water not be treated with hydrofluorosilicic acid.

A copy of a petition was presented, and has retained by the Clerk.
(xii) Peter Ormond representing the Green Party of Canada, Hamilton Centre Riding, respecting fluoridation in other jurisdictions and requesting that Hamilton remove fluoride from Hamilton’s water (Added as Item 4.11)

Mr. Ormond gave a presentation in opposition to water fluoridation. A copy of his presentation was retained for the record.

(xiii) Sheldon Thomas representing the Clean Water Legacy respecting the chemical fluorosilicic acid in the practice of water fluoridation, with specific attention to the health effects of certain contaminants that are known to accompany the fluorosilicic acid product (Added as Item 4.12)

Mr. Thomas gave a presentation in opposition to water fluoridation. A copy of his presentation was retained for the record.

(xiv) Bob Green Innes respecting concurs of potential health and environmental hazards associated with water fluoridation (Added as Item 4.13)

Mr. Innes gave a presentation in opposition to water fluoridation. His concerns surrounded fluoridated drinking water and osteoporosis.

(xv) Tim Burton respecting how water fluoridation discriminates against those living in poverty (Added as Item 4.14)

Mr. Burton gave a presentation in opposition to water fluoridation. His concerns surrounded those living in poverty and the effects of fluoridation.

(xvi) Victoria Wondergem respecting health concerns with respect to fluoride in the City of Hamilton’s water supply (Added as Item 4.15)

Ms. Wondergem gave a presentation in opposition to water fluoridation. Her concerns surrounded fluoridated drinking water and osteoporosis.
(xvii) Gerald Cooper representing People for Safe Drinking Water respecting the safety and legality of fluoridating Hamilton’s drinking water (Added as Item 4.16)

Mr. Cooper gave a presentation in opposition to water fluoridation. A copy of his presentation was retained for the record.

(xviii) Simon J Kiss representing Wilfrid Laurier University respecting research into the politics and public options towards fluoridation in the City of Waterloo (Added as item 4.17)

Mr. Kiss gave a presentation in support of water fluoridation and displayed his research findings with respect to Waterloo’s decision to take fluoride out of their water supply. A copy of his presentation was retained for the record.

Copies of the presentations can be found as Appendix “A” to Board of Health Report 12-003.

The delegates respecting BOH08024(c), respecting Water Fluoridation: New Data and Recent Developments, were received.

(i)(b) Correspondence respecting water fluoridation 7.1(b):

(i) Correspondence from Sheldon Thomas representing the Clean Water Legacy’s opposition to water fluoridation in Hamilton

(ii) Correspondence from Gideon Forman representing the Canadian Association of Physicians for the Environment (CAPE) requesting the City of Hamilton to cease the practice of water fluoridation

(iii) Correspondence from Robert Fleming representing the Canadians Opposed to Fluoridation (COF) respecting the harms of water fluoridation

(iiiii) Correspondence from The Council of Canadians respecting their opposition to the use of fluoride in drinking water

(v) Correspondence from James Beck respecting Canadian Water Fluoridation Deputation
(vi) Correspondence from Diane Sprules respecting her Critique of Health Canada’s 2010 Technical Guideline on Fluoride

(vii) Correspondence from Peter Ormond respecting concerns with respect to the continued use of inorganic fluorides as a public health policy

(viii) Correspondence from Mary Pearson respecting concerns with water fluoridation (Added Item)

The correspondence respecting BOH08024(c) respecting Water Fluoridation: New Data and Recent Developments, was received.

(g) NOTICES OF MOTION (Item 10)

Councillor Whitehead introduced the following notice of motion:

(i) Water Fluoridation: New Data and Recent Developments BOH08024(c) (City Wide)

(a) That Health Canada be requested to regulate the fluorosilicate hexafluorosilicic acid (H$_2$SiF$_6$) and sodium Silicofluoride (Na$_2$SiF$_6$), used as a treatment for dental cavities in drinking water, as drugs under the *Food and Drug Act*;

(b) That all chemicals, especially fluorosilicates, added to drinking water for the purpose of treating dental decay undergo new drug applications and be assigned drug numbers by Health Canada;

(c) That classification of fluorosilicates as a drugs shall be based on at least one long term toxicology study to determine health effects in humans;

(d) That at least one properly conducted, double blinded, randomized placebo controlled clinical trial be used to provide effectiveness as the basis for a new drug classification;

(e) That staff contact Dr. Satish Deshpande, Team Leader, Water Standards Section, Ontario Ministry of the Environment, to request a copy of the NSF Standard 60 required toxicology studies of the product used for fluoridation in Hamilton, to ensure its safety at the maximum use level, including effects from any potential contaminants in the product;

(f) That the City of Hamilton make the above recommendations to Health Canada, to reassure the citizens of Hamilton that the use of
fluorosilicates added to drinking water for the purpose of treating dental decay is safe and what the health effects are;

(g) That a copy of this resolution be sent to the Federal and Provincial Minister of Health, and Hamilton area MPs and MPPs;

(h) That Hamilton area MPs and MPPs be requested to follow up on this issue with the Minister of Health and report back to the Hamilton Board of Health with a response.

Councillor Jackson introduced the following notice of motion:

(ii) **Oral Health Reports to the Board of Health**

That the Medical Officer of Health and Public Health Services be directed to provide written “Oral Health” reports, beginning in 2013 and thereafter once per term of City Council or as required or requested by the Board of Health.

(h) **GENERAL INFORMATION (Item 11)**

**CORRESPONDENCE (Item 11.1)**

(i) **Ministry of Health and Long-Term Care Public Health Accountability Agreement with the City of Hamilton dated January 1, 2011 (Added Item 11.1(a))**

Dr. Richardson stated that the Ministry of Health has responded and accepted the amendments made to the targets outlined in the Public Health Accountability Agreement.

The correspondence from the Ministry of Health and Long-Term Care respecting the Public Health Accountability Agreement with the City of Hamilton, was received.

(g) **ADJOURNMENT (Item 13)**

The Board of Health adjourned at 6:15 p.m.

Respectfully submitted,

Mayor R. Bratina
Board of Health

Christopher Newman
Legislative Coordinator
April 16, 2012
Brief History in Hamilton

- 1950s and 60's
  - Four plebiscites on water fluoridation
- 1964
  - Water fluoridation initiated
- 2007
  - Facilities required upgrading
- 2008
  - City Council reaffirmed support
Findings of the 2012 PHS Review

New data on safety or effectiveness?

- Australian study: 28.7% more caries in baby teeth and 31.6% more in adult teeth in unfluoridated cities

- Australian study: If Brisbane and South East Queensland fluoridated their water, they would prevent 10,437 years of disability and $666 million in state and private expenses

- American study: 0.26 more teeth at age 20, larger impact for individuals of lower socio-economic status, i.e. 1 in four people would lose a tooth by age 20 without fluoridation

Findings of the 2012 PHS Review (continued)

- University of Calgary review
  - Ample evidence of effectiveness
  - Important to monitor fluoride concentrations, particularly in rural areas to help prevent fluorosis
  - Practical way to address oral health inequities
  - Majority of various Canadian populations are supportive of or not opposed to fluoridation
Decisions by Political Bodies

Continue or Initiate
- Halton Region: continue fluoridation (January 2012)
- Peel Region: continue fluoridation (April 2011)
- Toronto: continue fluoridation (April 2011)
- Maquoketa, Iowa City: initiate fluoridation (January 2012)
- Pinellas Park, Florida: initiate fluoridation (January 2012)
- State of Arkansas: initiate fluoridation on systems serving over 5000 (February 2011)
- Port Macquarie-Hastings, Australia: initiate fluoridation (February 2012)

Discontinue
- Amherstburg, Ontario: discontinue fluoridation (January, 2012)
- Lakeshore (which neighbours Amherstburg): discontinue fluoridation (November 2011)
- Williams Lake, BC and Lake Cowichan, BC: discontinue fluoridation (November 2011)

Ontario by Health Unit

Relationship Between Oral Health of 5 year olds and Proportion of the Population with Fluoridated Water in 30/36 of Ontario Health Units, 2005-07
Community Drinking Water Fluoridation

Dr. Arlene King, Chief Medical Officer of Health
Presentation to Hamilton Board of Health
April 16, 2012

Community Water Fluoridation

- Community water fluoridation is, “one of the greatest public health achievements of the 20\textsuperscript{th} century.”

- Community water fluoridation is supported by more than 90 national and international organizations as the most cost effective and equitable strategy for the prevention of dental decay.

- Fluoridating drinking water is:
  - Safe
  - Effective – it works
  - Economical – it’s cost effective
  - Equitable – it reaches everyone
Community Water Fluoridation is Safe

- In Ontario, fluoride additives must meet standards of quality and purity before they can be used.
- In Ontario, fluoride additives are regulated by the Ministry of the Environment.
- Systems that fluoridate must also ensure that a water sample is taken at the end of the fluoridation process at least once every day and tested.

Hydrofluorosilicic acid is the most commonly used compound for water fluoridation.
- When added to water it dissolves completely to release fluoride ions and break down into harmless compounds – it ceases to exist as hydrofluorosilicic acid. [1][2]
- People do not ingest hydrofluorosilicic acid when they drink fluoridated water. [3]
- Fluoride is not a fertilizer. Fluoride is a naturally occurring mineral found in soil, air, plants, animals and water supplies in the environment.

Community Water Fluoridation is Safe - III

- Drinking water systems that fluoridate are required to maintain a range of 0.5 to 0.8 mg/L fluoride.
- In concentrations used for water fluoridation, fluoride is not toxic or harmful. [1][2]
- Difference in the effect of a massive dose of fluoride and the effect of taking small amounts of fluoride daily to reduce tooth decay.
  - Like many essential substances needed for good health (i.e. salt, iron, vitamins and oxygen) fluoride can be toxic in excessive quantities [1]
- The possibility of adverse health effects from continuous low level consumption of fluoride over long periods has been studied extensively - scientific evidence indicates that fluoridation of community water supplies is both safe and effective.
- The optimal range of fluoride used for water fluoridation already has a built in margin of safety that takes into consideration the use of fluorides from other sources. [1]


Community Water Fluoridation is Safe - IV

- After more than 60 years of research, scientific evidence indicates that the fluoridation of community water supplies is safe with little to no evidence that fluoridation is associated with cancer, bone disease, kidney disease, birth defects, or other adverse health effects. [1][2]
- Since 1997 alone, there have been 18 major reviews examining fluoridation, including an expert panel convened by Health Canada in 2007 which concluded that the weight of evidence from all currently available studies shows no harmful health risk at current fluoride levels.

Community Water Fluoridation is Safe - V

- Most common side effect of excess fluoride consumption is dental fluorosis.
- Questionable, very mild, mild and moderate dental fluorosis have no effect on tooth function. [1]
- Prevalence of moderate and severe fluorosis in Canada is extremely low.
- The Canadian Health Measures Survey: Oral Health Statistics 2007-2009 concluded that:
  "[so] few Canadian children have moderate or severe fluorosis that, even combined, the prevalence is too low to permit reporting. This finding provides validation that dental fluorosis remains an issue of low concern in this country." [2]


Community Water Fluoridation is Effective

- Water fluoridation can reduce tooth decay in children’s primary teeth by up to 60%, and in their permanent teeth by up to 35%. [1]
- Adults experience a 20 to 40% reduction in tooth decay from lifelong exposure to water fluoridation. [1]
- Water fluoridation can reduce root surface decay up to 35 percent in individuals aged 60 years and older with a history of long-term residence in optimally fluoridated areas. [3]
- Dryden, Ontario - after fluoridation was discontinued in 2001, children within the community’s schools showed an increase in decay rates of approximately 26 percent. [3]

Community Water Fluoridation is Highly Cost-Effective

- Adding fluoride to water is the best way to provide fluoride protection to a large number of people at a low cost.
- The average lifetime cost per person to fluoridate a community can be less than the cost of one dental filling. [1, 12]
- For most cities, every $1 invested in water fluoridation saves $38 in dental treatment costs. [1]


Community Water Fluoridation is Equitable

- Water fluoridation benefits all residents, regardless of age, socioeconomic status, education, employment, or dental insurance status.
- It promotes equality among all segments of the population, particularly the underprivileged and the hardest to reach, where other preventive measures may be inaccessible or not affordable.
- It also has been shown to provide the greatest benefits to those that need it the most, meaning those most at risk for disease. [1]

Parting thoughts...

- Tooth decay is the single most common chronic disease among Canadians of all ages
- The dangers associated with poor oral health extend well beyond cavities—poor oral health has been linked to poor nutritional status, low birth weight, childhood obesity, diabetes, cardiovascular disease and respiratory infections
- Even with other sources of fluoride available today, fluoridated water supplies still have an impact on reducing the rates of tooth decay not only in children, but adults and seniors as well
- Discontinuation of drinking water fluoridation risks reducing the impact of low income dental programs, such as Children in Need of Treatment and Healthy Smiles Ontario
- Drinking water fluoridation is safe, effective, highly cost-effective and reaches the entire population
THANK YOU
Office of the Chief Dental Officer

Health Canada's Position on Fluoride

ocdo-bdc@HC-SC.GC.CA
Health Canada’s Involvement to date.

➢ By Invitation;

➢ Present Science (from Health Canada’s expert review panel);

➢ Present International Information;

➢ Respect Provincial / Territorial / Municipal Parameters.
Dental disease is:

- the #1 chronic disease in children & adolescents;
  (U.S. Surgeon General’s Report, May 2000)
  http://www.surgeongeneral.gov/library/oralhealth/

- five (5) times more common than asthma;

- one of the main reasons preschool children receive a general anaesthetic;

- the second most expensive disease category in Canada;
  http://www.fptdwg.ca/English/e-documents.html

- 47% of Canadians have had dental disease by 6 years of age, 96% have had it in their lifetime.
  http://www.fptdwg.ca/English/e-documents.html

- Oral health is linked to a number of systemic diseases.
In 2006, Health Canada initiated a review of fluoride.
This process included:

- 3 external experts drafted technical reports on toxicology/intake of fluoride/risks & benefits
- External peer-review of technical reports by 3 experts (2006)

- Expert Panel Meeting with 6 experts & stakeholders (2007)

  [link]

- Guideline Technical consultation document prepared
  - 2 month national public consultation undertaken (2009)
  [link]

- Approval on the updated technical report received from 2 Federal-Provincial-Territorial Committees
  [link]
Total Daily Intake:
General decrease in recent years (Use of supplements has decreased and concentrations of fluoride in infant formulas have decreased)

Dental Fluorosis:
First 3 years of age is period of most significant concern;
Point of concern should be moderate dental fluorosis (Dean’s Index);

Other Health Effects:
No conclusive evidence related to bone fracture, cancers, intelligence quotient, skeletal fluorosis, immunotoxicity, reproductive and developmental toxicity, genotoxicity and neurotoxicity based on a MAC of 1.5 mg/L.

The MAC of 1.5 mg/L for fluoride in drinking water should be reaffirmed.

To adopt a level of 0.7 mg/L as the optimal target concentration
"Health Canada has established a comprehensive process for developing new guidelines and reviewing existing ones that require an update. The process is consultative, transparent, and based on risk and science."

Commissioner on Environment and Sustainable Development in his report tabled in September 2005

http://www.oag-bvg.gc.ca/internet/English/parl_cesd_200509_04_e_14951.html#ch4hd4a
Fluorosis → 6 - 12 year olds

<table>
<thead>
<tr>
<th>Normal teeth</th>
<th>Questionable(^1)</th>
<th>Very Mild</th>
<th>Mild</th>
<th>Moderate/severe(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60%</td>
<td>24%</td>
<td>12%</td>
<td>4%</td>
<td>&lt;0.3%</td>
</tr>
</tbody>
</table>

\(^1\) ill defined and could be due to antibiotic usage, infection, severe fever, trauma etc.

http://www.fptdwg.ca/English/e-documents.html

Note:

- Initial WHO central calibration
- Recalibration on first day of each new site
- Recalibration at mid point of each site
- Recalibration before end

\(^2\) Statistics Canada criteria for withholding reporting value:

- Highly unstable numbers (<10)
- Coefficient of variation > 33.3%

For information regarding measures spread in data see the Statistics Canada web site:
http://www.statcan.gc.ca/edu/power-pouvoir/ch12/5214876-eng.htm

Fluoridation %

Children's Decay (DMFT) Rates

Dr. Carlos Quinonez, Faculty of Dentistry, University of Toronto

http://www.fptdwg.ca/English/e-documents.html
Conclusions

Health Canada continues to recognize the benefits of community water fluoridation, and supports it as a safe and an effective method to prevent tooth decay.

A Message from the Chief Public Health Officer

Water Fluoridation

Dental disease is the number one chronic disease in North America. It affects a staggering 96% of Canadian adults, is on the rise among young Canadian children in some areas, and poor dental health increases the risk of other diseases.

The Public Health Agency of Canada supports water fluoridation for our oral health. Simply put, it is a safe and cost effective public health measure which has the potential to benefit everyone, regardless of age, socioeconomic status, education, or employment.

David Butler Jones
Chief Public Health Officer of Canada

September 2011
http://www.phac-aspc.gc.ca/cpho-acsp/statements/20110913-eng.php
DELEGATION IN SUPPORT OF FLUORIDATION
CITY OF HAMILTON BOARD OF HEALTH

DR. RON YARASCAVITCH
COUNCIL MEMBER
ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO

Monday, April 16, 2012
Council Chambers, Hamilton City Hall
Hamilton, Ontario
Good afternoon. I want to thank the Board of Health for the opportunity to speak on this very important issue.

My name is Dr. Ron Yarascavitch and I am a member of the governing council of the Royal College of Dental Surgeons of Ontario.

RCDSO is a provincial health-care regulatory body. We are mandated by provincial law to protect the public’s right to quality oral health care in Ontario.

We do not represent dentists but license and regulate the dental profession in Ontario.

I want to emphasize that point: RCDSO does not speak on behalf of the dental profession. We are the body mandated by provincial law to work in the interests of public protection and safety.

We take this mission very seriously. That is why in 2003 our governing Council passed a policy in support of water fluoridation.

The College’s Council, composed both of dentists and public members appointed by government, is convinced that fluoridation of community water systems, at the appropriate levels, is a safe and effective public health measure.

Tooth decay is really a health care issue. The current disparities in oral health are sometimes referred to as a “silent epidemic.”
This burden of disease restricts activities in school, work and home, and often significantly diminishes the quality of life.

Tooth decay is an infectious disease. It is the #1 chronic disease in children and adolescents in Canada. It is five times more common than asthma.

Untreated tooth decay can lead to infection, pain and abscesses. It can affect school performance, even a child’s sense of self-worth.

One of water fluoridation’s biggest advantages is that it benefits all residents of a community – at home, work, school or play – throughout their lifetime.

This is of key importance for families when income level or ability to receive routine dental care is a barrier to good oral health.

Most people know about the benefits that water fluoridation brings to children -- less tooth decay, less pain, fewer fillings and fewer emergency visits to the dentist.

However, not many people realise that those same benefits also apply to adults, including older people. In fact, anyone who still has any of their own teeth will benefit from drinking fluoridated water.
Research tells us that oral health and general health are strongly linked. Fluoridation improves a population’s dental health, and as a consequence, its general health.

Studies and independent reviews of the relevant medical and scientific literature over many years consistently affirm the beneficial effects of fluoridation.

This viewpoint is reinforced in the impressive information report compiled by your public health services department. Medical literature continues to confirm, yet again, that fluoridation is safe and effective.

Fluoridation has now been used throughout the world for at least 60 years.

Around 400 million people in at least 53 countries drink fluoridated water - including over two-thirds of the population of the United States.

About 70% of the population in Ontario has access to fluoridated water.

This means there is a wealth of experience and evidence about its positive health effects.

Fluoridation is supported at the highest international levels of health policy-making.
The World Health Organisation continues to support water fluoridation. Health Canada supports the use of fluoridation, as does the Chief Medical Officer of Health in Ontario.

The Ontario Medical Association also supports the addition of fluoride to drinking water.

RCDSO is pleased to bring the endorsements of fluoridation from the dean of the dental faculty at the University of Toronto and from the director of the dental department at the Schulich School of Medicine and Dentistry at the University of Western Ontario.

These two dental schools are the premiere leaders in dental education and research in this country.

In closing, on behalf of the Royal College of Dental Surgeons of Ontario (RCDSO), I want to thank you for your serious consideration of this issue.

We sincerely hope, with your usual thoughtfulness and vision, you will ensure that all Hamilton residents will continue to have the benefit of this safe, effective and economical way to help prevent tooth decay in infants, children, adults and seniors.

Thank you for your attention.
July 3, 2009

President
Royal College of Dental Surgeons

Dear Sir or Madame,

I am writing in strong support of the RCDSO’s position and to provide further a strong endorsement to the fluoridation in municipal drinking water.

Water fluoridation is known to be one of the greatest public health and disease-preventive measures world-wide. Evidence gathered by the Center for Disease Control, National Institute of Dental Research and Health Canada demonstrates that fluoride treated water continues to provide dental health benefits to all ages.

Epidemiological studies have concluded that a daily and frequent small amount of fluoride appears to dramatically reduce the incidence of dental caries in all populations. It has proven to be a safe and effective method of reducing dental decay and retaining tooth structure. More importantly, it suggests that the greatest population who benefits from water fluoridation is children from economically depressed communities.

Opposition of water fluoridation has existed ever since it was introduced in Michigan in the 1940s. Many opposed individuals view fluoridation as limiting their freedom of choice. The latter opposition who believe it is a health concern stems from misinterpretations of the scientific studies of fluoride.

It could conceivably be unethical to not add fluoride in the municipality water supply, because of its sustained record of significantly improving the oral health of local people of all ages, and helping to lower high levels of dental disease for our most vulnerable populations – low or no income families.

Sincerely,

Harinder S. Sandhu, DDS, PhD, Diploma in Perlo
Director, Schulich Dentistry
July 2, 2009

President,
Royal College of Dental Surgeons of Ontario

Dear Sir/Madam:

I am writing in support of the RCDSO’s position on water fluoridation. Our position has been clearly stated in a submission prepared in conjunction with the Ontario Agency for Health Protection and Promotion, the Ontario Dental Association and the RCDSO some time ago.

Dental caries is the most prevalent infectious disease and the commonest cause of tooth loss in humans. Besides the obvious pain and suffering it causes, poor oral health and resultant infections have more recently been associated with many other diseases and therefore poor general health. The adverse economic, sociological and psychological effects of dental disease are not inconsequential. Fortunately, a relatively simple, effective and inexpensive means to reduce the occurrence of this condition is available: fluoridation. While fluoride can be delivered in a variety of ways - through toothpaste or direct application by dental professionals - the most efficient means of achieving impact is through fluoridation of public water supplies. In 1999 the United States Centers for Disease Control and Prevention identified fluoridation of water as one of the ten greatest achievements of public health in the previous century. Unfortunately, in Ontario, we are witnessing a concerted effort to reverse fluoridation of public water. The opponents of fluoridation have selectively presented research to make their case but the fact is there are few health interventions for which the benefits and risk are so clear.

Claims that therapeutic concentrations cause diseases such as cancer do not stand up to scientific scrutiny. Thorough reviews have been undertaken by reputable and trustworthy scientific and health related organizations including Health Canada, the CDC, the Office of the Surgeon General of the United States, and the World Health Organization. The result has been unanimous support for the safety and efficacy of water fluoridation in the control of dental caries. Furthermore, major dental and medical associations and public health agencies, both nationally and internationally support its use. The most significant beneficiaries are the most vulnerable, children from lower income families, who can least afford to obtain either preventive dental services, or the even most expensive treatments if caries are not prevented.

It is illogical to deprive our population, particularly our children, of the benefit of water fluoridation based on unsupported speculation while disregarding sound scientific evidence and the advice of the leading national and international health authorities. Like all therapeutic treatments, research should and will continue in order to maximize the safety and efficacy of fluorides so that future generations will reap even more benefit. Millions of children, now adults, have benefitted to date and, if reason prevails, millions more will.

Yours sincerely,

David Mock

124 Edward Street  Toronto Ontario  M5G 1G6
Phone (416) 979-4910 Ext. 4382
Facsimile (416) 979-4937
E-mail david.mock@dentistry.utoronto.ca
End the practice of Artificial Fluoridation of water
By Shane Coleman
University of Waterloo graduate Biology/Chemistry
President of the Hamilton Farmers Market

Sometimes we need to rethink science practices

- Remember thalidomide
  Woman took morning sickness pills that was reported “to be Safe”

DEET insecticide
Lead in paint and gas
BiPhenol A in plastics causes hormone disruptions.
(Canada was first country to declare BPA a toxic substance)

Flouridation may not do much for cavities

The Globe and Mail

Flouridation may not do much for cavities

Nov. 15, 2011 letter by Dr. Hardy Limeback, professor and head of preventive dentistry at the University of Toronto.

Limeback has “personally conducted years of funded research at the University of Toronto on the topic of fluorosis (fluoride poisoning) and bone effects of fluoride intake. A bone study, for which we received national funding, comparing hip bones of people who live in Toronto (fluoridated since 1963) to the bones of people from Montreal (Montreal has never been fluoridated) suggests disturbing negative changes in the bone quality of Torontonians. This is not good.”

Limebeck’s letter also stated that fluoride has not been shown to be safe and effective and that the pendulum is shifting to where fluoride is being considered “not safe, and no longer effective.”
Conclusion: Tooth decay rates have decreased in both Fluoridated and non-fluoridated countries.

Cities which have stopped fluoridation since 1990

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Figure 1: Tooth Decay Trends: Fluoridated vs. Nonfluoridated Countries

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Figure 1: Tooth Decay Trends: Fluoridated vs. Nonfluoridated Countries

Conclusion: Tooth decay rates have decreased in both Fluoridated and non-fluoridated countries.
With a forward thinking Council

• Hamilton Ends Water Fluoridation

• 2012

Fluoride is Dangerous to infants

How can parents and caregivers follow the recommendations?

• Brush teeth the most complex form of dental wear. The American Academy of Pediatric Dentistry recommends that infants benefit from the first few years of life.

• Only if oral conditions are present should fluoride be used. Infant formulas should not be used for brushing or hydration.

• The Department of Health Dental Health Unit recommends that formula be used for brushing or hydration.

The Facts about Fluoridated Water and Infant Formula

1. The Journal of the American Dental Association
   January 2011 vol. 142 no. 1 79-87
   Evidence-Based Clinical Recommendations Regarding Fluoride Intake From Reconstituted Infant Formula and Enamel Fluorosis

• SCOPE AND PURPOSE OF THE RECOMMENDATIONS

   A multidisciplinary panel, comprising experts on fluoride, epidemiologists, methodologists and practitioners, reviewed the available literature to determine the risk of developing enamel fluorosis as a result of ingesting fluoride from reconstituted infant formula. The American Dental Association (ADA) Council on Scientific Affairs (CSA) convened a panel to evaluate the available scientific evidence on the topic of fluoride intake from infant formula and any association with fluorosis. Although some evidence suggests that fluoride’s caries-preventive benefit may be best achieved when a person receives both topical and pre-eruptively administered systemic fluoride, 36-39 the preventive benefit derived from systemic fluoride intake specifically in the first six months of life has not been established.
Fluorosis Rates

- a mean score of 40.5%
- Dental Fluorosis is an epidemic!
- Your teeth are a window to your bones and what is occurring in your body

Dentists have never been trained to know the effect of fluoride on the body

- Fluoride may damage the brain. According to the National Research Council (2006), "it is apparent that fluorides have the ability to interfere with the functions of the brain."
- Fluoride may lower IQ. There have now been 24 studies from China, Iran, India and Mexico that have reported an association between fluoride exposure and reduced IQ.
- Fluoride causes arthritic symptoms. Some of the early symptoms of skeletal fluorosis (a fluoride-induced bone and joint disease that impacts millions of people in India, China, and Africa), mimic the symptoms of arthritis (Singh 1963; Franke 1975; Teotla 1976; Carnow 1981; Czerwinski 1988; DHHS 1991)
- Fluoride damages bone. An early fluoridation trial (Newburgh-Kingston 1945-55)
- Fluoride may cause reproductive problems. Fluoride administered to animals at high doses wreaks havoc on the male reproductive system - it damages sperms and increases the rate of infertility in a number of different species (Kour 1980; Chlino 1989; Chlino 1991; Chlino 1994; Kumar 1994; Narayasamy 1994a,b, Zhao 1995)

Fluoride added to our water is not pharmaceutical NaF- Sodium Fluoride it is industrial waste from fertilizer and aluminum production –NaSiF6 Sodium Fluorosilicate

Why do the Safty Data Sheets comment :no Data available?

Budirlum Fluorosilicate
NaCl wt% 78.55
CaCl2 wt% 21.45

Sodium Fluorosilicate

Sodium Fluoride
A Subsidiary of Solvay Performance Products, Inc.
Note Canada DSL Registration (toxic)
WHMIS CLASSIFICATION:D2B Material causing other toxic effect

Sodium Fluorosilicate

**Division 2: Materials Causing Other Toxic Effects**

These materials are poisonous as well. Their effects are not always quick, or if the effects are immediate but they are only temporary. The materials that do not have immediate effects, however, may still have very serious consequences such as cancer, allergies, reproductive problems or harm to the baby, changes to your genes, or irritation/sensitization which have resulted from small exposures over a long period of time (chronic effects).

Subdivision D2B (toxic) covers mutagenic (to non-reproductive cells), sensitization of the skin, skin or eye irritation, as well as chronic toxic effects.

Examples include: asbestos fibres, mercury, acetone, benzene, quartz silica (crystalline) and cadmium. The symbol for materials causing other toxic effects looks like a “!” with an exclamation mark “!” at the bottom inside a circle.
Water Fluoridation: Health Canada is Misleading the Public
Paul Connett, PhD
Professor Emeritus of Environmental Chemistry
St. Lawrence University, Canton, NY
Director, Fluoride Action Network
www.FluorideActionNetwork.org
pconnnett@gmail.com
Hamilton, April 16, 2012

Outline of presentation
1. Health Canada's failure to organize health studies in fluoridated communities
2. HC's bias
3. HC's superficial review of the literature
4. Fluoride and the brain
5. HC's confusion between concentration and dose
6. Margin of Safety
7. Precautionary Principle

In Canada there has been NO investigation of a possible relationship between the consumption of fluoridated water and:
- lowered IQ in children
- behavioral changes in children
- increased bone fractures in children
- arthritic symptoms in adults
- hypo-thyroidism
- Early onset of puberty
- Alzheimer's disease in adults

If you don't look, you don't find.
The absence of study is not the same as absence of harm.
Instead of science we are getting politics from Health Canada

Dr. Peter Cooney
- Dr. Peter Cooney, the Chief Dental Officer of Canada, told an audience in Dryden, Ontario (April 1, 2008),
- "I walked down your High Street today, and I didn't see anyone growing horns, and you have been fluoridated for 40 years!"
Health Canada’s Bias on Fluoridation

- In 2006-2008 Health Canada picked a panel of six experts to review the literature on the safety of fluoridation. 4 of these 6 experts were dentists known to be pro-fluoridation.
- Jay Kumar (from YT), Chris Clark (from BC), Stephen Levy (from Iowa) and Michael Levy (from Quebec)

Dr. Cooney’s history of the "Expert Panel"
- 3 external experts drafted technical reports on toxicity/health of fluoridation risks & benefits (2006)
- External peer review of technical reports by 3 experts (2006)
- Expert Panel Meeting with 6 experts & stakeholders (2007)

Dr. Cooney’s history of the "Expert Panel"
- 3 external experts drafted technical reports on toxicity/health of fluoridation risks & benefits (2006)
- Michael Levy, Robert Tardiff, Albert Nantel
- External peer review of technical reports by 3 experts (2006)
3. Health Canada's superficial reviews of the health literature

Health Canada superficial
When Health Canada published a draft of their review in 2009, it was superficial. For example, they only looked at FIVE of 23 published studies showing an association between exposure to fluoride and lowered IQ.

4. Fluoride and the brain

Health Canada ignored scientific input
Delays in relation to the missing 18 IQ studies. But, in its final review in 2011, Health Canada had still only reviewed the 5 (not 23) studies on IQ.
- They asked for public input but they ignored scientific input when it was given.
- WHY?
Over 100 animal studies show fluoride damages animal brain.

Over 10 animal studies show that fluoride changes animal behavior.

Three studies show that fluoride damages fetal brain.

26 studies show an association between modest exposure to fluoride and lowered IQ.

National Research Council (2006)

"It is apparent that fluoride have the ability to interfere with the functions of the brain."

Health Canada Expert Panel

- Intelligence Quotient: Weight-of-evidence does not support a link between fluoride and intelligence quotient deficit. There are significant concerns regarding the available studies, including quality, credibility, and methodological weaknesses such as the lack of control for confounding factors, the small number of subjects, and the dose of exposure.

Human studies

- As of 2012, there are now 26 published studies (from China, Iran, India and Mexico) indicating that fluoride exposure is associated with lowered IQ in children (Health Canada only looked at five of these).

Xiang et al. (2003 a,b)

- Compared children in two villages (53-321 ppm versus 1.3-15 ppm in water).
- Controlled for age and income as well as other confounding factors.
- Both males and females were studied.
- Found a drop in IQ exposure across the whole age range.
- The whole IQ curve shifted for both males and females.
Xiang et al. (2003 a,b)

- Estimated that IQ in children lowered at
- 1.9 ppm fluoride in water (threshold)

5. Health Canada's confusion between Concentration and DOSE

A child drinking 3 liters of water at 0.7 ppm would get a HIGHER DOSE (2.1 mg/day) than a child drinking ONE Liter of water at 1.9 ppm (DOSE = 1.9 mg/day)

6. Margin of Safety
There is no adequate margin of safety:

- Normally, we apply a safety factor of 10 to the toxic dose found in a small animal in order to protect the whole population.

- If we assume that the Chinese children were drinking one liter of water per day (at 1.9 mg/liter) the dose that lowered IQ was 0.19 mg/day.

- That would mean to protect the intelligence of ALL the children in a large population a safe dose would be 0.19 mg/day (0.19 divided by 10).

- That is about one glass of water at 0.7 ppm.

Two preposterous notions:

- What parent in their right mind would put their children's teeth above their brains?

- What government would support a program aimed at lowering tooth decay by almost 0.6 of one tooth surface - if it lowers the IQ of the population by even a small amount?

![IQ and population chart](chart1.png)

![IQ and population chart](chart2.png)

![IQ and population chart](chart3.png)
Ding et al. 2015 (Hazardous Materials)

- Mean value of fluoride in drinking water was 1.31-14.3 mg/L (range 0.24-3.04 mg/L)

- Conclusions:
  - Overall, our study suggested that low levels of fluoride exposure in drinking water had no negative effects on children's intelligence.

Ding et al. 2011

- The higher the level of fluoride in the urine, the lower the IQ.

Xiang et al. 2012: The higher the level of fluoride in the plasma, the lower the IQ.

Figure 3: Association between serum fluoride and children's IQ in Wuhan and Xinhua.
The Precautionary Principle

"If there is uncertainty, yet credible scientific evidence or concern of threats to health, precautionary measures should be taken; in other words, preventive action should be taken on early warnings, even though the nature and magnitude of the risk are not fully understood."

Joel Tickner and Melissa Coffin

Is the risk of harm plausible?
Is the evidence of harm supported by a number of peer-reviewed, published studies?
3. Is the potential harm serious?
4. Are the effects reversible?
5. Is the public being truly informed of the potential health risks?
6. Does the proposed intervention achieve the desired benefit?
7. How significant are the consequences if the practice is halted?
8. Are there alternatives?
Fluoride may cause bone cancer (osteosarcoma)

Fluoridation may actually be killing a few young men each year.

Osteosarcoma: Science vs Politics
- In 2001, Dr. Elise Bassin (anthropologist) successfully defended her doctorate at Harvard.
- She found the matched case-control study of 101 young boys who were exposed to fluoridated water had a 70% or 85% increase in the incidence of osteosarcoma by the age of 20, compared to unexposed boys.
- Now the politics
- Between 2001 and 2005, Chester Douglass, thesis advisor - Prof. Chester Douglass three times rejected Bassin's findings from his peers, the NRC and the Harvard.

Osteosarcoma
- Bassin publishes research in the May 2006 issue of the journal Cancer Cause and Control.
- In a letter published in the same issue, Douglass promises a study that he claims will discount Bassin's findings.
- Douglass promised his study for the Summer of 2006 – Meanwhile,

What risks should we take to save at most
- 0.6 of one tooth surface?
- (Brunelle and Carlos, 1990)
Osteosarcoma
- Health authorities in fluoridation practicing countries like Australia, Canada, the UK and the US used Douglass's premise of a study as if it was a fully-fledged peer-reviewed and published study.

What does Health Canada 2011 Fluoride REVIEW say about Osteosarcoma?
- It di...
The confidence of their convictions?

- I would like to recommend that Hamilton Council organize a public debate on this issue so that those experts who have presented their views on this subject, some with considerable confidence, can have their views visibly tested by doing so in the context of those holding a different point of view.
- So that these same experts can be asked questions directly by the public.
- I am prepared to come to Hamilton virtually any time within the next few months to participate in such a debate.

Fluoridation is a poor medical practice

1. Except for an early experiment with iodine, Fluoridation is the only time we have used the public water supply to deliver medicine.

The reasons for not doing so are fairly obvious:

2. You can't control who gets the medicine.
3. You can't control the DOSE (mg/day) that people drink.

Fluoridation is a poor medical practice

4. Fluoride is NOT a nutrient.
5. Not one single biological process needs fluoride (fluoride's benefits are topical not systemic).
6. Many biological processes are harmed by fluoride.
Part 2.  
Fluoridation violates medical ethics

1.  The supreme medical ethic is laid down by Hippocrates 2000 years ago in “First Do No Harm.”
2.  Modern medical ethics requires doctors to allow their patients “informed consent to medicine and medical treatments.”
3.  No government has the right to force medication on its people.
4.  A local government (usually with no medical qualifications) is doing NO ONE what a doctor can do to NO ONE.

Proponents claim

1.  They are merely adjusting the levels of a naturally occurring mineral.
2.  But, just because a substance occurs naturally does not make it safe – arsenic occurs naturally!

Nature’s guideline for babies

1.  The best indication of what a baby needs for healthy development is the composition of mother’s milk.
2.  The levels of fluoride in mothers’ milk is VERY LOW – 0.004 ppm (US NRC, 2006, p 40)
3.  This suggests that babies do not need much fluoride and that MAYBE fluoride is dangerous for the baby.
4.  0.7 ppm is 175 times the levels in mothers’ milk.
5.  A bottle fed baby in a fluoridated community is getting about 200 times Nature’s guideline!
Fluoridation violates common sense

- Even promoters of fluoridation now admit that fluoride works TOPOGICALLY not SYSTEMICALLY (CDC, 1999).
- In other words fluoride works on the outside surface of the tooth NOT from inside the body.
- Fluoridation should have ended in 1999!

Fluoridation violates common sense

- If fluoride works on the outside of the tooth why swallow it? Why put it in the drinking water?
- If you want fluoride brush your teeth with fluoridated toothpaste and then spit it out.
- This way you avoid exposing tissues that a) don't need it and b) can be harmed by it.
- And you also avoid forcing it on people who don't want it.

Fluoridation violates common sense

- Very few countries fluoridate their water.
- But there is very little difference in tooth decay between fluoridated and non-fluoridated countries.

Fluoridation violates common sense

- Only 7 Countries have more than 50% of the population drinking fluoridated water (Australia, Ireland, Israel, Malaysia, New Zealand, Singapore and the United States).

According to WHO data, tooth decay in 12-year-olds is coming down as fast in F as NF countries.

*Some fluoridate their salt
Tooth Decay Trends: Fluoridated vs. Unfluoridated Countries

SOURCE: World Health Organization. (Data active)

Fluoridation chemicals are not pharmaceutical grade
- Pure chemicals are not pharmaceutical grade as used in dental products.
- They come from the tail scrubbers of phosphoric fertilizer plants.
- A spray of water captures two very toxic gases, HF and SiF₄, and forms H₂SiF₆, the phosphoric acid.
- This hazardous waste can be dumped into the sea by international law, BUT, once it is in US waste is PURCHASED it becomes a PRODUCT and no longer covered by US hazardous waste regs!

Fluoridation chemicals contain cancer-causing substances
- One of the contaminants of the industrial grade fluorinating agents is ARSENIC.
- According to the US EPA there is no safe level for arsenic because it is a known human carcinogen.
- The use of these fluoridating chemicals INEVITABLEY will lead to an increase in cancer.

Part 5.
Fluoridation chemicals are not pharmaceutical grade.

Part 6.
The evidence of benefits is very, very weak.
NIDR conducted the largest survey of tooth decay ever conducted in the US (1986-7). The teeth of over 33,000 children in 54 communities were examined (Brunelle & Carlos, 1990).

- They measured tooth decay in DECA (ED, MISSING and FILLED SURFACES (DMFS).

**Average difference (for 5-17 year olds) in DMFS = 0.6 tooth surfaces**

**3.4 DMFS NF**

**2.8 DMFS F**

**3.4 DMFS NF**

**2.8 DMFS F**

Studies in Australia have found even less saving than 0.6 of one tooth surface! 
- Spain and others (1996) found a saving in two states of 0.6.0.3 permanent tooth surfaces.
- Armfield and others (2000) found no statistically significant differences in tooth decay in the permanent teeth between children in South Australia who had chlorinated water all their lives and those who had used bottled or tank water.
Important recent studies

- Krezhov et al., 2005 (controlled for delayed eruption of teeth by F).
- Found no difference in tooth decay in Belgium between children taking F supplements or not.
- Warren et al., 2003 (measured tooth decay as a function of individual exposure to fluoride). Found no relation between tooth decay and amount of fluoride ingested.

Part 7

There is no adequate margin of safety to protect everyone from known harmful effects of fluoride.

Harmful effects of FLUORIDE have been carefully documented in a 507-page (1100 references) report by the US National Research Council published in 2006.

Harmful effects of FLUORIDE include:

1. Dental fluorosis
2. Bone disease
3. Lowered thyroid function
4. Accumulation in the pineal gland
5. Brain damage
6. Osteosarcoma?
7. Some people very sensitive to very low levels

Dental Fluorosis

Early promoters thought that at 0.5 ppm F they could limit dental fluorosis to 10% of children in its very mild form.
A reckless assumption
It is reckless to assume that when fluoride is causing harm to the growing tooth cells that it is not causing harm to bone cells, brain cells or other developing tissues in a baby's body.

The baby's developing brain
This baby should NOT be exposed to fluoride or up to 200 times the level of fluoride that occurs in mothers' milk.
Fluoride and the Thyroid gland

Several lines of information indicate an effect of fluoride exposure on thyroid function.

Fluoride lowers thyroid function

-Telomere shortening
-1) delayed eruption of primary teeth
-2) lowers IQ in children
-3) increase in hypothyroidism among the population, plus the accompanying symptoms - obesity, lethargy, inability to believe by sleep etc

Fluoride & Pineal Gland

Fluoride and Children’s Bone

The Newburgh-Kingston, NY trial (Schlesinger et al. 1956) also reported about twice the incidence of cortical bone defects in the children in the fluoridated community (18.5%) compared with the non-fluoridated community (7.5%).

Fluoride and adults

Alarcon-Herrera et al. (2001)

In a Mexican study researchers found that as the severity of dental fluorosis went up so did the incidence of bone fractures in both children and adults.

Fluoride and arthritis

![Figure 4. Incidence of bone fractures plotted against the severity of dental fluorosis (Dean's index) for children and adults in the Guadalupe Valley in the state of Durango in Mexico (from Alarcon-Herrera et al. 2001).]

Arthritis

- The first symptoms of fluorosed bones are identical to arthritis (stiffness, aching joints, and pain in the bones)
- According to the CDC, arthritis affects 24 million people in the US, in 3 million adults
- No fluoridated country has collected fluoride/bone levels in a systematic fashion to look for a possible connection with arthritis or other bone problems!

Fluoride and hip fractures in the elderly (studies are mixed)
"All members of the committee agreed that there is scientific evidence that under certain conditions fluoride can weaken bone and increase the risk of fractures."

Li et al. 2001. Most important hip fracture study. Hip fractures doubled at 1.5 ppm (NS), tripled at 4.3 ppm (S).
Presentation to the Hamilton Board of Health

April 16, 2012.

Tony Matthews
Council of Canadians Hamilton Chapter
Good afternoon, Chairman, councillors, staff, presenters, and, members of the public. I would like to thank the councillors for their foresight in establishing this forum of review a couple of years ago. It illustrates wisdom in allowing a further assessment of information and new information that has arisen since that time.

I am Tony Matthews and today I am representing the local chapter of Council of Canadians on the issue of fluoridation. I would first like to read a letter from Maude Barlow our national spokesperson.

The issue of fluoridating our water supply has not faded away, it has only grown stronger as more studies and public awareness grows about the impact on our health of fluoridating the water supply becomes clearer. Communities are stopping their fluoridation programs or petitioning not to have a program where they don’t already have one in place. In Halton last year they also had a session on this topic. They maintained the program by 2 votes. Curiously the well water areas voted in favour of maintaining fluoridation as long as their areas don’t get fluoridated, illogical but definitely a case of not in my backyard.

What piqued my interest is that the fluoridation program is based on preventing dental caries and is assessed on this basis alone: as it turns out it is a very narrow assessment of the program.
The basis of promoting fluoridation to prevent dental caries appears flawed. Studies indicate that since fluoridation has been in place dental caries have significantly been reduced in the same manner as it has been reduced in areas that do not fluoridate yet this fact has been ignored by proponents of fluoridation. Public health officials have been told there is no room for personal or professional opinion by them as they are required to tow the provincial line of fluoridation is an effective program. Dental professionals have been brought up on this mantra since their undergraduate days and have expounded the benefits of fluoridation to their clients.

This approach has been impassioned by them and public health staff as an effective means of reducing caries: again not justifiably proven. I have seen public staff extolling the virtues of this program as the best way to save the LICO’s dental health also known as poor people. Hamilton Board of Health did a study showing how cost effective it is at 47 to 57 cents a person to fluoridation the whole population not just the disadvantaged LICO group versus other options reviewed costing up to $30 million a year. This suggests a budgetary bias to the cheapest delivery system with the least involvement.
Fluoride has been shown to harden teeth. Harder teeth mean more brittle teeth especially when the tooth requires dental fillings. We don’t hear about the costs of maintaining the teeth in later years due to this factor.

The history of fluoridation programs may surprise many of you. It was actually initiated in the USA during the Second World War, a war fought for personal freedoms. The development of the uranium enrichment program was based on using fluoride as was the smelting of aluminum, lead, and steel. There was a growing issue of workplace and environmental health and safety issues that were going to litigation. This was a threat to the war effort and the expenses of running those businesses supporting this effort. Declassified documents show collusion between government agencies and private businesses to remove this financial risk.

The program was initiated on the basis of reducing the financial exposure to these groups and to continue the war efforts unabated regardless of the health effects it was having on workers and communities. This was another example of the misguided greater good policy. It was then marketed and given to the American Dental Association to maintain.
Let's move away from the dental aspects of the fluoridation programs for it obscures other issues, it is emotional not factual, it uses our children and disadvantaged as pawns to sell the continued use of fluoridation without having to properly assess the facts, studies and public knowledge of the true impact of fluoridation.

What is compelling are other health issues that these studies are indicating that fluoridation is presented as the cause or probable cause of illnesses and diseases to our youth, to our young adults, to our adults and to our seniors. These studies indicate that at the very least further studies should be done as they indicate serious linkages or causations of the following conditions: Alzheimer type memory issues, ADD type symptoms, hypothyroidism, osteoporosis, liver disorders, kidney disorders, and, more.

It begs the question why we continue to ignore these indications! Why does the Public Health Department of Canada not allow immediate investigations into these scientific studies? Why do we as a city fight those who bring it up for further study and action? Is it a fear of increased costs, of professional embarrassment if it proves out it is detrimental to our health on the scale it is being suggested?
The alternate health care costs will overwhelm our society’s ability to fund care and public support to those affected in this manner. Look to what is happening to our incidents of these conditions mentioned previously and how we struggle to provide care for citizens. Do you think this merits a total review based on these issues that are not dental caries based?

I ask you all to do what you were elected to do, be our guardians in the public policies we enact or have enacted and make sure they serve our need, make sure they are reviewed to assess the efficacy of our assumptions. Be independent in assessing the data and in who presents the data for it is your decision when made that you hold responsibility for the programs and policies put in force. The public express their input, your staffs’ express their input and you must see through the data impartially on behalf of the welfare of your citizenry.

Today’s world and all the complexity of it that you must weigh through are overwhelming at times. I ask you to please take time to make an independent appraisal of data presented and how it is presented: progressive or defensive, bias or unbiased, then make an informed choice.
References

1) the fluoride deception, Bryson, Christopher, Seven Stories Press, ISBN 1-58322-700-8, 2004
Dear Mayor Bob Bratina and Hamilton City Councillors:

The Council of Canadians is Canada’s largest member-based advocacy organization with tens of thousands of members and over 70 community-based chapters across the country. We are a social justice organization and address environmental issues through an environmental justice perspective.

Maude Barlow, the National Chairperson of the Council of Canadians, also served as Senior Advisor on Water to the 63rd President of the United Nations General Assembly (2008-2009).

The Council of Canadians is opposed to the fluoridation of drinking water. We are concerned by the health and environmental impacts associated with it.

Drinking water is fluoridated in Canada, the United States and Australia, but almost nowhere else in the world. Western Europe and Japan have almost no fluoridated water supplies.

We are working with the Quebec-based group Eau Secours which is opposing the Charest government’s plans to increase the fluoridation of water there from about 3 per cent to 50 per cent. We encourage our chapters across the country to promote local debate and move municipal resolutions in their community on this issue.

Water is a commons – a shared entity – and open dialogue and encouraging public participation in issues affecting water quality are critical to ensuring clean, safe drinking water for current and future generations. We applaud Tony Matthews and others’ initiatives to bring this important matter before the Hamilton Board of Health. We also applaud your openness to hear concerns from the residents of Hamilton.

We understand that the Board of Health will discuss this issue on April 16th, 2012. We appreciate your consideration on this issue and the protection of safe drinking water and human health in the City of Hamilton.

Thank you for your attention into this matter.

Sincerely,

Maude Barlow
National Chairperson
Council of Canadians

Emma Lui
Water Campaigner
Council of Canadians
Fluoridation in Hamilton - WHY it must STOP NOW

The question I have not heard an answer to

What is the fate of fluoride in the human body and in our environment?

Fluoride
According to the handbook, Clinical Toxicology of Commercial Products, fluoride is more poisonous than lead and just slightly less poisonous than arsenic. It is a cumulative poison that accumulates in bone over the years.

- 5 g of fluoride is a lethal dose
- this bag alone can kill 4,536 people

No disease has ever been linked to a fluoride deficiency.
There are more than 180 Symptoms of Fluoride Poisoning.

A presentation and Urgent appeal from Hamilton resident, George Pastoric, Hydro-Logic Environmental April 16, 2012

Fluoride is more poisonous than lead and just slightly less poisonous than arsenic yet FAVORED to be allowed to discharge TEN times more - WHY?

| Sewer Use By-law Discharge Limits* for a Select Group of Common Contaminants (figures in mg/L) |
|-----------------------------------|---|---|---|---|
| Pollutant                      | Toronto | Kingston | Windsor | MOE |
| Arsenic                        | 0.01   | 0.01    | No limit* | 0.01 |
| Benzene                        | 0.012  | 0.012   | No limit* | No limit* |
| Bio phthalate                  | 300    | 300     | 400      | 300 |
| Cadmium                        | 0.7    | 0.7     | 2        | 0.7 |
| Chromium Total                 | 4      | 4       | 5        | 5 |
| Copper                         | 2      | 2       | 5        | 3 |
| Fluoride                       | 10     | 10      | 10       | 10 |
| Hexachlorobenzene              | 0.001  | 0.0001  | No limit* | No limit* |
| Lead                           | 1      | 1       | 5        | 2 |
| Mercury                        | 0.01   | 0.01    | 0.1      | 0.05 |
| Nickel                         | 2      | 2       | 5        | 3 |
| Nonylphenoxy ethoxylates       | 0.02   | 0.01    | No limit* | No limit* |
| Oil/Grease - Organic           | 150    | 150     | 120      | 150 |
| Phosphorus                     | 10     | 10      | 30       | 10 |
| Suspended Solids               | 350    | 350     | 350      | 350 |
| Trichloroethylene              | 0.4    | 0.07    | No limit* | 0.07 |
| Zinc                           | 2      | 2       | 5        | 3 |

* Limits for categorical and combined samples.

**Specific limit is not listed in the bylaw. General limit may apply as a result of provincial objectives/guidelines.

If this is not based on toxicity, care for the environment, what then?
WATER FLUORIDATION IS NOT EFFECTIVE

Reductions in Decay Rates has nothing to do with Fluoridation, therefore the practice is unnecessary!

As stated by Dr. Peter Mansfield, a physician from the UK and advisory board member of the recent government review of fluoridation (McDonagh et al 2000):

"No physician in his right senses would prescribe for a person he has never met, whose medical history he does not know, a substance which is intended to create bodily change, with the advice: 'Take as much as you like, but you will take it for the rest of your life because some children suffer from tooth decay.' It is a preposterous notion."

In fact, no physician did –
Meet the man who we can thank for fluoridation—Edward Bernays
Edward Louis Bernays

A publicist – “the father of public relations”
Nephew of Sigmund Freud
felt “manipulation was necessary” as a result of the “herd instinct”

Wrote a book entitled “Propaganda”

Bernays helped the Aluminum Company of America (Alcoa) and other special interest groups to convince the American public that water fluoridation was safe and beneficial to human health. This was achieved by using the American Dental Association in “a highly successful media campaign”.

He was NOT a Doctor or Dentist

Why did we get involved in this?


Look who’s fluoridating!

Can we TRULY say that after 47 years, our population enjoys dental health far ahead of non-fluoridated parts of the world WITHOUT any detraction from TOTAL HEALTH?

Was there a holistic review?

Could there possibly be other impacts of this practice?

Is it REALLY safe, is there NO evidence, or is there simply denial?
http://fluoridation.com/c-country.htm

<table>
<thead>
<tr>
<th>Country</th>
<th>Fluoridation Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>BANNED: &quot;not allowed&quot;</td>
</tr>
<tr>
<td>Austria</td>
<td>REJECTED: &quot;toxic fluorides&quot; NOT added</td>
</tr>
<tr>
<td>Belgium</td>
<td>REJECTED: encourages self-determination – those who want fluoride should get it themselves.</td>
</tr>
<tr>
<td>Finland</td>
<td>STOPPED: &quot;...do not favor or recommend fluoridation of drinking water. There are better ways of providing the fluoride our teeth need.&quot; A recent study found, &quot;no indication of an increasing trend of caries...&quot;</td>
</tr>
<tr>
<td>Germany</td>
<td>STOPPED: A recent study found no evidence of an increasing trend of caries</td>
</tr>
<tr>
<td>Denmark</td>
<td>REJECTED: &quot;...toxic fluorides have never been added to the public water supplies in Denmark.&quot;</td>
</tr>
<tr>
<td>Norway</td>
<td>REJECTED: &quot;...drinking water should not be fluoridated&quot;</td>
</tr>
<tr>
<td>Sweden</td>
<td>BANNED: &quot;not allowed&quot;</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Inevitably whenever there is a court decision against fluoridation, the dental lobby pushes to have the judgement overturned on a technicality or they try to get the laws changed to legalize it. Their tactics didn't work in the vast majority of Europe.</td>
</tr>
<tr>
<td>Hungary</td>
<td>STOPPED: for technical reasons in the ’60s. However, despite technological advances, Hungary remains unfluoridated.</td>
</tr>
<tr>
<td>Japan</td>
<td>REJECTED: &quot;...may cause health problems....&quot; The 0.8–1.5 mg regulated level is for calcium-fluoride, not the hazardous waste by-product which is added with artificial fluoridation.</td>
</tr>
</tbody>
</table>

"In 1978, the West German Association of Gas & Water Experts rejected fluoridation for legal reasons and – because ’the so-called optimal fluoride concentration of 1 mg per l is close to the dose at which long-term damage [to the human body] is to be expected.’"

---

WASTEFUL!
Fluoridating 150 times more than we consume?

We drink 8-8 oz glasses a day, about 2 litres
At dosing of 0.6 mg/l we ingest 1.2 mg F in this
We pay to fluoridate 300 litres per person per day
yet 298 litres goes straight to the environment!
This is ~150 times more than is necessary for ingestion – it is 99.7% of what we fluoridate and we just waste it. **Why would we do this?**
Would we actually FUND a program that is only 0.3% cost effective? ......and since 1965?
And then..... These little numbers ADD UP............
SINFUL! – POLLUTING! our **precious**
fresh water resources **needlessly**!
Without “beneficial dental use to our bodies” at all, 150
times more than what we ingest is dosed into our potable
water and then wasted straight to our receiving waters

This year Hamilton will put about **33,933 kg** of Fluoride
directly into the lake (that’s 33.9 Metric Tonnes)

This year Canadians will put about **997,784 kg** of Fluoride
directly into our receiving waters (997 Metric Tonnes)

And it does not go anywhere, it simply accumulates, as current
technology cannot take fluoride out!
**Beware foreseeable future COSTS?!**

What kind of people are we that would accept paying taxes to experience 180 symptoms of
fluoride poisoning while we dumb ourselves down and poison our own water supply?

---

**Our Generation - in only 1 generation**  
The wisdom of **our** legacy?

As Canadians, in ONE generation, **we “start” this**  
?caring? practice and put 46,000 Metric Tonnes
of Fluoride into our receiving waters as pollution
and WE PAY FOR THIS through our taxes directed
by the leadership of this effort who we trusted
to take care of us

We have paid $1,000,000,000 so far, to waste, to
pollute, poison our own wells
(One Billion Dollars)
HARMFUL!

Fluoride - an extremely neurotoxic chemical added to drinking water that interrupts the basic function of nerve cells in the brain causing docile submissive behaviour and IQ devastation

FLUORIDE AND AGING
Austrian researchers proved in the 1970s that as little as 1 ppm fluoride concentration can disrupt DNA repair enzymes by 50%. When DNA can't repair damaged cells, we get old fast. (Klein)

http://www.enwaterment.com/page/Hydration/Flouridation - (Dr. Emoto’s Water Messages)

180 Symptoms of Fluoride Poisoning
http://poisonfluoride.com/pfoe/html/syptoms.html - 175 footnotes

24th paper confirms: Fluoride In Water Linked To Lower IQ In Children - December 23, 2010 (how much doubt do we need?)

Fluoride is the most acidic and electron negative of all elements. Fluoride aggressively seeks out lead and dissolves it, especially in acidic, soft water.

Fluoride accelerates lead corrosion and increases lead in drinking water.

What kind of people are we that would accept paying taxes to experience 180 symptoms of fluoride poisoning while we dumb ourselves down and poison our own water supply?

UNETHICAL!

Was there martial law in 1965? My consent? My freedom to choose? My rights to clean water for 47 years lost to protect someone else? WHO?

Do I not have a right to clean water? Why did we have to “fix” our clean water, which was not broken in the first place? Shouldn’t dental care be done elsewhere?

Fluoridation is UNETHICAL because:
1) It violates the individual's right to informed consent to medication.
2) The municipality cannot control the dose of the patient.
3) The municipality cannot track each individual’s response.
4) It ignores the fact that some people are more vulnerable to fluoride's toxic effects than others. Some people will suffer while others may benefit.
5) It violates the Nuremberg code for human experimentation.

What about Doctors? Are cities not competing with Doctors then? WITHOUT a Hippocratic Oath? Is this a wise position to be in for a city?

We must forgive ourselves today and move on.

This practice is wasteful, polluting and denies us all our rights to clean water.

We can vote this out now and I URGE you to free us!
Reasons to End Fluoridation **NOW**

**Summary**

- Questionable health benefits
- MUCH evidence emerging of health risk (Doubt!!)
- Wasteful expenditure of tax payers money in questionable execution (150x waste, ingestion, not topical under care of dental profession, accelerates lead)
- Blatantly wasteful and polluting, 99.7% TAXES=POLLUTION? right to our water supply where it is NOT easy to deal with (how to get this cat back into the bag?!)
- Shameful, thoughtless process
- FUTURE COSTS and Liabilities?

**Recommendations**

- Give us clean water first.
- Educate and allow self-determination

*If there is doubt, we MUST leave it out!*

"I know of absolutely no, and I mean absolutely no means of prevention that would save so many lives as simply to stop fluoridation, or don't start it where it is otherwise going to be started. There you might save 30,000 or 40,000 or 50,000 lives a year, cancer lives. That is an awful lot of lives a year."

Dr. Dean Burk Ph.D. (34 years at the National Cancer Institute).

Dean Burk (March 21, 1904 – October 6, 1988) was an American biochemist: a co-discoverer of biotin, medical researcher, and a cancer researcher at the Kaiser Wilhelm Institute and the National Cancer Institute. In 1934, he developed the Lineweaver–Burk plot together with Hans Lineweaver. After retiring from the NCI in 1974 Dean Burk remained active. He devoted himself to his opposition to water fluoridation. According to Burk "fluoridation is a form of public mass murder."

*WHY would Doctors talk this way? Is there at least doubt?*
Education then, beyond all other devices of human origin, is the great equalizer of the conditions of men, the balance-wheel of the social machinery. -Horace Mann

Doctors and Dentists who have sworn the Hippocratic Oath, provide us with personalized health care - not propagandists working with chemical companies

The responsibility for proper health care cannot be delegated to municipal works authorities

Low initial cost does not over-ride proper medical care, responsibility or attention to detail from any and ALL angles

Great responsibilities are inherent in the topics we discuss today, as well as great liabilities for the assumptions that are made

Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.

Margaret Mead
US anthropologist & popularizer of anthropology (1901 - 1978)
### Symptoms/Associations

"Though apparently vague and non-specific, most of the symptoms of fluoride toxicity point towards some level of preformed metabolic dysfunction, and are strikingly similar to the symptoms of hypothyroidism."

(Deavel Mountain Medical Practice, June 2005 for the 400 Year Maine Indian Land Cession

**Fluoride Poisoning Symptoms - The First 11**

<table>
<thead>
<tr>
<th>Fluoride Poisoning</th>
<th>Thyroid Dysfunction (Iodine Deficiency Disorders)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal Sweating (18)</td>
<td>Abnormal Sweating (124, 128, 129)</td>
</tr>
<tr>
<td>Acne (2, 3)</td>
<td>Acne (92)</td>
</tr>
<tr>
<td>ADHD/LeARNING DISORDERS (4, 7)</td>
<td>ADHD/LeARNING DISORDERS (2)</td>
</tr>
<tr>
<td>Allergies (2)</td>
<td>Allergies (22)</td>
</tr>
<tr>
<td>Alopecia (hair loss) (18)</td>
<td>Alopecia (18)</td>
</tr>
<tr>
<td>Alzheimer's Disease (4, 6, 66)</td>
<td>Alzheimer's Disease (16)</td>
</tr>
<tr>
<td>Anaphylactic Shock (2)</td>
<td>Anaphylactic Shock (124)</td>
</tr>
<tr>
<td>Anemia (15)</td>
<td>Anemia (40)</td>
</tr>
<tr>
<td>Apnea (cessation of breath)</td>
<td>Apnea (22)</td>
</tr>
<tr>
<td>Aortic Calcification (2)</td>
<td>Aortic Calcification (190)</td>
</tr>
<tr>
<td>Athropathy (weakness) (18)</td>
<td>Athropathy (97)</td>
</tr>
</tbody>
</table>

http://poisonfluoride.com/plac/html/symptoms.html - 175 footnotes

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**Fluoride Poisoning Symptoms - 12-30**

<table>
<thead>
<tr>
<th>Fluoride Poisoning</th>
<th>Thyroid Dysfunction (Iodine Deficiency Disorders)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis (3)</td>
<td>Arthritis (36)</td>
</tr>
<tr>
<td>Asthma (8, 13)</td>
<td>Asthma (15)</td>
</tr>
<tr>
<td>Ataxia (2)</td>
<td>Ataxia (66)</td>
</tr>
<tr>
<td>Atonia (169)</td>
<td>Atonia (170, 171)</td>
</tr>
<tr>
<td>Back Pain (2)</td>
<td>Back Pain (122)</td>
</tr>
<tr>
<td>Behavioral Problems (3)</td>
<td>Behavioral Problems (52)</td>
</tr>
<tr>
<td>Blood Defects (5)</td>
<td>Blood Defects (57)</td>
</tr>
<tr>
<td>Blind spots (1)</td>
<td>Blind spots (52)</td>
</tr>
<tr>
<td>Body temperature disturbances (14)</td>
<td>Body temperature disturbances (52)</td>
</tr>
<tr>
<td>Breast Cancer (3)</td>
<td>Breast Cancer (147)</td>
</tr>
<tr>
<td>Cachexia (wasting away) (22)</td>
<td>Cachexia (153)</td>
</tr>
<tr>
<td>Cephalic Tumor Syndrome (32)</td>
<td>Cephalic Tumor Syndrome (10)</td>
</tr>
<tr>
<td>Cataracts (2)</td>
<td>Cataracts (19)</td>
</tr>
<tr>
<td>Change in blood pressure (2)</td>
<td>Change in blood pressure (50)</td>
</tr>
<tr>
<td>Chest pain (2)</td>
<td>Chest pain (32)</td>
</tr>
<tr>
<td>Childhood Autism (32)</td>
<td>Childhood Autism (124)</td>
</tr>
<tr>
<td>Chronic Fatigue Syndrome (2)</td>
<td>Chronic Fatigue Syndrome (52)</td>
</tr>
</tbody>
</table>
### Symptoms/Associations

**Fluoride Poisoning**

<table>
<thead>
<tr>
<th>FLUORIDE POISONING</th>
<th>THYROID DYSFUNCTION (Iodine Deficiency Disorders)</th>
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</thead>
<tbody>
<tr>
<td>+ Collagen breakdown (3)</td>
<td>+ Collagen breakdown (96)</td>
</tr>
<tr>
<td>+ CIV1-Defence (13)</td>
<td>+ Def (102)</td>
</tr>
<tr>
<td>+ CIV2 (2)</td>
<td>+ Def (68)</td>
</tr>
<tr>
<td>+ Convulsive (12)</td>
<td>+ Convulsion (82)</td>
</tr>
<tr>
<td>+ Convulsion (7)</td>
<td>+ Convulsion (82)</td>
</tr>
<tr>
<td>+ Crying easily for an apparent reason (18)</td>
<td>+ Crying easily for an apparent reason (62)</td>
</tr>
<tr>
<td>+ Death (2)</td>
<td>+ Death (153)</td>
</tr>
<tr>
<td>+ Decrease in TSH levels (32)</td>
<td>+ Decrease in thyroid hormones (50)</td>
</tr>
<tr>
<td>+ Dermatitis (2)</td>
<td>+ Dermatitis (24)</td>
</tr>
<tr>
<td>+ Dry mouth (18)</td>
<td>+ Dry Abdominal pains (15)</td>
</tr>
<tr>
<td>+ Dry Arch, dry mouth (20)</td>
<td>+ Dry Arch, dry mouth (85)</td>
</tr>
<tr>
<td>+ Edema (3)</td>
<td>+ Edema (3)</td>
</tr>
<tr>
<td>+ Eczema (13)</td>
<td>+ Eczema (13)</td>
</tr>
<tr>
<td>+ Edema (3)</td>
<td>+ Eczema (13)</td>
</tr>
<tr>
<td>+ Eye, ear and nose disorders (90)</td>
<td>+ Eye, ear and nose disorders (97)</td>
</tr>
<tr>
<td>+ Fever (21)</td>
<td>+ Fever (31)</td>
</tr>
<tr>
<td>+ Fearfulness (1.13)</td>
<td>+ Fearfulness (71)</td>
</tr>
<tr>
<td>+ Fever (13)</td>
<td>+ Fever (31)</td>
</tr>
<tr>
<td>+ Headache (2)</td>
<td>+ Headache (145)</td>
</tr>
<tr>
<td>+ Fatigue (2.10)</td>
<td>+ Fatigue (20)</td>
</tr>
<tr>
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<td>+ Fearfulness (71)</td>
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<td>+ Fatigue (2.10)</td>
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</tbody>
</table>

**Fluoride Poisoning Symptoms - 31-49**

**Thyroid Dysfunction**

### Symptoms/Associations

**Fluoride Poisoning**

<table>
<thead>
<tr>
<th>FLUORIDE POISONING</th>
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<td>+ Fatigue (20)</td>
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</tbody>
</table>

**Fluoride Poisoning Symptoms - 50-68**

### Symptoms/Associations

<table>
<thead>
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</tr>
<tr>
<td>+ Eye, ear and nose disorders (90)</td>
<td>+ Eye, ear and nose disorders (97)</td>
</tr>
<tr>
<td>+ Fever (21)</td>
<td>+ Fever (31)</td>
</tr>
<tr>
<td>+ Fearfulness (1.13)</td>
<td>+ Fearfulness (71)</td>
</tr>
<tr>
<td>+ Fear (13)</td>
<td>+ Fear (31)</td>
</tr>
<tr>
<td>+ Headache (2)</td>
<td>+ Headache (145)</td>
</tr>
<tr>
<td>+ Fatigue (2.10)</td>
<td>+ Fatigue (20)</td>
</tr>
</tbody>
</table>
## Fluoride Poisoning Symptoms - 69-87

<table>
<thead>
<tr>
<th>Fluoride Poisoning</th>
<th>Thyroid Dysfunction (Iodine Deficiency Disorders)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis (3)</td>
<td>Arthritis (37)</td>
</tr>
<tr>
<td>Hypercalcinemia (3)</td>
<td>Hypercalcinemia (37)</td>
</tr>
<tr>
<td>Hyperostosis (3)</td>
<td>Hyperostosis (37)</td>
</tr>
<tr>
<td>Hyperthyroidism (3)</td>
<td>Hyperthyroidism (37)</td>
</tr>
<tr>
<td>Hypertension (3)</td>
<td>Hypertension (37)</td>
</tr>
<tr>
<td>Hypothyroidism (3)</td>
<td>Hypothyroidism (37)</td>
</tr>
<tr>
<td>Impotence (1)</td>
<td>Impotence (37)</td>
</tr>
<tr>
<td>Infertility (1)</td>
<td>Infertility (37)</td>
</tr>
<tr>
<td>Inflammatory Bowel Disease (3)</td>
<td>Inflammatory Bowel Disease (37)</td>
</tr>
<tr>
<td>Joint Pain (1)</td>
<td>Joint Pain (37)</td>
</tr>
<tr>
<td>Kidney Failure (1)</td>
<td>Kidney Failure (37)</td>
</tr>
<tr>
<td>Lack of Energy (1)</td>
<td>Lack of Energy (37)</td>
</tr>
<tr>
<td>Lack of Co-ordination (1)</td>
<td>Lack of Co-ordination (37)</td>
</tr>
<tr>
<td>Loss of Appetite (1)</td>
<td>Loss of Appetite (37)</td>
</tr>
<tr>
<td>Loss of Consciousness (1)</td>
<td>Loss of Consciousness (37)</td>
</tr>
<tr>
<td>Loss of Tact (1)</td>
<td>Loss of Tact (37)</td>
</tr>
<tr>
<td>Loss of Temperature (1)</td>
<td>Loss of Temperature (37)</td>
</tr>
</tbody>
</table>

## Thyroid Dysfunction Symptoms - 69-87

<table>
<thead>
<tr>
<th>Fluoride Poisoning</th>
<th>Thyroid Dysfunction (Iodine Deficiency Disorders)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis (1)</td>
<td>Arthritis (17)</td>
</tr>
<tr>
<td>Hypercalcinemia (1)</td>
<td>Hypercalcinemia (17)</td>
</tr>
<tr>
<td>Hyperostosis (1)</td>
<td>Hyperostosis (17)</td>
</tr>
<tr>
<td>Hyperthyroidism (1)</td>
<td>Hyperthyroidism (17)</td>
</tr>
<tr>
<td>Hypertension (1)</td>
<td>Hypertension (17)</td>
</tr>
<tr>
<td>Hypothyroidism (1)</td>
<td>Hypothyroidism (17)</td>
</tr>
<tr>
<td>Impotence (1)</td>
<td>Impotence (17)</td>
</tr>
<tr>
<td>Infertility (1)</td>
<td>Infertility (17)</td>
</tr>
<tr>
<td>Inflammatory Bowel Disease (1)</td>
<td>Inflammatory Bowel Disease (17)</td>
</tr>
<tr>
<td>Joint Pain (1)</td>
<td>Joint Pain (17)</td>
</tr>
<tr>
<td>Kidney Failure (1)</td>
<td>Kidney Failure (17)</td>
</tr>
<tr>
<td>Lack of Energy (1)</td>
<td>Lack of Energy (17)</td>
</tr>
<tr>
<td>Lack of Co-ordination (1)</td>
<td>Lack of Co-ordination (17)</td>
</tr>
<tr>
<td>Loss of Appetite (1)</td>
<td>Loss of Appetite (17)</td>
</tr>
<tr>
<td>Loss of Consciousness (1)</td>
<td>Loss of Consciousness (17)</td>
</tr>
<tr>
<td>Loss of Tact (1)</td>
<td>Loss of Tact (17)</td>
</tr>
<tr>
<td>Loss of Temperature (1)</td>
<td>Loss of Temperature (17)</td>
</tr>
<tr>
<td>Fluoride Poisoning Symptoms - 144-161</td>
<td>Thyroid Dysfunction (Iodine Deficiency Disorders)</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Sentivity to light (1,17)</td>
<td>Sensitivity to light (52)</td>
</tr>
<tr>
<td>Skin Pigmentation (2)</td>
<td>Skin Pigmentation (97)</td>
</tr>
<tr>
<td>Seizures (13)</td>
<td>Seizures (88)</td>
</tr>
<tr>
<td>Shortness of breaths (12)</td>
<td>Shortness of Breath (90)</td>
</tr>
<tr>
<td>Neck (13)</td>
<td>Neck (44)</td>
</tr>
<tr>
<td>Blood Infections (22)</td>
<td>Blood Infections (52)</td>
</tr>
<tr>
<td>Skeletal Changes (2)</td>
<td>Skeletal Changes (98)</td>
</tr>
<tr>
<td>Sleep Disorders (2)</td>
<td>Sleep Disorders (82)</td>
</tr>
<tr>
<td>Stomatitis (3)</td>
<td>Stomatitis (97)</td>
</tr>
<tr>
<td>Swallowing Difficulties (Dysphagia)</td>
<td>Swallowing Difficulties (52)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluoride Poisoning Symptoms - 162-181</th>
<th>Thyroid Dysfunction (Iodine Deficiency Disorders)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swelling in Face (Angiokeratoma) (36)</td>
<td>Swelling in Face (39)</td>
</tr>
<tr>
<td>Yodobacteriae (196)</td>
<td>Yodobacteriae (166, 168)</td>
</tr>
<tr>
<td>Tertiary GraftversusHostReaction (3, 12)</td>
<td>Tertiary GraftversusHostReaction (142)</td>
</tr>
<tr>
<td>Waist (13)</td>
<td>Waist (90)</td>
</tr>
<tr>
<td>Throat (39)</td>
<td>Throat (102, 103)</td>
</tr>
<tr>
<td>Thyroid Cancer (25)</td>
<td>Thyroid Cancer (49)</td>
</tr>
<tr>
<td>Ulcer (8)</td>
<td>Ulcer (52)</td>
</tr>
<tr>
<td>Tying Sensations (38)</td>
<td>Tying Sensations (52)</td>
</tr>
<tr>
<td>Visual Disturbances (15,8)</td>
<td>Visual Disturbances (74)</td>
</tr>
<tr>
<td>Ulcerative Colitis (94)</td>
<td>Ulcerative Colitis (140)</td>
</tr>
<tr>
<td>Urticaria (2)</td>
<td>Urticaria (102, 126, 127)</td>
</tr>
<tr>
<td>Ulcer in Mouth (2)</td>
<td>Ulcer in Mouth (9)</td>
</tr>
<tr>
<td>Ulcer in Tongue (5)</td>
<td>Ulcer in Tongue (9)</td>
</tr>
<tr>
<td>Vomiting (3)</td>
<td>Vomiting (9)</td>
</tr>
<tr>
<td>Vomiting Sensations (38)</td>
<td>Vomiting Sensations (52)</td>
</tr>
<tr>
<td>Vas Definites Alterations (4)</td>
<td>Vas Definites Alterations (142)</td>
</tr>
<tr>
<td>Vertigo (5)</td>
<td>Vertigo (12)</td>
</tr>
<tr>
<td>Vertigo (Vasovagalynia) (2)</td>
<td>Vertigo (72)</td>
</tr>
<tr>
<td>Veins Pulsing (30)</td>
<td>Veins Pulsing (52)</td>
</tr>
<tr>
<td>Weight Decrease (2)</td>
<td>Weight Decrease (92)</td>
</tr>
<tr>
<td>Zn Deficiency (2)</td>
<td>Zn Deficiency (94)</td>
</tr>
</tbody>
</table>
Health Canada says we need 8 – 8 oz glasses of WATER a day

Since 1970 we have had fluoride toothpaste.

One tube is "enough" fluoride for 83 days, or we can say an adult looking for fluoride would use ~4.4 tubes of toothpaste per year.

Current Water Fluoridation Practice Examined – A Mass Balance

Per person per day

Per person per year

16/04/2012
Current Water Fluoridation Practice Examined - A Mass Balance

Assumptions (Best available information)
Canadian consumption of fresh water is 300 litres per person per day
Fluoridation rate is 0.6 mg/l or ppm
Population of Canada given at 33,900,000
Percentage of Canadian population that is fluoridated is 45.1%

<table>
<thead>
<tr>
<th>Hamilton’s Population of 399000 (enormous demand)</th>
<th>Based on population estimate only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>155,989,000 lpd</td>
</tr>
<tr>
<td>Fluoride dosing rate</td>
<td>0.6 mg/l</td>
</tr>
<tr>
<td>Fluoride total load</td>
<td>92,984,700 mg</td>
</tr>
<tr>
<td>EXTRAINUMAN</td>
<td>154,444,002 lpd</td>
</tr>
<tr>
<td>Fluoride dosing rate</td>
<td>0.6 mg/l</td>
</tr>
<tr>
<td>Fluoride total load</td>
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</tr>
<tr>
<td>Number of fatal doses</td>
<td>9,297 (10 gram fatal doses)</td>
</tr>
<tr>
<td>Number of fatal doses</td>
<td>18,593 (5 gram fatal doses)</td>
</tr>
<tr>
<td>Environment</td>
<td>1,005,859,000 g</td>
</tr>
<tr>
<td>Blended flour</td>
<td>1,009,808 lb</td>
</tr>
<tr>
<td>Fluoride total load</td>
<td>623,959 lb</td>
</tr>
<tr>
<td>Fluoride dosing rate</td>
<td>0.6 mg/l</td>
</tr>
<tr>
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</tr>
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<td>954,611,000 g</td>
</tr>
</tbody>
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<tr>
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</tr>
</thead>
<tbody>
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<td>154,444,002 lpd</td>
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<tr>
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<td>0.6 mg/l</td>
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<td>Environment</td>
<td>954,611,000 g</td>
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Population of Canada given at 33,900,000
Percentage of Canadian population that is fluoridated is 45.1%
## Fate of Fluoride – Ingestion into Human Bodies

*only about 1/150th of what we purchase and put through our systems and into the environment*

### Fluoride Summary

<table>
<thead>
<tr>
<th>Per day, per year and 47 year term</th>
<th>Ingestion by Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg</td>
</tr>
<tr>
<td><strong>Per person</strong></td>
<td></td>
</tr>
<tr>
<td>per day</td>
<td>1.2</td>
</tr>
<tr>
<td>per year</td>
<td>438</td>
</tr>
<tr>
<td>times 47</td>
<td>20,586</td>
</tr>
<tr>
<td><strong>Hamilton Population</strong></td>
<td></td>
</tr>
<tr>
<td>per day</td>
<td>623,939</td>
</tr>
<tr>
<td>per year</td>
<td>227,737,662</td>
</tr>
<tr>
<td>times 47</td>
<td>10,703,670,114</td>
</tr>
<tr>
<td><strong>Canadian Fluoridated Population</strong></td>
<td></td>
</tr>
<tr>
<td>per day</td>
<td>18,346,680</td>
</tr>
<tr>
<td>per year</td>
<td>6,696,538,200</td>
</tr>
<tr>
<td>times 47</td>
<td>314,737,295,400</td>
</tr>
</tbody>
</table>

## Fate of Fluoride – Waste Directly the Environment via our pipes, lands, crops and waterways

150 times MORE than we ingest – wasteful and polluting and a TAX BURDEN and Liability

### Fluoride Summary

<table>
<thead>
<tr>
<th>Per day, per year and 47 year term</th>
<th><em>F</em> Wasted - Pollution to the Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg</td>
</tr>
<tr>
<td><strong>Per person</strong></td>
<td></td>
</tr>
<tr>
<td>per day</td>
<td>178.8</td>
</tr>
<tr>
<td>per year</td>
<td>65,652</td>
</tr>
<tr>
<td>times 47</td>
<td>3,086</td>
</tr>
<tr>
<td><strong>Hamilton Population</strong></td>
<td></td>
</tr>
<tr>
<td>per day</td>
<td>92,966,881</td>
</tr>
<tr>
<td>per year</td>
<td>33,932,913,638</td>
</tr>
<tr>
<td>times 47</td>
<td>1,594,846,846,986</td>
</tr>
<tr>
<td><strong>Canadian Fluoridated Population</strong></td>
<td></td>
</tr>
<tr>
<td>per day</td>
<td>2,733,655,320</td>
</tr>
<tr>
<td>per year</td>
<td>997,784,191,800</td>
</tr>
<tr>
<td>times 47</td>
<td>46,895,857,014,600</td>
</tr>
</tbody>
</table>

### Canada's contribution to our water resources

<table>
<thead>
<tr>
<th>g/year</th>
<th>g/10g</th>
</tr>
</thead>
<tbody>
<tr>
<td>997,784,192</td>
<td>199,556,838</td>
</tr>
<tr>
<td>46,895,857,015</td>
<td>9,379,175,203</td>
</tr>
</tbody>
</table>

**If we paid for only what we ingested, it would be 1/150th of the total cost AND we would not contribute to pollution!!**

So every year Canada’s fluoride discharge to the environment, where it has no exit, somewhere between 99.7 and 198 MILLION FATAL DOSES of Fluoride

Over a 47 year time frame, this equates to somewhere between 4.7 and 9.4 BILLION FATAL DOSES of Fluoride

1 Based on current rates

How can we deliver so much toxic fluoride to the environment and say there is no effect?
**LIFETIME Fluoride Mass Balance**

<table>
<thead>
<tr>
<th>Event</th>
<th>1,000 MT per year</th>
<th>47 years</th>
<th>Total tonnes</th>
<th>Number of fatal doses</th>
<th>4.7 BILLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales to the Canadian municipal water fluoridation industry</td>
<td>47,000 MT</td>
<td>sill dose</td>
<td>4,700,000,000 (10 gram fatal dose)</td>
<td>9.4 BILLION</td>
<td></td>
</tr>
<tr>
<td>Progress Lifetime Landfill Alternative Costs for Disposal of Fluoride by producers without Municipal Exit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposal Fees at $10 per ton</td>
<td>$190,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tipping Fees at $40 per ton</td>
<td>$1,840,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG, Our cost per person per year</td>
<td>$1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average population of Canada since 1965</td>
<td>24,000,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years since 1965</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of Water Fluoridation*</td>
<td>$1,128,000,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cost of Water Fluoridation:

**Membrane Plant Capital Cost Estimate**

<table>
<thead>
<tr>
<th>Type</th>
<th>Hamilton Only</th>
<th>All Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>$0.20</td>
<td>$0.20</td>
</tr>
<tr>
<td>and</td>
<td>$0.30</td>
<td>$0.30</td>
</tr>
<tr>
<td>per gallon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Current Capacity**

<table>
<thead>
<tr>
<th>Type</th>
<th>900,000 m3/day</th>
<th>4,586,670 m3/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>240 MGD</td>
<td>1212 MGD</td>
<td></td>
</tr>
</tbody>
</table>

**Estimated Capital Cost**

<table>
<thead>
<tr>
<th>Type</th>
<th>Hamilton Only</th>
<th>All Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>$480,000,000</td>
<td>$242,300,000</td>
</tr>
<tr>
<td>High</td>
<td>$720,000,000</td>
<td>$363,500,000</td>
</tr>
</tbody>
</table>

**Where we PAID Fluoride producers**

Cost of Water Treatment that effectively removes Fluoride:
**Artificial Water Fluoridation**

Environmental Effects & Legal Implications

Peter Ormond, M.Eng., MBA, P.Eng
CFO, Great Lakes & Water Group, DDC Hamilton

**Persistent, Bioaccumulative** Canadian Environmental Danger good/class 8 corrosive substance.

*Transport Canada*

Contaminants include trace amounts of:

- Arsenic (As)
- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Chromium (Cr)
- Radionuclides (Ra, Po)

**Turtle Species are currently in Need of Protection?**

(Violates Fisheries Act 1985 & Species At Risk

Protection)

**Hydrofluorosilicic Acid derived from scrubbors of phosphate fertilizer production sites**

- **Hazardous Waste**
- **Toxic Substance** (Pathogenic, Toxic, Persistent, Bioaccumulative)
- Canadian Environmental Protection Act

"Dangerous good/class 8 corrosive substance."

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**MORE TOXIC**

H2SiF6 (hydrofluorosilicic acid)

- Man-made toxic waste product
- Highly corrosive liquid that requires full personal protective equipment to handle legally
- Fluoride toxicity enhanced by co-contaminants
- Acute oral toxicity
  - LD 100 = guinea pig, 60 ppm (2% solution)

**Natural Fluorides vs. Hydrofluorosilicic Acid**

- CaF2 (calcium fluoride, fluorspar)
  - Naturally occurring
  - Safe to hold with bare hands
  - Sparingly soluble in neutral pH water
  - Fluoride toxicity reduced by calcium
  - Acute oral toxicity
  - LD 50 = oral rat, 4250 ppm

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**NO NSF50 TOXICOLGY STUDIES**

**SARA Protected**

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  - LD 100 = guinea pig, 60 ppm (2% solution)

**Turtle Species are currently in Need of Protection?**

(Violates Fisheries Act 1985 & Species At Risk

Protection)

**NO NSF50 TOXICOLGY STUDIES**

**SARA Protected**

**Hydrofluorosilicic Acid derived from scrubbors of phosphate fertilizer production sites**

- **Hazardous Waste**
- **Toxic Substance** (Pathogenic, Toxic, Persistent, Bioaccumulative)
- Canadian Environmental Protection Act

"Dangerous good/class 8 corrosive substance."

*Transport Canada*

Contaminants include trace amounts of:

- Arsenic (As)
- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Chromium (Cr)
- Radionuclides (Ra, Po)

**MORE TOXIC**

H2SiF6 (hydrofluorosilicic acid)

- Man-made toxic waste product
- Highly corrosive liquid that requires full personal protective equipment to handle legally
- Fluoride toxicity enhanced by co-contaminants
- Acute oral toxicity
  - LD 100 = guinea pig, 60 ppm (2% solution)

**Natural Fluorides vs. Hydrofluorosilicic Acid**

- CaF2 (calcium fluoride, fluorspar)
  - Naturally occurring
  - Safe to hold with bare hands
  - Sparingly soluble in neutral pH water
  - Fluoride toxicity reduced by calcium
  - Acute oral toxicity
  - LD 50 = oral rat, 4250 ppm

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**Wastewater Treatment**

- <1% treated water consumed for drinking = 99% H₂SiF₆ discharged
- H₂SiF₆ > 450,000 lbs/year (1 lb/person/year minus rural)
- Permitted industry loading
- Food, pharmaceuticals, personal care & cleaning products

“... the impacts on the Harbour's aquatic ecosystem, fish and wildlife continue to occur”


**We Have a Duty to Protect the Environment That Sustains Us**

- As of January 1, 2013, Municipal Councillors will be personally responsible and liable for environmental and health damage caused by fluoridation under the Safe Drinking Water Act (2002), Section 19.
- Health Canada does not regulate H₂SiF₆. As such, the agency has no standing in the matter. Its endorsements will not shield the City of Hamilton from liability or possible legal action.

**Municipal Water Fluoridation - Industrial F Pollution Smokescreen**

AWF makes it impossible to regulate the many industries in Hamilton that discharge fluorides into the combined sewer system & atmosphere

**Legal Implications of Fluoridation**

- Violates the federal 2002 Species At Risk Act
- Violates the 1999 Canadian Environmental Protection Act
- Violates several pieces of legislation stemming from the federal 1985 Fisheries Act
- Violates Ontario 2002 SDWA Section 20 'Dilution no Defense'
- Violates 1978 Great Lakes Water Quality Agreement (goal - virtual elimination of persistent toxic substances)
- Violates 1997 Binational Toxics Strategy
- Contributes to exceedence Can Water Quality Guideline
Ontario's Clean Water Act helps protect drinking water from source to tap with a multi-barrier approach that stops contaminants from entering sources of drinking water — lakes, rivers and aquifers.

Ontario's Clean Water Act requires that local communities — through local Source Protection Committees — assess existing and potential threats to their water, and that they set out and implement the actions needed to reduce or eliminate these threats.

Empowers communities to take action to prevent threats from becoming significant (i.e., including threats to aquatic life).

Requires public participation on every local source protection plan — the planning process for source protection is open to anyone in the community.

Requires that all plans and actions are based on sound science (i.e., including but not limited to peer-reviewed human health research).

We recommend the Board of Health Committee insist on:

1. Provision of a full environmental impact assessment and baseline study that was conducted prior to initiation of Artificial Water Fluoridation. None? Stop AWF

2. Continuous downstream monitoring to ensure that levels do not exceed water quality guidelines for protection of aquatic life of 0.12 ppm. Not feasible? Stop AWF

3. A mandate that chemistry of the water discharged into the Hamilton Bay from the Hamilton sewage treatment plant is the same or better than the water that is taken out in terms of protection of aquatic life. Not possible? Stop AWF

Organizations commit to ending Artificial Water Fluoridation

- Green Party of Canada
- Canadian Association of Physicians for the Environment
- Council of Canadians
- EPA Headquarters Professionals’ Union
- Great Lakes United
- National Research Council
- International Society of Doctors for the Environment
- American Academy of Environmental Medicine
- Environmental Working Group
- Environmental Health Foundation
- Science and Environmental Health Network
- Center for Health, Environment, and Justice

Thank you for your time.
Hamilton Board of Health Meeting
April 16, 2012

Artificial Water fluoridation

Delegation of Sheldon Thomas: ‘The Chemical’
Good afternoon, Mr. Mayor and Councillors.

My name is Sheldon Thomas.

I had the great privilege to work in Hamilton’s water utility for 26 years. Some of that time was spent as Manager of your Water Distribution System.

Today, I design and deliver Ministry-approved seminars that teach the protection of water quality in the pipes beneath the street.

In all my years here, I never once doubted the quality of Hamilton water.
But I do now.

Hamilton’s drinking water is not safe. It’s not chemically safe.

It became unsafe in 1966 when the City began artificial water fluoridation.

The council of ’66 would have been told that water fluoridation was well-tested and safe. Little or nothing would have been said about the new fluoride chemical. 1

Hamilton’s chemical is called ‘fluorosilicic acid’.

For starters, this chemical is a highly corrosive, category 1, industrial waste.

It has been added to drinking water for over 60 years, and in that time not one single toxicological test has been done to prove that this adulterated water is safe to drink. 2

Let me summarize what Hamilton councils have been advised to do for 46 years:

• You fund and operate a billion dollar, world-class, water treatment plant to create some of the finest drinking water on this continent.
• Just before you send it off to your citizens, you top it off with one of the most toxic industrial wastes known to environmental science.

You did it then, and you do it now, because the highest health authorities in the land convinced this City that water fluoridation was necessary.

The dental campaign in this city would not have included the true nature of the fluoridating chemical you would have to live with.

Fluorosilicic acid is not a carefully-designed work of chemistry.

The chemical that arrives at Woodward can be polluted by any of a dozen contaminants, including lead, arsenic, and mercury. Lead and arsenic are nearly always in the mix.

In a Spectator story last September, Dr. Richardson spoke of "intervention strategies' to deal with lead exposure in this city.

The good doctor is absolutely right. The harm caused by lead poisoning is well known.

What is not well known is that lead enters Hamilton water almost daily by the use of fluorosilicic acid.

It would also be wise to investigate the startling increases in blood-lead uptake that can result when you combine your fluoridating chemical with the disinfection chemical that is carried throughout your water system.

That combination produces a powerful solvent that can dissolve a lot of lead from the metal of household faucets and from lead-soldered plumbing.

In a city of this age, how many Hamilton homes have older generation high-lead faucets, and hundreds of lead-soldered joints?
The lead and arsenic contaminants in fluorosilicic acid should not be down-played.

Lead is classified as a 'probable human carcinogen'. 7
Arsenic is classified as an established cause of cancer. 8

Artificial water fluoridation has added these two carcinogens to Hamilton’s drinking water since day one.

Health Canada is very concerned about arsenic. In 2006, it stated that every effort should be made to keep it out of drinking water. 9

To add arsenic in any amount would seem contrary to Health Canada’s advice.

Some argue that the arsenic contaminant gets diluted massively by about 240,000 to 1 in drinking water. 10
That is true, but dilution does not make it disappear.

The National Sanitation Foundation (NSF) states that arsenic typically found in fluorosilicic acid dilutes down to just under 0.5 ppb. 11

So, how scary is half a part per billion of arsenic?
That’s enough to cause an estimated 50 additional cancers in a community the size of Hamilton. 12

That cancer estimate is the work of the National Resources Defense Council, using data provided by the National Academy of Science. 12

From your drinking water reports, it appears that Hamilton’s water contains arsenic that likely exceeds the calculation done by NSF. 13

If that’s normal, then this community might anticipate those 50 additional cancers, and then some. 12

Some will move quickly to discredit these cancer estimates. But to be of any service here, they will have to commit to some work.
They will have to convincingly **disprove** the findings of these two institutions.

The National Academy of Science has been an independent scientific advisor to government for 150 years. One would think that they could defend their data.  

To its credit, Hamilton’s Public Health Services seems to sense that fluorosilicic acid has issues.

It reports on the City website that Hamilton’s fluoride is *not* used until it’s *made* pure.  

That is extraordinary .. considering that:

- NSF doesn’t require the removal of contaminants.  
- The chemical plants that make the chemical *won’t* remove contaminants unless the purchaser tells them *how*

I have never heard anyone in Hamilton’s water utility speak of this fluorosilicic acid purification.

If a process exists, the rest of the water industry needs to know about it.

Thank you for your time and attention this afternoon.

**References**

1. Petition: No. 221B, Office of the Auditor General of Canada, Petitioner: Carole Clinch  
   Health Canada response to Q7, Q8, Q9, Q10, Q13, Q19:  
   Health Canada does not conduct research on the chemistry of fluoride species.

2. Congressional investigation 1999 and 2000 by a subcommittee of the House Committee on Science:  
   * EPA confirmed that the two compounds used almost exclusively in the U.S. for fluoridation have never, ever been studied for their effect on health or behaviour.
* NSF International, the private organization certifying fluoridation chemicals, confirmed that it is doing so in violation of its own standard requiring manufacturers to submit any available published and unpublished toxicological studies on both the fluoride compound and any contaminants contained in the product. NSF disclosed in the investigation that they have no such studies on file.

3. NSF Fact Sheet on Fluoridating Chemicals, Table 1, pg 7

4. The Hamilton Spectator, September 27, 2011, Pg A3, ‘Top doc tells city to get lead out’ / Matthew Van Dongen


6. “Masters and Coplan, besides showing that silicofluorides are probably increasing lead in children, have discovered a 1975 Ph.D. thesis in German showing that silicofluorides are far from completely dissociate in water, and these partially dissociated residues are potent acetyl cholinesterase inhibitors. As a result of their work, EPA was forced to admit to Congressman Calvert that they have absolutely "no information on the effects of silicofluorides on health and behavior." Further, EPA officials now admit that they are not sure that hydrofluosilicic acid completely dissociates when added to water supplies and are planning on studies to determine what does happen. Silicofluorides have been added to drinking water supplies for 50 years without any idea of the possible consequences."

Robert J. Carton, Ph.D. Chief, Environmental Protection Office of Regulatory Compliance & Quality U.S. Army Medical Research


The USEPA Request For Assistance (RFA) to further investigate the dissociation of silicofluorides, as earlier ordered by Congress.

The assumption that silicofluorides completely dissociate in water (Urbansky and Schock, 2000) has been questioned (Coplan and Masters, 2001). The possibility that intermediate species (e.g. SiF51-) exist under acidic conditions has been indicated (Urbansky, 2002; Morris, 2004; NRC, 2006, p. 53).
Also possible is that SiF residues re-associate within the stomach (intra-gastric pH levels ~2.0; Ciavatta et al., 1988) and during food preparation, producing SiF-related species such as silicon tetrafluoride, a known toxin (Coplan, 2002).


9. Health Canada 2006 report ‘Arsenic in Drinking Water’ report it stated, “Because arsenic can cause cancer, every effort should be made to keep levels in drinking water as low as possible.”

10. 240,000x DF / The Dilution Factor of HFSA when the target is 0.75mg/L of fluoride ion in drinking water / Peter Van Caulart, President Environmental Training Institute, Ridgeview, Ontario / March 24, 2012

11. April 24, 2000 / letter written by NSF’s Stan Hazen, General Manager Drinking Water Additives Certification Program, to Mr. Juan Menedez, the State of Florida, Department of Public Health, Tallahassee, Florida


See next page for chart

**Chart 1: Lifetime Risks of Dying of Cancer from Arsenic in Tap Water**

*Based upon the National Academy of Sciences' 1999 Risk Estimates*


<table>
<thead>
<tr>
<th>Arsenic Level in Tap Water (in parts per billion, or ppb)</th>
<th>Approximate Total Cancer Risk (assuming 2 liters consumed/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 ppb</td>
<td>1 in 10,000 (highest cancer risk EPA usually allows in tap water)</td>
</tr>
<tr>
<td>1 ppb</td>
<td>1 in 5,000</td>
</tr>
<tr>
<td>Concentration</td>
<td>Total Cancer Risk</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------</td>
</tr>
<tr>
<td>3 ppb</td>
<td>1 in 1,667</td>
</tr>
<tr>
<td>4 ppb</td>
<td>1 in 1,250</td>
</tr>
<tr>
<td>5 ppb</td>
<td>1 in 1,000</td>
</tr>
<tr>
<td>10 ppb</td>
<td>1 in 500</td>
</tr>
<tr>
<td>20 ppb</td>
<td>1 in 250</td>
</tr>
<tr>
<td>25 ppb</td>
<td>1 in 200</td>
</tr>
<tr>
<td>50 ppb</td>
<td>1 in 100</td>
</tr>
</tbody>
</table>


0.5 ppb: 1 in 10,000 in Hamilton’s population of approx. 500,000 is 500,000 / 10,000 = 50
1 ppb: 1 in 5000 in Hamilton’s population of approx. 500,000 is 500,000 / 5000 = 100

13. Drinking Water Systems Regulation O. Reg. 170/03 Section 11 Hamilton Annual Report / January 2012 / page 5 of 7 .. Summary of inorganic parameters tested during this reporting period (Treated) / See Arsenic Result Value of <0.001 mg/l, equivalent to <1 ppb

14. The National Academy of Sciences was established in 1863 to address the government's urgent need for an independent advisor on scientific matters. As science began to play an ever-increasing role in national priorities and public life, the National Academy of Sciences expanded to include the National Research Council in 1916, the National Academy of Engineering in 1964, and the Institute of Medicine in 1970.

NRDC is the nation's most effective environmental action group, combining the grassroots power of 1.3 million members and online activists with the courtroom clout and expertise of more than 350 lawyers, scientists and other professionals.

15. Copied, 12:23 pm March 27, 2012, from the City of Hamilton Official Website - Public Health Services ‘Fluoride Question/Answers’

*Is the fluoride used in Hamilton contaminated with chemicals?* Fluoride goes through a purifying process before being used. Independent testing shows that the fluoride used in City of Hamilton water exceeds all safety standards. Constant sampling shows that the water produced by the City of Hamilton’s Woodward plant is among the purest drinking water in Ontario. The plant has received several awards for excellence and innovation.”

17. NSF Fact Sheet on Fluoridation Chemicals

18. AWWA Standard B703 Fluorosilicic Acid, Section 4.3 'Impurities' subsection 4.3.4 ‘Additional impurity limits may be specified by the purchaser to ensure the material supplied is suitable for water treatment. If additional impurity limits are specified, the purchaser must state the test methodology to be used to determine compliance with the additional limits.’
Legal Liabilities of Fluoridation: Who Bears Them?

Hamilton Board of Health
Monday April 16, 2012
G.W. Cooper, PEng, BEng, MBA
Public Policy Advisor
People for Safe Drinking Water

Key Provisions of Safe Drinking Water Act, 2002:
S.19 - Standard of Care as of January 1, 2013

- Councillors need to:
  - exercise the level of care, due diligence and skill of a reasonably prudent person, and
  - act honestly, competently and with integrity to ensure the protection and safety of the users.

- SDWA Regulation 241-05 permits any resident to seek an MOE investigation on any contravention, enforcement, or appeal issue.
Key Provisions of Safe Drinking Water Act, 2002:
S.20 - Prohibition of Toxic Substances

- S.20(1) prohibits a substance in drinking water that:
  - is or could be harmful to human health,
  - does or could contravene a prescribed standard, or
  - interferes with normal water treatment operations.
- S.20(3) also clearly states that dilution is not a defence.
- Yet governments permit fluoride levels (HFSA) in water up to 150 times higher than lead (10 ppb) and arsenic (0 ppb).

The Three Most Toxic Elements

- Extremely toxic
- Very toxic
- Moderately toxic
- Slightly toxic
- Practically nontoxic

Key Provisions of Safe Drinking Water Act, 2002: S.20 - Prohibition of Toxic Substances Cont’d

- On all 3 counts, S.20(1) prohibits HFSA is in our water, yet:
  - HSFA suppliers disclaim any liability for its purpose or use.
  - Example: “However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use.”
- Councillors ought not tolerate this contravention of S.20.
- Make the most recent HFSA hazmat delivery to the Woodward Treatment Plant the last ever.
Key Provisions of Safe Drinking Water Act, 2002:
S.20 - Prohibition of Toxic Substances Cont’d

- HFSA has never been tested in Canada or the USA for safety against NSF 60, the prescribed standard.
  - Per January 2, 2007 NSF: “NSF International does not evaluate safety of chemicals added to water for the purpose of the treatment or mitigation of disease in humans ...”
  - This means there is no scientific proof that HFSA is safe for us to drink.

- Per the spirit of SDWA S.19 and the letter of S.20, Council’s prudent action is to end fluoridating Hamilton’s drinking water with HFSA.

Conclusions

- Using HFSA contravenes S.20 of the Act as it does not meet NSF-60.

- Serious doubts exist about the objectivity and credibility of advice from Medical Officers of Health:
  - They must promote and defend fluoridation.
  - They are not research experts on fluoridation.

- Hence Council’s decision must meet the S.19 due diligence test.

- We call, per the spirit of SDWA S.19 and the letter of S.20, on Council to be prudent by ending the fluoridation of Hamilton’s drinking water with HFSA.
Risk, Science and Politics: Why Hamilton Should Continue To Fluoridate Its Water Supply

Simon J. Kiss, PhD and Andre Perrella, PhD
Wilfrid Laurier University
Laurier Institute For The Study Of Public Opinion And Policy (LISPOP)
http://www.lispop.ca
April 13, 2012

I am a political scientist at Wilfrid Laurier University and one of my major research interests is the politics of the environment and risk perception. Rather than seeing risks as objective phenomena, I see risks as political constructs. Science is very good at ascertaining relations between facts, but risks are much more than that. Inevitably, risks involve some kind of cost benefit calculation that *must* rely on individual values for its completion. That makes risks inherently political. With this perspective in mind, a colleague and I associated with the Laurier Institute For The Study Of Public Opinion And Policy, conducted a public opinion survey of voters in Waterloo about their views on fluoridation. Voters there overturned municipal fluoridation in 2010, which we thought surprising and curious. In the presentation to the Hamilton Board of Health, I will make the case that risks inherently involve value (political) judgements and that scientific evidence should be evaluated with this in mind.

Opposition to water fluoridation has a long history and has two major political roots. Most people consider opposition to water fluoridation to be a manifestation of radical libertarianism and anti-communism. The archetypal image here is the mad general in Dr. Strangelove who feels that water fluoridation is a manifestation of a communist plot. Indeed, libertarian opposition to medical treatment by the state. The second, source of opposition - and one which actually predates the anti-communist strand - is the opposition to modern food production and medicine. Thus, many of the original opponents to municipal fluoridation in the United States, Canada and Great Britain were actually people who were active in the organic
food and alternative medicine movements, including the anti-vaccination movements. This is why opposition to fluoridation does not map itself easily onto the traditional left-right divide of the political spectrum.

We found evidence of this in our survey. We found that some of the strongest predictors of anti-fluoridation attitudes was a mistrust of modern medicine and a fear of vaccinations.

Given that none of us are physical scientists, but acknowledging that Health Canada has studied and supported municipal fluoridation as both safe and beneficial, I would encourage the Board of Health to think about its own political values and the political values of the people who oppose it. Framing the debate in this way, the Board will start to see that the opponents of municipal fluoridation are not just motivated by any scientific evidence they can muster, but they are motivated by their own values of hostility to modern medicine (including vaccines) and to bureaucracies such as the public health department taking important actions to improve citizens' health.

Survey Notes

This public opinion survey was conducted in July 2011 by the Survey Research Center of the University of Waterloo. It as a random probability sample of 610 residents of the region of Waterloo (540 landlines and 70 cell phone residents).

Selected Findings From The Survey
Figure 1: These graphs show the distribution of opinions from our public opinion survey of Waterloo residents (summer 2011) on some dependent variables. Notice that most people agree that fluoride reduces cavities, but there is a strong minority of people who agree that fluoride is not good for you. Moreover, on the question of whether the government should oblige mandatory medical treatments, people are split 50-50.
Figure 2: We combined people based on their combined responses to the questions about whether there were benefits to fluoridation and whether there were risks to fluoridation. Those who said it was beneficial and safe (by far, the plurality of people) were put in one cluster; those who thought there were no benefits and some risks were put in another cluster. The rest of the people mostly believed that there were benefits to fluoridation but maybe some risks and they were put in a third cluster.
Figure 3: This is called a mosaic plot and it shows the distribution of views on fluoridation by views on vaccine skepticism. First, the graph is split vertically, according to how many people are in each fluoride cluster. Notice that the thickest, widest row corresponds to those who think that fluoridation is both beneficial and safe and that the rows get narrow moving down the graph. This corresponds to the distribution of opinions in Figure 2. Then, the cells are split vertically according to the distribution of opinions about vaccine skepticism. The numbers in each cell are row percentages; thus, 14% of people who believe that fluoridation is safe and beneficial believe also that vaccines are too much for young people to handle, while 86% of people who believe that fluoridation is safe and beneficial believe that vaccines are safe for children. By contrast, 46% of people who believe that fluoridation has no benefits and is risky also believe that vaccines are too much for young people to handle. Note also, as one moves downward toward fluoridation skepticism, vaccine skepticism also rises. If these two opinions were totally independent of each other, we would not expect to see this kind of pattern. The color codes simply represent over representation and underrepresentation compared to a strictly random distribution. Cells shaded pink have statistically significantly less respondents than we would expect by chance alone, while cells shaded blue have statistically significantly more respondents. One can tell, there is an overrepresentation of fluoridation skeptics who are also vaccine skeptics and there is an overrepresentation of fluoridation trusters who are also vaccine trusters. The authors also fit a multivariate model controlling for age, education and gender and found that the relationship with vaccine skepticism held strongly.