From: Sheldon Thomas  
Sent: April 11, 2012 9:28 PM  
To: clerks  
Subject: Water fluoridation

Dear Ms. Critchley,

I have been a silent observer for a number of weeks, and am aware that the City of Windsor will soon decide whether to continue fluoridation, or to end the practice.

I'd like to provide some background information that will help councillors to understand the actual effects of fluoridation. To support fluoridation in the face of all of the risks, one must be convinced that the practice does as is advertised.

I would greatly appreciate if this document could be added to the Mayor’s and to councillor agendas prior to the final debate.

Respectfully,

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Artificial Water Fluoridation

In a word .. Ineffective

The 65 year fluoride experiment needs to end

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April 2012
**Water Fluoridation is INEFFECTIVE**

**It is important to know the following**

1. **Ingested** fluoride’s cavity prevention benefit has never been proven.

2. Cavity rates are virtually the same comparing fluoridated communities with non-fluoridated communities . *throughout the world.*

3. Cavity rates are often lower and dental health better in non-fluoridating communities.

4. Cavities are still a problem in communities that have been fluoridated for decades . *water fluoridation has not delivered the promised benefits.*

5. Fluoridation is not the great social equalizer. The program has failed to reduce cavities among the poor and disadvantaged where cavity rates remain high.

6. Once hailed as ‘Safe for All!’, the risk of excessive fluoride to infants and children is now clear in warnings issued by the Centres for Disease Control (CDC) and the American Dental Association (ADA).

7. Water fluoridation was long-promoted as necessary to fortify enamel during early tooth formation (pre-eruption). Now it is accepted that any benefit from fluoride is from direct topical application to fully emerged teeth.

**Pro-fluoride claim #1:** Ingested fluoride protects dental enamel by allowing the saliva to continually bathe the teeth with systemic fluoride.

**Actual finding:** Major dental researchers concede that fluoride is ineffective at preventing pit and fissure tooth decay, which is 85% of the tooth decay experienced by children (*JADA 1984; Gray 1987; White 1993; Pinkham 1999*). The saliva ‘fluoride bath’ does not protect the chewing surfaces of teeth. Fluoride presence in saliva is so minute that its benefit anywhere in the oral cavity is questioned.

Even though the teeth are bathed 24/7 by fluoridated saliva, cavities continue to decimate the chewing surfaces of teeth. Because fluoride is so utterly ineffective at these surfaces, dentists resort to expensive multiple applications of sealants to reduce the chances of cavities forming.

It is widely accepted today that *direct topical application* of pharmaceutical quality fluoride may help reduce cavities, but only on the smooth surfaces of teeth.

There was never a need before, and there is not any need now, to swallow fluoride with drinking water.
**Pro-fluoride claim #2:** Water fluoridation assists in the fortifying of tooth enamel during early tooth formation (pre-eruption)

**Actual finding:** There is a great risk in supplying fluoridated water to infants, and fluoride's limited benefits can only be known by having a dentist apply pharmaceutical grade fluoride directly to **fully emerged** teeth.

- "Fluoride incorporated during tooth development is insufficient to play a significant role in caries protection."

- "The case is essentially a risk-benefit issue - fluoride has little pre-eruptive impact on caries prevention, but presents a clear risk of fluorosis."

- "Current evidence suggests that the predominant beneficial effects of fluoride occur locally at the tooth surface, and that systemic (pre-eruptive) effects are of much less importance."

- "Until recently the major caries-inhibitory effect of fluoride was thought to be due to its incorporation in tooth mineral during the development of the tooth prior to eruption...There is now overwhelming evidence that the primary caries-preventive mechanisms of action of fluoride are post-eruptive through 'topical' effects for both children and adults."

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**Pro-fluoride claim #3:** Artificial water fluoridation protects the teeth of the poor and the disadvantaged who cannot afford dental services.

**Actual findings:**

- "The prevalence of dental caries in a population is not inversely related to the concentration of fluoride in enamel, and a higher concentration of enamel fluoride is not necessarily more efficacious in preventing dental caries."
"Until recently most caries preventive programs using fluoride have aimed at incorporating fluoride into the dental enamel. The relative role of enamel fluoride in caries prevention is now increasingly questioned, and based on rat experiments and re-evaluation of human clinical data, it appears to be of minor importance..."


The worst tooth decay in the United States occurs in the poor neighborhoods of the largest cities, the vast majority of which have been fluoridated for decades.

Income level is strongest indicator of tooth decay, regardless of water fluoridation

"Low income is the single best predictor of high caries [cavity] experience in children. Analysis of data shows that the amount of tooth decay in children is inversely related to income level." American Dental Association (ADA, 2009)

In 1988, an editorial published in the Journal of Dental Research (Newbrun, 1988) reported that "About 20 to 25 percent of children are at relatively high risk of caries, despite the declining caries prevalence in the 'fluoride generation'." The high-risk children included the poor.

Edelstein and Douglass, 1995: "Minority, low-income and under-served groups continue to experience extensive destruction in both primary and permanent teeth."

The most recent oral health statistics (1999-2004) show a direct link with tooth decay and poverty level. For example, the incidence of caries is much higher in children from families with lower income levels:

<table>
<thead>
<tr>
<th>% Caries rate for</th>
<th>% Caries rate for</th>
<th>% Caries rate for</th>
<th>Family Income as % Federal Poverty Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-5 year-olds</td>
<td>6-9 year-olds</td>
<td>13-15 year-olds</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>68</td>
<td>62</td>
<td>&lt;100</td>
</tr>
<tr>
<td>36</td>
<td>63</td>
<td>60</td>
<td>100-199</td>
</tr>
<tr>
<td>28</td>
<td>46</td>
<td>53</td>
<td>200-399</td>
</tr>
<tr>
<td>19</td>
<td>44</td>
<td>51</td>
<td>400-499</td>
</tr>
<tr>
<td>11</td>
<td>31</td>
<td>34</td>
<td>&gt;500</td>
</tr>
</tbody>
</table>
In 2008, the U.S. Government Accountability Office (GAO) reported that the extent of dental disease in children has not decreased, and estimated that 6.5 million children two through 18 years of age on Medicaid suffer with untreated tooth decay (GAO, 2008).

In November 2010, the GAO reported "high rates of dental disease and low utilization of dental services by children in low-income families, and the challenge of finding dentists to treat them are long-standing concerns" (GAO, 2010).

Despite claims to the contrary by promoters of fluoridation, low-income children still have high rates of tooth decay even when their drinking water is artificially fluoridated.

In Georgia where fluoridation is state-mandated, 44 percent of 2 to 5-year-old Head Start children have tooth decay.

And although fluoridation is required in North Dakota, tooth decay is present in 82 percent of Native American third grade children (who are often from very low-income families) compared to 54 percent of white children.

In New York City - which is 100 percent fluoridated - 56 percent of low-socioeconomic third grade children have tooth decay, compared to 38 percent of high-socioeconomic third grade children.

Likewise, in Kentucky, with a nearly 100 percent fluoridation rate, nearly 60 percent of third grade children have experienced tooth decay, yet for nearly 35 percent of these children that decay went untreated.

West Virginia, which is 92 percent fluoridated. West Virginia’s tooth decay rate is 66 percent for 15 year-olds. By the time these children graduate from high school, the proportion has increased to 84 percent.

More than 60 Oral Health Care Reports from the 50 States reaffirm that low-income people have the worst dental health.

Proponents of fluoridation would have us believe that as fluoridation rates go up, tooth decay rates will go down. But that hasn’t happened.

Instead, oral health continues to decline among children - especially those from lower income families - and symptoms of fluoride overexposure and toxicity have increased to epidemic proportions, as evidenced by the 41 percent of adolescents aged 12-15 now afflicted with dental fluorosis. (Beltrán-Aguilar et al., 2010).
Pro-fluoride claim #4: Water fluoridation will bring about a reduction in cavities ranging between 40% and 70%.

Actual finding: Cavity rates were declining worldwide before the introduction of artificial water fluoridation and have continued a steady decline. There is no proof that water fluoridation has single-handedly resulted in any cavity reductions.

Non-fluoridated communities all over the world have demonstrated the same decline in cavity rates as have been trumpeted in fluoridated communities.

Non-fluoridated communities often report lower cavity rates than fluoridated, and healthier dental assessments. Residents in non-fluoridated communities also suffer far less dental fluorosis than those in fluoridated communities. Fluorosis describes mottled, porous, damaged tooth enamel caused by excessive fluoride intake.

- Several studies indicate that dental decay is coming down just as fast, if not faster, in non-fluoridated industrialized countries as fluoridated ones (Diesendorf, 1986; Colquhoun, 1994; World Health Organization, Online).

- The largest survey conducted in the US showed only a minute difference in tooth decay between children who had lived all their lives in fluoridated compared to non-fluoridated communities. The difference was not clinically significant nor shown to be statistically significant (Brunelle & Carlos, 1990).

- "Although the prevalence of caries varies between countries, levels everywhere have fallen greatly in the past three decades, and national rates of caries are now universally low. This trend has occurred regardless of the concentration of fluoride in water or the use of fluoridated salt, and it probably reflects use of fluoridated toothpastes and other factors, including perhaps aspects of nutrition."


14 additional studies that support this conclusion are located in Appendix B

Pro-fluoride claim #5: When communities cease water fluoridation, cavity rates will climb substantially.

Actual finding: This claim amounts to nothing more than unsubstantiated intimidation, and an attempt to frighten municipal leaders into maintaining the status quo.
It is a matter of record that a general decline in cavities was underway even before the introduction of artificial water fluoridation in the mid 40's.

Promoters of fluoridation have never proven that ingested fluoride has any impact on cavity reduction.

Study after study demonstrates the expected .. that the ending of water fluoridation will not result in a spike in dental cavities.

Water fluoridation cessation has two effects .. a continued decline in cavities, and a marked reduction in dental fluorosis.

- A recent Canadian study done by the dental officer of health for Toronto, (Azarpazhooh A, Stewart H. 2006) co-authored a meta-analysis of the research which compared communities still using artificial water fluoridation with communities which had stopped artificial water fluoridation (12 papers met the inclusion criteria).
  North American communities that discontinued fluoridation did not experience an increase in the incidence of dental caries. The communities which stopped artificial water fluoridation experienced a reduction in the incidence of dental caries in both absolute terms and relative to communities that continued to fluoridate their drinking water.

- Canadian research paper (Clark et al 2006) concluded that “Following fluoridation cessation of the public water supply, the prevalence and severity of dental fluorosis decreased significantly.”

- Canadian study by Maupome et al. 2001 reported: “The prevalence of caries (assessed in 5,927 children, grades 2, 3, 8, 9) decreased over time in the fluoridation-ended community while remaining unchanged in the fluoridated community.”

- When fluoridation has been halted in communities in Finland, former East Germany, Cuba and Canada, tooth decay did not go up but continued to go down, (Maupome et al, 2001; Kunzel and Fischer, 1997, 2000; Kunzel et al, 2000 and Seppa et al, 2000).

15 additional studies that describe fluoridation cessation are found in Appendix C
Appendix A  
Fluoride’s effects are topical, no need to ingest

- "Although it was initially thought that the main mode of action of fluoride was through its incorporation into enamel, thereby reducing the solubility of the enamel, this pre-eruptive effect is likely to be minor. The evidence for a post-eruptive effect, particularly its role in inhibiting demineralization and promoting re-mineralization, is much stronger."

- "Laboratory and epidemiologic research suggests that fluoride prevents dental caries predominately after eruption of the tooth into the mouth, and its actions primarily are topical for both adults and children."

- "Recent research on the mechanism of action of fluoride in reducing the prevalence of dental caries (tooth decay) in humans shows that fluoride acts topically (at the surface of the teeth) and that there is negligible benefit in ingesting it."

- Major dental researchers concede that fluoride’s benefits are topical not systemic (Fejerskov 1981; Carlos 1983; CDC 1999, 2001; Limeback 1999; Locker 1999; Featherstone 2000).

- "It is now accepted that systemic fluoride plays a limited role in caries prevention."

- "The major anti-caries benefit of fluoride is topical and not systemic."

- "Laboratory and epidemiologic research suggests that fluoride prevents dental caries predominately after eruption of the tooth into the mouth, and its actions primarily are topical for both adults and children" (US Centers for Disease Control 1999, MMWR 48: 933-940).

- "Fluoride is most effective when used topically, after the teeth have erupted."
• "Since the current scientific thought is that the cariostatic activity of fluoride is mainly due to its topical effects, the need to provide systemic fluoride supplementation for caries prevention is questionable."

• "The results of more recent epidemiological and laboratory studies can be summarized by stating that post-eruptive (topical) application of fluoride plays the dominant role in caries prevention."

• "Current evidence strongly suggests that fluorides work primarily by topical means through direct action on the teeth and dental plaque. Thus ingestion of fluoride is not essential for caries prevention."

• "The majority of benefit from fluoride is now believed to be from its topical, rather than systemic, effects."

• "For a long time, the systemic effect of fluoride was regarded to be most important. However, there is increasing evidence that the local effect of fluoride at the surface of the erupted teeth is by far more important."

• "With today’s knowledge about the mechanisms of fluoride action, it is important to appreciate that, as fluoride exerts its predominant effect... at the tooth/oral fluid interface, it is possible for maximum caries protection to be obtained without the ingestion of fluorides to any significant extent."

• "Fluoride’s predominant effect is post-eruptive and topical."

• "Researchers are discovering that the topical effects of fluoride are likely to mask any benefits that ingesting fluoride might have... This has obvious implications for the use of systemic fluorides to prevent dental caries."
Appendix A


- "Critical reviews of the evidence have led to the conclusion that the effect of fluoride in decreasing the prevalence and severity of dental caries is not primarily systemic but exerted locally within the oral cavity."

- "It is now well-accepted that the primary anti-caries activity of fluoride is via topical action."

- "I have argued in this paper that desirable effects of systemically administered fluoride are quite minimal or perhaps even absent altogether."

- "It, therefore, becomes evident that a shift in thinking has taken place in terms of the mode of action of fluorides. Greater emphasis is now placed on topical rather than on systemic mechanisms..."

Appendix B follows
Appendix B Universal decline in cavities worldwide. Fluoridated communities show no advantage in dental decay

World Health Organization Data (2004) - Tooth Decay Trends (12 year olds) in Fluoridated vs. Un-fluoridated Countries

Tooth Decay Trends: Fluoridated vs. Unfluoridated Countries
Data from the World Health Organization - http://www.unicef.org/hod/publent.htm
Graph produced by Chris Neurath, FAN

<table>
<thead>
<tr>
<th>Country</th>
<th>DMFTs</th>
<th>Year</th>
<th>Status*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>0.7</td>
<td>2005</td>
<td>No water fluoridation, but salt fluoridation is common</td>
</tr>
<tr>
<td>Australia</td>
<td>0.8</td>
<td>1999</td>
<td>More than 50% of water is fluoridated; no salt fluoridation</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.8</td>
<td>2006</td>
<td>No water fluoridation or salt fluoridation</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.8</td>
<td>2002</td>
<td>No water fluoridation or salt fluoridation</td>
</tr>
<tr>
<td>Zurich</td>
<td>0.9</td>
<td>2000</td>
<td>No water fluoridation, but salt</td>
</tr>
<tr>
<td>Country</td>
<td>Per Capita Water Fluoride Consumption</td>
<td>Year</td>
<td>Fluoridation Status</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------</td>
<td>------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Switzerland</td>
<td></td>
<td></td>
<td>fluoride is common</td>
</tr>
<tr>
<td>UK (England &amp; Wales)</td>
<td>0.9</td>
<td>2000</td>
<td>11% of water supplies are fluoridated; no salt fluoridation</td>
</tr>
<tr>
<td>Austria</td>
<td>1.0</td>
<td>2002</td>
<td>No water fluoridation, but salt fluoridation is available to a limited extent.</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.0</td>
<td>2005</td>
<td>No water fluoridation or salt fluoridation</td>
</tr>
<tr>
<td>Italy</td>
<td>1.1</td>
<td>2004</td>
<td>No water fluoridation or salt fluoridation</td>
</tr>
<tr>
<td>Belgium</td>
<td>1.1</td>
<td>2002</td>
<td>No water fluoridation or salt fluoridation</td>
</tr>
<tr>
<td>Ireland</td>
<td>1.1</td>
<td>1997</td>
<td>More than 50% of water is fluoridated; no salt fluoridation</td>
</tr>
<tr>
<td>Finland</td>
<td>1.2</td>
<td>2006</td>
<td>No water fluoridation or salt fluoridation</td>
</tr>
<tr>
<td>US</td>
<td>1.28</td>
<td>1992-1994</td>
<td>More than 50% of water is fluoridated; no salt fluoridation</td>
</tr>
<tr>
<td>Iceland</td>
<td>1.4</td>
<td>2005</td>
<td>No water fluoridation or salt fluoridation</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1.7</td>
<td>2005</td>
<td>More than 50% of water is fluoridated; no salt fluoridation</td>
</tr>
<tr>
<td>Norway</td>
<td>1.7</td>
<td>2004</td>
<td>No water fluoridation or salt fluoridation</td>
</tr>
<tr>
<td>France</td>
<td>1.9</td>
<td>1998</td>
<td>No water fluoridation, but salt fluoridation is common</td>
</tr>
</tbody>
</table>

Data from WHO Oral Health Country/Area Profile Programme Department of Noncommunicable Diseases Surveillance/Oral Health WHO Collaborating Centre, Malmö University, Sweden http://www.whocollab.od.mah.se/euro.html

- "In most European countries, where community water fluoridation has never been adopted, a substantial decline in caries prevalence has been reported in the last decades, with reductions in lifetime caries experience exceeding 75%.

- "The most recent World Health Organization data, show that the decline in dental decay in recent decades has been comparable in 16 non-fluoridated countries and 8 fluoridated countries. The WHO data do not support fluoridation as being a reason for the decline in dental decay in 12 year olds that has been occurring in recent decades." SOURCE: Neurath C. (2005). Tooth decay trends for 12 year olds in nonfluoridated and fluoridated countries. Fluoride 38:324-325.
• "It is remarkable... that the dramatic decline in dental caries which we have witnessed in many different parts of the world has occurred without the dental profession being fully able to explain the relative role of fluoride... the wide distribution of fluoride from toothpastes may be a major explanation. Dental caries is not the result of fluoride deficiency."

• "A very marked decline in caries prevalence [in Europe] was seen in children and adolescents...The number of edentulous adults in Europe has also been declining considerably."

• "Caries prevalence data from recent studies in all European countries showed a general trend towards a further decline for children and adolescents...The available data on the use of toothbrushes, fluorides and other pertinent items provided few clues as to the causes of the decline in caries prevalence."

• "There is a general agreement that a marked reduction in caries prevalence has occurred among children in most of the developed countries in recent decades."

• "The regular use of fluoridated toothpastes has been ascribed a major role in the observed decline in caries prevalence in industrialized countries during the last 20 to 25 years, but only indirect evidence supports this claim."

• "The marked caries reduction in many countries over the last two decades is thought to be mainly the result of the widespread and frequent use of fluoride-containing toothpaste... There seem to be no other factors which can explain the decline in dental caries, which has occurred worldwide during the same period, in geographic regions as far apart as the Scandinavian countries and Australia/New Zealand."

• "Although difficult to prove, it is reasonable to assume that a good part of the decline in dental caries over recent years in most industrialized countries, notably those Northern European countries without water fluoridation, can be explained by the widespread use of fluoride toothpastes."
This reduction in caries has not been paralleled by a reduction in sugar intake...”

- "During the past 40 years dental caries has been declining in the US, as well as in most other developed nations of the world... The decline in dental caries has occurred both in fluoridated and in non-fluoridated communities, lending further credence to the notion that modes other than water fluoridation, especially dentifrices, have made a major contribution."

- "The current reported decline in caries tooth decay in the US and other Western industrialized countries has been observed in both fluoridated and non-fluoridated communities, with percentage reductions in each community apparently about the same."

- "During the period 1979-81, especially in western Europe where there is little fluoridation, a number of dental examinations were made and compared with surveys carried out a decade or so before. It soon became clear that large reductions in caries had been occurring in un-fluoridated areas. The magnitudes of these reductions are generally comparable with those observed in fluoridated areas over similar periods of time."

- "Even the most cursory review of the dental literature since 1978 reveals a wealth of data documenting a secular, or long term, generalized decline in dental caries throughout the Western, industrialized world. Reports indicate that this decline has occurred in both fluoridated and fluoride-deficient areas, and in the presence and absence of organized preventive programs."

Appendix C follows
Appendix C

Additional published, peer-reviewed research that describe positive dental results after cessation of water fluoridation:


Recent Reviews of Cessation Studies


end