Submission to Tecumseh Council for the record and for consideration re: fluoridation

Dr. Hardy Limeback BSc PhD (Biochem) DDS
Professor Emeritus, University of Toronto
Former Head of Preventive Dentistry,
Member of the 2006 US NRC Committee on Fluoride in Drinking Water
Dear Councilors:

• I am submitting a critique of the slides sent to Windsor by Dr. J. Johnson prior to the decision to re-start fluoridation (my comments in red)

• I am also sending slides of my own for your consideration which you’ll find throughout the critique
The American Fluoridation Society formed in response to increasing anti-fluoridation sentiment (e.g. ≈ 6000 professional opposed to fluoridation).

Dr. Steven Slott from the AFS is a social media troll. You'll find him on the comments section of the Windsor online papers.

Dr. Johnson’s slide

Dr. Johnson, a retired dentist, is the self-proclaimed president of AFS who is funded by industry to present to town councils wherever fluoridation is being considered.
No ‘salary’ accepted (except the expenses paid for by the AFS)

The AFS considers weak evidence for effectiveness as gospel and evidence of harm as flawed

<table>
<thead>
<tr>
<th>Disclosures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial: None</td>
</tr>
<tr>
<td>American Fluoridation Society-A group of healthcare professionals that work on a purely volunteer basis to provide evidence-based information on fluoridation</td>
</tr>
<tr>
<td>Provide technical assistance and knowledgeable testimony when requested</td>
</tr>
<tr>
<td>Healthcare professionals whose children and grandchildren are growing up drinking fluoridated water</td>
</tr>
</tbody>
</table>

AFS sends Dr. JJ to wherever fluoridation is at risk

Added a personal element here but many dentists actually drink filtered water at home to avoid fluoridated water
Actually only a few less cavities, with most exposed kids with disfigured teeth worse than cavities. In fact there are also more cavities in kids with severe fluorosis.
NONE of these problems occur in countries with adequate access to dental care.

-America fails to provide basic dental care to the poor and thinks fluoridation is the answer -it isn’t.

Fluoridation has been linked to an increase in diabetes.

Deamonte Driver died from an infected tooth because no American dentist would treat him. He was on Medicaid. The system failed him. He lived in fluoridated Prince George County Maryland (next to DC).

Dr. Johnson’s slide
These severe cases of dental decay are used for shock value. Showing baby bottle tooth decay is dishonest. Even if fluoridation works it might save ONE of those teeth from decay but they would never get this bad with adequate access to dental care.

Inner-city kids in fluoridated cites have 2X more dental decay due to many factors unrelated to fluoride.

According to research, low socio-economic status is the main reason for dental decay.
Somebody made this quote up at the CDC and it stuck.

Environmentalists and public health critics say it is one of top 10 disasters of the 21st century.

<table>
<thead>
<tr>
<th>A (big) ounce of prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>The CDC has called fluoridation one of “10 great public health achievements of the 20th century.”</td>
</tr>
<tr>
<td>Fluoridation reduces tooth decay by 25% over a lifetime — protection beyond what is offered by fluoride toothpaste and other preventive methods.</td>
</tr>
<tr>
<td>Over 211 million U.S. residents, 3 out of 4 people, have access to fluoridated water.</td>
</tr>
</tbody>
</table>

This translates to only 0.5 to 1 fillings saved per person AFTER A LIFETIME OF DRINKING FLUORIDATED WATER -percentages are used to hide how little it works.

Many states have mandatory fluoridation -communities should not be forced

Dr. Johnson’s slide
Proponents of fluoridation claim they have all the science.
and the opponents have NONE?

This is blatantly false.

Dr. Johnson’s slide
It is hard to believe that Dr. Johnson claims “ALL FALSE” despite overwhelming peer-reviewed research says most are true.

**Claims by Opponents: ALL FALSE**

<table>
<thead>
<tr>
<th>Claims</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO data shows cavities coming down all countries the same regardless of CWF</td>
<td>ADA states don’t use in infant formula</td>
</tr>
<tr>
<td>Allergies to fluoridation</td>
<td>No Toxicological Testing has been done!</td>
</tr>
<tr>
<td>Topical Effect, not systemic</td>
<td>Down Syndrome</td>
</tr>
<tr>
<td>Cochrane Oral Health Group says it isn’t effective</td>
<td>Breast milk fluoride level—“Mother Nature knows best”</td>
</tr>
<tr>
<td>Thyroid problems</td>
<td>Effects on the renal, gastrointestinal, and immune systems, reproductive problems</td>
</tr>
<tr>
<td>Pharmaceutical Grade Fluoride</td>
<td>Fluorosis is sign of toxic effects on body</td>
</tr>
<tr>
<td>Forced Medication</td>
<td>Government Conspiracy—dentists taught to believe it works but industry needed to dispose of it</td>
</tr>
</tbody>
</table>

**Tuberculosis**

Definitely true

- AIDS: never claimed, others some evidence
- Fluorosis IS actually a sign of fluoride toxicity
- Immune effects, yes—others inconclusive

Definitely true: not one RCT

More evidence now

- ADA did in 2006 then backtracked
- Absolutely true
- Inconclusive

Yes, even after a plebiscite

Accusing conspiracy works, huh?

Definitely true

- It IS a waste product not pharmaceutical

**Sensitivities, yes**
Spencer & Limeback – Medical Hypoth-2018 showed that the NTP rat study was rigged to fail.

The NTP review of the literature found moderate evidence of neurotoxicity of fluoride.

Dr. Johnson’s slide:

On over 10 different tests no difference in:

- learning
- memory
- sensory performance
- place preference
- pain perception
- motor performance
- nerve cell death
- brain cell microscopy
- Thyroid hormones
- Heart, liver, kidney, and sexual organs
Anyone reading our report would be worried about even low fluoride exposure which we reviewed. We recommended lowering the max.

**Claim:** NRC’s 2006 report shows CWF is harmful

As the report explained, the EPA’s maximum limit on fluoride is “set at a concentration at which no adverse health effects are expected to occur and the margins of safety are judged ‘adequate’.”

This is **FALSE**

Dr. Johnson’s slide
Clearly J. Johnson did NOT read the report
The x’s certainly do not reflect what is in the report

Dr. Johnson’s slide

Was there evidence at 4.0 ppm showing that fluoride had an effect on…?

- Tooth enamel
- Liver
- Kidneys
- Endocrine system
- Gastrointestinal system
- Immune system
- Cancer
- Musculoskeletal system
- Reproduction and development
- Neurotoxicity and neurobehavioral
- Genetic damage

28% of kids now have moderate dental fluorosis that CAN be seen and 2.8% have this kind (severe).

**Claim:** Fluorosis is a “toxic” effect

- Dental fluorosis is a change in the appearance of tooth enamel due to a high level of exposure to fluoride during the tooth-forming years.
- Dental fluorosis is typically a mild cosmetic effect that:
  - does not cause pain
  - does not affect the health or function of the teeth. It’s so subtle most people don’t even notice fluorosis.
- Dental fluorosis can only occur up to age 8, while permanent teeth are developing.

A lifetime accumulation of fluoride in adult teeth makes them brittle and yellow.

Dr. Johnson’s slide
Significant occurrences of severe fluorosis DOES occur in fluoridated areas

The more fluoride, the more serious dental fluorosis - the majority comes from water (NRC Report)

Dr. Johnson’s slide

(Source: Information from the Centers for Disease Control and Prevention’s website, accessed in October 2019, at http://www.cdc.gov/dentalhealth/FAQs/dental_fluorosis/index.htm)
The Cochrane review was done by dentists, partially funded by the CDC.

No randomized clinical trials (estimate based on old, weak studies)

CLAIM: The Cochrane review found no evidence that fluoridation works

- **Wrong.** Cochrane found that fluoridation reduced decay in baby teeth by 35% and reduced decay in permanent teeth by 26%.
- **CDC:** Cochrane used strict criteria that excluded “many valid, peer-reviewed studies (that) document the effectiveness of community water fluoridation.”

Dr. Johnson’s slide

This is what the CDC now admits. No study to support that fluoridation works in adults so this is wishful thinking.

Dr. Johnson’s slide

CLAIM: Fluoride works topically, not by being swallowed

Studies show fluoride works through both topical and systemic effects.

- It’s beneficial before teeth fully appear in a child’s mouth
- Continuous exposure to small amounts of fluoride helps both adults and children by remineralizing the tooth enamel.

Fluoridated salt programs have never been shown to work.

Most European countries have achieved lower dental decay rates without fluoridation.

Dr. Johnson’s slide

**CLAIM:** Europe is 97% fluoridation-free

Don’t be misled:

- **Fluoridated water** reaches 13 million people in England, Ireland and Spain.
- **Fluoridated salt** reaches over 75 million in Germany, France, Belgium and other countries.
- Nearly all European nations use fluoride-rinse programs, fluoridated milk or other targeted fluoride programs.


Most European countries have achieved lower dental decay rates without fluoridation.
These are all essential. Fluoride is not essential. It’s actually a poison.

Dr. Johnson’s slide

This makes no sense
This makes no sense.

Fluoride is NOT recommend at all from birth to 6 mo.

Dr. Johnson’s slide
What the ADA is saying is that fluoride is so poisonous they don’t want toddlers to be exposed to more than an extremely small amount of fluoride.

Dr. Johnson’s slide

The right amount of fluoride toothpaste

Once teeth appear, parents should **use a smear** of fluoride toothpaste (roughly a grain of rice) on their child’s brush until age 3

For ages 3 to 6, parents should **use a pea-sized amount** on the toothbrush

Fluoridation in no way can prevent this kind of decay. This is scare mongering.

Dr. Johnson’s slide
It is hard to believe that the Surgeon General would advocate for fluoridated beverages (e.g. fruit drinks, pop) to prevent dental decay, since research shows they WORSEN dental decay.

CLAIM: There are better alternatives

“A significant advantage of water fluoridation is that anyone, regardless of socioeconomic level, can enjoy these health benefits during their daily lives... simply by drinking fluoridated water or beverages prepared with fluoridated water.”

Dr. David Satcher, U.S. Surgeon General 1998-2002

There is no evidence that fluoridation reduces baby bottle tooth decay or hospital surgeries but the claims are made anyway.

Dr. Johnson’s slide
The most biased pro-fluoridation website

Reference Websites

www.AmericanFluoridationSociety.org
AFS’s website provides a variety of fact sheets and other resources to support the efforts of health professionals and advocates. AFS’s officers are volunteers who do not receive salaries for their work.

www.cdc.gov/fluoridation
This is the Centers for Disease Control and Prevention’s resources related to community water fluoridation. There are a lot of helpful materials, including FAQs.

Dr. Johnson’s slide
Who promotes fluoridation in Canada?

• Health Canada
• The Canadian and Ontario Dental Associations
• Public health dentists
• Public Health Agencies
• All medical officers of health
• etc.
Who is accountable for injury to people from fluoridation?

- only municipalities (councilors) (Ontario Fluoridation Act, Municipal Act, Safe Drinking Water Act)
- water works employees when something goes wrong (Walkerton)
- **not** Medical Officers of Health (who are paid to promote fluoridation) who can’t enforce it and so can’t be sued if the city fluoridates and ends up hurting some people
## Ontario Public Health Paid Fluoridation Promoters

<table>
<thead>
<tr>
<th>region</th>
<th>name</th>
<th>position</th>
<th>2017 salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>David Williams</td>
<td>Chief Medical Officer of Health, Public Health and Long-Term Care</td>
<td>$386,806.68</td>
</tr>
<tr>
<td>North Bay/Parry Sound</td>
<td>James Chirico</td>
<td>Medical Officer of Health, Executive Officer</td>
<td>$311,248.60</td>
</tr>
<tr>
<td>Hamilton</td>
<td>Elizabeth Richardson</td>
<td>Medical Officer of Health</td>
<td>$289,618.34</td>
</tr>
<tr>
<td>Simcoe-Muskoka</td>
<td>Charles Gardner</td>
<td>Medical Office of Health</td>
<td>$283,566.03</td>
</tr>
<tr>
<td>Lambton-Sarnia</td>
<td>Sudit Ranade</td>
<td>Medical Officer of Health</td>
<td>$270,495.24</td>
</tr>
<tr>
<td>London</td>
<td>Christopher Mackie</td>
<td>Medical Officer of Health, CEO</td>
<td>$258,669.21</td>
</tr>
<tr>
<td>Windsor</td>
<td>Wajid Ahmed</td>
<td>Acting Medical Officer of Health</td>
<td>$249,136.28</td>
</tr>
<tr>
<td>Toronto</td>
<td>Eileen P DeVilla</td>
<td>Medical Officer of Health*</td>
<td>$215,871.13</td>
</tr>
<tr>
<td>Peel</td>
<td>Jessica Hopkins</td>
<td>Medical Officer of Health*</td>
<td>$158,389.52</td>
</tr>
</tbody>
</table>

Source: ontario.ca/page/public-sector-salary-disclosure

* appointed in 2017
Medical officer of health Dr. Hazel Lynn holds up a picture of a child’s teeth. Lynn said water fluoridation prevents tooth decay and is a safe practice. Others disagree. (JAMES MASTERS/QMI AGENCY)

Dr. Hazel Lynn's salary was > $300,000 before retiring.

Dr. Hazel Lynn,
Medical officer of health,
Owen Sound, Ontario

This tooth decay is NOT caused by a ‘lack of fluoride’ in the drinking water!!

This is scare-mongering

Dr. Lynn’s salary was > $300,000 before retiring
What happened in Windsor???

Dr. Ahmed misled the Windsor Council by insinuating that fluoridation cessation caused a dramatic increase of dental decay - their own report clearly shows the fluoridation status did not have anything to do with the dental decay rates (see next slide)
Figure 15. The percentage of caries-free children in public schools by community fluoridation status and school year, Windsor-Essex County (JK, SK and Grade 2 combined - 2011-2017).

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</tr>
</thead>
<tbody>
<tr>
<td>Previously fluoridated - %</td>
<td>61.2</td>
<td>63.9</td>
<td>60.8</td>
<td>60.5</td>
<td>61.0</td>
<td>56.5</td>
</tr>
<tr>
<td>Never Fluoridated - %</td>
<td>67.8</td>
<td>68.7</td>
<td>66.7</td>
<td>67.6</td>
<td>61.4</td>
<td>58.7</td>
</tr>
</tbody>
</table>


Note: Never fluoridated refers to Kingsville, Essex, and Leamington; Previously fluoridated refers to Windsor, LaSalle, and Tecumseh. Pelee was excluded to low sample size.
Dr. Ahmed misled the Windsor Council by stating that fluoridation cessation caused a dramatic increase of day surgeries related oral problems - their own report clearly shows they did not change (see next slide)
Figure 8. The rate of day surgeries for oral health (caries-related) issues in Windsor-Essex County (WEC) and Ontario (ON), 2010-2016.

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</thead>
<tbody>
<tr>
<td>WEC</td>
<td>350.6</td>
<td>368.8</td>
<td>336.0</td>
<td>309.0</td>
<td>309.7</td>
<td>309.2</td>
<td>300.6</td>
</tr>
<tr>
<td>ON</td>
<td>114.9</td>
<td>115.8</td>
<td>114.1</td>
<td>110.0</td>
<td>110.2</td>
<td>107.7</td>
<td>104.0</td>
</tr>
</tbody>
</table>

Source: Ambulatory Emergency External Cause [2010-2016], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [March 19, 2018].
Dec. 2018: the city of Windsor newly elected council was convinced into reversing a previous council decision and voted to restart fluoridation, based, in part, on the false testimony of an American fluoridation pusher. The on Jan. 6, 2019, AM800 interviewed him, allowing him to further mislead the people of Windsor.

Listen to the interview here.
J. Johnson regularly makes stuff up. He is not a credible source of information.

Dr. Hardy Limeback (member of the 2006 NRC Committee)......he agreed that there were absolutely zero health effects from fluoride in water at what we call the max amt. allowable in the United States of 4 ppm. that is 6 X what Windsor had....”

“Under 2 ppm you do not get staining of the teeth that is brown or pitted.”

....”No Health effects... none of that was found at 4 ppm. “

....”So to pull information out, and to turn that information to suit the needs of which you are trying to accomplish, that is to rob children and adults of a cavity fighting mineral....that is, should be criminal.”

These statements are patently false.

This is a total fabrication.

Claiming the NRC Report is criminal? Seriously?
What the NRC 2006 Report said about fluoride and 

**TEETH**

“the committee concluded unanimously that the present MCLG of 4 mg/L for fluoride should be lowered. Exposure at the MCLG clearly puts children at risk of developing severe enamel fluorosis, a condition that is associated with enamel loss and pitting.”

With regard to dental fluorosis, we estimated that for a fluoride level of 0.7 ppm the percentage of participants with fluorosis of aesthetic concern was approximately 12% (Cochrane Review, 2015)
There certainly WAS severe fluorosis reported in the US and outside the US where drinking water had 1 ppm fluoride.

**FIGURE 4-3** Prevalence of severe enamel fluorosis at the person level by water fluoride concentration, permanent teeth, age < 20 years, communities outside the United States.

<table>
<thead>
<tr>
<th>Study</th>
<th>Teeth</th>
<th>Fluorosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States (Driscoll et al. 1986)</td>
<td>8-16 All</td>
<td>218 Very mild to moderate 54 Severe</td>
</tr>
<tr>
<td>United States (Eklund et al. 1987)</td>
<td>27-65 Molars</td>
<td>38 Mild to moderate 125 Severe</td>
</tr>
<tr>
<td></td>
<td>Premolars</td>
<td>38 Mild to moderate 125 Severe</td>
</tr>
<tr>
<td></td>
<td>Anterior</td>
<td>38 Mild to moderate 125 Severe</td>
</tr>
</tbody>
</table>
What the NRC 2006 Report said about fluoride and BONES

“...under certain conditions fluoride can weaken bone and increase the risk of fractures. ... lifetime exposure to fluoride at ...4 mg/L or higher is likely to increase fracture rates in the population...

Toronto vs Montreal Bone Study

-actually we showed bone changes with fluoridation

Chachra D. Limeback H. et al. J Dent Res. 2010
What the NRC 2006 Report said about fluoride and BRAIN EFFECTS

“A few epidemiologic studies of Chinese populations have reported IQ deficits in children exposed to fluoride at 2.5 to 4 mg/L in drinking water. Although the studies lacked sufficient detail for the committee to fully assess their quality and relevance to U.S. populations, the consistency of the results appears significant enough to warrant additional research on the effects of fluoride on intelligence.”
What the NRC 2006 Report said about fluoride and ENDOCRINE EFFECTS

“The chief endocrine effects of fluoride exposures in experimental animals and in **humans** include decreased **thyroid** function, increased calcitonin activity, increased **parathyroid** hormone activity, secondary hyperparathyroidism, **impaired glucose tolerance**, and possible effects on timing of **sexual maturity**. Some of these effects are associated with fluoride intake that is achievable at fluoride concentrations in drinking water of 4 mg/L or less, especially for young children or for individuals with high water intake.”
What the NRC 2006 Report said about fluoride and CANCER

“On the basis of the committee’s collective consideration of data from humans, genotoxicity assays, and studies of mechanisms of action in cell systems (e.g., bone cells in vitro), the evidence on the potential of fluoride to initiate or promote cancers, particularly of the bone, is tentative and mixed.”
This slide from J. Johnson is a total fabrication—he could not have read the NRC 2006 report.

Was there evidence at 4.0 ppm showing that fluoride had an effect on…?

- Tooth enamel ✓
- Liver ✗
- Kidneys ✗
- Endocrine system ✗
- Gastrointestinal system ✗
- Immune system ✗
- Cancer ✗
- Musculoskeletal system ✗
- Reproduction and development ✗
- Neurotoxicity and neurobehavioral ✗
- Genetic damage ✗

There is huge confusion regarding fluoride toxicity

- Fluoride supplement
- 0.25mg of fluoride
- DO NOT prescribe for babies

= Pea-sized dab of toothpaste
- 0.25mg of fluoride
- Monitor children! Make sure they SPIT IT OUT!

= One glass of 0.7ppm water
- 0.25mg of fluoride
- No Risk. SWALLOW REPEATEDLY!
Updated Canadian Dental Association
Fluoride Recommendation

• The Canadian Dental Association (CDA) no longer recommends fluoride supplements of any kind
• the CDC now recommends a pea size amount of fluoride toothpaste for children > 3 yrs.
• It also recommends a ‘rice size’ amount for toddlers age 6 mo. to 3 yrs. (NO FLUORIDE under 6 mo. of age)
• the max. intake should be 0.05 to 0.07 mg fluoride/kg/day
Canadian Dental Association Recommendation to prevent dental fluorosis

“the total daily fluoride intake from all sources should not exceed 0.05-0.07 mg/kg/day”

Infant Formula up to 0.5 ppm

Fluoridated water 0.7 – 1.0 ppm

400% higher

= 0.20 mg fluoride/kg/day

Who monitors my fluoride intake?
COLGATE SELLS FLUORIDE-FREE TOOTHPASTE BECAUSE OF CONSUMER DEMAND

The ADA recommends a ‘rice’ size amount of fluoride toothpaste for toddlers Because swallowing more than THAT is harmful!!!

Are cities willing to provide safe, fluoride-free water if there is a demand?
When drinking water is fluoridated to 0.7 ppm it is the main reason for the resulting dental fluorosis

• tap water fluoride is by far the largest contributor to total fluoride intake in infants

• dozens of studies show exclusive breast feeding protects infants against dental fluorosis later in life

• dental fluorosis has now been linked to ADHD and lowered IQ
Fluoridation causes more damage to teeth due to dental fluorosis than the damage from decay without fluoridation.
Fluoridation - not a good trade off anymore
- 40 years of exposure might save one tooth from decay
BUT, look at the dental fluorosis, which costs much more now to treat than the one filling saved.

out of 100 children
100 fillings might be saved
=$20,000

CDC (2004) “The prevalence of very mild fluorosis increased from 17.2% to 28.5% and mild fluorosis increased from 4.1% to 8.6%. The prevalence of moderate and severe fluorosis increased from 1.3% to 3.6%.”

Mild
8.6% children out of 100 needing cosmetics at $1000/child
=$8,600

Moderate
3.6 children requiring cosmetics up to $20,000/child
=$72,000

Severe

Total = $80,600
Recent international research shows that increased fluoride intakes during pregnancy is associated with preterm births (Jiménez et al, Neurotoxicology, 2017). Windsor should be fluoridation free—there is a risk of increasing pre-term births again if fluoridation is re-introduced in Windsor’s drinking water.

Preterm births in Essex County while Windsor was fluoridated (Meng G. PhD Thesis, Univ. Waterloo, ON Canada, 2010)

Prepared by Jennifer Marett and Hardy Limeback
There are several studies now linking prenatal fluoride exposure and negative effects of the offspring

- ADHA
- lowered IQ
- lowered thyroid function
- pre-term births
Conclusion

• do not make the same mistake as Windsor
• you have the power to reverse their decision by convincing LaSalle that both communities refuse to accept fluoridated water from Windsor (the Fluoridation Act requires LaSalle and Tecumseh to agree to Windsor’s move)
• protect your citizens, even if you have to find water elsewhere (the town of Essex stayed fluoride free).
Essex town council says 'no' to fluoride in drinking water

Coun. Sherry Bondy raised the motion and said it's not the municipality's responsibility

CBC News - Posted: Jul 04, 2018 11:03 AM ET | Last Updated: July 4, 2018

In a unanimous vote Tuesday night, Essex town council rejected a proposal to add fluoride to drinking water. (iStock)