Speaking up for water fluoridation

Scientific Facts vs Opinion

2020 Missouri Oral Health Policy Conference
March 5, 2020  ✦  Jefferson City, MO
Johnny Johnson, MS, DMD, is president of the American Fluoridation Society. He has no financial or other conflicts to disclose related to the information cited in this presentation.
1. How did we discover fluoride’s benefits?
Fluoride: A naturally occurring mineral

- 13th most abundant mineral in the earth’s crust
- **Surface water** (rivers) — typically low concentrations, 0.2 mg/L (ppm) or less
- **Groundwater** (wells) — higher concentrations, 0.1 mg/L to over 5.0 mg/L
- **Ocean** is typically 0.8 to 1.4 mg/L
The early years of fluoride research

Dr. Frederick S. McKay

• **1901**: He established his dental practice in Colorado Springs, CO

• “Colorado Brown Stain” — Only life-long residents (or those who had moved there as infants) had it

• **1908** – He began to investigate the extent of fluorosis in surrounding areas

**Key Observation**: Very few cavities in this population

Objective: Explore the link between fluoride & cavity reduction

1.0 mg/L fluoride led to optimal cavity reductions without brown staining
• 4 pairs of cities in the U.S. and Canada were identified to study the effect of water fluoridation
  ➢ 4 cities adjusted to 1.0 mg/L of F, and 4 remained non-fluoridated

• Grand Rapids, Mich. was the first city to adjust fluoride levels in public drinking water (1945)
  ➢ Muskegon, MI was the control city

• Cavity rates dropped dramatically: 60-70%

How fluoride works

Topical Effect
• From the outside of the tooth
• Saliva, fluoridated toothpaste and other topical products

Systemic Effect
• From the inside and outside of the tooth
• Saliva bathes the teeth enamel 24/7 every day*

Adults also benefit, rather than only children (as was once assumed)

2. What are the health benefits of Fluoridation?
Dental cavities are the most common chronic disease for children and teens. It’s significantly more common than asthma, obesity, and diabetes. **Infectious and Transmissible**

- Severe pain (toothaches)
- Difficulty in chewing
- Poor weight gain
- Difficulty concentrating
- Predictor of cavities later in life
- Costly to treat
- Deaths
Cavities are unevenly distributed

- Low-income kids are more than twice as likely to experience tooth decay.
- The disadvantaged bear a disproportionate burden of cavities.
- In Missouri, >874,000 people are living in poverty (14.6%)

Avoiding the need for hospital treatment

• The average cost of treating early childhood decay in hospital operating rooms in Colorado ranged from $10,000 to $15,000 per child.

• A study in Israel estimated that water fluoridation may be preventing approximately 300 hospitalizations each year from dental infections.

CWF reduces OR/GA full-mouth restorations by 2/3

(Sources: An alternative marker for the effectiveness of water fluoridation: hospital extraction rates for dental decay, a two-region study, Elmer et al, British Dental Journal 2014; 216: E10; Klivitsky et al., “Hospitalizations for dental infections - Optimally versus non-optimally fluoridated areas in Israel,” Journal of the American Dental Association.)
Treating a preventable disease financially punishes families and taxpayers

- CWF (or the lack of it) impacts the health and wealth of families and the community
- Average cost of a filling = $204
- The lifetime cost of a single decayed molar can reach as high as $6,105
- CWF saved Texas’ Medicaid program $24 per child, per year in dental treatment costs

(Source: Regional data from the ADA’s “2016 Survey of Dental Fees”; estimate of the lifetime cost is based on an analysis of claims data by Delta Dental of California, 2011; the Texas report was released in 2000.)
Impact of CWF: 25% cavity reductions for all, regardless of age, income level, race, ethnicity, education level, or access to dental care

A form of prevention that reaches everyone
A window to overall health

The Mayo Clinic calls oral health a “window to your overall health”

(Sources: “Working to Improve Oral Health for All Americans: At A Glance 2016,” Centers for Disease Control and Prevention, updated on April 15, 2016; “Oral health: A window to your overall health,” Mayo Clinic, April 30, 2016.)
A (big) ounce of prevention

- The CDC called water fluoridation one of “10 great public health achievements of the 20th century.”
- Fluoridation reduces tooth decay by 25% over a lifetime — protection beyond what is offered by fluoride toothpaste and other methods.
- Over 201 million U.S. residents have access to fluoridated water.

A strong consensus of support

- American Water Works Association
- **Department of Defense**
- American Academy of Family Physicians
- **American Academy of Pediatrics**
- American Academy of Pediatric Dentistry
- **American Dental Association**
- American Dental Hygienists’ Association
- **American Medical Association**
- American Osteopathic Association
- American Nurses Association
- American Public Health Association
- Assoc. of Maternal & Child Health Programs
- CDC
- National Academy of Medicine *(formerly known as the Institute of Medicine)*
- **Mayo Clinic**
- U.S. Surgeon General
- **World Health Organization**

(Source: Many of these organizations’ positions and/or official statements are accessible in “In Their Own Words,” Campaign for Dental Health, American Academy of Pediatrics, 2014.)
3. What happens when Fluoridation is stopped?
What happens when CWF ends

Major cavity increases after cessation:

- **Juneau, Alaska** – Dental disease among preschool-age kids increased, requiring an average of 1 additional dental procedure *per child, per year*

- **Calgary (Canada)** – Cavity rates among children skyrocketed 146% in 3 years

- **Windsor (Canada)** – Cavity rates increased 51% in a 5-year period

(Source: J. Meyer et al., BMC Oral Health, 2018, 18:215; L. McLaren et al., Community Dentistry and Oral Epidemiology, 2016; Windsor’s oral health data was referenced in a story by Brian Cross in the Windsor Star, December 18, 2018)
What happens when CWF ends

- Alaska’s capital city **Juneau** stopped adding fluoride to its drinking water in 2007.
- Researchers carried out a study to examine Medicaid dental claims to explore the impact of cessation.

What happens when CWF ends

After fluoridation ended in Alaska’s capital city, the average low-income child needed **1 additional procedure each year** to treat tooth decay.

- **By Age 3**: 1 more cavity
- **By Age 4**: 2 more cavities
- **By Age 5**: 3 more cavities

What happens when CWF ends

• In 2016, a study was published examining tooth decay trends among 2nd grade children in two Canadian cities: Calgary and Edmonton.

• Calgary had ceased fluoridation in 2011. Edmonton remained fluoridated throughout the period that was studied.

(Source: L. McLaren et al., “Measuring the short-term impact of fluoridation cessation on dental caries in Grade 2 children using tooth surface indices,” Community Dentistry & Oral Epidemiology, published online in January 2016)
What happens when CWF ends

• In order to compare apples to apples, the study examined tooth decay rates in both cities at the same two points.

• The cavity rate for Calgary children jumped 146% after fluoridation ceased.

• Although decay also rose in Edmonton during this period, cavities in Calgary rose at 3 times the rate of Edmonton.

(Source: L. McLaren et al., “Measuring the short-term impact of fluoridation cessation on dental caries in Grade 2 children using tooth surface indices,” Community Dentistry & Oral Epidemiology, published online in January 2016; the data periods studied in both cities were childhood decay rates in 2004-05 and 2013-14.)
What happens when CWF ends

In Canada, the city of Windsor voted to resume CWF after their public health unit released data showing a 51% increase in cavities and emergency dental needs.

(Source: “Oral Health 2018 Report,” Executive Summary of a report by the Windsor-Essex County Health Unit, 2018.)
4. Why do we know that fluoridation is safe?
Numerous reviews and studies support CWF’s safety

- National Toxicology Program (2018)
- Food Safety Authority of Ireland (2018)
- Environmental Protection Agency (2017)
- National Health & Medical Research Council of Australia (2016)
- Water Research Foundation (2015)
- Royal Society of New Zealand (2014)
- Community Preventive Services Task Force (2013)
- Calif. Office of Environmental Health Hazard Assessment (2011)
- Irish Forum on Fluoridation (2002)
- U.S. Public Health Service (1991)
- Britain’s Royal College of Physicians (1976)
- Univ. of Michigan School of Public Health (1960)
Opponents: “Fluoride is a developmental neurotoxin.”

1. This is the only recent study done in a country where water fluoridation is common.

2. This is the only study that tested people’s IQs over a 30-year period.

3. This study had a sample size that is much larger than any study cited by opponents.

(Source: J.M. Broadbent et al, “Community Water Fluoridation and Intelligence: Prospective Study in New Zealand,” American Journal of Public Health. 2015, Vol. 105, No. 1; the quotation is from Deane Alban’s article on BeBrainFit.com.)

Community Water Fluoridation and Intelligence: Prospective Study in New Zealand

OBJECTIVES:
This study aimed to clarify the relationship between community water fluoridation (CWF) and IQ.

METHODS:
We conducted a prospective study of a general population sample of those born in Dunedin, New Zealand, between April 1, 1972, and March 30, 1973 (95.4% retention of cohort after 38 years of prospective follow-up). Residence in a CWF area, use of fluoride dentifrice and intake of 0.5-milligram fluoride tablets were assessed in early life (prior to age 5 years); we assessed IQ repeatedly between ages 7 to 13 years and at age 38 years.

CONCLUSIONS:
These findings do not support the assertion that fluoride in the context of CWF programs is neurotoxic. Associations between very high fluoride exposure and low IQ reported in previous studies may
Recent study published in JAMA Peds

Association Between Maternal Fluoride Exposure During Pregnancy and IQ Scores in Offspring in Canada

Rivka Green, MA; Bruce Lanphear, MD; Richard Hornung, PhD; David Flora, PhD; E. Angeles Martinez-Mier, DDS; Raichel Neufeld, BA; Pierre Ayotte, PhD; Gina Muckle, PhD; Christine Till, PhD

**IMPORTANT** The potential neurotoxicity associated with exposure to fluoride, which has generated controversy about community water fluoridation, remains unclear.

**OBJECTIVE** To examine the association between fluoride exposure during pregnancy and IQ scores in a prospective birth cohort.

**DESIGN, SETTING, AND PARTICIPANTS** This prospective, multicenter birth cohort study used...
What did the Green study reveal?

The average IQ score of 3 and 4 year-old children in Canada by the fluoridation status of their tap water.

<table>
<thead>
<tr>
<th>Fluoridated</th>
<th>Non-Fluoridated</th>
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<tbody>
<tr>
<td>108.21</td>
<td>108.07</td>
</tr>
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</table>

The difference in the average IQ score was only 0.14 pts.

Even the Green coauthors call this “the primary outcome” of their study:

**Primary Outcomes**

We assessed children’s intellectual abilities with the Wechsler Preschool and Primary Scale of Intelligence, Third Edition. Full Scale IQ (FSIQ), a measure of global intellectual functioning, was the primary outcome. We also assessed verbal IQ (VIQ), representing verbal reasoning and comprehension, and performance IQ (PIQ), representing nonverbal reasoning, spatial processing, and visual-motor skills.

(Source: R. Green et al., “Association Between Maternal Fluoride Exposure During Pregnancy and IQ Scores in Offspring in Canada,” JAMA Pediatrics, see Table 1, published online in August 2019.)
1 Drop of Fluoride vs 1 article in 6,600

- One drop of fluoride additive prevents 25% of cavities for everyone
- It levels the playing field between haves and have-nots

- One study adds to the overall body of evidence.
- It does not change the >6,600 studies & articles over 75 years
- Public Policy based on consensus of entire body of evidence
The petition “has not set forth a scientifically defensible basis to conclude that any persons have suffered neurotoxic harm” from water fluoridation.

Opponents: “The EPA should review our petition.”

In 2017, the EPA carefully reviewed their petition—and rejected it.

The petition “has not set forth a scientifically defensible basis to conclude that any persons have suffered neurotoxic harm” from water fluoridation.

(Source: “Fluoride Chemicals in Drinking Water; TSCA Section 21 Petition; Reasons for Agency Response,” EPA, Federal Register, Vol. 82, Feb. 27, 2017; Notes: Opponents sought a ban on fluorosilicic acid, the primary form of fluoride used in water fluoridation; the word “not” was boldfaced by AFS for emphasis; the statement in quotations is intended to paraphrase the kinds of assertions that opponents have made; it is not a verbatim quotation by a specific individual.)
Opponents: “The NTP should conduct a study.”

• The National Toxicology Program (NTP) conducted a study
• The NTP “observed no exposure-related differences in motor, sensory, or learning and memory performance” for any of the 9 tests they conducted
  • Thyroid hormone levels were not affected — even at levels of 0, 10 or 20 parts per million of fluoride

(Source: C.A. McPherson et al., “An Evaluation of Neurotoxicity Following Fluoride Exposure from Gestational Through Adult Ages in Long-Evans Hooded Rats.” Neurotoxicity Research, 2018; Article from FAN’s website was written by Michael Connett, Dec. 11, 2015; Note: The statement in quotations is intended to paraphrase the kinds of assertions that opponents have made; it is not a verbatim quotation by a specific individual.)
Opponents: “Mother nature protects babies from fluoride.”

• Breast feeding is encouraged by leading scientific groups (nutrition, antibodies, etc.).

• **However . . .** breast milk is not perfect.* For example, it lacks sufficient:
  - Vitamin D (brittle bones)
  - Vitamin K (clotting)
  - Iron (anemia)

*Parents are instructed to start these supplements shortly after birth.
Research confirms fluoridation’s safety

Opponents: “Fluoride harms the thyroid gland.”

This 2017 Canadian study showed no link between fluoridated water and thyroid problems.

“There was no evidence of a relationship between fluoride exposure (from urine and tap water) and the diagnosis of a thyroid condition.”

(Source: A.M. Barberio et al., “Fluoride exposure and indicators of thyroid functioning in the Canadian population: implications for community water fluoridation,” Journal of Epidemiology & Community Health, 2017, Vol. 71, doi:10.1136/jech-2017-20912; NOTE: The statement in quotations is intended to paraphrase the kinds of assertions that opponents have made; it is not a verbatim quotation by a specific individual.)
Opponents: “RCTs have never been done on fluoridation.”

- RCTs are a form of research that “is often not feasible for interventions that occur on a community level, like community water fluoridation.”
- **Observational studies** are commonly used for CWF and have been used for:
  - Smoking & lung disease
  - Sexually Transmitted Diseases
  - Chronic Alcohol Use

Research confirms fluoridation’s safety

Opponents: “NRC’s 2006 report shows CWF is harmful.”

BACKGROUND:

- In 2006, NRC evaluated the appropriate limit on naturally occurring fluoride level* in water to confirm that current limit (4 mg/L) is still protective of health.
- 200,000+ Americans live in areas where the natural fluoride level exceeds 4 mg/L.

Research confirms fluoridation’s safety

Opponents: “NRC’s 2006 report shows CWF is harmful.”

FACTS:

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’.”

Research confirms fluoridation’s safety

**Opponents:** “NRC’s 2006 report shows CWF is harmful.”

<table>
<thead>
<tr>
<th>System</th>
<th>Effect</th>
</tr>
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<tbody>
<tr>
<td>Tooth enamel</td>
<td>✓</td>
</tr>
<tr>
<td>Liver</td>
<td>✗</td>
</tr>
<tr>
<td>Kidneys</td>
<td>✗</td>
</tr>
<tr>
<td>Endocrine system</td>
<td>✗</td>
</tr>
<tr>
<td>Gastrointestinal system</td>
<td>✗</td>
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<tr>
<td>Immune system</td>
<td>✗</td>
</tr>
<tr>
<td>Cancer</td>
<td>✗</td>
</tr>
<tr>
<td>Musculoskeletal system</td>
<td>✗</td>
</tr>
<tr>
<td>Reproduction and development</td>
<td>✗</td>
</tr>
<tr>
<td>Neurotoxicity and neurobehavioral</td>
<td>✗</td>
</tr>
<tr>
<td>Genetic damage</td>
<td>✗</td>
</tr>
</tbody>
</table>

Was there definitive evidence at 4.0 ppm showing that fluoride had an effect on...?
5. Why do a small group of people oppose fluoridation?
Opponents to CWF: Who are they?

• Some well-intentioned people who’ve been misled by what they’ve heard or read
• People who have been drawn to Conspiracy Theories - cult-like following
• Fluoride Action Network (fan) – British Chemist Paul Connett
Opponents to CWF: Who are they?
The Royal Society of Chemistry is neither pro nor anti water fluoridation but they are pro the accurate interpretation of scientific research.

RSC Spokesperson Dr. Susan Vickers: “On the basis of published robust evidence water fluoridation was both safe and effective in reducing dental decay”

Source: Hull Science Festival, April 7, 2017, Barry Cockcroft, CBE, BDS, FDS (RCS Eng), FFGDP (UK), DDSc., Chief Dental Officer England 2005-2015
Opponents to CWF: Who are they?

- Chemist Paul Connett is out of step with his colleagues at the Royal Society of Chemistry
- 54,000 members worldwide

https://www.rsc.org/membership-and-community/join/#benefits
A long list of false claims by fluoridation opponents

- No toxicological testing has been conducted on fluoride
- The ADA says it shouldn’t be used in infant formula
- Fluorosis is a sign of toxic effects
- It causes ADHD
- It causes Alzheimer’s
- It harms the kidney, the immune system and other systems
- It’s a conspiracy — the phosphate fertilizer industry is disposing of its “hazardous waste”
- Cavities have fallen in all nations, so fluoridation must not matter
- Some people are allergic to fluoridated water
- It causes thyroid problems
- The only way fluoride works is by topical application
- This is “forced medication”
- The Cochrane Group says there’s no evidence behind fluoridation
- Water systems should use a pharmaceutical grade of fluoride

American Fluoridation Society
Opponents to CWF: Strategies

Throw it at the wall often and hope something sticks
Critics call it “mass medication”

• America has a tradition of fortifying foods and drinks to improve human health:
  ✓ Folic acid    ✓ Calcium
  ✓ Vitamin D    ✓ Iodine

• U.S. courts have consistently rejected this argument against fluoridation.

• Fluoridation (like chlorination) is about prevention.

Figure 1: Data from WHO Database

DMFT trends according to WHO data by European Country

- The chart on the left is data from the World Health Organization.

Figure 2: Data manipulated to show linear trend

- The chart on the right is by opponents of water fluoridation. Straightened out true data points.

Critics distort oral health data

- The chart on the left is data from the World Health Organization.
- The chart on the right is attributed to Cheng et al., “Adding fluoride to water supplies,” BMJ, 2007, 335:7622.
A chart like this compares apples to apples. Children in Ireland who live in fluoridated areas have lower rates of decay.
Fluorosilicic Acid: Most comes from Florida
Opponents misrepresent how FSA is recovered

Mosaic phosphate plant

“Scrubber of Toxic Waste by-product from smokestacks”
Critics claim there’s a better fluoride additive

**Opponents:** “Fluoride additives are not pharmaceutical grade.”

What the CDC says:

“What some have suggested that pharmaceutical grade fluoride additives should be used for water fluoridation. **Pharmaceutical grading standards used in formulating prescription drugs are not appropriate for water fluoridation additives.** If applied, those standards could actually exceed the amount of impurities allowed by AWWA and NSF/ANSI in drinking water.”

(Source: Centers for Disease Control and Prevention, “Fluoridation,” accessed in October 2018 at https://www.cdc.gov/fluoridation/engineering/wfadditives.htm.)
6. What do we know about dental fluorosis?
Critics distort the facts about dental fluorosis

The level used for fluoridated drinking water

Severe Fluorosis

Severe Fluorosis virtually zero

No severe fluorosis

4.0 mg/L  2.0 mg/L  0.7 mg/L

Dental fluorosis is a change in the appearance of tooth enamel caused by high intakes of fluoride during the tooth-forming years.

Dental fluorosis

What effect does it have?

• Dental fluorosis is a change in the appearance of tooth enamel caused by high intakes of fluoride during the tooth-forming years.

• Dental fluorosis is typically a mild cosmetic effect:
  ▪ It does not cause pain
  ▪ It does not affect the health or function of teeth
  ▪ It is so subtle most people don’t even notice it

Dental fluorosis

- Dental fluorosis is a change in the appearance of tooth enamel caused by high intakes of fluoride during the tooth-forming years.

- Dental fluorosis is typically a mild cosmetic effect:
  - It does **not** cause pain
  - It does **not** affect the health or function of teeth
  - It is so subtle most people don’t even notice it

- Dental fluorosis can only occur **up to 8 years of age** while permanent teeth are developing.

**Sources:** CDC’s “Fluorosis” web page, updated June 1, 2016; R.K. Celeste et al., “Independent and Additive Effects of Different Sources of Fluoride and Dental Fluorosis,” Pediatric Dentistry, Vol. 38, No. 3, May-June 2016
Variations in tooth enamel (fluorosis)

Normal
Very Mild
Questionable
Mild
Moderate
Severe

(Source: Information from the Centers for Disease Control and Prevention’s website, accessed in October 2017 at http://www.cdc.gov/fluoridation/faqs/dental_fluorosis/index.htm)
Critics distort the facts about dental fluorosis

Opponents distort the facts about fluorosis

Which would you rather have?

Cavities OR Mild fluorosis
7. Final thoughts about fluoridation
The clear weight of the science

No widely respected medical and health organizations opposes fluoridation.
Summary . . .

☑️ Effective at reducing cavities

☑️ Safe — no adverse health effects

☑️ Saves money — in fact, the average person saves $32.19 per year in dental costs.  *Roughly $97 million CWF*

☑️ Prevention that benefits everyone in the community (just by turning on the tap)

☑️ Recommended by the most respected health/medical organizations: CDC, American Academy of Pediatrics and the ADA
Fluoride Science meets Political Science

Fluoridation decisions
Who is involved
Fluoride science meets political science

• City councils
• Water utility boards
• County commissions
Reach out to Decision-Makers and Staff

Engage the local decision-makers:

 ✓ Encourage them to be guided by the credible evidence
 ✓ Recognize how their constituents’ concerns shape their thinking
 ✓ *Explore whether they have a personal “dog in the fight”*
 ✓ Invite their questions

[Image of people engaged in conversation]
Reach out to Decision-Makers and Staff

Engage their Staff

Decision-makers regularly seek their input:

✓ City manager/County administrator
✓ Water utility manager/director
✓ Encourage them to be guided by the credible evidence
✓ Explore whether they have a personal “dog in the fight”
✓ Invite their questions
Don’t Wait – Address this at the earliest signs...

✓ Call or email (individually) your local CWF decision-makers to request a meeting to discuss dental health — and take a local health dept. official to join you

✓ Send a “thank you” email afterward (to their public email address)
  • Briefly summarize the discussion that you had
  • Include the position on CWF that he/she declared
  • Share any data or info that you promised to follow up with

✓ Meet with all candidates seeking state/local office who will be in a CWF decision-making position and ask where they stand

✓ Keep and print all of the emails that you send or share with these officials or candidates
Ignoring the evidence has consequences

Oct. 4, 2011: CWF was voted out by 4-3

Pinellas County, FL County Commission

On Nov. 27, 2012, the County Commissioners voted to restore fluoridation by a 6-1 vote.
If you don’t show up, someone else will

- You are the ideal person to advise public officials
- You care deeply about the health and wellness of your community
- You must step forward or someone else becomes “the expert” by default
- I did it — and so can you!
ENGAGE THE NEWS MEDIA

Know the media landscape in your community:

- Newspaper reporters and editors
- TV and radio show hosts
- Bloggers
- Online bulletin boards

Reporters & Editors: Reach out to them and present yourself as a resource who can answer questions and clarify issues
Times' winning Pulitzer Prize entry for Editorial Writing

Monday, April 15, 2013

The Tampa Bay Times won its ninth Pulitzer Prize on Monday for a series of editorials last year by Tim Nickens and Daniel Ruth after the Pinellas County Commission moved to stop putting fluoride in the drinking water, affecting the dental health of 700,000 people in the county. As Nickens and Ruth wrote in the last of the 10 editorials submitted for the Pulitzer Prize in Editorial Writing, “It took nearly 14 months, an election and the clarion voice of Pinellas County voters to persuade county commissioners to correct a serious error in judgment.” And the newly reconstituted commission quickly moved to vote to restore fluoride to the water system. Here is the Pulitzer nominating letter from Times Editor Neil Brown, with links to the 10 editorials.

To the judges:

In October 2012, the Pinellas County Commission imposed

zealous and tea party conservatives, abruptly voted to stop adding fluoride to the drinking water. The commission

• Won a Pulitzer Prize
• 10 Editorial Series
• The foolishness of the “Fluoride Four”

Local water personnel:
Establish a relationship
Get to know your local water personnel

✓ Tour your local water plant *BEFORE* a CWF issue arises
✓ Compliment the staff on the facility’s organization and cleanliness
✓ Thank them for providing *safe drinking water* to their residents
✓ Thank them for providing fluoride to help prevent cavities
✓ Let them know the impact they are making
✓ Show them pictures of what they are preventing
✓ Most have no idea of the public health impact they are making
Why water personnel play a *Critical* role

- They handle a job that most local elected officials do not fully understand
- Elected officials tend to defer to water operators and managers — especially when they hear no countervailing facts
(anti-CWF) Water Director

- City was converting to their own water supply
- Single handedly was delaying the start of by 4-6 years
- Advising Clearwater City Council of reasons to delay (2016)
- Requested to approach him to discuss
- “Fluoride is a drug”
- Fluoridation was started summer 2019
A Critical and Immediate Request of you

Pull your Annual Water Quality Report Today!!
Google city water quality report (CCR) – annual average

*Springfield, MO: 2018 CCR Range = ND (<0.10) – 1.07ppm*

<table>
<thead>
<tr>
<th>Source</th>
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<td>0.51 0.57 0.57 0.43 0.41 0.46 0.46 0.47 0.46 0.47 0.18 0.14 0.43</td>
</tr>
</tbody>
</table>

2. Source: Florida: My Water’s Fluoride &/or CDC Water Fluoridation Reporting System; 2018 data;
Reducing OR/GA full-mouth restorations by 2/3

(Sources: An alternative marker for the effectiveness of water fluoridation: hospital extraction rates for dental decay, a two-region study, Elmer et al, British Dental Journal 2014; 216: E10; Klivitsky et al., “Hospitalizations for dental infections - Optimally versus non-optimally fluoridated areas in Israel,” Journal of the American Dental Association.)
The impact that you make on your community

“Water operators in the U.S. do more to reduce dental decay than all the dentists in the country”

Kip Duchon, National Fluoridation Engineer, CDC, retired
Resources for you:

**Missouri Department of Health**: Dental Director Dr. John Dane

**CDC**: Water Operators and Engineers

**CDC**: Water Fluoridation Information: General and specific information on CWF

**American Fluoridation Society**:  
- For the latest information on studies, explaining them, refutations, and scientific hyperlinks  
- Our Water operators and directors hotline email for any questions: Water@AFS-Fluoride.org

**American Dental Association**:  
- Frequently asked questions  
- Mouth Healthy: More information on Fluoridation from ADA

**American Academy of Pediatrics**:  
- Campaign for Dental Health  Fluoridation Information and resources
The impact that you make on your community

University of Miami, FL Senior Journalism Major
Report on Brooksville, FL Referendum on Ceasing CWF

https://youtu.be/DHFPR1vtRyw
Thank You!

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