MESSAGING STRATEGIES IN THE ERA OF MISINFORMATION

Johnny Johnson, DMD, MS
President, American Fluoridation Society

Matt Jacob, BA
Communication Strategist

Northwest Center
FOR PUBLIC HEALTH PRACTICE
Which public health issues are especially vulnerable to misinformation in your communities?

A. Fluoridation
B. Addiction
C. Firearm safety
D. Vaccination
E. Other (type in chat box)
MESSAGING STRATEGIES IN THE ERA OF MISINFORMATION:

Sharing Scientific Evidence About Community Water Fluoridation (CWF)
I. Fluoride: Background & Research

II. Fluoride & Public Health

III. Community Water Fluoridation: Myths vs. Reality

IV. Fluoride, Politics, & the Media
PART I

FLUORIDE: BACKGROUND AND RESEARCH
Fluoride: A Naturally Occurring Mineral

- **Surface earth**
  13th most abundant mineral in Earth’s crust

- **Surface freshwater**
  Typically low concentrations <0.2 mg/L (ppm)* in rivers

- **Groundwater**
  Higher concentrations 0.1 – 5.0+ mg/L in wells

- **Ocean water**
  Typically 0.8 – 1.4 mg/L

* 1 part per million (ppm) = 1 mg/L
Dr. McKay establishes dental practice in Colorado Springs, CO

Dr. McKay begins to investigate fluorosis in surrounding areas

“Colorado Brown Stain” noted among lifelong residents.
Key observation: Very few cavities in this population. Correlation...?

History of Fluoride Research

1931–1941: Intensive Research Begins

- **1931**: H. Trendley Dean begins first epidemiological study of fluorosis

- **1933**: Study comparing “High” and “Low” F- communities

- **1939**: Dean launches field investigation: “21 Cities” study

- **1941**: Study comparing “High” and “Low” F-communities

**Finding:**

1.0 mg/L fluoride led to optimal cavity reductions without brown staining

History of Fluoride Research


- Four pairs of cities in the US and Canada are studied
- For each pair, one city adjusted water fluoridation to 1.0 mg/L and a second non-fluoridated city is identified as a control

Grand Rapids, MI first city to adjust public drinking water fluoride levels to 1.0 mg/L

In studied cities with fluoridation, cavity rates dropped by 60–70%

(Source: https://www.nidcr.nih.gov/health-info/fluoride/the-story-of-fluoridation)
PART II

FLUORIDE AND PUBLIC HEALTH
Cavities are the most common chronic disease for children and teens. They are significantly more common than asthma, obesity, and diabetes.

- Severe pain (toothaches)
- Difficulty in chewing
- Poor weight gain
- Difficulty concentrating

- Infectious and transmissible
- Predictor of cavities later in life
- Costly to treat
- Deaths
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 tooth enamel 24/7 every day*

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

Fluoride, Oral Health and Inequity

- Low-income kids are more than twice as likely to experience tooth decay.

- Underserved communities bear a disproportionate burden of cavities.

- 39.7 million U.S. residents are living in poverty.

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

Community Water Fluoridation: Separating Reality and Myth
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*

*(Sources: 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)*
Community Water Fluoridation: Myth

- CWF is associated with lower IQ
- 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”
**Opponents’ claim:** “NRC’s 2006 report shows CWF* is harmful.”

**Actual findings:** Is there definitive evidence at 4.0 mg/L to show that fluoride had an effect on...

<table>
<thead>
<tr>
<th>Liver</th>
<th>Musculoskeletal system</th>
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</thead>
<tbody>
<tr>
<td>Kidneys</td>
<td>Reproduction and development</td>
</tr>
<tr>
<td>Endocrine system</td>
<td>Neurotoxicity</td>
</tr>
<tr>
<td>Gastrointestinal system</td>
<td>Neurobehavioral health</td>
</tr>
<tr>
<td>Immune system</td>
<td>Genes</td>
</tr>
<tr>
<td>Cancer</td>
<td>✓ Tooth enamel*</td>
</tr>
</tbody>
</table>

Variations in Tooth Enamel

So, what exactly is the effect of community water fluoridation on tooth enamel?

- Normal Enamel
- Questionable Fluorosis
- Very Mild Fluorosis
- Mild Fluorosis
- Moderate Fluorosis
- Severe Fluorosis

Results from **improper use** of fluoride products

Not caused by community water fluoridation

(Source: https://www.cdc.gov/fluoridation/faqs/dental_fluorosis/index.htm)
Support for Fluoridation’s Safety: Reviews & Studies

- 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)
Support for Fluoridation’s Safety: Organizational Consensus

- American Academy of Family Physicians
- American Academy of Pediatrics
- American Academy of Pediatric Dentistry
- American Academy of Physician’s Assistants
- American Association for the Advancement of Science
- 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
- Centers for Disease Control and Prevention
- 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.)
PART IV

FLUORIDE, POLITICS, AND THE MEDIA
How does your agency approach the intersection of scientific evidence and political advocacy?

A. Engage the media and public officials directly through a communications strategy

B. Encourage each person to stay informed of local issues that require scientific expertise

C. Partner with community-based advocacy groups and other experts

D. All of the above

E. Other (type in chat box)
Consequences of Ignoring Evidence

2011 - 2012: Pinellas County, Florida
Political Effort to End CWF

CWF for >700,000 residents is voted out by commissioners, 4 - 3
Oct. 4, 2011

2 of 4 anti-CWF commissioners lose their seats
Dec. 31, 2011

New commission votes CWF back in
Nov. 6, 2012

CWF is shut down in Pinellas County
Nov. 27, 2012

CWF is restored to Pinellas County
March, 2013


**2011 - 2012: Pinellas County, Florida**

Political Effort to End CWF

*Tampa Bay Times* begins science-based 10 part editorial series

- CWF is voted out by 4 - 3
- 2 of 4 anti-CWF commissioners lose their seats

**Oct. 4, 2011**

**Mar. 17, 2012**

**Nov. 6, 2012**

**Apr. 15, 2013**

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!
THANK YOU!

Johnny Johnson
President, American Fluoridation Society
johnny@americanfluoridationsociety.com
MESSAGING STRATEGIES IN THE ERA OF MISINFORMATION:

Rethinking Communication for Hot-Button Topics in Public Health
Presentation Overview

I. Challenges
II. Effective Communication: Clarity
III. Effective Communication: Context
IV. Effective Communication: Care
PART I

CHALLENGES
Facts are often presented without the context to make them relevant.

People tend to filter the facts to align with their preexisting beliefs, culture and values.

Key Questions To Navigate Challenges

Who is our target audience?

What are their cultures and core values?

Where do they get health information from, and how do they process it?
Questions for the Viewer

What are the biggest challenges for your agency’s health communication strategy?

A. Identifying the target audience
B. Identifying target audience’s culture and core values
C. Identifying how and where target audience gets health information
D. All of the above
E. Other (type in chat box)
The Three C’s of Effective Communication

Clarity

Context

Care

Matt Jacob, BA
PART II

EFFECTIVE COMMUNICATION: CLARITY
We want to ensure that every low-income family in Anytown has access to healthy foods and drinks.

In the future, we want to ensure that every family that happens to live in a low-income community in Anytown is truly able to have access to both foods and beverages that are healthy and nutritious.

Matt Jacob, BA

Don't:
- Tease your reader
- Leave out essential information

There were about two claims of injury for every one million doses of all vaccines distributed in the United States from 2006 through 2017, the period for which the injury compensation program has dosage data. It says more than 3.4 billion vaccine doses were distributed during that time.

The risk of vaccine-related injury is low. But how low?


Who benefits from fluoride and fluoridation? Does it only benefit children?

PART III
EFFECTIVE COMMUNICATION: CONTEXT
The need for the MMR vaccine is enhanced if parents know:

• Some children who get measles develop **encephalitis** (brain swelling) that can lead to convulsions, deafness or intellectual disability

• Nearly 1 in 20 children with measles will get **pneumonia**

• **Pregnant women** who get measles are at greater risk of a miscarriage or a pre-term birth

(Sources: Susan Scutti, "Measles rarely kills in the US -- but when it does, here's how," CNN.com, Feb. 5, 2019; Practice Advisory: Management of Pregnant and Reproductive-Aged Women during a Measles Outbreak, American College of Obstetrics & Gynecology, May 2019.)
Sharing data *without* context:

“A new study from Juneau, Alaska shows that after water fluoridation ended, the average Medicaid dental treatment costs for children increased by an inflation-adjusted 47%.”

Sharing data *with* context:

“A new study shows that dental treatment needs are higher without fluoridation. After Alaska’s capital city ended fluoridation, the average preschool-age child needed 1 extra cavity procedure each year at a cost of about $300.”
An analogy can improve the public’s understanding because:

✓ It relates to something they already know or do
✓ It can create a mental picture

“Analogies allow patients to hang difficult concepts onto information they already know rather than having to learn from scratch.”

– Terry S. Ruhl, MD

Many states have laws restricting a person’s freedom to use their cell phone while they drive a motor vehicle.

Personal freedom is important — and so is the public’s health and safety. Sometimes, health and safety should take priority.

(Source: According to the National Conference of State Legislatures, 16 states, D.C., Puerto Rico, Guam and the U.S. Virgin Islands prohibit all drivers from using hand-held cell phones while driving. A total of 38 states ban all cell phone use by novice or teen drivers. And text-messaging by any driver is banned in 47 states, D.C., Puerto Rico, Guam and the U.S. Virgin Islands. Information retrieved from NCSL’s website on March 19, 2019)
PART IV
EFFECTIVE COMMUNICATION: CARE
<table>
<thead>
<tr>
<th>Scientific Term</th>
<th>Scientific/Public Health Meaning</th>
<th>How the Public May Hear It</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Surveillance”</td>
<td>Process of collecting data</td>
<td>“Government monitoring”</td>
</tr>
<tr>
<td>“Random sample”</td>
<td>A subset in which each member had an equal chance of being selected</td>
<td>“They picked people without thinking carefully about it”</td>
</tr>
<tr>
<td>“Chemical”</td>
<td>Any substance consisting of matter</td>
<td>“A substance that is artificial and toxic”</td>
</tr>
<tr>
<td>“Intervention”</td>
<td>An evidence-based health practice</td>
<td>“Government exercises its authority”</td>
</tr>
</tbody>
</table>

*Sources:* These terms were drawn from or inspired by the following article: R. Somerville and S.J. Hassol, “Communicating the science of climate change,” Physics Today, 2011, accessible at https://doi.org/10.1063/PT.3.1296
Articles that included a photo of scientists with the corrective statement lowered misperceptions among all groups of participants.

THANK YOU!

Matt Jacob

www.jacobstrategies.com
mattlivesindc@gmail.com
Resources

CDC Fluoridation Page
www.cdc.gov/fluoridation

American Fluoridation Society
americanfluoridationsociety.org

Campaign for Dental Health
American Academy of Pediatrics
ilikemyteeth.org

American Dental Association
Resources

**Using Everyday Words for Public Health Communication**
Centers for Disease Control and Prevention

**Plain Language Medical Dictionary**
University of Michigan
[bit.ly/PlainWords](https://bit.ly/PlainWords)

**The Debunking Handbook**
Global Change Institute

**Successful Advocacy: A Values-Based Approach**
Metropolitan Group