City of Dallas

Dallas Water Utilities: Community Water Fluoridation in Dallas, Texas

Quality of Life, Arts & Culture Committee
October 16, 2023

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Texas Dental Association

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Purpose

- Provide information on the history, application process and cost of adding fluoride to Dallas' drinking water. Also, provide data on community fluoridation related to oral health and general health due to fluoride ingestion.

Presentation Overview

- Fluoride Sources and Purpose
- Dallas' Community Water Fluoridation
- Scientific Evaluations and Panel Discussion
  - Oral Health Community
  - Medical & Public Health Community
- Appendix

Fluoride Sources and Purpose

Fluoride – Sources

- Fluoride is a naturally occurring mineral
- Primary sources of fluoride:
  - Naturally present in raw, untreated water
  - Added to drinking water
  - Toothpaste
  - Dental products, such as mouthwash
  - Dental treatment applications
  - Naturally occurs in some foods

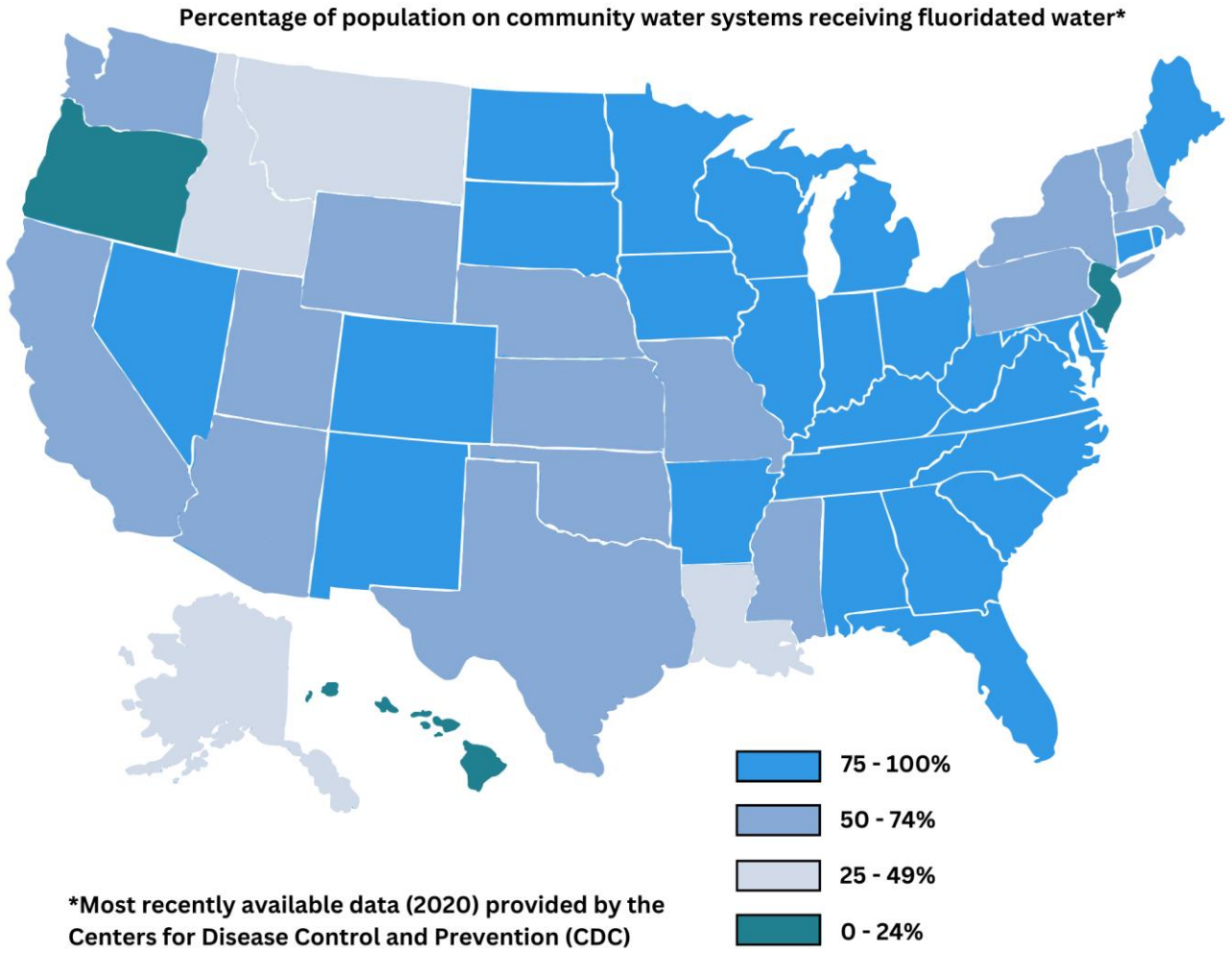
Fluoride – Purpose

- Bacteria present on teeth consumes sugars to produce acids that remove minerals from the surface of teeth
- Fluoride re-mineralizes tooth surfaces by binding with tooth enamel and producing a much harder mineral
- The harder mineral is more resistant to tooth decay and can prevent or lessen cavities

Community Water Fluoridation in Dallas

Community Water Fluoridation - History

- Water fluoridation was endorsed by the U.S. Public Health Service in 1950. Thereby, community fluoridation is the addition of fluoride to the public water supply
- Intent is to increase natural fluoride levels to recommended levels to prevent tooth decay in children and adults
- In 2020, 72.7% of the U.S. population on public water systems, or a total of 209 million people, had access to fluoridated water



Dallas Water Fluoridation - History

- August 9, 1965 - City Council Resolution #65-4382 authorized the City Manager to proceed with fluoridation of the City's drinking water supply by a vote of 6 to 3
    - Subsequently, a petition signed by less than 15%, but more than 5%, of qualified Dallas voters was filed with the City Secretary requesting a referendum
- January 3, 1966 - Dallas City Council passed Ordinance #11317, which authorized the City to hold a special election to determine whether or not to make it unlawful for the City of Dallas or its employees to add fluoride in water distributed or furnished for domestic use by the Dallas City Waterworks within the City of Dallas
- January 29, 1966 - City of Dallas held a special election where citizens voted against the proposition (27,089 to 10,940)
- August 12, 1966 – Dallas Water Utilities (DWU) began adding fluoride at all three water treatment plants consistent with the August 9, 1965, Resolution#65-4382

Dallas Water Fluoridation – Product

- Fluoride is added in the DWU treatment process as hydrofluorosilicic acid (HFS), a colorless liquid acid
- HFS dissociates in water to release fluoride ion
- When used for drinking water use, fluoride cannot be manufactured from any recycled source
- HFS purchased by DWU is:
  - Certified for use in drinking water by NSF (formally known as the National Sanitation Foundation)
  - Certified for use in drinking water by the American National Standards Institute (ANSI)
  - Conforms to the American Water Works Association (AWWA) Standard for Fluorosilicic Acid, B703-19

NSF®

ANSI
American National Standards Institute

American Water Works Association
Dedicated to the World's Most Vital Resource

Dallas Water Fluoridation – Application Process

- Fluoride appears naturally in Dallas' raw water supplies ranging from 0.3 to 0.5 milligrams per liter (mg/L)
- Dallas supplements natural fluoride found in raw water to optimal levels in drinking water to prevent tooth decay
- Carefully metered, HFS is applied based on raw water fluoride content, plant production rates and strength of product
- Fluoride levels are continuously monitored using on-line meters and laboratory verified daily

Dallas Water Fluoridation - Costs

- Dallas' current contract for hydrofluorosilicic acid is $500 per ton or $0.25 per pound
- Dallas has an average feed rate of 14 lb/MG for a cost ranging from $2.25 to $4.17 per million gallons treated
- Dallas spends approximately $500,000 annually to fluoridate water for 2.6 million consumers, equating to approximately $0.20 cents per person per year

Dallas Water Fluoridation – Communities Served

Dallas Water Utilities is a regional water provider serving 1.3 million City of Dallas residents and an additional 1.3 million wholesale treated water customers in 23 communities located throughout North Central Texas.

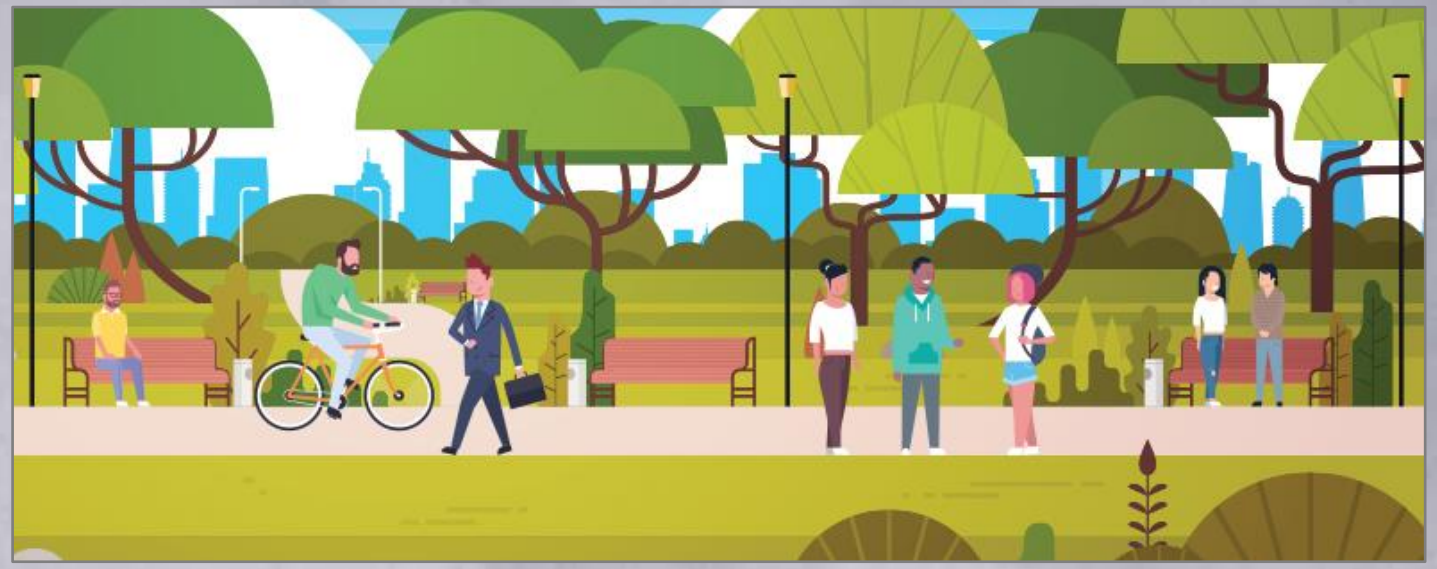
- Addison
- Balch Springs
- Carrollton
- Cedar Hill
- Cockrell Hill
- Combine WSC
- Coppell
- Desoto
- Duncanville
- Ellis Co. WCID #1
- Farmers Branch
- Flower Mound
- Glenn Heights
- Grand Prairie
- Hutchins
- Irving
- Lancaster
- Lewisville
- Ovilla
- Red Oak
- Seagoville
- The Colony
- DFW Int'l Airport

Oral Health Community

Dr. Mary Swift, MS DDS
Community Fluoride Committee
Texas Dental Association

Building a healthier Dallas

What the research shows about the benefits and safety of community water fluoridation



Past President, Dallas County Dental Society
TDA Community Water Fluoridation Committee

DALLAS COUNTY DENTAL SOCIETY

Dr. Mary Swift, D.D.S.

Objectives

1. Provide a **quick overview** of fluoride and fluoridation
2. Identify **the hidden costs** that tooth decay can have
3. Share evidence on the **benefits** of water fluoridation
4. Share evidence on the **safety** of water fluoridation
5. Welcome your questions

*(**Note:** The terms "decay" and "cavities" are used interchangeably.)*

What is fluoride and what is water fluoridation?

Nature's way to prevent tooth decay

- Fluoride is a **mineral** found naturally in all bodies of water
  - Ocean water contains 0.8 to 1.4 milligrams per liter (mg/L) of fluoride.
  - The recommended level for preventing dental cavities is 0.7 mg/L.
- Nearly 3 in 4 U.S. residents (73%) who are served by a community water system receive water that is fluoridated.

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*(**Sources:** Centers for Disease Control and Prevention, "Fluoridation Basics," web page updated January 28, 2021; Kanduti D, Sterbenk P, Artnik B. Fluoride: A Review of Use and Effects on Health, MateriaSocioMedica, 2016, 28:2.)*

Water fluoridation in Texas

- Of all Texans whose homes are connected to public water systems, **73%** receive drinking water that is fluoridated to protect their teeth.
- In all, **19 million-plus Texans** benefit from fluoridated water.

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(***Source:*** *Centers for Disease Control and Prevention, "Fluoridation Statistics," a data set published in 2018, showing fluoridation statistics for all 50 U.S. states.)*

Reducing dental cavities in two ways

- Fluoridated water reduces tooth decay by **25%** over a person's lifetime — **both** adults and children benefit.
- Fluoride protects tooth enamel in two ways:
  - **Topical:** Low levels of fluoride in saliva provide frequent and consistent contact with the teeth
  - **Ingested:** The fluoride that is swallowed benefits teeth even before teeth are fully formed

(***Sources:*** *Centers for Disease Control and Prevention, "Water Fluoridation Basics," updated Oct. 1, 2021.)*

Fortifying foods and drinks to improve health

Fortifying foods and drinks is an American tradition:

- **Iodine** is added to table salt
- **Vitamin D** is added to milk
- **Folic acid** is added to breads and cereals
- **Calcium** is added to orange juice
- **Chlorine** is added to drinking water
- **Fluoride** is added to drinking water

(***Source:*** *Institute of Medicine (U.S.) Committee on Use of Dietary Reference Intakes in Nutrition Labeling, Dietary Reference Intakes: Guiding Principles for Nutrition Labeling and Fortification. Washington, DC: National Academies Press, 2003.)*

Fewer cavities, lower treatment costs

- Research: The lifetime cost of a decayed tooth is **$6,160**.
- Even people who have dental insurance must bear some treatment costs as an out-of-pocket expense.
- A Texas study found that water fluoridation saves the state Medicaid program **$24 per child, per year**.

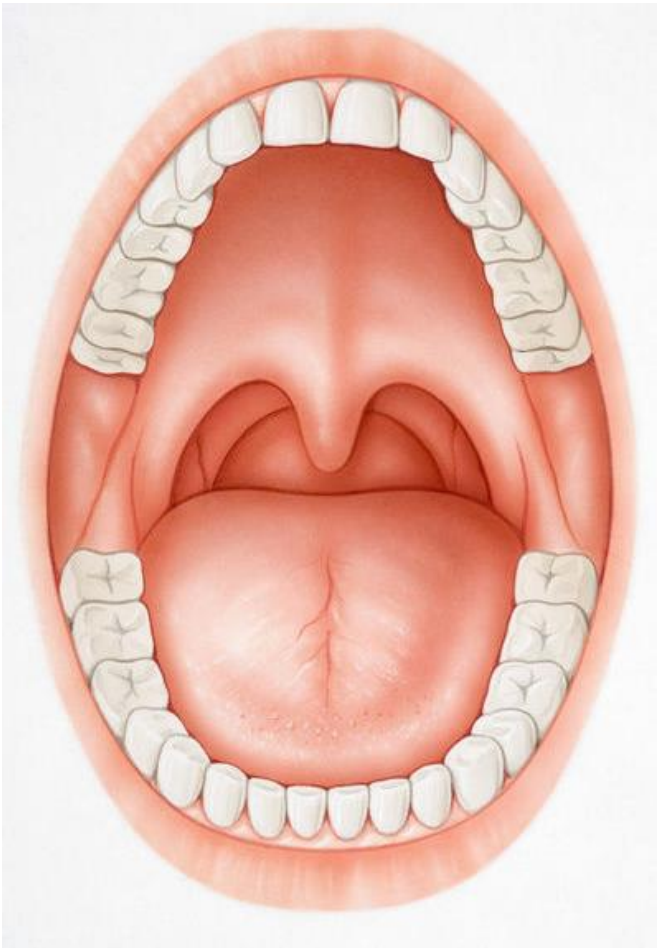
(***Sources:*** *Northeast Delta Dental, "The true cost of a cavity," an analysis of dental claims data, reviewed and updated on February 9, 2021; Water Fluoridation Costs in Texas, Texas Healthy Steps, a study conducted to comply with House Concurrent Resolution 145 of the 75th Texas Legislature, May 2000.)*

So how do we know that fluoridation is important?

A quick history of tooth decay

- In the early 1960s, U.S. health officials conducted a national survey on adults' dental health.
- All of these people reached adulthood *before* fluoride was widely available in tap water or toothpaste.

Can you guess how many cavities the average adult had back then?

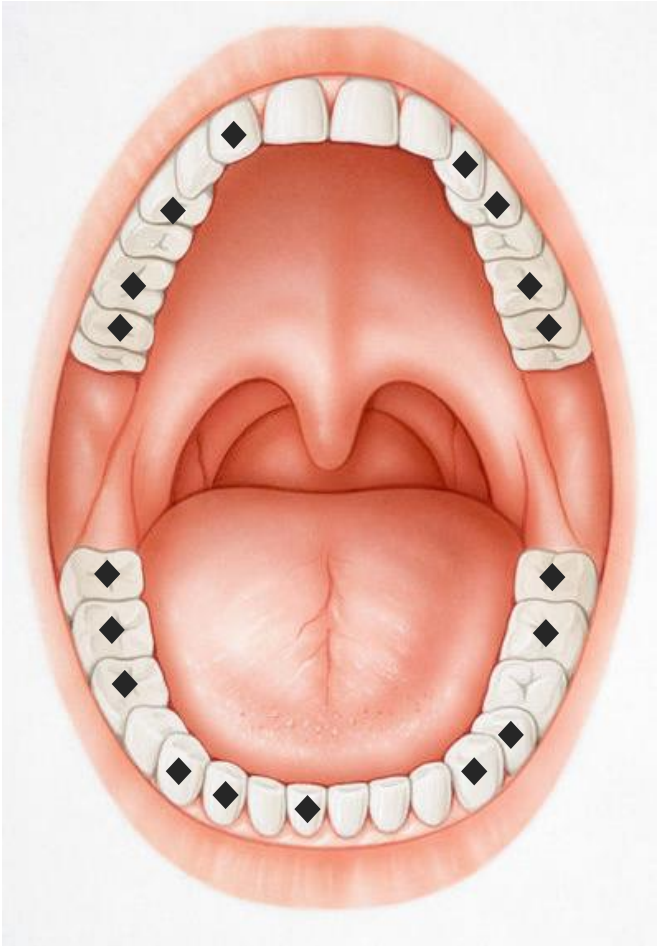


(***Source:*** *U.S. Department of Health, Education and Welfare, "Decayed, Missing, and Filled Teeth in Adults: United States, 1960–1962," issued in 1967, reprinted in August 1973 as DHEW Publication No. (HRA) 74-1278. Note: The precise average number of decayed, missing or filled teeth per US adult was 17.9.)*

A quick history of tooth decay

- In the early 1960s, U.S. health officials conducted a national survey on adults' dental health.
- All of these people reached adulthood *before* fluoride was widely available in tap water or toothpaste.

The average U.S. adult had **18 decayed, missing or filled teeth**



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Both forms of fluoride are needed

"If I'm using fluoride toothpaste, do I still need to drink fluoridated water?

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Both drinking water and toothpaste with fluoride provide important and complementary benefits. Fluoridated water keeps a low level of fluoride in saliva and dental plaque all day. The much higher concentration of fluoride in toothpaste offers additional benefit. Fluoride slows the activity of bacteria that cause decay and combines with enamel on the tooth surface to make it stronger and better able to resist decay. Together, the two sources offer more protection than using either one alone.

(**Source:** *Centers for Disease Control and Prevention, "Community Water Fluoridation" web page, April 1, 2016.)*

Toothbrushing alone isn't enough

How do we know that?

- Because several studies have compared children's dental health in fluoridated and non-fluoridated communities.
- These studies show that fluoridated communities have **fewer cavities**.

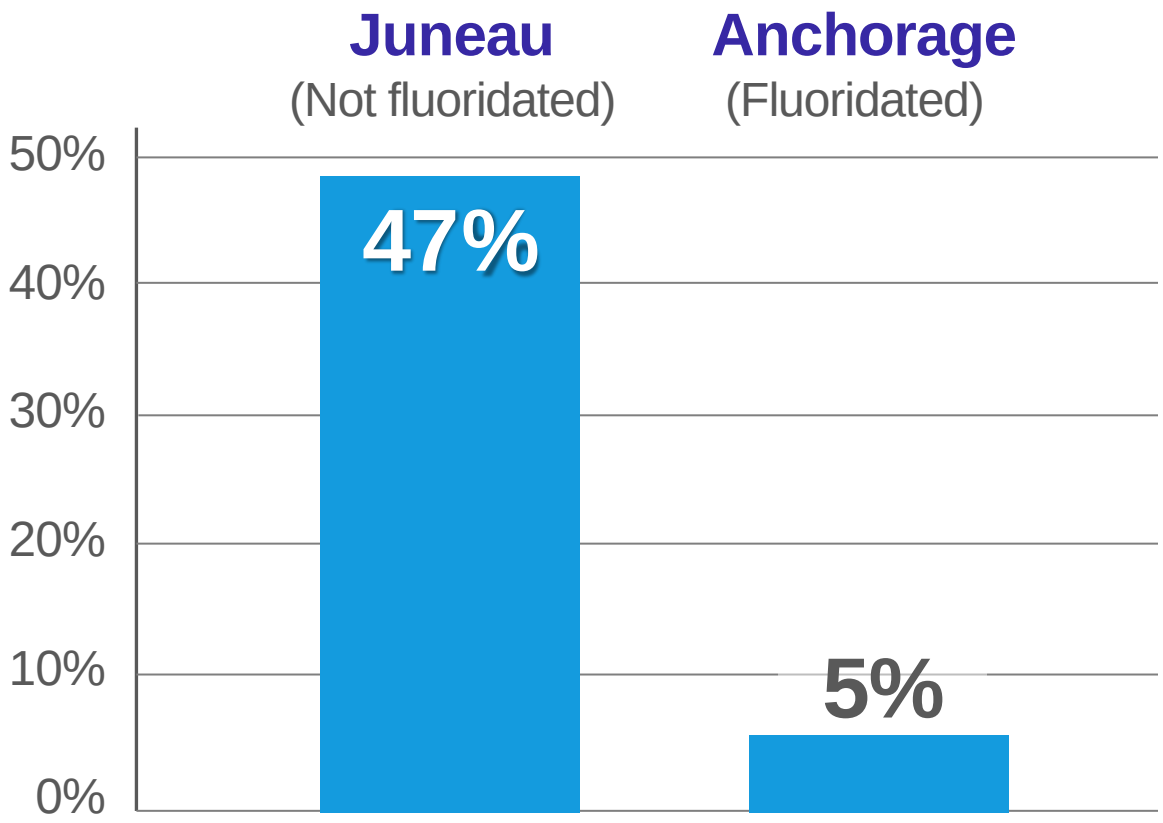
Research from Alaska

- When both cities were fluoridated, **Juneau** ($344) and **Anchorage** ($369) had similar average costs for treating cavities in low-income children.
- In 2007, Juneau officials ended water fluoridation. But the city of Anchorage continued fluoridation and still does so.
- Researchers wanted to know what effect this had on children's dental health.

(***Source:*** *J. Meyer et al., "The Impact of Water Fluoridation on Medicaid-Eligible Children and Adolescents in Alaska," Journal of Primary Prevention, 2022; the costs provided on this slide are for 2003, a year when both cities engaged in water fluoridation.)*

Dental treatment costs soar in Juneau

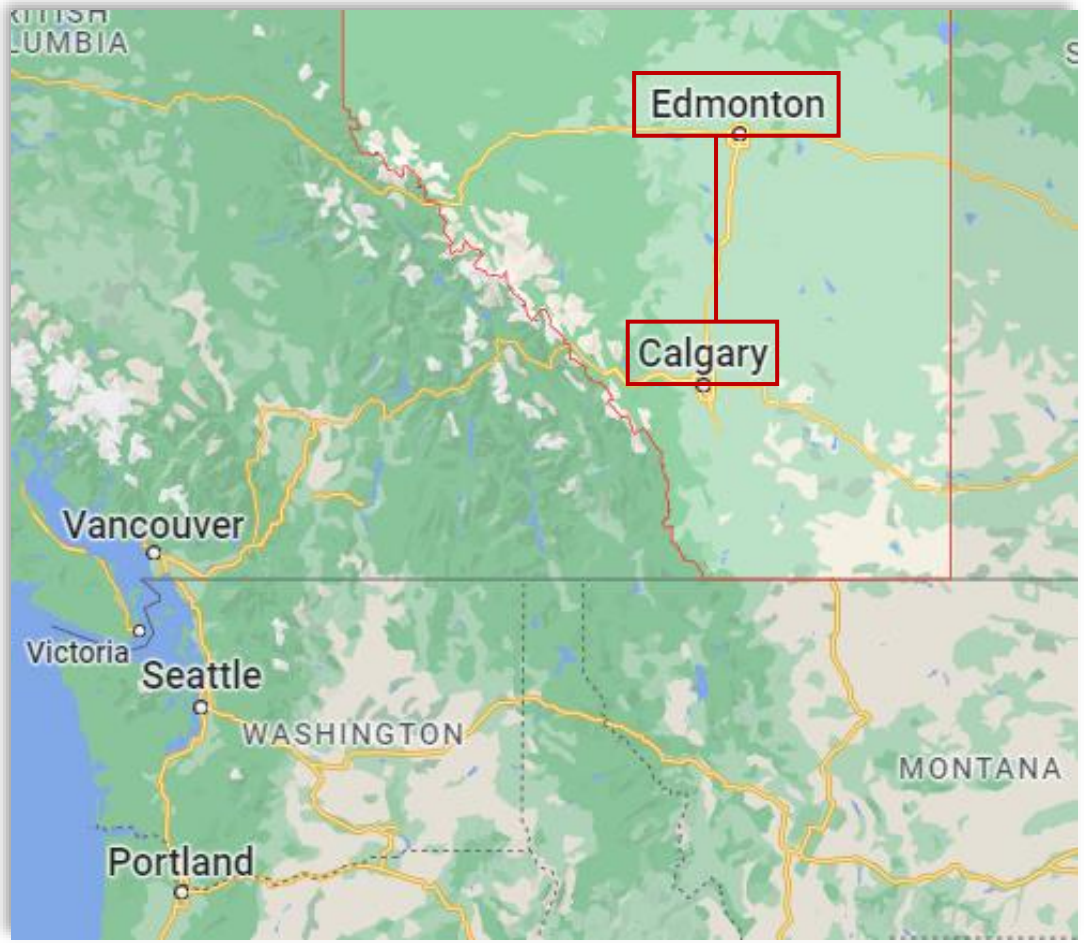
9 years after Juneau ended fluoridation, this is was the change in the **average per-child cost for cavity treatments**:



(***Source:*** *J. Meyer et al., "The Impact of Water Fluoridation on Medicaid-Eligible Children and Adolescents in Alaska," Journal of Primary Prevention, 2022; for this bar graph, the average Medicaid costs were rounded up or down to the nearest whole number.)*

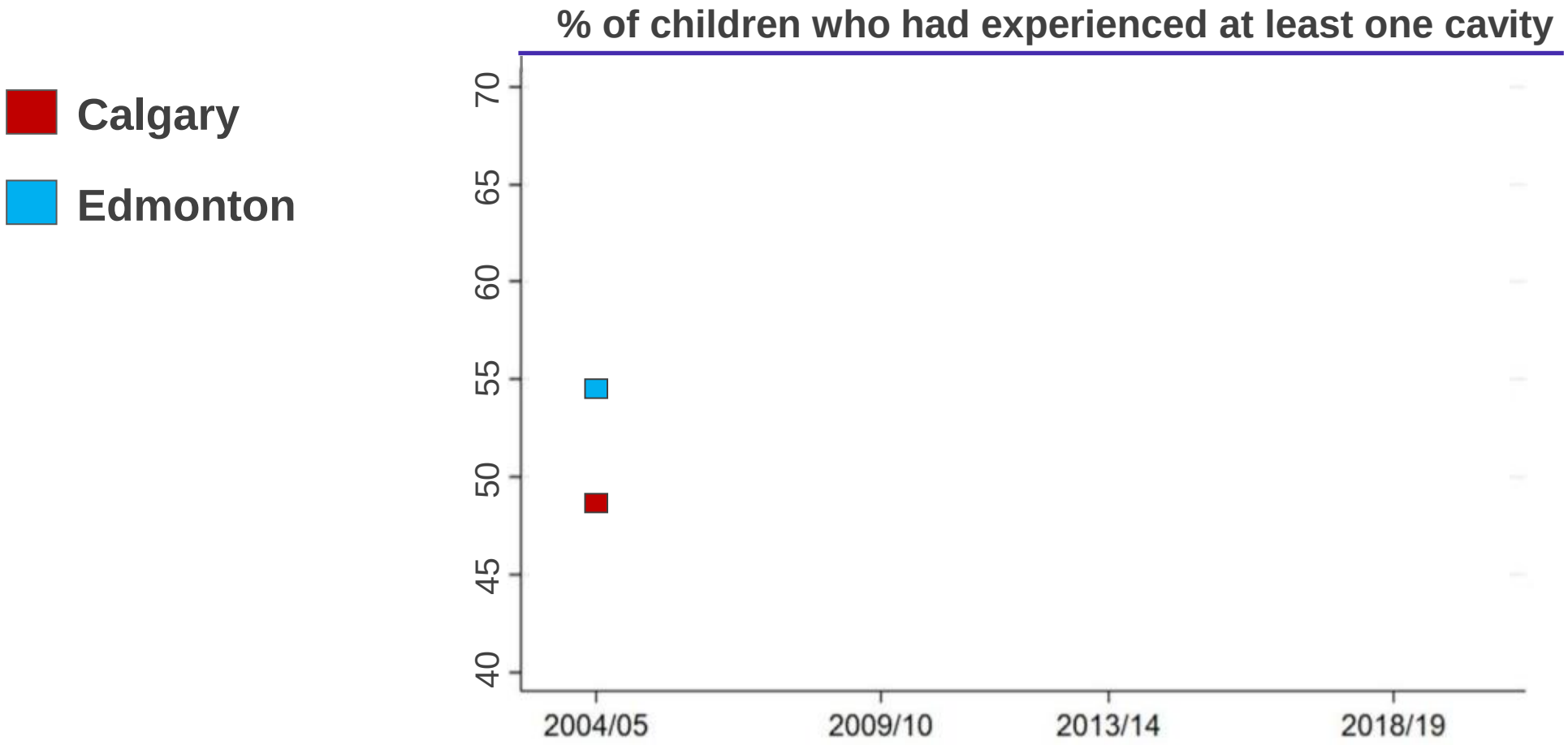
Research from Canada

- These two cities in Canada used to fluoridate their drinking water. But one of them later stopped.
- Researchers wanted to see what effect this had on dental health.



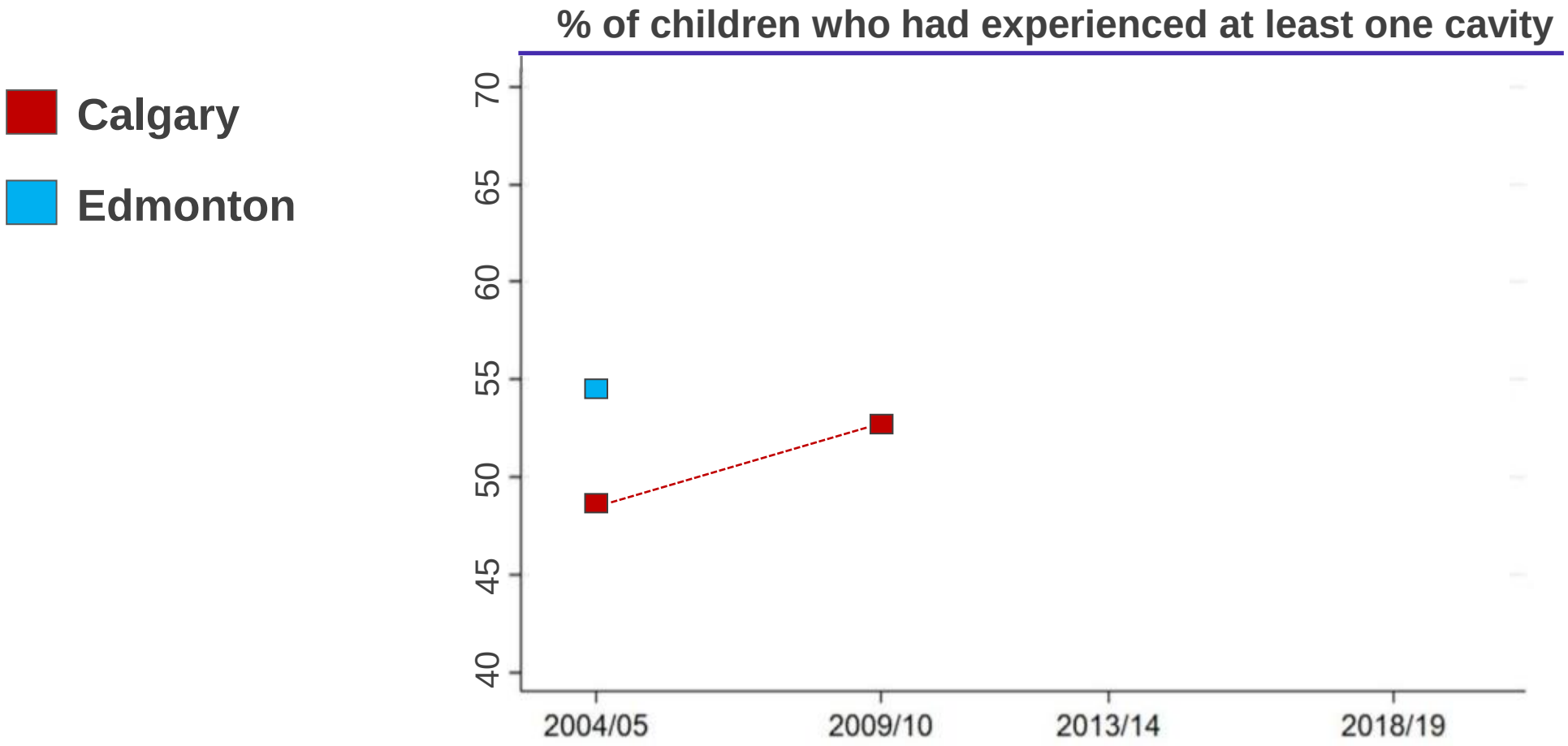
Here is what research showed

Researchers tracked the rate of decayed, extracted, missing or filled primary teeth (2nd grade children)



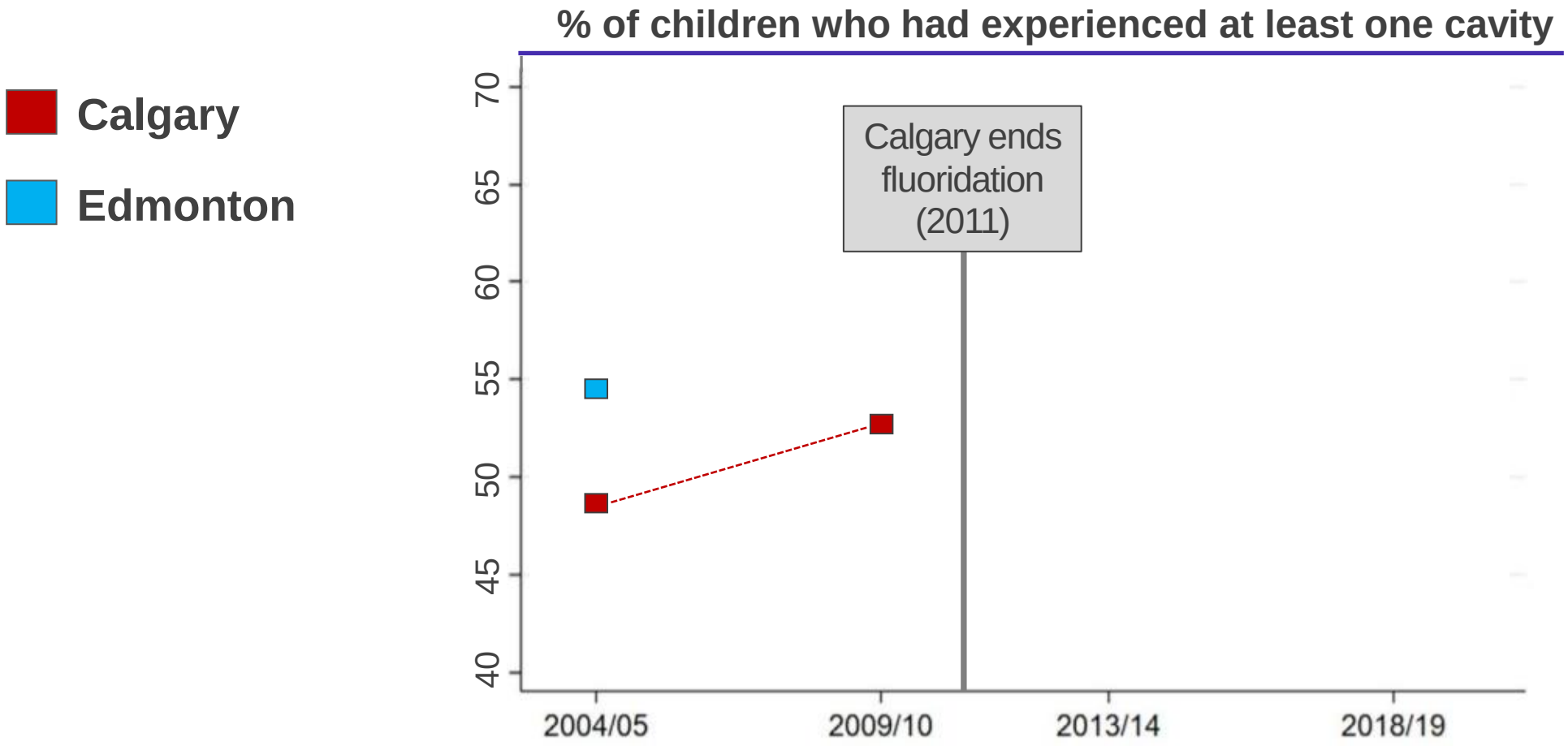
The cavity rate in each city was similar

Researchers tracked the rate of decayed, extracted, missing or filled primary teeth (2nd grade children)



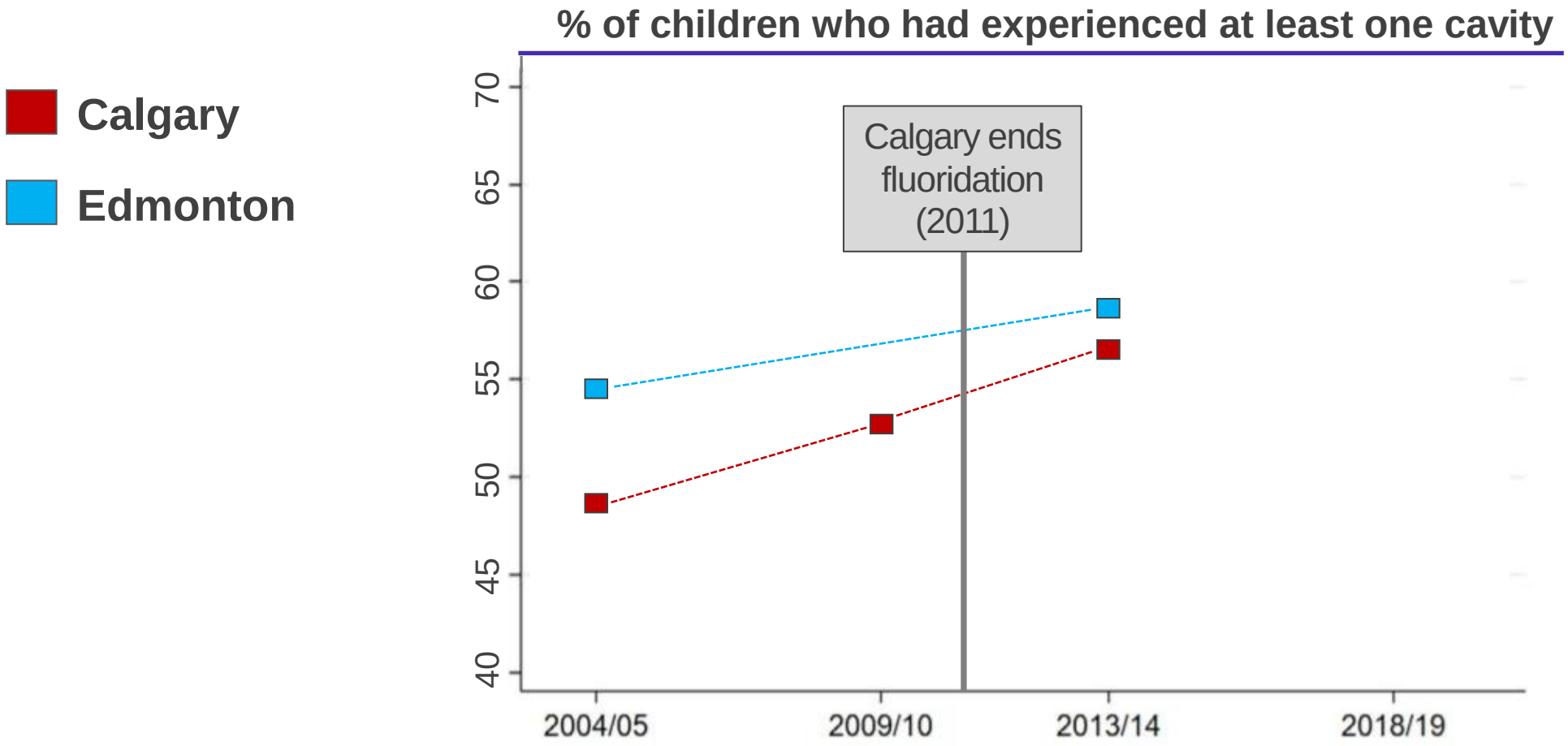
In 2011, Calgary ceased fluoridation

Researchers tracked the rate of decayed, extracted, missing or filled primary teeth (2nd grade children)



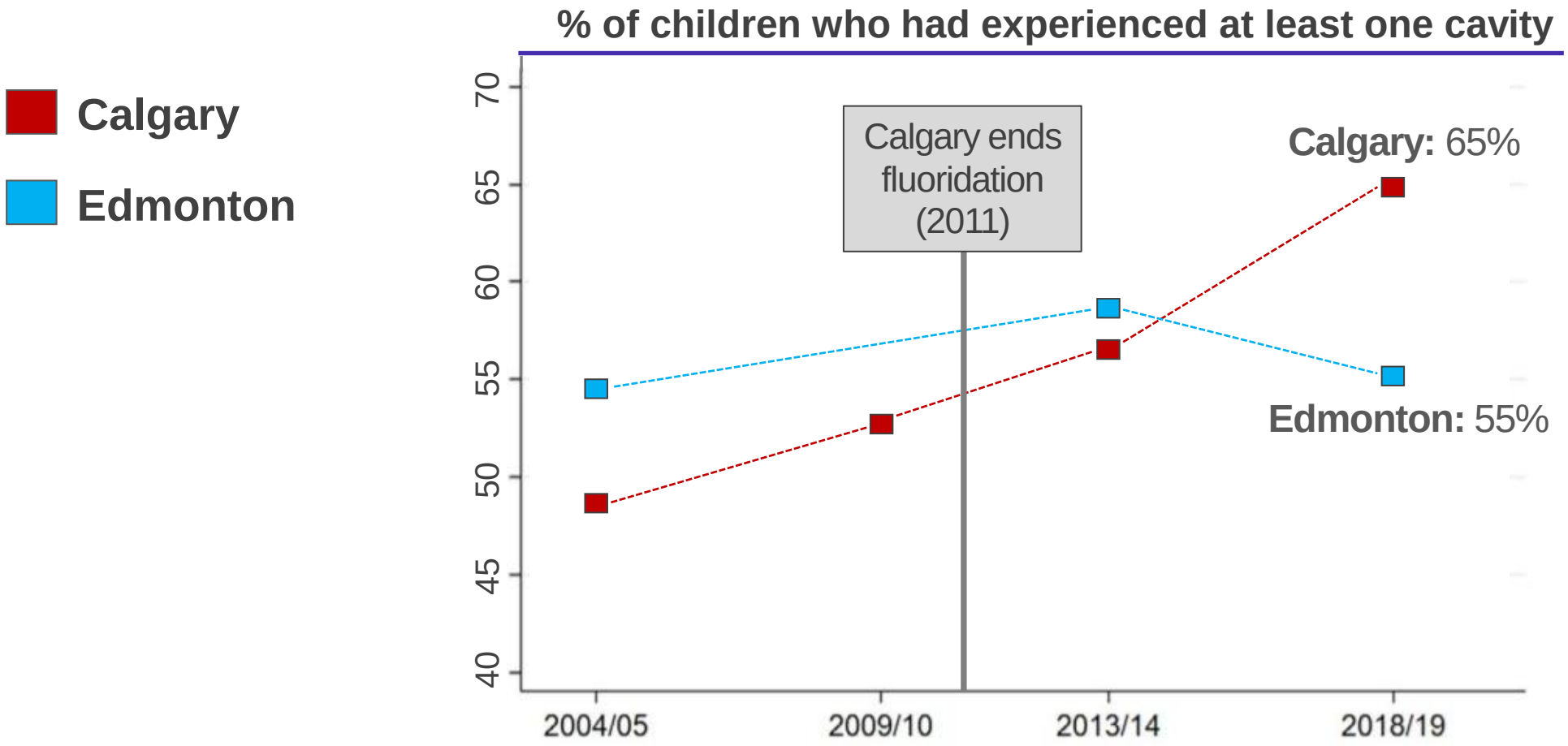
The impact of ending fluoridation in Calgary

Researchers tracked the rate of decayed, extracted, missing or filled primary teeth (2nd grade children)



The impact of ending fluoridation in Calgary

Researchers tracked the rate of decayed, extracted, missing or filled primary teeth (2nd grade children)



These findings led Calgary to reverse course

- There was a public outcry upon learning of the decline in children's health.
- The city voted in 2021 to resume water fluoridation.

CBC | MENU

'What Calgarians have wanted': City council votes 13-2 to return fluoride to tap water

Calgary will reintroduce fluoride to its tap water after city council voted overwhelmingly in favour of the change Monday.

The vote wasn't close, as 13 members of council voted in favour. Two councillors voted against the motion to reinstate fluoride: Andre Chabot of Ward 10 and Dan McLean of Ward 13.

Fluoride was removed following a council decision in 2011. However, Calgarians voted 61.61 per cent in favour of resuming fluoridation in last month's civic election. There was majority support for the move in all 14 of the city's wards.

The city says it will take up to two years to buy the necessary equipment and install it at the two water treatment plants in Calgary.

Mayor Jyoti Gondek reacted to the vote saying it was Calgarians who provided this mandate.

(***Source:*** *Scott Dippel, CBC News story, posted on November 15, 2021.)*

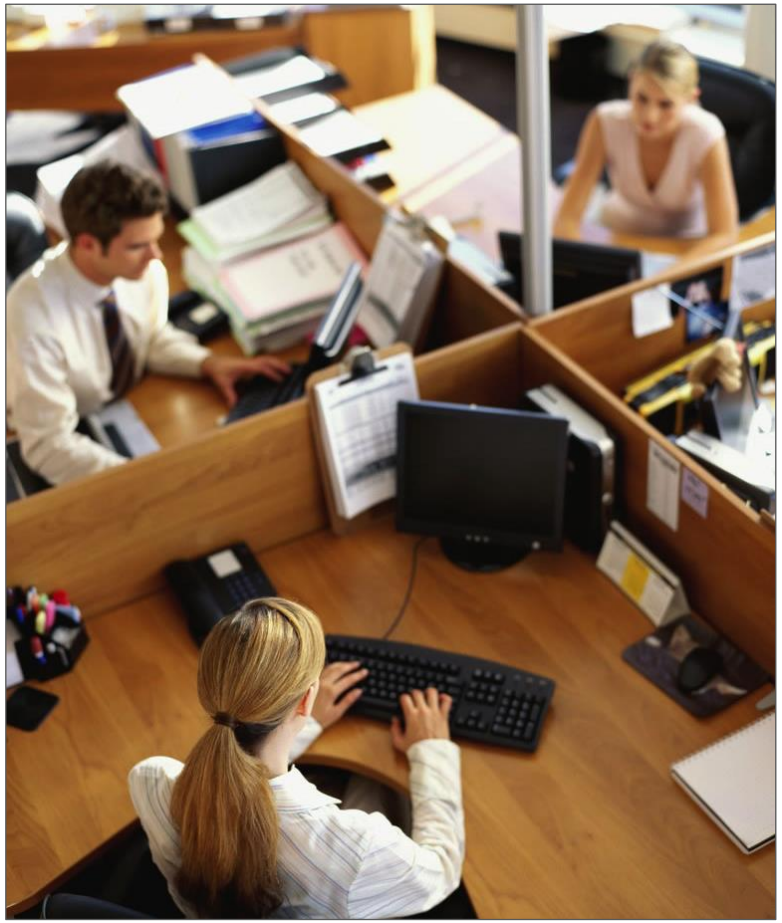
What are the hidden costs of poor dental health?

Hidden costs: A quality education

- Children missed **34 million hours** of school time in a single year due to serious or unplanned dental care.
- Students with recent dental pain were 4 times more likely to have **lower grades**.

(***Sources:*** *S. Naavaal and U. Kelekar, "School hours lost due to acute/unplanned dental care," Health Behavior and Policy Review, 2018, 5:2, pp. 66-73; H. Seirawan, et al. "The impact of oral health on the academic performance of disadvantaged children," American Journal of Public Health, 2012, 102:9, pp. 1729-1734.)*

Hidden costs: Finding good-paying jobs



NBC NEWS

"In America, most people — including employers — make instant judgments based on appearance, including someone's smile and teeth."

(**Source:** *J. Aleccia, "Bad Teeth, Broken Dreams," NBC News story published online, June 13, 2013.)*

Hidden costs: Military readiness

"One soldier experiencing a [non-battle-related dental problem] can require up to nine personnel and a convoy of three vehicles to evacuate the soldier to receive necessary care."

— Military Medicine, May 2015

The U.S. Defense Dept. ordered its military bases to adopt fluoridation in 2011. The Department has called it an approach "that improves and sustains the military readiness" of our troops.

*(**Sources:** B.E. Wojcik, et al. "Risk of dental disease non-battle injuries and severity of dental disease in deployed U.S. Army personnel," Military Medicine, May 2015, 180:5, pp. 570-577; Memorandum by the Assistant Secretary of Defense for Health Affairs, "Fluoridation of water supplies under the control of the Department of Defense," July 18, 2011.)*

Hidden costs: Older adults' quality of life

- Receding gums are common in older adults — exposing the roots of their teeth and raising the risk of **root surface decay**.
- Many prescription drugs can cause **dry mouth**, which raises the risk of decay.
- Fluoridation is proven to help reduce tooth decay in adults, enabling them to eat nutritious foods and enjoy their lives.

(***Sources:*** *Medline Plus, "Aging changes in teeth and gums," National Library of Medicine, Feb. 8, 2021; S.O. Griffin, et al. "Effectiveness of fluoride in preventing caries in adults," Journal of Dental Research, 2007, 86:5, pp. 410-415.)*

What about the safety of water fluoridation?

Strong evidence of safety

- **75+ years** of research and experience confirm its safety.
- Opponents have blamed fluoride for a long list of harms — migraines, cancer, acne and so on. But the evidence shows that these claims are baseless.
- Each time fact-checkers have reviewed a claim about the safety of fluoride, they have found it is **false** or **misleading**.

(***Source:*** *Since 2011, PolitiFact has fact-checked seven claims that have been made about the safety or impact of fluoride. The claim displayed above was fact-checked and published on July 12, 2022.)*

The primary claim: fluoride lowers IQs

- The Green study (cited most often by fluoride opponents) is from Canada.
- It found an “association” between fluoride and lower IQ scores but only for boys and only on one of the two tests.
- The study’s authors have **refused** to release their data.

Research

JAMA Pediatrics | Original Investigation

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

Editorial and Editor's Note
Supplemental content

IMPORTANCE 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 information from the Maternal-Infant Research on Environmental Chemicals cohort. Children were born between 2008 and 2012; 41% lived in communities supplied with fluoridated municipal water. The study sample included 601 mother-child pairs recruited from 6 major cities in Canada; children were between ages 3 and 4 years at testing. Data were analyzed between March 2017 and January 2019.

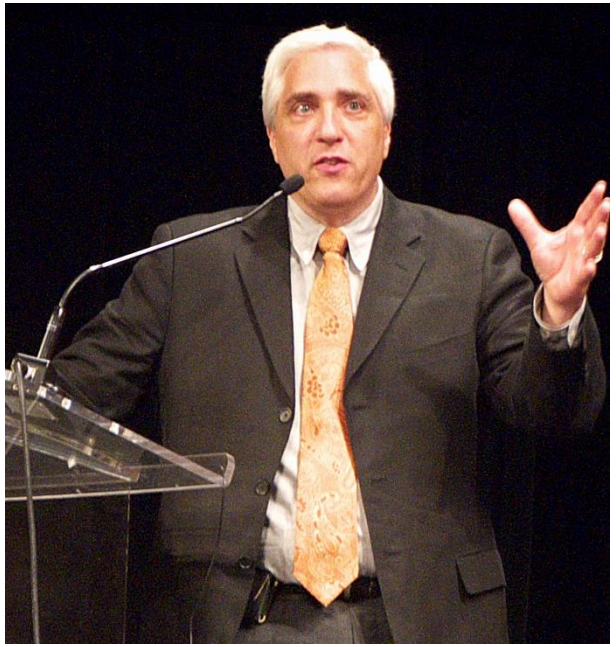
EXPOSURES Maternal urinary fluoride (MUF_{SG}), adjusted for specific gravity and averaged across 3 trimesters available for 512 pregnant women, as well as self-reported maternal daily fluoride intake from water and beverage consumption available for 400 pregnant women.

MAIN OUTCOMES AND MEASURES Children's IQ was assessed at ages 3 to 4 years using the Wechsler Primary and Preschool Scale of Intelligence-III. Multiple linear regression analyses were used to examine covariate-adjusted associations between each fluoride exposure measure and IQ score.

RESULTS Of 512 mother-child pairs, the mean (SD) age for enrollment for mothers was 32.3 (5.1) years, 463 (90%) were white, and 264 children (52%) were female. Data on MUF_{SG} concentrations, IQ scores, and complete covariates were available for 512 mother-child pairs; data on maternal fluoride intake and children's IQ were available for 400 of 601 mother-child pairs. Women living in areas with fluoridated tap water (n = 141) compared with nonfluoridated water (n = 228) had significantly higher mean (SD) MUF_{SG} concentrations (0.69 [0.42] mg/L vs 0.40 [0.27] mg/L; $P = .001$; to convert to millimoles per liter, multiply by 0.05263) and fluoride intake levels (0.93 [0.43] vs 0.30 [0.26] mg of fluoride per day; $P = .001$). Children had mean (SD) Full Scale IQ scores of 107.16 (13.26), range 52-143, with girls showing significantly higher mean (SD) scores than boys: 109.56 (11.96) vs 104.61 (14.09); $P = .001$. There was a significant interaction ($P = .02$) between child sex and MUF_{SG} (6.89; 95% CI, 0.96-12.82) indicating a differential association between boys and girls. A 1-mg/L increase in MUF_{SG} was associated with a 4.49-point lower IQ score (95% CI, −8.38 to −0.60) in boys, but there was no statistically significant association with IQ scores in girls ($B = 2.40$; 95% CI, −2.53 to 7.33). A 1-mg higher daily intake of fluoride among pregnant women was associated with a 3.66 lower IQ score (95% CI, −7.16 to −0.14) in boys and girls.

(***Source:*** *R. Green et al., Association Between Maternal Fluoride Exposure During Pregnancy and IQ Scores in Offspring in Canada. JAMA Pediatrics, 2019.)*

Experts comment on the Green study



Dr. Steven Novella, clinical neurologist and assistant professor at Yale University School of Medicine:

Novella: "the negative results were driven largely by a small number of boys who had extreme levels of exposure. Take out the outliers, and the overall effect becomes non-significant."

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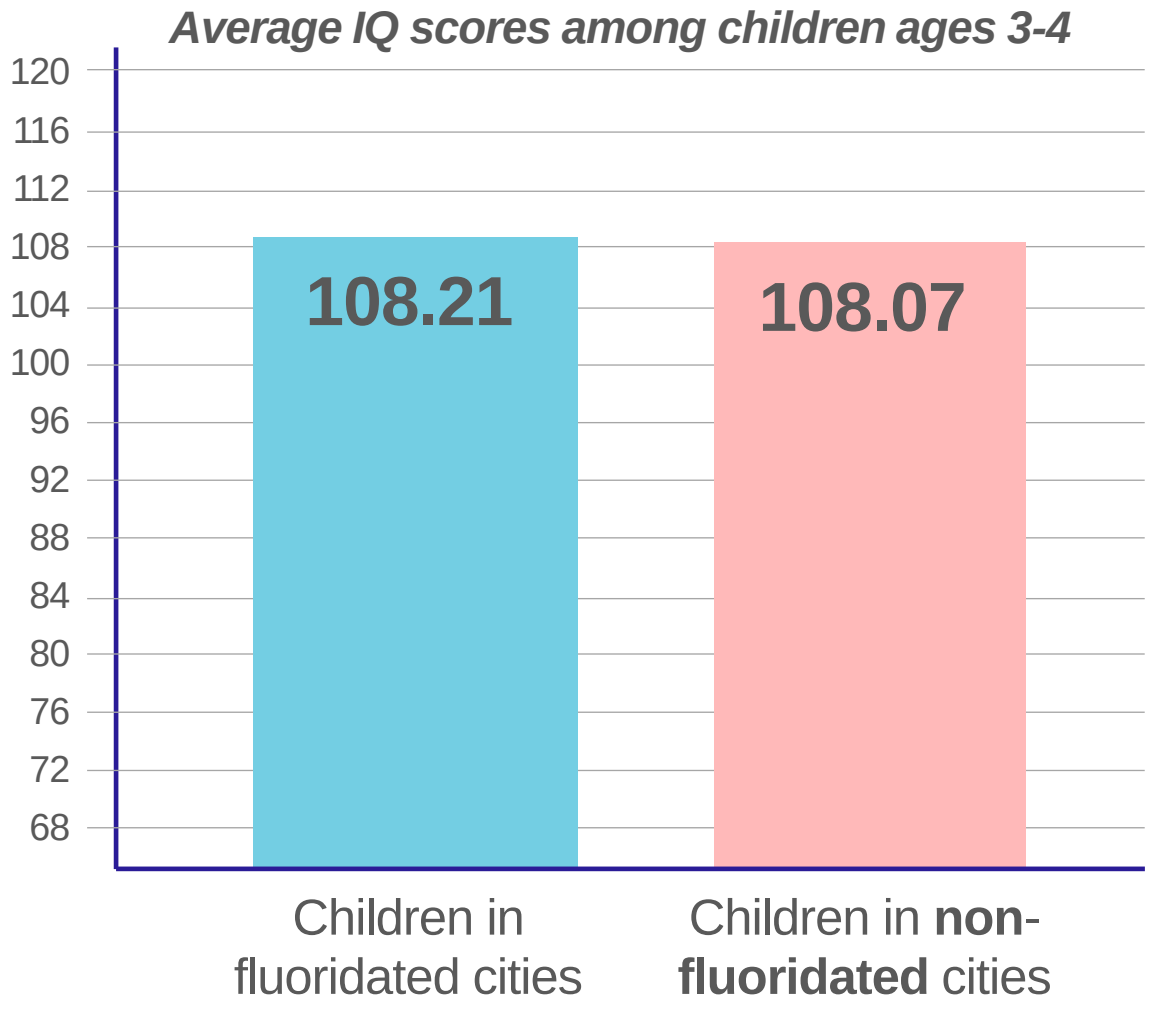
(***Source:*** *S. Novella, Maternal Fluoride & IQ, article posted by Science-Based Medicine, August 21, 2019.)*

IQ scores in the Green study: almost identical

If fluoride caused lower IQ scores, why were the IQs of children in the fluoridated and non-fluoridated cities **virtually identical**?



(***Source:*** *See the Full-Scale IQ scores (FSIQ) in Table 1 of R. Green et al., Association Between Maternal Fluoride Exposure During Pregnancy and IQ Scores in Offspring in Canada. JAMA Pediatrics, 2019; Note: The scale shown on this slide reflects the evidence that scores above 120 and below 70 are rare; experts have traditionally considered scores below 70 as indicative of intellectual disabilities.)*

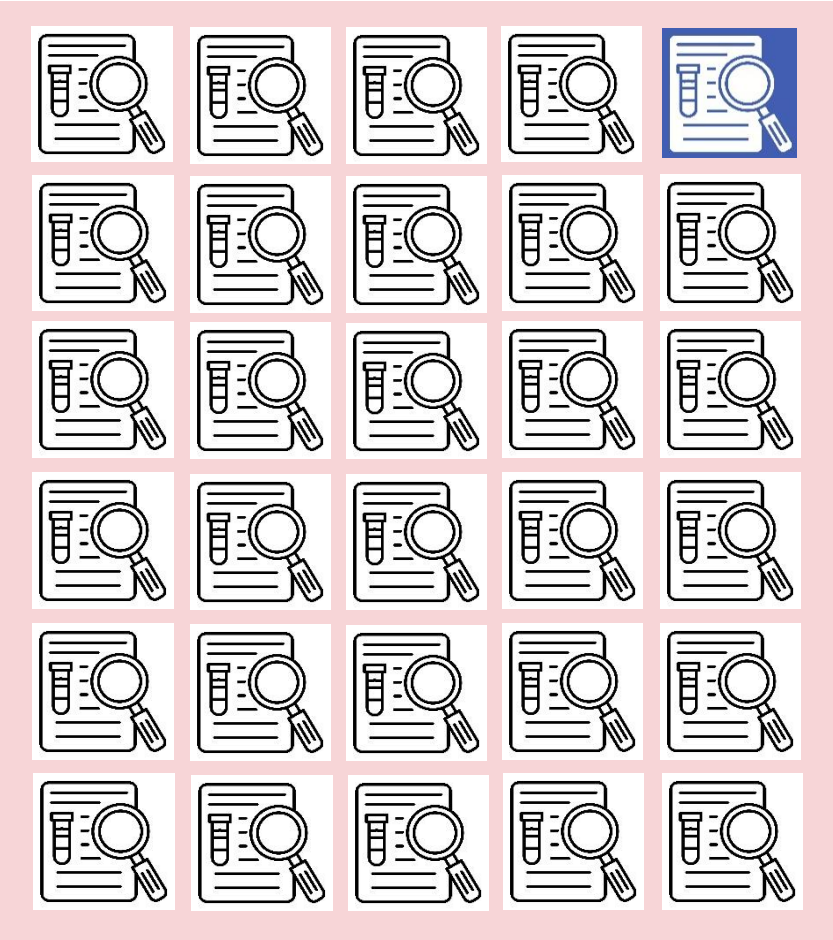
Other studies reject this claim about IQ scores

Peer-reviewed studies	Any link between fluoridation and IQ?
Australia study	Yes ☐ No ☒
Spain study	Yes ☐ No ☒
Sweden study	Yes ☐ No ☒
New Zealand study	Yes ☐ No ☒

*(**Sources:** Do, L.G., et al. Early Childhood Exposures to Fluorides and Child Behavioral Development and Executive Function: A Population-Based Longitudinal Study, Journal of Dental Research, 2022; Ibarluzea, J., et al. Prenatal exposure to fluoride and neuropsychological development in early childhood: 1-to 4 years old children, Environmental Research, 2021; Aggeborn, J., et al., The Effects of Fluoride in Drinking Water, Journal of Political Economy, 2021; Broadbent, J.M., Community Water Fluoridation and Intelligence: Prospective Study in New Zealand, American Journal of Public Health, 2015.)*

Most IQ studies are not high-quality research

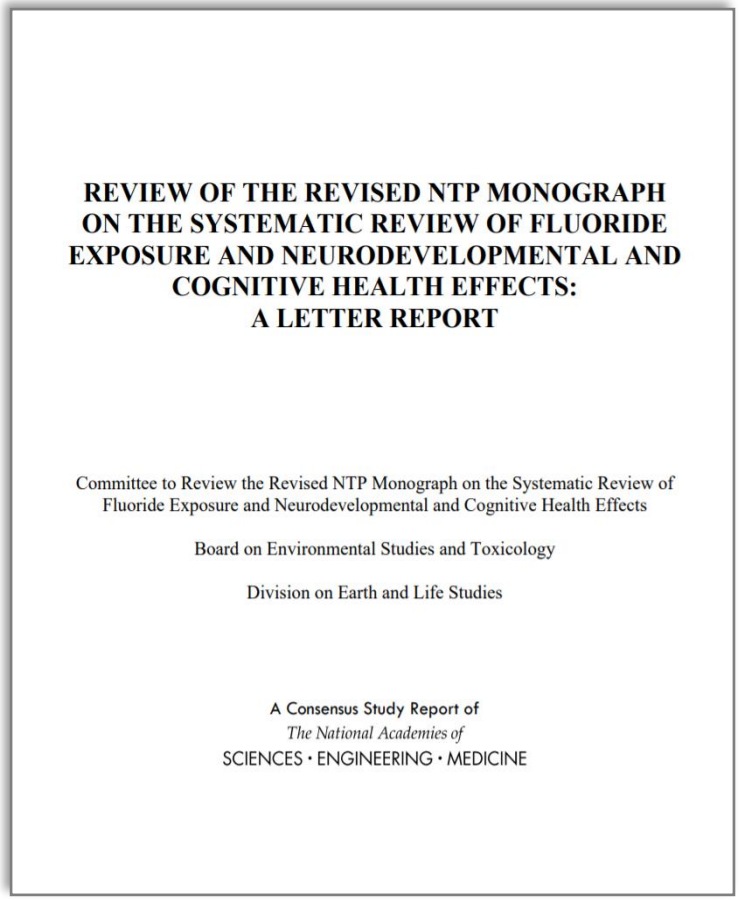
Researchers analyzed 30 studies about fluoride and IQ scores.



- 29 of the studies were found to be at **moderate or high risk of bias**.
- **Only 1 study was found to be at low risk of bias**. This study found no link between fluoride exposure and IQ scores.

(***Source:*** *Veneri F, et al. Fluoride exposure and cognitive neurodevelopment: Systematic review and dose-response meta-analysis, Environmental Research, 2023, 221:115239, doi: 10.1016/j.envres.2023.115239.)*

The National Academies of Sciences weighs in



REVIEW OF THE REVISED NTP MONOGRAPH ON THE SYSTEMATIC REVIEW OF FLUORIDE EXPOSURE AND NEURODEVELOPMENTAL AND COGNITIVE HEALTH EFFECTS: A LETTER REPORT

Committee to Review the Revised NTP Monograph on the Systematic Review of Fluoride Exposure and Neurodevelopmental and Cognitive Health Effects

Board on Environmental Studies and Toxicology

Division on Earth and Life Studies

A Consensus Study Report of
The National Academies of
SCIENCES • ENGINEERING • MEDICINE

- The National Academies was asked to peer-review a report that described fluoride as harmful to cognitive development (IQs).
- The National Academies gave it a negative review and said the findings do not apply to **low fluoride exposures** such as those "typically associated with drinking-water fluoridation."
- NTP removed the "hazard" classification below 1.5 mg/L of fluoride in water.

(***Source:*** *National Academies of Sciences, Engineering & Medicine. Review of the Revised NTP Monograph on the Systematic Review of Fluoride Exposure and Neurodevelopmental and Cognitive Health Effects: A Letter Report, Feb 2021; the hazard classification was removed in March, 2023)*

The leading health/scientific experts agree

CWF is recommended by:

- American Academy of Family Physicians
- American Academy of Pediatrics
- American Academy of Pediatric Dentistry
- American Academy of Physician's Assistants
- American Dental Association
- American Dental Hygienists' Association
- American Medical Association
- American Osteopathic Association
- American Nurses Association
- American Public Health Association
- Association of Maternal & Child Health Programs
- Association of State & Territorial Health Officials

- Centers for Disease Control and Prevention
- Mayo Clinic
- National Association of Community Health Centers
- National Association of County & City Health Officials
- National Association of School Nurses
- National Indian Health Board

(***Sources:*** *Many of these organizations' statements are included in "In Their Own Words," Campaign for Dental Health, 2014; others have signed a statement of alliance with the Campaign for Dental Health, a website that supports CWF and provides educational materials about fluoride and fluoridation; still other statements of support were obtained through online searches.)*

Oral Health Community

Dr. Johnny Johnson, Jr., DMD, MS
Diplomate American Board of Pediatric Dentistry
President, American Fluoridation Society

Medical & Public Health Community

Dr. Philip Huang, MD, MPH, Director – Health Authority
Dr. Anh Nguyen, MD
Dallas County Health & Human Services

Fluoride is Naturally Occurring

- **Soil**
  - 13th most abundant element in the earth's crust
- **Air**
  - 50% volcanic
  - 25% wind erosion
  - 25% from human activities
- **Water**
  - Surface water – 0.1 mg.L
  - Ground water – zero to 5 mg/L
  - Ocean water – 0.8 to 2.4 mg/L
- **Food, Plants**

Scientific Reviews

- US Public Health Service (July/August 2015)
- The Cochrane Collaboration – Water fluoridation for the prevention of dental caries (2015)
- Ireland Health Research Board (2015)
- Royal Society of New Zealand and the Office of the Prime Minister's Chief Science Advisory (2014)
- US Community Preventive Services Task Force (October 2000, Updated April 2013)
- US EPA, Fluoride Risk Assessment and Relative Source Contribution (2010)
- European Commission of the European Union Scientific Committee on Health and Environmental Risks (2010)
- Fluoride in Drinking Water – Guidelines for Canadian Drinking Water Quality for Public Consultation, Canada (2009)
- National Health & Med Research Council, Australia (2007)
- Finding and Recommendations of the Fluoride Expert Panel (January 2007)
- National Research Council, USA (2006)
- ATSDR Toxicological Profile for Fluorides, Hydrogen Fluoride, and Fluorine (2003)
- Forum on Fluoridation, Ireland (2002)
- Medical Research Council, U.K. (2002)
- CDC Fluoride Recommendations (2001)
- University of York, UK (2000)
- U.S. Surgeon General's report (2000)
- Institute of Medicine, USA (1999)
- World Health Organization (1994)
- National Research Council, USA (1993)
- PHS Report, USA (1991)

Fluoride Issues

- **Benefits of Community Water Fluoridation**
- **Dental Fluorosis**
- **Concerns about other health effects - 2006 National Research Council Report**

  "The Committee did not evaluate the risks or benefits of the lower fluoride concentrations (0.7 to 1.2 mg/L) used in water fluoridation. Therefore, the committee's conclusions regarding the potential for adverse effects from fluoride at 2 to 4 mg/L in drinking water do not apply at the lower water fluoride levels commonly experienced by most U.S. citizens."
- **IQ**
- **Infant Formula**
- **Cancer**
- **"Fertilizer Byproduct"**

Panel Questions

Next Steps

- Receive feedback from the Quality of Life Committee on current community fluoridation practice at the City of Dallas
- Incorporate feedback related to our future approach

City of Dallas

Dallas Water Utilities: Community Water Fluoridation in Dallas, Texas

Quality of Life, Arts & Culture Committee
October 16, 2023

Sarah Standifer, Director (I)
Sally U. Wright, Assistant Director
Dallas Water Utilities

Dr. Mary Swift, DDS
Texas Dental Association

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