

## Why Public Health, IWK Health, Nova Scotia Dental Association, and Partners Recommend Community Water Fluoridation

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# Purpose

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- To highlight the health and equity benefits of community water fluoridation (CWF) in Halifax
- To increase knowledge on the impacts and costs of ceasing CWF

# Recommendation

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Public Health, Nova Scotia Dental Association & IWK Health strongly support:

- **Continued use of fluoride in Halifax's water supply plants** to help prevent tooth decay and promote oral health in the residents of Halifax Regional Municipality
- **Reinstating fluoride with minimum delay to Lake Major water supply plant**, while acknowledging the need to minimize operational risks related to source water quality



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# Other Organizations Endorsing CWF

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**CWF is endorsed by more than 90 provincial, national, and international professional organizations, associations, and governments**

**In Nova Scotia, this includes:**

- IWK Health – Department of Dentistry
- Dalhousie University – Faculty of Dentistry
- Nova Scotia Health – Public Health
- Department of Health & Wellness – Public Health Branch
- Nova Scotia Dental Association
- College of Dental Hygienists of Nova Scotia



Learn more:

[The State of Community Water Fluoridation across Canada - Canada.ca](http://Canada.ca)



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# Why Community Water Fluoridation?

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- **Preventative Approach:** It's the most impactful tool to prevent tooth decay before treatment is required
- **Equitable:** It improves oral health for everyone, regardless of age, income, or access to dental care services & supplies
- **Regulated and Monitored:** To ensure optimal fluoride levels always maintained
- **Safe:** Decades of research support safety
- **Cost-Effective:** Every dollar spent on CWF saves \$5.49 to \$93.19

Learn more:

[The State of Community Water Fluoridation across Canada - Canada.ca](https://www.canada.ca/en/public-health/services/fluoridation)

# Why is Fluoride Important for Oral Health?

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Fluoride is a mineral that is found naturally in water, soil, plants, and food, and is added to various dental products. **It strengthens teeth and prevents tooth decay.**

Fluoride prevents tooth decay in two ways:

- 1. Topically:** When teeth come in direct contact with fluoride in drinking water it both prevents tooth decay and stops the progression of decay
- 2. Systemically:** When fluoridated water is consumed during tooth development, fluoride is incorporated into the tooth structure and makes it more resistant to acids and tooth decay

**Evidence shows that receiving fluoride in both ways leads to greater benefits in reducing tooth decay**

Learn more:

[Fluoride: Topical and Systemic Supplements | American Dental Association](#)



# Fluoride Benefits All Ages

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## **Topical and systemic fluoride benefits everyone over their lifetime**

*“Adult oral health is predicted by not only childhood socioeconomic advantage or disadvantage, but also by oral health in childhood.”*

- Fluoride reduces dental decay in children, adults, and seniors
- Fluoride use is especially important as people age, since 1 in 5 seniors aged 65 and older have untreated tooth decay

Learn more:

Thomson W.M, et al. Socioeconomic inequalities in oral health in childhood and adulthood in a birth cohort. *Community Dent Oral Epidemiol.* 2004;32:345–353



# Everyone is Susceptible to Dental Disease

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## However...

This is disproportionately a disease of poverty, minority, and social disadvantage

For example, unmet dental needs:

- 47% of low-income
- 26% of the high-income

Learn more:

[State of Oral Health in Canada - Canadian Dental Association](#)





# Oral Health-Related Quality of Life (OHRQoL)

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**Oral health is an essential component of overall health** – for everyone

- Chronic and acute pain associated with dental disease has a detrimental effect on both physical and psychological health. It also decreases quality of life
- In children this can lead to:
  - Sleep disturbances –impacts on growth and development
  - Damage to developing adult teeth structure/alignment

Learn more:

[Oral health for adults - Canada.ca](#)

[Oral health for children - Canada.ca](#)

[Canadian Dental Association](#)

Genderson MW, Sischo L, Markowitz K, Fine D, Broder HL. An overview of children's oral health-related quality of life assessment: from scale development to measuring outcomes. Caries Res. 2013;47 Suppl 1(0 1):13-21.



# Canadian Incidence Study – State of Oral Health in Canada

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## Overall:

- ~2.26 million school-days/year lost due to dental visits or dental sick-days
- ~4.15 million working-days/year lost due to dental visits or dental sick-days

## Of note:

- Low OHRQoL and dental disease association stronger in lower income families
- Concentration/learning/work impacted by acute and or chronic dental pain

Learn more:

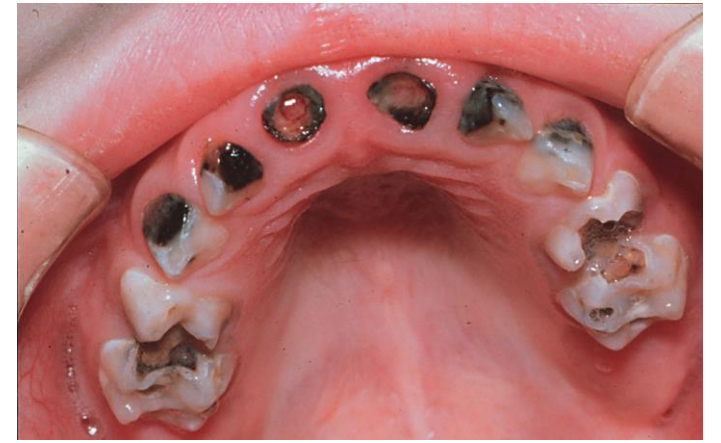
[State of Oral Health in Canada - Canadian Dental Association](#)

Locker D. Disparities in oral health-related quality of life in a population of Canadian children. *Community Dent Oral Epidemiol.* 2007;35:348–56.



# What Does Dental Disease Look Like?

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# IWK Health: Use of Operating Room

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# The Shocking Statistics...

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- Dental procedures are the **most common reason** preschool children require general anesthesia
- **Over 30% of pediatric day surgical time** in Canada is consumed by dental treatment

Learn more:

[CIHI | Treatment of Preventable Dental Cavities in Preschoolers](#)



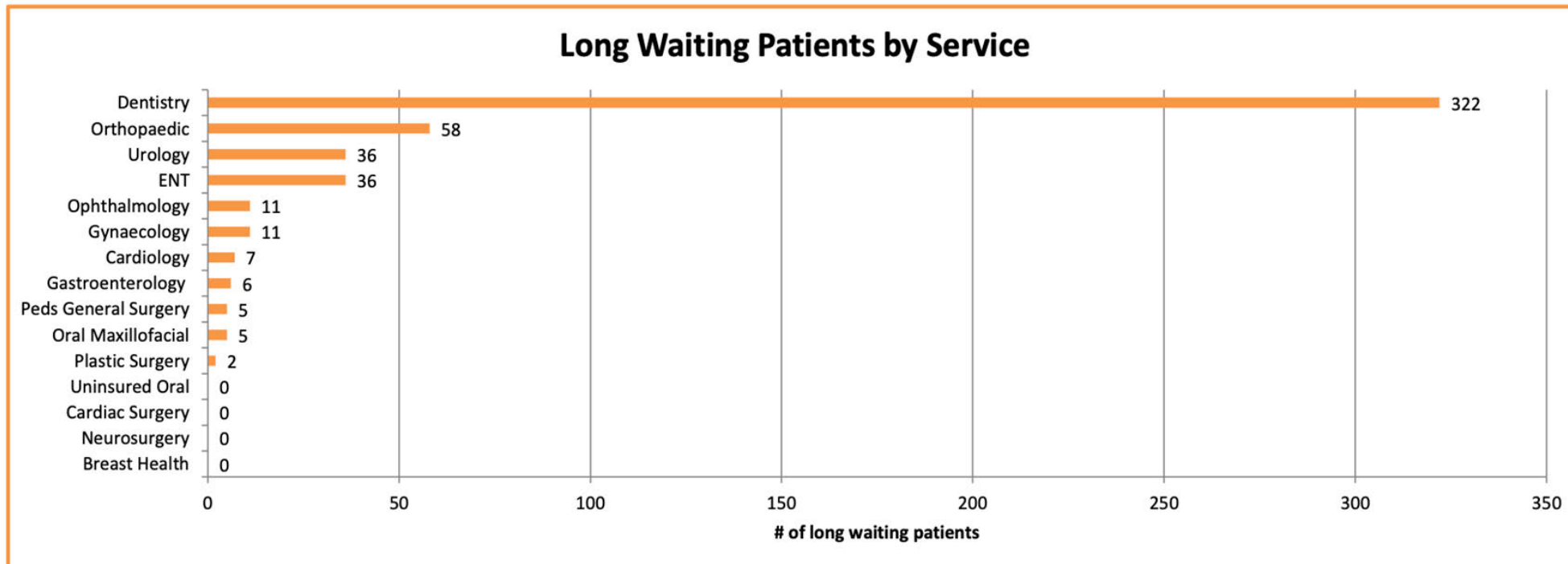
# Current IWK Health Dentistry Situation

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- Average **number of referrals/year** for last 3 fiscal years = **1,464**
- Approximately **85%** of all patient referred require the use of general anaesthesia for treatment
- Predict need to complete **1,244 cases/year**
- Average **number of operating room cases/year** for last 3 fiscal years = **884**



# IWK Dentistry Surgical “Long Waiters” Over one year wait – Oct. 2024



# One Story From IWK Health: Jan 2, 2025

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- 8-year-old living in Dartmouth in the Lake Major water supply catchment area
- Referred by family dentist in January 2024
- Seen for consultation May 2024 and placed on Operating Room waiting list
- At the time of consultation, **all teeth were restorable**
- Phone call with pain, November 2024 : re-triaged
- At the time of treatment, Jan 2, 2025: **required removal of 4 permanent molars**





# Dental Disease is Preventable

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Steps to help reduce dental decay include:

- Practice good oral health routine, including brushing with fluoridated toothpaste
- Limit the intake of sugar and refined carbohydrates
- See an oral health professional on a regular basis
- Fluoride treatments at the dental office
- **Drink fluoridated water**

Drinking fluoridated water keeps teeth strong and **reduces cavities by about 25%** in both children and adults.

- Even those with financial and other barriers benefit from water fluoridation

Learn more:

[Canadian Dental Association](#)

[About Community Water Fluoridation | Fluoridation | CDC](#)



# CWF is Equitable

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- Canadians living with low-income are almost **twice as likely** to suffer from poor oral health compared to high income Canadians
- Water fluoridation is a **cost-effective measure** to narrow the gap when it comes to oral health and tooth decay
- CWF **benefits all residents in a community**, regardless of age, socioeconomic status, education, oral hygiene practices, employment or access to routine dental care, making it a truly equitable public health practice

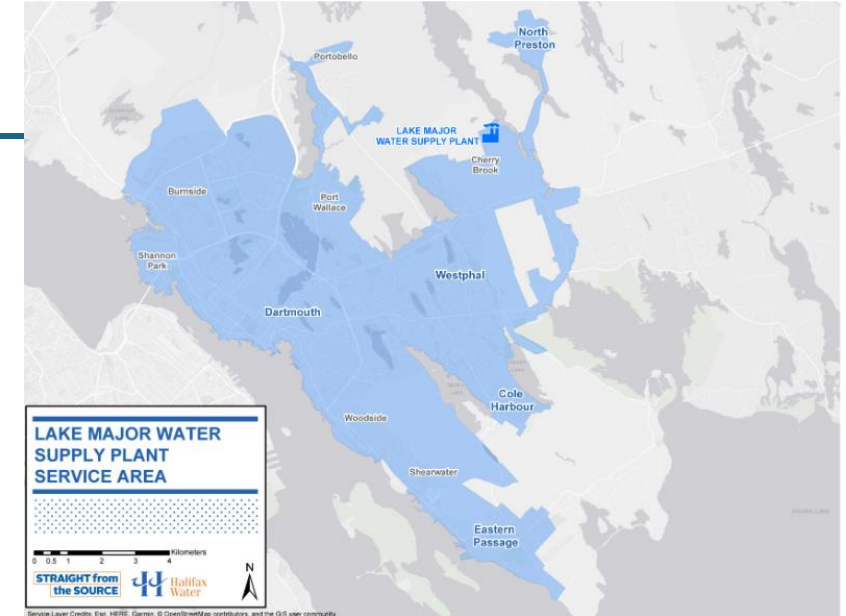
Learn more:

[Position statement on Community Water Fluoridation - Canada.ca](#)

[The State of Community Water Fluoridation across Canada - Canada.ca](#)

# Who Lives in the Lake Major Water Supply Plant Service Area?

- **Lake Major serves 118,000 people** in the communities of Dartmouth, Burnside, Cole Harbour, Westphal, North Preston, and Eastern Passage
  - Includes two prominent historic African Nova Scotian communities, **North Preston** and **Cherry Brook**
- Many communities served by the Lake Major plant face overlapping challenges like **income inequality, racism, discrimination and food insecurity**



**These are the communities that experience the greatest benefit from CWF**

Learn more:

[Environmental Racism and Climate Change: Determinants of Health in Mi'kmaw and African Nova Scotian Communities - Canadian Climate Institute](#)  
[Water Service Advisory - Dartmouth & Area Water Supply Upgrades | Halifax Water](#)

# CWF is Regulated and Monitored

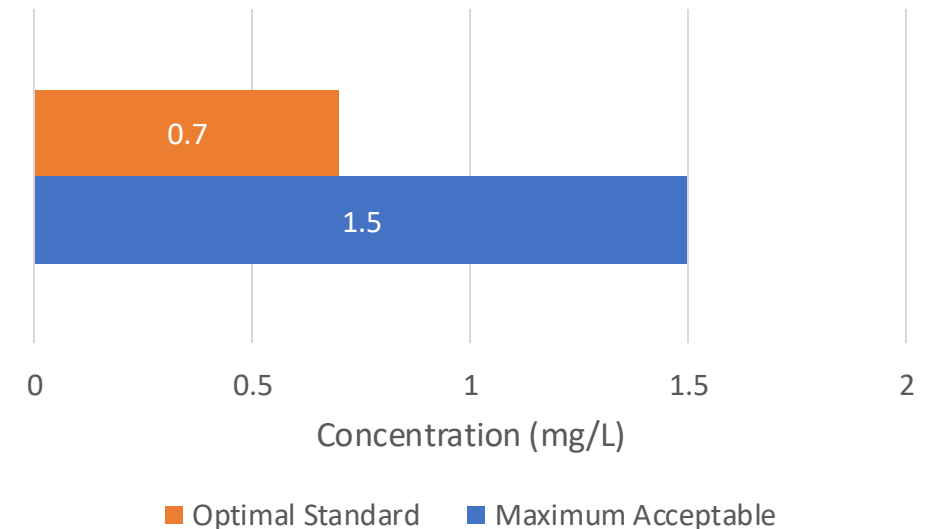
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- The Guidelines for Canadian Drinking Water Quality has established the maximum acceptable concentration of fluoride in drinking water at 1.5 mg/L
- Health Canada set optimal standard for CWF at 0.7mg/L, less than half of the maximum level
  - This accounts for fluoride coming from other sources (e.g., access to dental treatments, toothpaste, mouth rinses, etc)
- **In NS, municipal water supply plants that offer CWF test drinking water daily to ensure optimal fluoride levels are maintained**

Learn more:

[Guidelines for Canadian Drinking Water Quality: Fluoride Guideline Technical Document](#)  
[NS Treatment Standards for Municipal Drinking Water Systems](#)

Canadian Drinking Water Guidelines for Fluoride



# CWF is Safe

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- **Decades of extensive research has shown that CWF is safe** when optimal fluoride concentrations (0.7 mg/L), less than half of the regulated level, are maintained
- Repeated exposure to fluoride at higher levels than Canada's regulated maximum (1.5 mg/L) has been associated with potential risks. Daily monitoring prevents this from occurring in Nova Scotia
- NSH Public Health and many others (including Health Canada) closely monitor new research on water fluoridation to inform recommendations
  - Emerging evidence is not strong enough to change water fluoridation guidelines

Learn more:

[Fluoride and Oral Health - Canada.ca](https://www.canada.ca/en/health-canada/services/fluoride-oral-health.html)

# What are the Risks Associated with Fluoride?

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**Mild dental fluorosis** is not associated with any health or oral health concerns

- **It is a cosmetic issue** that affects the tooth enamel. It can lead to white flecks or brown pitting on adult teeth

Repeat exposure to high concentrations of fluoride (above the maximum level of 1.5 mg/L) is associated with an increased risk of **moderate and severe dental fluorosis**

- Moderate and severe dental fluorosis is **rare** in Canada

**Skeletal fluorosis** results in hardened bones and joints. It occurs with ingesting very high levels of fluoride (>10 mg/day) every day for years

- Skeletal fluorosis is **extremely rare** in Canada

Evidence continues to show at the regulated level the **benefits of water fluoridation outweigh the potential risks** of fluorosis

Learn more:

[Systematic review of epidemiological and toxicological evidence on health effects of fluoride in drinking water](#)

[Canadian Health Measures Survey - Report on Oral Health Component](#)

[Expert Panel Meeting on the Health Effects of Fluoride in Drinking Water: Summary report](#)

# What are the Risks Associated with Fluoride?

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Recent systematic reviews have found an association (not cause and effect) between **high** fluoride exposure (>1.5 mg/L) and **lowered IQ in children**, but the evidence is mixed

- More research is needed to better understand this relationship
- **Evidence does NOT support a link between decreased IQ and water fluoridated at optimal levels using current guidelines in Canada**

Health Canada's commissioned systematic review in 2024 looked at more than **30 other health endpoints** such as:

- Bone cancer, hip fracture, cancer, high blood pressure, heart attacks, diabetes, childhood obesity, thyroid function, and more
- **Evidence does NOT support a link between other adverse health effects and water fluoridated at optimal levels using current guidelines in Canada**

Learn more:

[Systematic review of epidemiological and toxicological evidence on health effects of fluoride in drinking water](#)

[NTP Monograph: State of the Science Concerning Fluoride Exposure and Neurodevelopment and Cognition](#)



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# CWF is Cost-Effective

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## **Dental services are expensive**

- In 2018, the cost of dental services was estimated to be approximately \$17 billion in Canada, about \$461 per Canadian

## **Water fluoridation yields a high return on investment**

- Every \$1 invested in community water fluoridation saves \$5.49 to \$93.19 per person in dental treatment costs
- Halifax Water reports the operational cost for water fluoridation is \$0.30 to \$0.40 per customer annually

Learn more:

[The State of Community Water Fluoridation across Canada - Canada.ca](#)

[Halifax Water Board Package - March 27, 2025](#)

Community Water Fluoridation Programs: A Health Technology Assessment — Budget Impact Analysis. Ottawa: CADTH; 2019 Feb. (CADTH technology review; no. 13).



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# Cautionary Tale of CWF Cessation in Calgary

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City of Calgary ceased CWF in 2011 after the previous fluoride infrastructure reached the end of its lifecycle and was decommissioned and removed. At the same time, CWF continued in Edmonton

Multiple comparison studies between Calgary and Edmonton have shown:

- Fluoride cessation negatively impacted children's dental health in Calgary
- At least 25% more tooth decay was seen, with more burden in kids living in families with low-income
- Significant increase in dental cost and surgery under general anesthetic

**In light of these outcomes, and with public support, the City of Calgary is now working toward reintroducing fluoride to its water supply**

Learn more:  
[Fluoride in Calgary's water](#)

# Key Takeaways

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- Community water fluoridation improves oral health and supports the overall health of a community
- Community water fluoridation remains a safe, cost effective, and equitable public health practice and an important tool in protecting and maintaining the health and well-being of Nova Scotians
- Halifax Water can continue to create significant and lasting impacts in our communities through ongoing investment in CWF systems, creating generations of healthier residents

# Thank you!

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We welcome any questions and discussion

Dr. Catherine Brown – Public Health



Dr. Jennifer MacLellan – IWK Dentistry



# Additional Resources on CWF

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## **Government of Canada – Guidelines & Reports**

- [Guidelines for Canadian Drinking Water Quality: Fluoride Guideline Technical Document](#)
- [Position statement on Community Water Fluoridation - Canada.ca](#)
- [State of Community Water Fluoridation across Canada](#)
- [Ethics Consultation Report - Ethical Considerations in Community Water Fluoridation](#)
- [Expert panel meeting on the health effects of fluoride in drinking water: Summary report - Canada.ca](#)

## **Government of Canada – Additional Resources on Oral Health & Fluoride**

- [Fluoride and Oral Health - Canada.ca](#)
- [Oral health for adults - Canada.ca](#)
- [Oral health for children - Canada.ca](#)
- [Fact sheet - Community water fluoridation - Canada.ca](#)

# Additional Resources on CWF

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## **Nova Scotia**

- [Oral Health for Providers | Information and Wellness Portal](#)
- [Oral Health | Nova Scotia Health](#)
- [NS Treatment Standards for Municipal Drinking Water Systems](#)

## **Canadian Dental & Dental Hygienist Association**

- [Canadian Dental Association – Position on Water Fluoridation](#)
- [CDHA Advocacy – Community Water Fluoridation](#)
- [Oral Health Reports – Nova Scotia Dental Association](#)
- [Understanding Fluoride – Nova Scotia Dental Association](#)
- [Canadian Dental Association – Your Oral Health](#)
- [Fluoride in Nova Scotia – Nova Scotia Dental Association](#)

# Additional Resources on CWF

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## **International Organizations**

- [World Health Organization - Fluoride in drinking-water](#)
- [Community Water Fluoridation Recommendations | Fluoridation | CDC](#)
- [Community Water Fluoridation Frequently Asked Questions | Fluoridation | CDC](#)
- [Cavities: Community Water Fluoridation | The Community Guide](#)

# Public Health School-Based Fluoride Program

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- Public Health has been offering a topical fluoride program in schools since 1998.
- Our fluoride varnish program is offered **for children in communities that would benefit from an additional layer of protection** against dental decay.
- The program is offered in select schools (19 schools in HRM) up to two times per year for children from pre-primary to grade 6.
  - Schools are selected based on increased risk factors for dental decay.
  - Access to community water fluoridation is one of the criteria.

**Topical fluoride varnish complements, but does not replace the need for and benefits of community water fluoridation**

Learn more:  
[Oral Health | Nova Scotia Health](#)