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The Case for Fluoridation In Orillia

Begin a Legacy of Good Teeth
June 20, 2011



Why We're Here

- SMDHU is responsible for public health issues and we are here to provide advice to the City of Orillia on **Community Water Fluoridation**
- Orillia has never had Community Water Fluoridation
 - Among the 10 largest communities in Simcoe Muskoka, **elementary school children in Orillia have the most severely decayed teeth** (SMDHU screening data, 2009-2010)
- Fluoridation is a **proven safe and effective way to improve oral health** by reducing tooth decay and cavities
- Fluoridation is a challenging, polarizing issue
 - ***Our Goal: Address any misconceptions and provide accurate, up-to-date information***

What is Fluoride?

- Fluoride ***naturally occurs*** in rocks, soil, air and water
- ***Most natural water sources in Ontario have less fluoride than municipal fluoridated water systems (too low to protect teeth)***
- Some areas: At much greater concentrations (>5x average levels) – but none in Ontario

How does Fluoride work?

- ***Fluoride makes the outer layer of teeth (the enamel) stronger***
- When the outer layer is strong, teeth are less likely to develop cavities
- Fluoride protects teeth in two ways. Water fluoridation does both:
 - ***Topical***: delivered to the surface of the teeth.
 - ***Systemic***: fluoride is ingested into the body and is incorporated into the tooth structures

What is Community Water Fluoridation?

- It is the process whereby fluoride is added to the water supply and adjusted to a level that will ***optimize dental benefits while avoiding adverse effects***
- Fluoride additives are ***required to meet rigorous standards*** of quality and purity before they can be used and the process is ***carefully monitored and controlled***
- The current Maximum Acceptable Concentration of fluoride in drinking water is 1.5 parts per million (ppm) and ***Health Canada recommends an optimal level of 0.7 ppm for dental benefits***
- In ***Ontario***, it is recommended that drinking water systems that fluoridate maintain a range of ***0.5 to 0.8 ppm fluoride***

Water Fluoridation in Ontario

- In Ontario, **76%** of the population receives fluoridated community water (Health Canada, 2007)
 - District of Muskoka: **51%**
 - Simcoe County: **2%**
 - Simcoe-Muskoka combined: **7%**
- Opposition in Waterloo & Calgary resulted in the discontinuation of fluoridation
- Recent challenges to fluoridation in Toronto, Peel, Hamilton, Muskoka, Tottenham, Lethbridge and Cape Breton
 - **All have reaffirmed their commitment to Community Water Fluoridation**

Community Water Fluoridation Reduces Tooth Decay

- Studies show that community water fluoridation **reduces tooth decay by 20% to 40%**¹
- **Beneficial to all ages**, in both primary and permanent teeth
 - Children, adults, seniors
- Effect is seen in addition to personal dental care (brushing/flossing/dental care)
- **Particularly needed for vulnerable, low-income populations**



¹ Newbrun E. Effectiveness of water fluoridation. J. Public Health Dent 1989; 49(5):279-89 and Brunelle JA , Carlos JP. Recent trends in dental caries in US children and the effect of water fluoridation. J Dent Res 1990; 69(Spec Iss): 723-7

Poor Oral Health Can Impact More Than Just the Teeth.

- Recent Ontario study: there are ***more ER visits for non-traumatic dental problems than for diabetes and high blood pressure diseases***¹
- Dental and other infections – not only affect teeth and gums, but there's ***potential for spread to other parts of mouth and face***
- Studies have shown that ***poor oral health impacts children's development:***
 - Limits food choices
 - Impairs speech development
 - Repeated absences from school
 - Trouble concentrating or learning
 - Loss of self-esteem (appearance and poor school performance)

¹Community Dentistry and Oral Epidemiology, August 2009

Community Water Fluoridation Safety

- Systematic reviews conclude that community water fluoridation **does not cause** any of the following: *cancer, bone fractures, reduced intelligence, kidney failure, immunotoxicity, reproductive and developmental toxicity, DNA toxicity, neurotoxicity or environmental impacts*¹
- Levels of fluoride added in water are carefully monitored to an optimal level of 0.7 ppm. At this level, risk of fluorosis is exceedingly low.
 - Fluorosis (mild): fine white striations across the crowns of teeth
- Issue in children: inadvertent ingestion of toothpaste



Vermont Department of Health

¹ Issues raised by those opposed to fluoridation

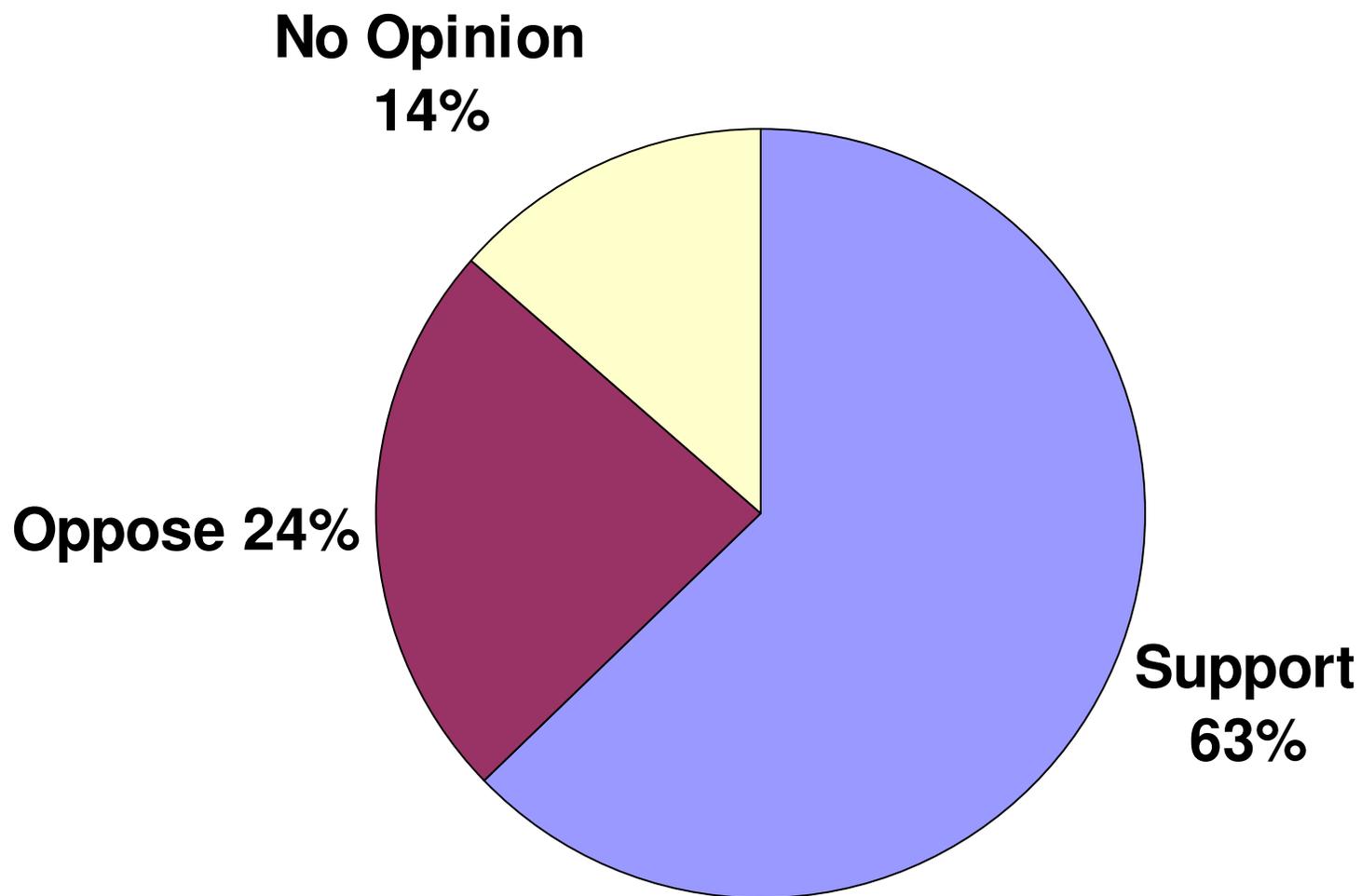
Major Scientific Research and Reviews

- [Health Canada Expert Panel, 2007](#)
- [Oral Health in America](#): A Report of the Surgeon General, 2000
- [Systematic Review of Water Fluoridation](#). UK/International study, 2000
- [Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States](#). US CDC, 2001
- [Forum on Fluoridation](#). Ireland, 2001
- [A Systematic Review of the Efficacy and Safety of Fluoridation](#). National Health and Medical Research Council, Australian Government, 2007

Who Supports Water Fluoridation?

- Simcoe Muskoka District Health Unit Board of Health
- Leadership Council of the North Simcoe Muskoka LHIN
- Department of Family Medicine at Orillia Soldiers' Memorial Hospital
- Chief Medical Officer of Health of Ontario
- World Health Organization (WHO)
- Pan American Health Organization (PAHO)
- American Medical / Dental Associations
- Canadian Dental Association
- Health Canada (HC)
- Canadian Association of Public Health Dentistry
- Ontario Medical Association
- Canadian Pediatric Society
- Canadian Public Health Association
- Association of Local Public Health Agencies (alPHA)
- Centers for Disease Control and Prevention (CDC)
- Ontario Association of Public Health Dentistry
- Royal College of Dental Surgeons of Ontario
- Ontario College of Dental Hygienists
- Ontario Dental Association
- Recent US Surgeon General's Report
- Federation Dentaire Internationale (FDI)
- Canadian Cancer Society
- American Cancer Society

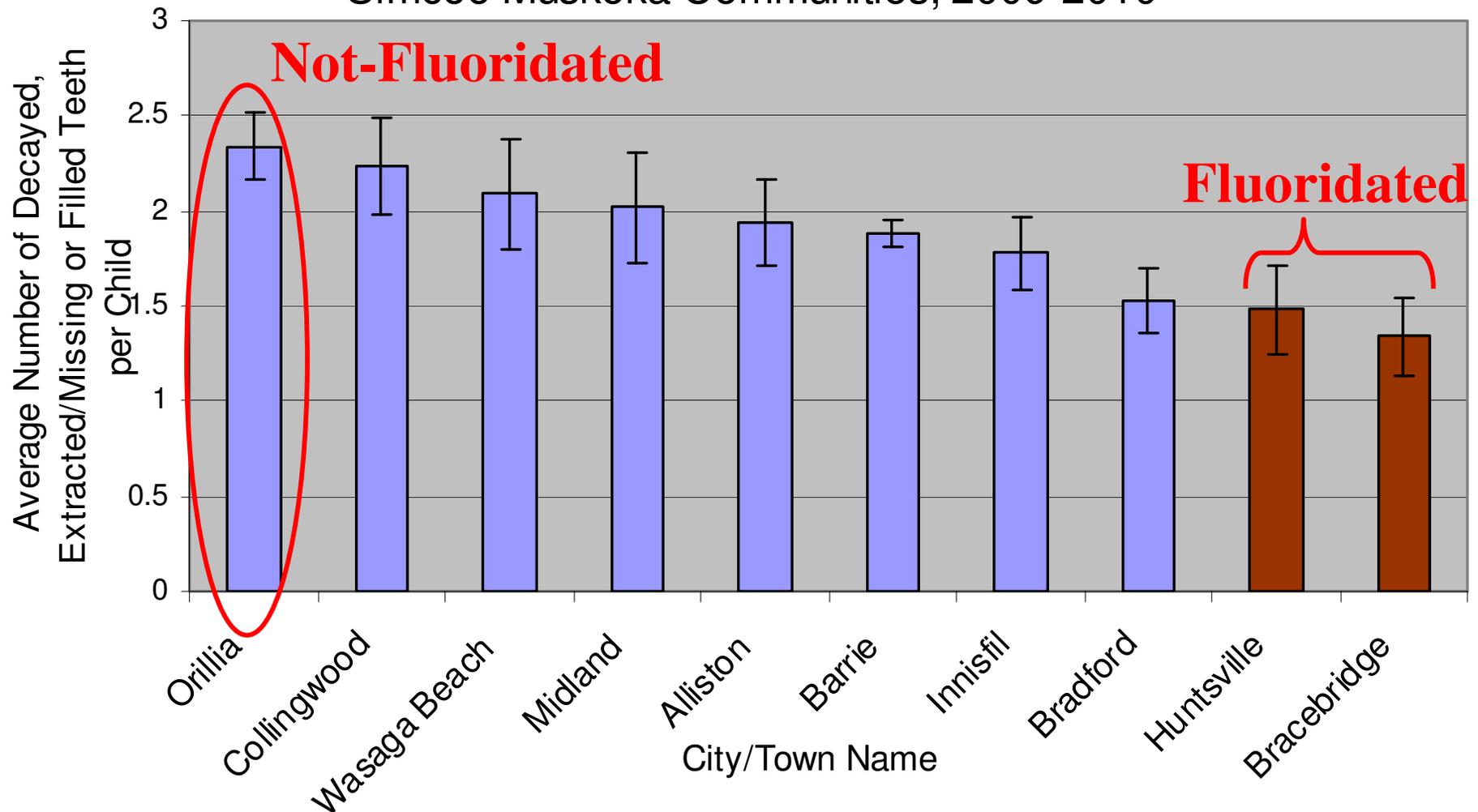
Public Support for Adding Fluoride to Municipal Water in Orillia, 2009



Data source: Rapid Risk Factor Surveillance System (RRFSS), Simcoe Muskoka District Health Unit, Cycles 1-3 (2009)

Children in Communities in Simcoe Muskoka with Water Fluoridation Have Fewer Cavities

Average Number of Decayed, Extracted/Missing or Filled Teeth in Screened Children (grades JK, SK, 2 and 8) for 10 Largest Simcoe Muskoka Communities, 2009-2010



Fluoridation Makes a Difference: Simcoe Muskoka Compared to Other Areas in the Province

Fewer Decayed Teeth & More Cavity-Free Teeth

Region	7-Yr deft/DMFT (Decayed Teeth)	7-Yr % Caries Free (Healthy Teeth)
Halton (90% Fluoridated)	1.96	58
Simcoe Muskoka (7% Fluoridated)	3.02	44.6
Ontario (76% Fluoridated)	2.49	47.8

Community Water Fluoridation Reduces Dental Program Costs

Data: Spending for Dental Programs: Health Unit and Municipal Costs (2009)

Health Unit	Halton – 90% Fluoridated	Simcoe Muskoka – 7% Fluoridated
CINOT Spending (25% Municipal dollars)	\$357,965 (\$89,491)	\$824,750 (\$206,188)
OW Dental <18 Yr Spending (20% Municipal dollars)	\$109,280 (\$21,856)	\$421,075 (\$84,215)
OW Dental Adult Spending (20% Municipal dollars)	\$225,107 (\$45,021)	\$357,501 (\$71,500)
OW Adult dentures (20% Municipal dollars)	\$160,360 (\$32,072)	\$654,603 (\$130,921)
Total Spending (Municipal Dollars)	\$852,712 (\$188,440)	\$2,257,929 (\$492,824)

CINOT = Children in Need of Treatment (Dental Program); OW = Ontario Works (Dental Program)

Benefits of Community Water Fluoridation

- ***Evidence of both safety and benefits extremely strong***
- Similar responsibility to:
 - *Treating water with chlorine to provide safe drinking water*
 - *Adding vitamin D to milk to prevent rickets and ensure healthy bones*
 - *Adding iodine to salt to ensure healthy physical and mental development*
- US Centers for Disease Control has recognized water fluoridation as ***one of 10 great public health achievements of the 20th century***
- ***Every \$1 invested in community water fluoridation yields about \$38 in savings each year from fewer cavities treated¹***

¹J Publ Health Dent 2001;61(2):78–86

Conclusions

- The value of drinking water fluoridation should not be underestimated – it is **one of the greatest preventive measures we have in the fight against dental decay**
- It is **a safe and effective public health measure that addresses inequalities in health, and benefits all members of the community**
- It ***helps contain the costs of health and dental care services***
- ***SMDHU is ready in 2011 to support the City of Orillia in a public consultation process***

Questions?

Additional Information

Local Water Use Data

- 2009: Over 1,000 adults (18+) in Simcoe County asked questions about drinking water and fluoride:
 - 74% get their tap water from a municipal source
 - 71% use their tap water for drinking
 - 38% of those on municipal water think that fluoride has been added & 49% don't know if fluoride has been added to their drinking water
- Of this, about 100 were surveyed in Orillia:
 - 73% get their tap water from a municipal source
 - 68% use their tap water for drinking
 - ***25% of those on municipal water think that fluoride has been added & 60% don't know if fluoride has been added to their drinking water***

Fluoridation is Inexpensive

Municipality	Total Water Treatment Costs	Fluoridation Costs	% of Total Costs	Per Capita Costs for Water Treatment	Per Capita Costs for Fluoridation
Muskoka	\$2,120,000	\$43,200	2%	\$36.83	\$0.75
Huntsville	\$424,000	\$17,500	4%	\$23.20	\$0.96

Communications with AJ White, Commissioner of Engineering and Public Works,
The District Municipality of Muskoka

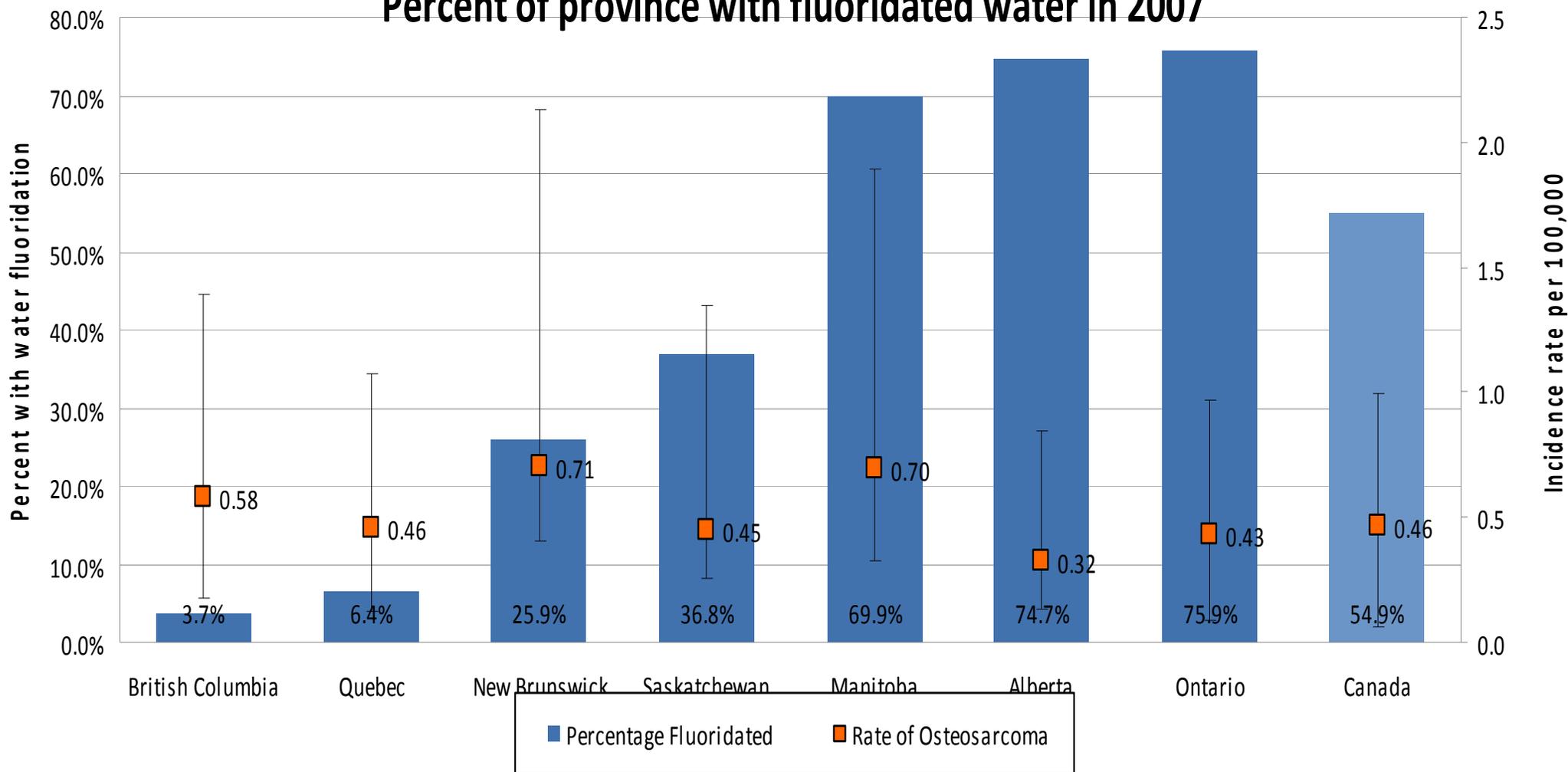
Alternative Costs of Delivering Fluoride to at Risk Populations

Program Delivery	Population	Staff	Staffing & Operating Costs	Capital Costs	Total Costs
Public Health	180,332 All children seniors + LICO	36 FTE	\$5,973,518	\$9,016,600	\$14,990,118
Public Health	30,967 Pop. under LICO	6 FTE	\$1,000,910	\$1,500,000	\$2,500,910
Private Office	180,332 All children seniors + LICO	1.5 FTE	\$17,234,5000	\$81,600	\$17,316,100
Mail Brushes and F Toothpaste	224,705 All private dwellings	3 FTE	\$1,870,985	\$163,200	\$2,035,185

Standardized incidence rates of Osteosarcoma per 100,000 males, aged 00-19, 1998-2007 combined, by province

And

Percent of province with fluoridated water in 2007



Note: Data for Newfoundland/Labrador, Nova Scotia, Northwest Territories, Nunavut, PEI and Yukon not shown due to small sample size

The data contained in this table were provided to the Middlesex-London Health Unit from the Canadian Cancer Registry database at Statistics Canada with the knowledge and consent of the provincial and territorial cancer registries which supply the data to Statistics Canada. Their cooperation is gratefully acknowledged.