

# **Calgary Fluoride Study: Omitted Data Shows Ending Fluoridation Had No Effect on Cavities**

By Michael Connett  
Fluoride Action Network  
February 26, 2016

## **BACKGROUND:**

A new study\* is being touted as proof that ending water fluoridation caused  
**a significant increase  
in tooth decay in Calgary.**

\*McLaren L, et al. (2016). Measuring the short-term impact of fluoridation cessation on dental caries in Grade 2 children using tooth surface indices. *Community Dentistry & Oral Epidemiology* [Epub ahead of print]

# The Study Has Caused a Media Uproar...

**CBCnews** | Calgary



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## Lack of fluoride in Calgary drinking water leads to rise in kids' tooth decay,

University of Calgary study shows rise in

**CTV NEWS**

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**BOINGBOING** / **CORY DOCTOROW** / 4:47 PM FRI FEB 19, 2016

## Pseudoscientific terror ended fluoridation in Calgary, now kids' teeth are rotting

### Fluoride cessation in Calgary negatively impacts children's dental health: study

### More tooth decay after city cut fluoride in water

By **Lynn Desjardins** | [english@rcinet.ca](mailto:english@rcinet.ca)  
Thursday 18 February, 2016 , [No Comments](#) ↓

ANDRÉ PICARD

### Why did Calgary cave to chemophobes over fluoridation?

...sparking calls for Calgary and other Canadian cities to put fluoride back in H2O

# Reevely: Calgary's cavities show why Ontario should require fluoride in water

COLUMN



**Urban Compass Calgary**

Metro keeps a finger on the pulse of our city.



DAVID REEVELY

[More from David Reevely](#)

## Calgary needs to drop the conspiracy theorists and fluoridate the water again

In cities countrywide, secondary suites and fluoride are non-issues.



But... what did the study  
actually find?



Let's take it one  
step at a time

# The study found that cavities in permanent teeth have decreased in Calgary

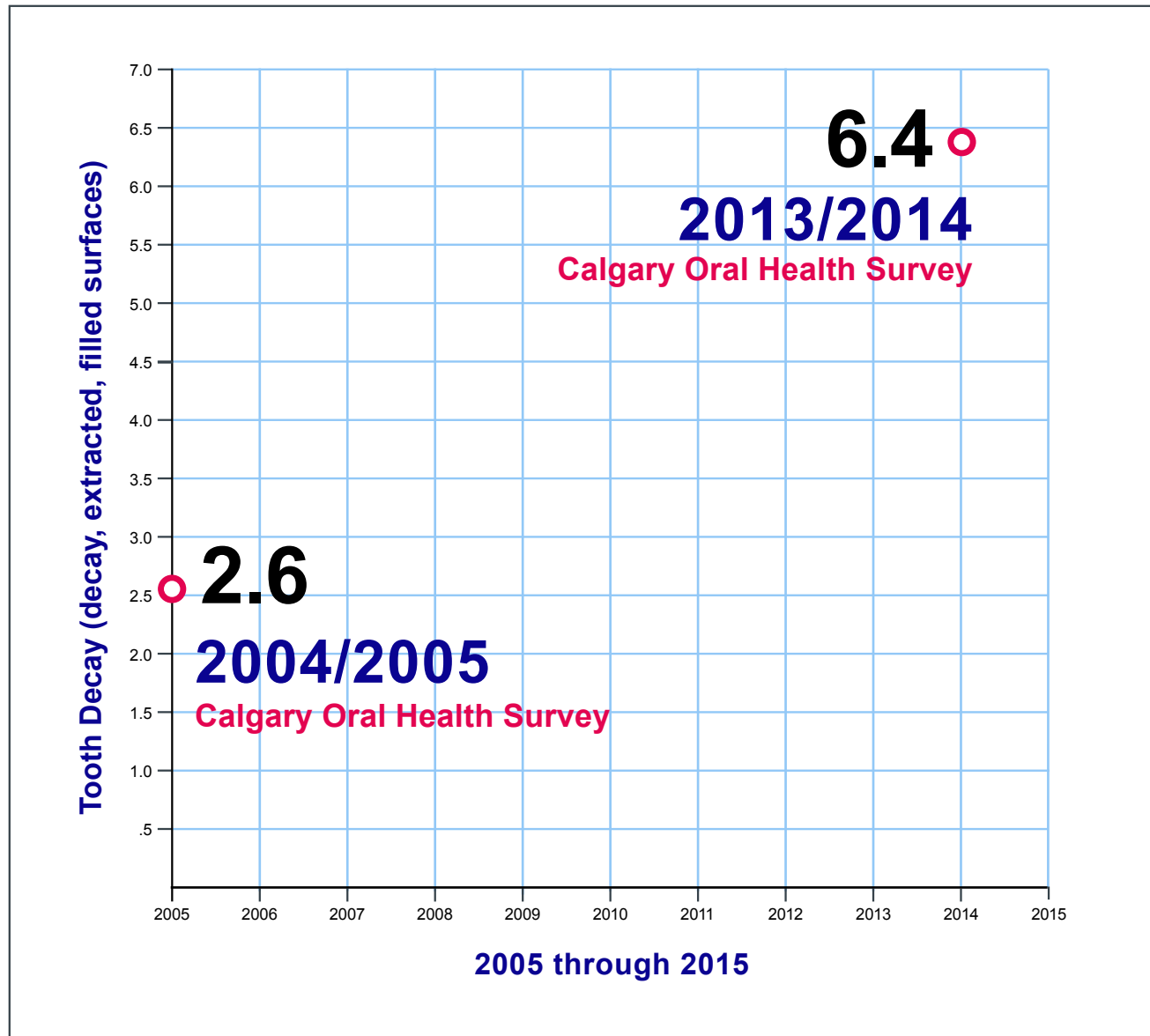
Calgary - Permanent Teeth	
Survey Year	Decayed, Missing, Filled Permanent Tooth Surfaces
2004-05	0.45
2013-14	0.15

The study also found Calgary has less cavities than *fluoridated* Edmonton, in *both* baby and permanent teeth

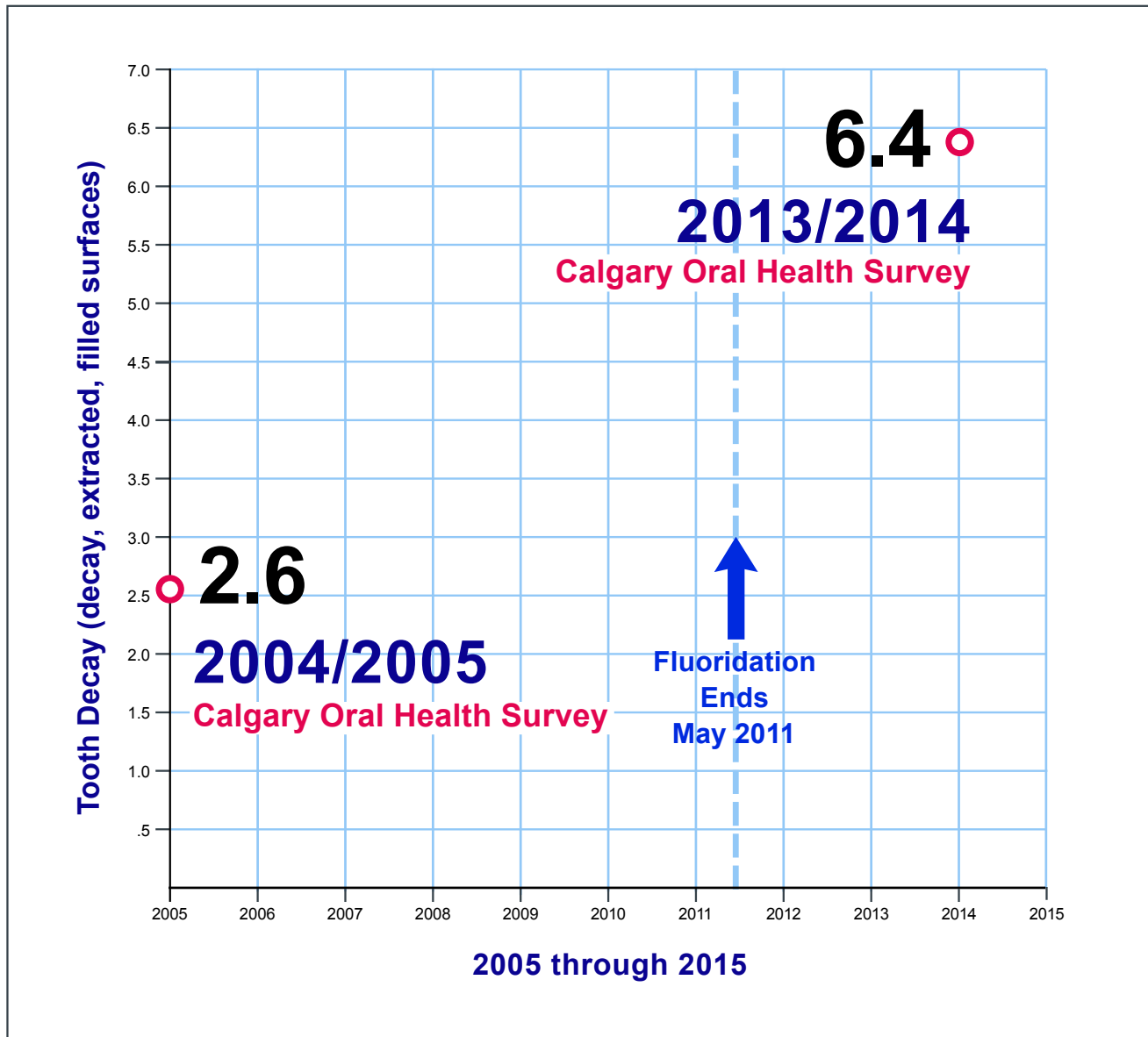
City (2013/14)	Decay in Primary ("Baby") Teeth	Decay in Permanent Teeth
Calgary	6.4	0.15
Edmonton	6.6	0.21



The cavity rate in **baby teeth**, however, **increased substantially** from 2005 to '14



**BUT...** Calgary was fluoridated until 2011  
which is *most of the years in the study*



**ALSO...** We know that Cavities in “baby teeth” have been **increasing across North America** since the 1990s...

FRONT PAGE

POLITICS

ENTERTAINMENT

WHAT'S WORKING

HEALTHY LIVING

WORLDPOST

## **Tooth Decay In Children On The Rise: Dentists Regularly See Kids With Cavities**

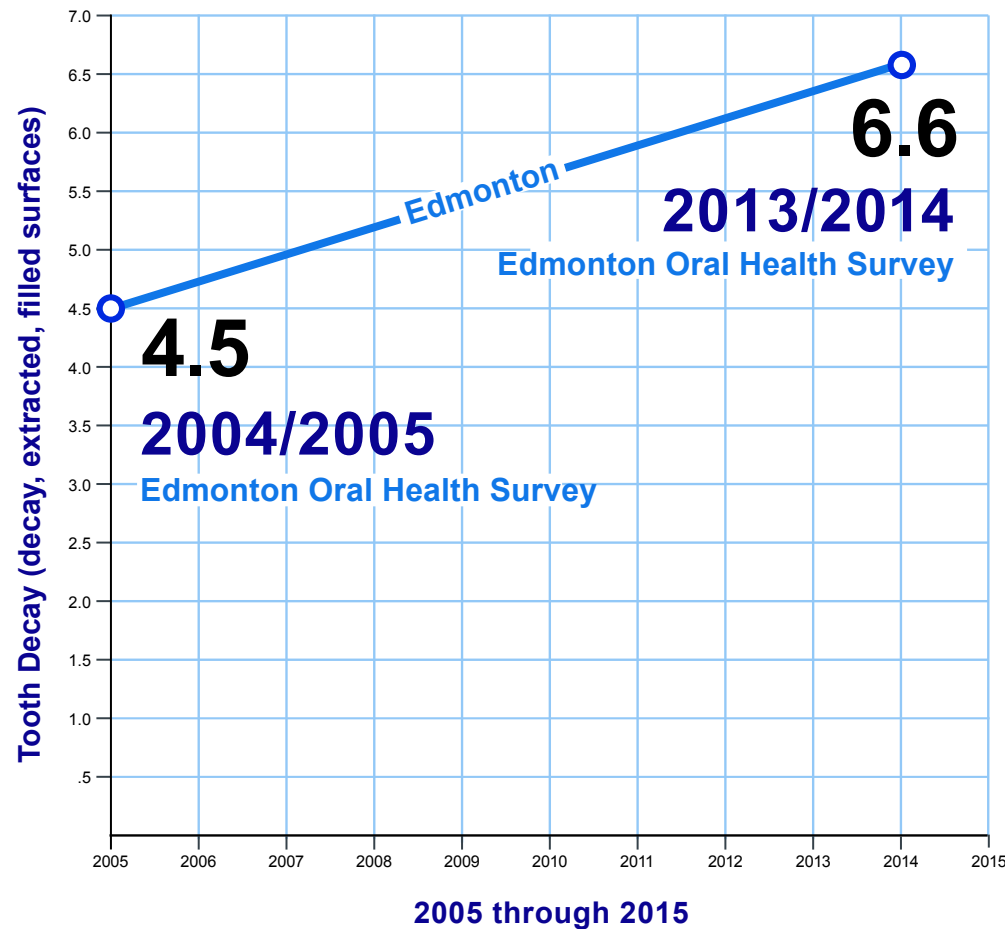
🕒 03/08/2012 02:56 pm ET | Updated Mar 8

### **Explaining the Increase in Children's Tooth Decay**

[Colgate.com](#) / [Oral Care Center](#) / [Conditions](#) / [Cavities](#) /

**Report Finds Tooth Decay In Youngest Children Increasing**

In fact, the Calgary study found cavities **also increased in fluoridated Edmonton** during the same period of time.



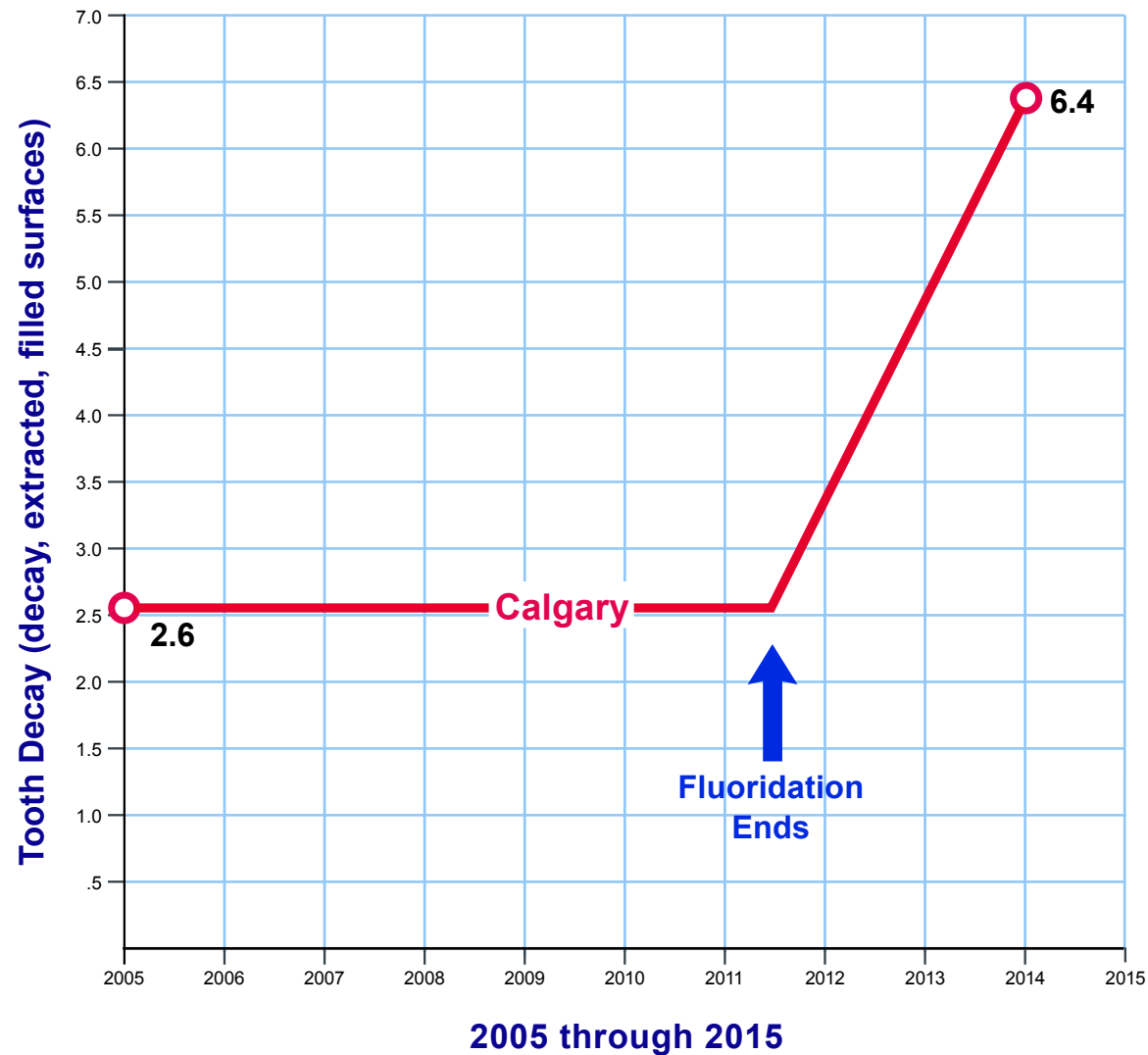
**The KEY QUESTION:**

How much of Calgary's cavity  
increase occurred  
after fluoridation ended?

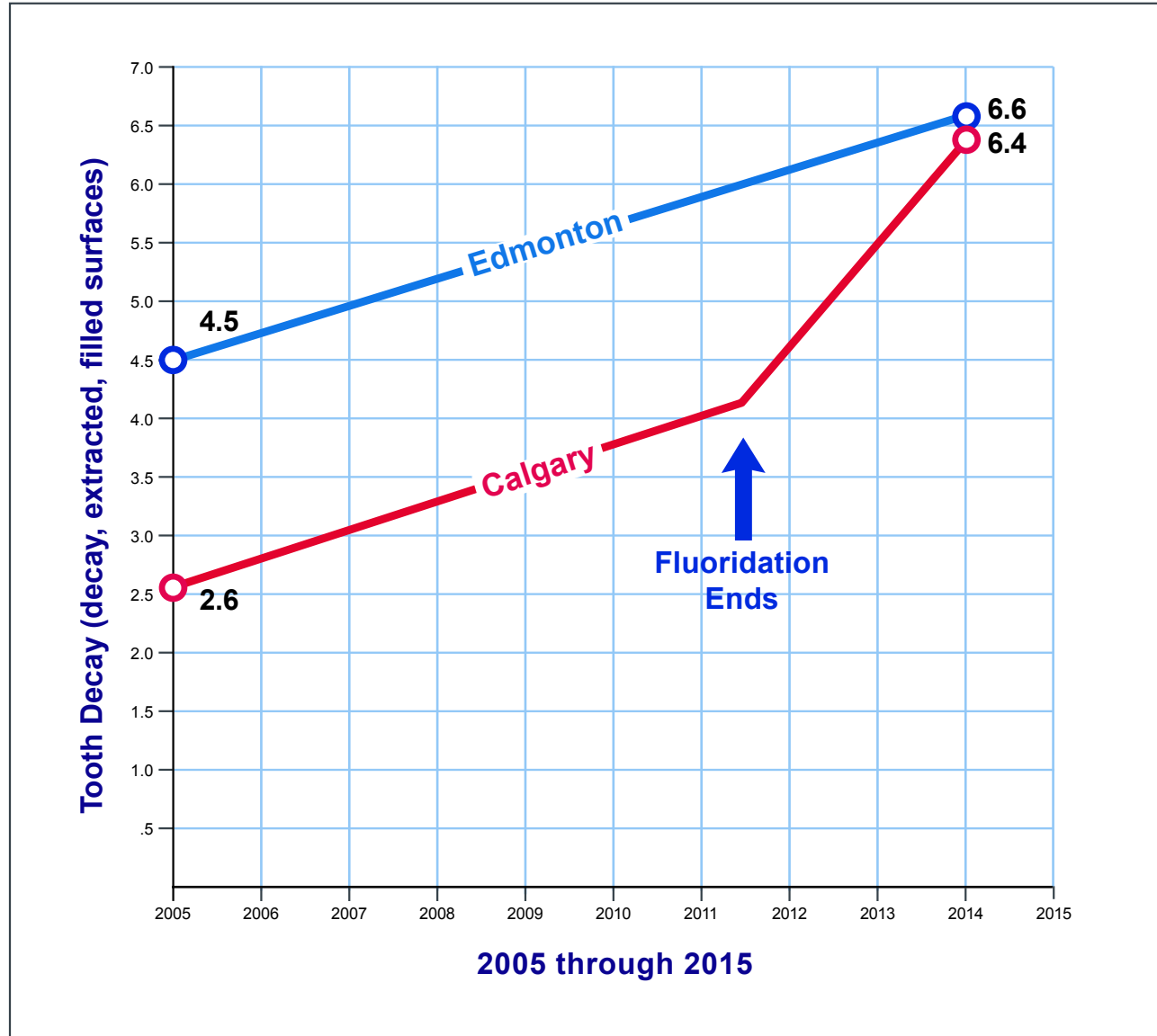
## Pro-Fluoride **Theories:**

The media has been awash in claims that ending fluoridation caused the dramatic spike in Calgary's tooth decay rates. If this is true, the cavity spike would need to resemble one of the following two patterns:

# THEORY #1: Ending fluoridation **caused ALL** **of Calgary's cavity increase...**



# THEORY #2: Ending fluoridation caused decay to exceed the rising background level and erase the gap with Edmonton...





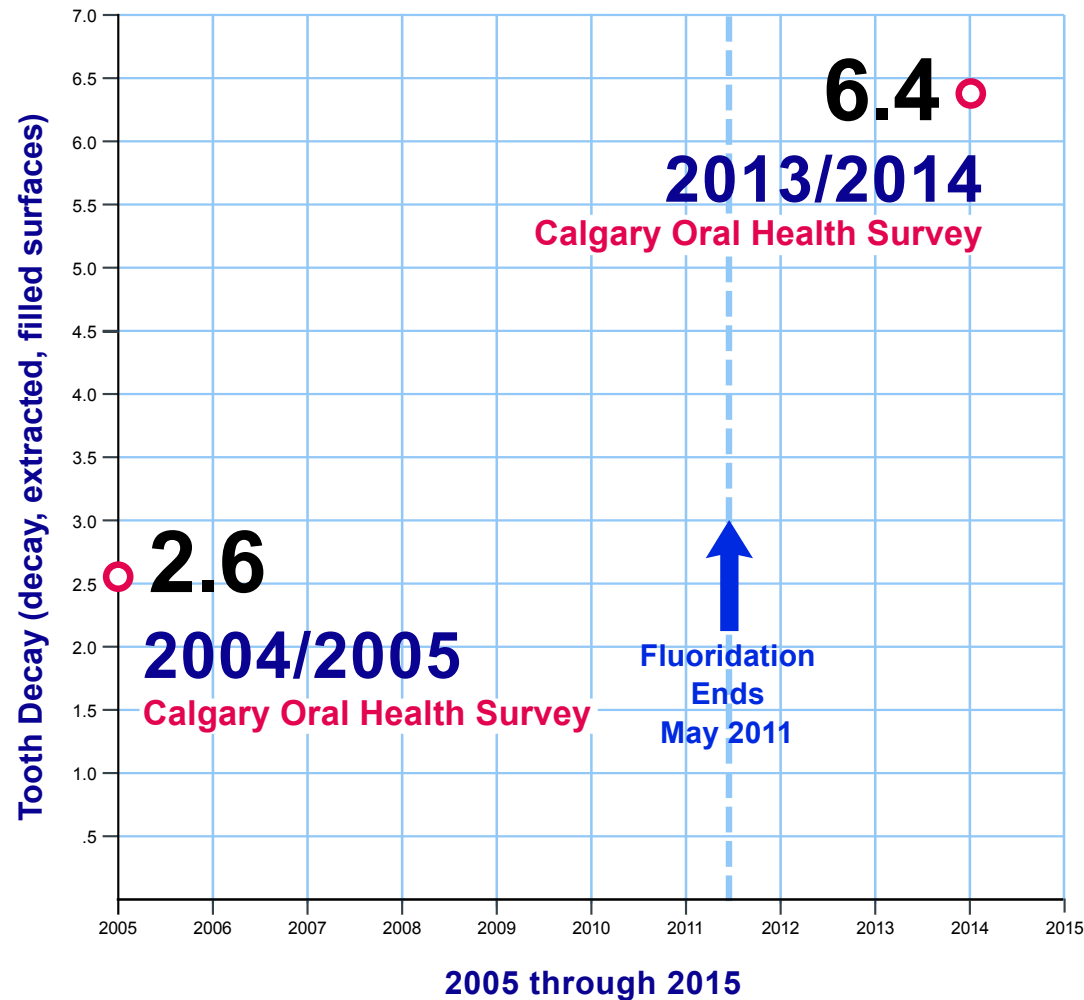
**To see if these cavity spikes occurred,  
we must know the cavity rate at the  
time Calgary stopped fluoridation.**

Because, obviously, ending fluoridation  
cannot be **blamed for cavities that  
occurred before fluoridation ended.**



**So what does the study show?**

The study does not provide data to answer this question...  
because it (A) only used data from two surveys, and  
(B) the first survey was completed  
6 years before fluoridation ended



BUT...

there was ANOTHER survey.

And it was completed just  
**1 year prior to fluoridation  
ending.**

The authors  
**OMITTED**  
this other survey

*Why* does the third survey *matter*?

**Because it's much closer in time  
to when Calgary ended  
fluoridation, and helps show  
*how much of Calgary's cavity  
increase occurred BEFORE  
fluoridation ended.***



So... what does Calgary's cavity trend look like if we **include the data from the omitted survey**?

## Before we proceed, a note about the data:

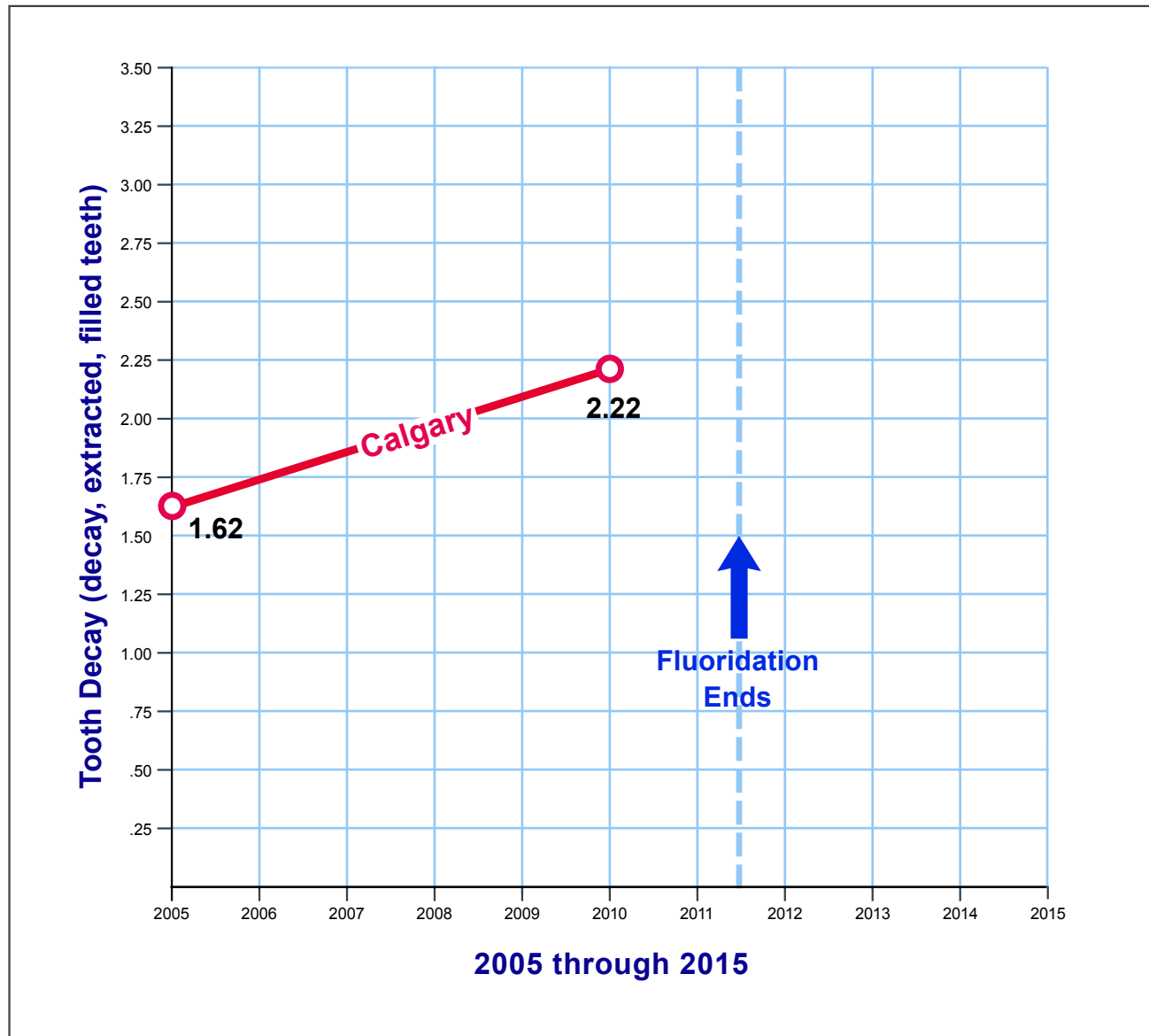
The 2009/10 survey expresses the cavity rate in terms of decayed “teeth” (instead of decayed “surfaces”). We obtained the weighted deft\* scores from the study authors. The complete data is as follows:

	2004/05 Mean (95% CI), n	2009/10 Mean (95% CI), n	2013/14 Mean (95% CI), n
<b>deft</b>			
Calgary – weighted	1.62 (1.41, 1.83), n=599 <sup>2</sup>	2.22 (1.87, 2.57), n=557 <sup>3</sup>	2.69 (2.52, 2.86), n=3,230 <sup>3</sup>
Calgary – unweighted	1.48 (1.31, 1.66)	2.18 (1.95, 2.42)	2.69 (2.57, 2.80)
Edmonton – weighted	2.45 (2.33, 2.57), n=6,445 <sup>2</sup>	Not available – no Edmonton survey in 2009/10	2.81 (2.62, 3.00), n=2,307 <sup>4</sup>
Edmonton – unweighted	2.44 (2.36, 2.52)	Not available – no Edmonton survey in 2009/10	2.72 (2.59, 2.85), n=2,307

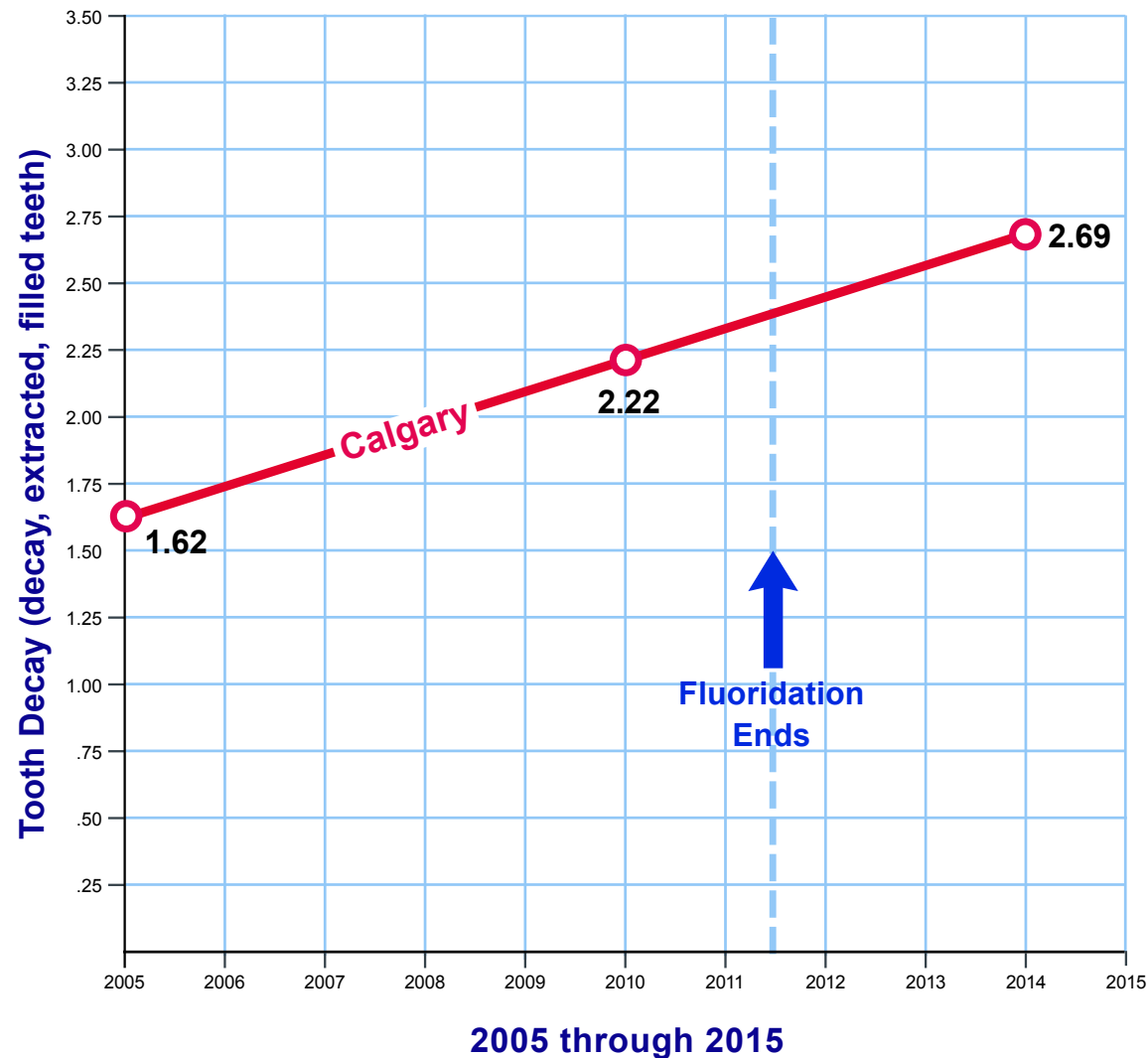
\* **deft** = decayed, extracted (due to caries), filled primary teeth

And now the data...

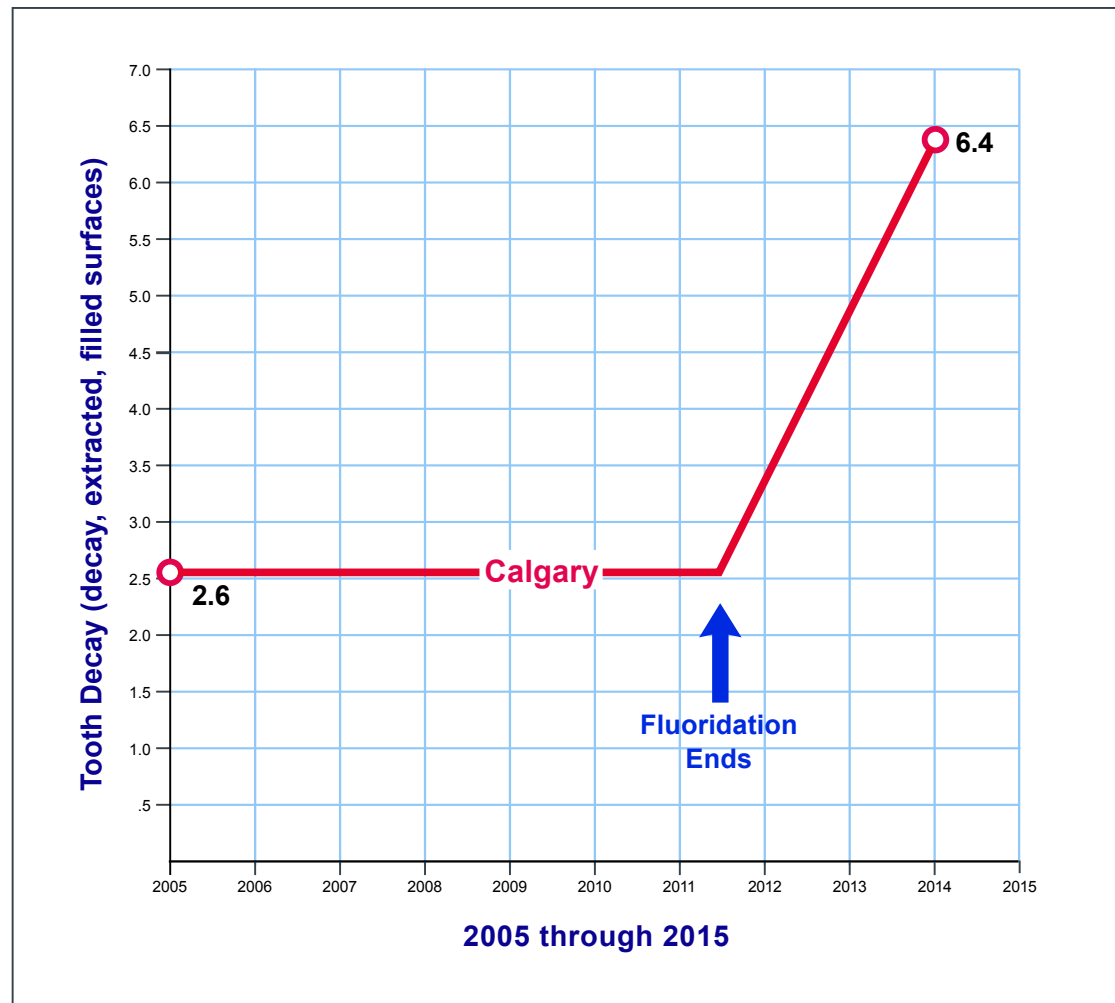
As can be seen, cavity rates were increasing  
**BEFORE fluoridation ended...**



...and there was **NO spike in cavities**  
**AFTER** fluoridation ended.



Let us now revisit THEORY #1:  
(i.e., ending fluoridation **caused all of**  
**Calgary's cavity increase**)  
If true, the spike would look like this

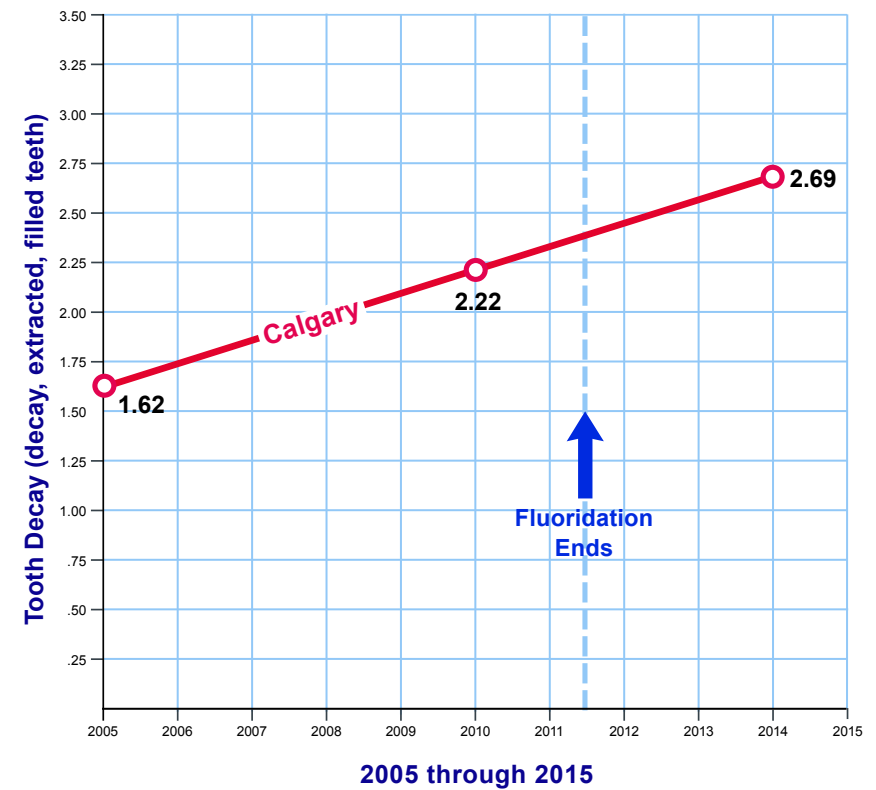
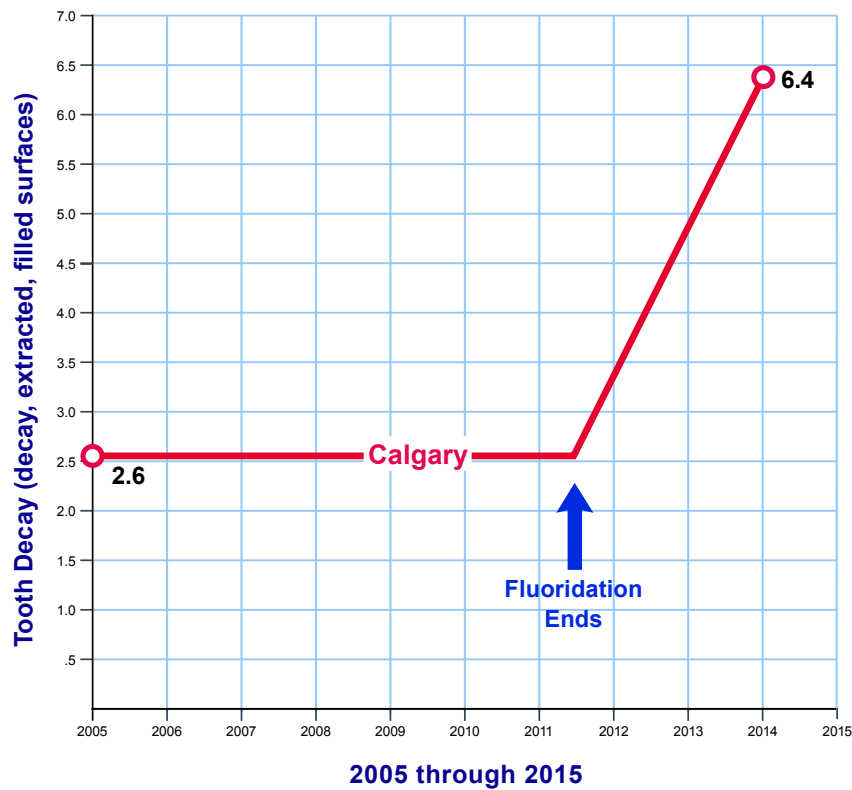


# Conclusion: Theory #1 is **NOT** correct

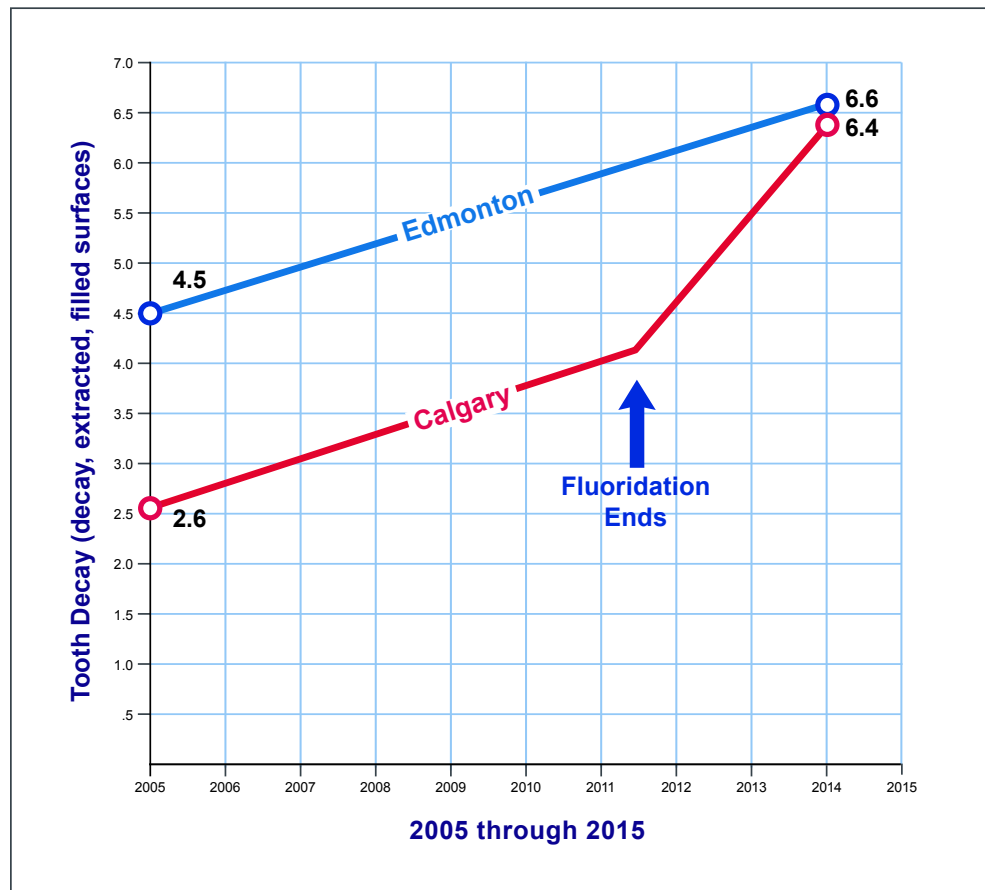
## Theory #1

vs.

## Omitted Data



Let us now revisit THEORY #2:  
(i.e., ending fluoridation caused decay to  
exceed the rising background level and erase  
Calgary's gap with Edmonton)  
If true, the spike would look like this...



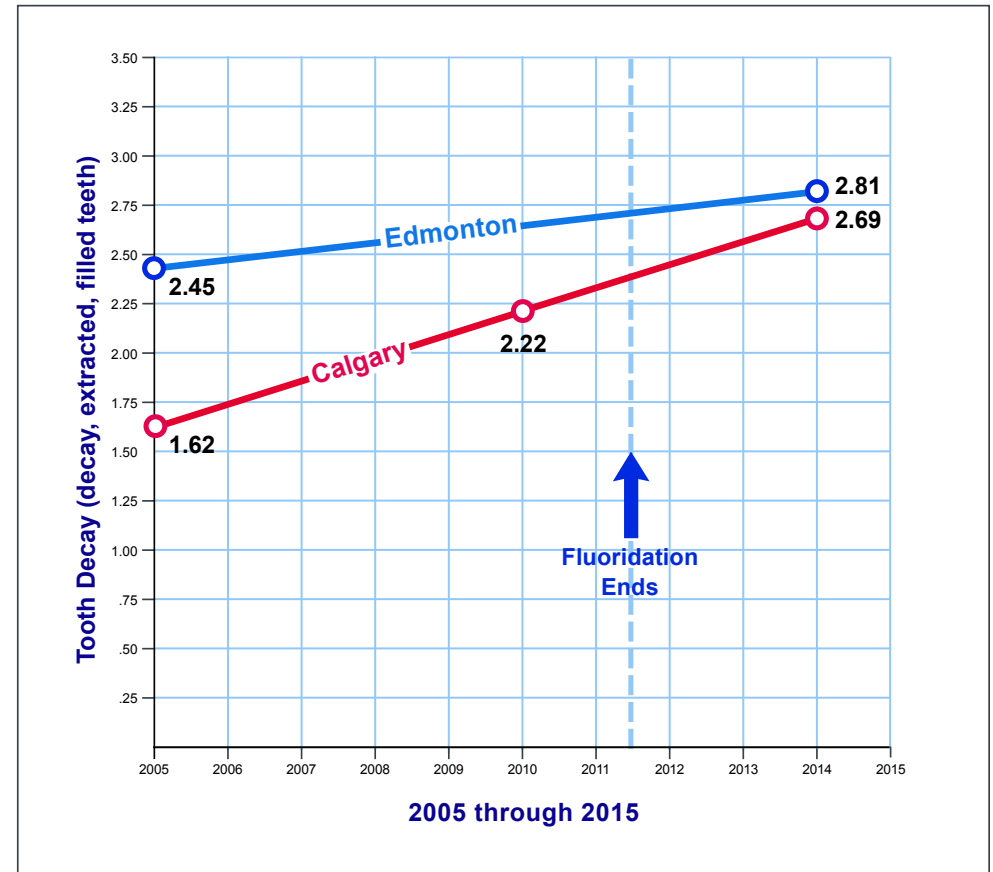
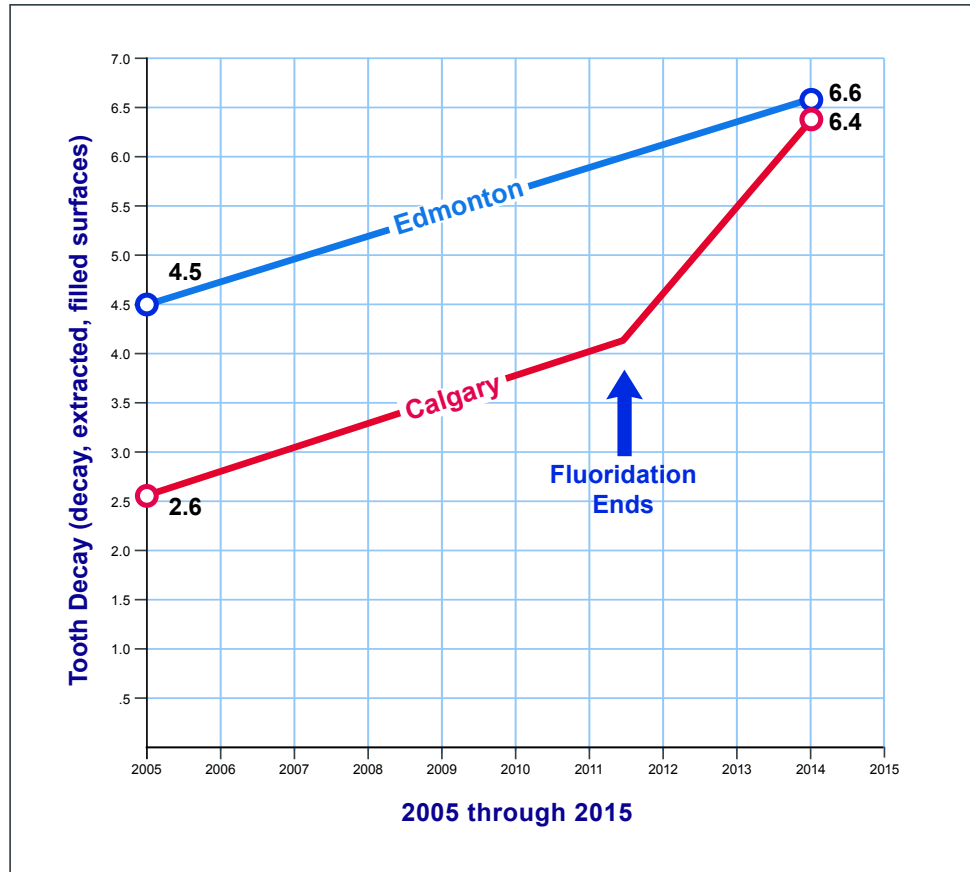


# Conclusion: Theory #2 is **NOT** correct.

## Theory #2

vs.

## Omitted Data



Why was the data omitted?

**This is a question that deserves a  
(credible) answer.**

**What *we do know* is that the omitted data directly contradicts claims that ending fluoridation caused Calgary's cavity spike.**

**Also...**

**Dr. Trevor Sheldon, a scientist who specializes in evaluating the effectiveness of medical treatments, has identified\* **many other problems** with the Calgary study.**

\* Dr. Sheldon's analysis is available at:  
[www.fluoridealert.org/uploads/sheldon-statement.pdf](http://www.fluoridealert.org/uploads/sheldon-statement.pdf)

**Dr. Sheldon concludes:**

**“In conclusion I do not think these studies provide a valid assessment of the effect of fluoridation cessation on the levels or distribution of caries in these populations.”**

To read Dr. Sheldon's analysis, see:  
[www.fluoridealert.org/uploads/sheldon-statement.pdf](http://www.fluoridealert.org/uploads/sheldon-statement.pdf)

