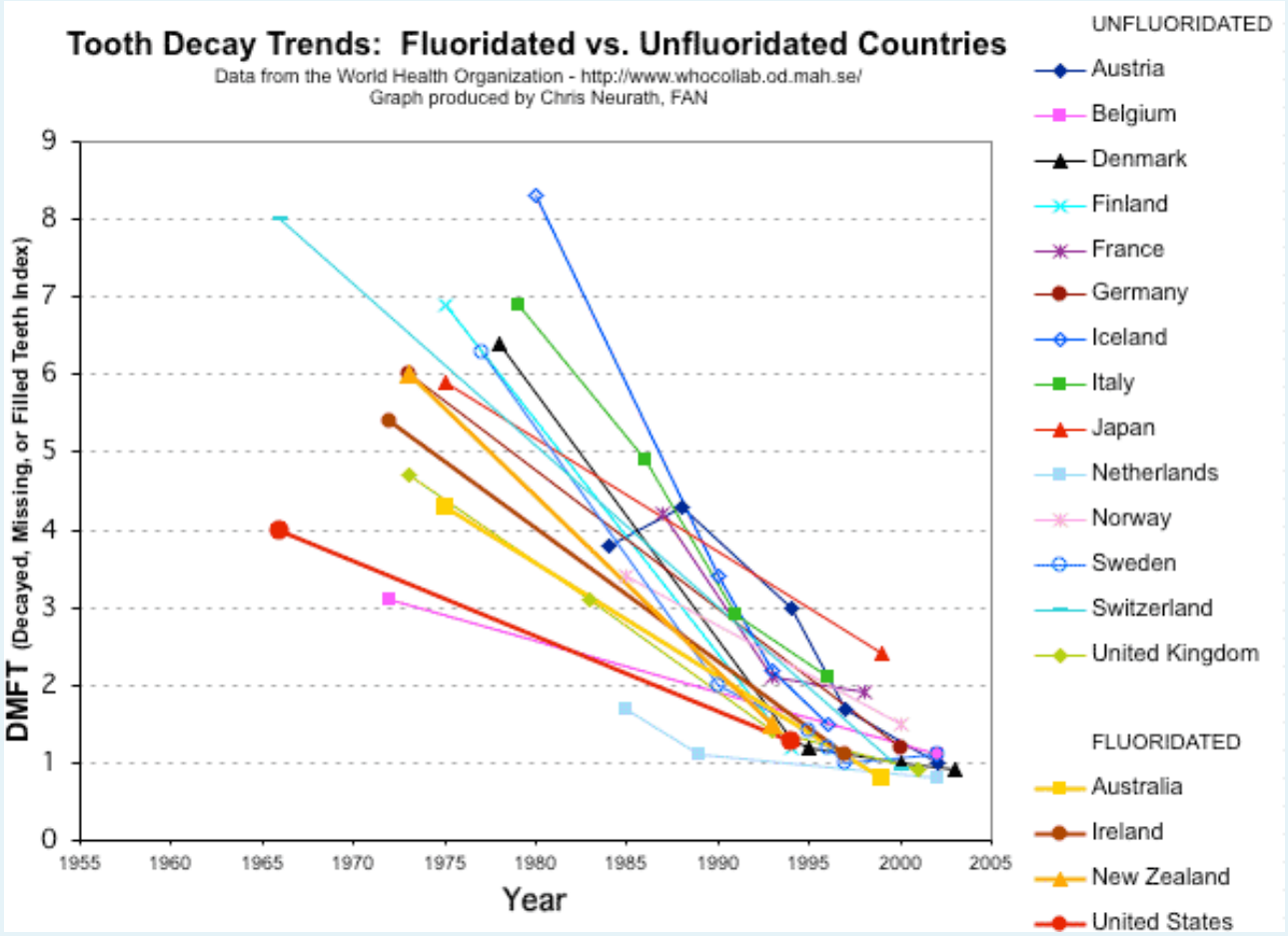
Fluoridation of Public Water Supplies

A little history

Three questions:

- Is it effective?
- Is it safe?
- Is it ethical?

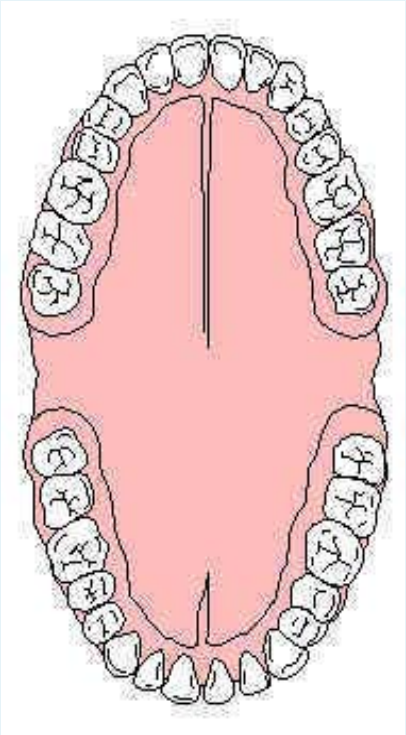

Tooth Decay Trends: Fluoridated vs. Unfluoridated Countries
Data from the World Health Organization - http://www.whocollab.od.mah.se/
Graph produced by Chris Neurath, FAN
DMFT (Decayed, Missing, or Filled Teeth Index)
Year
0
1
2
3
4
5
6
7
8
9
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
UNFLUORIDATED
Austria
Belgium
Denmark
Finland
France
Germany
Iceland
Italy
Japan
Netherlands
Norway
Sweden
Switzerland
United Kingdom
FLUORIDATED
Australia
Ireland
New Zealand
United States

Brunelle and Carlos (1990)

- This was the largest dental survey ever carried out in the US.
- It was commissioned by the National Institute for Dental Research (NIDR).
- The teeth of over 39,000 children in 84 communities were examined.

In the US, the largest survey of tooth decay (measured as decayed, missing and filled tooth surfaces = DMFS) found very little benefit.

3.4 DMFS
NF



2.8 DMFS
F

Average **difference** (for 5 - 17 year olds) in DMFS
= 0.6 tooth surfaces (5 surfaces to a tooth)

SOURCE: *Journal of Dental Research*; 1990 (Spec Ed) p. 723-27

Australia

- Spencer et al. (1996) reported an average difference of 0.12 - 0.3 permanent tooth surfaces. Which is even less than the US study (0.6).

Australia

- Armfield & Spencer (2004) in a study of 10,000 children in South Australia found no significant difference in permanent tooth surfaces between children who had drunk fluoridated water all their lives and those who drank bottled or tank water.

How efficacy might be studied

- Comparing caries in a group using fluoridated water with an otherwise comparable group using nonfluoridated water
- Comparing before fluoridation with fluoridation in the same group
- Comparing after fluoridation with fluoridation in the same group

But, other than fluoride, there was another apparent dependency.

The lower the average income in the county the higher was the prevalence of tooth decay.

This is a relationship that has been observed many times and it probably explains why newspapers report dental crises among inner-city children in cities long fluoridated.

Recent studies indicate that dental caries has not gone up after fluoridation stopped.

1. **Former East Germany** **Kunzel, W. & Fischer, T. (1997).** Rise and fall of caries prevalence in German towns with different F concentrations in drinking water. **Caries Res** 31(3): 166-73
2. **Cuba** **Kunzel, W. & Fischer, T. (2000).** Caries prevalence after cessation of water fluoridation in La Salud, Cuba. **Caries Res** 34 (1): 20-5.
3. **Canada** **Maupome, G. *et. al* (2001).** Patterns of dental caries following the cessation of water fluoridation. **Community Dent Oral Epidemiol** 29(1): 37-47.
4. **Finland** **Seppa, L. *et. al* (2000).** Caries trends 1992-98 in two low-fluoride Finnish towns formerly with and without fluoride. **Caries Res** 34(6): 462-8.

Three numbers to keep in mind

- The concentration for fluoridation is 1 ppm.
- The concentration in mothers milk is 0.004 ppm.
- The MCL (maximum contaminant level) set by the CDC is 4 ppm.

Known and Possible Harms

To the brain
To bone
To the thyroid system
To the reproductive system
To the kidney
To teeth
And others

Multiple toxicities should be expected.

Fluorine is the most reactive element.

Fluoride reactions affect critical biological processes.

So what follows is not unsubstantiated fear-mongering.

The Brain
Animal studies

There have now been over 40 animal studies which indicate that fluoride can damage the brain.

Human studies

There have now been 23 studies which indicate that fluoride can lower IQ in children.

The early promoters of fluoridation thought That at 1 ppm only 10% of kids would get very mild dental fluorosis.

In largest US Survey (1986-87) 29.9% of US children living in fluoridated communities had dental fluorosis on at least two teeth (Heller et al, 1997).

Alarcon-Herrera et al. (2001)

- Alarcon-Herrera et al. looked at children in the Guardiana valley in Mexico, an area of high natural levels of fluoride (1.5 - 5.5 ppm)
- They found a strong linear correlation between the severity of dental fluorosis and the incidence of bone fractures in children and adults.

Osteosarcoma and fluoridation

Fluoride & Thyroid

European doctors have used sodium fluoride as a means to reduce thyroid activity in patients with hyperthyroidism (over-active thyroid gland).

The doses used by Galletti and Joyet (1958)—2.3 - 4.5 mg of fluoride per day—are currently exceeded by some people living in 1 ppm communities.

Totally inadequate margin of safety

At 0.9 ppm

Lowered IQ in children with borderline iodine deficiency (Lin, 1991)

At 1 ppm

Increased uptake of aluminum into rat brain (Varner, 1998)

Dental fluorosis impacts approx. 40% of children (CDC, 2005)

Increased cortical bone defects in children (Schlesinger, 1956)

1% of population sensitive to 1 mg/day (Feltman, 1956, 1961)

Osteosarcoma in young men (Hoover, 1991; Cohn, 1992, Bassin , 2006)

At 1.5 ppm

Doubling of hip fracture rates, tripling at 4.3 ppm (Li, 2001)

At 1.7 ppm

Skeletal fluorosis in young males with impaired kidney function (Juncos & Donadio, 1972)

At 1.8 ppm

The ethics of fluoridation

Unapproved drug
Untested drug
No informed consent
No option to stop
No control of dosage
No monitoring of effects

Conclusions

Is fluoridation effective? No.

Is fluoridation safe? No.

Is fluoridation ethical? No.

For more information and news:

Fluoride Action Network: www.fluoridealert.org has an extensive and constantly updated bibliography and news about fluoridation.

Second Look: www.slweb.org/ keeps an up-to-date bibliography.

Christopher Bryson, *The Fluoride Deception*

Connett, Beck, Micklem, *The Case Against Fluoride: How Hazardous Waste Ended Up in Our Drinking Water and the Bad Science and Powerful Politics That Keep It There*