

# The Emperor of Fluoridation Has No Clothes

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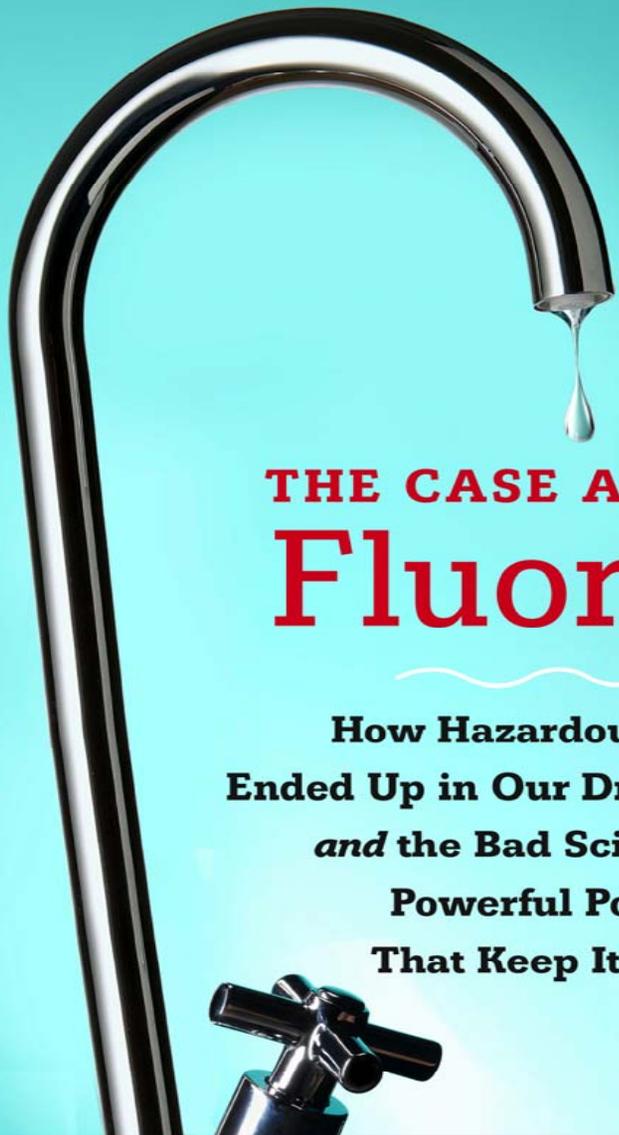
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Milwaukee, May 31, 2012



.....  
A New Look  
at the Scientific  
Evidence  
.....

**THE CASE AGAINST**  
**Fluoride**

**How Hazardous Waste  
Ended Up in Our Drinking Water  
*and* the Bad Science and  
Powerful Politics  
That Keep It There**

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James Beck, MD, PhD | H. Spedding Micklem, DPhil

**Published  
by  
Chelsea  
Green ,  
March 2010**

1. Fluoridation is a massive betrayal of the public's trust by governmental and professional bodies.

2. Just because people put on a white coat and say that fluoridation is “safe and effective” over and over again, does not make it so.

3. We have to end fluoridation **ONE  
OPEN MIND** at a time

4. And ONE COMMUNITY at a time.

Since Oct 25, 2010, over 50 communities with a total population exceeding 3 million people have stopped fluoridation.  
Hopefully, Milwaukee will join this list.

## 5) Fluoridation is a poor medical practice

1. Except for an early experiment with iodine, fluoridation is the only time we have used the public water supply to deliver medicine.

The **REASONS** for not doing so are fairly obvious:

2. You can't control who gets the medicine.
3. You can't control the **DOSE** (mg/day) that people drink.

# Fluoridation is a poor medical practice

4. Fluoride is NOT a nutrient.
5. Not one single biological process **needs fluoride** (fluoride's benefit is topical not systemic)
6. Many biological processes **are harmed by fluoride**. For a review see Barbier et al, 2010).

# Fluoridation is a poor medical practice

7. It violates the individual's right to informed consent to medication.

# Fluoridation is a poor medical practice

8. The fluoridating chemicals used are **not pharmaceutical grade** but a contaminated waste product from the phosphate fertilizer industry.

# Fluoridation is a poor medical practice

9. One of the contaminants is **arsenic**, which is a known human carcinogen. This arsenic will inevitably increase the cancer risk on the population—over and above the cancer risk posed by fluoride itself.

# Fluoridation is a poor medical practice

10. The level of fluoride added to water (1.1 ppm in Milwaukee) is up to **275 times higher** than the level of fluoride in mothers' milk (**0.004 ppm**, NRC, 2006, p.40)

The practice and promotion of  
fluoridation has NEVER been  
SCIENTIFIC

# Fluoridation is based on poor science

1. When the US Public Health Service endorsed fluoridation in 1950 no trials had been completed and practically no studies had been published demonstrating either short-term or long-term safety.

# Fluoridation is based on poor science

2. Not one single randomized clinical trial (RCT) has been attempted to demonstrate that fluoridation reduces reduce tooth decay.

# Fluoridation is based on poor science

3. The FDA has never approved fluoride for ingestion. Its official classification of fluoride is that it is an “unapproved drug.”

Not one Federal Agency accepts responsibility for the safety of fluoridation or the safety of the chemicals used in fluoridation. This includes the CDC the most active promoting agency.

# On Fluoridation the CDC has No Clothes

All the statements emanating from the CDC on fluoridation come from The CDC's **Oral Health Division.**

This Division consists of approx. 30 employees, most of whom have dental – **not medical** – qualifications.

It contains no toxicologists nor specialists in tissues other than the teeth.

# On Fluoridation the CDC has No Clothes

The CDC's claims for the "safety" are compromised by

- a) their lack of relevant qualifications and
- b) the conflict of interest implicit in their outright promotion of this practice.

# On Fluoridation the CDC has No Clothes

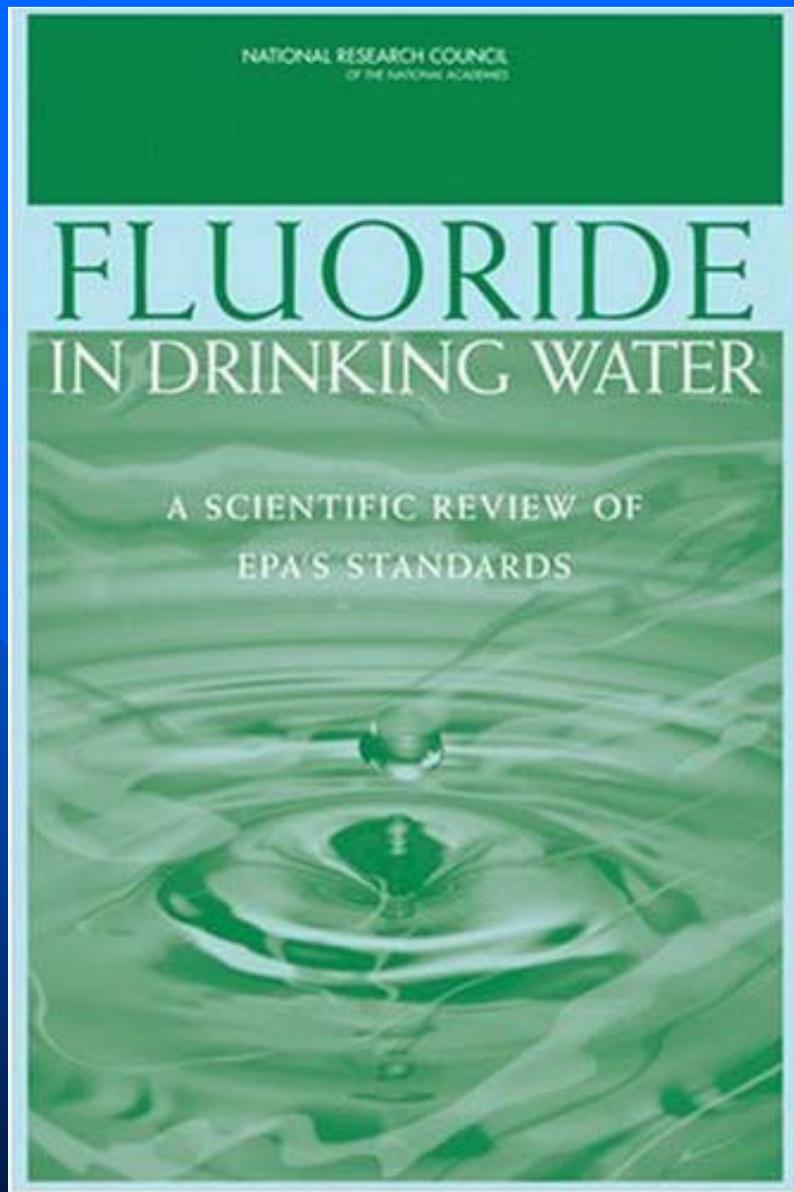
The best way to view the role of the CDC's Oral Health Division is to see it as an adjunct of the ADA

Whatever the ADA says today on fluoridation, the CDC will say tomorrow.

# On Fluoridation the CDC has No Clothes

An example?

Look at the way the ADA and the CDC responded to the massive 507-page review by the **National Research Council** Fluoride in Drinking Water (NRC, 2006)



National Research Council (2006)

# The NRC (2006)

Chapter 2 consisted of an exposure analysis

This concluded that some subsets of the population (INCLUDING BOTTLE-FED BABIES) were exceeding the EPA's safe reference dose for fluoride (the IRIS value of 0.05 mg/kg/day)

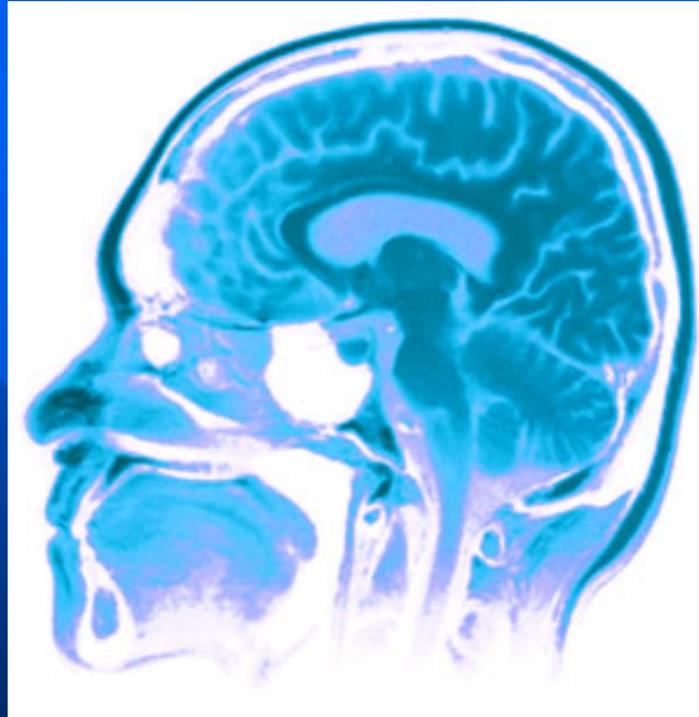
The ADA-CDC response to the NRC report

On the day it was issued the ADA dismissed the report as not being relevant to water fluoridation

Six days later the CDC announced that the report “was consistent with their promotion of fluoridation”

# Fluoride and the Brain

*National Research Council (2006):*  
**Fluoride & the Brain**



“it is apparent that fluorides have the ability to interfere with the functions of the brain.”

- A panel experts working for the US EPA listed fluoride in the group of chemicals for which there is “Substantial evidence for neurotoxicity”

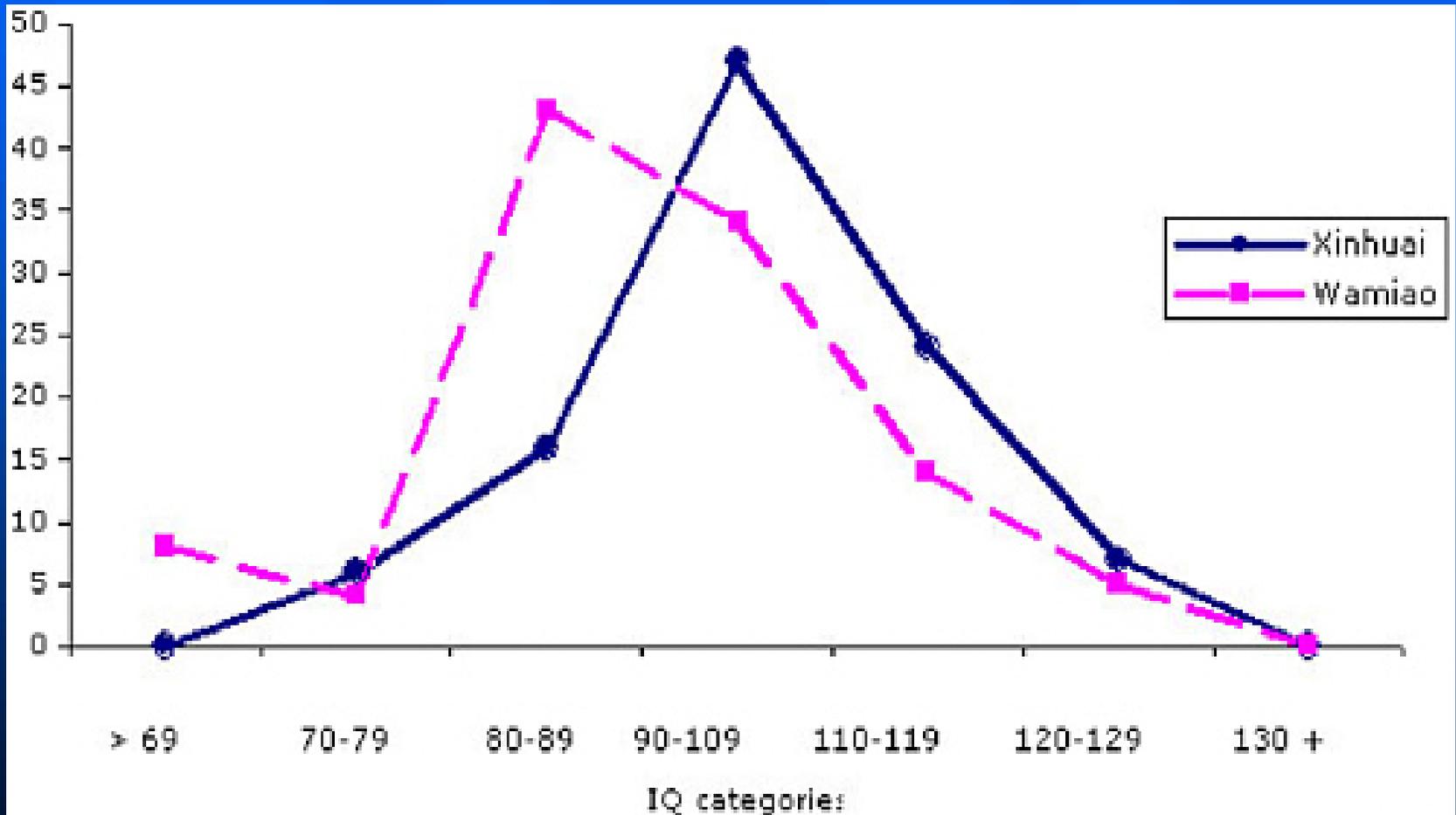
- Over 100 studies show fluoride damages animal brain
- Over 10 animal studies show that fluoride changes animal behavior
- Three studies show that fluoride damages fetal brain
- 26 studies show an association between modest exposure to fluoride and lowered IQ

# Xiang et al. (2003 a,b)

- Compared children in two villages ( <0.7 ppm versus 2.5 - 4.5 ppm F in water)
- Controlled for lead exposure and iodine intake, and other key variables (NOTE: both lead exposure and low iodine also lower IQ).
- Found a drop of 5-10 IQ points across the whole age range
- The whole IQ curve shifted for both males and females

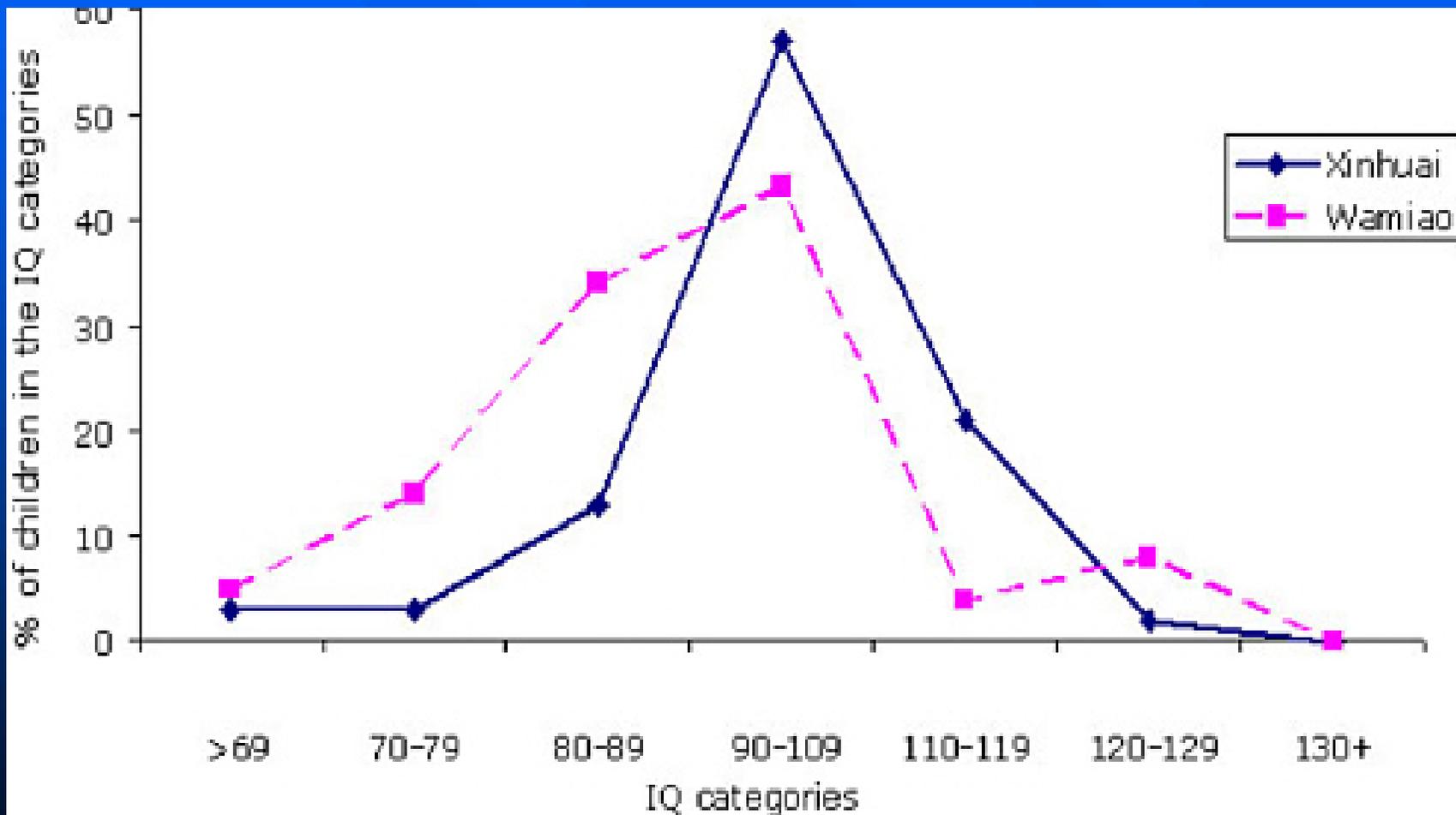
# Xiang et al. (2003 a,b)

**MALES**



# Xiang et al. (2003 a,b)

FEMALES



## Xiang et al. (2003 a,b)

- Estimated that IQ in children is lowered at 1.9 ppm fluoride in water (threshold)
- That offers no adequate margin of safety for children drinking Milwaukee's water at 1.1 ppm

# Ding et al. 2011 (J. Hazardous Materials)

- “Mean value of fluoride in drinking water was  $1.31 \pm 1.05$ mg/L (range 0.24–2.84).”
- **“Conclusions**
- Overall, our study suggested that low levels of fluoride exposure in drinking water had negative effects on children’s intelligence...

Ding et al, 2011: The  
higher the level of fluoride  
in the **urine** the lower the  
IQ

# Ding et al. 2011

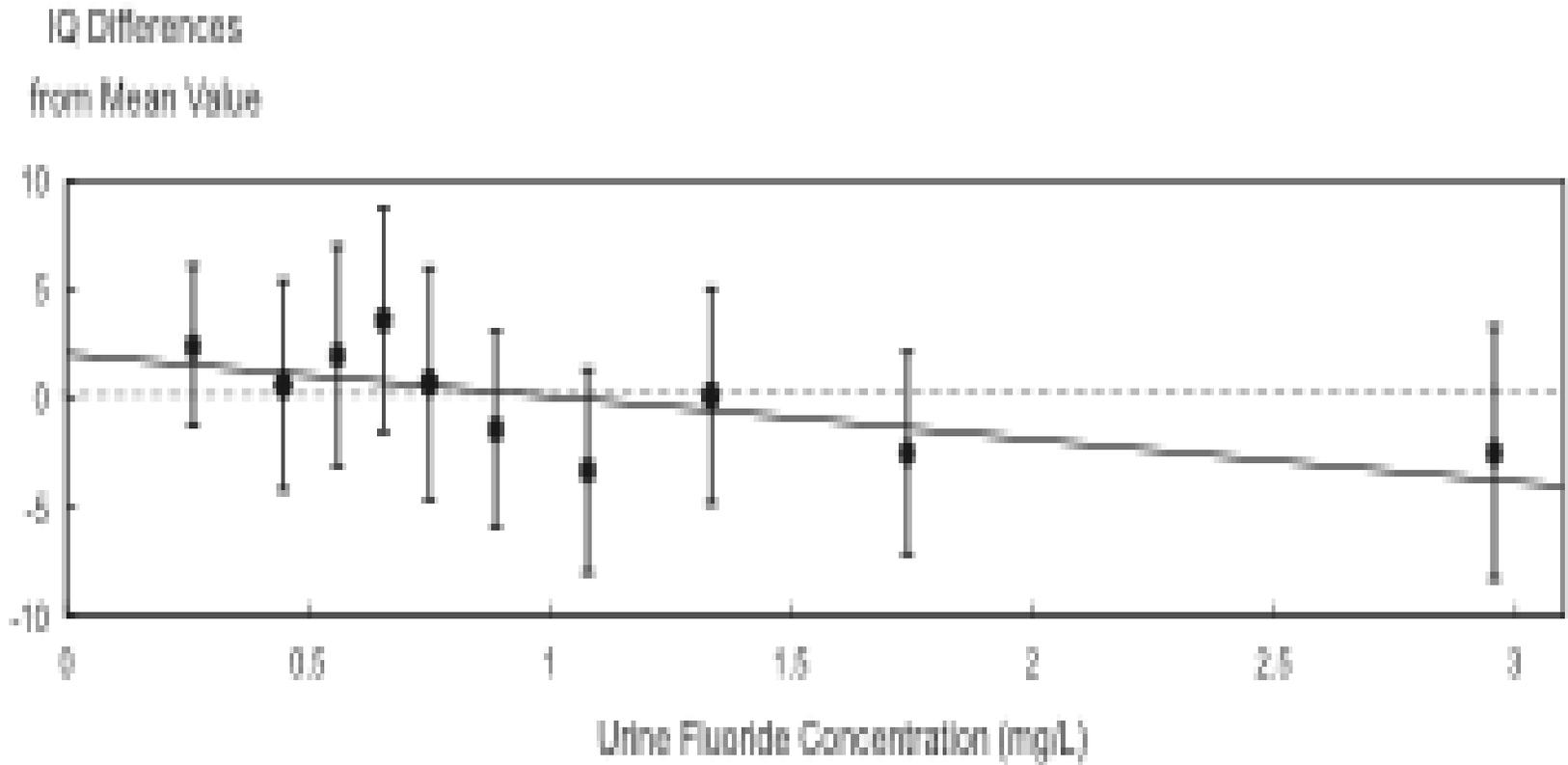
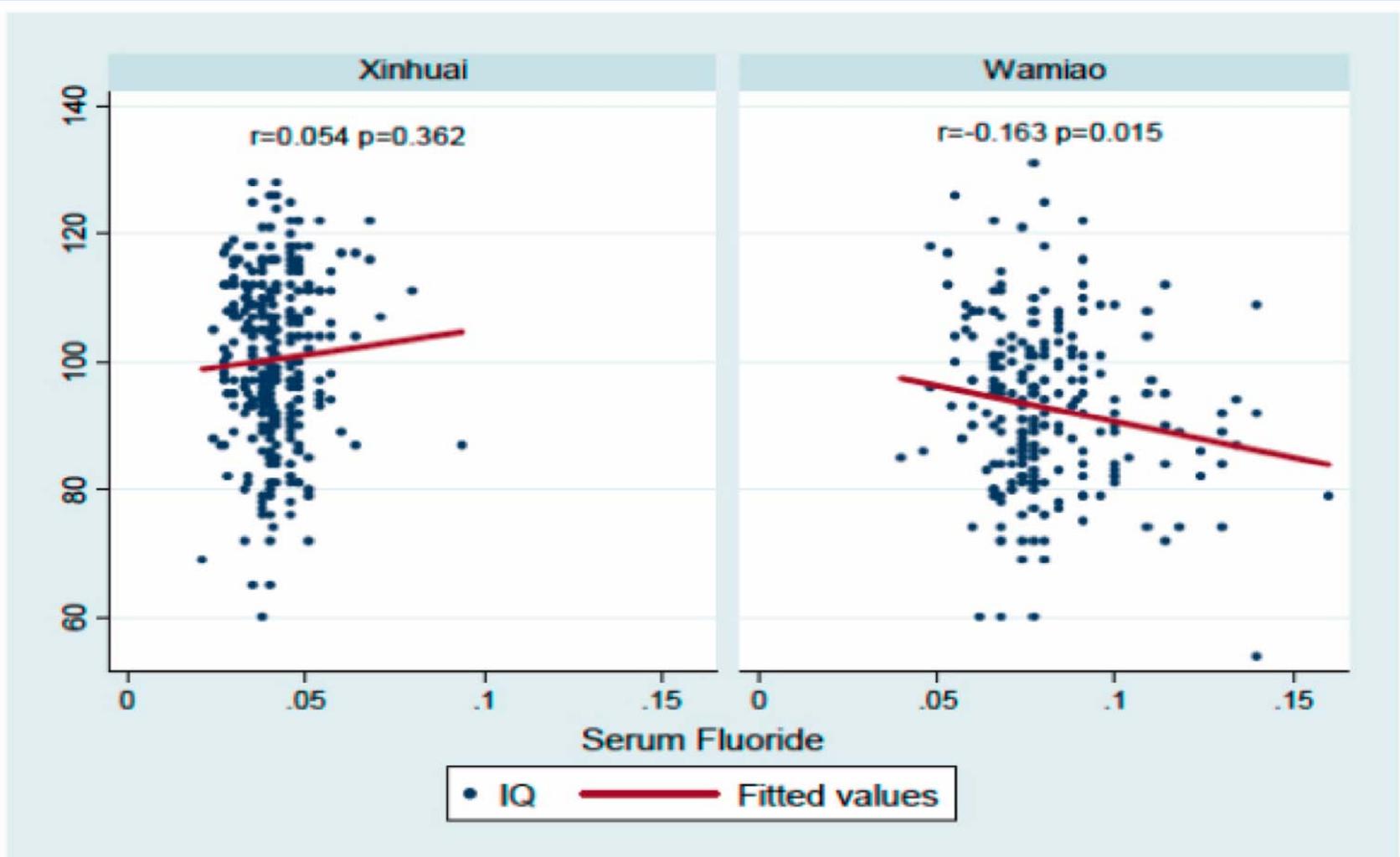


Fig 2. The relationship between IQ differences and urine fluoride concentrations. Multiple linear regression model was carried out to confirm the association with urine fluoride exposure and IQ scores ( $F=9.85$ ,  $p < 0.0001$ )

Xiang et al, 2012: The  
higher the level of fluoride  
in the plasma the lower the  
IQ

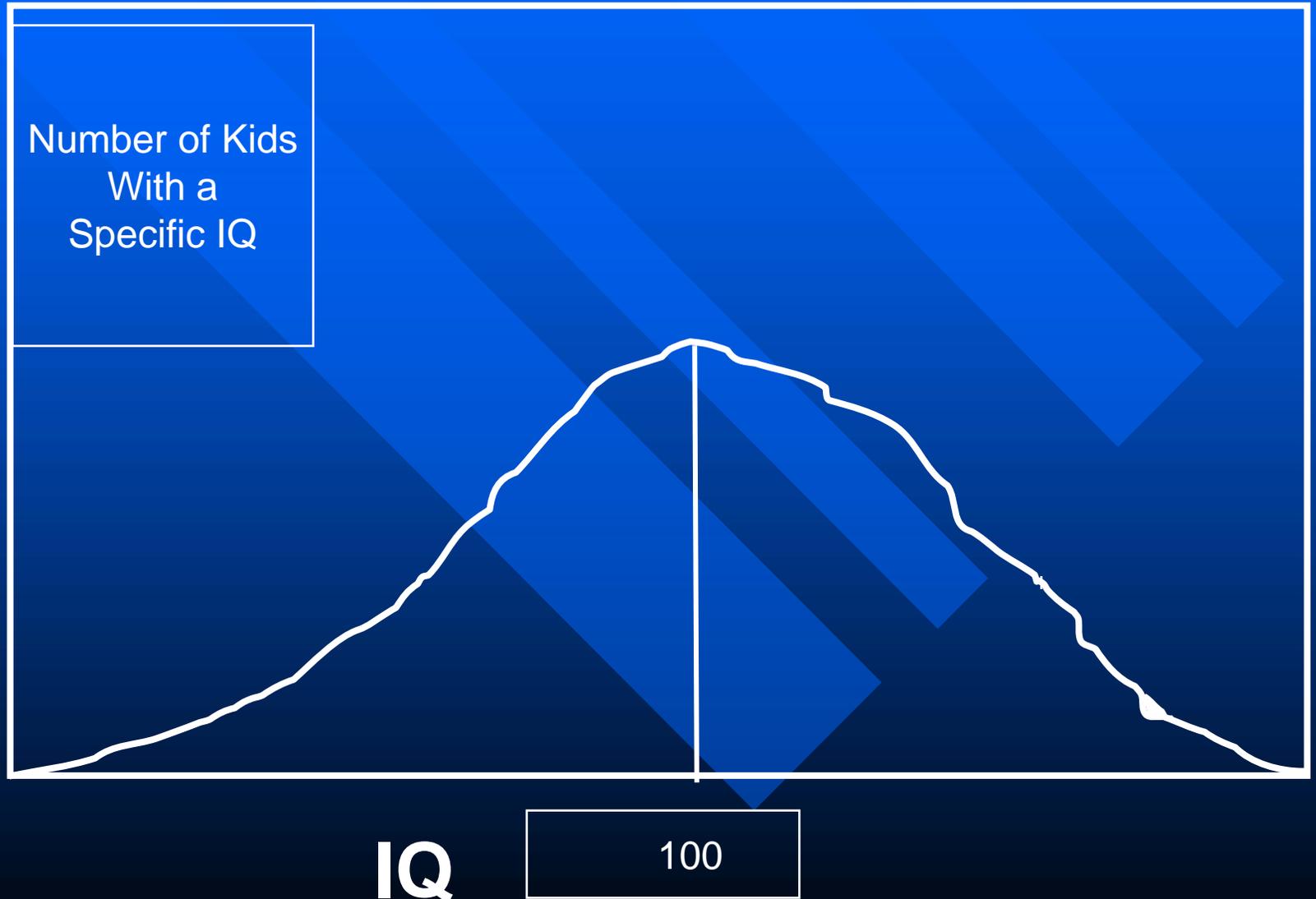
# Xiang et al., 2012



**Figure 3** Association between serum fluoride and children's IQ in Wamiao and Xinhuai

It is reckless to expose a whole population to a known neurotoxic substance

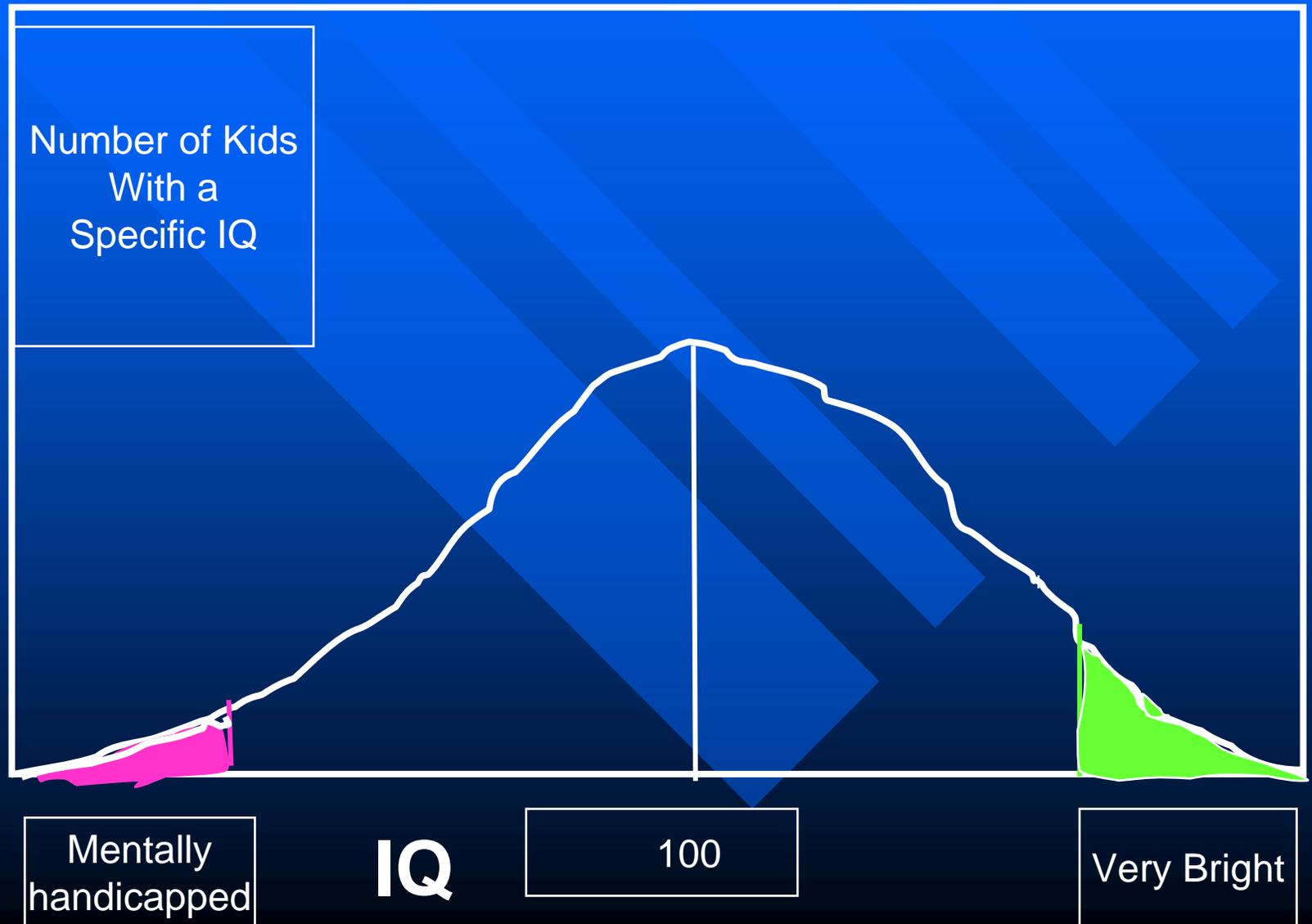
# IQ and population



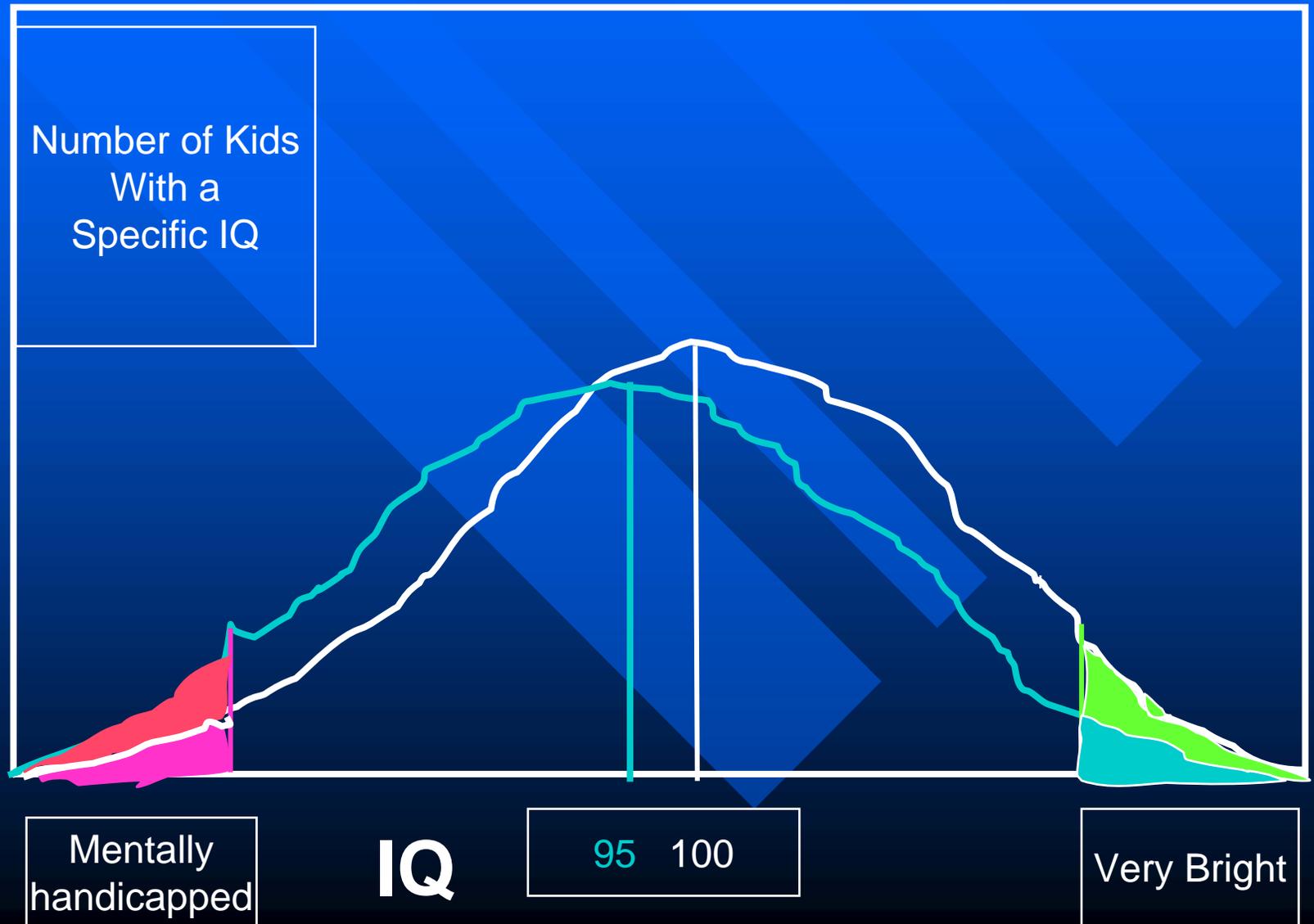
# IQ and population



# IQ and population



# IQ and population



# A Preposterous Notion

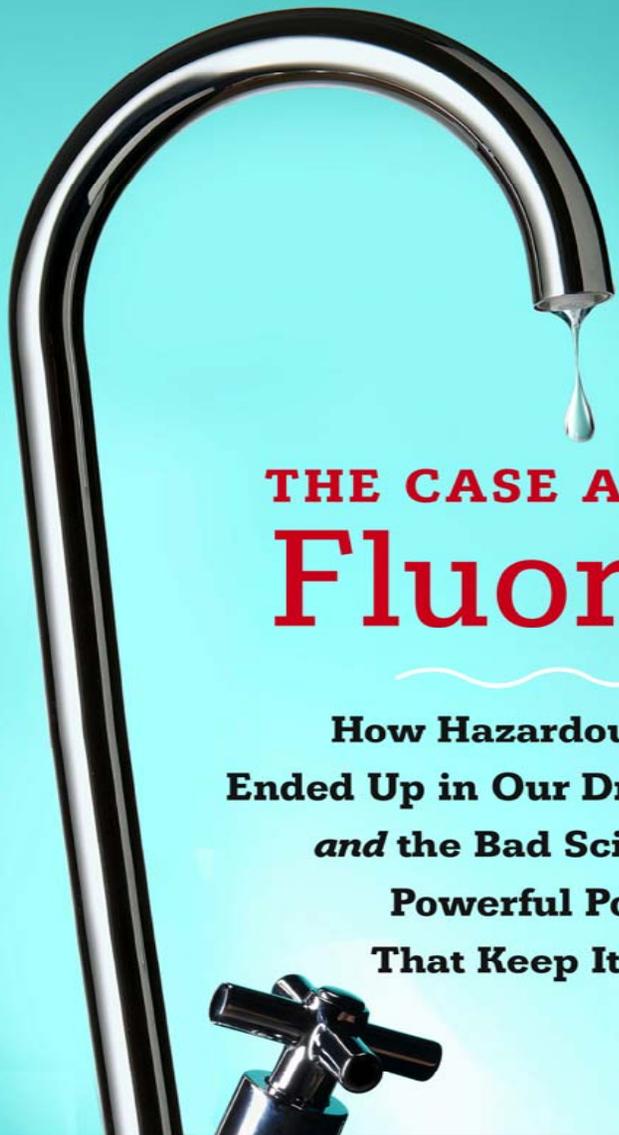
- What parent would run the risk of lowering their child's IQ
- In order to save a miniscule amount of tooth decay?

# A Preposterous Notion

- Is Milwaukee prepared to continue to impose these risks on its citizens?
- Force them to drink a substance that works topically and which is freely available in topical applications?
- From where do you get the confidence to do this?

- Are you CERTAIN that this practice achieves the benefits claimed?
- Are you prepared to accept a 41% dental fluorosis rate in 12-15 year olds?
- Are you CERTAIN that it causes no harm beyond dental fluorosis?
- Are you so CERTAIN in this matter that you are willing to force it on people without their informed consent?

Fluoridation is a gross  
violation of the  
Precautionary Principle



.....  
**A New Look  
at the Scientific  
Evidence**  
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# **THE CASE AGAINST Fluoride**

**How Hazardous Waste  
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## **The Precautionary Principle**

**see**

## **Chapter 21**

# The Precautionary Principle

“If there is uncertainty, yet credible scientific evidence or concern of threats to health, precautionary measures should be taken. In other words, preventive action should be taken on early warnings even though the nature and magnitude of the risk are not fully understood.”

Joel Tickner and Melissa Coffin

# Milwaukee Do the Right Thing

- End fluoridation NOW!

# The confidence of their convictions?

- I would like to recommend that Milwaukee Council organize a public debate on this issue so that those experts who have presented their views on this subject – some with considerable confidence - can have their views visibly tested by doing so in the context of those holding a different point of view.
- I am prepared to come back to Milwaukee virtually any time within the next few months to participate in such a debate

**EXTRA SLIDES**

**In the US and other fluoridating countries  
there has been NO investigation of a possible  
relationship between the consumption  
of fluoridated water and**

**lowered IQ in children**

**behavioral changes in children**

**increased bone fractures in children**

**arthritic symptoms in adults**

**hypo-thyroidism**

**Early onset of puberty**

**Alzheimer's disease in adults**

**If you don't look, you don't find.**

**The absence of study is  
not the same as absence  
of harm.**

# Dr. Peter Cooney

- Dr. Peter Cooney, the Chief Dental Officer of Canada, told an audience in Dryden, Ontario (April 1, 2008),
- “I walked down your High Street today, and I didn’t see anyone growing horns, and you have been fluoridated for 40 years!”

**Fluoridation may  
actually be killing a few  
young men each year**

Bassin et al. (2006) showed in a carefully matched case-control study that young boys exposed to fluoridated water in their 6<sup>th</sup> to 8<sup>th</sup> years had a 5-7-fold increased risk of succumbing to osteosarcoma by the age of 20.

Bassin's study – despite promises to the contrary (Douglass and Joshipura, 2006) – has never been refuted in any published study.

The promised study (Kim et al., 2011) was 5 years late and failed miserably to refute Bassin's finding.

Meanwhile, the evidence that fluoride reduces tooth decay is very weak (see Chapter 6-8 in *The Case Against Fluoride*).

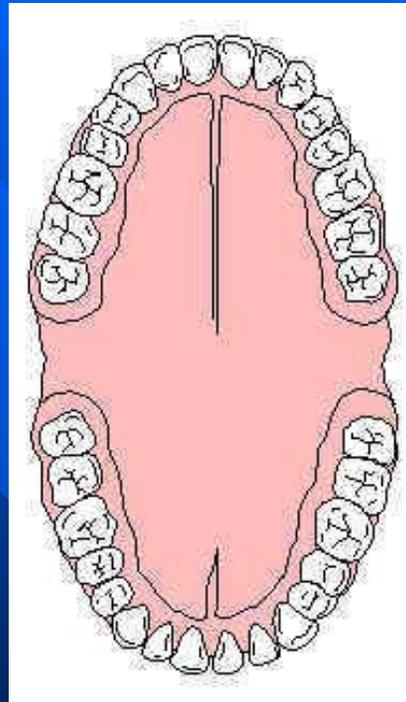
# The largest US survey of tooth decay

Brunelle & Carlos, 1990

3.4

DMFS

NF



2.8

DMFS

F

Average **difference** (for 5 - 17 year olds) in DMFS

= 0.6 tooth surfaces

What risks should we take to  
save at most

■ 0.6 of one tooth  
surface?

■ (Brunelle and Carlos, 1990)

Promoters of fluoridation now concede that the predominant action of fluoride - as far as its purported benefits are concerned - is **TOPICAL** not **SYSTEMIC** (CDC, 1999, 2001). It does not make any sense to swallow fluoride. Fluoridated toothpaste is universally available.

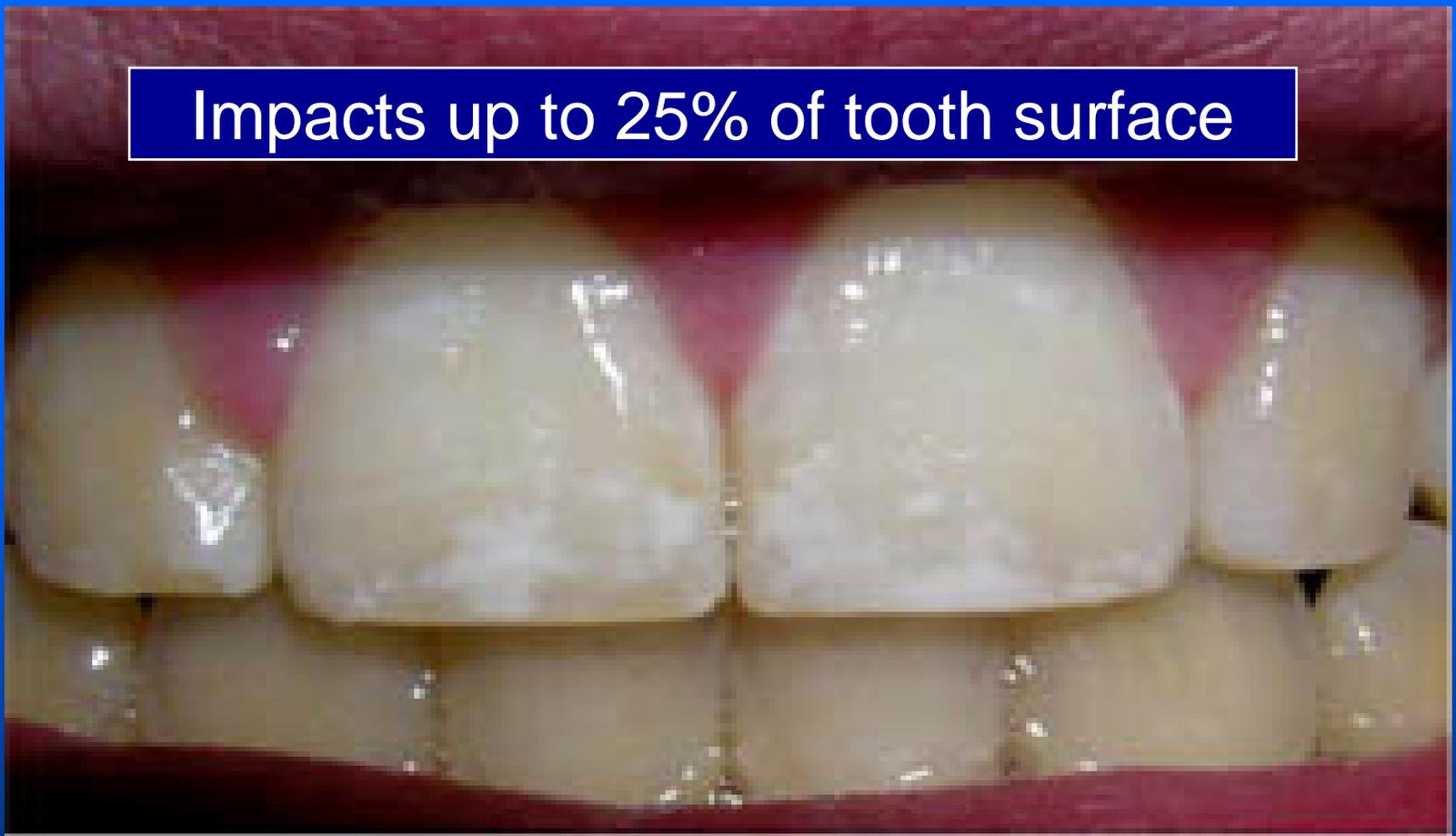
## A very important recent study

- Warren et al., 2009 (measured tooth decay as a function of individual exposure to fluoride). Found no relation between tooth decay and amount of fluoride ingested.

# Dental Fluorosis

Early promoters thought that at 1 ppm F they could limit dental fluorosis to **10%** of children in its **very mild** form.

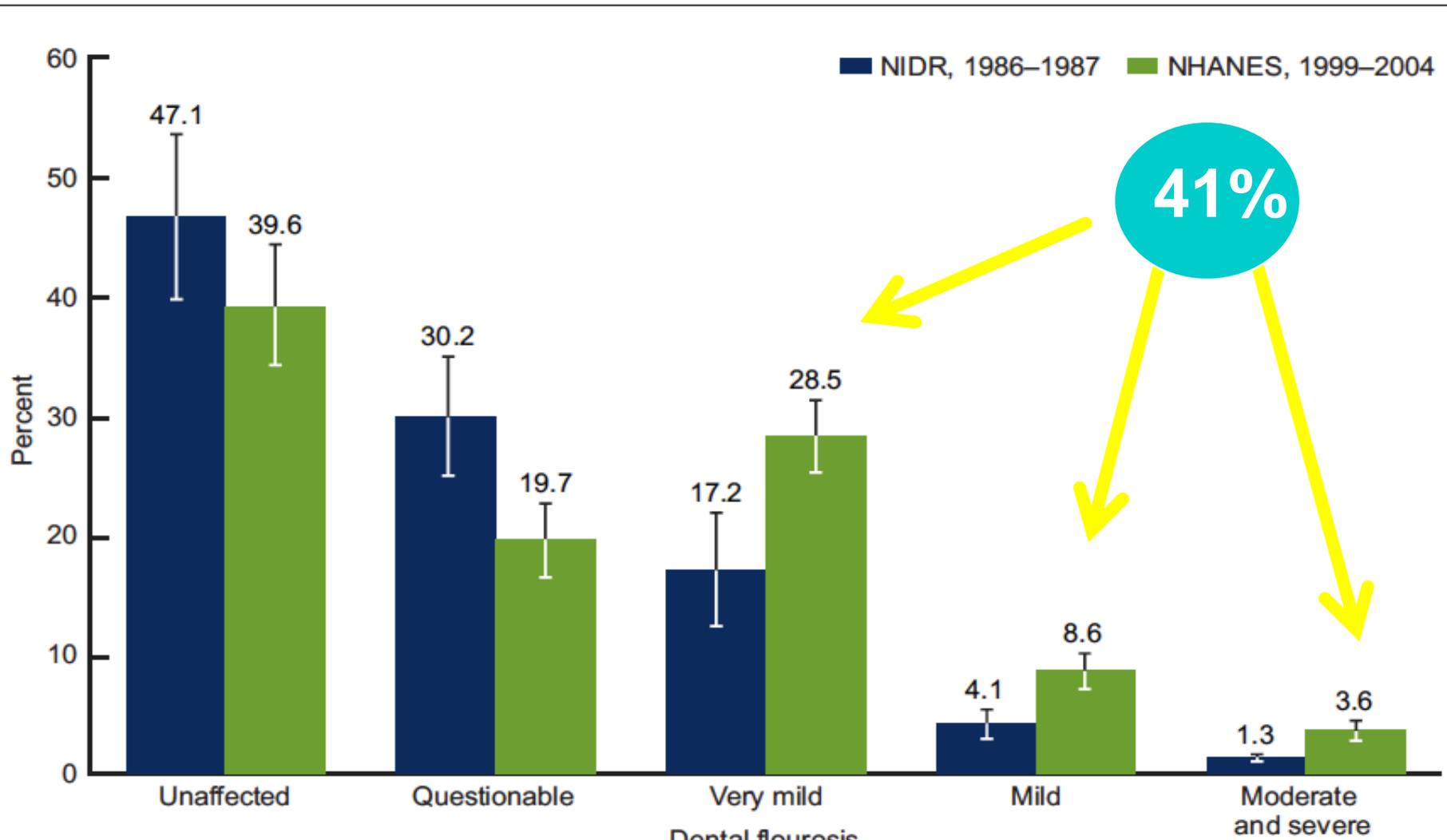
Impacts up to 25% of tooth surface



**Very Mild Dental Fluorosis**

# CDC, 2010: 41% of American children aged 12-15 have DF

Figure 3. Change in dental fluorosis prevalence among children aged 12–15 participating in two national surveys: United States, 1986–1987 and 1999–2004



Impacts up to 50% of tooth surface



## **Mild Dental Fluorosis**

**8.6 % of American kids 11-15 have mild dental fluorosis (CDC, 2010)**

Impacts 100% of tooth surface

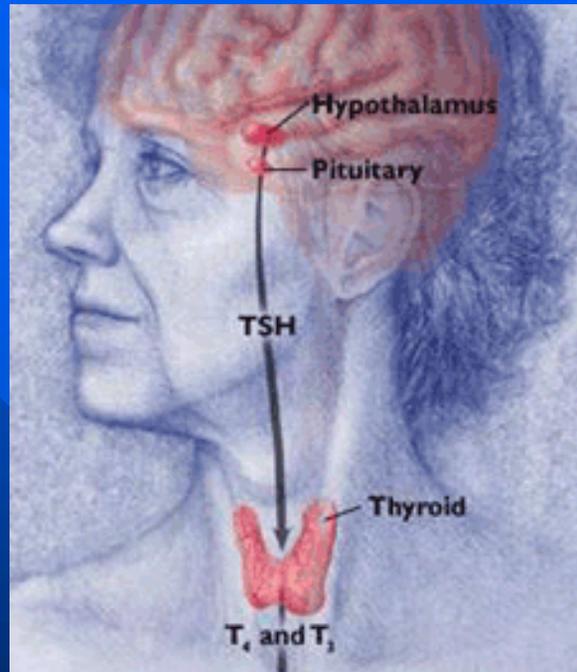


## **Moderate (Severe?) Dental Fluorosis**

**3.6% of American kids 12-15 have moderate or severe dental fluorosis (CDC, 2010)**

# Fluoride and the Thyroid gland

*National Research Council (2006):*  
**Fluoride & the Thyroid**



“several lines of information indicate an effect of fluoride exposure on thyroid function.”

# IF fluoride lowers thyroid function

- It could explain:
- 1) delayed eruption of primary teeth
- 2) lowered IQ in children
- 3) Increase in hypothyroidism among US population, plus the accompanying symptoms – obesity, lethargy, tiredness not relieved by sleep etc

# Fluoride and the Pineal gland

# Fluoride & Pineal Gland

- In 1997 Jennifer Luke confirmed that fluoride accumulates in the human pineal gland. She found an average of **9,000 ppm** on the calcium hydroxy apatite crystals (highest 21,000 ppm) (Luke, 2001).
- In animals (Mongolian gerbils) fluoride lowers melatonin production and shortens time to puberty (Luke, Ph.D. thesis, 1997).

# Fluoride and bone fractures in children

# Fluoride and Children's Bone

The Newburgh-Kingston, NY trial (Schlesinger et al, 1956) also reported about twice the incidence of cortical bone defects in the children in the fluoridated community (13.5%) compared with the non-fluoridated community (7.5%).

# Alarcon-Herrera et al. (2001)

- In a Mexican study researchers found that as the severity of dental fluorosis went up so did the incidence of bone fractures in both children and adults

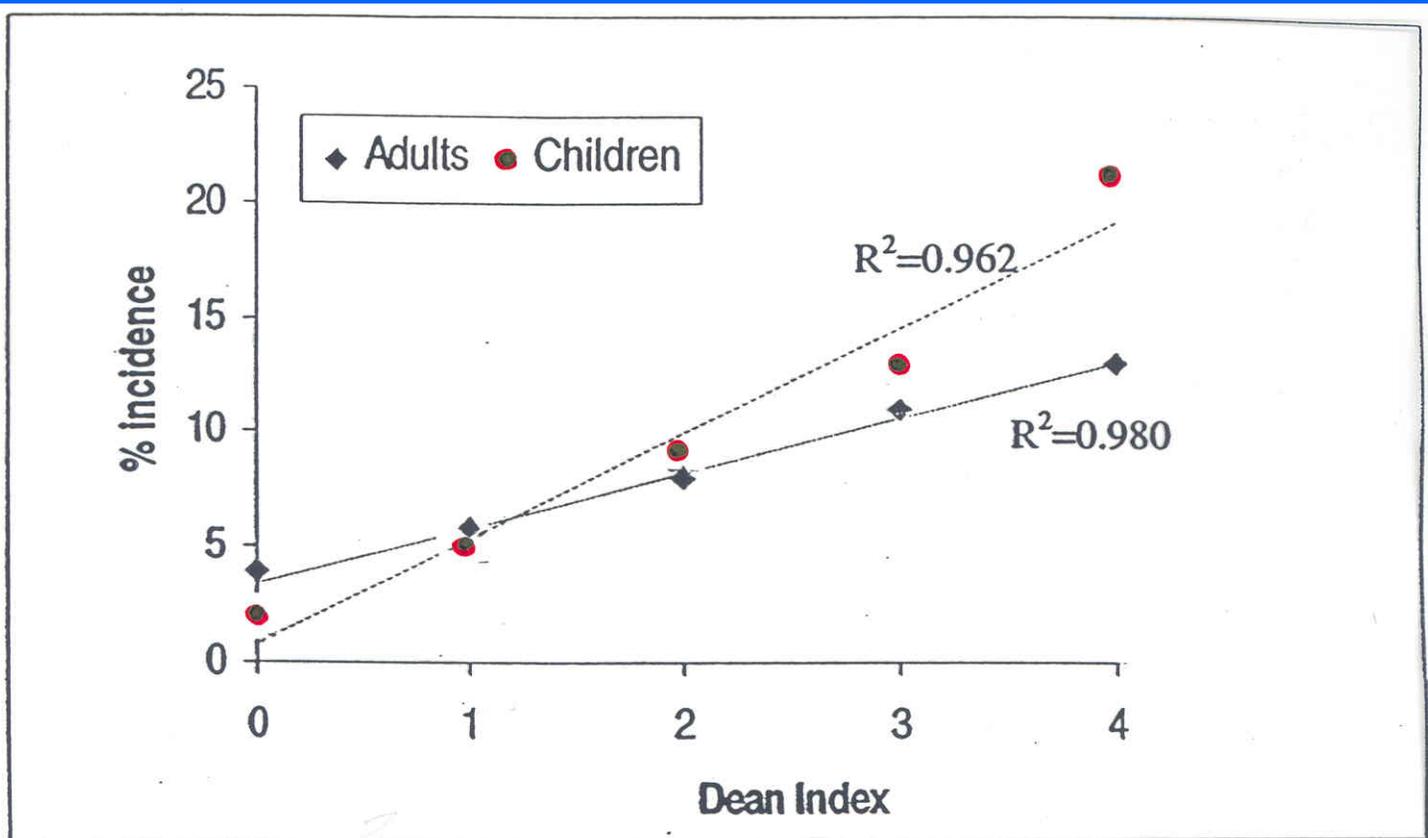


Figure 4. Incidence of bone fractures plotted against the severity of dental fluorosis (Dean's Index) for children and adults in the Guadiana Valley in the state of Durango in Mexico (from Alarcon-Herrera et al, 2001).

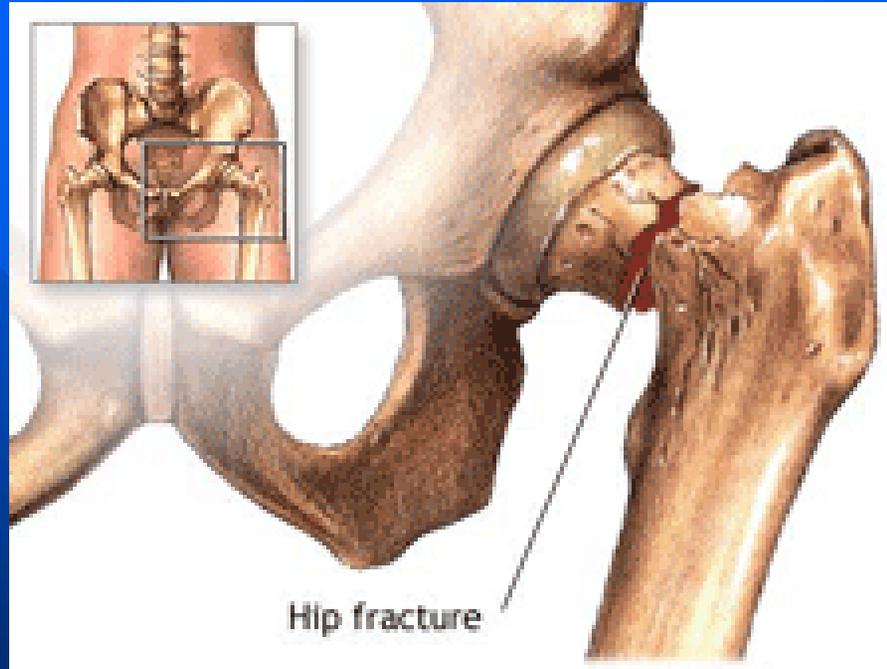
# Fluoride and arthritis

# Arthritis

- The first symptoms of fluoride's poisoning of bone are identical to arthritis (stiffness, aching joints and pain in the bones)
- According to the CDC, arthritis affects 68 million people in the US - 1 in 3 American adults
- No fluoridated country is collecting fluoride bone levels in a systematic fashion to check a possible connection with arthritis or other bone problems!

Fluoride and hip fractures in  
the elderly (studies are  
mixed)

## *National Research Council (2006):* **Fluoride & Skeletal System**



Hip fracture

"All members of the committee agreed that there is scientific evidence that under certain conditions fluoride can weaken bone and increase the risk of fractures."

Li et al. 2001: Most  
important hip fracture study.  
Hip fractures doubled at 1.5  
ppm (NS); tripled at 4.3  
ppm (S)

# Li et al (2001)

**Table 5: Hip fracture rates in the elderly in six Chinese villages with well water fluoride levels ranging from 0.25 – 7.97 ppm. The hip fracture rates are compared to the village (village 3) at 1.00 ppm. (Li et al, 2001)**

Fluoride concentration (ppm) <i>ppm</i>	Odds Ratio <i>ODDS RATIO</i>
Village 1. 0.25 – 0.34	0.99
Village 2. 0.58 – 0.73	1.12
Village 3. 1.00 – 1.06	<u>1.00</u>
Village 4. 1.45 – 2.19	2.13
Village 5. 2.62 – 3.56	1.75
Village 6. 4.32 – 7.97	3.26*
	* result is statistically significant.

# The poor science of fluoridation promotion

Health agencies in fluoridated countries spend more time and effort trying to discredit the methodology of studies that have found harm elsewhere than doing the studies themselves.

# The poor science of fluoridation promotion

Fluoridation promoters assert that there are no studies which show that **at the level of fluoride used in water fluoridation program** have caused harm. This position begs several issues:

# The poor science of fluoridation promotion

- 1) Practicing countries are not doing the key studies
- 2) They are confusing the difference between concentration and dose
- 3) They ignore need for a **margin of safety analysis** on the studies that have found harm (at high doses) to determine a dose that is protective of everyone in society.
4. Some studies have found harm at 1 ppm

# The poor science of fluoridation promotion

Typically pro-fluoridation countries handpick “expert panels” to review the literature on fluoridation to produce self-fulfilling prophecies that fluoridation is “safe and effective.”

- In 2006 Health Canada picked a panel of six experts to review the literature on the safety of fluoridation. **4 of these 6 experts were dentists known to be pro-fluoridation.**