Reasons to not fluoridate our water

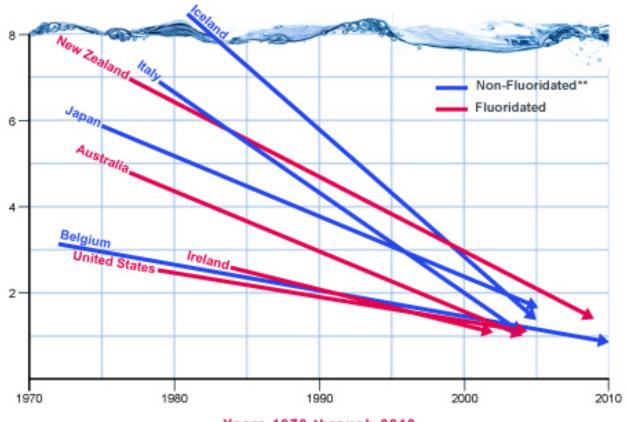
Cheryl Burr





Tooth Decay Trends in Fluoridated and Non-Fluoridated Countries

WHO data on DMFT in 12 year olds*



Years 1970 through 2010

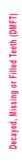
^{*} World Health Organization (WHO). Collaborating Centre for Education, Training, and Research in Oral Health, Malmö University, Sweden. http://www.mah.se/CAPP/ (accessed June 10, 2012).

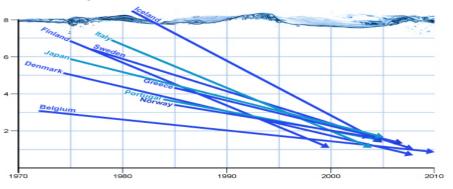
^{**} No water or salt fluoridation.



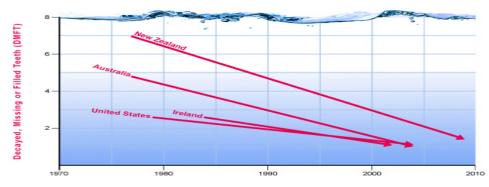
Tooth Decay Trends in Fluoridated, Non-fluoridated and Partially Fluoridated Countries WHO data on DMFT in 12 year olds*

Tooth decay in countries with NO water or salt fluoridation

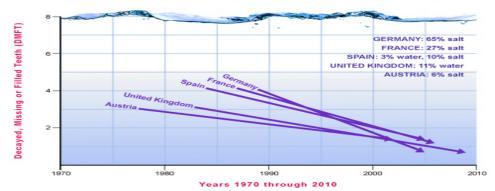




Tooth decay in countries that fluoridate most of the water



Tooth decay in countries with some water or salt fluoridation



* World Health Organization (WHO). Collaborating Centre for Education, Training, and Research in Oral Health, Malmö University, Sweden. http://www.mah.se/CAPP/ (accessed June 10, 2012).

The Cochrane Collaboration

These papers determined that **fluoridation does not reduce cavities to a statistically significant degree** in permanent teeth, says study co-author Anne-Marie Glenny, a health science researcher at Manchester University in the United Kingdom.

https://www.newsweek.com/fluoridation-may-not-prevent-cavities-huge-study-shows-348251

"Frankly, this is pretty shocking," says Thomas Zoeller, a scientist at UMass-Amherst uninvolved in the work. "This study does not support the use of fluoride in drinking water."

https://www.newsweek.com/fluoridation-may-not-prevent-cavities-huge-study-shows-348251

Trevor Sheldon, Hull York Medical School "I had assumed because of everything I'd heard that water fluoridation reduces cavities but I was completely amazed by the <u>lack</u> of evidence," he says. "My prior view was completely reversed."

https://www.newsweek.com/fluoridation-may-not-prevent-cavitieshuge-study-shows-348251

The Centers for Disease Control

"fluoride prevents dental caries predominately <u>after eruption</u> of the tooth into the mouth, and its actions primarily are <u>topical</u> for both adults and children."

Centers for Disease Control and Prevention (CDC) Achievements in public health, 1900—1999: fluoridation of drinking water to prevent dental caries. *Morbidity and Mortality Weekly Report*. 1999;48(41):933–940.

The National Research Council

"the major anticaries benefit of fluoride is **topical** and not systemic."

National Research Council. (2006). <u>Fluoride in Drinking Water: A Scientific Review of EPA's Standards</u>. National Academies Press, Washington D.C. p 16.

Water fluoridation is unethical.

Safe Water Drinking Act

Conflict

166 (1) The provisions of this Act and the regulations prevail over the provisions of any other Act and any regulation made under any other Act, irrespective of when the other Act is enacted or the regulation is made under the other Act. 2002, c. 32, s. 166 (1).

- Health Canada describes a drug as: ... a product is offered for sale in Canada to treat or prevent diseases or symptom..."
- The FDA defines Fluoride as a medication when it is used to prevent disease.
- Health Canada describes tooth decay as a disease.

Principles of Biomedical Ethics

- Autonomy The right for an individual to make his or her own choice.
- **Beneficence** The principle of acting with the best interest of the other in mind.
- Non-maleficence The principle that "above all, do no harm," as stated in the Hippocratic Oath.
- Justice A concept that emphasises fairness and equality among individuals.

Silicofluorides, widely used in water fluoridation, are unlicensed medicinal substances, administered to large populations Without informed **consent** or supervision by a qualified medical practitioner. Fluoridation fails the test of reliability and specificity, and, lacking toxicity testing of silicofluorides, constitutes unlawful medical research.

It is banned in most of Europe; European Union human rights legislation makes it illegal. Silicofluorides have never been submitted to the U.S. FDA for approval as medicines. The ethical validity of fluoridation policy does not stand up to scrutiny relative to the Nuremberg Code and other codes of medical ethics, including the Council of Europe's Biomedical Convention of 1999.



Building a Database of Developmental Neurotoxicants: Evidence from Human and Animal Studies

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Introduction

EPA's program for the screening and prioritization of chemicals for developmental neurotoxicity makes it essential to assemble a list of chemicals that are toxic to the developing mammalian nervous system. Listed chemicals will be used to evaluate the sensitivity, reliability, and predictive power of alternative developmental neurotoxicity assays. To establish this list, a literature review was conducted for over 400 compounds that have been suggested to be developmental neurotoxicants, neurotoxicants, or developmental toxicants Compounds were assigned one of three groups based on the strength of the evidence for developmental neurotoxicity:

- (1) no evidence: either there were no reports that met our criteria for evidence, or there were reports which showed no developmental neurotoxicity;
- (2) minimal evidence: one report only or multiple reports from only one laboratory;
- (3) substantial evidence: reports from more than one laboratory.
- The chemicals in the latter group will be especially useful for vetting protocols that have been proposed as screens for developmental neurotoxicity.

This presentation has been reviewed by the National Health and Environmental Effects Research Laboratory and approved. Approval does not signify that the contents reflect the views of the Agency.

Approach

Collect lists of putative DNT chemicals (n≈400)

 Consult EPA RED* documents Consult Literature

 Assess Documentation Discuss Level of DNT Evidence Prepare Manuscript

Each chemical was assigned to one of three categories:

- No available evidence existed: exclude from manuscript.
- 2. Minimal evidence existed: put in table in manuscript.
- 3. Substantial evidence existed: write a descriptive paragraph for manuscript.
- *Registration Eligibility Decision Documents (available online or via Freedom of Information Act)

Evidence: Criteria for Assessment and Endpoints

- a) We included only mammalian studies -no in vitro studies were included
- b) We included only studies with the pure chemical (or reasonably so).
 - -no mixture studies were included.
 - -no human studies were included wherein there was exposure to more than one compound.
 - -no formulations were included.
- c) We included only studies where the exposure took place during pregnancy or during the period before weaning
- We included only studies in which the administered dose was below 5 grams/kg.
- Where knowledge was available, we considered only studies where the administered dose would not be lethal to the offspring.
- We did not include any case reports
- In studies where the chemical was administered during gestation, to the extent possible, we looked for a litter-based statistical design.
- If only acute pharmacological effects were reported (either during dosing or shortly thereafter), we did not include that study.

Endpoints assessed included, but were not limited to

- ☑ Brain Weight
- ☑ Brain Morphology
- Motor Activity
- □ Learning and Memory
- Grip Strength
- Negative Geotaxis
- Startle Response
- Righting Reflex
- ☑ Neurochemical Levels
- □ Receptor Affinity/Number

Chemicals with Minimal Evidence of Developmental Neurotoxicity (n≈100)

Diaminotoluene (2.5-)

Dichloromethane (methylene chloride)

Dichloryos (DDVP)

Dicrotophos

1.1.1-Trichloroethane Abamectin Acephate Acetamiprid ActinomycinD Amicarbazone (MKH 3586) Astemizole Atorvastatin Atrazine Azinphos methy BAS 510 (Boscalid) **BAS 670H** Bifenthrin ismuth Ribromophenate Brominated veg oil Busulfan Carbofuran Carbon disulfide Chlordane Chlordimeform Chlorfenapyr Chlorite, sodium CI-943 (Antipsychotic) Clodinafop-propargy Clothianidin Coumaphos Cyfluthrin Cyhalothrin Cymoxanil

Dextromoramide

Diffuoromethylornithine Dimethoate Dinoseb Diphenhydramine Disuffoton Emamectin Endosulphan Endrin EPTC (S-Ethyl dipropylthiocarbamate) Ergotamine Ethoxyethanol (2-) Ethylene dibromide Ethylene oxide Etofenprox Fenamiphos Fenitrothion Fenvalerate FK 33-824 (Synthetic enkephalin) Flufenacet (thiafluamide) Formaldehyde Glufosinate ammonium Glyphosate trimesium Hexachoroplatinate (Na) Imidacloprid Ivermectin Levo-alpha-acetylmethadol

Mancozeb Maytansine Methamidaphos Methyl Ethyl Ketone MNDA Molinate Naled n-Hexane Nickel carbony Perchlorate Phorate (BAS 225 I) Picrotoxin Primidone Profenofos Prothioconazole Selenium compound Simvastatin Spirodiclofen Succamir Terbufos tert-Butylhydroquinone, 2-Tetrachloethylene Tetracycline Thiamethoxan Tribufos (DEF) Priethylene glycol dimethyl ether Trimethadone Triphenyl phosphate VM-26 (Teniposide) VP-16-213 (Etoposide)

Lidocaine

Malathion

Chemicals with Substantial Evidence of Developmental Neurotoxicity (n≈100)

Amino-nicotinamide(6-Aminopterin Amphetamine(d-Arsenic Aspartame Azacvtidine(5-Benomyl Benzene Ricallethrin Bis(tri-n-buty/tin)oxid Bisphenol A Bromodeoxyuridine(5-) **Butylated Hydroxy Anisol** Butylated hydroxytoluene Cadmium Carbamazepii Carbaryl Carbon monoxide Chlordecone Chlordiazepoxide Chlorine dioxide Chlorpromazine Chlorpyrifos Cocaine Colcemid Colchicing Cypermethrin Dexamethasone

Diamorphine hydrochlorid

2-Ethoxyethyl Acetate

Acibenzolar-S-methyl

Allethric

Aluminum (cl or lactate)

Diazepani Cytosine Arabinosid Deltamethrin Diazinon Dieldrin Diethylstilbestrol Diphenylhydantoin Ethanol Ethylene thiourea Flourouracil(5-) Fluazinam Griseofulvin Haloperiodol Halothane Heptachlor Hexachlorobenzene Hexachlorophene Hydroxyurea diproprionitrile (IDPN Lead Lindane LSD

Maneb Medroxyprogesterone Mepivacaine

Methadone Methanol Methylparathion sodium Glutamate

Naltrexone Nicotine Methoxyethanol, 2-Methylazoxymethano Methylmercury Ozone Paraguat Parathion (ethyl) **PBDEs** PCBs (generic) Penicillamine Permethrin Phenylacetate Phenylalanine (d,I) Phthalate, di-(2-ethylhexyl) Propythiouracil Retinoids/vit.A/isotretinoi Salicylate Tebuconazole

> Tellurium (salts) Terbutaline Thalidomid Toluene Triamcinolone Tributyltin chloride Trichlorfon Trichloroethylene Triethyllead Triethyttin Trimethyltin Trypan blue Valproate Vincristine

Sample Paragraph

DEXAMETHASONE CAS Number: 50-02-2

Formula



Dexamethasone is synthetic member of the glucocorticoid class of steroid hormones. It is used to treat inflammation and autoimmune conditions (e.g., rheumatoid arthritis), and to counteract side effects of chemotherapy in cancer patients. Synthetic glucocorticoids, including dexamethasone, are also administered to women at risk for preterm labor to advance fetal maturation and reduce neonatal morbidity and mortality.

Numerous studies in animals have shown neurodevelopmental effects of perinatal dexamethasone treatment in rodents. Doses of 0.2 - 3 mg/kg (which encompasses the therapeutic range in humans) given to the pregnant dam during destation or to the offspring postnatally alter neurogenesis and differentiation (Bohn, 1984; Carlos et al., 1992), decrease brain size and brain weight (DeKoskey et al., 1982; Carlos et al., 1992; Ferguson and Holson, 1999), and alter locomotor activity and learning and memory behavior (DeKoskey et al., 1982; Vicedomini et al., 1986; Ferguson et al., 2001; Kreider et al., 2005a), Relatively low doses (0.05 - 0.2 mg/kg) have also been shown to result in long-lasting changes in neurotransmitter systems and intracellular signaling (Kreider et al., 2005b; Kreider et al., 2006; Slotkin et al., 2006). Effects of dexamethasone, including decreased brain weight and hippocampal damage, have also been observed in nonhuman primates (reviewed in Coe and Lubach, 2005).

Human developmental neurotoxicity is associated with perinatal exposure to dexamethasone. Prenatal dexamethasone is routinely administered to mothers at risk for preterm delivery to reduce mortality and the incidence of respiratory distress syndrome and intraventricular hemorage in premature infants. Postnatal dexamethasone treatment in preterm infants is also used to reduce the risk and severity of chronic lung disease. A preponderance of epidemiologic and clinical evidence, however, indicates that both pre- and post-natal exposure to dexamethasone can result in an increased risk for cerebral palsy, decreased brain size, and long-term effects on cognition and behavior (reviewed in Baud, 2004; Purdy, 2004; Purdy and Wiley, 2004; Sloboda et al., 2005).

Scientific World Journal

"The authors conclude that available evidence suggests that fluoride has a potential to cause major adverse human health problems, while having only a modest dental caries prevention effect. As part of efforts to reduce hazardous fluoride ingestion, the practice of artificial water fluoridation should be reconsidered globally..."

Scientific World Journal, February 26, 2014

<u>Water Fluoridation: A Critical Review of the Physiological</u>

<u>Effects of Ingested Fluoride as a Public Health Intervention</u>

The National Research Council

- "...it is apparent that fluorides have the ability to interfere with the functions of the brain and the body by direct and indirect means." p.222
- "More research is needed to clarify fluoride's biochemical effects on the brain." p.222
- "In summary, evidence of several types indicates that fluoride affects normal endocrine function or response; p.266
- "The effects of fluoride on various aspects of endocrine function should be examined further, particularly with respect to a possible role in the development of several diseases or mental states in the United States." p.267

The National Research Council

- "several lines of information indicate an effect of fluoride exposure on thyroid function." p.234
- "it is difficult to predict exactly what effects on thyroid function are likely at what concentration of fluoride exposure and under what circumstances." p.234-5
- "In humans, effects on thyroid function were associated with fluoride exposures of 0.05-0.13 mg/kg/day when iodine intake was adequate and 0.01-0.03 mg/kg/day when iodine intake was inadequate." p.262-3

Public Health Ontario

Hypothyroidism As per the 2010 Health Canada fluoride document, fluoride may adversely affect endocrine glands such as the thyroid. 7 The effects of fluoride on thyroid function might depend on the intake of iodine, as there is an association of thyroid dysfunction with low iodine intake; however, in Canada, this is unlikely to occur because iodized sale is mandatory.

Evidence Review for Adverse Health Effects of Drinking Optimally Fluoridated Water (2010 – 2017) iodized salt is mandatory.

Statistics Canada – Iodine Levels

Iodine levels indicating a mild deficiency were found in 22% of Canadians aged 3 to 79 while a moderate deficiency was found in 7%

Source: Canadian Health Measures Survey, 2009 to 2011. The CHMS collects health information on the Canadian household population aged 3 to 79.

<u>Prenatal Fluoride Exposure and Cognitive Outcomes in</u> <u>Children at 4 and 6–12 Years of Age in Mexico</u>

Conclusions:

In this study, higher prenatal fluoride exposure, in the general range of exposures reported for other general population samples of pregnant women and nonpregnant adults, was associated with lower scores on tests of cognitive function in the offspring at age 4 and 6–12 y.

Journal of Environmental Health Perspectives https://doi.org/10.1289/EHP655

Community Water Fluoridation and Urinary Fluoride Concentrations in a National Sample of Pregnant Women in Canada

RESULTS: Creatinine-adjusted MUF values (mean ± SD; milligrams per liter) were almost two times higher for pregnant women living in fluoridated regions (0:87 ± 0:50) compared with nonfluoridated regions (0:46 ± 0:34; p < 0:001).

The real costs of fluoride

- The cost-benefit analysis is skewed.
- Using industrial waste product rather than pharamaceutical grade fluoride
- Correcting dental fluorosis is expensive.
- Correcting four teeth in 2013 cost us \$464 and would cost \$496 in 2019
- It will cost my family thousands of dollars to install a water filtration system to remove the fluoride, which is medically necessary as I have hypothyroidism.

1975: Westendorf found that under physiological conditions, dissociation of silicafluorides was **no more than 66%** in the concentration range considered optimum for fluoridated water.

This study has not been disputed in the peerreviewed literature.

http://www.fluoridealert.org/wp-content/uploads/westendorf.pdf

2006: Finney et al used a <u>higher-than-</u> pharmaceutical grade HFSA (rather than industrial grade toxic waste) and ultrapure deionized 'Nanopure' water devoid of impurities (rather than tap water). This does not remotely reflect the reality of fluoridation, hence it does not justify the lack of proper toxicological studies.

If in doubt, leave it

out.