

May 12, 2014

Dear Davis County Board of Health Member,

The following is an abbreviated introduction to the Harvard Report, published in the Prestigious Medical Journal "LANCET NEUROLOGY" March 2014:

"Neurodevelopmental disabilities, including autism, ADHD, dyslexia, and other cognitive impairments, affect millions of children worldwide, and some diagnoses seem to be increasing in frequency. Industrial chemicals that injure the developing brain are among the known causes for this rise in prevalence. [Previously] identified neurotoxins [include] lead, methyl-mercury... arsenic, and toluene. Since 2006, epidemiological studies have documented... additional developmental neurotoxins - manganese, FLUORIDE [emphasis added] ... and the polybrominated diphenyl ethers. To control the pandemic of developmental neurotoxicity, we propose a global prevention strategy."

In this abstract nor in the article, Harvard does not treat FLUORIDE any differently than LEAD, ARSENIC, MERCURY or TOLUENE. Fluoride is a neurotoxin to the developing infant brain. With Fluoride being added to Davis County water, it is impossible to implement the "global prevention strategy" that has been called for by one of our nation's most credible universities.

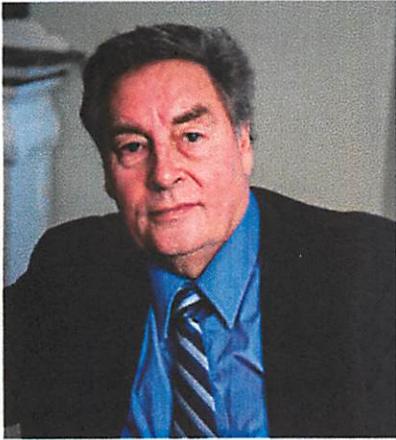
Even the American Dental Association (ADA) has warned: When mixing baby formula "parents and caregivers should consider using water that has no or low levels of fluoride." Because many less educated parents in Davis County are not aware of this warning many infants are being exposed to needlessly high levels of fluoride in baby formula mix with tap water. This unnecessary neurotoxin danger to infants will continue until fluoride is no longer added to Davis County drinking water.

We urgently request that we will be provided with the opportunity to provide full scientific references to any of our statements today that are not fully accepted by any board member. If the American Dental Association claims that there are scientific studies that prove that water fluoridation is safe and effective we request that the Board of Health request exact references (journal & date) to these scientific studies and that this information be passed on to us. We have made multiple requests to the Utah Dental Association and the American Dental Association for the one best study that shows water fluoridation is safe and effective. To date we have just been told to trust them and go to the ADA water fluoridation website (which has no scientific references). We would also welcome the opportunity to debate the UDA or ADA (with prior full disclosure of all references by both sides) on all topics that you would like to more clearly understand.

If you receive any scientific references please email them to [fluoridefreeutah@gmail.com](mailto:fluoridefreeutah@gmail.com)

Most Sincerely,

Matthew Peterson, Michael Whitten, Martin Shapiro, Steven Winters



**Paul Connett, PhD**

# 50 REASONS TO OPPOSE FLUORIDATION

Updated September 2012

In Europe, only Ireland (73%), Poland (1%), Serbia (3%), Spain (11%), and the U.K. (11%) fluoridate any of their water. Most developed countries, including Japan and 97% of the western European population, do not consume fluoridated water.

In the U.S., about 70% of public water supplies are fluoridated. This equates to approximately 185 million people, which is over half the number of people drinking artificially fluoridated water worldwide. Some countries have areas with high natural fluoride levels in the water. These include India, China and parts of Africa. In these countries measures are being taken to remove the fluoride because of the health problems that fluoride can cause.

## ***Fluoridation is a bad medical practice***

**1) Fluoride is the only chemical added to water for the purpose of medical treatment.** The U.S. Food and Drug Administration (FDA) classifies fluoride as a drug when used to prevent or mitigate disease (FDA 2000). As a matter of basic logic, adding fluoride to water for the sole purpose of preventing tooth decay (a non-waterborne disease) is a form of medical treatment. All other water treatment chemicals are added to improve the water's quality or safety, which fluoride does not do.

**2) Fluoridation is unethical.** Informed consent is standard practice for all medication, and one of the key reasons why most of Western Europe has ruled against fluoridation. With water fluoridation we are allowing governments to do to whole communities (forcing people to take a medicine irrespective of their consent) what individual doctors cannot do to individual patients.

Put another way: Does a voter have the right to require that their neighbor ingest a certain medication (even if it is against that neighbor's will)?

**3) The dose cannot be controlled.** Once fluoride is put in the water it is impossible to control the dose each individual receives because people drink different amounts of water. Being able to control the dose a patient receives is critical. Some people (e.g., manual laborers, athletes, diabetics, and people with kidney disease) drink substantially more water than others.

**4) The fluoride goes to everyone regardless of age, health or vulnerability.** According to Dr. Arvid Carlsson, the 2000 Nobel Laureate in Medicine and Physiology and one of the scientists who helped keep fluoridation out of Sweden:

“Water fluoridation goes against leading principles of pharmacotherapy, which is progressing from a stereotyped medication — of the type 1 tablet 3 times a day — to a much more individualized therapy as regards both dosage and selection of drugs. The addition of drugs to the drinking water means exactly the opposite of an individualized therapy” (Carlsson 1978).

**5) People now receive fluoride from many other sources besides water.** Fluoridated water is not the only way people are exposed to fluoride. Other sources of fluoride include food and beverages processed with fluoridated water (Kiritsy 1996; Heilman 1999), fluoridated dental products (Bentley 1999; Levy 1999), mechanically deboned meat (Fein 2001), tea (Levy 1999), and pesticide residues (e.g., from cryolite) on food (Stannard 1991; Burgstahler 1997). It is now widely acknowledged that exposure to non-water sources of fluoride has significantly increased since the water fluoridation program first began (NRC 2006).

**6) Fluoride is not an essential nutrient.** No disease, not even tooth decay, is caused by a “fluoride deficiency.”(NRC 1993; Institute of Medicine 1997, NRC 2006). Not a single biological process has been shown to require fluoride. On the contrary there is extensive evidence that fluoride can interfere with many important biological processes. Fluoride interferes with numerous enzymes (Waldbott 1978). In combination with aluminum, fluoride interferes with G-proteins (Bigay 1985, 1987). Such interactions give aluminum-fluoride complexes the potential to interfere with signals from growth factors, hormones and neurotransmitters (Strunecka & Patocka 1999; Li 2003). More and more studies indicate that fluoride can interfere with biochemistry in fundamental ways (Barbier 2010).

**7) The level in mothers’ milk is very low.** Considering reason #6 it is perhaps not surprising that the level of fluoride in mother’s milk is remarkably low (0.004 ppm, NRC, 2006). This means that a bottle-fed baby consuming fluoridated water (0.6 – 1.2 ppm) can get up to 300 times more fluoride than a breast-fed baby. There are no benefits (see reasons #11-19), only risks (see reasons #21-36), for infants

ingesting this heightened level of fluoride at such an early age (an age where susceptibility to environmental toxins is particularly high).

**8) Fluoride accumulates in the body.** Healthy adult kidneys excrete 50 to 60% of the fluoride ingested each day (Marier & Rose 1971). The remainder accumulates in the body, largely in calcifying tissues such as the bones and pineal gland (Luke 1997, 2001). Infants and children excrete less fluoride from their kidneys and take up to 80% of ingested fluoride into their bones (Ekstrand 1994). The fluoride concentration in bone steadily increases over a lifetime (NRC 2006).

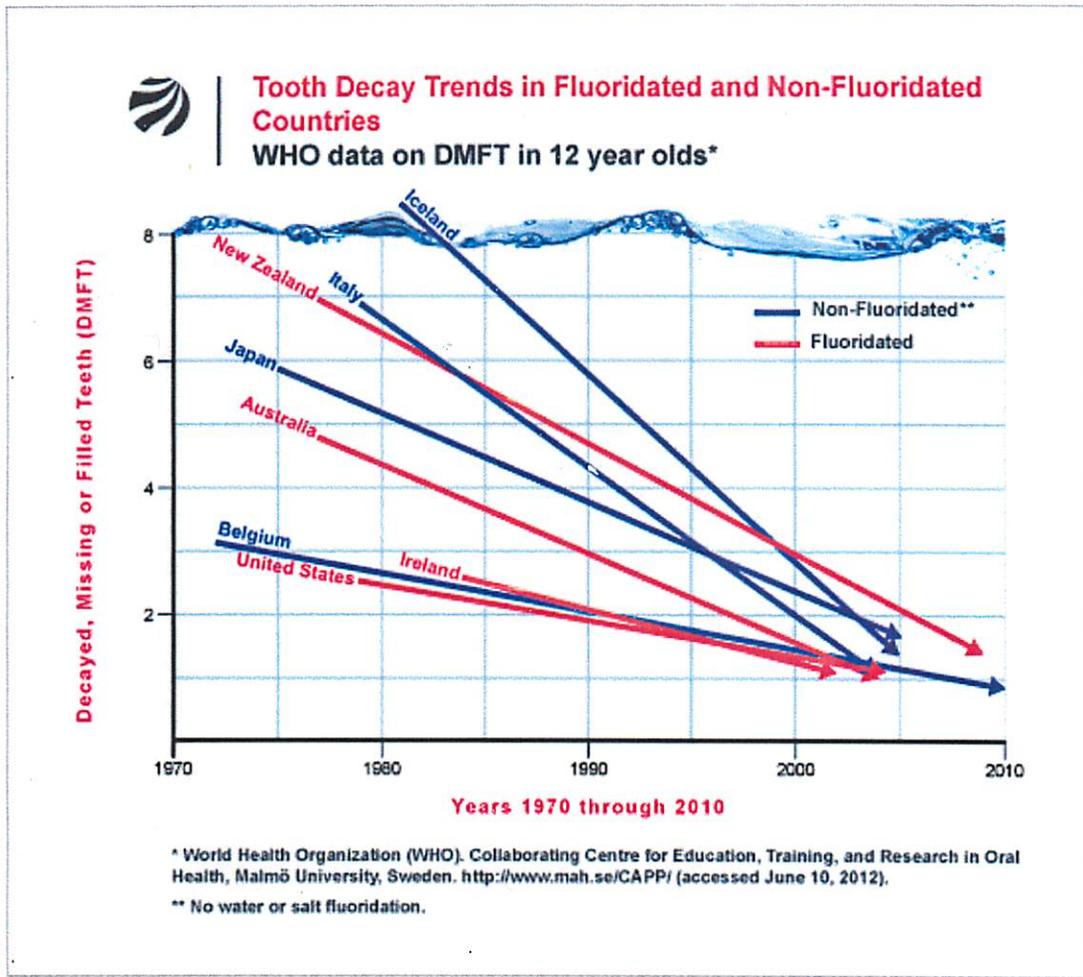
**9) No health agency in fluoridated countries is monitoring fluoride exposure or side effects.** No regular measurements are being made of the levels of fluoride in urine, blood, bones, hair, or nails of either the general population or sensitive subparts of the population (e.g., individuals with kidney disease).

**10) There has never been a single randomized controlled trial to demonstrate fluoridation's effectiveness or safety.** Despite the fact that fluoride has been added to community water supplies for over 60 years, "there have been no randomized trials of water fluoridation" (Cheng 2007). Randomized trials are the standard method for determining the safety and effectiveness of any purportedly beneficial medical treatment. In 2000, the British Government's "York Review" could not give a single fluoridation trial a Grade A classification – despite 50 years of research (McDonagh 2000). The U.S. Food and Drug Administration (FDA) continues to classify fluoride as an "unapproved new drug."

### ***Swallowing fluoride provides no (or very little) benefit***

**11) Benefit is topical not systemic.** The Centers for Disease Control and Prevention (CDC, 1999, 2001) has now acknowledged that the mechanism of fluoride's benefits are mainly topical, not systemic. There is no need whatsoever, therefore, to swallow fluoride to protect teeth. Since the purported benefit of fluoride is topical, and the risks are systemic, it makes more sense to deliver the fluoride directly to the tooth in the form of toothpaste. Since swallowing fluoride is unnecessary, and potentially dangerous, there is no justification for forcing people (against their will) to ingest fluoride through their water supply.

**12) Fluoridation is not necessary.** Most western, industrialized countries have rejected water fluoridation, but have nevertheless experienced the same decline in childhood dental decay as fluoridated countries. (See data from World Health Organization presented graphically in Figure).



**13) Fluoridation's role in the decline of tooth decay is in serious doubt.** The largest survey ever conducted in the US (over 39,000 children from 84 communities) by the National Institute of Dental Research showed little difference in tooth decay among children in fluoridated and non-fluoridated communities (Hileman 1989). According to NIDR researchers, the study found an average difference of only 0.6 DMFS (Decayed, Missing, and Filled Surfaces) in the permanent teeth of children aged 5-17 residing their entire lives in either fluoridated or unfluoridated areas (Brunelle & Carlos, 1990). This difference is less than one tooth surface, and less than 1% of the 100+ tooth surfaces available in a child's mouth. Large surveys from three Australian states have found even less of a benefit, with decay reductions ranging from 0 to 0.3 of one permanent tooth surface (Spencer 1996; Armfield & Spencer 2004). None of these studies have allowed for the possible delayed eruption of the teeth that may be caused by exposure to fluoride, for which there is some evidence (Komarek 2005). A one-year delay in eruption of the permanent teeth would eliminate the very small benefit recorded in these modern studies.

**14) NIH-funded study on individual fluoride ingestion and tooth decay found no significant correlation.** A multi-million dollar, U.S. National Institutes of Health (NIH)-funded study found no

significant relationship between tooth decay and fluoride intake among children. (Warren 2009) This is the first time tooth decay has been investigated as a function of individual exposure (as opposed to mere residence in a fluoridated community).

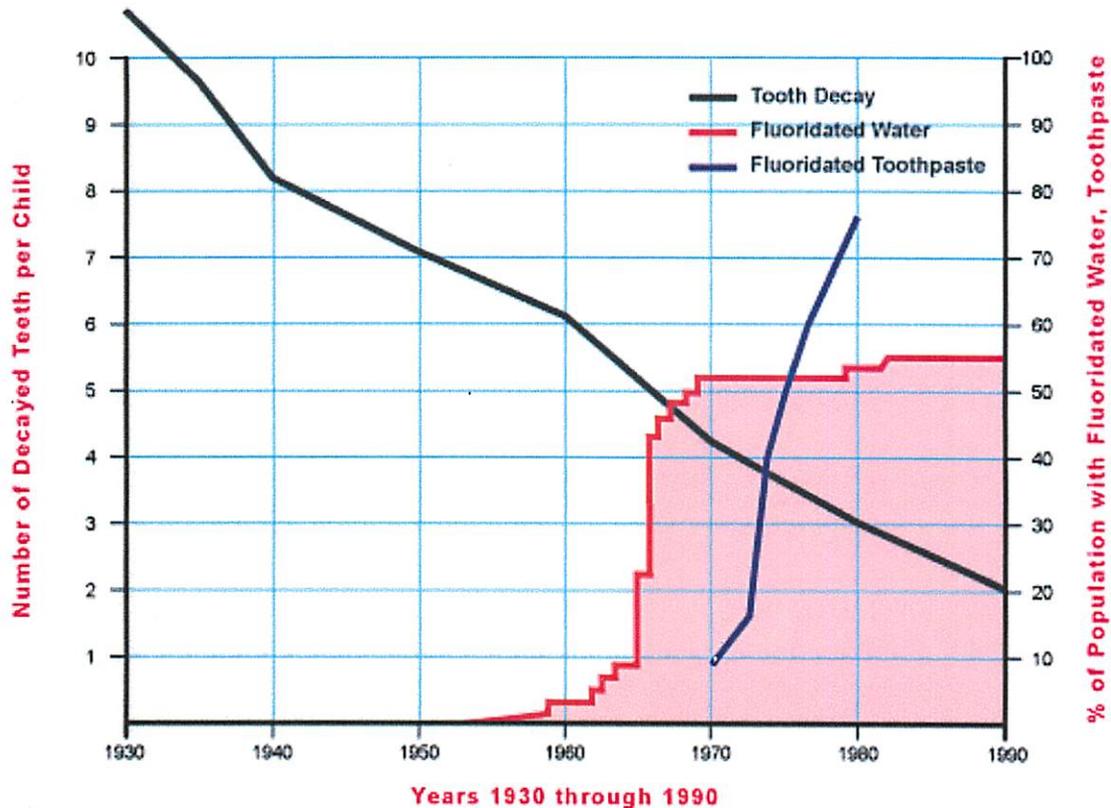
**15) Tooth decay is high in low-income communities that have been fluoridated for years.** Despite some claims to the contrary, water fluoridation cannot prevent the oral health crises that result from rampant poverty, inadequate nutrition, and lack of access to dental care. There have been numerous reports of severe dental crises in low-income neighborhoods of US cities that have been fluoridated for over 20 years (e.g., Boston, Cincinnati, New York City, and Pittsburgh). In addition, research has repeatedly found fluoridation to be ineffective at preventing the most serious oral health problem facing poor children, namely “baby bottle tooth decay,” otherwise known as early childhood caries (Barnes 1992; Shiboski 2003).

**16) Tooth decay does not go up when fluoridation is stopped.** Where fluoridation has been discontinued in communities from Canada, the former East Germany, Cuba and Finland, dental decay has not increased but has generally continued to decrease (Maupomé 2001; Kunzel & Fischer, 1997, 2000; Kunzel 2000; Seppa 2000).

**17) Tooth decay was coming down before fluoridation started.** Modern research shows that decay rates were coming down before fluoridation was introduced in Australia and New Zealand and have continued to decline even after its benefits would have been maximized. (Colquhoun 1997; Diesendorf 1986). As the following figure indicates, many other factors are responsible for the decline of tooth decay that has been universally reported throughout the western world.



## Introduction of Fluoridated Water and Fluoride Toothpaste and Tooth Decay Rate of 5-year-old Children in New Zealand

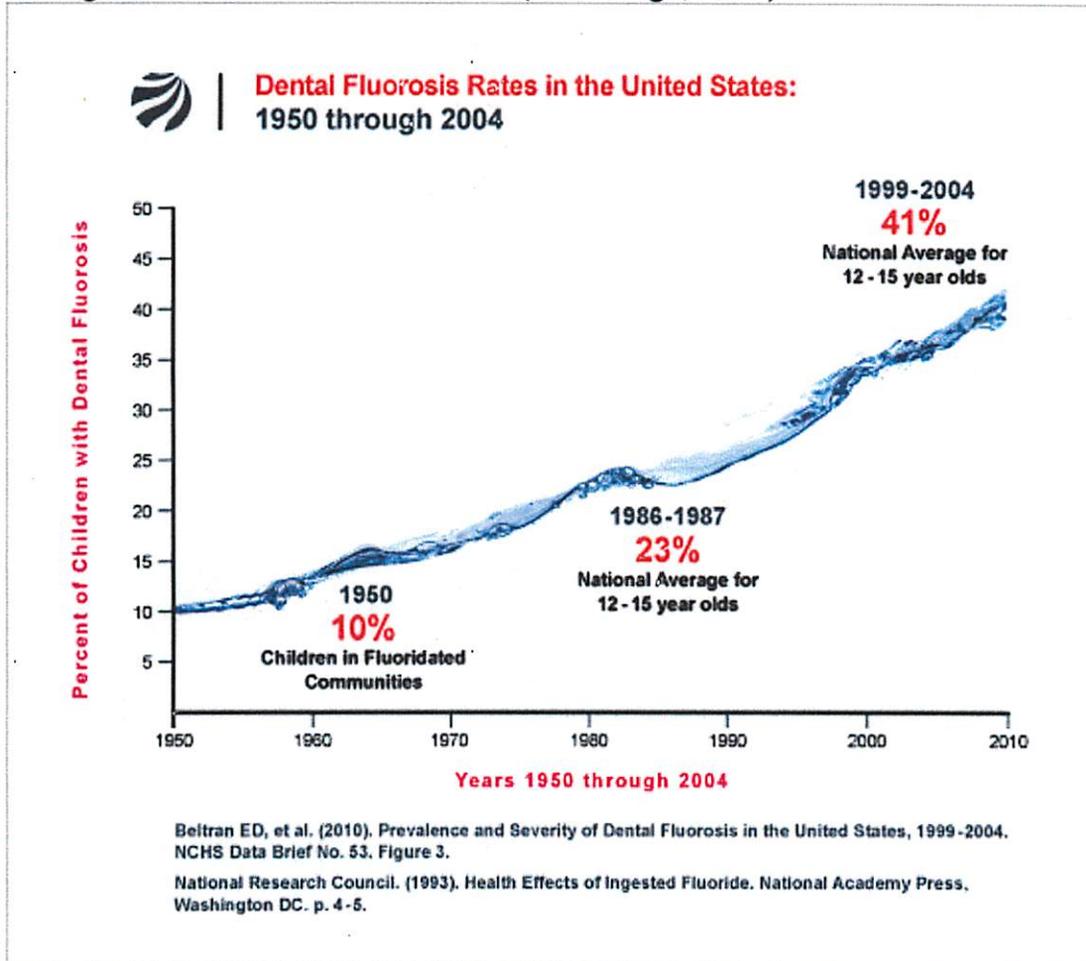


Colquhoun J. (1997). Why I changed my mind about fluoridation. *Perspectives in Biology and Medicine* 41(1):29-44.

**18) The studies that launched fluoridation were methodologically flawed.** The early trials conducted between 1945 and 1955 in North America that helped to launch fluoridation, have been heavily criticized for their poor methodology and poor choice of control communities (De Stefano 1954; Sutton 1959, 1960, 1996; Ziegelbecker 1970). According to Dr. Hubert Arnold, a statistician from the University of California at Davis, the early fluoridation trials “are especially rich in fallacies, improper design, invalid use of statistical methods, omissions of contrary data, and just plain muddleheadedness and hebetude.” Serious questions have also been raised about Trendley Dean’s (the father of fluoridation) famous 21-city study from 1942 (Ziegelbecker 1981).

## Children are being over-exposed to fluoride

19) **Children are being over-exposed to fluoride.** The fluoridation program has massively failed to achieve one of its key objectives, i.e., to lower dental decay rates while limiting the occurrence of dental fluorosis (a discoloring of tooth enamel caused by too much fluoride. The goal of the early promoters of fluoridation was to limit dental fluorosis (in its very mild form) to 10% of children (NRC 1993, pp. 6-7). In 2010, however, the Centers for Disease Control and Prevention (CDC) reported that 41% of American adolescents had dental fluorosis, with 8.6% having mild fluorosis and 3.6% having either moderate or severe dental fluorosis (Beltran-Aguilar 2010). As the 41% prevalence figure is a national average and includes children living in fluoridated and unfluoridated areas, the fluorosis rate in fluoridated communities will obviously be higher. The British Government's York Review estimated that up to 48% of children in fluoridated areas worldwide have dental fluorosis in all forms, with 12.5% having fluorosis of aesthetic concern (McDonagh, 2000).



20) **The highest doses of fluoride are going to bottle-fed babies.** Because of their sole reliance on liquids for their food intake, infants consuming formula made with fluoridated water have the highest exposure to fluoride, by bodyweight, in the population. Because infant exposure to fluoridated water

has been repeatedly found to be a major risk factor for developing dental fluorosis later in life (Marshall 2004; Hong 2006; Levy 2010), a number of dental researchers have recommended that parents of newborns not use fluoridated water when reconstituting formula (Ekstrand 1996; Pendrys 1998; Fomon 2000; Brothwell 2003; Marshall 2004). Even the American Dental Association (ADA), the most ardent institutional proponent of fluoridation, distributed a November 6, 2006 email alert to its members recommending that parents be advised that formula should be made with “low or no-fluoride water.” Unfortunately, the ADA has done little to get this information into the hands of parents. As a result, many parents remain unaware of the fluorosis risk from infant exposure to fluoridated water.

## ***Evidence of harm to other tissues***

**21) Dental fluorosis may be an indicator of wider systemic damage.** There have been many suggestions as to the possible biochemical mechanisms underlying the development of dental fluorosis (Matsuo 1998; Den Besten 1999; Sharma 2008; Duan 2011; Tye 2011) and they are complicated for a lay reader. While promoters of fluoridation are content to dismiss dental fluorosis (in its milder forms) as merely a cosmetic effect, it is rash to assume that fluoride is not impacting other developing tissues when it is visibly damaging the teeth by some biochemical mechanism (Groth 1973; Colquhoun 1997). Moreover, ingested fluoride can only cause dental fluorosis during the period before the permanent teeth have erupted (6-8 years), other tissues are potentially susceptible to damage throughout life. For example, in areas of naturally high levels of fluoride the first indicator of harm is dental fluorosis in children. In the same communities many older people develop skeletal fluorosis.

**22) Fluoride may damage the brain.** According to the National Research Council (2006), “it is apparent that fluorides have the ability to interfere with the functions of the brain.” In a review of the literature commissioned by the US Environmental Protection Agency (EPA), fluoride has been listed among about 100 chemicals for which there is “substantial evidence of developmental neurotoxicity.” Animal experiments show that fluoride accumulates in the brain and alters mental behavior in a manner consistent with a neurotoxic agent (Mullenix 1995). In total, there have now been over 100 animal experiments showing that fluoride can damage the brain and impact learning and behavior. According to fluoridation proponents, these animal studies can be ignored because high doses were used. However, it is important to note that rats generally require five times more fluoride to reach the same plasma levels in humans (Sawan 2010). Further, one animal experiment found effects at remarkably low doses (Varner 1998). In this study, rats fed for one year with 1 ppm fluoride in their water (the same level used in fluoridation programs), using either sodium fluoride or aluminum

fluoride, had morphological changes to their kidneys and brains, an increased uptake of aluminum in the brain, and the formation of beta-amyloid deposits which are associated with Alzheimer's disease. Other animal studies have found effects on the brain at water fluoride levels as low as 5 ppm (Liu 2010).

**23) Fluoride may lower IQ.** There have now been 33 studies from China, Iran, India and Mexico that have reported an association between fluoride exposure and reduced IQ. One of these studies (Lin 1991) indicates that even just moderate levels of fluoride exposure (e.g., 0.9 ppm in the water) can exacerbate the neurological defects of iodine deficiency. Other studies have found IQ reductions at 1.9 ppm (Xiang 2003a,b); 0.3-3.0 ppm (Ding 2011); 1.8-3.9 ppm (Xu 1994); 2.0 ppm (Yao 1996, 1997); 2.1-3.2 ppm (An 1992); 2.38 ppm (Poureslami 2011); 2.45 ppm (Eswar 2011); 2.5 ppm (Seraj 2006); 2.85 ppm (Hong 2001); 2.97 ppm (Wang 2001, Yang 1994); 3.15 ppm (Lu 2000); 4.12 ppm (Zhao 1996). In the Ding study, each 1 ppm increase of fluoride in urine was associated with a loss of 0.59 IQ points. None of these studies indicate an adequate margin of safety to protect all children drinking artificially fluoridated water from this affect. According to the National Research Council (2006), "the consistency of the results [in fluoride/IQ studies] appears significant enough to warrant additional research on the effects of fluoride on intelligence." The NRC's conclusion has recently been amplified by a team of Harvard scientists whose fluoride/IQ meta-review concludes that fluoride's impact on the developing brain should be a "high research priority." (Choi et al., 2012). Except for one small IQ study from New Zealand (Spittle 1998) no fluoridating country has yet investigated the matter.

**24) Fluoride may cause non-IQ neurotoxic effects.** Reduced IQ is not the only neurotoxic effect that may result from fluoride exposure. At least three human studies have reported an association between fluoride exposure and impaired visual-spatial organization (Calderon 2000; Li 2004; Rocha-Amador 2009); while four other studies have found an association between prenatal fluoride exposure and fetal brain damage (Han 1989; Du 1992; Dong 1993; Yu 1996).

**25) Fluoride affects the pineal gland.** Studies by Jennifer Luke (2001) show that fluoride accumulates in the human pineal gland to very high levels. In her Ph.D. thesis, Luke has also shown in animal studies that fluoride reduces melatonin production and leads to an earlier onset of puberty (Luke 1997). Consistent with Luke's findings, one of the earliest fluoridation trials in the U.S. (Schlesinger 1956) reported that on average young girls in the fluoridated community reached menstruation 5 months earlier than girls in the non-fluoridated community. Inexplicably, no fluoridating country has attempted to reproduce either Luke's or Schlesinger's findings or examine the issue any further.

**26) Fluoride affects thyroid function.** According to the U.S. National Research Council (2006), “several lines of information indicate an effect of fluoride exposure on thyroid function.” In the Ukraine, Bachinskii (1985) found a lowering of thyroid function, among otherwise healthy people, at 2.3 ppm fluoride in water. In the middle of the 20th century, fluoride was prescribed by a number of European doctors to reduce the activity of the thyroid gland for those suffering from hyperthyroidism (overactive thyroid) (Stecher 1960; Waldbott 1978). According to a clinical study by Galletti and Joyet (1958), the thyroid function of hyperthyroid patients was effectively reduced at just 2.3 to 4.5 mg/day of fluoride ion. To put this finding in perspective, the Department of Health and Human Services (DHHS, 1991) has estimated that total fluoride exposure in fluoridated communities ranges from 1.6 to 6.6 mg/day. This is a remarkable fact, particularly considering the rampant and increasing problem of hypothyroidism (underactive thyroid) in the United States and other fluoridated countries. Symptoms of hypothyroidism include depression, fatigue, weight gain, muscle and joint pains, increased cholesterol levels, and heart disease. In 2010, the second most prescribed drug of the year was Synthroid (sodium levothyroxine) which is a hormone replacement drug used to treat an underactive thyroid.

**27) Fluoride causes arthritic symptoms.** Some of the early symptoms of skeletal fluorosis (a fluoride-induced bone and joint disease that impacts millions of people in India, China, and Africa), mimic the symptoms of arthritis (Singh 1963; Franke 1975; Teotia 1976; Carnow 1981; Czerwinski 1988; DHHS 1991). According to a review on fluoridation published in Chemical & Engineering News, “Because some of the clinical symptoms mimic arthritis, the first two clinical phases of skeletal fluorosis could be easily misdiagnosed” (Hileman 1988). Few, if any, studies have been done to determine the extent of this misdiagnosis, and whether the high prevalence of arthritis in America (1 in 3 Americans have some form of arthritis – CDC, 2002) and other fluoridated countries is related to growing fluoride exposure, which is highly plausible. Even when individuals in the U.S. suffer advanced forms of skeletal fluorosis (from drinking large amounts of tea), it has taken years of misdiagnoses before doctors finally correctly diagnosed the condition as fluorosis.

**28) Fluoride damages bone.** An early fluoridation trial (Newburgh-Kingston 1945-55) found a significant two-fold increase in cortical bone defects among children in the fluoridated community (Schlesinger 1956). The cortical bone is the outside layer of the bone and is important to protect against fracture. While this result was not considered important at the time with respect to bone fractures, it did prompt questions about a possible link to osteosarcoma (Caffey, 1955; NAS, 1977). In 2001, Alarcon-

Herrera and co-workers reported a linear correlation between the severity of dental fluorosis and the frequency of bone fractures in both children and adults in a high fluoride area in Mexico.

**29) Fluoride may increase hip fractures in the elderly.** When high doses of fluoride (average 26 mg per day) were used in trials to treat patients with osteoporosis in an effort to harden their bones and reduce fracture rates, it actually led to a higher number of fractures, particularly hip fractures (Inkovaara 1975; Gerster 1983; Dambacher 1986; O'Duffy 1986; Hedlund 1989; Bayley 1990; Gutteridge 1990. 2002; Orcel 1990; Riggs 1990 and Schnitzler 1990). Hip fracture is a very serious issue for the elderly, often leading to a loss of independence or a shortened life. There have been over a dozen studies published since 1990 that have investigated a possible relationship between hip fractures and long term consumption of artificially fluoridated water or water with high natural levels. The results have been mixed – some have found an association and others have not. Some have even claimed a protective effect. One very important study in China, which examined hip fractures in six Chinese villages, found what appears to be a dose-related increase in hip fracture as the concentration of fluoride rose from 1 ppm to 8 ppm (Li 2001) offering little comfort to those who drink a lot of fluoridated water. Moreover, in the only human epidemiological study to assess bone strength as a function of bone fluoride concentration, researchers from the University of Toronto found that (as with animal studies) the strength of bone declined with increasing fluoride content (Chachra 2010). Finally, a recent study from Iowa (Levy 2009), published data suggesting that low-level fluoride exposure may have a detrimental effect on cortical bone density in girls (an effect that has been repeatedly documented in clinical trials and which has been posited as an important mechanism by which fluoride may increase bone fracture rates).

**30) People with impaired kidney function are particularly vulnerable to bone damage.** Because of their inability to effectively excrete fluoride, people with kidney disease are prone to accumulating high levels of fluoride in their bone and blood. As a result of this high fluoride body burden, kidney patients have an elevated risk for developing skeletal fluorosis. In one of the few U.S. studies investigating the matter, crippling skeletal fluorosis was documented among patients with severe kidney disease drinking water with just 1.7 ppm fluoride (Johnson 1979). Since severe skeletal fluorosis in kidney patients has been detected in small case studies, it is likely that larger, systematic studies would detect skeletal fluorosis at even lower fluoride levels.

**31) Fluoride may cause bone cancer (osteosarcoma).** A U.S. government-funded animal study found a dose-dependent increase in bone cancer (osteosarcoma) in fluoride-treated, male rats (NTP 1990).

Following the results of this study, the National Cancer Institute (NCI) reviewed national cancer data in the U.S. and found a significantly higher rate of osteosarcoma (a bone cancer) in young men in fluoridated versus unfluoridated areas (Hoover et al 1991a). While the NCI concluded (based on an analysis lacking statistical power) that fluoridation was not the cause (Hoover et al 1991b), no explanation was provided to explain the higher rates in the fluoridated areas. A smaller study from New Jersey (Cohn 1992) found osteosarcoma rates to be up to 6 times higher in young men living in fluoridated versus unfluoridated areas. Other epidemiological studies of varying size and quality have failed to find this relationship (a summary of these can be found in Bassin, 2001 and Connett & Neurath, 2005). There are three reasons why a fluoride-osteosarcoma connection is plausible: First, fluoride accumulates to a high level in bone. Second, fluoride stimulates bone growth. And, third, fluoride can interfere with the genetic apparatus of bone cells in several ways; it has been shown to be mutagenic, cause chromosome damage, and interfere with the enzymes involved with DNA repair in both cell and tissue studies (Tsutsui 1984; Caspary 1987; Kishi 1993; Mihashi 1996; Zhang 2009). In addition to cell and tissue studies, a correlation between fluoride exposure and chromosome damage in humans has also been reported (Sheth 1994; Wu 1995; Meng 1997; Joseph 2000).

**32) Proponents have failed to refute the Bassin-Osteosarcoma study.** In 2001, Elise Bassin, a dentist, successfully defended her doctoral thesis at Harvard in which she found that young boys had a five-to-seven fold increased risk of getting osteosarcoma by the age of 20 if they drank fluoridated water during their mid-childhood growth spurt (age 6 to 8). The study was published in 2006 (Bassin 2006) but has been largely discounted by fluoridating countries because her thesis adviser Professor Chester Douglass (a promoter of fluoridation and a consultant for Colgate) promised a larger study that he claimed would discount her thesis (Douglass and Joshipura, 2006). Now, after 5 years of waiting the Douglass study has finally been published (Kim 2011) but in no way does this study discount Bassin's findings. The study, which used far fewer controls than Bassin's analysis, did not even attempt to assess the age-specific window of risk that Bassin identified. Indeed, by the authors' own admission, the study had no capacity to assess the risk of osteosarcoma among children and adolescents (the precise population of concern). For a critique of the Douglass study, [click here](#).

**33) Fluoride may cause reproductive problems.** Fluoride administered to animals at high doses wreaks havoc on the male reproductive system – it damages sperm and increases the rate of infertility in a number of different species (Kour 1980; Chinoy 1989; Chinoy 1991; Susheela 1991; Chinoy 1994; Kumar 1994; Narayana 1994a,b; Zhao 1995; Elbetieha 2000; Ghosh 2002; Zakrzewska 2002). In addition, an epidemiological study from the US found increased rates of infertility among

couples living in areas with 3 ppm or more fluoride in the water (Freni 1994), two studies have found increased fertility among men living in high-fluoride areas of China and India (Liu 1988; Neelam 1987); four studies have found reduced level of circulating testosterone in males living in high fluoride areas (Hao 2010; Chen P 1997; Susheela 1996; Barot 1998), and a study of fluoride-exposed workers reported a “subclinical reproductive effect” (Ortiz-Perez 2003). While animal studies by FDA researchers have failed to find evidence of reproductive toxicity in fluoride-exposed rats (Sprando 1996, 1997, 1998), the National Research Council (2006) has recommended that, “the relationship between fluoride and fertility requires additional study.”

**34) Some individuals are highly sensitive to low levels of fluoride** as shown by case studies and double blind studies. In one study, which lasted 13 years, Feltman and Kosel (1961) showed that about 1% of patients given 1 mg of fluoride each day developed negative reactions. Many individuals have reported suffering from symptoms such as fatigue, headaches, rashes and stomach and gastro intestinal tract problems, which disappear when they avoid fluoride in their water and diet. (Shea 1967; Waldbott 1978; Moolenburgh 1987) Frequently the symptoms reappear when they are unwittingly exposed to fluoride again (Spittle, 2008). No fluoridating government has conducted scientific studies to take this issue beyond these anecdotal reports. Without the willingness of governments to investigate these reports scientifically, should we as a society be forcing these people to ingest fluoride?

**35) Other subsets of population are more vulnerable to fluoride’s toxicity.** In addition to people suffering from impaired kidney function discussed in reason #30 other subsets of the population are more vulnerable to fluoride’s toxic effects. According to the Agency for Toxic Substances and Disease Registry (ATSDR 1993) these include: infants, the elderly, and those with diabetes mellitus. Also vulnerable are those who suffer from malnutrition (e.g., calcium, magnesium, vitamin C, vitamin D and iodine deficiencies and protein-poor diets) and those who have diabetes insipidus. See: Greenberg 1974; Klein 1975; Massler & Schour 1952; Marier & Rose 1977; Lin 1991; Chen 1997; Seow 1994; Teotia 1998.

### ***No Margin of Safety***

**36) There is no margin of safety for several health effects.** No one can deny that high natural levels of fluoride damage health. Millions of people in India and China have had their health compromised by fluoride. The real question is whether there is an adequate margin of safety between the doses shown to cause harm in published studies and the total dose people receive consuming uncontrolled amounts of fluoridated water and non-water sources of fluoride. This margin of safety has to take into account the

wide range of individual sensitivity expected in a large population (a safety factor of 10 is usually applied to the lowest level causing harm). Another safety factor is also needed to take into account the wide range of doses to which people are exposed. There is clearly no margin of safety for dental fluorosis (CDC, 2010) and based on the following studies nowhere near an adequate margin of safety for lowered IQ (Xiang 2003a,b; Ding 2011; Choi 2012); lowered thyroid function (Galletti & Joyet 1958; Bachinskii 1985; Lin 1991); bone fractures in children (Alarcon-Herrera 2001) or hip fractures in the elderly (Kurttio 1999; Li 2001). All of these harmful effects are discussed in the NRC (2006) review.

## ***Environmental Justice***

**37) Low-income families penalized by fluoridation.** Those most likely to suffer from poor nutrition, and thus more likely to be more vulnerable to fluoride's toxic effects, are the poor, who unfortunately, are the very people being targeted by new fluoridation programs. While at heightened risk, poor families are least able to afford avoiding fluoride once it is added to the water supply. No financial support is being offered to these families to help them get alternative water supplies or to help pay the costs of treating unsightly cases of dental fluorosis.

**38) Black and Hispanic children are more vulnerable to fluoride's toxicity.** According to the CDC's national survey of dental fluorosis, black and Mexican-American children have significantly higher rates of dental fluorosis than white children (Beltran-Aguilar 2005, Table 23). The recognition that minority children appear to be more vulnerable to toxic effects of fluoride, combined with the fact that low-income families are less able to avoid drinking fluoridated water, has prompted prominent leaders in the environmental-justice movement to oppose mandatory fluoridation in Georgia. In a statement issued in May 2011, Andrew Young, a colleague of Martin Luther King, Jr., and former Mayor of Atlanta and former US Ambassador to the United Nations, stated:

“I am most deeply concerned for poor families who have babies: if they cannot afford unfluoridated water for their babies' milk formula, do their babies not count? Of course they do. This is an issue of fairness, civil rights, and compassion. We must find better ways to prevent cavities, such as helping those most at risk for cavities obtain access to the services of a dentist...My father was a dentist. I formerly was a strong believer in the benefits of water fluoridation for preventing cavities. But many things that we began to do 50 or more years ago

we now no longer do, because we have learned further information that changes our practices and policies. So it is with fluoridation.”

**39) Minorities are not being warned about their vulnerabilities to fluoride.** The CDC is not warning black and Mexican-American children that they have higher rates of dental fluorosis than Caucasian children (see #38). This extra vulnerability may extend to other toxic effects of fluoride. Black Americans have higher rates of lactose intolerance, kidney problems and diabetes, all of which may exacerbate fluoride’s toxicity.

**40) Tooth decay reflects low-income not low-fluoride intake.** Since dental decay is most concentrated in poor communities, we should be spending our efforts trying to increase the access to dental care for low-income families. The highest rates of tooth decay today can be found in low-income areas that have been fluoridated for many years. The real “Oral Health Crisis” that exists today in the United States, is not a lack of fluoride but poverty and lack of dental insurance. The Surgeon General has estimated that 80% of dentists in the US do not treat children on Medicaid.

### ***The largely untested chemicals used in fluoridation programs***

**41) The chemicals used to fluoridate water are not pharmaceutical grade.** Instead, they largely come from the wet scrubbing systems of the phosphate fertilizer industry. These chemicals (90% of which are sodium fluorosilicate and fluorosilicic acid), are classified hazardous wastes contaminated with various impurities. Recent testing by the National Sanitation Foundation suggest that the levels of arsenic in these silicon fluorides are relatively high (up to 1.6 ppb after dilution into public water) and of potential concern (NSF 2000 and Wang 2000). Arsenic is a known human carcinogen for which there is no safe level. This one contaminant alone could be increasing cancer rates – and unnecessarily so.

**42) The silicon fluorides have not been tested comprehensively.** The chemical usually tested in animal studies is pharmaceutical grade sodium fluoride, not industrial grade fluorosilicic acid. Proponents claim that once the silicon fluorides have been diluted at the public water works they are completely dissociated to free fluoride ions and hydrated silica and thus there is no need to examine the toxicology of these compounds. However, while a study from the University of Michigan (Finney et al., 2006) showed complete dissociation at neutral pH, in acidic conditions (pH 3) there was a stable

complex containing five fluoride ions. Thus the possibility arises that such a complex may be regenerated in the stomach where the pH lies between 1 and 2.

**43) The silicon fluorides may increase lead uptake into children's blood.** Studies by Masters and Coplan (1999, 2000, 2007), and to a lesser extent Macek (2006), show an association between the use of fluorosilicic acid (and its sodium salt) to fluoridate water and an increased uptake of lead into children's blood. Because of lead's acknowledged ability to damage the developing brain, this is a very serious finding. Nevertheless, it is being largely ignored by fluoridating countries. This association received some strong biochemical support from an animal study by Sawan et al. (2010) who found that exposure of rats to a combination of fluorosilicic acid and lead in their drinking water increased the uptake of lead into blood some threefold over exposure to lead alone.

**44) Fluoride may leach lead from pipes, brass fittings and soldered joints.** In tightly controlled laboratory experiments, Maas et al (2007) have shown that fluoridating agents in combination with chlorinating agents such as chloroamine increase the leaching of lead from brass fittings used in plumbing. While proponents may argue about the neurotoxic effects of low levels of fluoride there is no argument that lead at very low levels lowers IQ in children.

### ***Continued promotion of fluoridation is unscientific***

**45) Key health studies have not been done.** In the January 2008 issue of Scientific American, Professor John Doull, the chairman of the important 2006 National Research Council review, Fluoride in Drinking Water: A Review of EPA's Standards, is quoted as saying:

What the committee found is that we've gone with the status quo regarding fluoride for many years—for too long really—and now we need to take a fresh look . . . In the scientific community people tend to think this is settled. I mean, when the U.S. surgeon general comes out and says this is one of the top 10 greatest achievements of the 20th century, that's a hard hurdle to get over. But when we looked at the studies that have been done, we found that many of these questions are unsettled and we have much less information than we should, considering how long this [fluoridation] has been going on.

The absence of studies is being used by promoters as meaning the absence of harm. This is an irresponsible position.

**46) Endorsements do not represent scientific evidence.** Many of those promoting fluoridation rely heavily on a list of endorsements. However, the U.S. PHS first endorsed fluoridation in 1950, before one single trial had been completed and before any significant health studies had been published (see chapters 9 and 10 in *The Case Against Fluoride* for the significance of this PHS endorsement for the future promotion of fluoridation). Many other endorsements swiftly followed with little evidence of any scientific rationale for doing so. The continued use of these endorsements has more to do with political science than medical science.

**47) Review panels hand-picked to deliver a pro-fluoridation result.** Every so often, particularly when their fluoridation program is under threat, governments of fluoridating countries hand-pick panels to deliver reports that provide the necessary re-endorsement of the practice. In their recent book *Fluoride Wars* (2009), which is otherwise slanted toward fluoridation, Alan Freeze and Jay Lehr concede this point when they write:

There is one anti-fluoridationist charge that does have some truth to it. Anti-fluoride forces have always claimed that the many government-sponsored review panels set up over the years to assess the costs and benefits of fluoridation were stacked in favor of fluoridation. A review of the membership of the various panels confirms this charge. The expert committees that put together reports by the American Association for the Advancement of Science in 1941, 1944 and 1954; the National Academy of Sciences in 1951, 1971, 1977 and 1993; the World Health Organization in 1958 and 1970; and the U.S. Public Health Service in 1991 are rife with the names of well-known medical and dental researchers who actively campaigned on behalf of fluoridation or whose research was held in high regard in the pro-fluoridation movement. Membership was interlocking and incestuous.

The most recent examples of these self-fulfilling prophecies have come from the Irish Fluoridation Forum (2002); the National Health and Medical Research Council (NHMRC, 2007) and Health Canada (2008, 2010). The latter used a panel of six experts to review the health literature. Four of the six were pro-fluoridation dentists and the other two had no demonstrated expertise on fluoride. A notable exception to this trend was the appointment by the U.S. National Research Council of the first balanced panel of experts ever selected to look at fluoride's toxicity in the U.S. This panel of twelve reviewed the US EPA's safe drinking water standards for fluoride. After three and half years the panel concluded in a 507- page report that the safe drinking water standard was not protective of health and a new maximum contaminant level goal (MCLG) should be determined (NRC, 2006). If normal toxicological procedures and appropriate margins of safety were applied to their findings this report should spell an

end to water fluoridation. Unfortunately in January of 2011 the US EPA Office of Water made it clear that they would not determine a value for the MCLG that would jeopardize the water fluoridation program (EPA press release, Jan 7, 2011. Once again politics was allowed to trump science.

## ***More and more independent scientists oppose fluoridation***

**48) Many scientists oppose fluoridation.** Proponents of fluoridation have maintained for many years— despite the fact that the earliest opponents of fluoridation were biochemists—that the only people opposed to fluoridation are not bona fide scientists. Today, as more and more scientists, doctors, dentists and other professionals, read the primary literature for themselves, rather than relying on self-serving statements from the ADA and the CDC, they are realizing that they and the general public have not been diligently informed by their professional bodies on this subject. As of January 2012, over 4,000 professionals have signed a statement calling for an end to water fluoridation worldwide. This statement and a list of signatories can be found on the website of the Fluoride Action Network. A glimpse of the caliber of those opposing fluoridation can be gleaned by watching the 28-minute video “Professional Perspectives on Water fluoridation” which can be viewed online at the same FAN site.

## ***Proponents’ dubious tactics***

**49) Proponents usually refuse to defend fluoridation in open debate.** While pro-fluoridation officials continue to promote fluoridation with undiminished fervor, they usually refuse to defend the practice in open public debate – even when challenged to do so by organizations such as the Association for Science in the Public Interest, the American College of Toxicology, or the U.S. EPA (Bryson 2004). According to Dr. Michael Easley, a prominent lobbyist for fluoridation in the US, “Debates give the illusion that a scientific controversy exists when no credible people support the fluorophobics’ view” (Easley, 1999). In light of proponents’ refusal to debate this issue, Dr. Edward Groth, a Senior Scientist at Consumers Union, observed that, “the political profluoridation stance has evolved into a dogmatic, authoritarian, essentially antiscientific posture, one that discourages open debate of scientific issues” (Martin 1991).

**50) Proponents use very dubious tactics to promote fluoridation.** Many scientists, doctors and dentists who have spoken out publicly on this issue have been subjected to censorship and intimidation (Martin 1991). Dr. Phyllis Mullenix was fired from her position as Chair of Toxicology at Forsythe Dental Center for publishing her findings on fluoride and the brain (Mullenix 1995); and Dr. William Marcus was fired from the EPA for questioning the government’s handling of the NTP’s

fluoride-cancer study (Bryson 2004). Many dentists and even doctors tell opponents in private that they are opposed to this practice but dare not speak out in public because of peer pressure and the fear of recriminations. Tactics like this would not be necessary if those promoting fluoridation were on secure scientific and ethical grounds.

## ***Conclusion***

When it comes to controversies surrounding toxic chemicals, vested interests traditionally do their very best to discount animal studies and quibble with epidemiological findings. In the past, political pressures have led government agencies to drag their feet on regulating asbestos, benzene, DDT, PCBs, tetraethyl lead, tobacco and dioxins. With fluoridation we have had a sixty-year delay. Unfortunately, because government officials and dental leaders have put so much of their credibility on the line defending fluoridation, and because of the huge liabilities waiting in the wings if they admit that fluoridation has caused an increase in hip fracture, arthritis, bone cancer, brain disorders or thyroid problems, it will be very difficult for them to speak honestly and openly about the issue. But they must, not only to protect millions of people from unnecessary harm, but to protect the notion that, at its core, public health policy must be based on sound science, not political expediency. They have a tool with which to do this: it's called the Precautionary Principle. Simply put, this says: if in doubt leave it out. This is what most European countries have done and their children's teeth have not suffered, while their public's trust has been strengthened.

Just how much doubt is needed on just one of the health concerns identified above, to override a benefit, which when quantified in the largest survey ever conducted in the US, amounts to less than one tooth surface (out of 128) in a child's mouth?

While fluoridation may not be the greatest environmental health threat, it is one of the easiest to end. It is as easy as turning off a spigot in the public water works. But to turn off that spigot takes political will and to get that we need masses more people informed and organized. Please get these 50 reasons to all your friends and encourage them to get fluoride out of their community and to help ban this practice worldwide.

## ***Postscript***

Further arguments against fluoridation, can be viewed at <http://www.fluoridealert.org> and in the book *The Case Against Fluoridation* (Chelsea Green, 2010). Arguments for fluoridation can be found at <http://www.ada.org>

## ***Publication history of the 50 Reasons***

# Publication History of the 50 Reasons

The 50 Reasons were first compiled by Paul Connett and presented in person to the Irish Fluoridation Forum in October 2000. The document was refined in 2004 and published in Medical Veritas. In the introduction to the 2004 version it was explained that after over four years the Irish authorities had not been able to muster a response to the 50 Reasons, despite agreeing to do so in 2000. Eventually, an anonymous, incomplete and superficial response was posted on the Irish Department of Health and Children's website (see this response and addendum

at:[http://www.dohc.ie/other\\_health\\_issues/dental\\_research/](http://www.dohc.ie/other_health_issues/dental_research/). Paul Connett's comprehensive response to this response can be accessed

at <http://www.fluoridealert.org/50reasons.ireland.pdf>. We learned on August 7, 2011 that this governmental response was prepared by an external contractor at a cost to the Irish taxpayers' of over 30,000 Euros.

Since 2004, there have been many major scientific developments including the publication of the U.S. National Research Council report (NRC, 2006); the publication of Bassin's study on Osteosarcoma (Bassin 2006), and many more studies of fluoride's interaction with the brain, that necessitated a major update of the 50 Reasons in August 2011. This update was made with the generous assistance of James Beck, MD, PhD, Michael Connett, JD, Hardy Limeback, DDS, PhD, David McRae and Spedding Micklem, D.Phil. Additional developments in 2012, including FAN's translation of over 20 Chinese studies on fluoride toxicity and publication of the Harvard team's meta-review of fluoride and IQ (Choi 2012), warranted a further update in August 2012, with the extremely helpful assistance of my son, Michael Connett.

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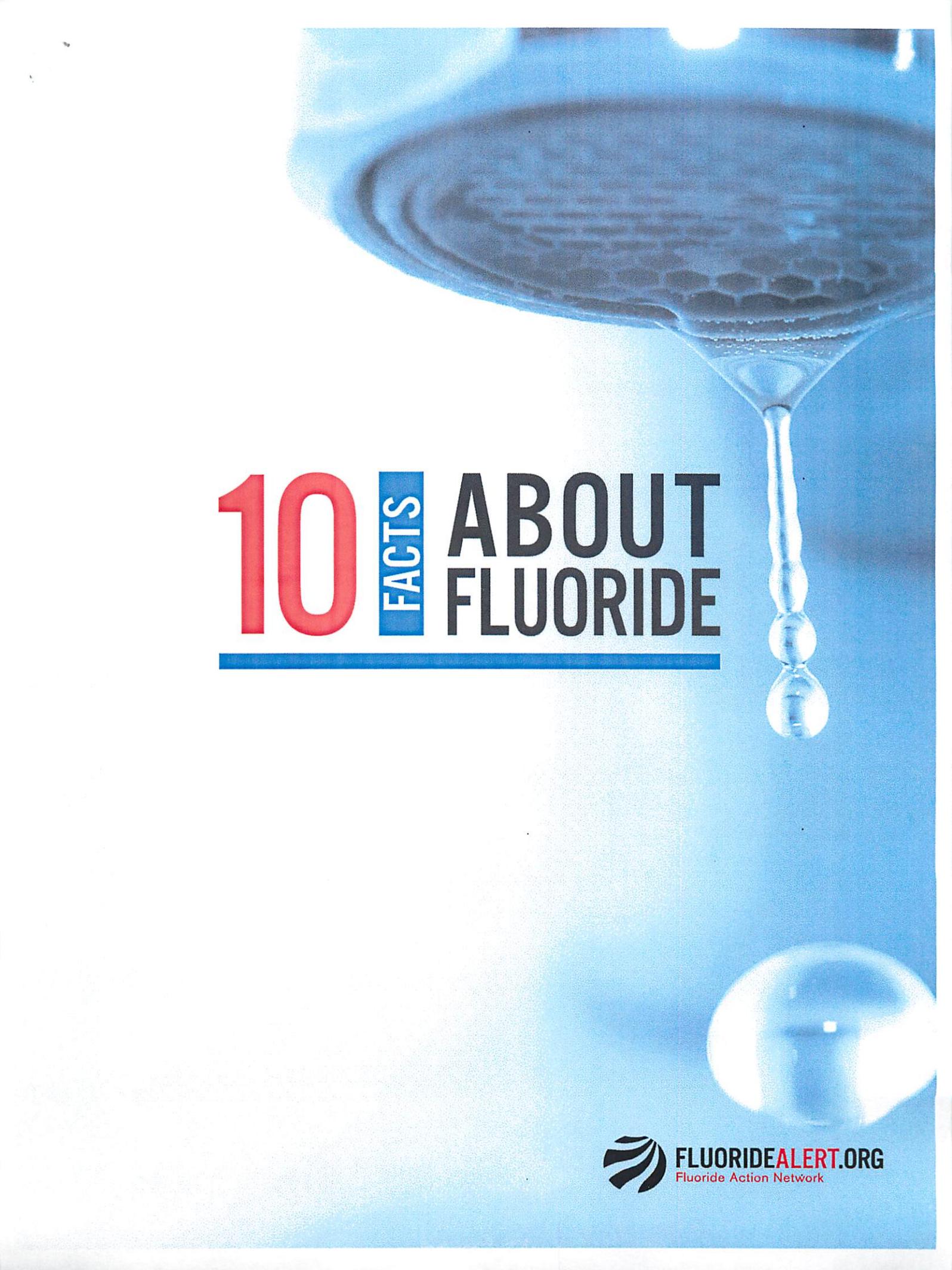
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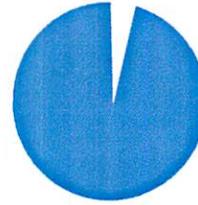
**10** **FACTS** **ABOUT**  
**FLUORIDE**

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# FACT 1 MOST DEVELOPED COUNTRIES DO NOT FLUORIDATE THEIR WATER

In the United States, health authorities call fluoridation "one of the top 10 public health achievements of the 20th century." Few other countries share this view. In fact, more people drink artificially fluoridated water in the U.S. alone than in the rest of the world combined.<sup>1</sup> Most advanced nations do not fluoridate their water. In western Europe, 97% of the population has water without a single drop of fluoride added to it.<sup>2</sup> Fluoridation proponents will sometimes say this is because Europe adds fluoride to its salt. Only five nations in western Europe, however, have any fluoridated salt.<sup>3</sup> The vast majority do not.

## WESTERN EUROPE

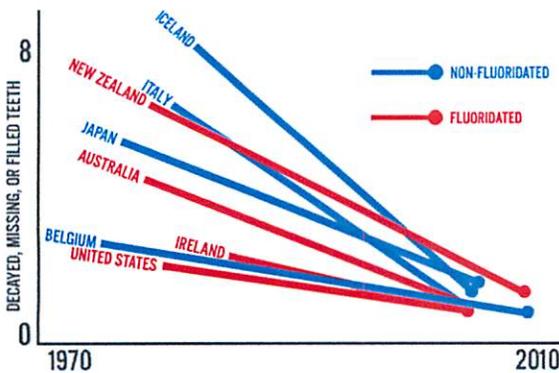


**97%**  
DO NOT DRINK  
FLUORIDATED WATER

### DID YOU KNOW?

**MORE PEOPLE DRINK ARTIFICIALLY FLUORIDATED WATER IN THE U.S. ALONE THAN IN THE REST OF THE WORLD COMBINED**

It is often claimed that fluoridated water is the main reason the United States has had a large decline in tooth decay over the past 60 years. This same decline in tooth decay, however, has occurred in all developed countries, most of which have never added any fluoride to their water.<sup>4</sup> Today, according to data from the World Health Organization, there is no discernible difference in tooth decay between the minority of developed countries that fluoridate water, and the majority that do not.<sup>5</sup>



SOURCE: WORLD HEALTH ORGANIZATION (2013)

# FACT 2

**FLUORIDATED COUNTRIES DO NOT HAVE LESS TOOTH DECAY THAN NON-FLUORIDATED COUNTRIES**

## FACT 3 FLUORIDE AFFECTS MANY TISSUES IN THE BODY BESIDES THE TEETH

Fluoridation advocates have long claimed that the safety of fluoridation is beyond scientific debate.<sup>6</sup> However, according to the well-known toxicologist, Dr. John Doull, who chaired the National Academy of Science's review on fluoride, the safety of fluoridation remains "unsettled" and "we have much less information than we should, considering how long it has been going on."<sup>7</sup> In 2006, Doull's committee at the NAS published an exhaustive 500-page review of fluoride's toxicity.<sup>8</sup> The report concludes that fluoride is an "endocrine disruptor" and can affect many things in the body, including the bones, the brain, the thyroid gland, the pineal gland, and even blood sugar levels.<sup>9</sup>

Far from giving fluoride a clean bill of health, the NAS called upon scientists to investigate if current fluoride exposures in the United States are contributing to chronic health problems, like bone disorders, thyroid disease, low intelligence, dementia, and diabetes, particularly in people who are most vulnerable to fluoride's effects.<sup>10</sup> These recommendations highlight that—despite 60 years of fluoridation—many of the basic studies necessary for determining the program's safety have yet to be conducted.

## FACT 4 FLUORIDATION IS NOT A "NATURAL" PROCESS

### DID YOU KNOW?

"It is apparent that fluorides have the ability to interfere with the functions of **the brain**."

"The possibility has been raised by studies conducted in China that fluoride can lower **intellectual abilities**."

"Fluoride is an **endocrine disruptor**."

"Several lines of information indicate an effect of fluoride exposure on **thyroid function**."

"Sufficient fluoride exposure appears to . . . increase the severity of some types of **diabetes**."

"The relationship between **fertility** and fluoride requires additional study."

"Further research on a possible effect of fluoride on **bladder cancer** risk should be conducted."

"These changes have a bearing on the possibility that fluorides act to increase the risk of developing **Alzheimer's disease**."

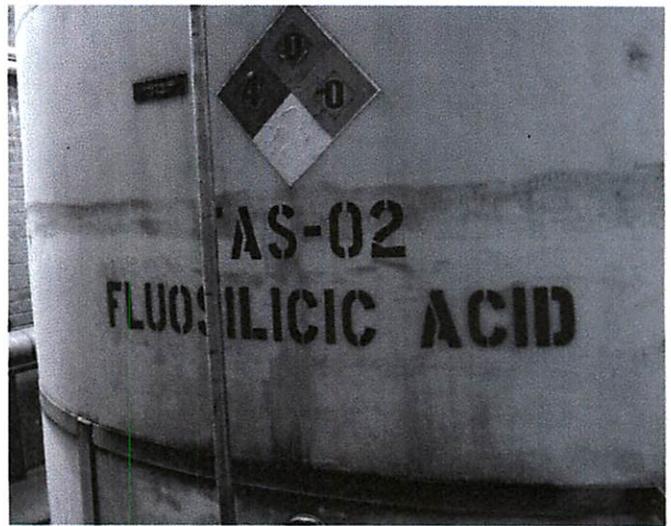
SOURCE: National Research Council. (2006). *Fluoride in Drinking Water: A Scientific Review of EPA's Standards*. National Academies Press, Washington D.C.

Fluoridation advocates often say that "nature thought of fluoridation first." By this, they mean that fluoride occurs at naturally high levels in some water supplies.<sup>11</sup> Lots of toxic substances, however, like arsenic, and even some medicines, like lithium, can occur at naturally high levels. This doesn't mean they're safe.<sup>12</sup> Further, the level of fluoride added in artificial fluoridation programs is far higher than the level of fluoride that occurs in the vast majority of (unpolluted) fresh surface waters.<sup>13</sup>

Also the main fluoride chemical (fluorosilicic acid) that is added to water is not what most people would call

Fact 4 continued

a naturally occurring compound. It is a corrosive acid captured in the air pollution control devices of the phosphate fertilizer industry.<sup>14</sup> Fluoride is captured in air pollution control devices because fluoride gases are hazardous air pollutants that cause significant environmental harm.<sup>15</sup> This captured fluoride acid is the most contaminated chemical added to public water supplies,<sup>16</sup> and may impose additional risks to those presented by natural fluorides. These risks include a possible cancer hazard from the acid's elevated arsenic content, and a possible neurotoxic hazard from the acid's ability--under some conditions--to increase the erosion of lead from old pipes.<sup>17</sup>



**DID YOU KNOW?**

**THE FLUORIDE CHEMICAL ("FLUROSILICIC ACID") ADDED TO MOST TAP WATER IS A CORROSIVE ACID CAPTURED IN AIR POLLUTION CONTROL DEVICES**

**FACT 5**

**40%**

**OF AMERICAN TEENAGERS SHOW  
VISIBLE SIGNS  
OF FLUORIDE OVER-EXPOSURE**

According to a recent national survey by the CDC, about 40% of American teenagers have a condition called dental fluorosis.<sup>18</sup> Fluorosis is a defect of tooth enamel caused by fluoride's interference with the tooth-forming cells. The condition shows as cloudy spots and streaks and, in more severe cases, brown stains and tooth erosion.<sup>19</sup> In the 1950s, health officials claimed that fluorosis would only affect 10% of children in fluoridated areas.<sup>20</sup> This prediction has proven false. Today, not only do 40% of American teenagers have fluorosis, but, in some fluoridated areas, the rate is as high as 70 to 80%, with some children suffering advanced forms of the condition.<sup>21</sup>

**“Virtually all authors have noted that some children could ingest more fluoride from [toothpaste] alone than is recommended as a total daily fluoride ingestion.”**

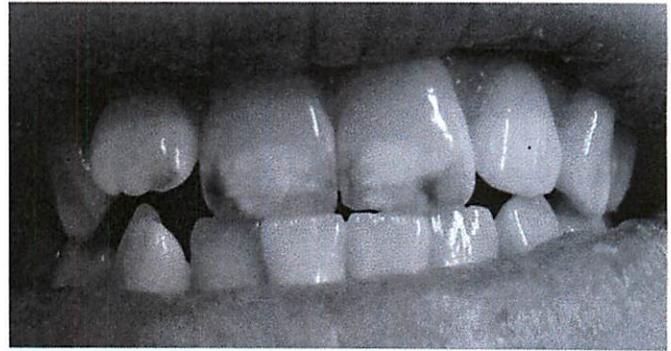
*- Dr. Stephen Levy, et al.,  
Journal of Public Health Dentistry (1999).*

The high rate of fluorosis in the U.S. reflects the fact that **children now receive fluoride from many sources besides tap water.** When fluoridation first began, there was not a single tube of toothpaste that contained fluoride. Today, over 95% of toothpastes are fluoridated. Although fluoride toothpastes carry poison warnings on them, studies show that children can swallow large amounts of fluoride when they brush, particularly when using toothpaste with bubble gum and candy flavors.<sup>22</sup>

Fact 5 continued

And there are other sources of fluoride as well, including processed beverages/foods,<sup>23</sup> fluoride pesticides,<sup>24</sup> tea,<sup>25</sup> Teflon pans,<sup>26</sup> and some fluorinated pharmaceuticals.<sup>27</sup> The concern today, therefore, is not just the safety of fluoridated water by itself, but the safety of fluoridated water in combination with all the other sources to which we're now exposed.

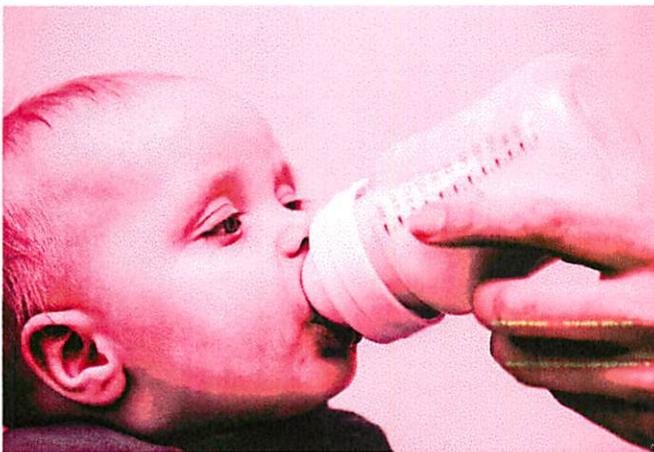
**Dental Fluorosis >**  
Photograph by Hardy Limeback, DDS, PhD



**DID YOU KNOW?**

## 36 STUDIES HAVE FOUND A CORRELATION BETWEEN FLUORIDE AND LOWER IQ

### **FACT 6** FOR INFANTS, FLUORIDATED WATER PROVIDES NO BENEFITS, ONLY RISKS



Up until the 1990s, health authorities advised parents to give fluoride to newborn babies. This is no longer the case. Today, the Institute of Medicine recommends that babies consume a minuscule 10 micrograms of fluoride per day.<sup>28</sup> This is roughly the equivalent of what babies ingest from breast milk, which contains virtually no fluoride.<sup>29</sup>

Infants who consume formula made with fluoridated tap water consume up to 700 to 1,200 micrograms of fluoride, or about 100 times more than the recommended amount. According to the CDC, these early spikes of fluoride exposure during infancy provide no known advantage to teeth.<sup>30</sup> These spikes can, however, produce harm.

Recent studies show that babies who are given fluoridated water in their formula develop significantly higher rates of dental fluorosis.<sup>31</sup> Because of this, a number of prominent dental researchers now advise that parents should not add fluoridated water to baby formula.<sup>32</sup>

And teeth are not the only concern. In July of 2012, scientists from Harvard University warned that **the developing brain may be another target for fluoride toxicity.**<sup>33</sup> The Harvard team based their warning on a large number of studies from China that have found reduced IQ scores among children exposed to elevated fluoride during their early years of life. Twelve of the studies the Harvard team reviewed found IQ loss at fluoride levels deemed safe in the U.S. and a study sponsored by UNICEF found IQ loss in iodine-deficient children at the so-called "optimal" fluoridation level.<sup>34</sup> The possibility that fluoridated water can reduce IQ is a matter that "definitely deserves concern."<sup>35</sup>



# FACT 7

## FLUORIDE SUPPLEMENTS HAVE NEVER BEEN APPROVED BY THE FDA

Fluoride “supplements” are designed to provide children the same dose of fluoride they would receive by drinking fluoridated water.<sup>36</sup> Unlike other dietary supplements, however, you can’t just walk into a grocery store and buy a fluoride supplement. Because of fluoride’s toxicity, you can only buy a fluoride “supplement” if you have a doctor’s prescription. Yet, although federal law requires that prescription drugs be approved as safe and effective by the FDA,<sup>37</sup> the FDA has never approved fluoride supplements for the prevention of tooth decay.<sup>38</sup> In fact, **the only fluoride supplements the FDA has reviewed, have been rejected.**<sup>39</sup> So, with fluoridation, we are adding to the water a prescription-strength dose of a drug that has never been approved by the FDA.

# FACT 8

## FLUORIDE IS THE **ONLY MEDICINE** ADDED TO PUBLIC WATER

Fluoride is the only chemical added to water that doesn’t actually treat the water. Chlorine, for example, is added to kill bacteria so that we can drink the water without getting sick. Fluoride, by contrast, is added to prevent a disease (tooth decay) that is not caused by drinking water.

Fluoridation proponents claim that fluoridated water is not a medication because, in their view, it’s no different than adding iodine to salt or vitamin D to milk. What proponents fail to acknowledge, however, is that iodine and vitamin D are both essential nutrients; but fluoride is not.

An essential nutrient is something the body has a physiological demand for. If we don’t have enough



Fluoridation adds a prescription-strength dose of a drug to the water supply.

Fact 8 continued

iodine, for example, our thyroid gland won't function properly. Although fluoride advocates sometimes claim that fluoride is a "nutrient," the National Academy of Sciences has repeatedly confirmed that this is not the case.<sup>40</sup> Because fluoride is not a nutrient, the FDA has defined fluoride as a medicine when used to prevent disease.<sup>41</sup> Since tooth decay is a disease, adding fluoride to water to prevent tooth decay is -- as a matter of logic -- a form of medication. This is one of the reasons why most European nations have rejected fluoridation: because, in their view, the water supply is an inappropriate way to deliver medicine.<sup>42</sup> **With other medicines, it is the patient, not the doctor, who has the right to decide which drug to take.**<sup>43</sup> Fluoridation denies people this right.

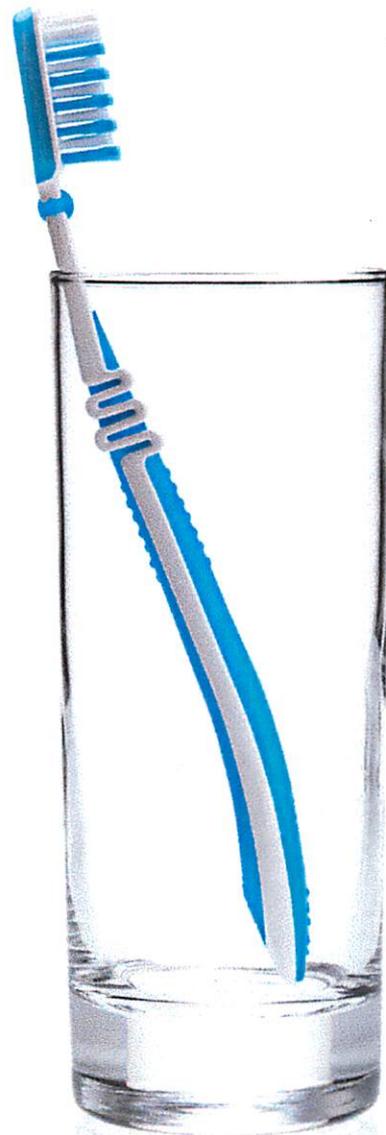
“Fluoridation goes against all principles of pharmacology. It's obsolete.”

- Dr. Arvid Carlsson,  
Nobel Laureate in Medicine/Physiology.

## FACT 9

# SWALLOWING FLUORIDE PROVIDES LITTLE BENEFIT TO TEETH

When water fluoridation first began back in the 1940s, the medical profession believed fluoride needed to be ingested to be most effective in preventing cavities.<sup>44</sup> This was why fluoride was added to water and pills—because these are things that people swallow. Today, however, it is now widely recognized that fluoride's main benefit does not actually come from ingestion, it comes from fluoride's **topical contact** with teeth<sup>45</sup>—a fact that even the CDC has now acknowledged.<sup>46</sup> So, not only does fluoridation add a medicine to water, it adds a medicine that does not actually need to be swallowed.



# DISADVANTAGED COMMUNITIES ARE THE MOST DISADVANTAGED BY FLUORIDE

In the United States, there is a serious shortage of dentists who will treat low-income patients.<sup>47</sup> The claim, however, that we can compensate for this lack of care by forcing poor populations to consume fluoridation chemicals in their water is a dangerous one.

**The conditions that make people more vulnerable to fluoride toxicity are more prevalent in poor communities** than affluent ones (e.g., nutrient deficiencies, infant formula consumption, kidney disease, and diabetes).<sup>48</sup> This likely explains why African American and Mexican American children suffer significantly higher rates of dental fluorosis.<sup>49</sup> These disparities in fluoride risk have led several prominent civil rights leaders—including Andrew Young and the nation's largest Hispanic civil rights organization—to call for an *end to fluoridation*.<sup>50</sup>

Despite claims that fluoridation can prevent the high rates of tooth decay seen in poor areas, the vast majority of poor urban communities have been fluoridated for over 30 years, and yet are still suffering from a severe oral health crisis.<sup>51</sup> In fluoridated Cincinnati, the dental director described the state of oral health among poor children as “absolutely heartbreaking and a travesty,”

## DID YOU KNOW?

- In (fluoridated) Detroit, 91% of 5-year-old black children have tooth decay, with 42% suffering from “severe” decay.<sup>54</sup>
- In (fluoridated) New York City, 34% of pre-school black children from low-income families have rampant tooth decay, with a staggering 6.4 cavities per affected child.<sup>55</sup>
- In (fluoridated) Chicago, 64% of third graders have tooth decay.<sup>56</sup>
- In San Antonio, annual head start surveys show that fluoridation failed to reduce the high rate of tooth decay among the city's head start children. After eight years of fluoridation, the tooth decay rate did not decrease—it increased.<sup>57</sup>
- A national survey by the CDC found that the most fluoridated state in the U.S. (Kentucky) suffers the highest rate of tooth loss (44%) while the least fluoridated state (Hawaii) suffers the lowest rate of tooth loss (16%).<sup>58</sup>
- Untreated tooth decay in fluoridated urban areas has led to several deaths, including a 12-year-old child in Prince Georges Maryland, and a 24-year-old father in Cincinnati.<sup>59</sup>

adding that “people would be shocked to learn how bad the problem has become.”<sup>52</sup> Many other cities have experienced the same fate. (*See sidebar*)

The simple fact is that **poor populations need dental care, not fluoridation chemicals in their water.** The millions of dollars spent each year promoting fluoridation would be better spent advocating for policies that provide real dental care: like allowing dental therapists to provide affordable care to populations with little access to dentists.<sup>53</sup> In short, fluoridation provides good PR for dental trade associations, but bad medicine for those it's supposedly meant to serve.



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## REFERENCES

### NOTES FOR FACT 1: "MOST DEVELOPED COUNTRIES DO NOT FLUORIDATE THEIR WATER"

- 1) See data at: [www.fluoridealert.org/content/bfs-2012/](http://www.fluoridealert.org/content/bfs-2012/)
- 2) See data at: [www.fluoridealert.org/content/water\\_europe/](http://www.fluoridealert.org/content/water_europe/)
- 3) For data on the number of countries in Europe that allow fluoridated salt, see: Gotzfried F. (2006). *Schweiz Monatsschr Zahnmed* 116: 371–75. Unlike water fluoridation (which applies fluoride to an entire water supply), salt fluoridation in Europe is limited to household salt that people have the option to purchase. In two of the five European countries that allow salt fluoridation, only 6% to 10% of household salt is actually fluoridated). Salt fluoridation is thus a far less intrusive application of fluoride than water fluoridation.

### NOTES FOR FACT 2: FLUORIDATED COUNTRIES DO NOT HAVE LESS TOOTH DECAY THAN NON-FLUORIDATED COUNTRIES

- 4) See extensive compilation of published research and data at: [www.fluoridealert.org/studies/caries01/](http://www.fluoridealert.org/studies/caries01/)
- 5) World Health Organization Collaborating Centre for Education, Training, and Research in Oral Health, Malmö University, Sweden. Data available at <http://www.mah.se/CAPP/> (accessed on March 30, 2013).

### NOTES FOR FACT 3: FLUORIDE AFFECTS MANY TISSUES IN THE BODY BESIDES THE TEETH

- 6) A representative example of this viewpoint was expressed by Dr. Robert Kehoe in 1957: "The question of the public safety of fluoridation is non-existent from the viewpoint of medical science."
- 7) In a January 2008 article published in *Scientific American*, Dr. Doull was quoted as saying: "[W]e've gone with the status quo regarding fluoride for many years—for too long, really—and now we need to take a fresh look. In the scientific community, people tend to think this is settled. I mean, when the U.S. surgeon general comes out and says this is one of the 10 greatest achievements of the 20th century, that's a hard hurdle to get over. But when we looked at the studies that have been done, we found that many of these questions are unsettled and we have much less information than we should, considering how long this has been going on. I think that's why fluoridation is still being challenged so many years after it began."  
See: [www.fluoridealert.org/researchers/nrc/panelists/](http://www.fluoridealert.org/researchers/nrc/panelists/)
- 8) National Research Council. (2006). *Fluoride in drinking water: a scientific review of EPA's standards*. National Academies Press, Washington D.C. Available online at: [www.nap.edu/catalog.php?record\\_id=11571](http://www.nap.edu/catalog.php?record_id=11571)
- 9) See excerpts of NAS's findings at: [www.fluoridealert.org/researchers/nrc/findings/](http://www.fluoridealert.org/researchers/nrc/findings/)
- 10) See excerpts of NAS's recommendations at: [www.fluoridealert.org/researchers/nrc/recommendations/](http://www.fluoridealert.org/researchers/nrc/recommendations/)

### NOTES FOR FACT #4: FLUORIDATION IS NOT A "NATURAL" PROCESS

- 11) Most fresh surface waters (e.g., lakes/streams) contain very little fluoride. When fluoride is obtained from deep ground water supplies, however, fluoride contamination can become a significant problem. See *infra* note 13.
- 12) High levels of naturally occurring fluorides have wreaked havoc on tens of millions of people's health around the world, particularly in developing countries where water shortages force many rural communities to obtain water from deep in the ground. Consumption of fluoride-laden well water causes serious health ailments, including tooth loss, bone disease, ulcers, brain damage, heart disease, and thyroid disease. See: [www.fluoridealert.org/issues/health/](http://www.fluoridealert.org/issues/health/). Because of this, international organizations like UNICEF assist developing nations in finding ways of removing fluoride from the water. For a review by UNICEF on the worldwide scope of fluoride poisoning, see: [www.fluoridealert.org/uploads/UNICEF-1999.pdf](http://www.fluoridealert.org/uploads/UNICEF-1999.pdf)
- 13) In Canada, the average level of fluoride in fresh surface water is just 0.05 ppm, which is 14 to 24 times less fluoride than added to water in fluoridation programs. See: Environment Canada. (1993). *Inorganic Fluorides: Priority Substances List Assessment Report*. Government of Canada, Ottawa. p. 14. Fresh vegetables, fruits, milk, and eggs contain even lower levels of fluoride (unless they're sprayed with fluoride pesticides). See: [www.fluoridealert.org/content/fresh\\_foods/](http://www.fluoridealert.org/content/fresh_foods/). In the rare circumstance where rivers or ponds contain the same level of fluoride that is added to tap water, salmon and frogs have been found to suffer serious harm, including bone disease, changes in behavior, and increased mortality. See: Shaw SD, et al. (2012). *Journal of Zoo & Wildlife Medicine* 43(3):549-65; Damkaer DM, Dey DB. (1989). *North American Journal of Fisheries Management*. 9: 154-162.
- 14) As noted by the U.S. Environmental Protection Agency, "By recovering by-product fluosilicic acid from fertilizer manufacturing, water and air pollution are minimized, and water authorities have a low-cost source of fluoride available to them."  
See: [www.fluoridealert.org/uploads/hanmer1983.pdf](http://www.fluoridealert.org/uploads/hanmer1983.pdf).
- 15) In 20th century, fluoride pollution caused more harm to livestock than any other pollutant. In Polk County, Florida (the capital of America's phosphate industry), cattle downwind of the phosphate industry suffered "mass fluoride poisoning." Between 1953 and 1960, "the cattle population dropped 30,000 head," and "an estimated 150,000 acres of cattle land were abandoned." As one farmer explained, "Around 1953 we noticed a change in our cattle... We watched our cattle become gaunt and starved, their legs became deformed; they lost their teeth. Reproduction fell off and when a cow did have a calf, it was also affected by this malady or was a stillborn." For discussion and documentation, see: [www.fluoridealert.org/articles/phosphate01/](http://www.fluoridealert.org/articles/phosphate01/)
- 16) See: Weng C, et al. (2000). Treatment chemicals contribute to arsenic levels. *Opflow (AWWA)*, October, p. 6-7. Available at: <http://www.fluoridealert.org/uploads/opflow-2000.pdf>
- 17) Hirzy JW, et al. (2013). *Environ. Sci. Policy* <http://dx.doi.org/10.1016/j.envsci.2013.01.007>. On the lead/neurotoxic risk, see: Coplan MJ, et al. (2007). *Neurotoxicology* 28(5):1032-42; Maas RP, et al. (2007). *Neurotoxicology* 28(5):1023-31.

#### NOTES FOR FACT #5: 40% OF AMERICAN TEENAGERS SHOW VISIBLE SIGNS OF FLUORIDE OVER-EXPOSURE.

- 18) Beltran-Aguilar ED, et al. (2010). *Prevalence and Severity of Dental Fluorosis in the United States, 1999–2004*. NCHS Data Brief No. 53.
- 19) For photographs and discussion, see: [www.fluoridealert.org/issues/fluorosis/](http://www.fluoridealert.org/issues/fluorosis/)
- 20) Spzunar SM, Burt BA. (1988). *J. Dent. Res.* 67(5):802-06; Hodge HC. (1950). *J. Am. Dent. Assoc.* 40:436-39.
- 21) See: [www.fluoridealert.org/studies/dental\\_fluorosis01/](http://www.fluoridealert.org/studies/dental_fluorosis01/)
- 22) See: [www.fluoridealert.org/issues/sources/f-toothpaste/](http://www.fluoridealert.org/issues/sources/f-toothpaste/)
- 23) See: [www.fluoridealert.org/issues/sources/processed/](http://www.fluoridealert.org/issues/sources/processed/)
- 24) See: [www.fluoridealert.org/issues/sources/f-pesticides/](http://www.fluoridealert.org/issues/sources/f-pesticides/)
- 25) See: [www.fluoridealert.org/issues/sources/tea/](http://www.fluoridealert.org/issues/sources/tea/)
- 26) See: [www.fluoridealert.org/issues/sources/teflon-pans/](http://www.fluoridealert.org/issues/sources/teflon-pans/)
- 27) See: [www.fluoridealert.org/issues/sources/pharmaceuticals/](http://www.fluoridealert.org/issues/sources/pharmaceuticals/)

#### NOTES FOR FACT #6: FOR INFANTS, FLUORIDATED WATER PROVIDES NO BENEFITS, ONLY RISKS

- 28) Institute of Medicine. (1997). *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. p. 302.
- 29) Ekstrand J, et al. (1981). *British Medical Journal* 283: 761-2.
- 30) In a May 15, 2012 letter to Senator Barbara Boxer, the CDC wrote:  
"We are **unaware of data** . . . about the additional protection from tooth decay that could result from [intakes greater than 10 micrograms/day of fluoride]." See: [www.fluoridealert.org/uploads/cdc-2012.pdf](http://www.fluoridealert.org/uploads/cdc-2012.pdf)
- 31) See: [www.fluoridealert.org/studies/infant02/](http://www.fluoridealert.org/studies/infant02/)
- 32) See: [www.fluoridealert.org/studies/infant01/](http://www.fluoridealert.org/studies/infant01/)
- 33) Choi AL, et al. (2012). *Environmental Health Perspectives* 120:1362-68.
- 34) For a discussion of these studies, see: [www.fluoridealert.org/articles/iq-facts/](http://www.fluoridealert.org/articles/iq-facts/). For a listing of all studies that have found an association between fluoride and reduced IQ, see: [www.fluoridealert.org/studies/brain01/](http://www.fluoridealert.org/studies/brain01/).
- 35) Dr. Philippe Grandjean, the senior scientist who authored the Harvard review, has stated that: "Chemical brain drain should not be disregarded. The average IQ deficit in children exposed to increased levels of fluoride in drinking water was found to correspond to about 7 points – a sizable difference. To which extent this risk applies to fluoridation in Wichita or Portland or elsewhere is uncertain, but **definitely deserves concern**." See: [www.braindrain.dk/2013/02/fluoridated-water-and-brains/](http://www.braindrain.dk/2013/02/fluoridated-water-and-brains/).

#### NOTES FOR FACT #7: FLUORIDE SUPPLEMENTS HAVE NEVER BEEN APPROVED BY THE FDA

- 36) Under current fluoride supplementation guidelines, two-year-old children living in non-fluoridated areas are prescribed 0.25 mg of fluoride per day. This is the same amount of fluoride contained in just one 8 ounce glass of water fluoridated at 1 ppm. To learn more about current fluoride supplementation guidelines, see: Rozier RG, et al. (2010). *J. Am. Dent. Assoc.* 141(12):1480-89.
- 37) 21 U.S.C. § 355(a). Although an exception to this rule exists for drugs that were on the market prior to 1938, fluoride supplements did not enter the market until the 1950s. Accordingly, the "grandfather clause" exception does not apply to fluoride supplements. For a detailed discussion on this point, see: [www.fluoridealert.org/researchers/fda/explanations/](http://www.fluoridealert.org/researchers/fda/explanations/)
- 38) To access FDA's letters confirming this fact, see: [www.fluoridealert.org/researchers/fda/not-approved/](http://www.fluoridealert.org/researchers/fda/not-approved/)
- 39) The two fluoride supplements that FDA has rejected are Enziflur (a fluoride/vitamin combination) and prenatal fluoride supplements. See: [www.fluoridealert.org/uploads/enziflur-1975.pdf](http://www.fluoridealert.org/uploads/enziflur-1975.pdf) and [www.fluoridealert.org/articles/fda-1966/](http://www.fluoridealert.org/articles/fda-1966/).

#### NOTES FOR FACT 8: FLUORIDE IS THE ONLY MEDICINE ADDED TO PUBLIC WATER

- 40) According to the NAS, "fluoride is no longer considered an essential factor for human growth and development."  
See: [www.fluoridealert.org/studies/essential-nutrient/](http://www.fluoridealert.org/studies/essential-nutrient/)
- 41) According to the FDA: "Fluoride, when used in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or animal, **is a drug** that is subject to Food and Drug Administration (FDA) regulation." See: [www.fluoridealert.org/researchers/fda/drug/](http://www.fluoridealert.org/researchers/fda/drug/)
- 42) In Germany, for example, "the argumentation of the Federal Ministry of Health against a general permission of fluoridation of drinking water is the **problematic nature of compulsion medication**." See this and other statements from European authorities at: [www.fluoridealert.org/content/europe-statements/](http://www.fluoridealert.org/content/europe-statements/).
- 43) Under the principle of "informed consent," the patient has the "right to self decision." See: *AMA Ethical Opinion 8.08*. While the doctor has an "obligation . . . to present the medical facts accurately to the patient," it is the patient (or the patient's caregiver) who has the sole right to decide what medical treatments to use.

#### NOTES FOR FACT 9: SWALLOWING FLUORIDE PROVIDES LITTLE BENEFIT TO TEETH

- 44) Fejerskov O. (2004). *Caries Research* 38:184 ("The hypothesis was that increased intake of fluoride during tooth formation raises the fluoride concentration in enamel and hence increases acid resistance. As a consequence fluoride had to be taken systemically and artificial fluoridation of drinking waters became the 'optimal' solution.").
- 45) For an extensive compilation of quotes from dental researchers discussing this consensus, see: [www.fluoridealert.org/studies/caries04/](http://www.fluoridealert.org/studies/caries04/)
- 46) According to the CDC, "fluoride prevents dental caries predominately after eruption of the tooth into the mouth, and its actions primarily are **topical** for both adults and children." Centers for Disease Control (1999). *Morbidity and Mortality Weekly Report* 48: 933-40.



**NOTES FOR FACT 10: DISADVANTAGED COMMUNITIES ARE THE MOST DISADVANTAGED BY FLUORIDE**

- 47) In Maryland, 84% of dentists do not accept Medicaid patients. Similar rates exist in other states, including Alabama (82%), Colorado (79%), and Ohio (72%). As a result, most low-income children are not able to receive treatment from a dentist. See data and reports at: [www.fluoridealert.org/content/dental-care/](http://www.fluoridealert.org/content/dental-care/)
- 48) See: [www.fluoridealert.org/issues/sources/ej/](http://www.fluoridealert.org/issues/sources/ej/)
- 49) Beltran-Aguilar ED et al. (2005). MMWR Surveillance Summaries 54(3): 1-44. For a discussion of other studies that have found racial disparities in fluorosis rates, see: [www.fluoridealert.org/studies/dental\\_fluorosis02/](http://www.fluoridealert.org/studies/dental_fluorosis02/)
- 50) See: [www.fluoridealert.org/issues/ej/statements/](http://www.fluoridealert.org/issues/ej/statements/)
- 51) For a compilation of reports, see: [www.fluoridealert.org/studies/caries07/](http://www.fluoridealert.org/studies/caries07/).
- 52) See: [www.fluoridealert.org/news/cincinnati-dental-crisis/](http://www.fluoridealert.org/news/cincinnati-dental-crisis/)
- 53) Allowing access to dental therapists represents an important strategy for expanding dental care services to underserved populations. Dental therapists are specially trained to provide dental care, such as tooth cleanings and fillings. According to a recent review, "the quality of technical care provided by dental therapists (within their scope of competency) was comparable to that of a dentist, and in some studies was judged to be superior." Nash D, et al. (2012). *A Review of the Global Literature on Dental Therapists*. W.K. Kellogg Foundation. p. 6. Despite these findings, dental trade associations (such as the American Dental Association) are vigorously lobbying against efforts to allow dental therapists to serve underprivileged populations. See: Levine D. (2011). *Why Are Dentists Opposing Expanded Dental Care?* Available at: [www.governing.com/topics/health-human-services/gov-why-are-dentists-opposing-expanded-dental-care.html](http://www.governing.com/topics/health-human-services/gov-why-are-dentists-opposing-expanded-dental-care.html)
- 54) Ismail AI, et al. (2006). Severity of dental caries among African American children in Detroit. Presentation at ADEA/AADR/CADR Conference, March 11. Abstract available at: [http://iadr.confex.com/iadr/2006Orld/techprogram/abstract\\_73168.htm](http://iadr.confex.com/iadr/2006Orld/techprogram/abstract_73168.htm)
- 55) Albert DA, et al. (2002). *Dental caries among disadvantaged 3- to 4-year-old children in northern Manhattan*. *Pediatric Dentistry* 24:229-33.
- 56) Bridge to Healthy Smiles. Cook County Oral Health Crisis. Available at: <http://www.bridgetohealthysmiles.com/ISDSBrochure.pdf>
- 57) Bexar County Head Start Dental Screenings Program. See data at: [www.fluoridealert.org/uploads/san\\_antonio\\_caries.pdf](http://www.fluoridealert.org/uploads/san_antonio_caries.pdf)
- 58) Centers for Disease Control. (1999). Behavioral Risk factor Surveillance System. Data summarized at: [http://drc.hhs.gov/report/4\\_3.htm](http://drc.hhs.gov/report/4_3.htm)
- 59) For a discussion of these tragic outcomes, see: Carrie Gann, *Man Dies from Toothache, Couldn't Afford Meds*, ABC News, Sept. 11, 2011, and Laura Owings, *Toothache Leads to Boy's Death*, ABC News, March 5, 2007.

**STATEMENTS ON FLUORIDATION FROM CIVIL RIGHTS LEADERS**

"I am most deeply concerned for poor families who have babies: if they cannot afford unfluoridated water for their babies' milk formula, do their babies not count? Of course they do. This is an issue of fairness, civil rights, and compassion. We must find better ways to prevent cavities, such as helping those most at risk for cavities obtain access to the services of a dentist."

*-Andrew Young*



"I support the holdings of Fluoridegate hearings so we can learn why we haven't been openly told that fluorides build up in the body over time, why our government agencies haven't told the black community openly that fluorides disproportionately harm black Americans, and why we've been told that decades of extensive research show fluoridation to be safe, when the National Research Council in 2006 listed volumes of basic research that has never been done."

*-Rev. Gerald Durley*

"This is a civil rights issue. No one should be subjected to drinking fluoride in their water, especially sensitive groups like kidney patients and diabetics, babies in their milk formula, or poor families that cannot afford to purchase unfluoridated water. Black and Latino families are being disproportionately harmed."

*-Alveda King*

