

High Infant Mortality and Morbidity in Fluoridated Soft Water U.S. States

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Abstract

Background: Fluoride ion from synthetic sources is efficiently assimilated after ingestion from soft water containing low levels of calcium ion. Fluoride from ingestion of artificially fluoridated water crosses the human placental barrier and equilibrates between maternal and fetal blood during pregnancy which can exert neurotoxic effects in offspring.

Methods: U.S. Government records published for the general public were analyzed to determine whether the high infant mortality rate in the U.S. is associated with the treatment of public water supplies with fluoride from synthetic industrial compounds used in artificial water fluoridation.

Results: The percentage of a state population provided with artificially fluoridated water, as a function of the hardness of the state's water determined by the calcium carbonate content reported by the U.S. Geological Survey, correlates strongly with infant mortality rates published by the U.S. Centers for Disease Control and Prevention.

Conclusions: This disturbing finding indicates the necessity to immediately end the fluoridation of consumers through treatment of municipal water supplies with industrial fluorides, including sodium fluoride and the more commonly used fertilizer waste product, unpurified fluosilicic acid.

Keywords: Fluoride ion; calcium chelator; calcium carbonate

Introduction

The practice of adding synthetic fluoride compounds into public drinking water in order to treat consumers with the fluoride ion through ingestion has been opposed by the U.S. Food and Drug Administration since the inception of the program in 1944 [1]. Since then, the FDA has ruled that 1) fluoride added into water is an uncontrolled use of an unapproved drug, 2) fluoridated water is prohibited from use in dialysis wards due to increased morbidity from such treatments, 3) fluoride is considered unsafe to add to foods, 4) fluoride at any concentration is a toxic substance that must be regulated by the Toxic Substances Control Act by the U.S. Environmental Protection Agency, and 5) the sale of fluoride compounds intended for ingestion by pregnant women is prohibited because of lack of effectiveness in offspring [2]. As reported earlier [2], the EPA does not accept this responsibility and instead assists water districts that desire to fluoridate to ensure that equipment is in place to prevent serious poisoning from the infused fluoride. As such, the EPA is currently under litigation for not halting this practice which has been rigorously proven to cause a reduction of mental IQ in newborns whose mothers consumed fluoridated water during pregnancy.

In spite of widespread opposition, and the long-known adverse effects of fluoride ingestion on converting bone hydroxyapatite into abnormal fluoroapatite, the fluoridation of public water supplies spread across the country over several decades and has now become a mandatory requirement in many U.S. states.

This is due to the erroneous belief that ingesting fluoride at 0.7 ppm currently allowed levels would decrease dental decay. All toxic registries list synthetic fluoride compounds as toxic calcium chelators, as described in the Merck Index [3], and that common uses for sodium fluoride are as a rodenticide, insecticide, and pediculicide. Recent studies reported the relative toxicity of fluoride in hard versus soft water supplies, where calcium ion even at concentrations lower than that required to precipitate fluoride ion (CaF_2 solubility product constant $K_{sp} = 8 \times 10^{-11}$ at physiologic temperature) helps prevent fluoride assimilation after ingestion [2, see Goodman and Gilman ref 16]. Calcium is the clinical antidote for fluoride poisoning from accidental ingestion of synthetic fluorides. Hard water provides some protection against the toxic effects of the ingested ion.

The purpose of this study was to determine if the widely published neurologic toxic effects of fluoride ion and the bone alterations that begin with the first exposure to synthetic fluorides, from consumption of fluoridated water, might in any way be associated with the high infant mortality rates in the U.S. Indeed, the fluoride ion readily crosses the placenta from maternal blood into cord blood [4, p. 193]. Data from the U.S. Geologic Survey [5] and the U.S. Centers for Disease Control and Prevention [6] were analyzed to determine if fluoridation status correlates with infant mortality rates, particularly in states that are within areas classified as calcium deficient soft water regions.

Results and Discussion

A map of the Continental United States showing the calcium carbonate level in the states' water supplies is reproduced here from the U.S. Geological Survey (Figure 1).

Notice that many states are enclosed completely within areas known to be either hard water or soft water regions. Hard water states include Utah, New Mexico, Arizona, Nebraska, Wyoming, and Colorado with statewide average calcium carbonate concentrations from 181 to 250 mg/L. Soft water states include Louisiana, Mississippi, Georgia, South Carolina, North Carolina, Maine, and Alabama with levels in the range 0-60 mg/L [5].

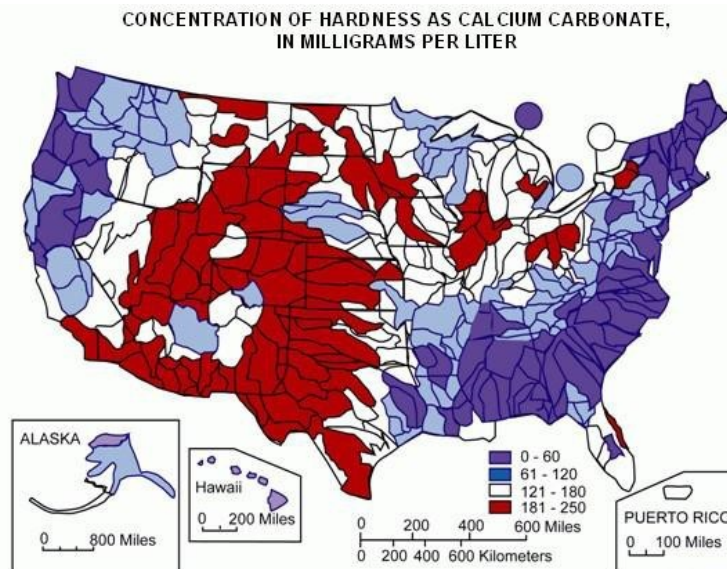


Figure 1: This map of water hardness reported as calcium carbonate concentration (mg/L) across the U.S. is reproduced from the U.S. Geological Survey [5].

These states were chosen to study the possible effects of fluoridation on infant mortality because most are also subject to fluoridation mandates by State governments, and hard versus soft water states would be expected to show a significant difference in the adverse health effects of fluoride.

The numeric percentage of the state population provided with fluoridated water [7] were divided by the calcium carbonate content in mg/L, as a useful indicator of the expected relative dangers that water treated with synthetic industrial fluoride compounds might cause in their state.

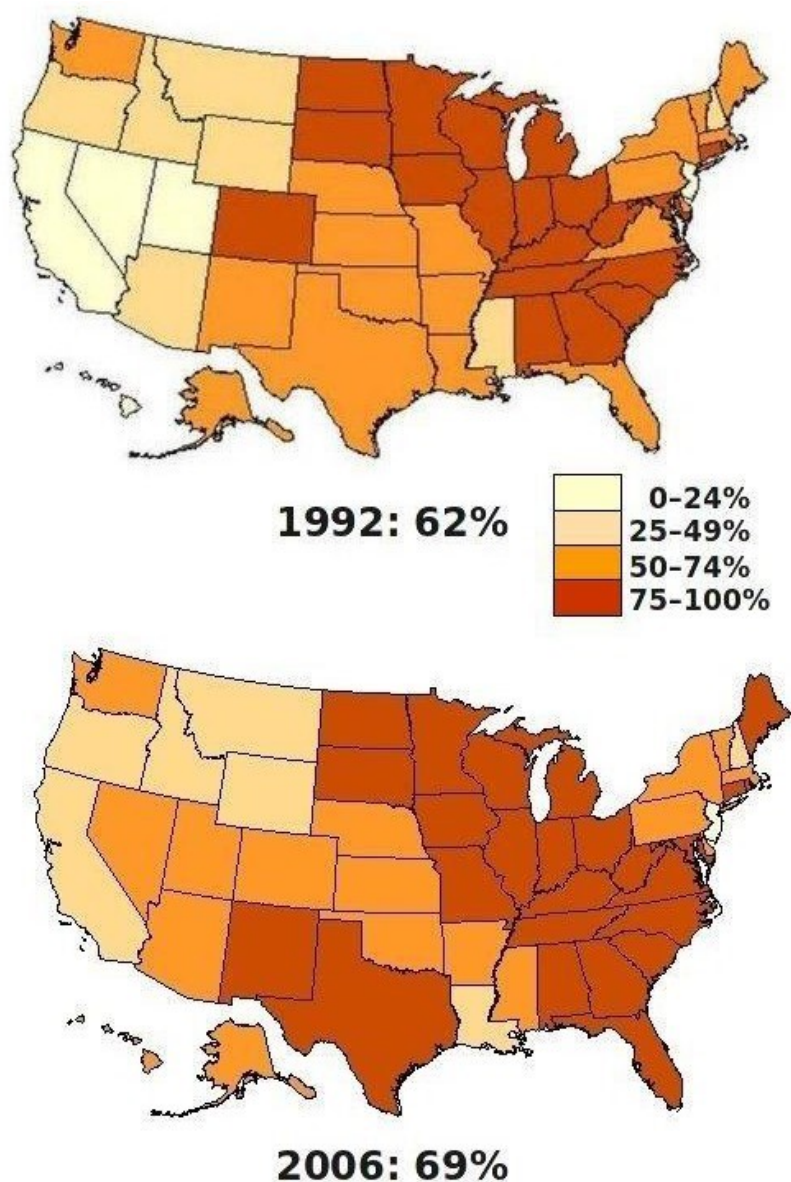


Figure 2: This figure is reproduced from [5] and indicates the range of the percentages of State populations provided with artificially fluoridated water.

A map of the fluoridation status of U.S. States is shown in Figure 2, indicating the percent of the population provided fluoridated water [7] treated with the U.S. CDC recommended level of 0.7 ppm fluoride ion. The raw data are shown in Table I. Included in the Table are the known rates of infant mortality in these hard and soft water fluoridated States, as reported by the U.S. CDC [6].

Soft Water States (0-60 mg/L calcium carbonate)				
	Infant Mortality	Life Expectancy	% Fluoridation	%F/CaCO ₃ ratio
Alabama	7.2	73	75-100	2.92
Maine	5.9	77.8	79.1	2.64
Mississippi	8.3	71.9	50-70	2
Louisiana	7.5	73.1	39	1.3
Arkansas	7.3	73.8	85	2.83
Michigan	6.5	76	60.7	2.02
Georgia	6.1	75.6	75-100	2.92
South Carolina	6.5	74.8	75-100	2.92
North Carolina	6.8	76.1	75-100	2.92
Hard Water States (181-250 mg/L)				
	Infant Mortality	Life Expectancy	% Fluoridation	%F/CaCO ₃ ratio
New Mexico	5.1	74.5	75-100	0.406
Wyoming	4.9	76.3	0-24	0.056
Colorado	4.7	78.3	50-74	0.288
Arizona	5	76.3	50-74	0.288
Utah	5.3	78.6	52	0.241
Nebraska	5.5	77.8	71.6	0.332

Table1: Infant Mortality (deaths per 1,000 live births) and Life Expectancy (years)

Data were obtained from official public records published by the U.S. Centers for Disease Control and Prevention (lifespan and infant mortality incidence) [7] and the U.S. Geologic Survey (water hardness values and areas) [5] as well as fluoridation maps presented from CDC Dental Division data summarized in [7].

The infant mortality rate in the examined states is plotted as a function of the ratio between the percent of the population provided with fluoridated water to the calcium carbonate content of the water in that state from these data (Figure 3). It is clear that states with a high ratio of fluoridation status relative to water hardness have a much higher infant mortality rate than those states with a lower ratio. The effect is considered very reliable because the average infant mortality data are accurately averaged from a very large population of 70 million people over the 15 states employed, ranging from the least populated Wyoming with 580,817 people, to the most populated Georgia with over 11 million people. The high correlation ($r = 0.694$) is clearly visible, and if it is due to both high fluoridation percent coupled with low calcium content of the water, then it would be expected that a direct plot of infant mortality with respect to percent fluoridation alone would not have such a high correlation, and this was found to be the case (see Figure 4).

Fluoride ion alone is a known calcium chelator, and in the absence of hard water is efficiently assimilated into the bloodstream after ingestion and conversion by stomach acid to the uncharged but corrosive hydrofluoric acid. Further, fluoride crosses the maternal/fetal placental barrier and is known to cause significant water concentration dependent IQ deficits in the newborn. An early seminal study performed by Albert Schatz, co-discoverer of the antibiotic streptomycin, demonstrated that poverty-stricken areas in Chile had high infant mortality caused by artificial fluoridation that was indeed reduced after fluoridation was halted [8]. Teotia and Teotia reported that tooth decay rates were highest in populations exposed to fluoridated water having low calcium levels [2]. Lowest caries incidence occurred in regions that were not fluoridated and had high calcium water levels. Indeed, it is calcium, not fluoride, that is necessary to build strong teeth.

The presence of calcium impairs the conversion of fluoride ion to HF and lowers the chemical potential and activity of fluoride ion in solution [2]. Accordingly, the experimentally observed 50% acute immediate lethal oral dose for CaF_2 is a high LD_{50} of 5,000 mg/kg while that for sodium fluoride is a low 180 mg/kg in rats, which are resistant to fluoride assimilation, as published in the Merck Index. This compares with the LD_{50} for arsenic(III) chloride at 763 mg/kg in guinea pigs and lead (II) chloride. Indeed, blood fluoride levels of 3-5 ppm are acutely lethal in man due to heart block, as occurred in Hooper Bay, Alaska from an accidental high fluoride level in treated drinking water which sickened over 300 people. At blood levels of 1 ppm from dialyzing kidney patients with fluoridated water, chronic morbidity was sufficient to cause the FDA to prohibit such treatments. Finally, at blood levels associated with continuous consumption of fluoridated water, approximately 0.1 ppm, bone adulteration and other effects occur over longer periods of time. Physiologic and pathologic effects of fetal and infancy exposure, particularly in soft water areas, are not well-characterized in man.

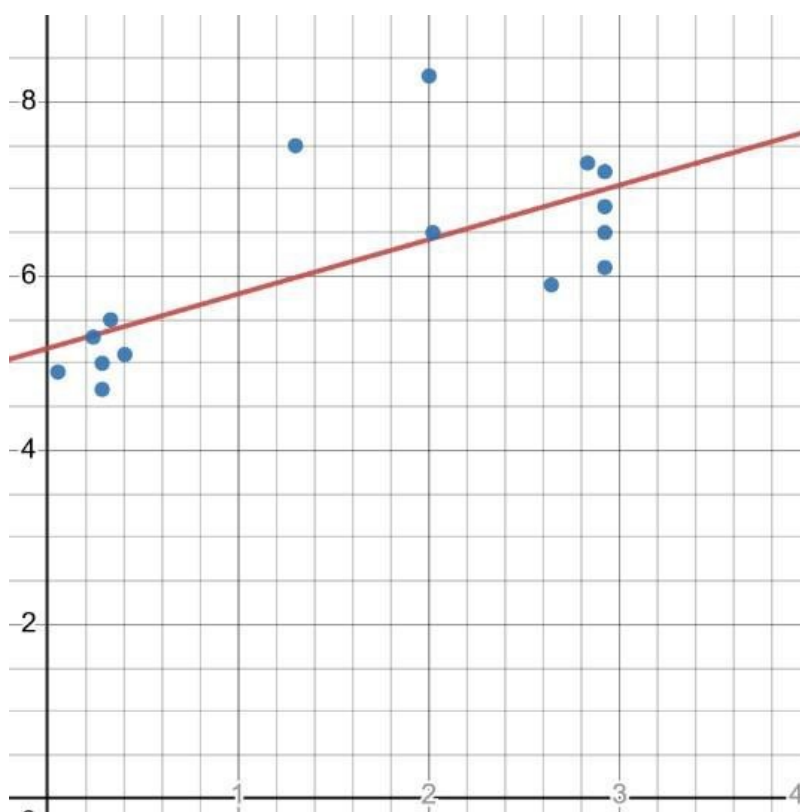


Figure 3: Infant mortality per 1,000 live births in hard water and soft water U.S. States on the vertical axis is plotted as a function of the ratio of the percent of the state population provided fluoridated water (0.7 ppm recommended) to water hardness as the calcium carbonate concentration (mg/L). Points were fitted with linear regression given by

$$Y = 0.627X + 5.167 \quad (r = 0.694).$$

Proponents who argue that fluoridation is rational contend that the mortality effect is not the fault of fluoridation *per se* but rather could be the fault of insufficient calcium in drinking water, and that adding more calcium into water would rectify the problem. However, adding massive amounts of calcium into soft water supplies to reach levels present in hard water would be exceedingly expensive and difficult. Moreover, a more direct plot of infant mortality as a direct function of the percent of a state population provided artificially fluoridated water shows a similar trend (Figure 4). This demonstrates that the deleterious effect is not simply due to soft water but rather is dependent on artificial fluoridation.

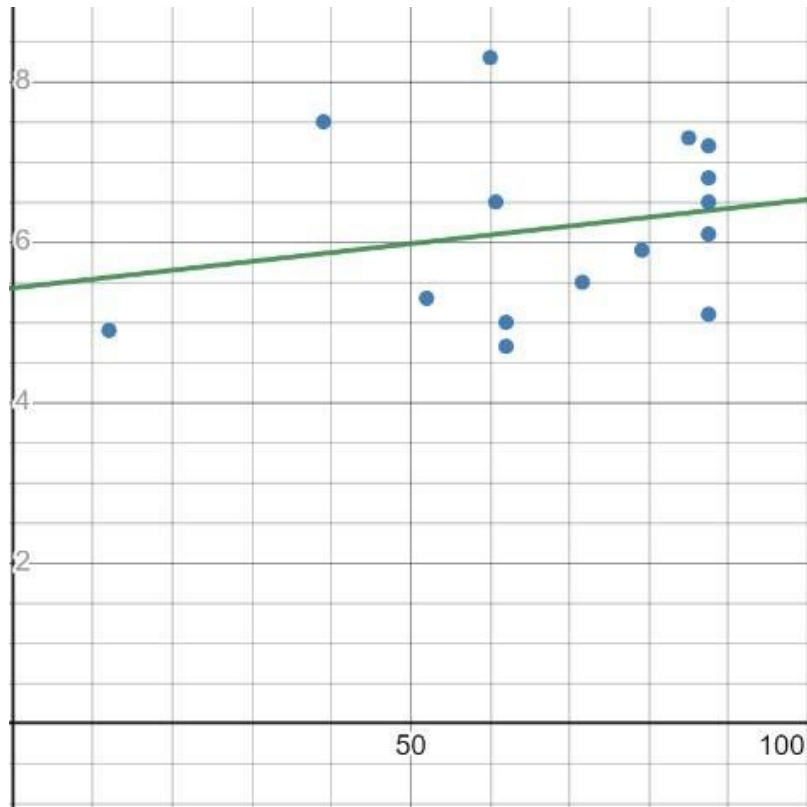


Figure 4: Infant mortality per 1,000 live births plotted as a function of the percent of state populations provided artificially fluoridated water. The data follow the regression line given by $Y = 0.011X + 5.43$ ($r = 0.22$).

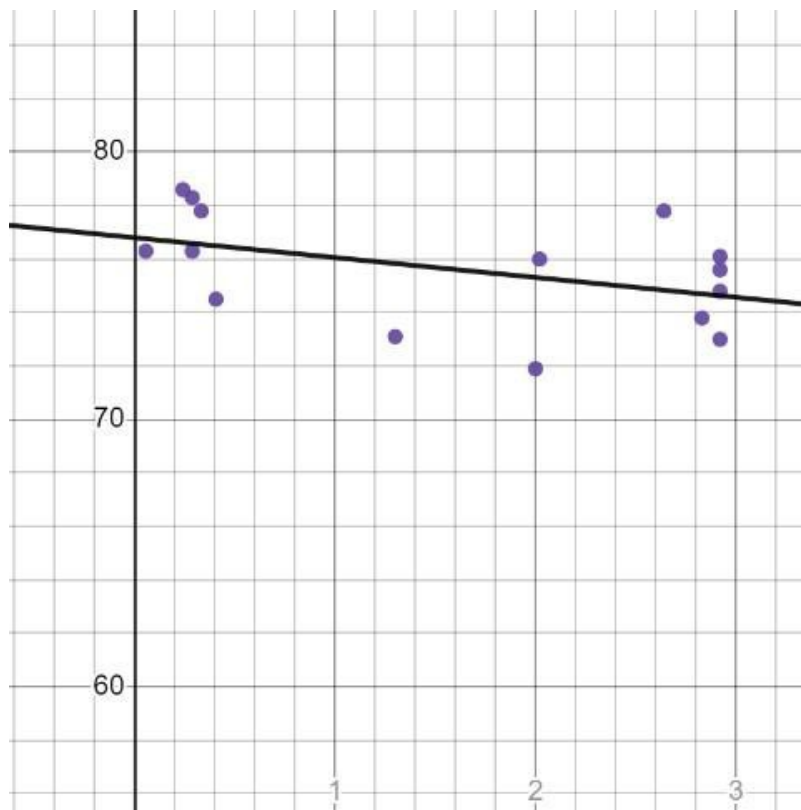


Figure 5: The average lifespan for the population living in various U.S. states is plotted as a function of the ratio of percent of the population provided with artificially fluoridated water to the calcium carbonate concentration (mg/L). The downward trend of lifespan with the progressively increasing fluoridation to water hardness ratio follows the linear regression line given by the relation $Y = -0.744X + 76.8$ ($r = -0.44$).

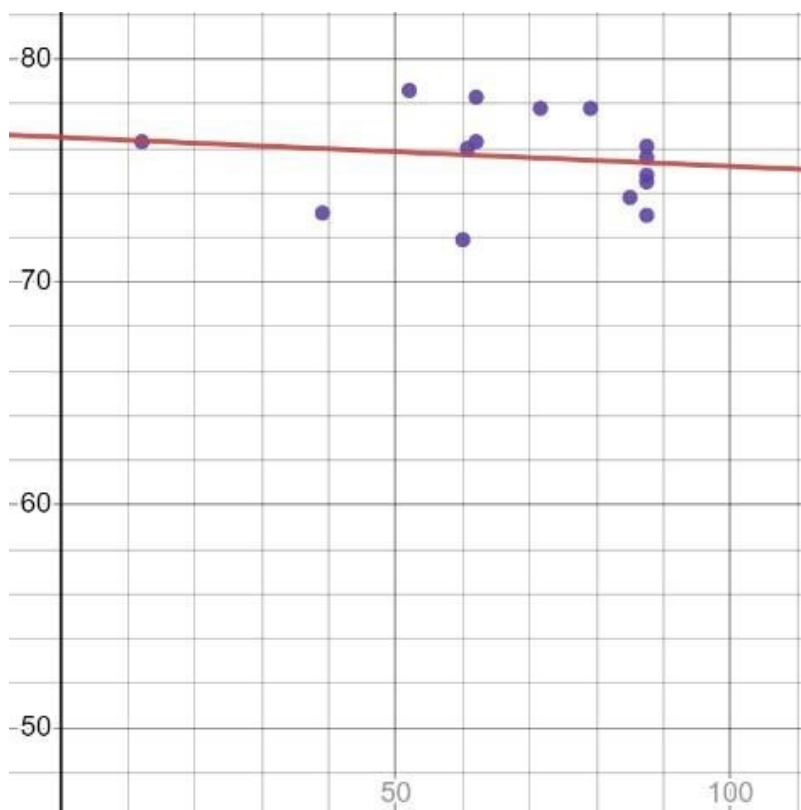


Figure 6: The average lifespan for the population living in various U.S. states is plotted as a function of the percent of the population provided with artificially fluoridated water. The points were subjected to linear regression analysis and were found to follow the expression given by $Y = -0.0125X + 76.5$ ($r = -0.134$).

The state of Wyoming with its hard water and low percentage of residents fluoridated experiences about 0.5% of live births becoming fatal in infancy. The state of Georgia with its soft water and a large fluoridation percentage experience about 0.6% of live births that become fatal. This may seem to be a small difference but there are 31 infant deaths out of 6,272 live births yearly in Wyoming but 772 infant deaths per 126,500 live births yearly in Georgia, where an estimated excess 127 fatalities are attributed to fluoridation. This prompted a closer look into all 15 states examined here. For the nine soft water states listed, using live birth and infant mortality data published for the year 2020, it is estimated that water fluoridation conducted broadly in these states caused about 1,442 excess infant deaths than in hard water states. The raw data for all 15 states are shown in Table II for live births, infant deaths, and overall population. For the soft water states, there were a total of 4,296 infant deaths from the 566,155 live births, which is an infant mortality rate of 0.76%. The total population among these states is 53,362,150 with a birth rate of 1.06%.

For the hard water states, there were 1,226 deaths among 235,953 live births, which is an infant mortality rate of 0.52%. It is concluded that an excess of 0.24% of live births, or 1,359 infants, could have survived if they had been fluoridated in hard water instead of soft water areas. The population among these states is 20,848,369, with a birth rate of 1.13%.

Soft Water States (0-60 mg/L calcium carbonate)			
	Live Births	Infant Deaths	State Population
Alabama	57647	403	5024279
Maine	1534	73	1362359
Mississippi	35473	488	2961279
Louisiana	57328	435	4657757
Arkansas	35251	260	3011524
Michigan	104074	798	10077331
Georgia	122473	769	10711908
South Carolina	55704	370	5118425
North Carolina	116730	790	10439388
Tennessee	78532	497	6910840
Hard Water States (181-250 mg/L)			
	Live Births	Infant Death	State Population
New Mexico	21391	116	2113344
Wyoming	6128	32	576851
Colorado	61494	295	5773552
Arizona	76947	399	7151502
Utah	45702	246	3271616
Nebraska	24291	295	1061504

Table 2: Population, births, infant deaths in hard water and soft water U.S. states

Data were obtained from official public records published by the U.S. Centers for Disease Control and Prevention for the year 2022.

The relationship between pre-term births and the percentage fluoridation to calcium water level ratio was also examined. A significant correlation occurred as shown in Figure 7.

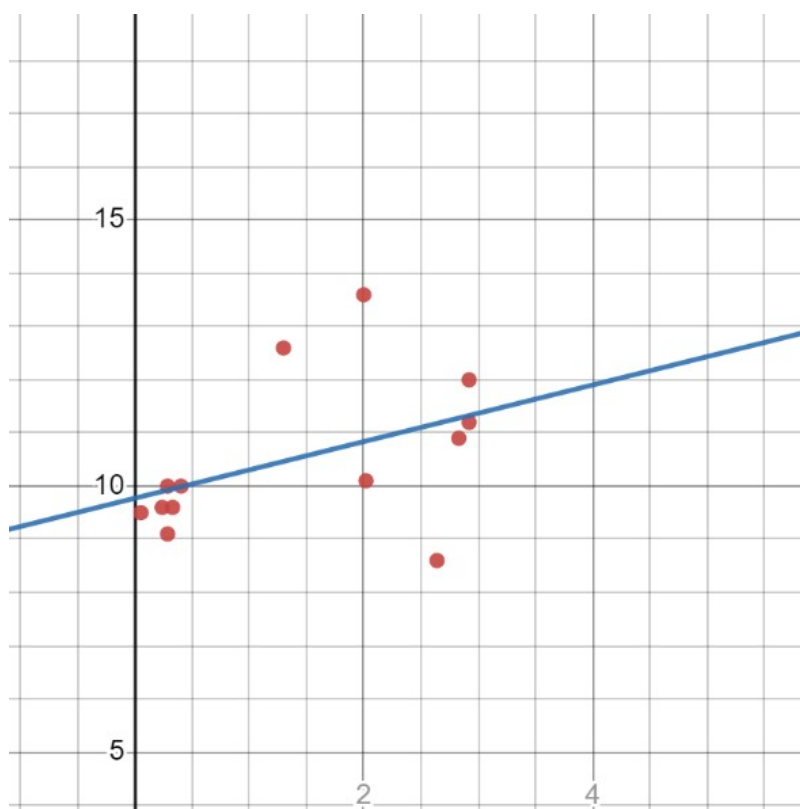


Figure 7: The incidence of premature births in the hard water and soft water states in cases per 100 births (vertical axis) is plotted as a function of the ratio of the percentage of the population provided fluoridated water divided by the calcium carbonate content (mg/L) of the water (horizontal axis). The linear relation is approximated by the equation $Y = 0.534X + 9.77$ and $r = 0.43$.

Comments

The National Research Council published earlier [8] that the concentration of fluoride ion in saliva is a mere 0.02 ppm in people living in fluoridated areas. This is 75,000 times lower ($1,500/0.02$) than the concentration of fluoride in toothpaste and has no topical value for teeth. On the other hand, surprisingly, it is fluoridated water consumption that is responsible for most of the fluoride ion present in the bloodstream because so much water fluoride is consumed daily, while toothpaste is not intended to be swallowed. Fluoride in blood is ineffective in reducing dental decay and instead is responsible for the high prevalence of dental fluorosis in U.S. teenagers because of its ubiquitous ability to inhibit so many enzymes, where removal of albumin during enamel formation in children is impaired. And in the context of the present study, infants do not have teeth for ingested fluoride to protect. It is thus not surprising that studies confirm that exposure of pregnant women to fluoridated water up to 1.2 ppm had no discernible effect on tooth decay in offspring [2, ref 39]. That the FDA has not banned water fluoridation is due to the fact that the FDA asks the EPA to regulate the Nation's water supply. The EPA claims not to require fluoridation and yet supports its widespread use, even though its maximum contaminant level was established only to prevent stage III severe skeletal fluorosis and severe dental fluorosis. A new MCL requested by the NRC to prevent adverse health effects of long-term fluoridated water consumption remains undone.

A long-held question that has not yet been addressed is what will happen to human life expectancy after lifelong consumption of toxic calcium chelator fluoride at levels in treated water supplies considered to be 'low' and 'safe.' Only a few cities have now been exposed to fluoridated water for an entire average human lifespan, since the original experiment in Michigan was begun in 1944, 79 years ago as of 2023. The average lifespan of the population of these U.S. states reported carefully by the U.S. CDC is plotted as a function of the percent of the population provided with fluoridated water, and also as a function of the fluoridation to water hardness ratio used above (Figures 5 and 6).

In both cases the effect of fluoridation is a decreased overall lifespan by about two years between fluoridation percentage extremes. The effect on overall lifespan is visible since most large U.S. cities began artificial fluoridation in the 1960's, about 50 years ago. The effect is expected to be more pronounced, the longer that fluoridation is recommended as a public 'health' measure, which, being a government request, causes municipal water districts to fluoridate their residents in the first place. The detected two year longer lifespan for those with reduced fluoride exposure, due in part to the presence of hard water that lessens assimilation after ingestion, is striking, and frankly is a national embarrassment.

The CA State chief fluoridation officer who advised the entire Los Angeles basin to fluoridate in 2007, now retired, argued that no one is forced to drink from the municipal treated water supply and those who do not wish to consume the treated water should find other options. Unfortunately, although many people avoid consuming fluoridated water, it is nearly impossible to prevent significant fluoride ingestion in a treated city because fluoridated water is used in food preparation. Prepared foods supply fluoride in excess of desired exposure levels of 0.05 mg/kg per day, a level assumed to protect health. For a 54 kg person, this is 2.7 mg total fluoride ingested daily. Moreover, most people prefer not to pay for bottled drinking water in addition to a municipal water bill, are unable or unwilling to purchase reverse osmosis units required to remove the fluoride ion of comparable size to the water molecule, and thus are forced to consume the treated water. Many brands of bottled water contain substantial fluoride ion anyway. The FDA does not require fluoride levels to be listed in foods or even bottled water, because it was argued that doing so would imply that fluoride belongs in fresh drinking water, when in reality it has no purpose there.

The act of fluoridate in 2007, now soft water states, as is evident from this study, appears to increase infant mortality and also to lower overall lifespan of adults, compared to that in hard water states. The initial report of the effect of fluoridated water consumption on infant mortality by Schatz was conducted on an impoverished population in Chile [8]. Ian Packington also reported that a fluoridated city in England had 75% higher infant mortality than surrounding non-fluoridated cities. The Schatz study was particularly compelling, an analysis over a 10 year period where infant mortality was lessened after fluoridation was halted. This reminds one of the very careful Rapaport study in the 1950's showing increased Down Syndrome birth defects associated with water fluoridation in Illinois that was confirmed in additional studies in Atlanta by Burgstahler and also by Takahashi who addressed the defects in three studies that attempted to challenge the Rapport conclusions [9]. The present study is the first on infant mortality to be conducted for a population in the U.S. as a function of water hardness. One state not included in the regression analysis is Tennessee because of the varying infant mortality data between the U.S. CDC and the Tennessee Health Department. Individual city statistics can be difficult to obtain but the city of Memphis, TN in Shelby County experiences infant mortality of 9.5 and Nashville in Davidson County has an infant mortality of 8 and both use fluoridated soft water. The overall state total infant mortality rate is reported at either 7 (CDC) or 6.3 (Tennessee Health Department).

The overall lower birth rate found for soft water states is not likely merely a coincidence, particularly since fluoride is a known developmental neurotoxin in animals and man. Correlation alone does not prove causation here, because it is not ethical to control perfectly all the environmental and dietary conditions for humans in any study. So it is not possible to prove without doubt that fluoride exposure is the cause of the observed human infant mortality, but correlation observational studies are a tool used to investigate the issue. For example, consumption of fluoridated water by pregnant mothers has consistently been found, in over 50 observational research studies recently reviewed by the National Toxicology Program, to correlate significantly with lowered mental IQ in offspring, in agreement with well-controlled experiments on research animals using the scientific method. Such animal studies began with Phyllis Mullenix finding that fluoridated water consumption in pregnant rodents, sufficient to mimic blood fluoride levels in humans consuming fluoridated water, caused significant mental impairment in offspring [10]. Reddy and also Varol reported adverse neurologic behavior and pathologic brain lesions in animals caused by fluoridated water [2] consumption, compared to controls given non-fluoridated water.

Additional factors place a limit on the power of interpretation in the present study. It is not possible to determine the total amount of fluoride exposure from water and foods in the population of people considered.

Because fluoridation is so widespread in the U.S. it is becoming difficult to obtain data to establish a baseline infant mortality rate and adult lifespan in the absence of fluoridation. Also, many people consume non-fluoridated bottled water in fluoridated areas, which lessens the impact of toxic fluoride consumption in the population. The converse, intentionally finding fluoridated water to drink in non-fluoridated areas, is not significant since the FDA does not consider fluoride to be a normal component of drinking water which is therefore not available for purchase.

When two variables A and B are correlated, the possibilities necessary to consider are 1) that A causes B, or 2) B causes A, or 3) other variables cause both A and B together. Fluoridation is a decision made by water operators, so the notion that increased infant mortality causes increased fluoridation is not tenable. Likewise, the possibility that other variables cause both infant mortality and increased fluoridation is not realistic, again because mortality is not a choice while artificial fluoridation is. Therefore the conclusion that fluoridation is involved with the increased infant mortality observed is valid.

Of course there are many contributors and causes for loss of life in infancy. The National Institutes of Health list the most common causes as accidents (including suffocation when sleeping with parents), brain dysfunction, and infections. Also this list should include impoverished diet, accidental poisonings, neglect, etc. Indeed, the highest infant mortality rate in California occurs in Shasta County that does not fluoridate its water supply, caused obviously by other factors. Data from individual cities has been difficult to obtain. However, the overall averaging of mortality data across the very large population here has revealed this trend associated with artificial fluoridation. If it is another factor that causes increased infant mortality that is attenuated in calcium-deficient water areas, and it were not the calcium-seeking fluoride ion, then what is it?

A common criticism of any scientific study is the possibility that the effect only occurs on the particular population examined and should not be generalized to other groups. But the data in this study were drawn from 70 million people in 15 states, and the effect also occurred in the South American country of Chile. That the effect may have only occurred during the time examined, and might dissipate over time, is also countered by the fact that the effect in Chile occurred over 60 years ago.

The notion that it is other substances besides fluoride ion in fluoridation chemicals that causes the effect must also be addressed. There indeed are many documented contaminants in the currently used fluosilicic acid preparations sold to water districts, including arsenic, lead and other heavy metals, and radioactive substances, but these occur at widely varying levels in the preparations that after dilution are not known to be sufficient to cause mortality. Lead ion can leach from plumbing due to the reaction of lead salts with the ortho-silicic acid byproduct in fluosilicic acid treated water, but lead plumbing is not consistently used throughout all the states examined. Recently released data from the U.S. EPA listed the top seven states in miles of lead service pipes used, and none were the states examined here. Moreover, the effect in Chile occurred when sodium fluoride was the most commonly employed starting material. The switch to using fluosilicic acid preparations instead of NaF occurred in the U.S. in 1984, between the Chile event and the present study.

The mechanisms by which the bony skeleton develops and is assembled properly *in utero* and during infancy are unknown. Enzymatic and environmental conditions needed to form hydroxyapatite have been characterized, but how the proper shapes, sizes, and arrangements of bone are organized into correct relative positions all remain mysterious. Exposure to the calcium chelator fluoride, even at low blood fluoride levels that do not form calcium fluoride precipitates in solution, causes by ion exchange the replacement of the oblong hydroxide ion in bone with the smaller spherical fluoride ion. This alters the structure and size of bone fundamental structural units. The process begins with the first intake of fluoridated water, and accumulates during lifetime continuous consumption.

Bone plays far more important roles in health than simply allowing normal stature and bodily movements. Bone is subject to hormonal control throughout life. Calcitonin increases new bone synthesis in the presence of circulating calcium sufficiency, and parathyroid hormone causes resorption of bone to prevent hypocalcemia from interfering with the proper operation of the beating heart. It is extracellular calcium ion that couples electrical activity with muscle contraction in heart tissue. So significant fluoride exposure *in utero* can cause cardiovascular as well as neurologic or skeletal pathology.

In adults, long term consumption of artificial fluoride for several decades leads to bone fluoride levels of thousands of mg per kg. At 1,500 to 2,000 mg/kg, associated pain has been reported [11].

Severe crippling bone fluorosis occurs at approximately 8,000 mg/kg. What is not known is what concentration causes abnormal outgrowths to first form that can become significant enough to cause pain with limb movement. Figure 8 shows the appearance of lethal bone fluorosis that can occur from chronic, non-acute lifelong exposure to water containing high natural levels of fluoride such as areas in China, Turkey, and India. The average adult bone mass is 2 kg, so to reach a 10,000 mg/kg crippling fluorosis bone level requires ingestion of 40 grams fluoride assuming that about half of that ingested is stored in bone [11]. This would be possible if one faithfully consumed 2 liters daily of 1 ppm fluoridated water for about 55 years, or from 0.7 ppm water in about 78 years. Coincidentally this year marks 78 years since the fluoridation procedure began in Grand Rapids, Michigan. If fluoridation is mistakenly allowed to continue in the U.S., it is essential to examine the health of newborns who survive birth after fluoride exposure. As found by Mullenix [10], there are crucial time periods during neurological development *in utero* that are most sensitive to fluoride perturbation. It was here first necessary to determine whether exposure during development in the womb might affect overall survival.



Figure 8: A photograph of adult normal (upper) and severely fluorotic tibia and fibula bones. Note the numerous outgrowths that protrude from bone which normally is very smooth. Bone deformation caused by fluoride incorporation into bone is not biochemically reversible. At 0.7 ppm fluoride from artificial fluoridation of water consumed intermittently throughout lifetime, damage would not be this severe, but the conversion of normal hydroxyapatite into fluoroapatite begins with the first sip. Bones were part of a public display on bone diseases at the Museum of Man, Balboa Park, San Diego, CA. obtained from the Stanford-Meyer Osteopathology Collection, Stanford University School of Medicine.

The most logical conclusion is that fluoride assimilation from ingestion of fluoridated water causes the observed increased infant mortality. It is imperative that U.S. governmental agencies recognize the faulty argument that fluoride ingestion would be effective and harmless when it is now abundantly clear that it is neither. The CDC and EPA must stop promoting the artificial fluoridation of U.S. citizens and instead help maintain clean public water supplies, as dictated originally by the Clean Water Act and later the

Safe Drinking Water Act. These legislative measures prohibit adding any substance, even food or nutrient minerals, into public water supplies, other than required to sanitize the water.

Note that the SDWA was actually written to help stop the spread of water fluoridation, but fluoridation promoters added a clause later to the law to allow fluoride infusions. EPA administrators in 1984 allowed the use of hazardous waste fluosilicic acid from the fertilizer industry to be re-labeled as a water additive, but fluoride does not sanitize water, and soluble fluorides are listed toxics on poisons registries. Fluoride must be prohibited from infusion into municipal water supplies as dictated by the Toxic Substances Control Act.

Advocates of artificial fluoridation can argue that infant mortality rates have been declining since 1915 regardless of fluoridation. However, the rate that infant mortality has declined from 1915 until fluoridation began in 1945 was an extremely steep slope, from 100 to 37 deaths per thousand over the 30-year period. This rate slowed drastically after fluoridation began, characterized with a very gradual slope over the following 74-year period [12].

Thankfully, the EPA recently announced that it will lower the allowed concentrations of fluorinated hydrocarbons in drinking water to below detectable levels and hailed this as being able to save hundreds of thousands of lives. The data presented here, together with vast other studies demonstrating that fluoride ingestion is ineffective in reducing dental decay and causes pathologic harm [4], indicate that it is also necessary to halt intentional infusions of synthetic industrial fluoride compounds to help reduce infant mortality and overall morbidity. Fluoride ion is not a mineral nutrient, has no physiologic function in man, and is not a normal component of the human bloodstream. The common claim that fluoride ‘remineralizes’ teeth enamel is false since normal enamel does not contain fluoride and rather consists of a derivative of bone which is a very hardened form of hydroxyapatite. The original claim in the 1930’s, that fluoride naturally found in some water supplies might reduce dental caries incidence associated with the mottled teeth enamel observed, is now known to have used selected data. There is no correlation between natural water fluoride levels and tooth decay over a broad fluoride concentration range up to 6 ppm, as published by Ziegelbecker [7]. The U.S. FDA has never approved any fluoride compound for human ingestion. Finally, adding any substance to drinking water to treat human tissue where its effects are modified by environmental conditions, such as water hardness affecting fluoride assimilation after ingestion, is contraindicated. The facts that fluoride crosses the blood-brain barrier, that the FDA determined fluoride in bone does not strengthen bone, and that fluoride accumulation in bone is pathologic, not physiologic, prove fluoridation of people is a false medical practice that the Oral Health Division of the CDC must reconsider.

Disclaimer

The statements in this article do not necessarily reflect the opinions of Palomar College or its staff. No funding sources are involved in this work and there are no interests to declare.

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