



Fluoridation: The Facts – Prevention or Poison?

Fluoridation has become a controversial topic in the water industry. While there are proven dental health benefits associated with this practice, some opponents have ethical and safety concerns. KRWA does not have an official position on fluoridation, however, through this article, our goal is to provide factual information so that public water systems (PWSs) can make the decision of whether or not to fluoridate based on verifiable truth rather than politics and hearsay.

What is fluoride?

Fluoride compounds are salts that form when the element, fluorine, combines with minerals in soil and rocks.¹ It is most widely used for preventing tooth decay and is the active ingredient in most tooth pastes and mouthwashes. Fluoride can also be found in drinking water – either through chemical addition or it can occur naturally based on the source of the water and the geological composition of soils and bedrock.

How much fluoride is in drinking water?

Since 1962, the U.S. Department of Health and Human Services (HHS) has recommended that the amount of fluoride in drinking water range from 0.7 to 1.2 milligrams per liter (mg/L). This range takes into consideration the different regions of the United States where in warmer, southern climates, it was believed that people drank more water and in cooler, northern climates, people drank less water. However, on January 13, 2011 the HHS recommended that the optimal level be 0.7 mg/L. According to the Centers for Disease Control and Prevention (CDC), the level is being lowered because sources of fluoride have increased since the early 1960s and it is possible for people to receive enough fluoride with lower levels in drinking water.

The U.S. Environmental Protection Agency’s (EPA) maximum contaminant level for fluoride is set at 4.0 mg/L. The reason EPA’s standard differs from the CDC recommended level is because the two benchmarks were set for two different purposes. EPA’s standard is set to protect against risks from exposure to too much fluoride.² The CDC recommendation is set at a level which prevents tooth decay while minimizing the chance of dental fluorosis. Dental fluorosis is the change in tooth enamel, which can appear as white spots on the tooth surface, or in more severe cases, pits may form in the teeth, when children regularly consume higher than recommended levels of fluoride. Excessive, lifelong exposure to fluoride can result in skeletal fluorosis which can lead to bone fractures, pain, and tenderness.

What are the benefits of fluoridation?

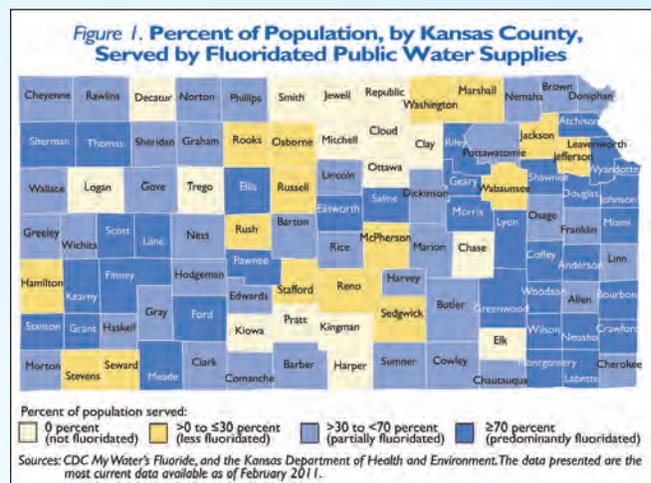
The CDC cites a review of 28 studies on the topic of fluoridation and the findings showed strong evidence that fluoridation was effective in reducing dental caries (tooth decay) across populations. The CDC also named fluoridation one of the “Ten Great Public Health Achievements of the 20th Century.” According to the group “Fluoride in Kansas”, every dollar spent on fluoridated water saves \$38 in dental costs.

What are the concerns of anti-fluoridation groups?

Those who are opposed to fluoridation of public water supply systems give the following reasons for their opposition.

■ Health risks

In addition to dental fluorosis and skeletal fluorosis, fluoride opposition groups have linked fluoride exposure to the following health risks: bone cancer (osteosarcoma), brain damage, affects thyroid function, affects the pineal gland, toxic fluoride accumulation in those with kidney disease, and more. There is very little scientific evidence to support these claims. In fact, a Harvard study released in July 2011 found that there is no link between fluoridation and osteosarcoma.³ The National Kidney Foundation has not made specific recommendations regarding fluoride intake and kidney disease due to limited research on the topic, and in a position paper posted on the foundation’s Web site it states that there is no consistent evidence that the retention of fluoride in people with advanced chronic kidney disease, who consume optimally fluoridated drinking water, results in any negative health consequences.⁴



Recently, KRWA was invited to participate in a discussion on fluoridation in Kansas with the Kansas Dental Association, Oral Health Kansas, and the Kansas Department of Health and Environment (KDHE) Bureau of Oral Health. KRWA was presented with advocacy information (www.fluoridekansas.org) and fluoridation implementation data. There are 60 PWSs in Kansas that fluoridate and according to Sameera Mangena, KDHE BOH, many of these systems are reporting fluoride monitoring results below the recommended optimal level. In fact, while reviewing fluoride data for PWSs across the state, she could tell little difference between many of the systems that fluoridate and the systems that have natural fluoride in their water.

■ Fluoride should be used topically, not ingested

Opponents of fluoridation argue that there is no benefit in swallowing fluoride. Have you ever read the label on a tube of fluoride toothpaste? Under the directions for use it states, “Do not swallow.” Obviously, this warning is present because the concentration of fluoride in toothpaste is much higher than that of drinking water. According to the CDC, by drinking fluoridated water throughout the day, it increases the amount of fluoride in saliva. Fluoride in saliva lowers the pH of acid producing bacteria on gums and between teeth, protecting teeth from decay.

■ Unethical practice

Fluoride is considered a drug by the U.S. Food and Drug Administration (FDA) because it is used to prevent or mitigate disease. Those that oppose fluoridation, view the practice as mass-medication without the consent of consumers. Also, the dose cannot be controlled because some people drink more water than others.

■ Most European countries do not fluoridate

Anti-fluoride groups have pointed out that European countries have rejected fluoridation in their water supplies.

The Kansas Department of Health & Environment provided the following listing of systems that are fluoridating drinking water. The listing was provided to KRWA on 2/3/2014.

Arkansas City	Hesston	Newton
Atchison	Hiawatha	Olathe
Bonner Springs	Independence	Osage City
Chanute	Iola	Osawatomie
Cheney	Junction City	Ottawa
Clearwater	Kansas City BPU	Parsons
Coffeyville	Kinsley	Phillipsburg
Council Grove	Kiowa	Pittsburg
Downs	Lawrence	Pottawatomie RWD 2
El Dorado	Leavenworth Water Dept.	Public Wholesale 4
Ellsworth RWD 1	Lincoln	Public Wholesale 5
Ellsworth	Lyons	Sabetha
Emporia	Maize	Salina
Eureka	Manhattan	Seneca
Fort Leavenworth	Marietas Des	Stockton
Fort Riley	Cygness PUA	Topeka
Fort Scott	Marion	Wamego
Garden City	McConnell AFB	WaterOne
Gardner	Moundridge	Wellington
Garnett	Neodesha	Yates Center
Herington		

House Bill 2372

On Wednesday, February 5, 2014, a legislative hearing was held in the Kansas House of Representatives on an anti-fluoridation bill – HB 2372. To summarize, the bill would basically require systems that fluoridate to notify customers that “the latest science confirms that ingested fluoride lowers the I.Q. in children.” But systems with naturally occurring fluoride in their water would be exempt from this requirement. This bill is poorly written. There are many statements made against fluoride and no scientific evidence to prove them. Also, there are no specifics as to what level of fluoride in water would trigger this requirement. And why would systems that add fluoride be required to notify customers when systems with naturally occurring fluoride at even higher levels would not have this requirement? Customers are already informed about the amount of fluoride in their water through the Consumer Confidence Report and they can view monitoring data on the KDHE Drinking Water Watch Web site. If passed, this bill would be a waste of time and money. That’s why KRWA provided comments in opposition to the bill and asked representatives to vote “No” on HB 2372.

This is not entirely true. Fluoridated water is provided to citizens in Great Britain, Spain, and Ireland. Also, Italy has naturally occurring fluoride in their water supply at optimal levels. Many European countries provide fluoride to their citizens through different means – fluoridated salt is consumed by over 70 million Europeans and fluoridated milk reaches millions of other Europeans.³

Our system is interested in fluoridating, what do we need to do?

1. Inform the public: Kansas State Statute 19-3521a states that a PWS must publish their intent to fluoridate in a newspaper of general circulation once a week for three weeks. If within ten days of the last publication, a petition is received with signatures of 5 percent or more of registered voters, the PWS may not fluoridate.

2. Take it to a vote: At a regular election of the board of the water district, the following language must be used on the ballot:

“Shall the governing body of water district No. ___ of _____ County (or city of _____) fluoridate the public water supply?

Yes No

If the district/city shall fluoridate the public water supply of said district/city it shall be in accordance with the recommendations and standards of the Secretary of Health and Environment.”

3. Contact the Kansas Department of Health and Environment (KDHE) Public Water Supply Engineering and Permits Unit to update permit documents prior to installing fluoridation equipment.

In conclusion, fluoridation is not mandatory in the State of Kansas; it is a decision to be made by each community and water district. There are risks associated with many of the chemicals and contaminants found in drinking water. Are the potential risks of fluoridation worth the rewards for your citizens and customers?

¹ EPA: <http://water.epa.gov/drink/contaminants/basicinformation/fluoride.cfm>

² CDC: <http://www.cdc.gov/fluoridation/faqs/>

³ PEW: <http://www.pewstates.org/research/analysis/water-fluoridation-frequently-asked-questions-85899379776>

⁴ NKF: <https://www.kidney.org/atoz/content/fluoride.cfm>