Fluoridation and Drinking Water
Questions and Answers

What is water fluoridation? How does it prevent tooth decay?
Fluoride is a naturally occurring element that is present in water. Water utilities add fluoride to adjust the natural concentration of the water supply to the level recommended for optimal dental health. The three primary agents used in drinking water fluoridation are sodium fluoride, sodium fluorosilicate and fluorosilicic acid. Travis County Water Control and Improvement District No. 17's (WCID 17) uses flurosilicic acid.

Why fluoridate the water?
According to the U.S. Centers for Disease Control (CDC), more than 84 percent of U.S. children, 96 percent of U.S. adults, and 99.5 percent of Americans 65 years of age and older have experienced tooth decal. Fluoride works by stopping or even reversing the tooth decay process. North American water systems have added fluoride to their water supplies since 1945. Since that time, tooth decay had been reduced by 20-40% where fluoridation has been implemented. Fluoridation effects are primarily topical but can also be systemic in preventing cavities in teeth which have not yet erupted.

Is water fluoridation safe?
As with other nutrients, fluoride is safe and effective when used and consumed properly. More than 60 years of evidence from 162 million Americans and nearly 60 other countries supports the effectiveness of fluoridated water and its ability to inhibit, reduce, or even reverse the onset and development of tooth decay. Through continuous research, drinking optimally fluoridated water has been scientifically proven to be safe (not toxic) and effective.

What level of fluoride is added?
Natural fluoride levels in Lake Travis water currently range from 0.1-0.25 parts per million (ppm). Water fluoridation will adjust the natural fluoride concentration in Travis County Water Control and Improvement District No. 17's (WCID 17) drinking water to 0.7 ppm, a level recommended for optimal dental health in our climate.

What are the benefits to water fluoridation?
Health experts endorse water fluoridation as the single most effective public health measure to improve oral health.

- Water fluoridation can reduce tooth decay.
- Fluoride strengthens tooth enamel.
- Fluoride protects a baby's first teeth.
- Water fluoridation is a cost effective means to improve community dental health.

Who benefits?
The entire community benefits from water fluoridation regardless of a person's age, income, level of education, or ability to get dental care. A concentration of 0.7 ppm of fluoride can reduce the amount of cavities in children's baby teeth by as much as 60% and reduce tooth decay in adults by 15-30%.

What does water fluoridation cost?
WCID 17 spends about $13,000-$15,000 annually to add fluoride to drinking water.

Is fluoride considered a nutrient?
Fluoride is listed by the Institute of Medicine's Food & Nutrition Board as a micro nutrient. It is included on the Dietary Reference Intake (DRI) Table for phosphorus, calcium, magnesium, vitamin D and fluoride.

Should my family continue brushing with fluoride toothpaste?
Yes. Fluoridated water is part of a total oral health program. You can get additional protection when you brush with a fluoride toothpaste. You should make sure your young children do not swallow toothpaste.

Is fluoride safe for my pets?
Yes. Fluoride is safe for pets including aquatic life. Having fluoride in the water dish may even benefit the dental health of those pets with teeth.

Will a water softener affect the fluoride levels in my home's tap water?
As a rule, water softeners and/or carbon filters will not remove fluoride from the potable (drinking) water entering your home. However, a standard reverse osmosis (RO) unit can significantly reduce the fluoride content. For specific information, you should consult with the filtration system's manufacturer.

What is fluorosis and when does it occur?
Dental fluorosis is a change in the appearance of teeth and is caused when higher than optimal amounts of fluoride are ingested in early childhood while tooth enamel is forming. The risk of dental fluorosis can be greatly reduced by closely monitoring the proper use of fluoride products by young children.

Dental fluorosis is caused by a disruption in enamel formation which occurs during tooth development in early childhood. Enamel formation of permanent teeth, other than third molars (wisdom teeth), occurs from about the time of birth until approximately five years of age. After tooth enamel is completely formed, dental fluorosis cannot develop even if excessive fluoride is ingested. Older children and adults are not at risk for dental fluorosis. Dental fluorosis only becomes apparent when the teeth erupt. Because dental fluorosis occurs while teeth are forming under the gums, teeth that have erupted are not at risk for dental fluorosis.

Is it true that over time fluoride (provided through water fluoridation) accumulates in the body causing adverse bone health affects, such as skeletal fluorosis?
After ingestion of fluoride, such as drinking a glass of optimally fluoridated water, the majority of the fluoride is absorbed into the blood stream. The fluoride levels quickly reach a peak concentration and then rapidly decline, usually within three to six hours. This decline is due to the uptake of fluoride by hard tissue, such as bones and teeth, and the efficient removal of fluoride by the kidneys. The amount of fluoride taken up by bone and retained in the body is inversely related to age. More fluoride is retained in young bones than in the bones of older adults.

According to generally accepted scientific knowledge, the ingestion of optimally fluoridated water does not have an adverse effect on bone health. Crippling skeletal fluorosis is extremely rare in the United States and is not associated with optimally fluoridated water.

Are we at risk of consuming too much fluoride through foods, beverages, AND water?
The total intake of fluoride from air, water and food in an optimally fluoridated community in the United States does not pose significant health risks.

Children living in a community with water fluoridation get a portion of their daily fluoride intake from fluoridated water and a portion from dietary sources which would include food and other beverages. When considering water fluoridation, an individual must consume one liter of water fluoridated at 1 part per million (1 ppm) to receive 1 milligram (1 mg) of fluoride. Children less than six years of age would consume, on average, less than 0.5mg of fluoride a day from drinking optimally fluoridated water (at 1 ppm).

The optimal concentration for fluoride in water in the United States has been established at 0.7 ppm. Studies of fluoride intake from the diet including foods, beverages and water indicate the fluoride ingestion from these sources has remained relatively constant for over half a century and, therefore, is not likely to be associated with an observed increase in dental fluorosis. Dental decay has decreased because children today are being exposed to fluoride from a wider variety of sources than decades ago.

Who supports water fluoridation?

Virtually all major national and international health, service and professional organizations endorse or support water fluoridation, including the following:

- American Dental Association (ADA)
- American Medical Association (AMA)
- American Academy of Pediatrics
- American Academy of Pediatric Dentistry
- US Public Health Service
- United States Center for Disease Control and Prevention (CDC)
- World Health Organization (WHO)
- National Academy of Sciences
- American Water Works Association (AWWA)
- Texas Department of Health (TDH)
- Travis County Health Department

Do health studies exist on the chemicals used in water fluoridation?

The claim is sometimes made that no health studies exist on the silicofluoride chemicals used in water fluoridation. The scientific community does not study health effects of concentrated chemicals as put into water. The health effects of the treated water are studied, i.e, what those chemicals become when added to water such as the fluoride ion, silicates and the hydrogen ion. The health effects of fluoride have been analyzed by literally thousands of studies over 60 years and have been found to be safe and effective in reducing tooth decay.

Where can I find out more about water fluoridation?

Visit the following web sites for information on water fluoridation:

- www.ada.org
- www.ama-assn.org
- www.cdc.gov
- www.who.int
- www.fluorideinfo.org