Fluoridation in Iowa

by William C. Maurer

SHSI (IOWA CITY)

Before fluoridation, tooth decay and extraction were common.

Prior to our country's entry into World War II, nearly 9 percent of inductees had lost so many teeth from tooth decay that they were rejected for general service due to failure to meet dental standards. After Pearl Harbor, dental standards had to be relaxed in order to meet the manpower requirements for such a large war effort. Since that time, dramatic improvements in our nation's oral health have occurred due to greater emphasis on preventive dentistry and early detection and treatment of dental disease. Most significant has been the widespread adoption of community water fluoridation.

In the early 1900s, Frederick S. McKay, a dentist in Colorado Springs, Colorado, became interested in the number of his patients whose teeth had brown staining. Through his efforts and the assistance of dental researchers, the cause of "Colorado Brown Stain" or mottling (enamel fluorosis) was found to be due to the town's drinking water, which contained two parts per million (p.p.m.) of fluoride. This problem was not unique to Colorado; surveys at other U.S. sites (including in Iowa) had found water supplies causing this brown staining as well.

Fluoride, the 13th most abundant element on earth, naturally occurs in virtually all water although most water supplies have low or only trace amounts. However, it is not uncommon for ground water supplies (wells and springs) to contain significant levels, due to fluoride-bearing minerals in the aquifer. A survey of Iowa's public water supplies in 1933 found 51 cities with 2 or more p.p.m. fluoride; nearly 100 percent of Ankeny schoolchildren had dental fluorosis because of drinking water with 9 p.p.m. of naturally occurring fluoride. There is a wide distribution of Iowa communities with 1.0 p.p.m. fluoride or higher, but the greatest number are in the central and southeast areas.

By the 1930s researchers found that the brown staining was proportional to the water fluoride content, but that tooth decay was inversely proportional. More significantly, they determined that the optimum level for fluoride when tooth decay was low and tooth staining was absent was 1.0 p.p.m.

In January 1945, Grand Rapids, Michigan, made history when it became the first city to initiate water fluoridation. It had been chosen by the United States Public Health Service to conduct a trial to determine if the benefits of naturally fluoridated water supplies could be duplicated by fluoridating a community water supply. This was accomplished by adjusting the fluoride content of its water supply through the addition of sodium fluoride in the water treatment plant. During the same year Newburgh, New York, began a similar fluoridation study.

The first results of the Grand Rapids trial reported in 1950 showed significant reductions in tooth decay compared to children in Muskegon, Michigan, the control city. After 11 years of fluoridation, Grand Rapids showed a 60–65 percent tooth decay reduction in children born after the start of fluoridation and significant reduction in the number of missing permanent teeth. The Newburgh study had similar results.

In Iowa, Waukon and Dubuque became the first cities to adopt fluoridation, in October 1951, followed by Cedar Rapids the next year. By 1966, with half of its population on adjusted or natural fluoridation, Iowa ranked sixth in the nation in percentage of population with access to community water fluoridation. This included more than 170 Iowa communities with naturally fluoridated water.

By this time most large cities in Iowa had initiated water fluoridation, but very few towns below 5,000 population. Over the next 26 years an additional 148 communities and 9 rural water systems (serving more than 346,000 Iowans) initiated water fluoridation with the assistance of state and federal grants for equipment.

Researchers initially believed that lifelong benefits of fluoridation were obtained during a child's first 12 to 14 years of life. During these years, permanent teeth calcify and fluoride is incorporated into the crystalline structure of the tooth enamel, making it more resistant

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on Fluoridation FACTS

1. **POISON**—Sodium Fluoride is a Poison. It is used to kill rats and insects.

2. DANGEROUS if taken internally or inhaled. Dr. Leo Spira, M.D., New York, says: "It deprives the body of Calcium. Heart, diabetic and kidney patients are warned NOT to drink fluoridated water."

3. CANCER:
"The results of my experiment indicate **that animals on treated (fluoridated water) developed cancer earlier than the controls—(those not drinking fluoridated water!")**—from a letter by **Dr. Alfred Taylor, research scientist,** in the Biochemical Institute, University of Texas.

4. **SMALL DOSAGE HIGHLY TOXIC:** "Fluoride intoxication is insidious and ACCUMULATIVE, especially when the daily dose is small, but its effects are permanent and irreparable," says Dr. Charles Dillon.

5. **FLUORIDATION IS A DANGEROUS AND UNSCIENTIFIC EXPERIMENT:** "It is unscientific and impractical to prescribe a toxic substance for the duration of your life, as an experiment, whether we need it or not, against our will, and without being able to stop taking it if we want to do so," says Dr. C. A. Brusch, M. D., of Cambridge Medical Centre, Mass.

6. **FLUORIDATION** is the experimental MASS-MEDICATION of entire populations by the impregnation of entire water supplies of whole communities with METALLIC fluorine compounds INCAPABLE of being assimilated as food, under conditions of duress, without cession or reasonable chance of escape." (Dr. Paul Manning).

7. **FANTASTIC WASTE OF TAXPAYERS MONEY:** Over 8 million gallons of water pumped yearly by Des Moines Water Works—would take $17,638 for the chemical only if put in city water—per year. Yet only $25.00 of same chemical (sodium-fluoride) actually needed for 60,000 children in Des Moines — if tablets were sold by drug stores.

That is $17,613 of taxpayers money WASTED. That wasted money should be used for salaries—NOT to buy poison to put in our drinking water.

Citizens Committee Opposing Fluoridation
2826 Logan
Des Moines, Iowa

A discussion of fluoridation packed a Des Moines city council meeting in March 1959. Right: An anti-fluoridation flier (undated).

to tooth decay. More recently, researchers have agreed that an additional benefit of fluoridation, and the most significant, is the remineralization (or hardening) of tooth enamel after bacterial plaque acid attacks. Thus, adults as well as children benefit from fluoridation.

While the fluoridation trials of the 1950s resulted in 60–65 percent reduction in tooth decay, benefits now range from 18 to 25 percent. Fluoridation is still effective, but people living in non-fluoridated communities receive significant benefits of fluoride through the consumption of beverages and other foods processed in fluoridated communities. For that reason the relative benefits of community water fluoridation are no longer as great as they were in 1945 because there are truly no communities that are considered to be fluoride free.

Public support of fluoridation has led to the large number of city councils that have authorized fluoridation. Far less visible are the ongoing skills of water plant operators to monitor and adjust fluoridation equipment. But success has not come without opposition.

Over the past six decades, various groups of anti-fluoridationists have produced literature (and now Web sites) making allegations about the hazards, ineffectiveness, conspiracies, and illegality of fluoridation. These materials are frequently made available to city councils when the adoption of fluoridation is being considered. This literature has often used half-truths, lies, and findings from various legitimate scientific articles taken out of context to make their claims. One of the earliest was that sodium fluoride, a rat poison, was being put into drinking water. This ignored the issue of dosage, which at optimal fluoridation levels is only 1 p.p.m. (equal to one drop of water in a bathtub full). Fluoridation at one time was claimed to be a communist plot to weaken U.S. citizens for an overthrow. Some believe fluoridation infringes on their rights of freedom of choice.

Opposition continues, even though more than 70 percent of Americans support fluoridation, according to public opinion surveys. Fluoridation is cost effective: every dollar spent on fluoridation saves $80 in dental treatment. Extensive peer-reviewed research over the last half century documents its continued benefits and safety.

At present nine out of ten Iowans, and two thirds of the U.S. population on public water supplies, have access to this proven public health measure. Nearly a hundred national and international organizations recognize fluoridation of community water as an effective means of preventing tooth decay. ❖

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