INTRODUCTION:

The history of community water fluoridation can be divided into four distinct general periods:

(1) The Clinical Discovery Phase;
(2) The Epidemiological Phase;
(3) The Demonstration Phase; and
(4) The Technology Transfer Phase.

CLINICAL DISCOVERY PHASE:

The first period, or CLINICAL DISCOVERY PHASE, occurred from approximately 1901 to 1933 and resulted in the discovery that compounds of fluoride occurring naturally in drinking water were responsible for a marked reduction in the amount of dental caries in children. Most of the early work on fluorides was conducted by private practice clinician Frederick McKay, academician G.V. Black, and chemist H. V. Churchill in Colorado.

EPIDEMIOLOGICAL PHASE:

The second period, or EPIDEMIOLOGICAL PHASE, occurred from approximately 1933 to 1945 and was characterized by Dean's quantification of the inverse relationship between fluoride levels in drinking water and the development of dental caries. After evaluation of the data, Dean and others eventually concluded that the optimal caries preventive benefits of water-borne fluoride occurred when fluoride levels were in the vicinity of 1.0 part per million.
Galagan and Knutsen further refined knowledge about the relationship of fluoride levels to caries prevention by also looking at the role of climate. Their work led to the U.S. Public Health Service's recommendation that fluoride levels in drinking water in the U.S. be established at 0.7 to 1.2 parts per million, depending on the calculated mean daily temperature for each community. At these levels, fluoride had the maximum caries-preventive effect without the objectionable side-effect of dental fluorosis. The EPIDEMIOLOGICAL PHASE culminated with the fluoridation of the community water supply for Grand Rapids, Michigan, on January 25, 1945.

DEMONSTRATION PHASE:

The third period, the DEMONSTRATION PHASE, occurred roughly from 1945 through 1954, and overlapped somewhat with the fourth period. The DEMONSTRATION PHASE was marked by the conduction of clinical trials that compared the dental and medical results of the fluoridation of Grand Rapids, Michigan's water supply with clinical findings from nonfluoridated Muskegon, Michigan. Similar comparisons were made in trials conducted between fluoridated Newburgh, New York, and non-fluoridated Kingston, New York; as well as between fluoridated Brantford, Ontario, and non-fluoridated Sarnia, Ontario. The early clinical data were so impressive that other cities began fluoridating before the classic trials were completed. Sheboygon, Wisconsin, and Midland, Michigan, fluoridated in 1946, and Evanston, Illinois, fluoridated in early 1947. While these three cities were ostensibly participants in continuing fluoridation studies, the print media record indicates that decisions to fluoridate were as much a part of a desire to assist the children as to be part of a scientific experiment. Even Muskegon, Michigan, the control city in the first clinical trial, began fluoridating before the trial was completed because its city fathers did not want to deny the demonstrated benefits of fluoridation to the city's children.
TECHNOLOGY TRANSFER PHASE:

The fourth and final period, the TECHNOLOGY TRANSFER PHASE, began about 1950 and continues today. It is marked by the national effort to implement water fluoridation in all American communities that have a communal water source where implementation is technologically feasible. Efforts to fluoridate American water systems involve a diverse array of agencies and organizations. Primary national promotional efforts have been coordinated by the U.S. Public Health Service through its Centers for Disease Control and Prevention. Many of the local efforts have occurred through activities of state and local health departments, as well as national, state, and local dental associations. In addition, many other health and public health organizations have teamed with private citizens, corporations, political action committees, and non-profit entities to successfully promote the adoption of fluoridation by state legislatures, municipal governments, public water boards, and private water companies.

BIBLIOGRAPHY:


