



Dental Public Health Activities & Practices

Practice Number: 17001
Submitted By: Oral Health Division, Indiana State Department of Health
Submission Date: May 2002
Last Updated: May 2002

SECTION I: PRACTICE OVERVIEW		
Name of the Practice: Indiana's Community Water Fluoridation Program		
Public Health Functions: Assessment – Use of Data Assurance – Population-based Interventions Assurance – Building Community Capacity for Interventions Assurance – Program Evaluation for Outcomes and Quality Management		
HP 2010 Objectives: 21-1 Reduce dental caries experience in children. 21-2 Reduce untreated dental decay in children and adults. 21-3 Increase adults with teeth who have never lost a tooth. 21-4 Reduce adults who have lost all their teeth. 21-9 Increase persons on public water receiving fluoridated water.		
State: Indiana	Region: Midwest Region V	Key Words: Community water fluoridation, water fluoridation, fluoride, community water, fluoridated water, fluoridation staff
Abstract: Indiana's water fluoridation program was initiated in 1951. Currently, Indiana is providing fluoridated water to over 4,300,000 people from 482 water systems throughout the state. A total of 96% of those individuals served by city water lines or who reside in areas with optimal levels of naturally-occurring fluoride are presently enjoying the tooth decay preventing benefits of fluoridated water. Data from four statewide studies conducted from 1960-1993 indicate a profound decline in caries during this period. Indiana's tooth decay rate has declined by 75% in the last 25 years.		
Contact Persons for Inquiries: Mark E. Mallatt, DDS, MSD, State Oral Health Director, Indiana State Department of Health, 2 North Meridian Street, Indianapolis, IN 46204, Phone: 317-233-7427, Fax: 317-233-7001, Email: mmallatt@isdh.IN.gov Daniel S. Cain, BS, REHS, Director of Water Fluoridation, Indiana State Department of Health, 2 North Meridian Street, Indianapolis, IN 46204, Phone: 317-233-7431, Fax: 317-233-7001, Email: dcain@isdh.IN.gov		

SECTION II: PRACTICE DESCRIPTION

History of the Practice:

Indiana started its fluoridation program in 1951 as a result of the data that was reported in the late 1940's from four classic studies initiated in 1945-1946 (Grand Rapids, MI -- Michigan, Newburgh, NY – Kingston, Evanston, IL – Oak Park, Brantford, Ontario – Sarnia). The first city to fluoridate in Indiana was Fort Wayne, followed by Indianapolis and Huntingburg. Additional cities followed throughout the 1950's and 1960's but it was not until the 1970's and 1980's that fluoridation became a priority of the Dental Division of the Indiana State Board of Health (now the Oral Health Division of the Indiana State Department of Health). Today, Indiana's fluoridation program reaches 4,300,591 people served by 482 water systems (96% of those individuals served by city water lines or who reside in areas with optimal levels of naturally-occurring fluoride). All cities and towns with a population of 5,000 or more have been fluoridated with the exception of 1 small town in southern Indiana.

Justification of the Practice:

Data from the studies initiated in the 1940's indicate that there was approximately a 60% difference in caries between the fluoridated cities and the control cities. Statewide surveys in Indiana conducted at ten-year intervals since 1960 have indicated a profound decline in caries since fluoridation was initiated. Countless other studies worldwide have confirmed the efficacy of fluoridated water in preventing tooth decay. More recently, a special Task Force in developing a Guide to Community Preventive Services strongly recommended water fluoridation after a systematic review of the scientific evidence on its effectiveness (MMWR November 30, 2001).

Administration, Operations, Services, Personnel, Expertise and Resources of the Practice:

Indiana has four full-time employees assigned specifically to fluoridation activities. Three field employees, assigned to different areas of the state, report to the Director of Fluoridation in Indianapolis who in turn reports to the State Oral Health Director. A specific portion of secretarial support and laboratory analysis is allocated for fluoridation. In case of an emergency or technical difficulty that a water plant may experience, the field fluoride specialist could be at their facilities within minutes or hours of the same day to correct the problem. Field staff perform over 1,500 site visits yearly and are constantly involved in monitoring and surveillance. All have taken the CDC basic and advanced fluoridation courses in Murfreesboro, TN. In addition, Indiana requires weekly samples for laboratory analysis rather than monthly sampling.

Budget Estimates and Formulas of the Practice:

The budget for the fluoridation effort is over \$220,000, including fringe benefits for employees. Although this program used to be covered by the Preventive Block Grant, it is now funded by MCH Title V funds. Laboratory personnel who perform fluoride analysis are state funded.

Lessons Learned and/or Plans for Improvement:

Indiana does not have a law making fluoridation mandatory but instead has been successful through the years by taking each city one at a time and assisting them by funding the equipment and technical assistance to come online. Currently, there is only one town left (with a population over 5,000) to fluoridate. Since most of the work has already been accomplished in Indiana, the focus now is to prevent the systems currently online from defluoridating.

Available Resources - Models, Tools and Guidelines Relevant to the practice:

- American Dental Association
- Centers for Disease Control and Prevention
- U.S. Public Health Service
- Indiana University School of Dentistry
- Association of State and Territorial Dental Directors
- American Association of Public Health Dentists

SECTION III: PRACTICE EVALUATION INFORMATION

Impact/Effectiveness

Does the practice demonstrate impact, applicability, and benefits to the oral health care and well-being of certain populations or communities (i.e., reference scientific evidence and outcomes of the practice)?

Indiana conducted statewide surveys of school children in 1960, 1971, 1982, and 1992. As the fluoridation program expanded, the number of defs and DMFS of the children decreased significantly. Indiana's tooth decay rate has declined by 75% in the last 25 years.¹ Overall, national residents of fluoridated communities experience 20-40% fewer carious lesions than non-fluoridated communities. There have been 150 studies worldwide that confirm the efficacy of water fluoridation.² A recent systematic review of scientific evidence by a special Task Force in developing a Guide to Community Preventive Services resulted in a strong recommendation of water fluoridation for its effectiveness (MMWR November 30, 2001).

Reference:

¹Mallatt, M.E.: Indiana Oral Health Survey, Final Report, Indiana State Department of Health

²Murray, J.J.: Efficacy of Preventive Agents for Dental Caries. Caries Res. 1993; (suppl 1):2-8

Efficiency

Does the practice demonstrate cost and resource efficiency where expenses are appropriate to benefits? Are staffing and time requirements realistic and reasonable?

Fluoridation is efficacious for all populations regardless of sex, race, or socio-economic status. The average cost of community water fluoridation is \$0.51 a year per person depending on the type of fluoride compound used and the population served. It has been calculated that the lifetime cost per person is less than the cost of a single restoration.

Demonstrated Sustainability

Does the practice show sustainable benefits and/or is the practice sustainable within populations/communities and between states/territories?

Indiana started its fluoridation program in 1951 and continues to target towns for fluoridation. Even with all the previous success, there are a few communities left to fluoridate. The main emphasis now is not to have any systems discontinue fluoridation. Once a city comes online with equipment and technical assistance, it is up to the community to cover the annual expense of the fluoride compound.

Collaboration/Integration

Does the practice build effective partnerships/coalitions among various organizations and integrate oral health with other health projects and issues?

The Indiana Dental Association, the Indiana State Department of Health, the Indiana University School of Dentistry, the American Dental Association, and Centers for Disease Control and Prevention have all contributed at one time or another to Indiana's fluoridation efforts. Interactions between school officials, Maternal and Child Health, Women, Infants, and Children, local dentists and physicians, local health departments, and local residents are essential for a successful fluoridation effort.

Objectives/Rationale

Does the practice address HP 2010 objectives, the Surgeon General's Report on Oral Health, and/or build basic infrastructure and capacity for state/territorial oral health programs?

The Indiana fluoridation program addresses at least five of the Healthy People 2010 oral health objectives:

- 21-1 Reduce dental caries experience in children
- 21-2 Reduce untreated dental decay in children and adults
- 21-3 Increase adults with teeth who have never lost a tooth
- 21-4 Reduce adults who have lost all their teeth

21-9 Increase persons on public water receiving fluoridated water

Extent of Use Among States

Is the practice or aspects of the practice used in other states?

Yes, particularly in the Mid-West and Southeastern states. Over 10,000 communities provide fluoridated water to approximately 160,000,000 citizens in the U.S. alone with 360 million people receiving fluoridated water worldwide.