



Dental Public Health Activity Descriptive Report Submission Form

The Best Practices Committee requests that you complete the Descriptive Report Submission Form as follow-up to acceptance of your State Activity Submission as an example of a best practice.

Please provide a more detailed description of your **successful dental public health activity** by fully completing this form. Expand the submission form as needed but within any limitations noted.

ASTDD Best Practices: [Strength of Evidence Supporting Best Practice Approaches](#)
Systematic vs. Narrative Reviews: <http://libguides.mssm.edu/c.php?g=168543&p=1107631>

NOTE: Please use Verdana 9 font.

CONTACT PERSON PREPARING THE SUBMISSION AND TO ANSWER QUESTIONS
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PROVIDE CONTACT INFORMATION FOR ONE ADDITIONAL PERSON WHO COULD ANSWER QUESTIONS REGARDING THIS PROGRAM
<p>Name: Sarah Tomlinson</p> <p>Title: Section Chief, Dental Director</p> <p>Agency/Organization: NC Department of Health and Human Services/Division of Public Health/Oral Health Section</p> <p>Address: 1910 Mail Service Center, Raleigh, NC 27609</p> <p>Phone: 919-707-5488</p> <p>Email Address: sarah.tomlinson@dhhs.nc.gov</p>

SECTION I: ACTIVITY OVERVIEW

Title of the dental public health activity:

School-Based Weekly Fluoride Mouthrinse Program

Public Health Functions*: Check one or more categories related to the activity.

"X"	Assessment
	1. Assess oral health status and implement an oral health surveillance system.
	2. Analyze determinants of oral health and respond to health hazards in the community
	3. Assess public perceptions about oral health issues and educate/empower them to achieve and maintain optimal oral health
Policy Development	
	4. Mobilize community partners to leverage resources and advocate for/act on oral health issues
X	5. Develop and implement policies and systematic plans that support state and community oral health efforts
Assurance	
	6. Review, educate about and enforce laws and regulations that promote oral health and ensure safe oral health practices
X	7. Reduce barriers to care and assure utilization of personal and population-based oral health services
	8. Assure an adequate and competent public and private oral health workforce
	9. Evaluate effectiveness, accessibility and quality of personal and population-based oral health promotion activities and oral health services
	10. Conduct and review research for new insights and innovative solutions to oral health problems

***[ASTDD Guidelines for State and Territorial Oral Health Programs that includes 10 Essential Public Health Services to Promote Oral Health](#)**

Healthy People 2020 Objectives: Check one or more key objectives related to the activity. If appropriate, add other national or state HP 2020 Objectives, such as tobacco use or injury.

"X"	Healthy People 2020 Oral Health Objectives
X	OH-1 Reduce the proportion of children and adolescents who have dental caries experience in their primary or permanent teeth
	OH-2 Reduce the proportion of children and adolescents with untreated dental decay
	OH-3 Reduce the proportion of adults with untreated dental decay
	OH-4 Reduce the proportion of adults who have ever had a permanent tooth extracted because of dental caries or periodontal disease
	OH-5 Reduce the proportion of adults aged 45 to 74 years with moderate or severe periodontitis
	OH-6 Increase the proportion of oral and pharyngeal cancers detected at the earliest stage
	OH-7 Increase the proportion of children, adolescents, and adults who used the oral health care system in the past year
	OH-8 Increase the proportion of low-income children and adolescents who received any preventive dental service during the past year
	OH-9 Increase the proportion of school-based health centers with an oral health component
	OH-10 Increase the proportion of local health departments and Federally Qualified Health Centers (FQHCs) that have an oral health component
	OH-11 Increase the proportion of patients who receive oral health services at Federally Qualified Health Centers each year

OH-12	Increase the proportion of children and adolescents who have received dental sealants on their molar teeth
OH-13	Increase the proportion of the U.S. population served by community water systems with optimally fluoridated water
OH-14	Increase the proportion of adults who receive preventive interventions in dental offices
OH-15	Increase the number of States and the District of Columbia that have a system for recording and referring infants and children with cleft lips and cleft palates to craniofacial anomaly rehabilitative teams
OH-16	Increase the number of States and the District of Columbia that have an oral and craniofacial health surveillance system
OH-17	Increase health agencies that have a dental public health program directed by a dental professional with public health training

"X"	Other national or state Healthy People 2020 Objectives: (list objective number and topic)

Provide 3-5 Key Words (e.g. fluoride, sealants, access to care, coalitions, policy, Medicaid, etc.) These will assist those looking for information on this topic:

Fluoride mouthrinse, fluoride, disparities, prevention, school based oral health, children services

Executive Summary: Complete after Section II: Detailed Activity Description. Please limit to 300 words in one or two paragraphs.

Provide a brief description of the dental public health activity. Include information on: (1) what is being done; (2) who is doing it and why; (3) associated costs; (4) outcomes achieved (5) lessons learned, both positive and negative.

The North Carolina Oral Health Section (NC OHS) funds a weekly school-based fluoride mouthrinse program (FMR) at no cost to NC school systems. The program consists of supervised weekly rinsing with a .02% sodium fluoride solution. Supervised regular use of fluoride mouthrinse has shown an average 23% reduction in decayed, missing and filled teeth among participating children, even if the children use fluoride toothpaste or live in water-fluoridated communities. NC schools with 60% or more of students eligible for the Free & Reduced Meals Program are eligible to participate. All classrooms of grades 1st through 5th/6th must participate to be compliant; kindergartners are not eligible. OHS public health hygienists identify schools eligible for enrollment and, once approved; provide training for each school's designated FMR coordinator. FMR supplies are ordered through the OHS, but school coordinators are responsible for safe storage and disposal of the fluoride, collection of necessary inventory information and also serve as the contact person for teachers and OHS hygienists.

Program evaluation is currently based on administrative procedures and processes, rather than health outcomes. However, a statewide school dental survey in 2003-2004 revealed the FMR program confers substantial caries-preventive benefits to children in high-risk schools when compared to those in low-risk schools. This study also justified the reinstatement of the FMR program in 2006 after it had been discontinued due to budget constraints. Program reinstatement presented challenges as new school eligibility criteria and ordering process were imposed. Effective and efficient communication between the OHS and participating schools regarding FMR ordering and receiving is an ongoing area of improvement.

In 2016-17, FMR program expenses were \$127,000, which covered approximately 48,000 participating students, or an average \$2.65 per student.

SECTION II: DETAILED ACTIVITY DESCRIPTION

Provide detailed narrative about the dental public health activity using the headings provided and answering the questions. Include specifics to help readers understand what you are doing and how it's being done. References and links to information may be included.

****Complete using Verdana 9 font.**

Rationale and History of the Activity:

1. What were the key issues that led to the initiation of this activity?

The fluoride mouthrinse (FMR) program was started in North Carolina (NC) to eliminate disparities in dental disease. Although often not thought of as a disease, tooth decay is the most common chronic disease of childhood and affects some groups of children more than others. According to the Centers for Disease Control and Prevention (CDC), the percentage of children and adolescents with untreated tooth decay is twice as high as for those from low income families (25%) as in higher income families (11%). It is the goal of the NCOHS to provide an opportunity for all its citizens to be healthy and free of dental disease. It is the philosophy of the North Carolina Oral Health Section (NCOHS) that prevention is the foundation to promote good oral health for these citizens. The NCOHS promotes the use of a weekly FMR program to eliminate or reduce disparities in tooth decay.

2. What rationale/evidence (may be anecdotal) did you use to support the implementation of this activity?

Due to clinical trials done in the 1960's and after a brief period of experimentation with other compounds, sodium fluoride became the standard and in the mid 70's, about the time the fluoride mouthrinse program was piloted in NC, large scale demonstration projects were being done in the U.S. The evaluations of weekly use were done with historical controls and show reductions in tooth decay (grades 1-6) of a mean of 34%, which is in line with what the NCOHS found after three years of the Wilson County pilot program. Once the pilot was shown to be successful, the program expanded statewide. In 1974, fluoride mouthrinses were approved by the Federal Drug Administration (FDA) as prescription agents. In 2002, due to budget cuts and lack of recent data on the effectiveness of the FMR program, it was decided that the FMR program would be discontinued. The rationale for re-implementing the program was based on the data collected during the statewide dental survey of school children in 2003-2004. The NCOHS, along with The University of NC School of Public Health conducted a comprehensive statewide survey which was funded through a CDC grant. The survey included a series of questions (30 question survey) to be answered by parents and a comprehensive clinical exam measuring DMF/df by a licensed dentist employed by the NCOHS. The survey was done specifically to evaluate the effects of community water fluoridation and school-based fluoride mouthrinse on the tooth decay experience of children in grades K-5 and their contribution to reductions in disparities in tooth decay experienced by NC schoolchildren. The NCOHS looked at the children's history of participation in the program and linked the information to each child's clinical findings. It showed that low income children (National School Lunch Program (NSLP) eligible) who participated in the FMR program had decay rates almost as low as higher income children who did not qualify for the NSLP. This showed that the program was an effective tool in reducing dental health disparities. In 2006 the NC General Assembly appropriated money to reinstate the program starting in January 2007.

3. What month and year did the activity begin and what milestones have occurred along the way? (May include a timeline.)

In 1974, an FMR program was piloted in NC at Winstead School in Wilson County. After three years a 34% reduction in decayed, missing, and filled permanent teeth was achieved. Through the support and community activities of the NCOHS staff, the program expanded and served approximately 420,000 children at its peak in the early 1990's. The program was available for Kindergarten through 5th grade and included 6th grade, if part of the elementary school. FMR from 1974-2002 consisted of a 0.2% Sodium Fluoride packet which was mixed with water in a plastic jug with a pump. Each student would receive a small cup with one pump of the FMR; rinse for one minute and expectorate. Napkins provided to the students absorbed the expectorated fluoride and it was disposed of in the regular trash. In 2002, the Oral Health Section discontinued the school-based Weekly Fluoride Mouthrinse Program. In large part this was due to the huge budget deficits experienced by state government in

NC. The 2003-2004 NC school dental survey revealed FMR is a benefit to children from low income families. The updated data was provided to the NC General Assembly who then appropriated the money for reinstating the program and in January of 2007 the program was re-implemented in some targeted schools across the state. The determination was made to target schools at 60% or more of the student population qualifying for the NSLP and as shown by the statewide survey in 2003-2004, low income students are the highest risk for decay. The program included 1st through 5th or 6th grade. It was decided that Kindergarten would not participate due to the swallowing reflex not being fully developed. Once reinstated, a pre-mixed weekly unit dose of 0.2% Sodium Fluoride delivered directly to the school replaced the old system of mixing and pumping, as well as the need to have NCOHS staff deliver supplies. The current strategic plan (2016-2026) states that one of the strategies of the NCOHS is to expand the FMR program to high risk elementary schools with 60% or greater number of children who participate in the NSLP.

The sections below follow a logic model format. For more information on logic models go to: [W.K. Kellogg Foundation: Logic Model Development Guide](#)

INPUTS	PROGRAM ACTIVITIES	OUTPUTS	OUTCOMES
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1. What resources were needed to carry out the activity? (e.g., staffing, volunteers, funding, partnerships, collaborations with various organizations, etc.)

The program is conducted in collaboration with the NC school systems. In the FY 2016-2017 the program required approximately 1,752 administrative hours statewide with an average of 70.08 hours per Regional Public Health Dental Hygienist (RPHDH). There are currently 25 RPHDHs employed by the NCOHS. Currently, the FMR program is paid for out of a Health Resources and Services Administration (HRSA) grant state match at 100% state appropriated funds and costs approximately \$143,000.00 per year. The program is supported by the NC Department of Public Instruction. Once a school is approved the RPHDH will contact the appropriate school personnel such as the school superintendent or a designee for permission to implement the program, as well as, the school principal. A plan is then implemented. Each participating school will have a school FMR coordinator who is responsible for ordering, safe storage and disposal, and collection of necessary inventory information. The school coordinator is trained by the RPHDH with protocols developed by the NCOHS in the School Based Weekly Fluoride Mouthrinse Program Manual. The school coordinator may be a school health nurse, teacher's assistant or some other designee of the school. This person will also serve as a contact person for the RPHDH and school personnel; working together as a team. The classroom teacher is responsible for monitoring, observing, and disposing of expectorated FMR, as well as, keeping track of which students are participating and how often the rinse is utilized.

INPUTS	PROGRAM ACTIVITIES	OUTPUTS	OUTCOMES
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2. Please provide a detailed description the key aspects of the activity, including the following aspects: administration, operations, and services.

The RPHDH carefully reviews the School Based Weekly Fluoride Mouthrinse Manual and protocol. Only schools with 60% or more children eligible for the NSLP, who receive suboptimal naturally occurring or adjusted fluoride, are selected and all classrooms must participate. Forms and paperwork include:

1. Fluoride Mouthrinse Guidance for Schools (overview of the program)
2. Permission forms (a signed permission form must be obtained for all students participating)
3. Rosters (teachers use this to track weekly use and number of weeks rinsed)
4. Misuse protocol (reviews safety issues)
5. Safety Assessment (to be completed by the principal and the school coordinator)
6. Ingredients for the Premixed Unit Dose (lists ingredients)
7. FMR consumption amounts (outlines number of cups a child must swallow before harm or a lethal dose)
8. School Fluoride Mouthrinse-Coordinator Supply Form (to order supplies)
9. FMR Order Blank Form (for the RPHDH to order forms for schools)

In preparation for implementing the FMR program in a school, the RPHDH will do a presentation about the FMR program during a principal and teacher meeting. During the meeting the RPHDH will review the history of the program, distribute samples of forms, review and demonstrate the

procedure, and review/emphasize safety. The time needed for the classroom to rinse is approximately five minutes per week. Record keeping is to be done by the teacher. Safety is emphasized always, and teachers are required to keep dose cups under lock and key if stored for any time in the classroom. The RPHDH will work with the school principal to identify an individual who will serve as the School Fluoride Mouthrinse Coordinator. That person will complete the Safety Assessment and work with the principal and teachers to identify a day to rinse each week. The coordinator works to assure that the rinse is stored in a locked, climate-controlled area and oversees maintaining the inventory of students participating in the program. The school coordinator also oversees placing orders for the FMR. The FMR is shipped directly to the school in cases of 288 individual unit dose cups of premixed 0.2% Sodium Fluoride solution, plus napkins and waste bags. Orders are placed by fax or by email to the administrative assistant in the central office of the NCOHS. The school must send by email or fax a signed packing slip to show they have received delivery of the supplies. The RPHDH will check with the school coordinator periodically to address problems as needed. An inventory of students participating is due in the fall of each school year. This is used to determine numbers of students across the state utilizing the program. The rosters are picked up by the RPHDH at the end of the school year and teachers may evaluate the program at that time via a written [Fluoride Mouthrinse Evaluation form](#). The school may receive a Certificate of Recognition for 100% participation or a Certificate of Appreciation for successfully participating in the program.

INPUTS	PROGRAM ACTIVITIES	OUTPUTS	OUTCOMES
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3. What outputs or direct products resulted from program activities? (e.g., number of clients served, number of services units delivered, products developed, accomplishments, etc.)

- 2006-2007** (the year re-implemented)
 - 48,000 NC school children participated
- 2007-2008**
 - 48,000 NC school children participated
- 2008-2009**
 - 76,944 NC school children participated
- 2009-2010**
 - 75,361 NC school children participated
- 2010-2011**
 - 51,910 NC school children participated
- 2011-2012**
 - 55,526 NC school children participated
- 2012-2013**
 - 46,866 NC school children participated
- 2013-2014**
 - 46,068 NC school children participated
- 2014-2015**
 - 42,563 NC school children participated
- 2015-2016**
 - 54,622 NC school children participated
- 2016-2017**
 - 47,820 NC school children participated

Outputs are determined by teachers completing rosters of participating children and checking off each week that the class participates. Rosters are turned in at the end of each school year.

INPUTS	PROGRAM ACTIVITIES	OUTPUTS	OUTCOMES
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4. What outcomes did the program achieve? (e.g., health statuses, knowledge, behavior, care delivery system, impact on target population, etc.) Please include the following aspects:
- a. How outcomes are measured
 - b. How often they are/were measured
 - c. Data sources used
 - d. Whether intended to be short-term (attainable within 1-3 years), intermediate (achievable within 4-6 years), or long-term (impact achieved in 7-10 years)

Currently, the NCOHS measures the program by procedure and process and not by actual health outcomes. However, the 2003-2004 statewide school dental survey showed the weekly use of the FMR program is an effective tool in preventing tooth decay in low income children (NSLP eligible), thus providing the data to evaluate/target the program. The survey was done in partnership with UNC Gillings School of Global Public Health and with a grant from CDC. The long-term use of FMR is meant to have a long-term impact on the target population (children considered high risk). According to the survey the effects were negligible in low risk children (not NSLP eligible).

Budgetary Information:

NOTE: Charts and tables may be used to provide clarity.

1. What is the annual budget for this activity?

The annual budget for this activity is \$143,000. This covers the cost of the 0.2% Sodium Fluoride pre-mixed weekly unit dose which comes in a case of 288 doses, along with, napkins and plastic bags for disposal. Fluoride mouthrinse is shipped directly to the school; shipping is included. The cost per student is approximately \$3.00 per student per year.

2. What are the costs associated with the activity? (Including staffing, materials, equipment, etc.)

In the FY 2016-2017 the program required approximately 1,752 administrative hours statewide with an average of 70.08 hours per RPHDH; a reasonable and realistic use of staff hours.

3. How is the activity funded?

Currently, the FMR program is paid for out of a HRSA grant state match at 100% state appropriated funds. This pays the manufacturer to provide and deliver single unit doses in cases of 288 doses to participating schools. Cases also contain plastic bags for use in dispensing doses and for disposal of expectorated rinse, as well as, napkins.

4. What is the plan for sustainability?

Due to current data being presented about the effectiveness of a weekly school-based FMR program, in 2006 the NC General Assembly appropriated the money needed to reinstate the program, showing their commitment to the high-risk children and schools in NC.

Lessons Learned and/or Plans for Addressing Challenges:

1. What important lessons were learned that would be useful for others looking to implement a similar activity? Was there anything you would do differently?

Through the statewide school dental survey, results showed that FMR does work for low income children who use it consistently and long-term. Prior to the survey, funding for the program was discontinued and therefore the program was removed from the schools. Targeted use is the most effective and the best use of resources (funding and staff).

2. What challenges did the activity encounter and how were those addressed?

Prior to discontinuing the program, challenges were primarily limited to compliance issues at the school level. Program reinstatement presented challenges: getting back into school systems that had previously participated and because the program was no longer open to all schools, but only high-risk schools. Also, ordering supplies is the responsibility of the schools, whereas prior to the reimplementation, the NCOHS ordered and delivered supplies. The change in ordering protocol has created some challenges. For the manufacturer to receive payment from the NCOHS, packing slips must be signed by school personnel receiving the order and returned to show that their shipment arrived. It has been difficult at times to get packing slips from the school. The NCOHS is continually working to streamline the process.

Available Information Resources:

Share any models, tools, and/or guidelines developed by the program specifically for this activity that may be useful to others seeking additional information. Hyperlink resources if possible.

[Fluoride Mouthrinse Evaluation form](#)

Divaris, K., Rozier, R., & King, R. (2012). *Effectiveness of a School-based Fluoride Mouthrinse Program*. J Dent Res 91 (3) .

Researchers visit NC Classrooms to gauge dental health of state's youngsters. (2004, Spring). *Carolina Public Health*. Chapel Hill, NC: School of Public Health: The University of NC at Chapel Hill.

Steven M. Adair, D. M. (1998). The role of fluoride mouthrinses in the control of dental caries: a brief review. *Pediatric Dentistry* , 101-104.

Marinho, V. C., Chong, L. Y., Worthington, H. V., & Walsh, T. (2016). Fluoride mouthrinses for preventing dental caries in children and adolescents. *The Cochrane Library*. <http://cochranelibrary-wiley.com/doi/10.1002/14651858.CD002284.pub2/full>

TO BE COMPLETED BY ASTDD	
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