



Dental Public Health Activity Descriptive Report Submission Form

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.

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SECTION I: ACTIVITY OVERVIEW

Title of the dental public health activity:

Prenatal Oral Health Program (pOHP)

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

"X"	Assessment
X	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
X	3. Assess public perceptions about oral health issues and educate/empower them to achieve and maintain optimal oral health
Policy Development	
X	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
X	9. Evaluate effectiveness, accessibility and quality of personal and population-based oral health promotion activities and oral health services
X	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
X	OH-2	Reduce the proportion of children and adolescents with untreated dental decay
X	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
X	OH-7	Increase the proportion of children, adolescents, and adults who used the oral health care system in the past year
X	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
X	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)	
X		North Carolina Collaborative Practice Framework 2018 (https://publichealth.nc.gov/oralhealth/docs/NCOH-PracticeGuidelines-Revised120618-WEB.PDF)

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:

Access to care, pregnancy, interprofessional collaboration, education, prenatal oral health

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.

Though it is well established that there is a relationship between maternal and child oral health, and between periodontal disease and pre-term labor, low birth weight, and various systemic conditions, many pregnant women lack adequate access to dental care. A lack of prenatal oral health training in dental and medical education programs exacerbates this public health issue. The Prenatal Oral Health Program (pOHP) began as a public health initiative to improve access to oral health care for pregnant women, while simultaneously promoting comprehensive prenatal oral health training in dental and medical schools.

Dental students at the University of North Carolina (UNC) undergo pOHP training during their 3rd year. They participate in an orientation, followed by clinical rotations in which they assess and treat pregnant women. Medical students at UNC are also provided with pOHP training and are taught to provide oral screenings. Medical providers in the community participate by providing oral screenings to pregnant patients and referring them for dental treatment when necessary.

Though this program exists primarily at UNC, it is well adapted for use at other locations. Further, it represents a model that may be applied to other clinical programs. The pOHP patients are cared for at UNC similarly to other patients in the school and therefore the program is sustained with minimal additional costs related to management, training, and advertising for the program. The pOHP has enhanced student prenatal oral health knowledge and behaviors and has demonstrated that oral screenings by medical students can result in a greater likelihood of dental referrals for pregnant women.

Recent studies evaluating the pOHP have demonstrated that it is most effective when integrated into the general dentistry clinic and implemented early in the dental curriculum with various interprofessional experiences to reinforce ideas and concepts. The largest barrier to pOHP implementation has been a high no-show rate with this patient population.

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?

In fall of 2012, UNC began to implement the pOHP as a result of increased awareness about the lack of standards for the provision of prenatal oral health care to pregnant women. At the time, dental and medical education did not include prenatal oral health components. The pOHP initiative began not only to increase access to care for pregnant women in underserved populations, but also to improve dental and medical students' knowledge about prenatal oral health. Implementation coincided with the release of *Oral Health During Pregnancy: A National Consensus Statement* in 2012. The national consensus statement promotes appropriate and standardized oral healthcare for women during pregnancy.

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

Epidemiological studies within the last decade have demonstrated a gap in oral health knowledge and access to dental care for pregnant women, particularly in underserved populations.¹ Given that many low-income pregnant women are eligible for Medicaid, pregnancy represents an ideal time for this population of women to enter the oral healthcare system. Furthermore, oral health is particularly important during pregnancy, which is accompanied by various hormonal and physiological changes that can increase susceptibility to oral disease. Oral disease during pregnancy can affect the overall health of both the mother and the child.¹ Promotion of regular dental visits and oral health education for this population therefore provides an opportunity to control existing dental caries and promote healthy habits and prevent future oral disease for both the mother and child. For these reasons, the pOHP was implemented. Another driving factor for the program was the lack of prenatal oral health education in dental, medical, and obstetrics and gynecology residency curricula. The pOHP aims to standardize prenatal oral health care education, enhancing prenatal oral health training for dental students as well as increasing the number of dental referrals from medical providers for pregnant women who need it.

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

- Fall 2012 – The pOHP was introduced at UNC for dental students as a stand-alone clinic for 4th year dental students; the first pOHP oral health lecture with third-year medical students occurs at UNC.
- Winter 2012 – *Oral Health Care During Pregnancy: A National Consensus Statement* released to promote adequate and standardized oral health care for pregnant women.
- Spring 2013 – The New York Times published an article highlighting the pOHP.
- Fall 2014 – A case manager was assigned to the pOHP to streamline patient flow; Dental hygiene students were incorporated into pOHP, promoting interprofessional collaboration.
- Winter/Spring 2015 – The pOHP was moved from being a stand-alone clinic to being integrated with the general dentistry clinic; the pOHP was shifted to a 3rd year DDS program; East Carolina University implemented the pOHP.
- Spring 2016 – A 3-year retrospective analysis of the pOHP clinic was completed; interprofessional educational experiences began, promoting collaboration between DDS and MD students at UNC.
- Spring 2018 – Medical education lecture shifted to an online virtual application across 3 sites. A social application known as "GroupMe" was employed to allow communication between medical and dental students.

- Summer 2019 – A retrospective analysis was completed, evaluating program infrastructure and describing all lessons learned (manuscript in progress).

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.)

When the pOHP began as a stand-alone clinic, it required its own staff, faculty, and resources. This became unsustainable and the pOHP was integrated into the general dentistry clinic in 2016. As a result, other than the patient care coordinator the pOHP does not require additional staff or faculty. The faculty in the general dentistry clinic however must be supportive and aware of the program for it to be most effective. The program requires minimal to no additional faculty and staff salary funding to function, though it did require funds when first implemented. Patients pay for services provided. The program uses volunteers (student, faculty, and staff) who regularly meet and work to continuously assess and develop the program.

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 administrative side of pOHP is maintained by a patient care coordinator (PCC), who is responsible for managing and scheduling all pOHP patients, assigns each patient to a dental student, and is the contact for patients if they have any questions or concerns. Once the patient is assigned to a student, the student becomes part of the process of scheduling and managing. The PCC ensures that each 3rd-year student has a pOHP rotation and manages all pOHP experiences for students.

The pOHP orientation for dental students is operated by pediatric dentistry faculty, however the clinical aspect of the program is embedded within the general dentistry clinic. The pediatric faculty developed the program, and therefore are responsible for teaching a pOHP introductory session to DDS students at the beginning of their 3rd year. The students then go through pOHP rotations during their 3rd year, in which they diagnose, educate, and treat pregnant women under the supervision of faculty. Dental hygiene students assist dental students with appointments and provide cleanings when schedules permit. On the medical side, primary care physicians and gynecologists in the community are versed in pOHP and taught by UNC dental affiliates to provide oral screenings and dental referrals to the UNC School of Dentistry for their pregnant patients who do not already have a dental home. The pOHP also provides lectures and education on prenatal oral health to medical students. Student and faculty volunteers from the dental school assist with educating the medical students. Incorporating dental, dental hygiene, and medical students, as well as physicians in the community promotes interprofessional collaboration and enhances care for patients.

Services provided to patients include all services provided by the UNC School of Dentistry, such as preventive, diagnostic, restorative, oral surgery, endodontic, prosthodontic, and periodontal treatments as needed.

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.)

Number of pOHP referrals made in 2012-2013 = 126
 Number of pOHP patients seen in 2012-2013 = 55
 Number of active pOHP patients from 2015-2017 = 208
 DDS students who received the pOHP orientation training session in 2017 = 100% (N=84 DDS Students)

Additional outputs: Increase in dental referrals for pregnant women, enhanced prenatal oral education in medical and dental curricula, an increase in oral examinations performed by primary care providers.

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)

Retrospective analyses of the program have demonstrated the following:

- The program positively and significantly influences student behaviors and attitudes regarding prenatal oral health.
- The program has demonstrated that clinical examinations of a woman’s mouth for signs of dental disease results in a greater likelihood of dental referrals by 26.5 times.
- Implementing prenatal oral health via an interdisciplinary approach can promote interprofessional collaboration and can enhance education.
- During the first year of implementation, the program resulted in 126 dental referrals. Of these referrals, 55 women presented for care. That year, 50% of the dental students in the 3rd-year cohort were able to have a clinical pOHP experience.
- The program functions best in an integrated clinic model early in the dental school curriculum.
- Dental students rank their prenatal oral health training to be better following clinical pOHP experiences, as compared to students who did not have a clinical pOHP experience.
- The pOHP has developed a culture of change regarding the way we treat pregnant women.

The pOHP is under ongoing observation and analysis by a group of dedicated students, staff, and faculty members who meet monthly to assess and further develop the program. Surveys and focus groups are used regularly to measure outcomes. Outcomes assessed include student knowledge, behaviors, and attitudes as well as patient numbers and outreach. This program has already increased access to care for this vulnerable population and prenatal oral health education for dental students, and we hope to continue to expand and develop the program to further enhance outcomes. Though much of the data described in this report is from 2012-2013, future manuscripts will provide an update on numbers as well as a detailed report on infrastructure and development.

Budgetary Information:

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

1. What is the annual budget for this activity?

When the pOHP began, Blue Cross Blue Shield (BCBS) of North Carolina Foundation provided \$3000 to initiate the project. Funds were used for website development and the creation of educational materials to be utilized in clinic. Remaining funds were used to assemble a focus group, to assess the development of pOHP including advantages and disadvantages of models and techniques employed throughout the tenure of the program. The pOHP currently does not have separate funding or a budget and is sustained within the general dentistry clinic at UNC.

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

There are no costs associated with daily maintenance of the program other than faculty and staff salaries (including the patient care coordinator), and overhead of which is already covered via University salaries. The school’s Dental Foundation funds do sustain the annual maintenance fees of the website.

3. How is the activity funded?

The pOHP was initiated via funds provided by BCBS of North Carolina Foundation, however there is no current funding for the program. It is sustainable within the general dentistry clinic at UNC, though

additional funds could benefit the program by making it more accessible to patients and enhancing components such as advertisement.

4. What is the plan for sustainability?

The pOHP team consists of students, staff, and faculty who meet monthly to continue to develop and assess the program. The program functions without a need for additional funding, and therefore can be sustainable in any school system with adequate support from colleagues involved.

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?

Observational analysis of the program has demonstrated that this particular program functions best when integrated into the general dentistry clinic, provided early in the DDS curriculum, managed by a PCC, and supplemented with interprofessional experiences. The greatest barrier, as mentioned early, has been the low number of referred pOHP patients who show up for their appointments. This is a constant challenge that the pOHP team continues to address and hopes to conquer, keeping in mind that a main goal of pOHP is to provide all dental students with at least one prenatal clinical experience. Support from faculty is also important for the pOHP to be as effective as possible and may require more faculty calibration than originally thought. Calibration is necessary to ensure all faculty are teaching the same pOHP values and that the structure and flow of each pOHP appointment is the same.

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

One challenge encountered by the program shortly following its implementation was the lack of faculty engagement. The pOHP clinic began as a stand-alone clinic and not all faculty were willing to participate given their lack of comfort in caring for pregnant patients, a message learned in previous years of dental education. The pOHP later became integrated into the general dentistry clinic, promoting the participation of all clinic faculty. This addressed the barrier, though further efforts are necessary to continue to more broadly engage all faculty. Faculty opposition has been a problem, likely because faculty are focused on their day-to-day tasks and roles and are hesitant to add to their daily duties. More education to familiarize faculty with pOHP ideals and knowledge could help to address this challenge. More education would allow faculty to realize that pOHP patients should not add to their roles or duties, as they should be treated like any other patient in clinic. Though the protocol for a pOHP patient is slightly different than that of a patient who is not pregnant, the educational material should be seen as a resource to make the appointment more effective and efficient, not more difficult for the provider or faculty.

Another challenge was that when the pOHP was implemented for the 4th-year students, it was difficult to engage the students who were focused on their graduation requirements. Moving the pOHP to 3rd-year addressed this issue, as well as provided the students with more opportunities to see and treat pregnant patients.

The greatest barrier faced by the pOHP program is the low number of pOHP patients, considering the fact that a major goal of the program is for all students to have an experience with the prenatal population. The low patient number combined with the high number of no-shows creates a challenge in exposing all students to the program. Though pOHP has resulted in many dental referrals for pregnant women by their primary care providers, many of these women fail to follow through with the referral and are likely to not show for their scheduled dental appointment. All patients who enter the program must have a social security number and must be enrolled in Medicaid, which is another barrier to access of care for this population. As a result of these various factors, this clinic has operated more as a safety net, attracting patients who have often not had dental care for many years. The pOHP team is currently working to increase pOHP patient attendance by providing education to the local community regarding the importance of oral health during pregnancy as well as enhancing advertisement for the program. An additional possible solution to this would be to have dental students accompany providers in the medical school when they see pregnant women. This would allow for active engagement between the patients and the dental providers, emphasizing the importance of oral health and encouraging dental visits.

An ongoing challenge outside of the program’s control is that dental Medicaid benefits in the state of North Carolina, specifically for pregnant women, end at delivery. It is difficult for dental students to complete all treatment during this narrow period, due to their busy schedules. Ideally, all control phase components of the treatment plan would be completed prior to birth as a benefit to the mother and child and to take advantage of the benefits. Continuity of care for these patients is important and the dental school should make every effort to complete the treatment plans for these patients, even if they extend beyond the Medicaid-covered period, after the child has been born.

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.

Resources and information for both patients and providers available at the pOHP website (<http://www.prenataloralhealth.org>). Sign up as a provider to receive updates and current news briefs relevant to prenatal oral health. The website also includes informational handouts, videos, articles, and provider information.

More information on oral health care during pregnancy has been provided by the NCDHHS Division of Public Health, and is outlined in the 2018 North Carolina Collaborative Practice Framework: (<https://publichealth.nc.gov/oralhealth/docs/NCOH-PracticeGuidelines-Revised120618-WEB.PDF>).

Previously published pOHP-relevant literature can be found via the following links:
<https://www.ncbi.nlm.nih.gov/pubmed/30286261>
<http://www.jdentaled.org/content/81/12/1405>
<https://www.ncbi.nlm.nih.gov/pubmed/25729017>

References:

1. Committee Opinion No. 569: oral health care during pregnancy and through the lifespan. (2013, August). Committee Opinion No. 569: oral health care during pregnancy and through the lifespan. <http://doi.org/10.1097/01.AOG.0000433007.16843.10>

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