

The Road to Oral Health Equity in North Carolina

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TABLE OF CONTENTS

Welcome	1
Community Water Fluoridation – An Easy Solution	2
Has the Pandemic Taken a Toll on Children’s Oral Health? The Answer is Currently Unclear.....	3
Supporting Oral Health Literacy in Our Communities.....	4
A Silver Lining to the COVID-19 Pandemic.....	5
An Interview with Dr. Rhonda Stephens, Dental Public Health Residency Director.....	6

Welcome

NORTH CAROLINA ORAL HEALTH SECTION

The Oral Health Section has been eager to release its third *On the Road to Oral Health Equity* newsletter! Over the past two years, the COVID-19 pandemic has overshadowed all aspects of life and tested humanity. At the same time, the pandemic has further highlighted the need for the important work being done to improve oral health outcomes for all North Carolinians. With many dental offices, adult care homes and child care facilities unable to provide oral health services, OHS found it imperative to offer additional support to our community partners. In early 2021, OHS released two *Oral Health Guidance During COVID-19* documents, one for caregivers of residents living in adult care facilities and one for child care providers and families. Efforts to reinforce these messages in alignment with OHS dental public health programs are ongoing.

Expansion of our dental public health programs continues to support the continuum of care across the lifespan. Research shows that individuals with intellectual and development disabilities (I/DD) often have poorer oral health when compared to the general population. The good news is research also shows training direct care staff in oral hygiene and behavioral support improves oral hygiene and cooperation in people with I/DD. OHS took this knowledge as an opportunity to develop and launch a new I/DD oral health program targeting Direct Support Professionals who engage in direct toothbrushing or oral care. We are excited to support and serve the I/DD caregivers as valuable oral health allies!

Another exciting happening is the promotion of Dr. Rhonda Stephens from Public Health Dentist to Residency Director. Although the Division of Public Health has sponsored the residency program since 1965, the Residency Director position is new to OHS. In her new role, Dr. Stephens will have a greater opportunity to impact North Carolina’s vulnerable population groups by training and developing public health dental professionals to bring community-based care to those that need it most. Additionally, she will oversee the Oral Epidemiology program responsible for directing and supporting dental public health program growth opportunities. Get the entire scoop on page 7.

Finally, the practice of dentistry will start looking a little different in North Carolina. In late July, Governor Cooper signed Senate Bill 146 into law, formalizing several changes to the Dental Practice Act. The first change outlines teledentistry practice requirements for dentists and dental hygienists practicing under the direction of a dentist. Effective October 1, dental hygienists meeting requirements set forth by the statute will be able to administer local anesthetic using infiltration and block methods under direct supervision. Efforts to expand the workforce are also included in the new law. Federally Qualified Health Centers are now eligible to employ public health dental hygienists and there are new opportunities for foreign trained dentists to obtain a North Carolina dental license. What an exciting time for oral health equity advancement in North Carolina!



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**

Community Water Fluoridation – An Easy Solution

Steve McCarter • President, KC Industries • American Water Works Association Committee Member
Dianna Hall, RDH • North Carolina Oral Health Section

Teeth are important. They help us eat, talk, and smile. We all love beautiful, healthy teeth. Healthy teeth also directly contribute to good oral health, which directly contributes to overall health. What is the easiest way to keep our teeth healthy? The answer is fluoride.

Fluoride is a naturally occurring mineral found in bones and teeth. It is also found naturally in water, plants and even in many foods we consume. Without even knowing, we can strengthen our teeth everyday by drinking a glass of fluoridated water. Sadly, there are several communities in North Carolina that do not have this option. Larger cities add fluoride to their water systems in a process called community water fluoridation, while some counties have naturally occurring fluoride in their water already. For areas that do not have either, or who may be unable to integrate into a larger water fluoridation system, there is now a solution. KC Industries has collaborated with the Centers for Disease Control and Prevention to develop an easily accessible, affordable solution called “New Wave fluoridation tablet and feeder system.” Quoting the American Dental Association, “it’s a game changer” for small communities to have a cost-effective access to daily fluoride.¹

Steve McCarter, President of KC Industries, highlighted several important facts regarding community fluoridation, its importance and the New Wave fluoride system:

Water with fluoride is safe to drink

Fluoride is a mineral known to be safe and effective at preventing tooth decay. In a 24-hour time frame, adults would need to drink 1,220 glasses of fluoridated water to reach a toxic dose. Comparable high numbers of glasses for teens and children would have the same effect. For infants zero to six months old, it would take approximately 140 glasses to reach a toxic dose. Reaching these levels is nearly impossible for any age group, because



a toxic dose of water would be reached long before a toxic dose of fluoride.²

Drinking fluoridated water has several benefits

Fluoride in the water is the most effective way to prevent the most common childhood disease, tooth decay. The CDC says community water fluoridation prevents at least 25% of tooth decay in children and adults.³ It not only prevents tooth decay but it can slow down or stop the decay process.

Natural and synthetic sources of fluoride are beneficial

It is both safe and beneficial to drink water that has naturally occurring fluoride or added fluoride. The tablets that we use are not synthetic. They are made from natural fluoride.

The New Wave fluoridation feeder and tablet system will not stain your teeth

Too much fluoride swallowed during the early childhood years can cause teeth discoloration. However, New Wave is not designed to discolor teeth, because only the optimum amount of fluoride goes into the water system. The CDC deems the optimal amount is 0.7ppm for the prevention of tooth decay.

The New Wave fluoride tablet system is cost effective

For a community of 5,000, it only costs about 0.85 - 0.95 cents per person per year. This is much lower than the cost of getting even one cavity fixed at the dentist.

With over 75 years of evidence supporting community water fluoridation, it remains one of public health’s top ten greatest achievements. The New Wave tablet feeder system is a realistic solution for communities previously facing cost or other barriers to community water fluoridation access. Questions or inquiries about the system can be answered by KC Industries directly by emailing them at inquiries@kcindustries.com.

¹ American Dental Association. (2020). Innovations: New community water fluoridation system is ‘game changer,’ advocates say. ADANews. Retrieved from www.ada.org/en/publications/ada-news/2020-archive/december/new-community-water-fluoridation-system-is-game-changer.

² National Fluoridation Information Service of New Zealand. (2013). How many glasses of fluoridated water can I drink? Retrieved from www.health.govt.nz/system/files/documents/pages/ontap8-dec2013.pdf.

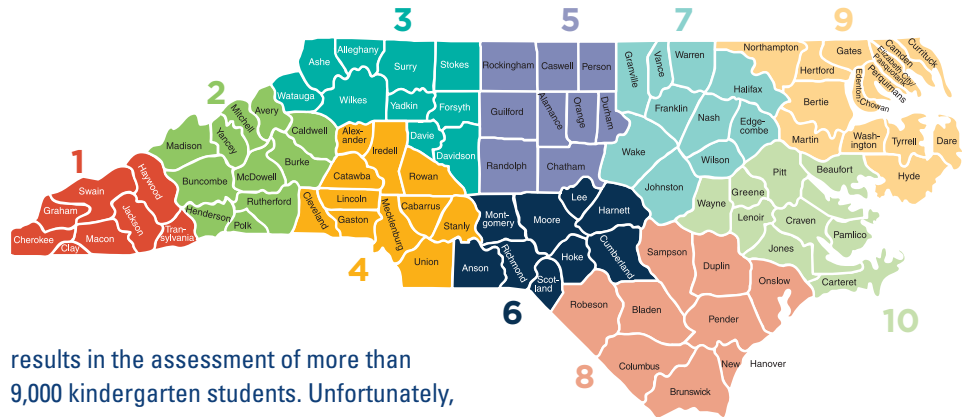
³ Centers for Disease Control and Prevention. (2020). Community water fluoridation. Retrieved from www.cdc.gov/fluoridation/index.html.

Has the Pandemic Taken a Toll on Children’s Oral Health? The Answer is Currently Unclear.

Rhonda Stephens, DDS, MPH • Diplomate, American Board of Dental Public Health • North Carolina Oral Health Section

The onset of the COVID-19 pandemic and states of emergency declared across the country in 2020 resulted in widespread protective actions to prevent the spread of the virus. Among the many actions imposed in North Carolina the closure of K-12 schools and strong recommendations that dental practices postpone elective, routine and non-urgent care were of particular concern among oral health professionals. These actions had potential impact on children’s oral health and access to dental services. The inability to receive routine exams, dental sealants, fluoride treatments and other preventive care in dental offices or through school-based programs could lead to more children with tooth decay and/or more severe levels of tooth decay. In fact, some NC dental professionals have anecdotally reported seeing greater decay among their pediatric patients.

Monitoring oral disease in NC kindergarten students is a critical function of OHS. Data on untreated tooth decay are collected annually on students from a systematic selection of schools within each of the 10 local health department regions (as shown in the map). This annual survey typically



results in the assessment of more than 9,000 kindergarten students. Unfortunately, the pandemic limited access to schools and students for the 2020-21 academic year and fewer than 3,000 kindergartners participated.

Monitoring pre- and post-pandemic trends in untreated decay by region, race and ethnicity will clarify the impact of the pandemic on children’s oral health. The below tables show the rate of untreated decay among NC kindergartners in the years preceding the pandemic and the year of pandemic onset. Differences in rates by region, race and ethnicity existed long before COVID-19. However, given the incomplete sample of schools assessed in 2020-21, caution should be exercised when comparing 2020-21

rates to other years and attempting to make conclusions about the impact of the pandemic. Furthermore, because visible tooth decay takes time to develop, the full impact of the pandemic on children’s oral health may not materialize until possibly two or more years after the pandemic’s onset. As pandemic response and recovery efforts continue, and access to schools and students for data collection improves, OHS will continue to monitor and report these data to inform program planning, policy development, research and other activities that seek to improve children’s oral health and reduce disparities.

Region	Year			
	2017-18	2018-19	2019-20	2020-21 [^]
1	15	13.3	13	17.4
2	19.8	17.9	14.9	17.1
3	18.9	18.1	15	14.7
4	11.1	12.2	11.3	n/a
5	18.3	16.6	16.8	18.7
6	17.8	16.5	24.1	16
7	11.9	15.7	14.8	15.2
8	14.9	13.7	14.1	9.3
9	21.9	18.7	16.8	16
10	16.8	21.4	18.8	21.6
State	15.7	16	15.3	16.3

	Year	
	2017-18	2020-21 ⁺
Statewide		
American Indian/Alaskan Native	23.9	28.1
Asian	25.5	32.7
Black/African American	19.2	20.3
Native Hawaiian/Pacific Islander	17.6	*
White	12.6	12.7
Hispanic	16.5	19.6
Multiracial	17.4	16.4
Unknown/Other	16.7	17.9

[^] Reflects partial sample to due COVID-19 barriers. Data is not statewide nor regionally representative, therefore extreme caution should be used when comparing to other years and making inferences about oral disease trends. ⁺ Race & Ethnicity data were unavailable for 2018-19 and 2019-20. * Counts less than five (5) are suppressed to protect individual identity.

Supporting Oral Health Literacy in Our Communities

Emily Horney, MHA, RDH • North Carolina Oral Health Section

Over two decades after the release of the 2000 Surgeon General's report on oral health in America, early childhood tooth decay (caries) remains the most common chronic disease among children. While this disease is largely preventable, approximately 40% of North Carolina's children enter kindergarten having experienced tooth decay, 15% being untreated.⁴ African American and Hispanic children are twice as likely to experience untreated tooth decay, indicating major disparities in the disease process. Poor oral health not only affects a child's nutrition, growth and development, and quality of life but can also lead to infection, pain, and in severe cases, death. Social Determinants of Health such as access to care, socioeconomic status, environmental factors and education level can greatly influence oral health across the lifespan starting even before tooth eruption.

SDOHs, health literacy and health outcomes for young children are all interrelated. Defined as "the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others," health literacy has been a Healthy People objective since 2010.⁵ With a greater emphasis on health equity, organizational health literacy has been added as an important component of the Healthy People 2030 framework. The updated framework now highlights the role systems and organizations play in providing and disseminating important health information in a manner that is both culturally competent and easily understood.

Much like efforts to expand health literacy, improving oral health literacy requires a collaborative approach between families, health care providers and the community.

Children are more likely to experience tooth decay if parents or caregivers have low oral health literacy levels.⁶ Understanding and receiving dental care can be scary, especially for parents, caregivers, and young children. Dental terminology alone can make the process difficult to navigate from the start. In addition, dental anxiety and a general lack of understanding of the consequences of poor oral health behaviors add another layer of difficulty.

Identifying low oral health literacy levels is the first step to address this problem. Communication should be tailored to meet the needs of a family's oral health literacy level, and at a minimum, messages should be clear, concise, and delivered using plain language. In addition, thoughtful consideration should be given to the best communication methods for an audience.



This could include using a mixture of visual, verbal, and written tools and resources. The good news is a variety of resources to assist with oral health literacy improvement efforts are readily available from partners like the American Academy of Pediatrics (AAP) and the American Academy of Pediatric Dentistry (AAPD).

Recognizing the valuable partnership NC OHS has with the community, oral health literacy is a major focus of the *2020-2025 North Carolina Oral Health Improvement Plan*, particularly for the early childhood population. All 10 of the Regional Oral Health Alliance stakeholder groups led by NC OHS public health dental hygienists will work diligently to improve the oral health literacy of North Carolinians through culturally competent messages that educate the public, dental teams and policy makers. Activities to support this work include promoting the importance and care of baby teeth through social media campaigns, promoting the American Academy of Pediatrics' "Brush, Book, Bed" campaign, providing educational banners to early childhood facilities and promoting the ToothTalk website.

The Early Childhood Oral Health programs and resources implemented by NC OHS are in a unique position to not only support the oral health literacy improvement activities set forth by the ROHAs, but to also explore new opportunities to expand upon them. Future early childhood program growth and development will reinforce oral health literacy from a collaborative practice approach

involving multiple sectors of the community. As always, NC OHS frontline regional public health dental hygienists will work closely with their ROHAs and other community partners to facilitate current and future opportunities.

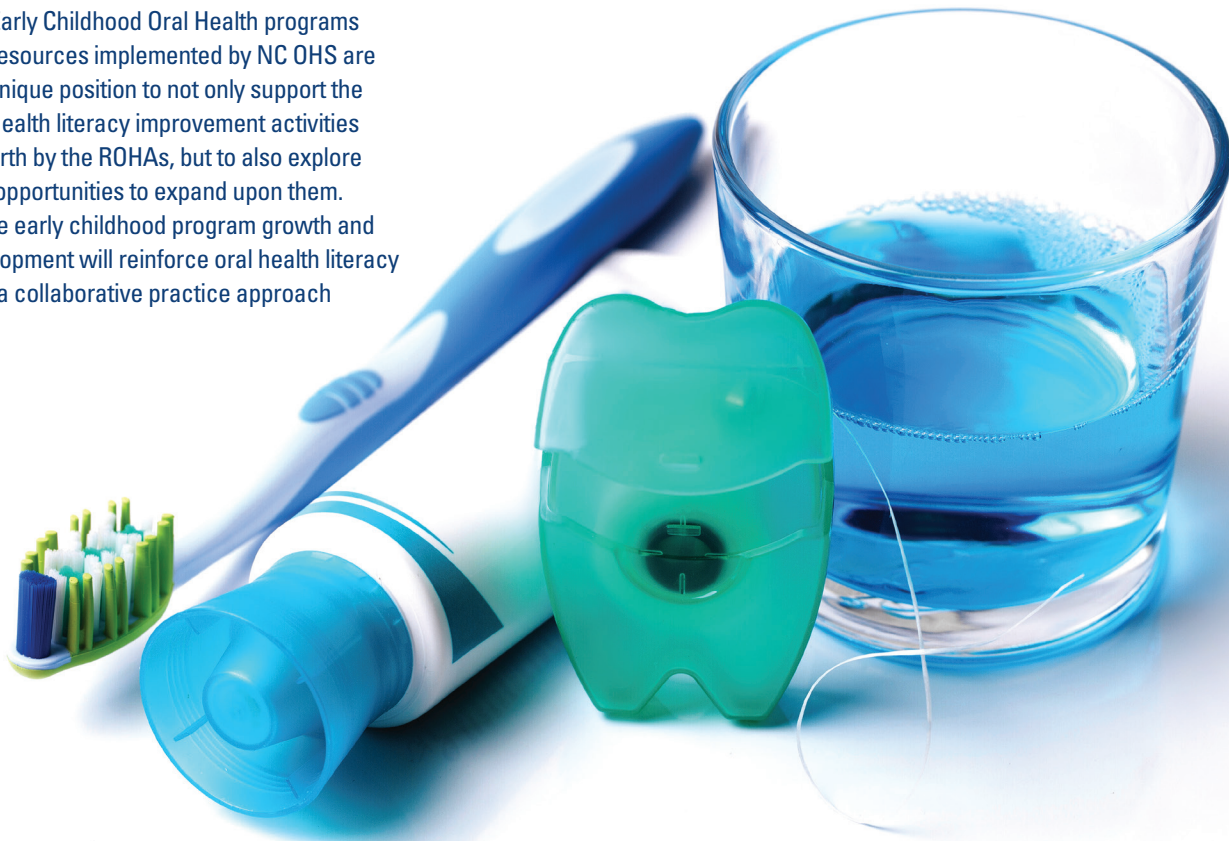
Readily available resources will continue to bolster these efforts. The ToothTalk website, developed in collaboration with the UNC Gillings School of Global Public Health as a part of the '*Brushing is Fun, Start by Age 1!*' early childhood education toothbrushing program, is an invaluable oral health resource with user-friendly, accessible information for child care providers, healthcare providers, parents and caregivers, and other community partners. In addition to the website, ToothTalk has its own free apps for parents and caregivers as well as healthcare providers. The colorful, user-friendly apps feature pictures of the nationally recommended fluoride toothpaste amounts for children ages birth to six, and the latest tips on effective brushing of very young children's teeth. A new early childhood health brochure now available on the NC OHS website is another easily accessible resource to underscore the importance of keeping baby teeth healthy.

The call to action to support improved health literacy has been heard. While momentum supporting this important initiative has increased, there is still much work to be done. Along with its valuable community partners, NC OHS will continue to explore avenues to ensure all North Carolina families receive the information they need to make informed decisions about oral health.

⁴ NC Department of Health and Human Services, Division of Public Health, Oral Health Section. (2020). Kindergarten oral health data brief: 2019-2020 North Carolina Oral Health Section child basic screening survey. Retrieved from <https://publichealth.nc.gov/oralhealth/docs/Kdg-Data-Brief-19-20-1-21.pdf>.

⁵ Santana, S., Brach, C., Harris, L., Ochiai, E., Blakey, C., Bevington, F., Kleinman, D., & Pronk, N. (2021). Updating health literacy for Healthy People 2030: Defining its importance for a new decade in public health. *JPHMP*, 00(00). DOI: 10.1097/PHH.0000000000001324.

⁶ Firmino, R. T., Ferreira, F. M., Martins, C. C., Granville-Garcia, A. F., Fraiz, F. C., & Paiva, S. M. (2018). Is parental oral health literacy a predictor of children's oral health outcomes? Systematic review of the literature. *International Journal of Paediatric Dentistry*. DOI:10.1111/ipd.12378.



A Silver Lining to the COVID-19 Pandemic

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Taylor Knier, DDS • Dest Family Dentistry

Believe it or not, there is a silver lining to COVID-19 when it comes to *silver* diamine fluoride —pun intended. Silver diamine fluoride is a liquid that is applied to the tooth to stop the progression of tooth decay without drilling or removing tooth structure.⁷

Under the Governor's State of Emergency NC Dental Medicaid expanded the use of SDF from patients aged birth to five to patients of all ages. This means, in addition to being able to apply apprehensive young children rather than subjecting them to local anesthetic and placement of a restoration, this service is now available for other segments of North Carolina's patient populations like preteens, teenagers, and adults of all ages.

Prior to the COVID-19 pandemic, some preteen to teenage patients would come in with tooth decay in all areas of the mouth, including spanning between the teeth. Even before the pandemic, FirstHealth Dental Care of Southern Pines had long wait lists for operative care for these patients. When patients rescheduled or missed appointments it could take up to eight months or longer to complete treatment for the entire mouth. With SDF, tooth decay in the other areas of the mouth is stopped and will remain asymptomatic until the teeth can be restored. This eliminates the need for costly or more advanced treatment like root canals and tooth removal.

The prevention of pain is especially critical for children needing dental treatment under general anesthesia. Fortunately, SDF has been shown to have a significant impact on this population as well as described in the article "Silver Diamine Fluoride Helps Prevent Emergency Visits in Children with Early Childhood Caries." Published in the May 2020 issue of *Pediatric Dentistry*, the study compared two groups of children on the waiting list for treatment to be done in the operating room under general anesthesia. The first group had



no SDF applied. The second group had SDF applied. The occurrence of dental emergencies during the waiting period was approximately 80% lower in the SDF group.⁸

SDF is also a gamechanger for adults over 65, especially when considering physical and medical impairments that can make treating tooth decay for this population more challenging. Geriatric patients often have complex medical histories, reduced mobility and cognitive issues that come with aging. These can make it more difficult to seek outside dental care and to comply with regular oral hygiene practices at home — particularly for those in residential care settings. Additionally, chronic systemic diseases, like diabetes, are prevalent in older adults and side effects of many medications cause dry mouth. Dry mouth is increasingly problematic as older adults are retaining their natural dentition than in years prior.

With limited treatment options available for seniors, the 2016 FDA approval of SDF for the arrest of dental caries has provided the dental community with a treatment modality that can be easily implemented, even in nontraditional settings. Senior Dental Care (Aria Care Partners) has relied heavily of SDF applications for patients in residential and rehabilitation facilities in and around the Charlotte area. Traditional methods of caries

used to treat tooth decay were often not an option in nursing home settings. SDF is also a safe, noninvasive way to improve the general oral health or those nursing home patients who have difficulty cooperating due to dementia, Parkinson's disease or other neuropsychiatric challenges. SDF helps to further safeguard against dental complications with existing systemic health issues.

With the expanded use of SDF FirstHealth Dental Care, Senior Dental Care, and other safety net clinics are providing a better service for patients than they were prior to the COVID-19 pandemic. Adding SDF as a cost-effective treatment modality makes arresting and preventing tooth decay feasible in a multitude of settings, further allowing clinicians to best serve vulnerable populations. Patients *and* providers can sleep better at night knowing that many cavities are stabilized and patients are relieved of pain until their teeth can be restored.

⁷ American Dental Association. (2021). Oral health topics: Silver diamine fluoride. Retrieved from www.ada.org/en/member-center/oral-health-topics/silver-diamine-fluoride.

⁸ Thomas M. L., Magher K., Mugayar L., Davila M., & Tomar S. L. (2020). Silver diamine fluoride helps prevent emergency visits in children with early childhood caries. *Pediatric Dentistry*, 42(3), 217-2020. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/32522326/>.

An Interview with Dr. Rhonda Stephens, Dental Public Health Residency Director

Sarah Tomlinson, DDS • State Dental Director • North Carolina Oral Health Section

1. Dr. Stephens, although you're in a new role as the Director for the OHS Dental Public Health Residency Program, you're no stranger to public health. Can you tell us a little bit about your longstanding commitment to improving oral health?

I knew by my second year of dental school that I wanted to practice community dentistry, or dentistry in a public health setting, rather than private practice. Although I knew nothing about public health per se, I always saw greater value, importance and satisfaction in serving patients with limited access to care and significant unmet needs. To better prepare myself, I completed a General Practice Residency which introduced me to medically compromised and underserved patients, hospital dentistry and community health centers. I enjoyed my time rotating through the health centers and decided

that's where I wanted to start my career. I served the next 10 years as a dental director of a Federally Qualified Health Center in Indiana. While I really enjoyed the challenge and reward of helping patients overcome their miseducation, fear and apprehension of oral health and dental care, I quickly realized the oral health issues they presented with were much bigger than a drill and prophylaxis could ever fix. I decided I wanted to make a greater impact on oral health for communities and that meant I needed to understand more than just the art and science of dentistry.

I started on the path of formal public health education and practice in 2012 and haven't looked back. I completed an MPH, moved to North Carolina to complete a certificate in Dental Public Health and most recently, obtained board certification in the specialty of Dental Public Health. Since "retiring" from clinical practice in 2015, I have been fortunate to be able to do the kind of work that has widescale impact on oral health – from statewide program development and implementation to now training others in the practice of dental public health.

2. As the new Director for the OHS Dental Public Health Residency program, what is your vision and how do you see the program improving oral health for all North Carolinians?

While most people think of the provision of dental services as the primary way to improve oral health, there's a host of behind-the-scenes activity that's equally as important, if not more. That activity is the practice of dental public health. My vision for the residency program is that we maintain our unique standing as one of few residencies housed in a state department of health, rather than an

academic institution. And as we strengthen our internal and external partnerships with academic institutions, non-profit organizations and other governmental agencies and units, the program is poised to equip residents with a very unique set of skills for improving oral health for all NC residents and beyond. Whether they go on to clinical dental practice, dental public health practice or both, our residents will

have the keen ability to dissect and address oral health issues from all perspectives - clinical, academic/research and public program administration, while taking into consideration the socio-political environment in which it all occurs. This is the type of dental professional that will move the proverbial needle forward on oral health access and utilization for generations to come.

3. One factor contributing to oral health disparities is lack of a diverse dental workforce. Do you envision collaborating with other stakeholders who have oversight for pre- and post-doctoral training, workforce development and continuing dental education to address this issue?

While the lack of workforce diversity largely relates to dental professionals who work in clinical practice, I do envision ways in which I and our Dental Public Health Residency program can indirectly contribute to increased diversity. Understanding social determinants of health, including workforce availability, and their impact on oral health access and outcomes is a key competency

for dental public health professionals. The residency will continue to teach such that advocating for increased dental workforce diversity becomes second nature to our graduates. Also, the residents and I annually present to UNC and ECU dental and hygiene students on various dental public health topics. This year's presentations included social determinants of health and

dental workforce distribution. My goal for subsequent presentations is to dive into the topic of health equity, which would include discussion of workforce diversity. It's absolutely critical that all health professional students learn about health equity and understand their role in supporting it if we ever hope to see meaningful, lasting reductions in health disparities.

4. As a leading expert in dental public health, the Residency Director isn't your only role. Can you share the other important work you're doing to reduce disparities in oral health?

I am also the OHS Grants Administrator and for the last several years, our largest grant has been an oral health workforce development grant. I have been working with partners such as the NC Institute for Public Health, UNC and ECU dental schools, Area Health Education Centers, and our staff to develop and implement oral health programs, professional development and continuing education opportunities for dental and non-dental professionals. The intent of every activity under the grant has been to reduce oral health disparities among certain vulnerable populations by educating and training different provider types on oral care delivery. So far, we have developed

and launched initiatives that benefit frail adults in residential facilities, individuals with developmental and intellectual disorders and pregnant individuals, with a focus on Medicaid beneficiaries. To further strengthen the dental workforce, and specifically providers in public health settings, we launched a leadership development program targeting safety net dentists and hygienists. These providers work to make sure underserved communities have access to necessary dental care, thereby helping to reduce disparities, and we are trying to make sure they are well equipped to lead and sustain their programs.

Lastly, I oversee our Oral Epidemiology program, which monitors and reports the oral health of North Carolinians. If you don't have data, you'll never know if you have a problem, such as an oral health disparity. And if you have data and don't share it, you limit your and others' ability to take corrective action. I am currently working with partners at the NC Oral Health Collaborative, NC Dental Society, UNC Sheps Center and the Blue Cross Blue Shield Foundation of NC to develop an oral health data dashboard for the state – making this important information more accessible, digestible and actionable for the public.



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