

HYDE COUNTY DENTAL PROJECT: PROVIDING ORAL HEALTHCARE IN A HEALTH
PROFESSIONAL SHORTAGE AREA

by

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Abstract

Hyde County is the second smallest county in North Carolina (NC) with a total population of 4,589 residents according to the 2020 census and a median household income of \$46,667 (2). Hyde County, which connects to Beaufort County to the west, joins Tyrrell and Camden counties as the only three of North Carolina's 100 counties with no practicing dentists within county limits. Additionally, many of the private practices in surrounding counties do not accept Medicaid/Medicare benefits and/or are not accepting new patients. Therefore, the East Carolina University School of Dental Medicine (ECU SoDM) has created the Hyde County Dental Project to provide Hyde County residents with access to oral healthcare through the development of the ECU Hyde County Outreach Clinic. The mission of the clinic is to provide oral health care in Hyde County once per month using portable dental equipment while integrating into the primary care system of health. Without this outreach clinic, Hyde County residents would need to travel 1.5 hours one way and be placed on a waitlist to be seen at the ECU SoDM Ross Hall location in Greenville, NC. A visualization of the distance between this location in Greenville and the outreach clinic can be seen in Figure 1 below. By addressing the community's barriers to dental care, the project is meant to improve residents' oral and systemic health as well as establish trust between the community and dental school through quality care and strong provider-patient experiences.

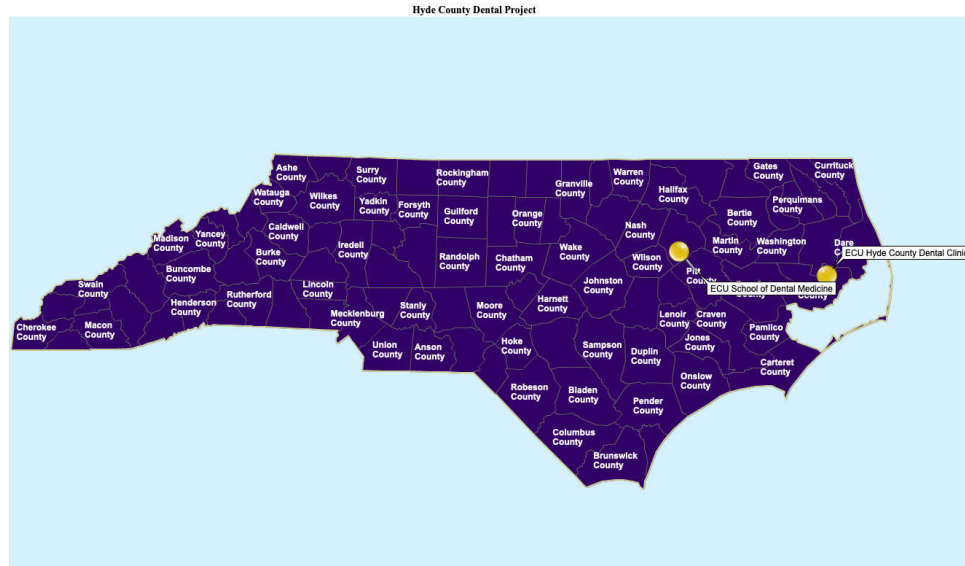


Figure 1. Map of North Carolina including the Locations of ECU SoDM’s Ross Hall and Hyde County Outreach Clinic

Introduction

According to the Kaiser Family Foundation, the dental health professional shortage areas (HPSA) designation is used to “identify areas and population groups within the United States that are experiencing a shortage of health professionals” in the dental discipline. To be labeled as a HPSA by the federal government, an area must meet a certain patient-to-provider threshold which is typically 5,000:1 unless there is unusual need (1). Hyde County has a total population of 4,589 according to the 2020 census with no practicing dentists in the area (2). Therefore, the county is a dental HPSA and would need to obtain at least one practicing dentist in the area to not be labeled as such. Additionally, the closest dental office is 30 miles away or more depending on an individual’s location within the county.

The Hyde County Dental Project is working to alleviate the shortage of dental professionals for the community of Hyde County by bridging the gap in its access to oral

healthcare through a mutually beneficial arrangement. Dental students and Advanced Education in General Dentistry (AEGD) residents provide basic care such as fillings, simple extractions, and cleanings among other procedures, allowing these providers to care for individuals that do not have regular access to preventative care. It also allows students and residents to practice in a different, smaller environment. Meanwhile, the project benefits the county residents in that they no longer must drive over an hour and a half to affordable dental care that accepts many different insurances.

Additionally, the community members' access to dental care can help identify potential future issues within their oral and/or systemic health and address current, functional problems. Oral health's impact reaches beyond just the oral cavity as many recent studies have found connections between the oral microbiome and systemic diseases. For example, the presence of periodontal disease-causing bacteria has been linked to patterns of disorder in numerous organ systems such as rheumatoid arthritis, chronic obstructive pulmonary disease, and Type 2 diabetes mellitus as seen in the figure below (3). Therefore, integration between dental and oral health providers and treatment can play a significant role in people's health.

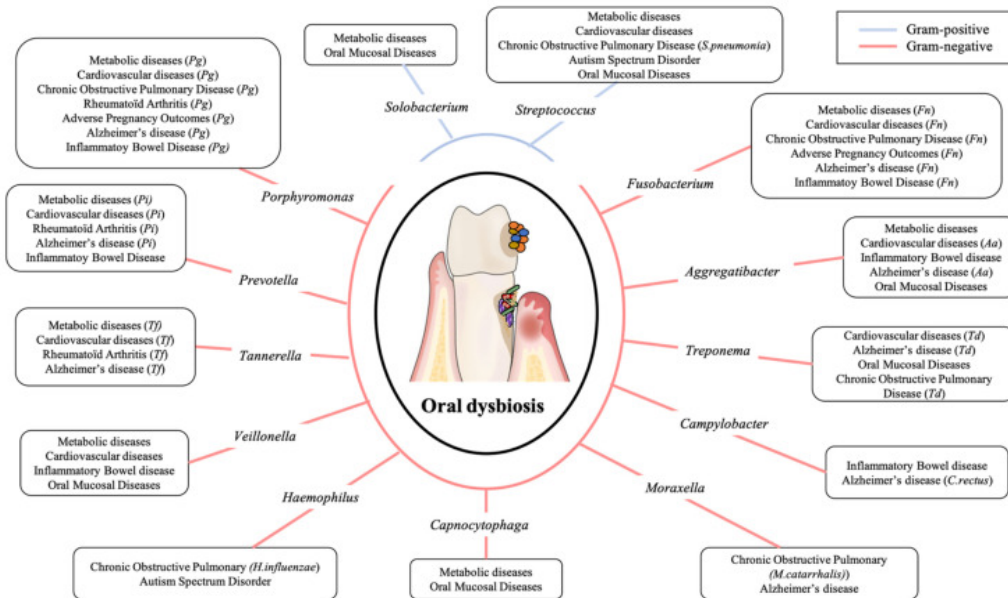


Figure 2. Principal oral pathogens implicated in systemic diseases (3)

Background

To begin this project, an advisory council was formed to determine the need and best solution to those needs through the collaboration of Hyde County residents, government officials, and representatives of the ECU SoDM. Next, the Anonymous Trust – a philanthropic group that aims to support rural and underserved communities – provided the ECU SoDM with a grant award of \$144,000 for portable dental equipment and personnel to launch the Hyde County Outreach Clinic in 2019. This allowed purchase of mobile dental units and equipment from Aseptico along with the necessary instruments and dental supplies. The clinic space in Swanquarter, NC, is provided through an arrangement between the Hyde County Health Department (HCHD) and a local business owner who wanted to support the efforts to bring dental care to Hyde County; the space was renovated to become a mobile clinic space in early 2022. A grant from the Hearst Foundations – national philanthropic resources for organizations working in the fields of culture, education, health and social services – in December 2022 for

\$100,000 has allowed for more recent purchases of advanced mobile treatment units as well as the development of a Hyde County Patient Care Fund.

The surrounding healthcare agencies (Hyde County Health Department, Engelhard Medical Center, and Ocracoke Health Center) were trained in dental examinations by the Advanced Education in General Dentistry (AEGD) residency program director and instructed on the use of teledentistry equipment. These trainings allow the primary care providers to make informed referrals to the dental clinic and aids providers in having a better understanding of the issues that the patient is facing. Additionally, they can provide teledentistry consults as needed, integrating primary and dental care in the county to properly care for patients in an economical and timely manner. Teledentistry allows the faculty at the ECU SoDM to provide immediate care and/or consultation to Hyde County Residents from Greenville, NC, in emergency cases.

Approach

The project is currently designed as a monthly clinic that provides oral healthcare using portable dental equipment. Once a month, at least two Advanced Education in General Dentistry (AEGD) residents, three fourth year dental students, one hygienist, two faculty members, and the Clinic Coordinator travel to Hyde County to provide care. Dental students are encouraged to volunteer for this opportunity when they are assigned to rotations in the service learning center in Ross Hall on campus; however, the students will attend the Hyde County Outreach Clinic through rotations in the 2023-2024 school year as this is the structure that this year's AEGD residents have followed.

The team utilizes four mobile treatment units, portable chairs, a Nomad imaging system to perform routine, preventative, and emergency procedures on patients. The AxiUm software

system used at ECU SoDM is utilized for patient scheduling and charting, and a cellular terminal using the Clover system is used to accept credit/debit card payments during the treatment day. The Clinic Coordinator is responsible for obtaining the van, packing the instruments, supplies, Nomad imaging equipment, and other items, and scheduling and confirming all patient appointments prior to the treatment day as well as coordinating with the students, residents, and faculty providers ahead of the treatment day. The team leaves Ross Hall in Greenville by 6am on the clinic day to travel to Swanquarter, NC using the Brody School of Medicine van. Patients are scheduled between 9am and 4pm with a one hour, take-out lunch from the local deli at 12pm. Following this schedule, care can be provided for about 16 patients per treatment day. The team packs and cleans up following the end of patient care, usually around 5pm, and travels back to Ross Hall where all instruments, imaging equipment, trash, and other necessary items are returned.

To integrate primary and dental care in the county as well as properly care for patients, the surrounding local healthcare agencies (Hyde County Health Department, Engelhard Medical Center, and Ocracoke Health Center) collaborate with the staff and faculty at the ECU SoDM to create informed patient referrals and medical consultations. These agencies also notify the ECU SoDM team of any upcoming county events at which the Hyde County Outreach Clinic can be advertised and through which our connection to the community can be strengthened. The current clinic structure allows Hyde County residents to be referred to Ross Hall for more intensive treatment easily by performing the necessary pre-procedure tasks in Hyde County, saving these individuals the time and money of traveling to Greenville numerous times. More complex cases that are unable to be treated in Hyde County due to a lack of advanced equipment are referred to the appropriate clinics in Ross Hall for future appointments as needed. The Hyde County

Outreach Clinic and Ross Hall clinics have established open, constant communication between coordinators and providers for ease of care and to make the procedure process as simple for patients as possible.

Impact

During its thirteen months of operation, providers have seen 178 patients from 7 different counties in the Hyde County Outreach Clinic, about 27% of which were referred from local healthcare agencies. The providers have completed 473 total procedures with a value of almost \$34,000 worth of care. Diagnostic and preventative procedures (initial patient evaluations, imaging, prophylaxis, etc.) have been the greatest amount of treatment provided thus far at 58% of total procedures due to the requirement that all patients, unless referred from another ECU SoDM clinic, must be seen for a free-of-charge initial screening before treatment can be planned and received. A breakdown of the numbers of different types of procedures performed can be seen in the figure below.

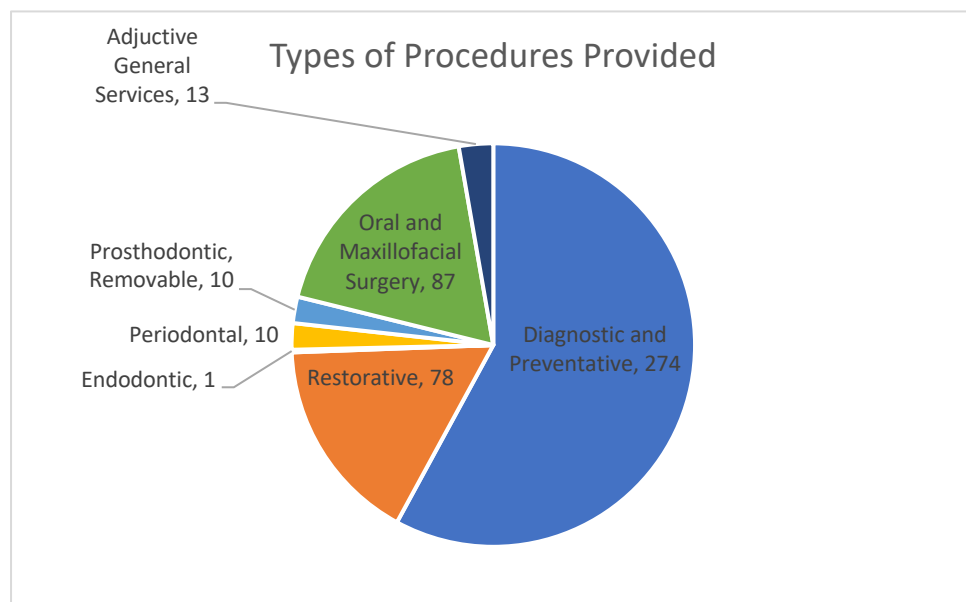


Figure 3. Pie Chart of the Number of Types of Procedures Performed at the Hyde County Outreach Clinic

A few patients have already completed their individual treatment plans after not seeing a dental professional for several years and will return for routine preventative treatment moving forward. There are multiple different paths that this clinic could follow for expansion in the future as the community becomes more aware of the clinic and invested in its oral health. Possibilities include the part-time staffing of a dentist at the Hyde County Health Department or the development of the outreach clinic into a fulltime private practice by an ECU SoDM alumnus or alumna. If the clinic continues as an outreach clinic for the foreseeable future, the team has discussed forming partnerships with the Coastal Carolina Community College dental hygiene program and Pitt Community College dental assisting program to enrich the clinic. This would provide the support that would allow ECU SoDM providers to perform more complex procedures as well as help other dental professionals gain experience in the small, rural area that has not had access to care for many years.

The Hyde County Dental Project which became the Hyde County Outreach Clinic has created a way for residents to receive oral health care that is integrated into the local healthcare agencies in a Health Professional Shortage Area. As Lee Brimmage, 4H extension agent in Hyde County Cooperative Extension and president of the Hyde County Chamber of Commerce, shared in an interview for ECU News Services, “It’s meant a great deal to our county to have a service like this be readily available right here. I’ve heard nothing but great things, and to have this here kind of revitalizes our community and gives us another service to be able to offer our citizens and constituents.” The opening of the clinic has impacted ECU SoDM students and Hyde County residents as both receive experiences that they otherwise would not have had.

Acknowledgements

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