NC Child

The Voice for North Carolina's Children

2024 LISTENING TOUR FINAL REPORT

Teeth Talk:

LESSONS FROM A LISTENING TOUR ON CHILD ORAL HEALTH OUTCOMES AND ACCESS IN NORTH CAROLINA

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Executive Summary

Oral health is vital to an individual's overall health, both physically and emotionally, but this connection is even more profound in the lives of children. Oral healthcare is a basic need for children in our state, but access is no guarantee. Currently in North Carolina, children's oral health outcomes are moving in the wrong direction. Right now, there are more kindergartners with untreated tooth decay and urgent dental needs than in years past. These outcomes vary by race, ethnicity, and geography, and the disparities we see in North Carolina, felt particularly in rural and minority communities, demonstrate the barriers that exist to accessing oral health care.

While many measures have gotten worse since COVID-19, outcomes were trending in the wrong direction leading up to 2020 and many of the barriers to oral health care in North Carolina existed before the pandemic. Too many families could not access oral health care prior to COVID-19; the pandemic simply exacerbated these long-standing problems, making it even more difficult for children to see dental providers for basic preventative oral health care.

NC Child sought to better understand these issues. By speaking to parents, dental care professionals, public health officials, school district personnel, and community members we heard firsthand from those with lived experience providing care or trying to find it for their families. By doing so, we learned about the distinct challenges of our state's oral health system that complements and puts a face behind quantitative data.

We heard from participants what the state of oral health looks like in their household and their community. Discussions tended toward issues like a lack of access to providers, provider shortages, insurance and cost barriers to dental care, knowledge gaps among communities regarding oral health, and access for Medicaid patients. Social determinants of health like food insecurity, low incomes, and housing unaffordability also stand out as substantial barriers to seeking out oral health care. Participants noted that oral health care is often deprioritized for families that struggle to make ends meet.

Of note, NC Child also learned about how attitudes and behaviors around oral health practices and accessing care are influenced by generational and familial norms.

When speaking with community members on the 20-stop Listening Tour, participants often highlighted local initiatives that sought to address these barriers, as well as ways in which local access to care and overall child oral health outcomes could be improved. Common themes around opportunities for improvement centered on improving Medicaid coverage for dental services, expanding the scope of school-based oral health, and educating parents early about the importance of oral health.

Background

A child's oral health has short- and long-term impacts on their growth and development. In the short-term, children with poor oral health are more likely to develop painful infections, suffer from self-esteem issues, have difficulties concentrating in school, and miss school days.[1] In the long-term, positive oral health practices early on in a child's life set the tone for positive oral health habits and outcomes as children grow into adolescents and adults.[2] North Carolina's child oral health outcomes have gotten worse in recent years, and significant disparities in child oral health outcomes persist across geographic and demographic lines. As discussed below, insufficient access to oral health care is one of the primary drivers of poor child oral health outcomes in the state. Simply put, there are not enough dentists and oral health providers to serve North Carolina families, especially in rural Eastern and Western North Carolina.

EARLY CHILDHOOD ORAL HEALTH OUTCOMES ARE WORSENING IN NORTH CAROLINA.

Poor child oral health outcomes have long been a concern in North Carolina. Leading up to the pandemic, around 1 in 6 kindergartners had untreated tooth decay, but post-COVID-19 the percentage of kindergartners with oral health issues jumped dramatically.

In the 2022-23 school year, 1 in 5 North Carolina kindergartners had untreated tooth decay, up from about 14% six years ago and the highest share over that period.[3] Kindergarten oral health outcomes are based on oral health screenings conducted at a sample of North Carolina schools that is representative of the state overall. Extrapolating the sampled share of kindergarteners with untreated tooth decay to the entire kindergarten population would mean about 22,000 North Carolina kindergartners had untreated tooth decay in the 2022-23 school year. The percentage of kindergartners with an urgent need for dental care due to pain, infection, or other symptoms is similarly at elevated levels compared to previous years. A little more than 3.5% of kindergartners had urgent dental health needs in the 2022-23 school year, up from 2.1% in the 2016-2017 school year.[4]

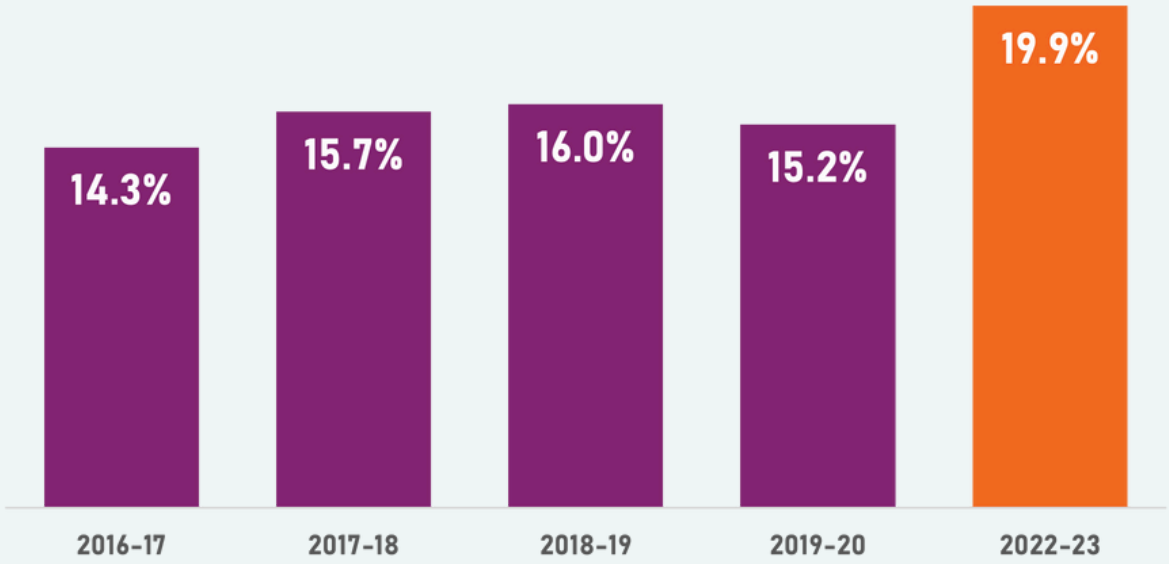
The COVID-19 pandemic occurred when many kindergartners today would have normally had some of their first trips to the dentist. At the time, dental offices were under temporary closures and many families likely avoided the dentist over public health concerns in the years after, contributing to the recent uptick in negative kindergarten oral health outcomes. Similarly, school closures also impacted children's access to oral health care, as children did not have access to the preventative care often provided in schools like sealants, fluoride and dental screenings. The North Carolina Department of Health and Human Services has acknowledged that dental office and school closures and lingering public health concerns during the pandemic posed significant challenges to accessing and delivering oral health care.[5] The lack of formative dental experiences in those early years could also have persisted into later

childhood if parents were unable to access care during that period—either due to public health concerns or longstanding access issues—or did not establish a culture of positive oral health habits.

However, even before the pandemic, too many kindergartners had untreated tooth decay, and that share had been gradually increasing. NC Child and the North Carolina Institute of Medicine's last three Child Health Report Cards in 2023, 2021, and 2019 gave North Carolina a C grade in oral health for high rates of kindergarteners with untreated tooth decay.[6] The oral health data in the 2021 and 2019 report cards reflected pre-pandemic outcomes.

1 IN 5 NORTH CAROLINA KINDERGARTNERS HAVE UNTREATED TOOTH DECAY

Percentage of kindergartners with untreated tooth decay



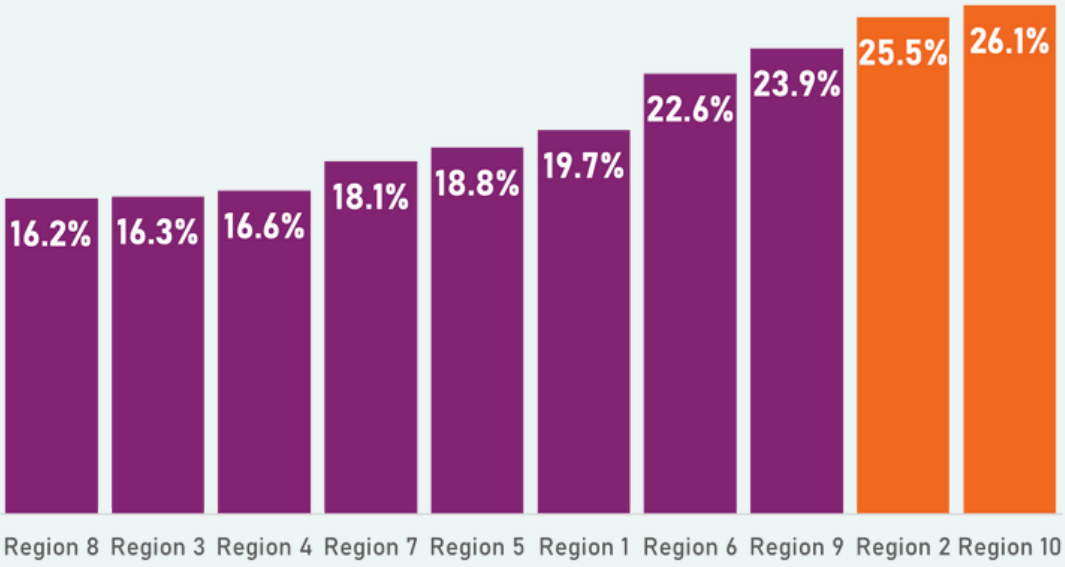
Source: NC Dept. of Health and Human Services, Oral Health Section (2023)

Note: The NC DHHS Division of Public Health Oral Health Section did not publish data during the 2020-2021 and 2021-2022 school years due to the impact of COVID-19.

Children across local health director regions of North Carolina face varying degrees of poor oral health outcomes.[A] Kindergartners in local health Region 10 (Eastern North Carolina) and Region 2 (Western North Carolina) face the highest levels of untreated tooth decay. More than a quarter of young children in these counties have untreated tooth decay. Nearly all the counties that comprise these regions are rural areas by the NC Rural Center's definition based on population density. Regions 8 and 5, encompassing some Eastern North Carolina counties and the Durham-Chapel Hill/Greensboro-High Point metro area counties, respectively, have the highest rates of kindergarteners with urgent dental needs, both around 6%.

1/4 OF KINDERGARTNERS WITH UNTREATED TOOTH DECAY IN RURAL REGIONS 2 AND 10

Percentage of kindergartners with untreated tooth decay by local health region, 2022-23 school year



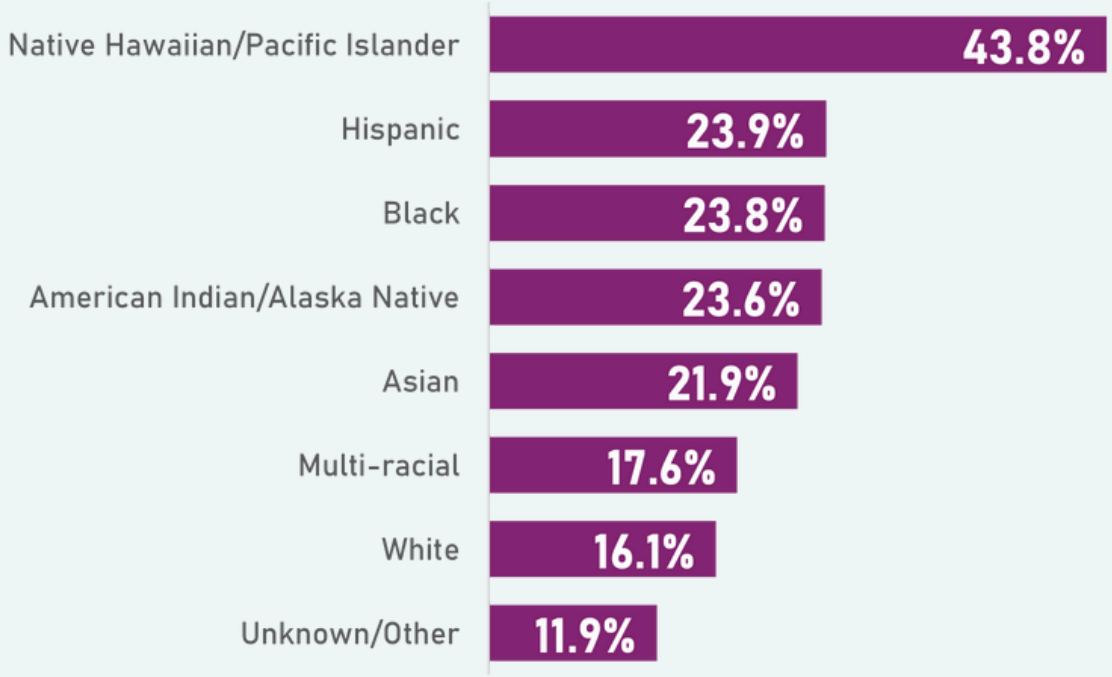
Source: NC Dept. of Health and Human Services, Oral Health Section (2023)

A. The North Carolina Association of Local Health Directors groups counties according to the following regions:
· Region 1: Cherokee, Clay, Graham, Haywood, Jackson, Macon, Swain, and Transylvania
· Region 2: Buncombe, Burke, Caldwell, Henderson, Madison, Polk, Rutherford-McDowell, Mitchell-Avery, and Yancey
· Region 3: Davidson, Davie, Forsyth, Stokes, Surry, Watauga-Ashe-Alleghany, Wilkes, and Yadkin
· Region 4: Alexander, Cabarrus, Catawba, Cleveland, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Stanly, and Union
· Region 5: Alamance, Caswell, Chatham, Durham, Guilford, Orange, Person, Randolph, and Rockingham
· Region 6: Anson, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, and Scotland
·Region 7: Franklin, Granville-Vance, Johnston, Nash, Wake, Warren, and Wilson
·Region 8: Bladen, Brunswick, Columbus, Duplin, New Hanover, Onslow, Pender, Robeson, and Sampson
·Region 9: Bertie-Camden-Chowan-Currituck-Gates-Pasquotank-Perquimans-Hertford, Dare, Edgecombe, Halifax, Hyde, Martin-Tyrrell-Washington, and Northampton
·Region 10: Beaufort, Carteret, Craven, Greene, Jones, Lenoir, Pamlico, Pitt, and Wayne

Children's oral health outcomes also differ by race and ethnicity in North Carolina, often reflective of the social determinants like income, food access, housing security, and transportation access that can influence oral and overall health outcomes. Native Hawaiian/Pacific Islander, Black, Hispanic or Latino, and American Indian and Alaska Native kindergartners in North Carolina have the highest rates of untreated tooth decay, while white children have the lowest. The racial and ethnic groups with the highest rates of untreated tooth decay also have much higher rates of poverty and food insecurity which can contribute to poor dental health outcomes.

HIGHER RATES OF UNTREATED TOOTH DECAY AMONG NON-WHITE KINDERGARTNERS

Percentage of kindergartners with untreated tooth decay by race and ethnicity, 2022-23 school year



Source: NC Dept. of Health and Human Services, Oral Health Section (2023)

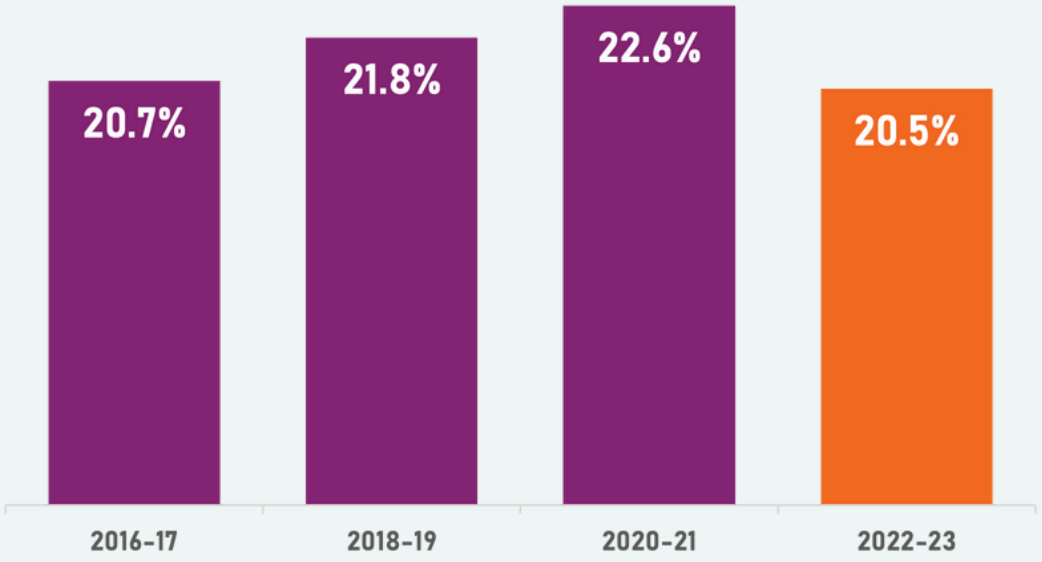
While the percentage of Native Hawaiian/Pacific Islander children with untreated tooth decay is the highest, this group of children is very small. DHHS screened just 16 children in this racial group in the 2022-23 school year. In the 2017-18 school year, the number of Native Hawaiian/Pacific Islander students screened was similarly small, but only 18% of students had untreated tooth decay that year. Black and Hispanic or Latino children are much larger population groups in North Carolina, and the percentage of kindergartners with untreated tooth decay is consistently much higher than other racial and ethnic groups.

Preventative dental care substantially reduces the risk of cavities, tooth decay, or some other dental health problems. Regular dental check-ups and cleanings, dental sealants, and fluoride treatments all ensure children's teeth are healthy and detect any serious problems early on. However, too many children

in North Carolina do not receive any form of preventative dental care. About 1 in 5 North Carolina children ages 1-17 went to the dentist for preventative dental care in 2022-2023, roughly the same share as five years ago.[7] Notably, this percentage ticked up to almost a quarter of children in 2020-2021, further providing evidence that pandemic-related access problems contributed to higher rates of untreated tooth decay in current data.

1 IN 5 NORTH CAROLINA CHILDREN WITHOUT PREVENTATIVE DENTAL CARE IN PAST YEAR

Percentage of children 1-17 with preventative dental care visit in the past year



Source: National Survey of Children's Health

TOO MANY NORTH CAROLINA FAMILIES CANNOT ACCESS ORAL HEALTH CARE.

Adequate access to oral health care improves children's quality of life and decreases the long-term risk of developing ailments related to insufficient dental care. Access improves the likelihood that children will receive preventative care, prevents decreases in work capability and community participation later in life, increases whole-family dental health, and can improve overall wellness.

However, there is an overwhelming lack of access to oral health care throughout North Carolina and has been for some time, even before the pandemic disrupted oral health care delivery. All but three counties in the state are considered Health Professional Shortage Areas (HPSA) for dental care, meaning the

supply of providers is insufficient to serve the population.[8] While the number HPSA designated counties for oral health care has increased in recent years, six years ago about three-fourths of North Carolina counties were HPSAs for dental health, indicating oral health care access problems are not entirely new.[9] KFF estimates that North Carolina needs 578 more practitioners to remove HPSA designations across the state.[10]

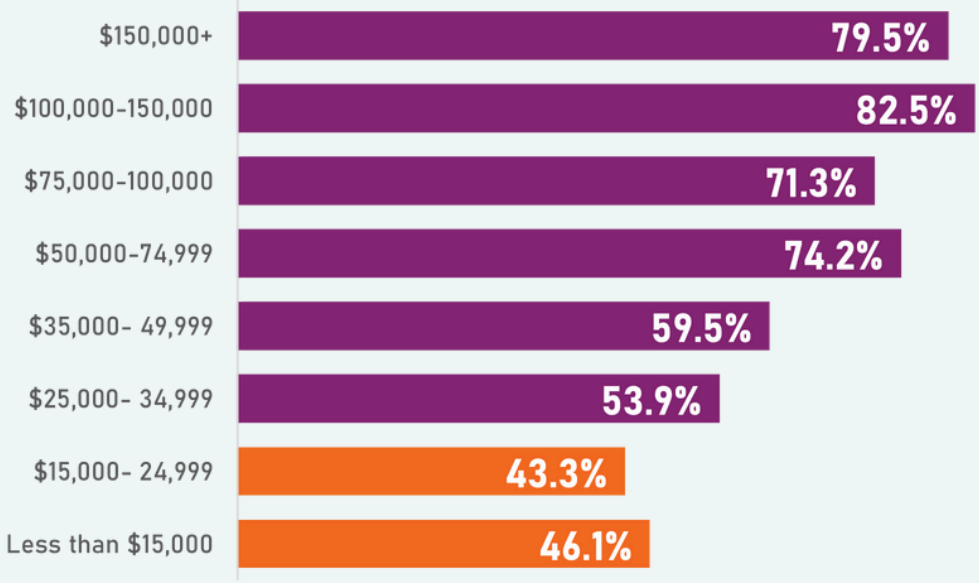
Access to specialized care, like pediatric dentists, is even more sparse. Data from the UNC Cecil G. Sheps Center for Health Services Research reports that a majority of North Carolina counties do not have a pediatric dentist at all.[11] For Medicaid recipients, there are more barriers to accessing quality dental care, as only about 40% of dentists in North Carolina accept Medicaid for dental services at any volume.[12] A much lower 28% of North Carolina dentists accept a meaningful volume of Medicaid patients.[13]

In addition to overall provider shortages, providers who do accept Medicaid have little appointment availability and a limited capacity to see Medicaid patients, many citing low reimbursement rates and high administrative burdens. This can leave families with nowhere to turn to seek care, especially in emergency cases that require promptly seeing a provider.

Income also impacts parents' ability to access dental care for their children, as families with low incomes are far less likely to go to the dentist, especially if they do not have dental coverage. Among all North Carolina residents, less than half with incomes between $15,000 and $24,999 and below $15,000 visited a dentist or dental clinic in the year prior.[14]

< 1/2 OF NC RESIDENTS IN LOWEST INCOME GROUPS GO TO DENTIST

Percentage of North Carolina residents who went to the dentist last year by income group, 2022



Source: NC Behavioral Risk Factor Surveillance System (BRFSS) Survey

Lack of access to adequate dental care, as well as a lack of positive oral health practices, negatively impacts children and adults, all while negatively affecting broader communities' health, livelihood, and longevity. Left unaddressed, oral health issues that develop in childhood can persist into adulthood, which in turn impacts quality of life and our economy. An American Dental Association survey of North Carolinians found that 18% of adults said the appearance of their mouth and teeth affected their ability to interview for a job and 1 in 5 avoided smiling because of their teeth.[15] Further, 15% of North Carolina adults experience anxiety due to the condition of their teeth and a slightly larger percentage feel embarrassed by their oral health.[16]Adults experiencing oral health problems are more likely to miss work or experience difficulties performing their job duties.[17] Some estimates suggest that the national economy loses $45 billion per year due to lost productivity among adults dealing with their own or their children's oral health issues.[18]

The State of Oral Health in North Carolina

Many of these metrics indicate that oral health outcomes for children in North Carolina are in dire circumstances. However, this data only paints part of the picture of the true scope of child oral health throughout North Carolina. NC Child's Listening Tour sought to complement quantitative data on children's oral health outcomes with perspectives directly from communities that navigate an inadequate oral health care system in the state. Community conversations allowed us to gain a clearer understanding of the various health and social factors that influence children's oral health outcomes. By conducting focus groups and hearing directly from community members in 20 North Carolina counties, we were able to establish context for current quantitative data and hear from providers, parents, and community members on the biggest issues regarding children's oral health, current resources and promising practices, and how to best improve access to and the quality of care.

HOW OFTEN DO FAMILIES GO TO THE DENTIST, AND FOR WHAT REASONS? ARE THEY SATISFIED WITH THEIR OPTIONS AND THE QUALITY OF CARE THEY ARE RECEIVING?

For about a quarter of the adult population in North Carolina, it has been at least two years since they have been to a dentist for any reason.[19] Among children of all ages, about 20% have not been to the dentist for preventative care in the past year.[20] Some studies have shown that a majority of children are first taken to the dentist at age 7, citing the primary reason for their visit as oral pain or dental caries.[21] Providers recommend that infants and toddlers go to a pediatric dentist for their first checkup when they first begin growing teeth or by their first birthday.

One of the most prevalent themes discussed by Listening Tour participants across the state was the generational effect of recognizing the importance of oral health care and how it translates to their family's dental practices. Participants noted that since their parents made sure they went to the dentist regularly and practiced good oral hygiene as children, they were more likely to do so as adults and instill the same good habits in their children. The inverse also applies to this generational influence; if parents did not go to the dentist and did not take their children, participants discussed delaying seeking out oral healthcare until they were much older. Participants emphasized the importance of fostering comfort with oral health care early on in their children's lives, such as going to the dentist early to prevent developing a fear of the dentist as they grow older. Focus groups also highlighted the importance of parental education regarding oral health care and preventative care for their children to help them recognize the value of oral health.

Participants often framed oral health care as cost prohibitive. If parents did not have dental insurance or their insurance did not cover significant dental work, they were much less likely to bear the cost of their children's preventative dental care and instead deferred seeking care. Participants affirmed this phenomenon among low-income families they served. If someone does not have dental insurance, they are not going to seek out preventative care, but instead only go to a dentist in an emergency situation.

"In terms of access, your health plan really drives how often you go and feel comfortable going, right? So if you have good coverage, you're going to go. If you don't, you're not and that's unfortunate." (Cabarrus County Resident)

"There are some people that there's not a problem until there is a problem. So they're not going to go to the dentist until they have an issue...If there wasn't the barrier of finance and transportation, then I think some would [go to the dentist], but there's still some people that are going to choose just not to go." (Caldwell County Resident)

As discussed in more detail below, parents of children with special needs described greater challenges finding an oral health provider that can provide the unique care their child requires. They are much more likely to only seek out oral healthcare if something is wrong.

Beyond having insurance, some participants noted difficulties finding dentists that accept their private insurance or, particularly, Medicaid, which can dictate how often children receive oral health care. Dentists are far more likely to accept private dental insurance plans than accept Medicaid. But even for patients with private dental insurance, there are simply not enough providers that are accepting new patients or have any availability. One participant in Surry/Stokes County noted that "if I don't book it six or eight months out, you can't get in."

This problem is often exacerbated in people with Medicaid coverage, meaning they may not seek out care at all if there are no available providers nearby. For families on Medicaid or for uninsured families, many will wait to receive care in a free clinic or free dental service. Johnston County providers noted that they have many children that attend a free clinic when the opportunity arises, but they do not receive follow-up care if they are uninsured or on Medicaid. Clinics like this are not considered a "dental home" for most patients. A dental home is an ongoing relationship and rapport between a provider and their patient. A dental home also provides "anticipatory guidance and preventive, acute, and comprehensive oral health care."[22]

In terms of satisfaction with options and quality of care, discussions in focus groups varied. For parents of children with special healthcare needs and/or children with intellectual/developmental disabilities, they were generally dissatisfied with their options for oral healthcare and quality of care for their children. They report a general lack of providers with the necessary bedside manners and training to care for special needs patients, often reporting traveling outside of their county or paying out-of-pocket for care. A parent in Western North Carolina reported driving as far as South Carolina to access sedation care for their child because "there aren't any options for my son. There's nobody in this county that can see him." Participants also reported feeling like they are "just a number" with the oral health provider they see and that they lack a rapport and personal connection with their provider, especially at "agency" or chain dental offices and with Medicaid providers.

"I think we need to build our medical workforce to bring providers to our community who are not only specialized in internal medicine or primary care, but also have the competence and ability to work with a wide range of populations, people for whom English as a second language, individuals with intellectual and developmental disabilities. I mean, it breaks my heart to know that some provider would turn away your child because of that." (Cabarrus County resident)

We know that COVID-19 had a significant impact on children's access to oral health care and how frequently they go to the dentist. Dental offices were temporarily closed during the pandemic and children did not have access to critical school-based services for more than a year. As discussed above, this had a negative impact on child oral health outcomes, contributing to the highest share of kindergartners in the state with untreated tooth decay in five years. Focus group participants noted the pandemic's impact on children's oral health care access has not gone away. As a Henderson County parent described, dental practices are still playing catch up from the backlog of appointments created by office closures during the public health crisis. In other communities, participants acknowledged that dental offices have been short-staffed after the pandemic, which makes it harder for providers to meet the needs of families and exacerbated existing access challenges.

"They told me, when I tried to get local [dentists] for myself and then my child... they said that they were trying to catch up with their patients that didn't come in during COVID. So they weren't even taking new patients for a year." (Henderson County parent)

Other participants noted that some families have stopped going to the dentist altogether following the pandemic due to health concerns. For similar reasons, COVID-19 slowed down the momentum of some effective oral health programs serving children which have yet to fully recover to previous service levels.

"Another thing that I've heard from some of my friends and peers, is that they stopped going to the dentist during COVID and haven't gone back since because [they] didn't feel comfortable like going anywhere." (Harnett County resident)

"At some point, we used to do fluoride varnishes. It's covered beautifully by North Carolina Medicaid. And during COVID, our nurses were like, I don't really want to be in this kid's mouth for that long. Even if I'm masked. Especially when we didn't have vaccines. We stopped doing fluoride varnish." (Mecklenburg County provider)

While this report and our focus group discussions do not focus solely on COVID-19, the lasting impact of the pandemic on child oral health cannot be ignored. The pandemic presented unique challenges to children's oral health care as it virtually eliminated service availability for a brief period. But, in many ways, it also exacerbated existing issues like children's access to care which underscores the importance of addressing the systemic problems facing North Carolina's oral health system.

HOW DO FAMILIES PRIORITIZE CHILDREN'S ORAL HEALTH?

Parents' relationship with oral health care providers throughout their lives play an important role in their children's oral health practices. In focus groups across the state, participants explained how parents' knowledge of the impact oral health has on overall health can influence the oral health care their children receive. They also noted that oral health practices among parents are a key factor for developing positive dental habits among children. Poor oral health conditions like periodontal disease or tooth decay can have serious implications for other health issues like cardiovascular diseases, high blood pressure, or diabetes.[23] Some of these medical conditions resulting from poor oral health care show up later in life, but others manifest in childhood. A Henderson County oral health provider reported that "ER rates are through the roof with people experiencing teeth issues" and that they knew anecdotally of a child in a clinic just over the state line in Tennessee who developed a tooth infection, later dying of sepsis.

"I always tell parents; your mouth is this close to your brain and this close to your heart. This is not okay… because [decay] does travel… we know children can die from teeth infections, and so it's really important for our medical professions to be able to recognize the difference in just a cavity and rapid decay, or even an intraoral infection." (Henderson County oral health provider)

A common phrase used to describe oral healthcare throughout focus groups was referring to it as a "luxury" or "add-on" service. Many participants and the families they serve might have general health insurance, but not dental coverage. The separation of primary health and oral health positions dental care as a nonessential service for some people. Further, participants reported that when families struggle to provide essentials like food, housing, gas, etc., dental care often ranks near the bottom of their list of priorities due to its cost prohibitive nature. Data from the American Dental Association found that 59% of respondents reported cost as the main reason they had not visited a dentist more frequently, including those who had not seen a dentist in the last year.[24]

"I think on the hierarchy of healthcare needs, oral health kind of falls to the bottom, and most of the populations that we work with are really just in survival mode. And so going to the dentist, unfortunately feels like a luxury, and unless there's an emergency or pain or something that needs immediate addressing, they just don't- it's just not a priority when you're just trying to survive in other ways." (Buncombe County Community Advocate)

Uniquely, when conducting a focus group on the Qualla Boundary in Cherokee, North Carolina, participants attributed improved child oral health outcomes and increased access to care to tribal leadership's recognition of oral health as an important public health issue. This illustrates that when oral health is not only prioritized by families, but also by community leaders, outcomes can improve.

"The services that we are able to provide are a result of tribal leadership, the executive office, tribal council, for years, having an understanding of how important oral health is… So, I am able to do what I do, because of tribal council, through our budgetary process." (Qualla Boundary oral health provider)

SCHOOL-BASED ORAL HEALTH SERVICES PROVIDE A VITAL LINK TO UNDERSERVED CHILDREN.

Providing dental services and screenings in schools can be one of the most effective ways of catching and treating decay early and improving oral health outcomes for children. Listening Tour focus groups also affirmed the power that school-based oral health services have in treating children, especially for children in families that struggle to afford oral health care or live in communities where access to care for patients on Medicaid is limited.

Across all focus groups, regardless of region, participants noted that the most common form of oral healthcare that they see students receive in school are screenings from a public health dental hygienist from the NC Oral Health Section. These screenings check kindergarteners for treated/untreated decay each year, assess urgent needs for dental care, and evaluate other indicators of oral health. On a five-year rolling basis, the Oral Health Section will screen other child populations, including prekindergartners, third graders, and high schoolers with intellectual and developmental disabilities. If a student is screened as having severe decay, the hygienist will refer them to a local clinic to be treated.

Participants across the state often discussed participating in a fluoride mouth rinse program when they were in school, but many noted that schools their children or children they serve attend do not have these programs. A Surry/Stokes County resident remarked that "You know, there was a time...when they brought out a jug of fluoride mouthwash at school, swish, swish. And that was from day one when we went to elementary school. That's what happened. And then somewhere along the way that stopped, and so [did] the emphasis placed on oral care."

School-based fluoride mouth rinse programs have been shown to reduce decayed, missing, or filled teeth by 23% in participating children, and Listening Tour participants anecdotally discussed how it created good oral hygiene habits when they were young that they maintained in adulthood.[25] NC schools with at least 60% of students eligible for the Free or Reduced Meals program can participate in a supervised fluoride mouth rinse program at no cost.[26]

"We need to catch them during this time. And there are some things that, if we catch [in school], we can reverse. So, we were able to go in and be able to provide that, and then to be able not only to provide it, but to follow up and provide the resource and make sure that they got the care they needed, and then you would see grades improve." (New Hanover County resident)

Mobile Dental Clinics:

Participants described dental services at schools as one of the most common and effective forms of school-based oral health care. Out of the 20 conversations, mobile dental clinics providing dental care in school settings came up in 14 discussions. How these mobile clinics operate varies from county to county. Some clinics are administered through county health departments, others through private dental practices. For most clinics, parental consent is required for a child to receive services. Most mobile clinics perform comprehensive care, including fillings, cleanings, X-rays, and extractions. Some refer students to brick-and-mortar clinics for more significant dental work. Mobile dental clinics have been innovative and effective in increasing the number of children with access to dental care. By seeing children during the school day, mobile dental clinics remove barriers for parents in having to take time off work to take their child to a dentist, which sometimes might force parents to travel outside of their county for care. These services are also often provided at a lower or no cost to families.

Before the Rockingham County Listening Tour stop, NC Child toured the Rockingham County Division of Public Health's Mobile Dental Unit (MDU). The 38-foot MDU trailer is outfitted with two dental chairs inside and the necessary equipment to administer dental care to students in Rockingham County Schools, including digital radiography, a sterilization center, and electronic health record system. Students whose families meet income requirements and who have not seen a dentist in the last year are eligible to receive care through the MDU. The MDU remains at each school until they have seen all children eligible for services and completed their treatment plans, providing comprehensive and restorative care. Since their opening on September 11, 2023, to October 30th, 2024, Rockingham County Division of Public Health has provided care to 254 children. There have also been:

-192 children that had untreated cavities at their initial visit (about 76%)
-583 treatment services provided
-1,271 preventative services provided
-265 exams completed (some patients coming in for recalls)
-149 children that have received sealants
-254 children that have received a cleaning
-254 children that have received a preventative service
-131 children that have received restorative treatment
-42 children that have received extractions
-33 children that have received silver diamine fluoride
-181 children that have completed all treatment on the MDU without being referred

The Dichotomy Between Oral Health & Primary Health

Across North Carolina, focus group participants discussed how primary care access is prioritized above oral health access. Parents reported that they almost always have a well-child visit with their pediatricians annually or visit more frequently for sick visits. Some participants noted that some child care centers have policies that require a doctor visit before a sick child can come back to the center or a general checkup to be enrolled, which increases the necessity of primary care access. Oral health exams, on the other hand, are typically not requirements for child care centers or for schools. A Durham County resident stated that "I definitely see families go for more of the primary care before they go for the oral care, just because it's like, my child is sick, or they have to get immunizations to go to child care, so they're [taken to] the PCP before oral health, which is not required to be in child care." Physical exams and checkups are often also requirements for public schools or participation in sports. A Wayne County resident remarked, "Every year they require you have a physical to go to school... somewhere on that physical form, they should say 'you need to get your children's teeth checked.'"

Listening Tour participants consistently observed the dichotomy between oral health and overall health. Participants reported that, either for themselves or for families in the community, accessing primary care is "certainly more common than the dentist...I think that it's definitely much more available and much more prioritized," according to a Buncombe County resident. Many felt that some families do not view oral health as an integral part their whole-body health, often using terms like "luxury" or "add on" to describe oral health care. The separation of primary health coverage and dental coverage can reinforce this perception. Additionally, with long wait times for appointments at dental offices, participants noted that urgent care and primary care physicians (PCP) are seeing more oral health-related issues due to their increased accessibility for patients.

Listening Tour participants identified the need to integrate oral health care with primary care to increase access and improve child oral health outcomes. When asked whether parents and providers discuss oral health at well-child visits, participants had mixed reactions. Some pediatricians make sure to stress with parents the importance of cleaning out an infant's mouth after feeding to prevent "baby bottle" tooth decay, which can be caused by allowing an infant to go to sleep with a bottle or from the transfer of bacteria with a pacifier.[27] Other primary care providers only ask if parents have found a dentist for their child or simply look inside the child's mouth to "check the box" of performing an oral screening. Some participants noted that pediatricians will apply fluoride varnish, a common form of combating tooth decay, or provide educational information to parents regarding oral hygiene for their child or finding a dentist.

Overall, discussions of and emphasis on oral health during well-child visits were inconsistent between participants' pediatric providers. Since families are more likely to see a PCP more regularly than a dentist, increasing the awareness and importance of oral health in well-child and primary care visits can improve early identification of concerning issues and assist in parental education on the importance of oral health. Oral health care must be prioritized just as much as general health care. As focus group participants noted, this equal treatment can improve child oral health outcomes in their communities, but it can also save governments money in the long run. By addressing oral health concerns that are contributing to overall health problems, health care costs in general decrease.[28] For oral health emergencies, the emergency department is often the most accessible care option. Many of these emergency visits, however, are for non-traumatic dental conditions, where 79% of visits could have been resolved in a dental office.[29] Emergency department visits are often incredibly costly, with Medicaid programs bearing large amounts of the cost.[30]

Barriers to Oral Health Care Access

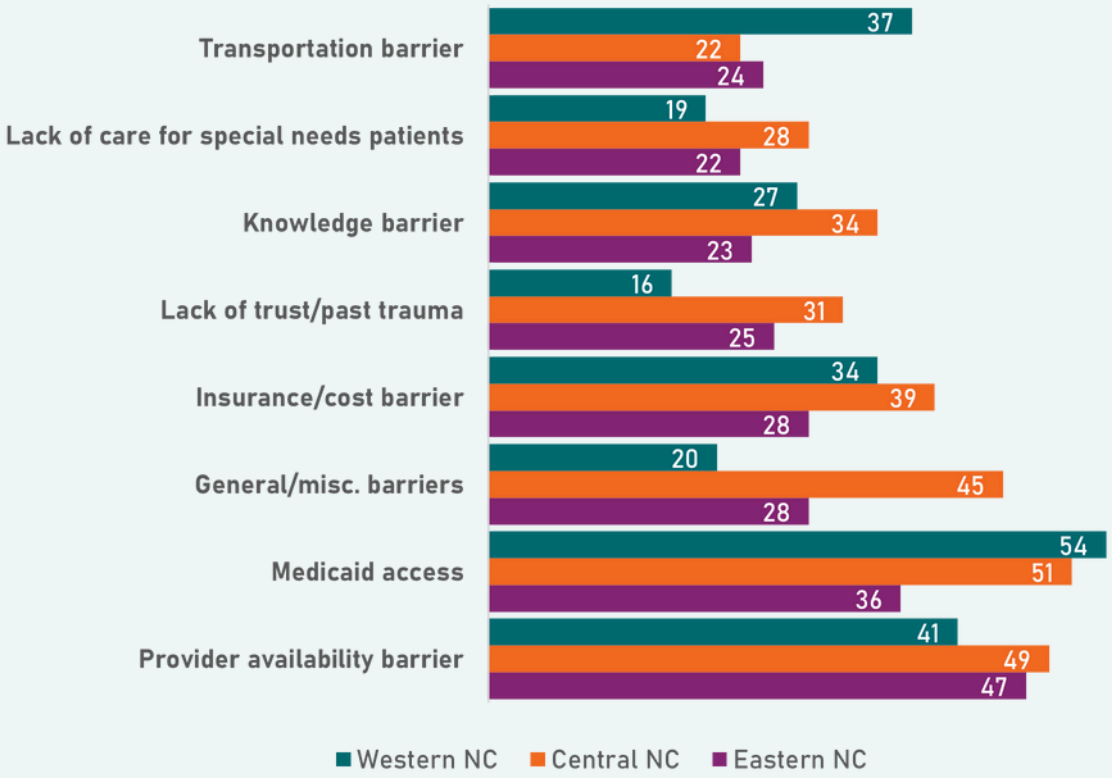
As is evident thus far, children and families across North Carolina face significant barriers to accessing oral health care in their communities. There is an obvious lack of access to care as measured by a sheer lack of oral health providers across the state. But families also struggle with Medicaid-specific oral health access, knowledge gaps among parents, negative experiences with oral health systems that parents might pass on to their kids, social determinants of health, and more.

After analyzing the data, the two most prominent barriers across all focus groups were a lack of available providers and struggles with access for people with Medicaid coverage. In Western North Carolina, Medicaid access was the most discussed barrier to oral health access, followed shortly by provider availability, and transportation. Given the rurality of Western North Carolina, transportation issues like a lack of public transit and having to travel for hours to the nearest provider present significant challenges in accessing oral health. The most prominent barriers in central and eastern North Carolina are consistent with the overall counts throughout the state, with Medicaid access and provider availability the most discussed, followed by cost barriers.

However, in Eastern North Carolina, struggles around Medicaid access barriers surpassed challenges related to overall provider availability. This could be due to two reasons. First, conversations in Eastern North Carolina centered more around families on Medicaid that struggle to access oral health care, which would increase the prevalence of this theme in qualitative analysis. However, it could also reflect a disproportionate or elevated lack of providers in the communities where we held focus groups in Eastern North Carolina.

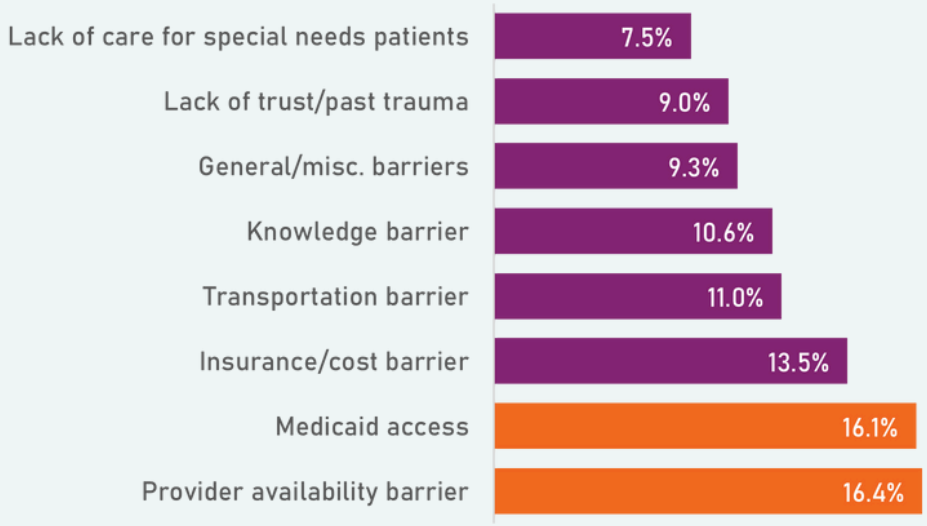
PROVIDER AVAILABILITY AND MEDICAID ACCESS ARE THE MOST FREQUENT QUALITATIVE CODES CITED AS BARRIERS TO ORAL HEALTH CARE IN ALL REGIONS OF NORTH CAROLINA.

QUALITATIVE CODE APPLICATION OF ORAL HEALTH BARRIERS BY REGION AND TOPIC

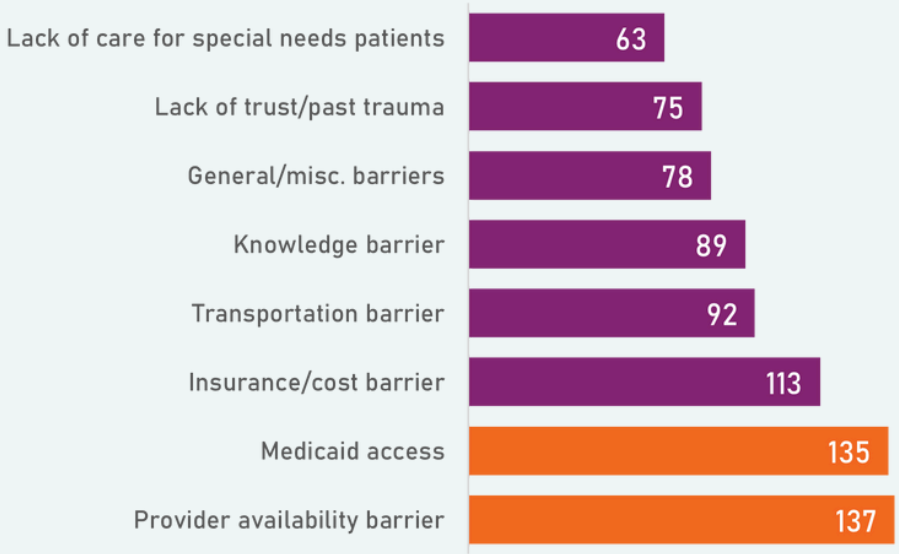


ABOUT A THIRD OF FOCUS GROUP CONVERSATIONS AROUND BARRIERS TO POSITIVE CHILD ORAL HEALTH FOCUSED ON PROVIDER AVAILABILITY AND HEIGHTENED ACCESS ISSUES FOR CHILDREN ON MEDICAID.

PERCENTAGE OF FOCUS GROUP CONVERSATIONS AROUND BARRIERS TO POSITIVE ORAL HEALTH BY TOPIC



OVERALL BARRIERS TO ACCESSING ORAL HEALTHCARE, TOTALS (CODE APPLICATION)



NO PROVIDERS, NO APPOINTMENTS: PROVIDER AVAILABILITY DRIVES BARRIERS TO CHILD ORAL HEALTH ACCESS AND POSITIVE OUTCOMES FOR FAMILIES.

Lack of access to oral health care providers in communities across the state stood out as the most discussed barrier to oral health care among participants. About 16% of focus group discussions around barriers to positive child oral health concerned a lack of providers. Oral health access issues ranged from simply too few providers in counties to extensive waiting periods for available appointments. Many dentists simply do not accept new patients. Especially in rural areas, there are virtually no providers that focus on pediatric dentistry or accept special needs patients, as discussed by focus group participants and reflected in quantitative data.

"There's one other pediatric dentist office in the county, and they do accept Medicaid, but right now they're not taking new patients...and that's a common problem with them and the other office within the county." (Caldwell County Resident)

Dental workforce shortages underly access issues in rural areas. Dental practices and clinics in rural communities struggle to recruit and retain dentists. In rural southeastern North Carolina, a public health official commented that when she was growing up there were far more dentists in town than they have now. Today, the county is down to one dentist to serve everyone, adults and children alike.

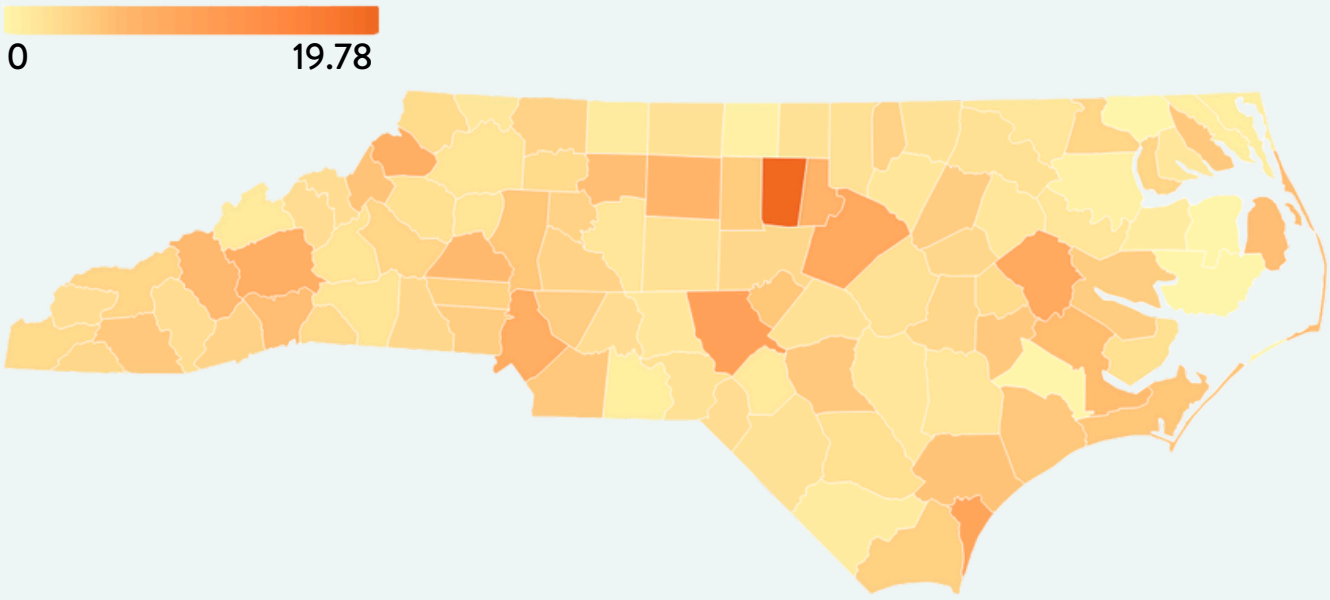
Rural North Carolina counties are not alone in the challenge to hire and retain dental workers in their community; the dental workforce faces shortages across the country. In a survey by the American Dental Association, 95% of dentists reported that it has been extremely challenging or very challenging to hire new dental hygienists and 87% of respondents indicated the same regarding hiring dental assistants.[31] These shortages can lead to a limited capacity to accept new patients and longer wait times for appointments.

Participants noted that the lack of providers in rural areas place pressure on oral health systems in more urban counties. Since provider availability is scarce in rural areas, parents often travel to urban hubs to access care for their children. Therefore, quantitative data on provider numbers may not accurately reflect the true population size that is seeking out care in that county. For instance, the UNC Cecil G. Sheps Center for Health Services Research reports that in Buncombe County, there are 7.89 dentists for every 10,000 population.[32] However, due to Buncombe County being the only urban hub surrounded by several rural counties, the population traveling to Buncombe County for care is much higher.

"These numbers of pediatric dentists per 10,000 population in Buncombe County. It might be 0.33. But when you take into account all people that are coming from Mitchell County to Asheville, all the people that are coming from Haywood County to Asheville, Jackson County to Asheville... you still can't get the pediatric dentist that's looking to sedate." (Buncombe County parent)

NORTH CAROLINA'S URBAN COUNTIES HAVE MORE DENTISTS PER CAPITA, BUT LOW PROVIDER AVAILABILITY IN SURROUNDING RURAL COUNTIES MASKS THE TRUE NUMBER OF PATIENTS SEEKING CARE IN MORE POPULATED REGIONS.

DENTISTS PER 10,000 POPULATION, 2023



Source: North Carolina Health Professions Data System, Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

"So, I know if I'm having difficulty hiring a dentist for an adult practice, I can't imagine, because let's be real, a pediatric unit can hang a shingle and make a million dollars. They're not going to send them to help the nutrition center and work for what I make...They can hang a shingle out here and make a million dollars a year as a pediatric dentist, because they know the parents that have the resources are going to take care of their children's teeth." (Surry County oral health provider)

CHILDREN ON MEDICAID FACE EVEN GREATER CHALLENGES FINDING PROVIDERS THAT TAKE THEIR INSURANCE COVERAGE.

With the expansion of Medicaid in North Carolina, there are many more patients eligible for care under Medicaid. However, the number of oral health providers accepting Medicaid has not caught up with the demand. Focus group participants across the state reported this as another significant barrier to accessing care for themselves or families with low-incomes in their community. Similar to provider availability, qualitative codes for Medicaid access represented 16% of the total coded discussion around challenges and barriers to oral healthcare.

Participants cited two main reasons to explain the lack of oral health providers that accept Medicaid in their communities. First, dental providers receive low reimbursement rates when they bill Medicaid for children's health services. Medicaid reimbursement rates for child dental services in North Carolina are just 52.8% of private insurance payment rates and 34.3% of average dental charges.[33] Listening Tour participants remarked that, after covering the expenses associated with providing care, dentists are left with very little revenue from oral health services covered by Medicaid reimbursements. Such low reimbursements for services provided makes it unfeasible for dental practices to operate a business that has a high volume of people on Medicaid.

"We had a dentist here who takes Medicaid. This whole clinic is like the Medicaid hub for dental services, and he said that the reimbursement is so low that that's why these other providers have a cap, because they would not be able to sustain themselves." (Cumberland County resident)

Due to low reimbursement rates, many providers will cap how many Medicaid patients they serve. A social service provider in Columbus County noted how difficult it is to make referrals to dentists in the area for families on Medicaid. Even though providers may advertise that they accept Medicaid, in practice they only have a few Medicaid patients that they serve and often are not accepting more. Some providers have also mentioned that dentists would "rather do a few cases pro bono and then stop, than deal with all the hoops that they have to [jump through] with Medicaid" (Buncombe County provider).

Another oft discussed barrier to accepting Medicaid patients involves stigma. Some providers will report that Medicaid patients often do not show up for appointments or arrive significantly late. However, distrust between Medicaid providers and patients runs both ways. Medicaid patients do not seek out providers because of a word-of-mouth understanding that Medicaid providers are not good quality or due to their own personal experiences and the treatment they have received.

"On both sides, providers are like, 'oh, the Medicaid population, I don't want to serve those,' and then people who have Medicaid are like, 'I don't want to go to the Medicaid doctor because of experiences have either personally been terrible or heard about them being terrible.'" (Buncombe County parent)

INCONSISTENT INSURANCE COVERAGE OF SOME ORAL HEALTH SERVICES OR UNINSURANCE CAN PRICE FAMILIES OUT OF DENTAL CARE FOR THEIR CHILDREN.

Focus group participants also cited the cost prohibitive nature of oral health care as a common barrier to access care for their children. Simply put, families do not seek out oral health care if they do not have insurance.

"And then, if you don't have insurance, where's the money coming from? So the children suffer because they have no way to pay, no way to get there, so that they have these teeth that are just decaying in their mouth." (Bladen County)

Even for those with dental insurance, there is no guarantee available providers will accept it. Participants discussed how, with co-pays, going to the dentist and needing significant dental work is too expensive, even with insurance. There was also confusion regarding what care is or is not covered by insurance. Participants note that many insurance plans will cover 100% of preventative care (e.g., cleanings, exams, x-rays), but will not cover 100% of major procedures like crowns or extractions. This can lead to patients having to price check procedures between different dental offices before seeking care. Procedures not entirely covered by insurance plans are often more expensive, and unaddressed oral health problems in children like this can then manifest as other health problems, reduce their quality of life, or impact other areas of their life, like performing well in school.

"One out of five kindergarteners have untreated dental caries, right? Untreated tooth decay. Think about that...there's pain involved. If you're a teacher, this is difficult for the classroom, right? If you're that kid trying to learn, we would not stand by if one out of five kindergarteners has a broken finger when they're trying to learn in class. That wouldn't be acceptable." (Harnett County resident)

PARENTAL KNOWLEDGE GAPS ABOUT THE IMPORTANCE OF PROPER CHILD ORAL HEALTH CARE POSES SUBSTANTIAL BARRIERS TO POSITIVE OUTCOMES.

As noted above, knowledge of good oral health hygiene and prioritization of oral health is generational. Participants whose parents made sure that they practiced good oral hygiene and went to the dentist regularly were more likely to continue those practices as adults and instill them in their own children. The inverse of this is also true. Participants described a lack of knowledge around the importance of oral health and positive dental hygienic practices as a major barrier for families with low-incomes seeking out oral health care, which underscores the importance of oral health education through early childhood and home visiting programs. A Buncombe County community advocate noted in that focus group that "children who [don't] have that education and access become parents who don't have that education and access."

These knowledge gaps around oral health can lead to parents not interacting with oral health care systems or identifying dental problems in their children. For example, one parent noted how they were not sure when their child needed to start seeing a dentist or what oral health milestones to look for. Similarly, parents who do not interact with oral health care systems or are not provided with oral health care education at pediatric appointments often may be unaware of the warning signs of oral health problems in their kids. Unless their child is in significant pain or there are visible cavities, some parents might not even know their child is dealing with oral pain.

Participants reported that oral health knowledge gaps among parents can have serious unintentional implications. Not taking children early to the dentist can lead to dental caries at early ages. Bottle rot, or prolonged teeth exposure to sugary drinks, milk, formula, or juice among babies and young children, arose in multiple focus groups as an indicator of oral health knowledge gaps among parents. Discussions also picked up a sentiment that some parents might think that "baby teeth don't matter" since a new set will grow after, which some participants noted has been reinforced in pediatric medical settings. However, decay in baby teeth can lead to significant problems when a child's permanent teeth start growing, such as bite and jaw misalignment.[34]

Untreated tooth decay in early ages can lead to not only adverse oral health outcomes, but it can also worsen overall health. One Henderson County oral health provider remarked that children they see "need not only teeth extracted, but they need them capped. They need space maintenance, or else we're going to have deficiencies in arch growth, which leads to breathing problems and developmental problems later on in life. So, it's not just a matter of having something to chew with, but it's how your entire face develops."

Another unintentional implication from knowledge gaps that participants uplifted concerned child neglect and child welfare system involvement. Children who do not have parents or guardians who arrange necessary medical care can be subject to child neglect determinations and child welfare system involvement. Of course, this can arise from factors other than simply not knowing proper oral health care practices or an inability to access care. Lack of oral health and other medical care that can lead to child welfare system involvement also stems from a lack of economic security among families. Even while parents may recognize the need and want to provide their children with necessary care, many may not have the means to do so. As discussed below, families with lower incomes often must make difficult decisions on how to prioritize their household spending. Oral health services and other medical care can be difficult to prioritize when families struggle to provide the basics for their children such as food and housing.

"I thought about a case that I have, a child came into foster care. Well, two children came into foster care, and medical neglect was the big issue. And the children had so much oral pain that they were trying to dig their teeth out with spoons. Their teeth were just completely rotten." (Harnett County resident)

Participants discussed that beginning education early and at home is key to mitigating this barrier. Public health awareness and education campaigns for oral health as well as incorporating dental education into home visiting programs can help ensure parents have the tools to instill good oral health habits in their children at a young age.

"A lot of parents don't know the importance of oral health at a young age. A lot of families don't think it's important until they're in school, or until they have a mouthful of teeth, or until they've lost all their baby teeth and have permanent teeth, like they don't- they just don't know." (Johnston County provider)

LACK OF TRUST OR PAST TRAUMA WITH ORAL HEALTH CARE CAN LEAD TO UNADDRESSED DENTAL ISSUES IN CHILDREN.

In some focus groups, participants acknowledged that a lack of trust with providers or fear of the dentist among children and parents can create barriers to children accessing care. As participants discussed, fears of the dentist often result from past trauma with care, either from a direct experience of their children or parents themselves. An American Dental Association survey found that 22% of respondents reported that they had not seen a dentist in the last year due to a fear of the dentist.[35] For some participants, pulling teeth was a common form of treatment for tooth decay, leading to generational trauma with oral healthcare. A parent's fear and anxiety with the dentist can often project onto their child, perpetuating this generational effect.

Participants emphasized that taking children to the dentist early can normalize the experience and mitigate dental fear. When parents delay going to the dentist until children have severe work that needs to be done, they are more likely to experience trauma and less likely to seek out oral health care in the future.

Many dentists lack trauma-informed care training that can help patients that might have anxiety at the dentist or make it easier for them to care for patients with special health care needs. As participants in some focus groups discussed, finding a dentist with specialized training or experience like this is often more difficult than the already challenging task of finding any pediatric dentist, especially in rural areas with provider shortages.

"So, I have written down generational fear as one of the barriers and challenges. So, you know your children, they're a mirror, so they will do what they see you do if they never see you, go to the dentist or talk about it, or whatever. More than likely, it's going to be really hard and challenging for them to do it." (Mecklenburg County resident)

PROVIDER ACCESS ISSUES ARE COMPOUNDED FOR CHILDREN WITH SPECIAL HEALTH CARE NEEDS.

Families of children with special health care needs or developmental disabilities often face even greater challenges accessing the specialized care that they need. Participants noted a general lack of providers that have the capacity to see these patients, as appointments for regular cleanings and exams for special needs patients can take much longer than most other appointments. Providers that do accept children with special needs often have wait times for appointments as long as 10 months away, according to experiences conveyed by parents. They also acknowledged that virtually no Medicaid oral health providers accept special needs patients.

Needing access to specialized care can intersect with other barriers parents discussed like provider availability and lack of transportation. A mother of multiple children with special needs had a difficult time finding providers that accept Medicaid and could provide dental care to her children in the community they lived in. She ultimately found a provider that her children were comfortable with multiple counties away, which meant every time her kids needed their teeth cleaned, cavities filled, or some other procedure she had to take off work and make the more than an hour trip each way.

Providers that do see special needs patients, however, often lack the trauma-informed training required to provide quality care. One parent discussed how one provider wanted to immediately sedate their child for a standard cleaning instead of taking the time to make them comfortable. These experiences can amplify and perpetuate fears and anxiety surrounding dental care.

"I mean, we have a lot of very set in their way medical professionals, and it definitely affects the care that our kids get. And, you know, seeing the kids that I see and the things they come into the system with, like, if you don't have the right doctor, like you're setting them up for failure." (New Hanover County parent)

SOCIAL DETERMINANTS OF HEALTH LIMIT PARENTS' ABILITY TO PRIORITIZE THEIR CHILDREN'S ORAL HEALTH.

Social determinants of health (SDOH) like access to healthy food, safe and affordable housing, and gainful and consistent employment, all influence oral health and overall health outcomes and access for children. Much of the conversation on the connections between child oral health and social factors centered around the difficulty for parents to prioritize dental care when they already struggle to provide the basics for their families.

"I think with some of my patients, I've heard like it's not as a real priority, you know, as far as their teeth. I mean, there's other factors that they feel are more important, whether they have food or they have a place to live, you know, things like that, and your teeth just take a backseat to all of that." (Henderson County provider)

Access to affordable healthy foods stood out as one of the most common social determinants of health that families struggle with. Based on qualitative data collected, discussions of food insecurity consisted of about 40% of any focus group conversation section on social determinants of health. All focus groups touched on the topic of food access in their community. Convenience stores and fast-food restaurants are much more accessible and affordable than grocery stores, especially in rural areas. Even in more urban communities, focus group participants noted that low-income neighborhoods are often food deserts that have no grocery stores but plenty of convenient store options where children can easily purchase cheap processed foods like bags of chips.

Lack of access to healthy foods and higher access to more processed foods higher in carbohydrates increases the risk that children will develop dental caries. Adults with low food security have been shown to have more unmet dental needs.[36] Similarly, research has found that children with low or very low food security had significantly higher prevalence of dental caries than children living in food secure households.[37] An inability for families to afford groceries also pushes oral health care to the bottom of most families' priority lists.

"It's harder to find healthy [food] options, like really healthy options. And then they're more expensive." (Columbus County resident)

Throughout all counties on the Listening Tour, each one reported soaring housing costs that weigh on family finances. In rural counties, participants reported a significant number of unhoused children or students. In Durham County, participants who serve unhoused families in the community noted that the only real care options for these families are public community health centers which help address oral health needs but are in short supply. Unhoused families that do not live in communities with public health clinics may not have this option at all. Like food security, if a family is struggling to find housing, seeking oral health care is not going to be a top concern for them.

All focus groups highlighted transportation, both actually accessing transportation and the sheer amount of time it can take to get to the closest dentist, as a significant barrier to care. Western North Carolina focus groups uplifted transportation as a top barrier to oral health care access in their communities. For rural populations, it is not uncommon to travel over an hour outside of their county to access a dentist. In Jackson and Swain counties, mobile dental clinics sometimes refer patients as far away as Charlotte, over 3 hours away. Many of the patients they refer do not have the means to travel that far for care.

"Chances are there's not a dentist that can see them locally. They probably have to go to Wilmington. That means traveling." (Columbus County resident)

Urban areas mostly reported a lack of reliable public transportation that can get them directly to dental providers. Participants noted that even if their city has a bus system, buses often run behind, and riders sometimes do not know if a bus is even running. Therefore, the unreliability of public transportation can cause them to be late to or completely miss their appointments, which might mean incurring a financial penalty from dental offices.

In terms of employment status, community members remarked that the absence of quality job options for parents can exacerbate oral health access and ultimately outcomes for their children. In some areas, there are plenty of jobs available, but many pay low wages without benefits. Participants noted that parents need to and want to work to provide for their families but are often forced to accept lower quality, readily available employment opportunities. Some discussions acknowledged that parents in these situations might be working two to three jobs to earn enough money for their families, which makes it nearly impossible to find the time to take off work (and lose wages) to get their children to a dentist or other medical appointment.

"It's food, it's the place to live. I mean, [oral healthcare] is way down, that's way down the list." (Surry/Stokes County resident)

SOCIAL DETERMINANTS OF HEALTH LIMIT PARENTS' ABILITY TO PRIORITIZE THEIR CHILDREN'S ORAL HEALTH.

While some barriers were not as common throughout all focus groups, they were still raised as serious concerns by participants. Lack of paid time off, or part-time job constraints, can often prevent parents from being able to take their children to dental appointments. If a salaried parent does not have ample time off, they are precluded from seeking oral health care for themselves and for their children if their job is not flexible. Participants noted that seeking care is additionally cost-prohibitive for part-time workers since any time taken off to go to the dentist or take their child results in lost wages.

In areas with large Spanish-speaking populations, there often are too few providers that speak multiple languages. Participants noted that this creates language barriers for parents who may find it difficult to explain to providers the care their children need. Children themselves often serve as translators for their parents. In addition to language barriers, parents acknowledged access to culturally sensitive providers as another barrier, with some communities expressing distrust with providers available to them.

Many areas, like Buncombe County or Guilford County, would describe themselves as "resource rich," with substantial sums of philanthropic and other dollars allocated toward social service programs. However, participants in counties like this noted significant duplications of efforts for oral health and other services. They acknowledged that this could lead to confusion from community members who benefit from these services. Additionally, direct service programs that are tied to grants, while incredibly beneficial, are often temporary or short-lived, which introduces challenges for parents to rely on these efforts.

Some providers in Listening Tour focus groups addressed North Carolina statutes regulating the practice of dental hygienists. Under current North Carolina law, there can only be two dental hygienists for every supervising dentist. Providers that spoke on the dental hygienist rule said that these caps can limit the amount of care dental offices provide in their community.

Recommendations to Increase Access and Improve Care

EXPAND SCHOOL-BASED ORAL HEALTH PROGRAMS

In each focus group, participants mentioned that incorporating oral health services into school would help kids access care. Co-locating dental services at school or increasing access to district-wide dental hygienists takes the burden off parents who might not be able to take their child to a dental clinic during the day or cannot find a provider.

School-based oral health programs are offered in some North Carolina school districts but are not statewide. Fluoride mouth rinse programs and school-based dental sealant programs are present in schools where 60% and 50%, respectively, of students qualify for free or reduced meals.[38] Fluoride mouth rinse programs have been shown to reduce decayed, missing, or filled teeth in children and adolescents by 23%.[39] Expanding these programs to schools that might not meet this threshold would help meet the needs of low-income students throughout the state suffering from dental caries.

School-based dental sealant programs also show positive results in reducing dental caries. Sealants, along with fluoride, are key in preventing tooth decay. One study found that school-based programs that provide sealants to 1,000 children would prevent 485 fillings, and 1.59 disability adjusted life years. Applying sealants is also much more cost effective than the lifetime cost of treating dental caries.[40] Mobile dental clinics in counties across the state have been successful in providing comprehensive and restorative care to children and expanding these programs could help meet the needs of more children. Focus group participants across the state praised the services that mobile dental units (MDUs) provide to children that otherwise are not receiving dental care. As noted previously, 97 of North Carolina's 100 counties qualify as a Health Professional Shortage Area for dental health.[41] MDUs address this provider shortage barrier by bringing services straight to students, often in partnership with schools.

INCREASE ACCESS FOR MEDICAID PATIENTS

The inaccessibility of oral health care for children with Medicaid coverage was one of the most common barriers to positive child oral health. Patients are unable to find providers that accept Medicaid, and those that do often wait several months for an appointment. Focus group discussions revealed that low Medicaid reimbursement rates drive dental providers' decisions to not accept Medicaid. As noted above, Medicaid reimbursement rates for child dental services in North Carolina are just 52.8% of private insurance payment rates and 34.3% of average dental charges.[42] In 2022, the average debt of a dental school graduate was $293,000, with most students aiming to work in a private practice clinic after graduation and only 4% intending to practice in a not-for-profit or government agency.[43]

By making Medicaid reimbursement rates competitive with private insurance payments, providers would be more incentivized to accept greater amounts of patients with Medicaid coverage at their practices. With current Medicaid reimbursement rates, private practice providers are unable to sustain their business with only patients on Medicaid, or even a large volume of patients with Medicaid coverage.

Additionally, working with Medicaid presents serious administrative burdens on dental offices that are already short-staffed. Some states have collaborated with Medicaid managed care organizations to simplify the credentialing process and to limit the number of dental procedures that require prior authorization.[44] Practices like this would reduce the regulatory burdens that might disincentivize providers from accepting Medicaid.

Providing incentives for oral health providers to pursue careers in county health departments, especially in rural areas, would also alleviate the Medicaid provider shortage. Programs like the National Health Service Corps and the North Carolina Loan Repayment Program offer student loan repayment for dentists and dental hygienists in exchange for providing care in a Health Professional Shortage Area, or rural and underserved areas with high needs for at least 2 years and 4 years, respectively.[45]

IMPROVE PARENTAL EDUCATION AROUND ORAL HEALTH

Another prominent trend from the focus group discussions concerned parental knowledge of oral health issues and positive dental practices which can be passed down from generation to generation. This lack of awareness regarding the importance of child oral health can lead to delayed initial dental visits, delayed or no supervised teeth brushing, and missed signs of serious tooth decay. While there is no ill-intent on behalf of parents, a lack of prioritization of oral health can lead to significant dental caries early in their child's life.

Anecdotally, some parents receive reactive educational materials regarding their child's oral health from a Head Start program, school, or pediatricians. These educational materials were often given after their child has shown signs of tooth decay. Reach Out and Read's "Brush, Book, Bed" model also provides a framework for parents to structure their child's bedtime around oral health and reading to start good habits early. Tooth Talk, an online resource produced by the University of North Carolina at Chapel Hill and the NC Division of Public Health Oral Health Section, seeks to inform parents of young children about oral health milestones, what to expect in dental visits, and ways to incorporate good oral hygiene practices.

Many of these current services that seek to educate parents require parents seeking it out or opting in, missing a large population of parents that might also benefit. Incorporating oral health education as early as prenatal care can help to reach more parents. Studies have shown that when pregnant people receive comprehensive oral health care and education, their children have a lower risk of developing cavities.[46]

Incorporating structured oral health education and care into well-child visits can also address knowledge barriers. As noted by focus group participants, parents were much more likely to take their child to well-child visits and to see primary care physicians than to the dentist. Primary care and pediatric offices serve as an opportunity to emphasize the importance of oral health at early ages, and research shows that it works.

A randomized clinical trial with 18 pediatric clinics and 1,023 parent-child pairs sought to understand whether targeted oral health education in primary care visits resulted in low rates of decay and higher engagement with dental offices. In the intervention group, clinicians received education and training and communicated to parents the chronic nature of caries, general oral health facts and practices, and provided a prescription to visit a dentist with a list of Medicaid-accepting providers in the area. Children in the intervention group were 34% more likely to see a dentist and have meaningfully lower untreated tooth decay.[47]

Conclusion

Oral health outcomes continue to be a persistent and significant issue for North Carolina's children. Oral health problems can not only lead to other major health issues, but children suffering from dental caries and experiencing pain can fall behind in school, with lower grades and higher absenteeism due to oral health issues. Participants in the Listening Tour all recognized oral health access as important to public health overall. By discussing directly with communities, NC Child was able to gain valuable insights into the landscape of oral health throughout North Carolina and how to best improve access to oral health care and children's quality of life.

Methodology

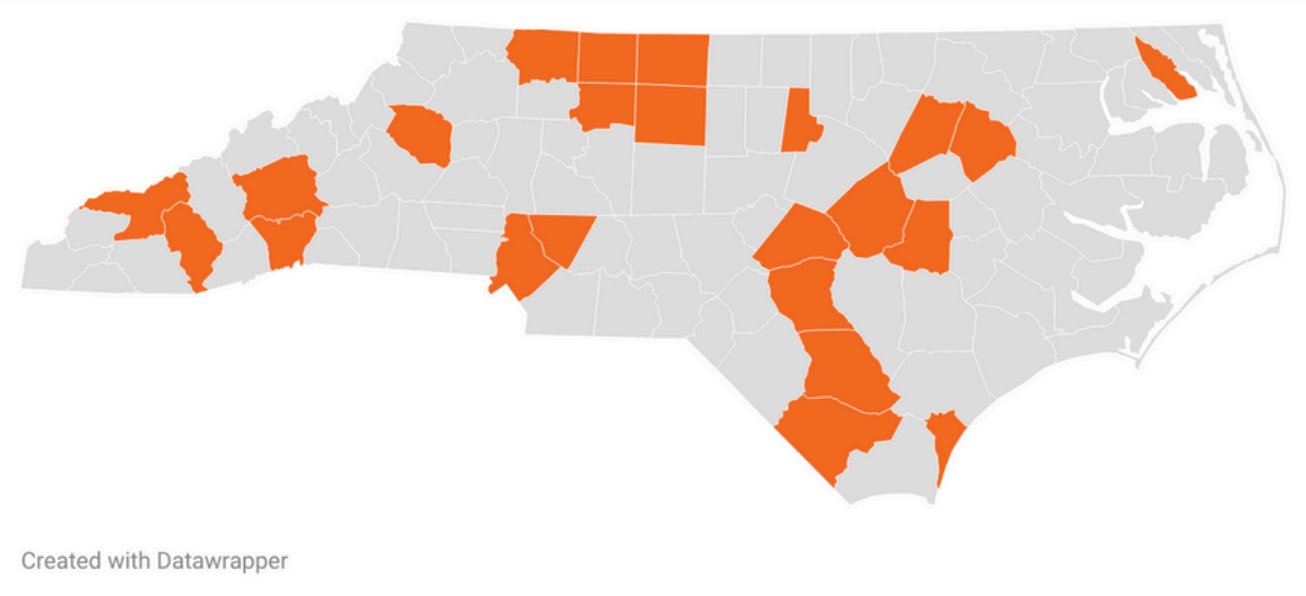
NC Child's 2024 Listening Tour engaged communities throughout North Carolina, hearing from a wide range of community members with lived experiences about the state of children's oral and overall health in their county.

We organized each Listening Tour stop into focus group formats that gave ample voice to participating community members and allowed NC Child to dive deeper into the issues discussed. Each focus group ranged from about 7 to 25 participants, with an ideal number of participants between 10-15. We conducted targeted outreach to community members in each Listening Tour county through several key players regarding children's oral health, including county health directors, local school system superintendents, and Smart Start directors. Individuals consistently present at each focus group included: parents, oral health providers (private practice and public health providers), school personnel (superintendents, school nurses, local director of student support services), local community advocates and direct service providers, local elected officials, and county public health officials. These participants were selected due to their direct impact or involvement in children's oral and overall health.

Counties were selected based on geographic spread throughout the state of North Carolina, oral health outcomes and access, and availability of participants. NC Child used a snowball sampling method to recruit participants, asking key stakeholders in each community for recommendations for participants. This aimed to center community in discussions by ensuring the right voices were participating in each focus group.

The counties engaged in this listening tour were Cabarrus, Mecklenburg, Forsyth, Guilford, Jackson/Swain, Surry/Stokes, Caldwell, Buncombe, Henderson, Johnston, Cumberland, Harnett, Rockingham, New Hanover, Bladen, Columbus, Wayne, Nash/Edgecombe, Durham, and Pasquotank. For some smaller counties, Listening Tour events combined two counties (i.e., Jackson/Swain, Nash/Edgecombe, and Surry/Stokes). Across all focus groups, 148 participants were engaged in total.

NC CHILD ORAL HEALTH LISTENING TOUR FOCUS GROUP LOCATIONS, 2024



Note: Focus groups in Western North Carolina were conducted in July and August 2024 before the impact of Hurricane Helene.

Each focus group ranged from about 60-75 minutes. The three main topics that guided the conversation were children's access to oral health care, oral health outcomes for children in the community, and ways to improve access; how primary care access differs from oral health care access; and how social determinants of health like food access, housing, and parental income impact children's oral and overall health outcomes (see Appendix for full protocol). This protocol was drafted after identifying key research questions for the listening tour:

- *What underlying systems in North Carolina communities impact child oral health outcomes?*
- *What do social determinants of health look like across North Carolina? How do they relate to oral health?*
- *What systems or programs would help improve access to health care and oral health care?*

After reviewing background literature on oral health access, we developed a full focus group protocol, including probing questions for further information. Slight revisions were made once the Listening Tour started based on the flow of conversations from completed focus groups.

After gaining written informed consent from all participants, NC Child recorded each focus group and transcribed conversations using an online transcription service. NC Child then cleaned transcripts to ensure accuracy based on focus group recordings and uploaded the transcript into the qualitative analysis software Dedoose.

We developed an initial qualitative codebook based on our research goals and qualitative protocol and revised qualitative codes once data collection was completed. Codes were grouped into four main content areas: the current landscape around oral and overall health, community attitudes and knowledge regarding oral health, barriers and access to care, and social determinants of health (see Appendix for full codebook). NC Child coded qualitative data in three batches as Listening Tour events were completed.

After coding, we conducted a thematic analysis based on coded excerpts from each Listening Tour focus group, providing high-level summaries of the content for each code/theme. Illustrative quotes were also pulled to embody each theme. We created thematic analysis matrices for each county and aggregate summaries at the regional level (Western/Central/Eastern NC) to analyze commonalities and differences in oral health access and trends across the state.

In addition to a qualitative thematic analysis of the content of the focus group, NC Child analyzed the quantity of code applications for each code/theme. Integrating this data and disaggregating across regions allows us to understand the most prevalent topics and what participants viewed as the biggest barriers to oral healthcare in their communities.

There are some limitations to keep in mind regarding this qualitative analysis. Each focus group had varying numbers of participants, and unidentical personnel types in each group (i.e., some focus groups had no providers at all, some had as many as three). This also led to some discussions varying significantly in terms of content. For example, the lack of care for special needs patients did not come up often unless a parent whose child was special needs was present at a focus group. To account for these differences, findings have been aggregated at the regional level, resulting in an even distribution of number of participants and types of participants across focus groups.

Another limitation noted throughout the Listening Tour was the reticence from some providers present when it came to discussing reasons for other practices not accepting Medicaid. Similarly, we found that parents were sometimes hesitant to voice their stories as well. Considering there were several community advocates and public health professionals in the room, both providers and parents might not have been comfortable sharing their thoughts openly. Further research involving key informant interviews with private practice providers and parent-only focus groups will seek to improve participants' ability to speak openly.

Appendix

- **NC CHILD LISTENING TOUR QUALITATIVE PROTOCOL**
- **FULL QUALITATIVE CODEBOOK**

Highlighted Current Resources Throughout NC:

Throughout the listening tour, NC Child heard about the state of oral health, barriers to access, and potential solutions. Focus groups also discussed in detail several community programs that seek to address access to oral health care, primary care, and resources that seek to alleviate the impacts of social determinants of health. Below are some of the programs highlighted by participants throughout the state:

- **WESTERN NORTH CAROLINA**
  - MAHEC Dental Health Center: Located in Asheville, this community dental clinic utilizes dental residency and dental students, pre- and post-graduate, to provide preventative, restorative, and cosmetic dental care. They accept most major dental insurance plans and use a sliding fee scale for uninsured patients. By tapping into dental student populations, this program addresses the statewide shortage of oral health providers, one of the most prominent barriers noted by focus group participants.
  - Blue Ridge Health Dental Buses: These mobile dental units from Blue Ridge Health provide oral healthcare services to communities across Western North Carolina, primarily to children. Blue Ridge Health serves the counties of Buncombe, Haywood, Henderson, Jackson, Macon, Polk, Rutherford, Swain, and Transylvania. Each bus has two dental chairs and provides comprehensive oral health services. Buses visit schools primarily, but other community organizations can request their services and oral health education at events. They use a sliding fee scale based on income for uninsured patients. These mobile dental clinics bring affordable services directly to children and populations with an urgent need for dental care, removing barriers like transportation and availability of parents to take their child to a clinic.

- **EASTERN NORTH CAROLINA**
  - ECU Community Service Learning Center: Administered through ECU's dental school, the ECU Community Service Learning Center offers oral healthcare to rural communities throughout North Carolina, but focuses primarily in Eastern North Carolina. Fourth year dental students complete three 27-week rotations in these learning centers to gain experience and provide accessible and affordable care to low-income communities. Medicaid and other insurances are accepted. Services include comprehensive dental care and restorative care, including implants, extractions, root canals, etc. Again, utilizing dental student population can alleviate provider shortages in rural areas, provide affordable care, and give dental students a hands-on learning experience.

- New Hanover County Mobile Dental Unit: The MDU that serves both New Hanover and Brunswick counties sees children from ages 3 to 18, including Medicaid patients and uninsured patients with a sliding fee scale based on income. This MDU visits schools throughout the county and will stay there until they have seen all the children that have requested the service. Services include dental exams, cleanings, fluoride treatments, extractions, X-rays, sealants, and fillings.

- **CENTRAL NORTH CAROLINA**
  - Smile Starters: With locations primarily in Central North Carolina, Smile Starters seeks to provide affordable pediatric dental care. Services include cleanings, dental exams, fluoride varnish, sealants, X-rays, and restorative care. Smile Starters accepts Medicaid and most major dental insurance plans and has a "Smile Starters Club Membership" for uninsured patients that covers main services annually. This service seeks to make dental care less cost prohibitive for families, one of the most common barriers noted by participants along with provider availability. Smile Starters also provides specialized pediatric care that is typically in even shorter supply throughout North Carolina.
  - CommWell Health of Newton Grove/ Spivey's Corner: Located in Dunn, North Carolina this clinic places dental care and medical care at the same site. Co-locating oral and primary health care improves accessibility to overall health care in addition to dental care. This clinic accepts Medicaid and offers discounts based on income and family size for uninsured patients. The medical center and dental both provide comprehensive services. CommWell Health also has a school-based mobile dental unit.
  - Lincoln Community Health Center: This outpatient center in Durham, North Carolina provides a range of services to patients, including primary care, mental health care, pediatric care, and dental care. Dental services include preventative care like cleanings and X-rays, restorative care, and oral surgeries. The clinic accepts walk-in patients and charges based on a sliding scale based on family size and income. They also take most major dental insurances and Medicaid plans. By integrating overall and oral health care in a centralized facility, this center makes it more accessible to prioritize oral health as necessary for overall health.

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