

HIDDEN CRISIS: PEDIATRIC ORAL HEALTH IN RURAL AMERICA

RESEARCH AND POLICY CENTER
AMERICAN ACADEMY OF PEDIATRIC DENTISTRY



HIDDEN CRISIS: PEDIATRIC ORAL HEALTH IN RURAL AMERICA

EXECUTIVE SUMMARY

Children living in rural communities generally have poorer oral health outcomes than their urban or suburban peers. A myriad of factors accounts for this oral health disparity. First and foremost, rural areas face a critical shortage of dental providers. With rural communities accounting for two-thirds of the nation's Health Professional Shortage Areas, many children residing in these communities lack reliable, comprehensive, ongoing, high-quality dental care. Other factors contributing to poor oral health include limited availability of and accessibility to healthy foods and a lack of optimally fluoridated water.

Medicaid is the most common payor for dental treatment for low incomes families, and a disproportionate share of rural populations have Medicaid coverage. In some states, reimbursements by Medicaid dental programs fail to cover the costs associated with delivering dental care. As a result, many dentists choose not to participate in Medicaid, while some of those choosing to participate may be doing so at a financial loss.

Another barrier to optimal oral health in children is limited or low parental health literacy. Lack of awareness and/or knowledge in parents and caregivers of the importance of oral health has profound implications for their children's health and development. This can contribute to poor oral hygiene at home, high frequency and high sugar diets, and lower utilization of dental services including preventive visits, potentially resulting in more visits to the Emergency Department for non-urgent dental conditions. Children living in rural communities deserve access to dental care to help achieve and maintain optimal oral health.

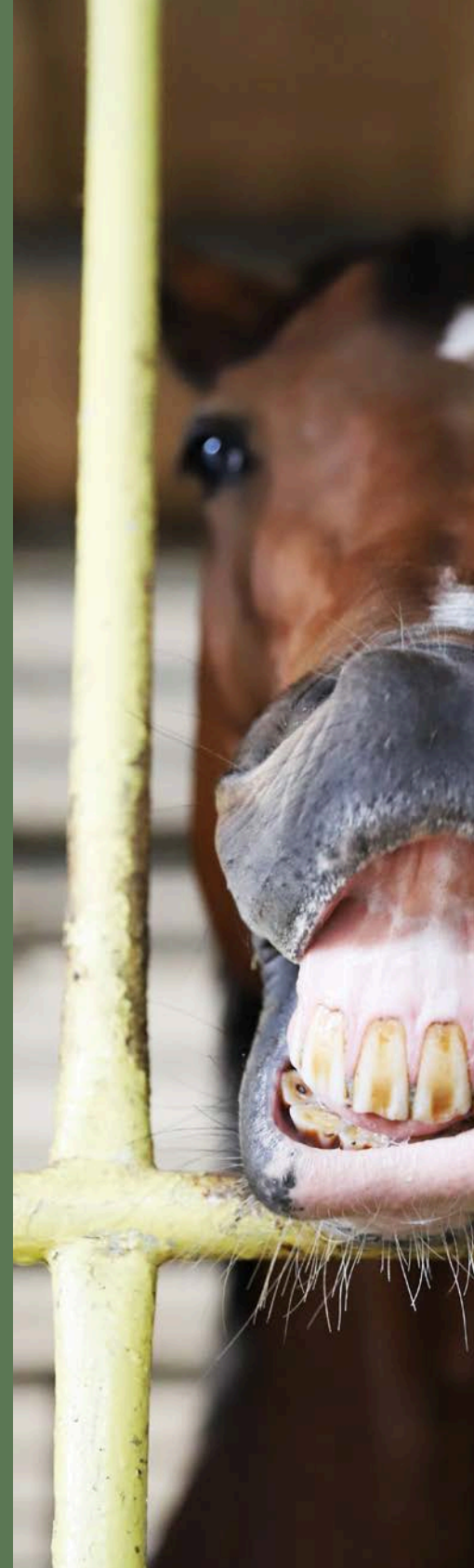
The mission of the American Academy of pediatric dentistry is to promote optimal oral health and oral health care access for all children. The goal of this brief is to highlight barriers and propose actions to be undertaken by advocates for children that will improve the oral health of America's rural children. The most effective approaches will be structured around the unique assets and needs of each community and involve many stakeholders working together to make a difference in the lives of rural children.

We believe the following actions hold promise for improving the oral health of children living in rural communities. We encourage dental providers and teams, policymakers, educators, community leaders, and other advocates for children to partner on these and similar efforts.



SUGGESTIONS FOR ACTIONS

1. **Recruit from Rural:** Build a robust dentist and dental team workforce in rural areas by **recruiting from rural communities** to the profession.
2. **Recruit to Rural:** Introduce dentists – including pediatric dentists and other specialists – to the rewards of working in rural areas by offering **enhanced loan repayment programs** and tax benefits.
3. **Renovate Medicaid:** Advocate for **reforms in state Medicaid** programs (e.g., suitable reimbursement rates, streamlined administrative processes) that make it feasible for more dentists to participate and treat children from low-income families in their communities.
4. **Reward Whole-Person Care:** Encourage the integration of services like **care coordination, case management, and transportation support** in dental insurance plans and dental offices by paying providers for these crucial aspects of whole-patient care.
5. **Reach Out, Refer, and Collaborate:** Facilitate partnerships between **medical providers, schools, community organizations**, county agencies, oral health coalitions, faith-based organizations, advocates for children, and pediatric dentists to implement programs that promote optimal oral health.
6. **Reserve Operating Rooms:** Advocate for **designated operating room time for dental cases** at regional hospital centers for patients with the greatest need, including young children with severe early childhood caries.
7. **Fluoridate:** Support local level legislation, regulation, and infrastructure to ensure safe **community water fluoridation**.
8. **Ensure Food Security:** Increase the availability and accessibility of **healthy and nutritious foods** in rural areas by working with local, county and state partners.
9. **Improve Oral Health Literacy:** **Motivate and educate parents and caregivers** to recognize the important role that optimal oral health plays in a child's well-being and quality of life.
10. **Enhance Digital Capability:** Extend **internet access** in rural areas to broaden the reach and benefits of teledentistry while expanding coverage and payment parity for services delivered via telehealth.



THE PROBLEM

CHILDREN LIVING IN RURAL AREAS DISPROPORTIONATELY SUFFER FROM POOR ORAL HEALTH

Rural America: Not One-Size-Fits-All

Rural communities each have their own unique strengths and challenges. There are multiple definitions used by the federal government on what constitutes “rural.” The variety of definitions reflect the multi-dimensional and heterogeneous nature of these communities. Typically, “rural” is defined by population density, geographic isolation, or travel time to nearby urban areas.¹ A rural community close to an urban center faces different barriers to oral health care compared to a remote community accessible only by plane or boat.² Beyond size and space, rural communities also vary widely by economic and social diversity.¹ There is not a ‘one-size-fits-all’ model that will successfully address each community’s specific needs. Solutions for improving oral health in these communities must address a broad range of issues.

The Oral Health Challenge in Rural Communities

Rural children are more likely to have poor overall health than their urban peers.^{3,4} According to 2016 American Community Survey data, rural counties had the highest child poverty rates (23.2 percent), followed by large urban metro (21.2 percent), smaller metro (20.5 percent), and suburban counties (14.5 percent). Many rural areas have few health care providers, especially pediatric specialists.⁵ Barriers to accessing health care providers pose significant challenges to achieving optimal health status and may contribute to poor health outcomes.

Disparities in oral health care for rural populations have been well documented. Rural communities are more likely to have:

- An inadequate supply of dental providers, especially those participating in Medicaid
- Limited covered services in dental benefits packages
- Socioeconomic status indicators that align with poor oral health outcomes
- Transportation limitations (e.g., options for travel, road conditions, etc.)
- A lack of integrated and coordinated health care^{2,6}

Rural children are more likely to report unmet dental needs, less likely to have visited the dentist in the past year, and less likely to have seen a dental team for ongoing preventive care. Like overall health status and health outcomes, rural, minority, and publicly insured children experience greater disparities in oral health care access and oral health status than their peers. According to the 2011-2018 National Survey of Children’s Health, rural children were less likely to receive evidence-based preventive services such as fluoride treatment and dental sealants resulting in a lag of preventive dental visits and overall dental health status when compared to children of urban populations.^{7,8} Additional work is needed to ensure rural children have access to quality preventive and comprehensive oral health services.

The COVID-19 pandemic highlighted the dire consequences that lack of access to care can have on rural communities across America. During the pandemic, rural children were less likely to have one or more preventive medical and dental visits in the past 12 months (59.6 percent) than urban children (66.7 percent) at all income levels.⁹ The availability of pediatric oral health services is a key to improving access and oral health in rural communities. A critical first step is to ensure all rural children have access to a dentist.

Barriers to Children’s Optimal Oral Health in Rural America

Dental Workforce Shortages

According to the Health Resources and Services Administration (HRSA), two-thirds of the nation’s Dental Health Professional Shortage Areas (D-HPSAs) are in rural areas.^{10,11,12} Geographic measures, such as the health profession shortage area (HPSA), do not account for distance traveled by patients, risk of disease of the population served, dentist capability or capacity, or affordability. A revised HPSA designation process is needed to better reflect the needs of rural communities. Rural health clinics (RHCs) and federally qualified health centers (FQHCs) are major healthcare access points for some rural communities. However, of the 46 million Americans living in rural areas in 2017, 17 million lived in counties without RHCs, and 15 million lived in rural counties without FQHCs.^{13,14} Some of these clinics do not offer dental care, and among those that do, some do not provide dental care to young children. Fewer dental specialists, including pediatric

dentists, are in rural communities.¹² The shortage of dental workforce may become more acute with time. About 42 percent of dentists currently practicing in rural counties are over age 55¹⁵ and may be nearing retirement.

Minimally, general dental services need to be available in some form in the community, whether in bricks-and-mortar clinics or practices, or in remote settings, in transient mobile facilities. Specialist services should be the next level of care and may be similarly sited in rural communities as permanent, full-time, or part-time or linked to established care options in more densely populated areas. A hub-and-spoke model with a central practice in more densely populated areas and satellite general and specialty dental services in rural communities may be the best model in some locations.

The plight of children living in rural communities is more severe when it comes to access to the hospital operating room (OR) and general anesthesia for needed dental services.¹⁶ In 2020, 20 rural hospitals closed due to financial pressures.¹³ Wait times for dental care in the OR can be up to 12 months for rural children at urban hospitals.¹⁶ These long wait times may result in disease progression, prolonged use of medications, and additional pain and suffering. Lack of access to dental care in the OR has broadened the disparity gap for rural children covered by Medicaid.

Medicaid Reforms Needed

The high prevalence of poverty in rural America has positively influenced the number of local dentists accepting Medicaid patients in their practices. General dentists in rural areas are more likely to see Medicaid children than their urban or suburban counterparts.¹⁷ Being a pediatric dentist and being a dentist practicing in a rural area are two of the strongest indicators of treating patients covered by Medicaid.¹⁸ Unfortunately, even though pediatric dentists have high rates of Medicaid participation, there are fewer of these specialists practicing in rural areas.¹⁹

The Health Policy Institute (HPI) of the American Dental Association (ADA) identified categories of “meaningful” dentist participation in Medicaid participation by state.²⁰ In many states, poverty is endemic in rural areas, and the likelihood of penetration of the population by other insurance options (e.g., private, or other non-Medicaid insurance) is unlikely. Using Medicaid as an incentivizing tool is a promising strategy to improve access and sustainability of dental care. Increasing Medicaid reimbursement rates (i.e., procedure fees), both generally and differentially based on dentist location and disease patterns could potentially improve the likelihood of rural-based dentist participation and help assure practice sustainability.^{1,21} Additionally, administrative burdens associated with provider credentialing, prior authorization requests, claims processing, and auditing need to be addressed.



Generally Limited Oral Health Literacy

The availability of a robust pediatric dental workforce alone will not successfully eliminate oral health disparities experienced by children in rural areas. The day-to-day culture surrounding oral health and the understanding of its importance are also key factors in maintaining good oral health.

Limited oral health literacy¹² is a well-established contributing factor to high frequency/high sugar diets, lack of preventive visits, frequent ER encounters for dental conditions, overall lower utilization of dental services, and poor oral health status.²² Although it has been suggested that rural populations have lower health literacy compared to the urban groups,²³ rurality alone does not explain the differences, and socioeconomic factors such as income and education play important roles.^{24,22}

Research suggests fatalistic views toward oral health (i.e., feeling that poor oral health is an inevitable eventuality and that one is not in control of their oral health) among the rural population are associated with lower utilization of dental services.²² Recent research on oral health in Appalachia reinforces its deep connection to rural culture. Maternal oral health can be a protective factor or a risk factor for their children's oral health. Children of mothers who believe poor oral health is inevitable are nearly three times more likely to have dental disease.²⁵

For rural communities, a first step toward improving oral health literacy is the ability to obtain clear and timely health information. Health literacy efforts in rural communities are often dependent on school nurses, county agencies, newspapers, public libraries, churches, public health departments, and hub-and-spoke academic institutions.²⁶ Given the distance from providers, internet limitations, and limited health options in schools, obtaining regular information regarding children's oral health may be challenging for rural populations.

Digital Divide

Lack of digital infrastructure and access to technology have limited the ability of rural communities to benefit from telehealth opportunities in the same manner as their urban counterparts.²⁷ Broadband in rural areas can cost three times more than in urban areas, making it unaffordable even when available and cost-prohibitive for some providers to engage in telehealth.¹³ Other factors to consider include the cost of implementing a compliant teledentistry platform in a dental office, patient access to a device with a camera and application functionality, and digital literacy skills.^{27,28}

Episodic Care Too Common

Studies suggest having a dental home – a usual source of dental care – increases the likelihood of preventive dental visits in both rural and urban areas. In rural communities where there is a shortage of dental providers, many families do not seek routine dental care or delay care until there is dental pain or infection.²⁹ Limited oral health literacy also contributes to episodic care-seeking and more frequent emergency room visits for non-urgent conditions in communities.³⁰ Emergency departments are not equipped or staffed to be a dental home for children. These settings typically are limited to addressing pain and infection with prescription medications and do not have the staff or equipment available to treat the caries disease process and restore tooth form and function. Emergency department visits for nonurgent dental conditions often result in subsequent emergency department visits due to the return of pain and infection, and – in severe cases, when left untreated – the dental infection can result in systemic infections.

Insurance coverage is a major facilitator of access to regular dental care. Disparities in access to care exist in part due to insurance type, and this disparity is further compounded by geography. In 2019, a higher percentage of uninsured rural residents (18.1 percent compared to 15.3 percent) delayed seeking dental care or could not afford care due to cost (12.0 percent compared to 9.1 percent) compared to urban residents.³¹

ASSESSING CHILDREN'S ACCESS TO DENTAL CARE IN RURAL COMMUNITIES

Children's access to services and the resulting health benefits should be equal irrespective of where a family resides. The following are important considerations for assessing children's access to dental care in rural areas:

- 1. Reasonable and convenient access to a dentist.** AAPD advocates for a dental home for all children. Dental homes offer preventive, comprehensive, and acute treatment.³² Rurality can compromise ease of access to traditional dental settings, so alternatives such as school-based care¹⁹, mobile dental services,²¹ and – for very young children – physician-supervised oral health¹⁷ are other options. Regular assessment of the effectiveness of these alternative sites and sources of oral health care services is imperative.
- 2. Availability of specialty dental services.** The establishment of a dental home theoretically presumes that a child has access to medically necessary oral health services. Very young children, those with special needs, and children with cranio-facial anomalies may be more likely to require dental care offered by specialists. These cases may involve complex treatment with frequent visits, making distance to care and timing of dental specialty appointments challenging.
- 3. Overall health supervision and integration with a medical team.** Regular care by a physician and medical team is a component of a child's overall health and development. Pediatricians, family physicians, and other professionals rely on evidence-based guidelines – such as Bright Futures – that incorporate the necessity of oral health screening and referral. Additionally, emergency department physicians and teams should be prepared to provide stabilizing care and refer ongoing care for acute dental cases that present.³³
- 4. Constellation of community supports, including community-level disease prevention.** One of the most celebrated public health achievements – community water fluoridation³⁴ – is a proven, effective, safe mechanism of preventing dental disease.³⁵ The ability to meet nutritional guidelines impacts oral health. Recent literature associates chronic illness with distance from nutritious food sources.^{6,7} Nutrition services, as well as pharmacy, physical and occupational therapies, and behavioral health, should be accessible. High quality education can promote health literacy for both child and adult populations.⁹ Internet access should be ubiquitous to take advantage of the opportunities provided by teledentistry.⁸



A single measure cannot adequately assess meaningful health access; a broad-based, multi-factor approach is needed. AAPD offers the above criteria as a starting point for the assessment of rural pediatric oral health access and recommends working with local community stakeholders for a more refined tool that accounts for a particular community's unique needs and assets.

PROMISING DIRECTIONS FOR IMPROVING DENTAL ACCESS FOR CHILDREN IN RURAL AMERICA

Many factors can contribute to – or complicate – the ability to attain and maintain optimal oral health. For example, individual level factors (e.g., health behaviors), family level factors (e.g., parent health status, socioeconomic status), and community level factors (e.g., dental care system) impact the oral health of rural children.³⁶ A rural environment can present challenges to some of the factors that dictate oral health. Here we propose improvements to certain aspects of the larger schema and system of oral health based on the issues outlined above. Each is limited in its prospect to alone move the needle, but together they hold promise for improving the oral health of children living in rural America.

1. **Recruit from Rural:** Build a robust dentist and dental team workforce in rural areas by **recruiting from rural communities** to the profession

Dentists from rural areas are three times as likely to practice in a rural area than their colleagues from non-rural areas.³⁷ The dental schools that produce the most rural-practicing dentists are public schools in rural areas.³⁸ Exposing young people to the rewards of the dental profession in rural areas could have a lasting impact on those communities.

2. **Recruit to Rural:** Introduce dentists – including pediatric dentists and other specialists – to the rewards of working in rural areas by offering **enhanced loan repayment programs** and tax benefits

Loan repayment programs have been used for decades to attract physicians and dentists to practice in rural areas. Many states and the federal government offer loan repayment programs, but the funding levels are too low to attract the number of dentists needed³⁹. For example, the National Health Service Corps Loan Repayment Program, administered through HRSA, offers up to \$25,000 per year to dentists who agree to practice full time in underserved areas. The Indian Health Service Loan Repayment Program offers up to \$20,000 per year to dentists who agree to practice full time at an Indian Health Service program site. Some states also offer loan repayment programs to attract professionals to high need areas. The amounts are generally not sufficient to attract large numbers of dentists given that dentists graduate from dental school with sizable loan debt. According to the American Dental Education Association, 83 percent of

dentists graduating from dental school have educational loan debt. The average educational loan debt for these dentists is \$301,583 (\$261,226 for graduates of public dental schools and \$354,901 for graduates of private dental schools).^{40,41,42} Loan repayment programs should be reassessed and strengthened to attract greater participation.

3. **Renovate Medicaid:** Advocate for **reforms in state Medicaid** programs (e.g., suitable reimbursement rates, streamlined administrative processes) that make it feasible for more dentists to participate and treat children from low-income families in their communities.
4. **Reward Whole-Person Care:** Encourage the integration of services like **care coordination, case management, and transportation support** in dental insurance plans and dental offices by paying providers for these crucial aspects of whole-patient care.
5. **Reach Out, Refer, and Collaborate:** Facilitate partnerships between **medical providers, schools, community organizations**, county agencies, oral health coalitions, faith-based organizations, advocates for children, and pediatric dentists to implement programs that promote optimal oral health.

Collaborating with Medical Teams: It is imperative that dentists collaborate with medical primary care providers such as pediatricians, family medicine physicians, and obstetricians-gynecologists to improve the oral health status of rural communities. Dentists are encouraged to reach out to their colleagues in medicine to share referral information to provide to patients without an established dental home. Oral health promotion that is integrated in multiple settings and through a variety of channels will reinforce the health information and help ensure that a wider swath of families receive health education, preventive services, and access to needed dental treatment.⁴³

School-Based Dental Programs: Schools are not just a place for children to learn, they are a place that can address the health needs of students.⁴⁴ Bringing dental care into schools allows children to receive much needed oral health care and education, and removes several access barriers, such as transportation and caregiver time. Children can remain at school for care, and caregivers do not have to be present or take time

off work to get their children to a dental clinic. Schools and school nurses can play a major role in enhancing students' and families' oral health⁴⁵. California,⁴⁶ Oregon,⁴⁷ and Georgia⁴⁸ have all implemented successful community school-based programs that provide onsite telehealth services.

Schools and community organizations *without* fully equipped and staffed dental programs – such as Head Start programs, WIC programs, and community health centers without a dental clinic – can also be effective at connecting children to a dental home. WIC programs are particularly well-positioned to extend oral health guidance to mothers and young children.

6. Reserve Operating Rooms: Advocate for **designated operating room time for dental cases** at regional hospital centers for patients with the greatest need, including young children with severe early childhood caries.

7. Fluoridate: Support local level legislation, regulation, and infrastructure to ensure safe **community water fluoridation**.

Community water fluoridation (CWF)⁴⁹ is an effective and equitable way to make properly fluoridated water available to as many people as possible. Populations across the country have been enjoying the oral health benefits of CWF for over 75 years, saving health care costs for both families and the health care system. CWF saves families and communities

money by avoiding unnecessary dental treatment costs. There are also indirect savings for communities by avoiding losses to productivity and frequent follow-up treatment. Recent research from the Centers for Disease Control and Prevention (CDC)⁵⁰ shows that communities of more than 1,000 people saved an average of \$20 for every \$1 invested in CWF.

8. Ensure Food Security: Increase the availability and accessibility of **healthy and nutritious foods** in rural areas by working with local, county and state partners.

9. Improve Oral Health Literacy: Motivate and educate parents and caregivers to recognize the important role that optimal oral health plays in a child's well-being and quality of life.

Strategies to improve oral health in rural areas must account for the oral health literacy of target populations. Lower levels of health literacy have been found among rural communities,²³ and those with low health literacy are less likely to seek preventive care and more likely to experience poor health outcomes.⁵¹ Both personal and organizational health literacy are valuable considerations in efforts to improve oral health knowledge and utilization of preventive dental services among rural groups.⁵² It is critical to fund programs that promote positive oral health behaviors, support delivery of tailored and culturally sensitive health information, and aid families as they navigate a complex oral healthcare system. Examples include HRSA funded Area Health Educa-



tion Centers, which include community activities to improve oral health literacy for rural groups;⁵³ the National Center of Health, Behavioral Health, and Safety's Brush up on Oral Health campaign⁵⁴ to promote oral health for rural Head Start communities; and. Meaningful communication between families, community providers and healthcare organizations are crucial to increase oral health awareness and reduce disparities in oral health outcomes.

10. Enhance Digital Capability: Extend **internet access** in rural areas to broaden the reach and benefits of teledentistry while expanding coverage and payment parity for services delivered via telehealth.

Teledentistry is not a specific service, but rather a mode of delivering dental care. Like telemedicine, a dental provider can use a virtual platform to conduct a teledentistry visit with a patient or connect virtually with another provider. Several benefits to both patient and provider include:

- Reduction of wait time to consult with a provider
- Elimination of transportation barriers
- Improved dental office/team efficiency

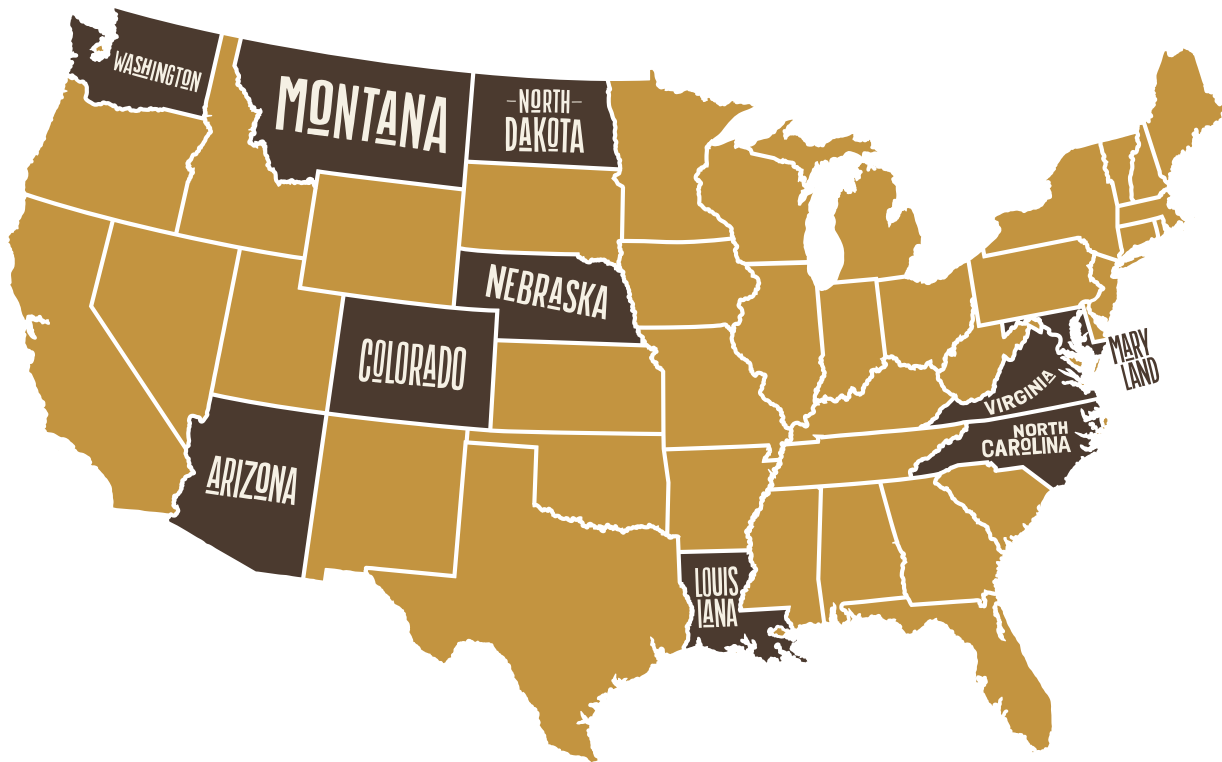
- Ability for the dentist to connect with a more conveniently located health provider (such as a school-based health center) to partner on care for the patient
- Offers a platform for patient and family oral health education and motivational interviewing
- Opportunity to share other resources in the community, such as those for food and housing security

A sound digital infrastructure must be in place for teledentistry to be a viable option for the delivery of care. Internet access is important given its impact on other social determinants of health, including education and employment opportunities, making broadband a "super-determinant of health".⁵⁵

Interpreters may be needed to help facilitate the teledentistry appointment in the event of a language barrier between patient and practitioner.^{56,57} Support staff may be needed to help facilitate treatment at the treating facility.⁵⁸ These factors may pose additional barriers to utilizing teledentistry in rural communities. Removing these barriers may not fully address the adoption of teledentistry by some rural populations due to cultural and personal values, such as the desire for face-to-face interaction with providers and concerns with security.²⁷



MODEL PROGRAMS FOR ADVANCING RURAL PEDIATRIC ORAL HEALTH



The following are examples of local, state, and national programs designed to address the needs of children living in rural communities. These programs reinforce how collaborations between medical, dental, and social services are necessary in designing effective strategies to advance the oral health of children.

- A network of school-based health centers in **Louisiana** has school nurses providing oral health assessments as part of comprehensive physicals. They also offer oral health education, fluoride varnish, and referrals to dental providers in the community. One notable aspect of the Louisiana program was the use of case managers who tracked referrals, classified referrals according to urgency, helped with care coordination, and navigated barriers to following through on dental appointments. Case management is particularly valuable to ensure a smooth pathway from the school setting to a dental provider.⁵⁹
- **Colorado's "Cavity Free at Three"** initiative (CF3)⁶⁰ targets rural and frontier populations and has facilitated oral health screenings, caries risk assessments, oral health education, and application of fluoride varnish by medical providers. During a ten-year period, over 5000 health providers and healthcare students were trained to perform these dental services, many of which incorporated these services into their practices. A review of the program found that dental caries rates declined significantly among elementary school age children, and that the number of children receiving a dental visit before age 2 increased. Pediatricians have previously reported that they were more likely to refer children to a dentist if they had confidence in their ability to perform oral screenings.⁶¹ Programs like CF3 illustrate the value of providing oral health training to medical personnel.
- Local health departments can also be credited with developing innovative strategies to improve community oral health. In rural Garrett County, **Maryland**,⁶² the health department developed **Something to Smile About**, an initiative that advocated for policies to incentivize dental providers to work in the area. They also established a dental surgical center at the local hospital and a community dental clinic, provided continuing education for medical professionals, advocated for community water fluoridation, and provided oral health education in the public schools. Among other successful measures, Garrett County now boasts the highest percentage of children who have been to the dentist in the past year of any county in the state.

- The **Access to Baby & Child Dentistry (ABCD)** program has been connecting young children to dental care throughout **Washington** state for nearly 30 years.⁶³ In addition to connecting children and pediatric dentists and training general dentists to treat young children, education on oral health and its importance for overall health is provided to families. The program has increased access to dental care for young children,⁶⁴ including in rural areas of the state.
 - Regional programs serving the oral health needs of underserved residents in rural Appalachia have also been developed. The **Regional Oral Health Pathway program** was created by **Health Right** in partnership with the **Maryland** Area Health Education Center West, Allegany County Health Department, Garrett County Health Department, and Hyndman Area Health Center, to address oral health needs and issues related to neglected oral care in uninsured and underinsured populations.⁶⁵ This program used a Pathways Model, which uses CHWs to connect at-risk patients to community health and social services. The Pathways Model focuses on three critical action points: finding a target population, treating that population, and measuring progress. The Regional Oral Health Pathway program adapted this model to educate members of the target population on the importance of oral health and hygiene and professional preventive dental care. This was accomplished by providing presentations and sharing on oral health resources with the community. Throughout the program, primary care providers and health professions students were trained to perform basic oral health screenings during routine physical exams.
 - The **Healthy Smiles Project** in **North Carolina**,⁶⁶ for example, was a consortium that included a YMCA, public schools, a children's hospital, and other agencies. Together, the organizations offered screenings, established dental homes, and created pathways to dental care that reduced the number of kindergarteners in rural North Carolina who had dental decay. The Healthy Smiles Project also attempted to overcome barriers to pursuing dental care, including offering fuel vouchers for transportation to dental appointments and assisting with Medicaid enrollment.
 - A rural health system on **Virginia's** Eastern Shore increased the number of pediatric dental visits among children by doing outreach to parents. The program offered a dental welcome bag for new parents at the hospital and a "Happy First Birthday" card with a reminder to see a dentist by age one. Additionally, dental staff performed an oral health risk assessment and offered fluoride varnish at the age one well-visit, and medical staff delivered fluoride varnish at 16- and 20-month checkups. Through parent outreach and education, the health system increased dental visits for the youngest patients.⁶⁷
 - A non-profit called **Tooth B.U.D.D.S**⁶⁸ in **Arizona** brings hygienists to schools for preventive dental care and uses teledentistry to connect children to dentists when additional dental care is needed.
 - A private insurance carrier partnered with PBS to host oral health educational programming and events for children in rural parts of **Arizona** through the **Have a Healthy Smile** program.⁶⁹
 - The **Rural Health Opportunities Program** in **Nebraska** is a joint effort of Chadron State College and the University of Nebraska Medical Center to recruit and educate high school students from rural communities who will return to practice in rural parts of the state.⁷⁰
 - The school-based sealant program **Seal!ND** in **North Dakota** brought hygienists to schools for sealants and other prevention measures that have benefitted thousands of underserved children in the state.⁷¹
 - In an FQHC in Livingston, **Montana**, attendees at a WIC center received interventions including anticipatory guidance, fluoride varnish, caries risk assessments, and dental referrals to providers in the same building.⁷²
- Some recommendations can be made from a review of the programs. First, government involvement is invaluable, whether through policy decisions (e.g., Medicaid reimbursement for oral health services in non-medical settings, increased fees), health department sponsorship or public campaigns. Second, financial support and recruitment of volunteers are crucial to the functioning of organizations that forego governmental involvement. Third, accessible oral health training modules (e.g., screening, fluoride varnish, anticipatory guidance) are necessary to build confidence and prioritization of oral health among community providers. Fourth, strong leadership and identification of key program benchmarks are important for program sustainability. Lastly, care coordination and case management can impact the success of programs by addressing practical and logistical barriers to obtaining needed dental care.

REWARDS OF WORKING IN RURAL COMMUNITIES EXEMPLIFIED



DR. JESSICA MEESKE – HASTINGS, NEBRASKA

Dr. Jessica Meeske is a pediatric dentist who has practiced in Hastings, Neb., for the past 23 years. She was born and raised in Hastings and was enticed to return to rural Nebraska, inspired by the impact she could have treated underserved children in her community and watching their lives change through improved health. She graduated from Hastings College, the University of Missouri – Kansas City School of Dentistry and completed pediatric dentistry specialty training and earned a Master of Science in Public Dental Health degree at the University of Iowa College of Dentistry. She benefitted from loan forgiveness provided by the State of Nebraska.

Meeske has been very engaged in her community including serving as president of the local school board. Serving in this role gave Meeske a better understanding of families living in poverty. She was better able to connect them to resources so their children could be successful in school. Meeske has made an impact at the state level, as well. She has served on numerous statewide committees and influenced Medicaid policies by earning the respect of policy makers and legislators. Along the way, she has learned that living in a small town offers unique opportunities for success and fulfillment. For her, it was an opportunity to raise her children in the same small town where she was born and raised, build the practice of her dreams that has grown to four locations, and provide care to underserved kids.



DR. CAREY COLLINS – LUMBERTON, NORTH CAROLINA

Dr. Carey Collins is a Board-certified pediatric dentist who practices in Lumberton, N.C. She was born and raised in Lumberton and always planned to live and work there. After graduating from high school, she studied at Robeson Community College and became a Pediatric Respiratory Therapist. She saw that many of her patients suffered from poor oral health and decided to return to school to become a pediatric dentist. She graduated from The University of North Carolina, Pembroke, Meharry School of Dentistry and The Ohio State University/Nationwide Children's Hospital where she obtained her master's degree in pediatric dentistry.

Collins admits that there are challenges to working in rural Southeastern North Carolina including low Medicaid reimbursements, language barriers for migrant populations, lack of transportation, and restricted access to the operating room, but she enjoys seeing patients from all backgrounds and helping them achieve optimal oral health.



DR. JAMES CANNAVA – WHITEFISH, MONTANA

Dr. James Cannava is a pediatric dentist who practices in an Indian Health Service dental clinic on the Blackfeet Reservation in Browning and in a private practice in Kalispell. He was born and raised in

Soldotna, Alaska, where his father worked as an Ophthalmologist in the Public Health Service. As a child, Cannava would fly with his father to rural communities, including Kotzebue, Bethel and Nome to treat patients. Before heading off to dental school, Cannava spent eight seasons working for the Alaska Department of Fish and Game in a variety of boat/plane research stations collecting fisheries data. He also worked as a substitute teacher on the Kenai Peninsula, often sleeping in the school's library. He graduated from The University of California, Davis, the Oregon Health Sciences University School of Dentistry, and the University of Washington where he obtained his Master of Science in Dentistry and Master of Public Health degrees. After graduating from dental school, and before enrolling in pediatric dental specialty training, Cannava practiced as a general dentist in community health centers where he benefitted from loan forgiveness.

Cannava loves the outdoor life that Montana has to offer and spends much of his free time in Glacier National Park. Although inclement weather can make his commute two hours each way on some days, he relishes the relationships that he has built with his patients and their families, his colleagues, and his neighbors.



DR. MINDY TURNER – ALBEMARLE, NORTH CAROLINA

Dr. Mindy Turner is a Board-certified pediatric dentist and Dental Director of the Stanly County Department of Public Health located in Albemarle, N.C. Turner grew up in Stanly County and has practiced in a variety of rural public health settings. After graduating from the University of North Carolina Adams School of Dentistry she treated patients on the Northern Navajo Indian Reservation in Shiprock, N.M. She completed pediatric dentistry specialty training at the University of Rochester, Eastman Institute for Oral Health and returned to North Carolina to treat patients in the non-profit Anson Regional Medical Services. She then returned home to Stanly County to establish the Stanly County Dental Clinic and for the past

18 years she has served the children of Stanly County. She benefited from loan repayment through the North Carolina Department of Health and Human Services Office of Rural Health and Development.

Turner shared, “I work in Stanly County because I grew up here and knew there was a huge need. I love pediatric dentistry because I could watch patients grow and become comfortable with me, our staff, and the treatment we provide.” She has received many awards, including the GlaxoSmithKline Foundation Child Health Recognition Award, and currently serves on the North Carolina Oral Health Section’s Special Care Advisory Committee and the Stanly Health Foundation Board of Directors at Atrium Stanly Hospital. Turner considers Stanly County a great place to live and raise a family. She is an active member at Indian Hill Presbyterian Church in Stanfield, a church that her grandfather established.

DEFINITIONS AND ABBREVIATIONS

AAPD: American Academy of Pediatric Dentistry

ACS: American Community Survey

ADA: American Dental Association

CDC: Centers for Disease Control and Prevention

CF3: Cavity Free at Three

CHC: Community Health Center

CHW: Community Health Workers

CWF: Community Water Fluoridation

FQHCs: Federally Qualified Health Centers

HPI: Health Policy Institute

HPSA: Health Professional Shortage Area

HRSA: Health Research and Services Administration

RHC: Rural Health Clinic

Rural: Population density (less than 50,000), geographic isolation, or a combination of population size and travel time to nearby urban areas.

NSCH: National Survey of Children’s Health

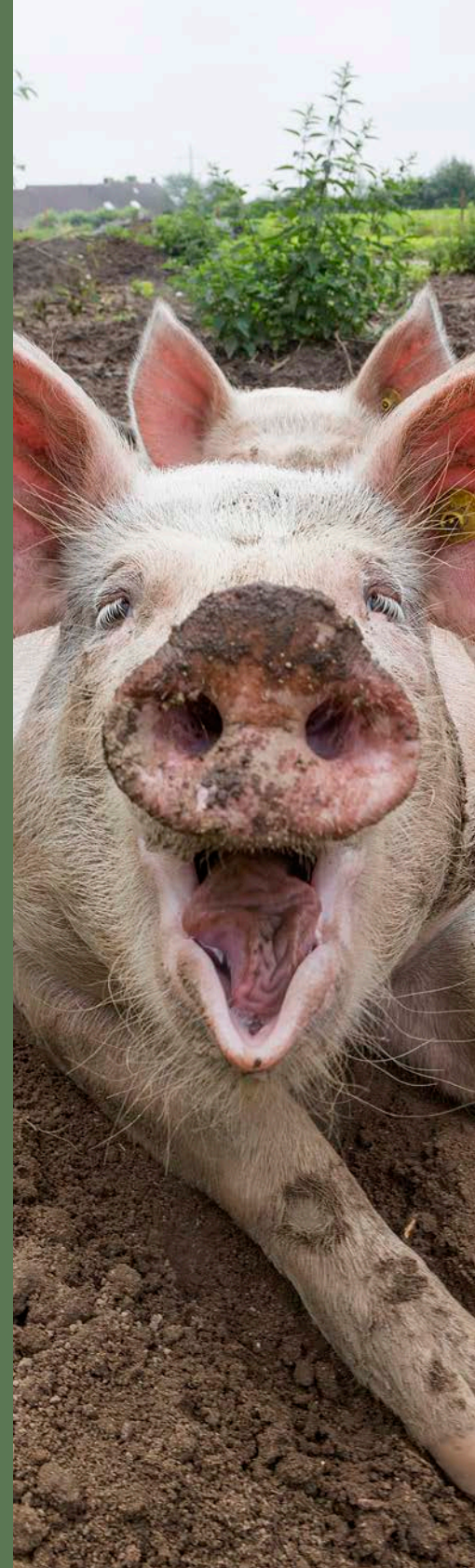
OR: Operating Room

Teledentistry: Providing oral health education, care, and consultation through a virtual platform.

WIC: Special Supplemental Nutrition Program for Women, Infants, and Children

SUGGESTIONS FOR ACTIONS

1. **Recruit from Rural:** Build a robust dentist and dental team workforce in rural areas by **recruiting from rural communities** to the profession.
2. **Recruit to Rural:** Introduce dentists – including pediatric dentists and other specialists – to the rewards of working in rural areas by offering **enhanced loan repayment programs** and tax benefits.
3. **Renovate Medicaid:** Advocate for **reforms in state Medicaid** programs (e.g., suitable reimbursement rates, streamlined administrative processes) that make it feasible for more dentists to participate and treat children from low-income families in their communities.
4. **Reward Whole-Person Care:** Encourage the integration of services like **care coordination, case management, and transportation support** in dental insurance plans and dental offices by paying providers for these crucial aspects of whole-patient care.
5. **Reach Out, Refer, and Collaborate:** Facilitate partnerships between **medical providers, schools, community organizations**, county agencies, oral health coalitions, faith-based organizations, advocates for children, and pediatric dentists to implement programs that promote optimal oral health.
6. **Reserve Operating Rooms:** Advocate for **designated operating room time for dental cases** at regional hospital centers for patients with the greatest need, including young children with severe early childhood caries.
7. **Fluoridate:** Support local level legislation, regulation, and infrastructure to ensure safe **community water fluoridation**.
8. **Ensure Food Security:** Increase the availability and accessibility of **healthy and nutritious foods** in rural areas by working with local, county and state partners.
9. **Improve Oral Health Literacy:** **Motivate and educate parents and caregivers** to recognize the important role that optimal oral health plays in a child's well-being and quality of life.
10. **Enhance Digital Capability:** Extend **internet access** in rural areas to broaden the reach and benefits of teledentistry while expanding coverage and payment parity for services delivered via telehealth.



Effective solutions will be nuanced and must cater to the unique needs and assets of the community that they are meant to serve. Policies and programs to improve oral health for children in rural communities will require engagement at multiple levels of government and the formation of new partnerships between dental providers and community organizations. AAPD recognizes the need for drawing greater attention to the ongoing oral health disparities that affect rural communities. We look forward to serving as a resource for our partners in rural areas and hope that these suggestions for action provide a starting point for our collective efforts in optimizing the oral health of children in rural areas:

REFERENCES

1. USDA Economic Research Service. What is Rural? : USDA Economic Research Service; 2019.
2. Skillman SM, Doescher Mp Fau - Mouradian WE, Mouradian We Fau - Brunson DK, Brunson DK. The challenge to delivering oral health services in rural America. *J Public Health Dent.* 2010; 70(Suppl 1:S49-S57).
3. Liu JH, Jones Sj Fau - Sun H, Sun H Fau - Probst JC, Probst Jc Fau - Merchant AT, Merchant At Fau - Cavicchia P, Cavicchia P. Diet, physical activity, and sedentary behaviors as risk factors for childhood obesity: an urban and rural comparison. *Child Obes.* 2012; 8(5):440-448.
4. Probst JC, Barker JC, Enders A, Gardiner P. Current State of Child Health in Rural America: How Context Shapes Children's Health. *J Rural Health.* 2018; 34 Suppl 1(Suppl 1):s3-s12.
5. Peiyin Hung PD, M.S.P.H; Matthew Workman, M.D., M.P.H; Kim Mohan, M.Ed. NRHA Policy Paper: Overview of Rural Child Health. National Rural Health Association; 2020.
6. Vargas CM, Ronzio Cr Fau - Hayes KL, Hayes KL. Oral health status of children and adolescents by rural residence, United States. *J Rural Health.* 2003; 19(3):260-268.
7. Amy B. Martin D, Janice C. Probst, PhD, Karen M. Jones, MSPH Trends in Rural Children's Oral Health and Access to Care. South Carolina Rural Health Research Center; 2017.
8. Crouch EA-O, Radcliff E, Merrell MA-O, Bennett KA-O. Rural-Urban Differences in Positive Childhood Experiences Across a National Sample. *J Rural Health.* 2021; 37(3):495-503.
9. Health Resources and Services Administration (HRSA) Maternal and Child Health Bureau (MCHB). National Survey of Children's Health Impacts of the COVID-19 Pandemic. Health Resources and Services Administration (HRSA) Maternal and Child Health Bureau (MCHB) 2022.
10. Oral Health in Rural Communities Overview. 2022. Rural Health Information Hub. Accessed November 15, 2022, <https://www.ruralhealthinfo.org/topics/oral-health>.
11. Health Resources and Services Administration (HRSA). Health Workforce Shortage Areas. Health Resources and Services Administration (HRSA); 2020.
12. Hills and Valleys: The Challenge of Improving Oral Health in Appalachian Ohio A Report on Oral Health and Barriers to Getting Dental Care. Ohio Department of Health; 2012.
13. Medicaid and CHIP Payment and Access Commission. Medicaid and Rural Health. MACPAC; 2021.
14. USDA Economic Research Service. Rural American at a Glance. 2021.
15. Munson B, Vujicic M. Projected Supply of Dentists in the United States, 2020 – 2040. Health Policy Institute Research Brief. American Dental Association.; 2021.
16. Moursi A. Children, especially those in rural areas, face long waits for dental procedures in ORs. 2022. AAP News. American Academy of Pediatrics. Accessed January 3, 2023, <https://publications.aap.org/aapnews/news/19599>.
17. Center for Health Workforce Studies. Assessing the Characteristics of New York State Dentists Serving Medicaid Beneficiaries. School of Public Health, University at Albany, State University of New York; 2022.
18. Nasseh K, Fosse C, Vujicic M. Dentists Who Participate in Medicaid: Who They Are, Where They Locate, How They Practice. *MCRR.* 2002; 0(0).
19. Serban N, Anderson A, Oberst G, et al. Assessment of Dentist Participation in Public Insurance Programs for Children in the US. *JAMA Netw Open.* Jul 1 2022; 5(7):e2221444.
20. Vujicic M NK, Fosse C. Dentist Participation in Medicaid: How Should It Be Measured? Does It Matter? : American Dental Association. Health Policy Institute Research Brief; 2021.
21. Goldstein EV, Dick AW, Ross R, Stein BD, Kranz AM. Impact of state-level training requirements for medical providers on receipt of preventive oral health services for young children enrolled in Medicaid. *J Public Health Dent.* Mar 2022; 82(2):156-165.

22. VanWormer JJ, Tambe SR, Acharya A. Oral Health Literacy and Outcomes in Rural Wisconsin Adults. *J Rural Health*. 2019; 35(1):12-21.
23. Zahnd WE, Scaife SI, Fau - Francis ML, Francis ML. Health literacy skills in rural and urban populations. *Am J Health Behav*. 2009; 33(5):550-557.
24. Aljassim N, Ostini R. Health literacy in rural and urban populations: A systematic review. *Patient Educ Couns*. 2020; 103(10):2142-2154.
25. Lu KC, Dahl ZT, Weyant RJ, et al. Exploring Mothers' Perspectives About Why Grandparents in Appalachia Give Their Grandchildren Cariogenic Foods and Beverages: A Qualitative Study. *J Acad Nutr Diet*. 2022; 122(12):2288-2294.
26. Temple Miller K. Rural Health Literacy: Who's Delivering Health Information? 2017. Rural Health Information Hub. Accessed November 15, 2022, <https://www.ruralhealthinfo.org/rural-monitor/delivering-health-information/>.
27. Barriers to Telehealth Adoption. 2021. Telehealth Equity Coalition. Accessed November 15, 2022, <https://www.telehealthequitycoalition.org/barriers-to-telehealth-adoption.html>.
28. ADA Policy on Teledentistry. 2020. American Dental Association. Accessed November 15, 2022, <https://www.ada.org/about/governance/current-policies/ada-policy-on-teledentistry>.
29. Khan A, Thapa JR, Zhang D. Preventive Dental Checkups and Their Association With Access to Usual Source of Care Among Rural and Urban Adult Residents. *J Rural Health*. 2017; 33(4):419-426.
30. Morrison AK, Schapira MM, Gorelick MH, Hoffmann RG, Brousseau DC. Low caregiver health literacy is associated with higher pediatric emergency department use and nonurgent visits. *Acad Pediatr*. May-Jun 2014; 14(3):309-14.
31. An Insurance Profile of Rural America: Chartbook. 2022. Rural Policy Research Institute. Accessed November 15, 2022, <https://rupri.public-health.uiowa.edu/publications/other/Rural%20Insurance%20Chartbook.pdf>.
32. American Academy of Pediatric Dentistry. Definition of dental home. The Reference Manual of Pediatric Dentistry. Chicago, Ill: American Academy of Pediatric Dentistry; 2022.
33. American Academy of Pediatrics. Bright Futures. 2022. Accessed January 30, 2023, <https://www.aap.org/en/practice-management/bright-futures>.
34. Northridge ME, Kumar A, Kaur R. Disparities in Access to Oral Health Care. *Annu Rev Public Health*. 2020; 41:513-535.
35. Gooch B. Community Water Fluoridation – One of the 10 Greatest Public Health Achievements of the 20th Century. 2015. Centers for Disease Control and Prevention, . Accessed January 30, 2023, <https://blogs.cdc.gov/pcd/2015/04/23/community-water-fluoridation-one-of-the-10-greatest-public-health-achievements-of-the-20th-century/>.
36. Fisher-Owens SA, Gansky SA, Fau - Platt LJ, Platt LJ, Fau - Weintraub JA, et al. Influences on children's oral health: a conceptual model. *Pediatrics*. 2007; 120(3):e510-e520.
37. Vujicic M, Fau - Sarrett D, Sarrett D, Fau - Munson B, Munson B. Do dentists from rural areas practice in rural areas? *J Am Dent Assoc*. 2016; 147(12):990-992.
38. Vujicic M. Where do dental school graduates end up locating? *J Am Dent Assoc*. 2015; 146(10):775-777.
39. Alrayyes SM, Garrett AM, LeHew CW, Compton AA. Where Do Pediatric Dental Residents Intend to Practice? Exploring the Influence of Loan Repayment Programs and Other Factors. *J Dent Educ*. 2019; 83(5):497-503.
40. Educational Debt. American Dental Education Association. Accessed November 22, 2022, https://www.adea.org/godental/money_matters/educational_debt.aspx.
41. State Loan Repayment Programs. 2019. American Academy of Pediatric Dentistry. Accessed November 22, 2022, <https://www.aapd.org/globalassets/media/residency-programs/updated-student-loan-repayment-plans-by-state-final-july-2019.pdf>.
42. Dental Student Loan Repayment Programs & Resources. 2020. American Dental Association. Accessed November 22, 2022, <https://www.ada.org/-/media/project/ada-organization/ada/ada-org/files/resources/students/dental-student-loan-repayment-resource.pdf?rev=4360d9ed0d9a4ad7b6fcd935fff0b93&hash=4B7A89659DB6F08048195ABC0AA99CE9>.

43. Atchison KA, Weintraub JA, Rozier RG. Bridging the dental-medical divide: Case studies integrating oral health care and primary health care. *J Am Dent Assoc.* 2018/10/01/ 2018; 149(10):850-858.
44. School-Based Oral Health. Virginia Health Catalyst. Accessed January 3, 2023, <https://vahealthcatalyst.org/school-based-oral-health/>.
45. Linking School Nurses to Health and Wellness Resources. 2015. National Association of School Nurses, Inc. Accessed January 3, 2023, <http://www.oralhealthconnections.org/>.
46. The Virtual Dental Home: Building Best Practices into California's Oral Health Care Delivery System for Children. 2020. California Northstate University. Accessed November 15, 2022, https://childrenspartnership.org/wp-content/uploads/2021/01/VDH_Statewide_Final.pdf.
47. Rural Project Summary Capitol Dental Care's Virtual Dental Homes 2018. Rural Health Information Hub. Accessed November 15, 2022, <https://www.ruralhealthinfo.org/project-examples/987>.
48. Schafer TE, Riggs B. Use of a Teledentistry Partnership Program to Reach a Rural Pediatric Population. *J Ga Public Health Assoc.* 2017; 6(3):11.
49. Community Water Fluoridation. 2020. Centers for Disease Control and Prevention. Accessed November 15, 2022, <https://www.cdc.gov/fluoridation/index.html>.
50. Cost Savings of Community Water Fluoridation. 2019. Centers for Disease Control and Prevention. Accessed November 15, 2022, <https://www.cdc.gov/fluoridation/basics/cost.htm#:~:text=Studies%20continue%20to%20show%20that,%24135%20for%20every%20%241%20invested>.
51. Horowitz AM, Kleinman DV, Atchison KA, Weintraub JA, Rozier RG. The Evolving Role of Health Literacy in Improving Oral Health. *Stud Health Technol Inform.* 2020; 269(95-114).
52. Santana S, Brach C Fau - Harris L, Harris L Fau - Ochiai E, et al. Updating Health Literacy for Healthy People 2030: Defining Its Importance for a New Decade in Public Health. *J Public Health Manag Pract.* 2021; 27(S258-S264) (6).
53. Health Resources and Services Administration (HRSA). Area Health Education Centers Program. 2022. Health Resources and Services Administration (HRSA). Accessed November 15, 2022, <https://www.hrsa.gov/grants/find-funding/HRSA-22-053>.
54. Head Start Brush Up on Oral Health. National Maternal and Child Oral Health Resource Center. Accessed November 15, 2022, <https://www.mchoralhealth.org/headstart/brush-up.php>.
55. Bauerly BC, McCord RF, Hulkower R, Pepin D. Broadband Access as a Public Health Issue: The Role of Law in Expanding Broadband Access and Connecting Underserved Communities for Better Health Outcomes. *J Law Med Ethics.* Jun 2019; 47(2):39-42.
56. Wetsman N. Telehealth wasn't designed for non-English speakers. 2020. The Verge. Accessed November 17, 2022, <https://www.theverge.com/21277936/telehealth-english-systems-disparities-interpreters-online-doctor-appointments>.
57. Quinlan K. Remote Interpreters Are Critical in the Shift to Telehealth. 2020. Multilingual. Accessed November 17, 2022, <https://multilingual.com/remote-interpreters-are-critical-in-the-shift-to-telehealth/>.
58. Dorota T. Kopycka-Kedzierawski SWM, and Ronald J. Billings. Advancement Of Teledentistry At The University Of Rochester's Eastman Institute For Oral Health. *Health Aff.* 2018; 37(12):1960-1966.
59. School-Based Health Center Dental Outreach. 2020. Rural Health Information Hub. Accessed November 15, 2022, <https://www.ruralhealthinfo.org/project-examples/861>.
60. Cavity Free at Three. 2019. Rural Health Information Hub. Accessed January 30, 2023, <https://www.ruralhealthinfo.org/project-examples/647>.
61. dela Cruz GG, Rozier Rg Fau - Slade G, Slade G. Dental screening and referral of young children by pediatric primary care providers. *Pediatrics.* 2004; 5:e642-e652.
62. Something to Smile About Preventive Dental Care for Garrett County. 2021. Rural Health Information Hub. Accessed November 15, 2022, <https://www.ruralhealthinfo.org/project-examples/25>.
63. Access to Baby & Child Dentistry (ABCD) 2020. Accessed February 24, 2023, <https://abcd-dental.org/>.

64. Grembowski D, Milgrom PM. Increasing access to dental care for medicaid preschool children: the Access to Baby and Child Dentistry (ABCD) program. *Public Health Rep.* 2000; 115(5):448-459.
65. Regional Oral Health Pathway. 2022. Rural Health Information Hub. Accessed November 17, 2022, <https://www.ruralhealthinfo.org/project-examples/815>.
66. Healthy Smiles Early Childhood Dental Outreach. 2022. Rural Health Information Hub. Accessed November 15, 2022, <https://www.ruralhealthinfo.org/project-examples/838>.
67. Integration Care Model: Early Childhood Health. 2019. VIRGINIA HEALTH CATALYST INTEGRATION TOOLKIT. Accessed January 3, 2023, https://vahealthcatalyst.org/wp-content/uploads/2019/12/Integration-Toolkit_Early-Childhood-Health.pdf.
68. Tooth B.U.D.D.S. Accessed November 15, 2022, <https://toothbudds.org/>.
69. Delta Dental of Arizona Foundation and Arizona PBS launch partnership to educate children on good oral health 2022. Arizona State University Walter Cronkite School of Journalism and Mass Communication. Accessed November 15, 2022, <https://cronkite.asu.edu/news/2022/delta-dental-of-arizona-foundation-and-arizona-pbs-launch-partnership-to-educate-children-on-good-oral-health/>.
70. Chadron State College. Rural Health Opportunities Program (RHOP). 2022. Accessed February 24, 2023, <https://www.csc.edu/academics/sci/pre-health-professions/rhop/>.
71. Progress and Reach of the SEALIND Program: 2018-2019 School Year. 2020. Center for Rural Health University of North Dakota School of Medicine & Health Sciences. November 15, 2022. <https://ruralhealth.und.edu/assets/3509-14141/progress-of-seal-nd-program.pdf>.
72. Bowden J. Integrating Pediatric Oral Health Into A Rural, Public-Health Setting Montana State University; 2020.



HIDDEN CRISIS:

PEDIATRIC ORAL HEALTH IN RURAL AMERICA

Authors: Michael A. Ignelzi Jr., D.D.S., Ph.D.; Tegwyn Brickhouse, D.D.S., Ph.D.; Erica Caffrey, D.D.S.; Homa Amini, D.D.S., M.S., M.P.H.; Stanislaus Dyda, D.D.S.; Rachel Wedeward, M.L.I.S., A.H.I.P.; Chelsea Fosse, D.M.D., M.P.H.; Paul Casamassimo, D.D.S., M.S.

Suggested Citation: Ignelzi M, Brickhouse T, Caffrey E, et al. Hidden Crisis: Pediatric Oral Health in Rural America. Chicago, IL: Research and Policy Center, American Academy of Pediatric Dentistry; 2023.

RESEARCH AND POLICY CENTER
AMERICAN ACADEMY OF PEDIATRIC DENTISTRY



AMERICA'S PEDIATRIC DENTISTS
THE BIG AUTHORITY on little teeth®



**research
& policy**
center