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MORE THAN A SMILE: AN EXAMINATION OF RURAL DENTAL HEALTH CARE IN NEBRASKA

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I. EXECUTIVE SUMMARY

Dental health is essential to overall health. Affecting not only physical but mental and emotional well-being, oral health is a critical and complex issue that spans beyond straight teeth and a white smile. While many oral conditions are preventable and treatable if diagnosed early, millions of Americans lack access to preventative services and treatments. These barriers to dental care access are multifaceted, and are often exacerbated for rural residents.

While strides have been made to improve access to dental care, disparities continue to exist in rural America. This analysis seeks to raise understanding of the linkage between oral and total health. Moreover, the analysis will identify primary barriers to dental health care in rural areas, with emphasis on the state of Nebraska, while also examining policy and institutional changes to close gaps in dental care access.

II. OVERALL WELL-BEING: THE IMPORTANCE OF DENTAL HEALTH

The linkage between oral health and total health is not new, yet it is often underrepresented in literature regarding total health. Total health is defined by the World Health Organization as

“a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.”¹ Despite this holistic definition, oral health is often overlooked for its vital role in maintaining total health.

However, oral health care is more than straight, clean teeth. The mouth hosts more than 700 species of bacteria numbering in the billions, which form together to create dental plaque.² Without proper dental care, plaque can build up between teeth and the gumline and cause oral infections. Gum infections, known as gingivitis, can lead to tooth loss or periodontitis (inflammation of the gums), if left untreated. Periodontitis, along with dental caries (cavities) affect 91 percent of American adults at some point in their lives.³ Dental caries and periodontitis are entirely preventable conditions. Yet, when pre-

1 “Frequently Asked Questions.” World Health Organization, 2019, who.int/about/who-we-are/frequently-asked-questions. Accessed August 2019.

2 “4 Fascinating Things Scientists Know About the Billions of Bacteria in Your Mouth.” Johnson & Johnson, Oct. 7, 2018, nj.com/innovation/4-things-scientists-know-about-the-bacteria-in-your-mouth. Accessed October 2019.

3 “Advancing Oral Health in America.” Committee on an Oral Health Initiative, Board on Health Care Services, Institute of Medicine of the National Academies, The National Academies Press, 2011, hrsa.gov/sites/default/files/publichealth/clinical/oralhealth/advancingoralhealth.pdf. Accessed August 2019.

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ventative care is not available or sought out, the effects of these oral conditions can harm the body beyond the mouth. For example, periodontitis has been identified as an indicator for a number of diseases and illnesses including:

- Cardiovascular disease,
- Stroke,
- Diabetes,
- Alzheimer’s disease, and
- Adverse pregnancy outcomes.

These life threatening diseases are responsible for the death of millions of Americans each year, and each illness is more likely to arise with the presence of periodontitis.⁴ Further, more than 90 percent of all systemic diseases—or diseases that affect the entire body instead of a single part—have oral manifestations. Diseases like diabetes, and autoimmune diseases like Sjögren’s syndrome, which attack healthy cells that produce saliva and tears, and acquired immune deficiency syndrome (AIDS), may first show signs in the form of mouth lesions or other oral issues.⁵ Without adequate oral hygiene, awareness of dental health issues, or regular visits to a dentist, individuals may disregard warning signs, allowing these underlying conditions to advance into more life threatening illnesses.

The effects dental health can have on an individual extend beyond physical health. Oral health is also related to an individual’s self-esteem, ability to interact socially, career achievement, and overall quality of life. Nearly one in four adults avoid smiling due to the condition of their mouth and teeth, and one in five experience anxiety due to the condition of their mouth and teeth. For low-income individuals, the prevalence of anxiety and embarrassment is even higher, with 37 percent reporting they avoid smiling due to their oral condition, and 30 percent experi-

encing anxiety as a result of poor oral health.⁶ Another demographic that is disproportionately affected is young adults, ages 18 to 34. One in three young adults avoids smiling due to the condition of their mouth and teeth, and nearly 30 percent experience anxiety as a result of their oral condition.⁷

Additionally, poor oral health can inhibit opportunities for employment. Candidates who may otherwise be qualified for a job, may find themselves overlooked by potential employers due to their oral health conditions. In a recent study, the American Dental Association identified that 28 percent of adults between the ages of 18 and 34 believe the appearance of their mouth and teeth affects their ability to interview for a job.⁸

This belief is not ill-founded, as associations between an individual’s appearance and social biases begin to form in adolescence. Hiring managers and employers make instant judgements on an interviewee’s appearance, and may dismiss a potential employee with poor oral health. Preconceived notions about the cause of poor dental hygiene, including laziness, lack of self-discipline, and neglect, which employers may assume will carry over into an employee’s work habits.⁹

Finally, a strong connection exists between oral and mental health. While literature in this field is limited, research shows the state of an individual’s oral health can have a direct impact on their mental health. Poor oral health affects eating habits, speech, physical appearance, and

4 Pera, Mariam. “Oral Health-Total Health: Know the Connection.” American Dental Hygienists’ Association, adha.org/sites/default/files/7228_Oral_Health_Total.pdf. Accessed August 2019.

5 “Healthy Mouth, Healthy Body.” The Journal of the American Dental Association, vol. 137, no. 4, 2006, p. 563, doi: 10.14219/jada.archive.2006.0230. Accessed August 2019.

6 “Oral Health and Well-Being in the United States.” Health Policy Institute, American Dental Association, 2015, ada.org/~media/ADA/ScienceandResearch/HPI/OralHealthWell-Being-StateFacts/US-Oral-Health-Well-Being.pdf?la=en. Accessed August 2019.

7 Ibid.

8 “Healthy Mouth, Healthy Body.” The Journal of the American Dental Association, vol. 137, no. 4, 2006, p. 563, doi: 10.14219/jada.archive.2006.0230. Accessed August 2019.

9 “How Poor Dental Hygiene Affects Job Opportunities.” 101st Adult Dentistry, Jan. 19, 2018, 101stadultdentistry.com/poor-dental-hygiene-affects-job-opportunities/. Accessed August 2019.

can cause halitosis, or bad breath, which can aggravate mental and emotional health conditions like stress, anxiety, and depression.

The connection runs both ways, and mental health conditions can also impact oral health and dental hygiene. For example, conditions like depression are often associated with self-neglect, which can lead to an individual not brushing and flossing regularly.¹⁰ Further, nearly one in four individuals with a serious mental illness have a co-occurring substance use disorder, which results in an increased risk of tooth erosion due to higher prevalence of tobacco and alcohol use.^{11,12} Finally, research has found that many mood stabilizer drugs, used to treat mental health conditions, present a higher risk of oral bacterial infections.¹³

The study of the connection between oral and mental health is relatively limited in scope, yet it brings forward the need to further explore and implement collaborative or integrated care models that work to treat the whole patient rather than one set of symptoms. Collaboration between mental health professionals and dentists has resulted in an increase in resources to address issues causing or aggravating mental health and oral health issues. However, collaborative care models work best when access to health care, including dental care, is readily available, accessible, and affordable in communities where residents live. This is not always the case for our rural communities.

10 Kisely, Steve. “No Mental Health without Oral Health.” *The Canadian Journal of Psychiatry*, vol. 61, no. 5, 2016, pp. 277–282, doi: 10.1177/0706743716632523. Accessed August 2019.

11 “Common Comorbidities with Substance Use Disorders.” National Institute on Drug Abuse, February 2018, drugabuse.gov/publications/research-reports/common-comorbidities-substance-use-disorders. Accessed August 2019.

12 Kisely, Steve. “No Mental Health without Oral Health.” *The Canadian Journal of Psychiatry*, vol. 61, no. 5, 2016, pp. 277–282, doi: 10.1177/0706743716632523.

13 “Mental-Dental: What’s the Connection Between Oral Health and Mental Health?” Penn Dental Family Practice, April 5, 2017, mypenndentist.org/2017/04/05/oral-health-and-mental-health/. Accessed July 2019.

III. THE DISPARITIES TO RURAL DENTAL HEALTH CARE DELIVERY

There are various factors that determine if an individual is able to access quality health care and resources to maintain their health. Many of those factors are reliant on the geographic location of the individual. While barriers to oral health care exist in both rural and urban areas, data demonstrates there is a distinct disparity in rural America. These disparities, like cost, provider shortages, and limited community amenities in rural areas, impede access to dental care for many rural residents.

A. INSURANCE, MEDICAID, AND ORAL HEALTH CARE

Data from U.S. Department of Labor Bureau of Labor Statistics Consumer Expenditure Surveys found that Americans spent \$36.8 billion on dental services in 2016, \$600 million more than was spent on physician and clinical services that year.¹⁴ When broken down to the individual level, the U.S. Department of Health and Human Services Agency for Health Care Research and Quality Medical Expenditure Panel Survey determined the annual mean per person expense for dental care was \$696. Of these personal dental expenses incurred in 2015, 44 percent were paid out of pocket, 43 percent by private dental insurance, and just more than 8 percent paid by public coverage, such as Medicaid.¹⁵

For rural residents, these costs for dental services can present a significant barrier to care. Compared to individuals in urban areas, rural residents have lower incomes and are more

14 Foster, Ann C. “Household Healthcare Spending: Comparing Estimates from the Consumer Expenditure Survey and the National Health Expenditure Accounts, 2013-2016.” Bureau of Labor Statistics, bls.gov/cex/nhe-compare-201316.pdf. Accessed August 2019.

15 “Research Findings #38, Dental Services: Use, Expenses, Source of Payment, Coverage and Procedure Type, 1996-2015.” Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, November 2017, meps.ahrq.gov/data_files/publications/rf38/rf38.pdf. Accessed August 2019.

likely to be without dental insurance.¹⁶ The U.S. Department of Agriculture Economic Research Service reports that, on average, per capita income in rural areas is \$13,452 lower than the average per capita income for all Americans.¹⁷ Low incomes, when coupled with limited access to transportation, less prioritization of health care among other expenses, and limited oral health literacy, can impact individuals trying to obtain dental health care.

In Nebraska, cost undoubtedly inhibits residents from visiting the dentist. The American Dental Association found 54 percent of Nebraskans who had not visited their dentist in the past 12 months did not go because they could not afford the costs associated with care. Unsurprisingly, this percentage is significantly higher for low-income households, 74 percent of which said cost was preventing them from seeking care. For high-income households, this percentage shrinks to 1 percent.¹⁸

Further, low-income status may hinder the ability of an individual or a family to purchase private dental insurance or acquire coverage through employment. As of 2015, nearly one in three American adults had no form of dental benefit coverage.¹⁹ Nearly 60 percent had dental benefits through a form of private insurance, 7.4 percent

obtained benefits through Medicaid, and just more than 6 percent had Medicaid without dental benefits.²⁰

Medicaid is an important stop gap in coverage for low-income residents and, in some cases, covers dental services. In the 37 states that have expanded Medicaid to residents earning less than 138 percent of the federal poverty level, Medicaid has helped decrease the number of uninsured individuals in rural areas. Of the states that originally adopted Medicaid expansion, by the end of 2014, on average, the uninsured rates among low-income rural adults dropped to 16 percent. During that same time frame, in the states that did not expand Medicaid, uninsured rates among this rural population were double, at 32 percent.²¹

B. DENTAL COVERAGE DOES NOT ALWAYS EQUATE TO CARE

Adult dental care coverage is not required under traditional or expanded Medicaid, and coverage varies from state to state. Moreover, there is no federal requirement for dentists to provide dental care to Medicaid patients. Under Medicaid, 47 states and the District of Columbia offer some level of dental benefits, varying from emergency care only to extensive services, including diagnostic, preventative, and restorative procedures.²² Children are required to be treated under the Children's Health Insurance Program. In states that have expanded Medicaid, with the exception of North Dakota, dental benefits for expansion populations are the same as traditional Medicaid clients.²³

16 Cohen, Rebecca Singer, and Julie Stitzel. "Improving Dental Care Access in Rural America." The Pew Charitable Trusts, Nov. 18, 2015, pewtrusts.org/en/research-and-analysis/blogs/stateline/2015/11/18/improving-dental-care-access-in-rural-america. Accessed August 2019.

17 "State Data." U.S. Department of Agriculture, Economic Research Service, data.ers.usda.gov/reports.aspx?ID=17854. Accessed August 2019.

18 "Oral Health and Well-Being in the United States." Health Policy Institute, American Dental Association, 2015, ada.org/~media/ADA/ScienceandResearch/HPI/OralHealthWell-Being-StateFacts/US-Oral-Health-Well-Being.pdf?la=en. Accessed August 2019.

19 "Dental Benefits Coverage in the U.S." Health Policy Institute, American Dental Association, ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIgraphic_1117_3.pdf?la=en. Accessed August 2019.

20 Ibid.

21 Hoadley, Jack, et al. "Health Insurance Coverage in Small Towns and Rural America: The Role of Medicaid Expansion." Georgetown University Center for Children and Families and the University of North Carolina NC Rural Health Research Program, September 2018, ccf.georgetown.edu/wp-content/uploads/2018/09/FINALHealthInsuranceCoverage_Rural_2018.pdf. Accessed August 2019.

22 "Medicaid Adult Benefits: An Overview." Center for Health Care Strategies Inc., November 2018, chcs.org/media/Adult-Oral-Health-Fact-Sheet_112118.pdf. Accessed August 2019.

23 Ibid.

As of November 2018, 39 percent of dentists in the U.S. accepted Medicaid or the Children's Health Insurance Program.²⁴ Medicaid acceptance ultimately depends upon individual providers and state regulations. Nebraska ranks 18 in the percentage of dentists that accept Medicaid and the Children's Health Insurance Program, at 51.1 percent.²⁵

Consequently, even adults with insurance through Medicaid are not guaranteed the services they need to remain healthy or access to treatment for dental issues. This is because many dental providers have strayed from accepting Medicaid patients due to the low Medicaid reimbursement rates.

Furthermore, in Nebraska, the fee-for-service reimbursement rate for child dental services is only 46.2 percent of the fees charged by dentists, compared to the 78.4 percent reimbursement rate by private dental insurance.²⁶ Increased reimbursement rates for both the Children's Health Insurance Program and Medicaid patients would increase the incentive to provide care, and should be evaluated during the state budgeting process. Low reimbursement rates, paired with extensive paperwork and the perception that patients are more likely to break appointments, has caused many dentists to not accept Medicaid patients. All stand as barriers to dental care for residents.

C. THE NEED FOR MORE DENTAL HEALTH PROVIDERS

A second barrier for many Americans seeking adequate dental care is the shortage of dental health professionals across the U.S. More than 56.7 million people in the U.S. currently live in areas with dentist shortages.²⁷ As of October 2019, there were 2,555, or 81 percent of counties in the U.S., designated partial or whole Dental Health Professional Shortage Areas across the nation, as determined by the U.S. Department of Health and Human Services Health Resources and Services Administration. Designations are determined by calculating the population to provider ratio, the percentage of the population that falls below 100 percent of the federal poverty level, and the travel time to the nearest source of care outside of the health provider shortage area designation.²⁸

Nebraska has 28 counties designated as partial or whole Dental Health Professional Shortage Areas. Almost 93 percent of these counties are rural. See Figure 1 on page 6.²⁹ Nationwide, an estimated 84 percent of the partial or whole designated Dental Health Professional Shortage Areas are in rural areas. See Figure 2 on page 6.³⁰ In short, rural communities are disproportionately affected by shortages of dental health care professionals and, without significant measures, will continue to struggle to provide the care its residents need.³¹

24 "Dental Benefits and Medicaid." Health Policy Institute, American Dental Association, ada.org/en/science-research/health-policy-institute/dental-statistics/dental-benefits-and-medicaid. Accessed August 2019.

25 "Dentist Participation in Medicaid or Children's Health Insurance Program (CHIP)." Health Policy Institute, American Dental Association, ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIGraphic_0318_1.pdf?la=en. Accessed August 2019.

26 Gupta, Niodita, et al. "Medicaid Fee-For-Service Reimbursement Rates for Child and Adult Dental Care Services for all States, 2016." Health Policy Institute, American Dental Association, April 2017, ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_0417_1.pdf. Accessed August 2019.

27 "Project Dental Campaign." The Pew Charitable Trusts, pewtrusts.org/en/projects/dental-campaign. Accessed August 2019.

28 "Shortage Designation Scoring Criteria." Health Resources and Services Administration, Bureau of Health Workforce, bhw.hrsa.gov/shortage-designation/hpsa-process. Accessed October 2019.

29 "Rural Data Explorer – Rural Health Information Hub." Health Professional Shortage Areas: Dental Care, by County, 2019, ruralhealthinfo.org/charts/9. Accessed October 2019.

30 "Rural Data Explorer – Rural Health Information Hub." Health Professional Shortage Areas: Dental Care, by County, 2019 - Nebraska, ruralhealthinfo.org/charts/9. Accessed October 2019.

31 "Shortage Designation Scoring Criteria." Health Resources and Services Administration, Bureau of Health Workforce, bhw.hrsa.gov/shortage-designation/hpsa-process. Accessed October 2019.

FIGURE 1: NEBRASKA HEALTH PROFESSIONAL SHORTAGE AREAS; DENTAL CARE BY COUNTY, 2019

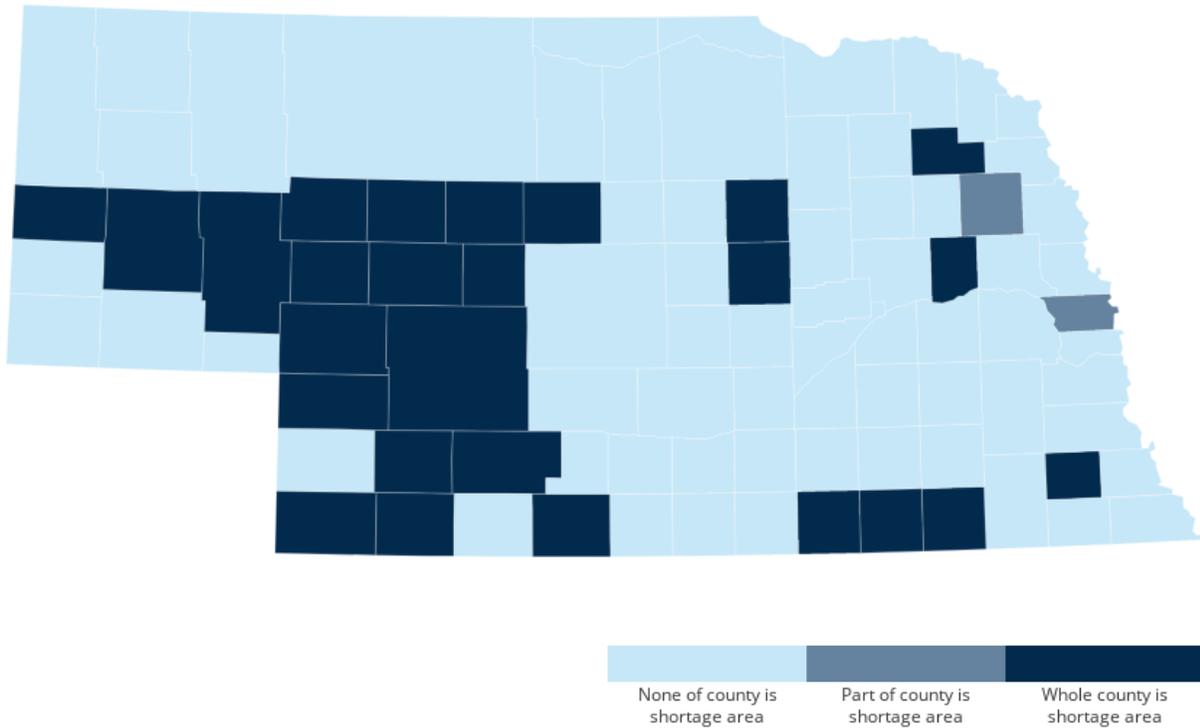
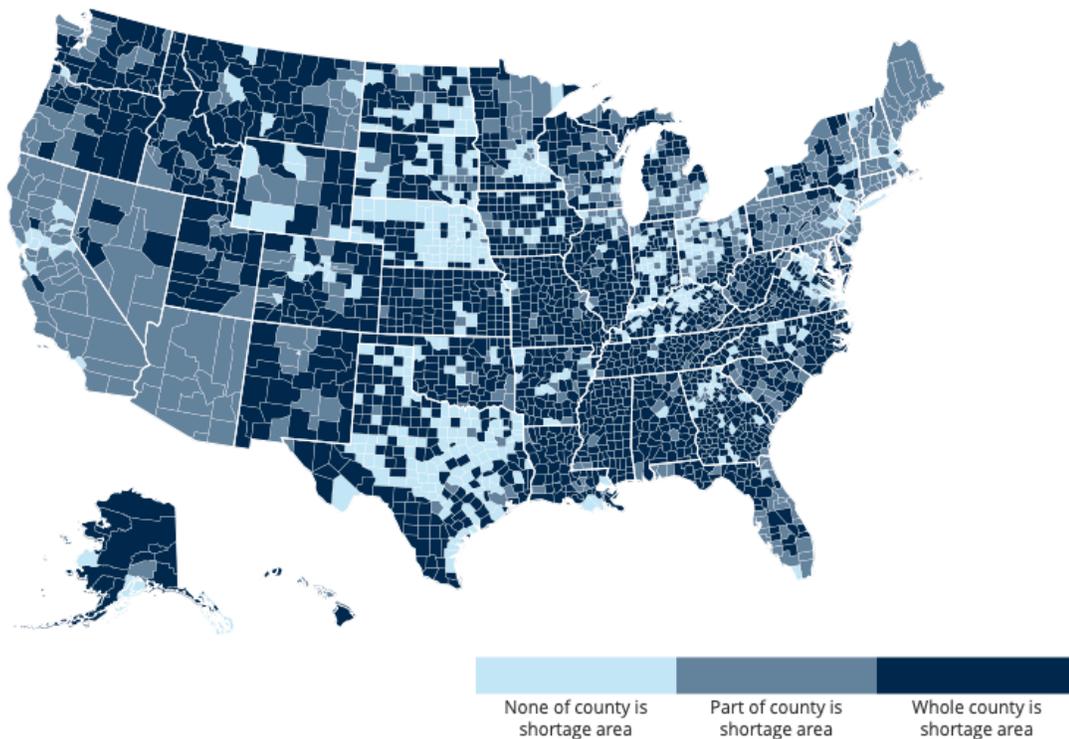


FIGURE 2: U.S. HEALTH PROFESSIONAL SHORTAGE AREAS; DENTAL CARE BY COUNTY, 2019



D. COMMUNITY INTERVENTION THROUGH FLUORIDATION

Public water fluoridation has proven to be one of the most efficient and cost effective ways to combat tooth decay and protect against oral related illnesses, especially in children.³² Fluoride is a naturally occurring mineral, found in water, soil, and the air, and is added to toothpaste and other dental products. This mineral helps build up and maintain tooth enamel, helping to prevent tooth decay and cavities. For more than 70 years, communities have been adding fluoride to their water systems, helping to reduce the number of cavities in children and adults by nearly 25 percent.³³

However, rural populations have less access to fluoridated water systems than their urban counterparts because the systems have shown to be cost prohibitive.³⁴ A study conducted by West Virginia University found that rural communities are much more likely to have inadequately fluoridated drinking water.^{35,36} While 72.6 percent of the population in metropolitan counties reported

access to fluoridated drinking water, only 63.3 percent of the population in rural counties had access.^{37,38} A lack of fluoridated water in a community is often associated with increased cases of dental caries and periodontitis, which can lead to tooth loss and higher risk of other systemic diseases.

For millions of Americans, their rural zip codes limit their ability to get the dental care they need. From high-cost burdens, limitations imposed by Medicaid, provider shortages, and less preventative community health measures, there are disparities which rural residents, providers, and policymakers must address. With innovation, technology, and proactive policy measures, more rural Americans will be able to receive dental care services they need, and come closer to achieving total health.

IV. ADDRESSING THE LIMITATIONS OF THE CURRENT RURAL DENTAL HEALTH DELIVERY MODEL

The disparities in dental health care access in rural counties and communities across the nation, including Nebraska, are dynamic. So are efforts to combat these barriers to dental care and overall health. The state of Nebraska, legislators, providers, public health professionals, colleges, and communities have come together to bring forward solutions to address many of these limitations. Moreover, there are opportunities to replicate current programs in other areas of Nebraska as well as to draw upon the dental health access efforts that have been successfully brought forth in other states.

32 “5 Reasons Why Fluoride in Water Is Good for Communities.” American Dental Association, ada.org/en/public-programs/advocating-for-the-public/fluoride-and-fluoridation/5-reasons-why-fluoride-in-water-is-good-for-communities. Accessed August 2019.

33 “Over 70 Years of Community Water Fluoridation.” Center for Disease Control and Prevention, March 11, 2019, cdc.gov/fluoridation/basics/70-years.htm. Accessed August 2019.

34 Hendryx, Michael, et al. “Water Fluoridation and Dental Health Indicators in Rural and Urban Areas of the United States.” West Virginia Rural Health Research Center, January 2012, ruralhealthresearch.org/mirror/4/478/2011_fluoridation_policy_brief.pdf. Accessed August 2019.

35 “5 Reasons Why Fluoride in Water Is Good for Communities.” American Dental Association, ada.org/en/public-programs/advocating-for-the-public/fluoride-and-fluoridation/5-reasons-why-fluoride-in-water-is-good-for-communities. Accessed September 2019.

36 Hoadley, Jack, et al. “Health Insurance Coverage in Small Towns and Rural America: The Role of Medicaid Expansion.” Georgetown University Center for Children and Families and the University of North Carolina NC Rural Health Research Program, September 2018, ccf.georgetown.edu/wp-content/uploads/2018/09/FINALHealthInsuranceCoverage_Rural_2018.pdf. Accessed August 2019.

37 “Project Dental Campaign.” The Pew Charitable Trusts, pewtrusts.org/en/projects/dental-campaign. Accessed August 2019.

38 “Dental Benefits Coverage in the U.S.” Health Policy Institute, American Dental Association, ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIgraphic_1117_3.pdf?la=en. Accessed August 2019.

A. EXPANDING THE ORAL HEALTH CARE WORKFORCE

As noted previously, there are more than 5,200 dental health provider shortage areas in the U.S., with 75 shortage areas located in Nebraska.³⁹ There are simply not enough dental health professionals to fill the traditional roles of dental assistants, hygienists, and dentists to meet the needs of the communities they are serving. To address issues related to dental health care access, the number of providers must increase.

One solution to increase the number of dental providers has taken the form of innovative legislation to create new, mid-level provider positions and expand the scope of practice for existing providers. The idea of a mid-level provider called a “dental therapist” in the U.S. was first introduced in 2000 as a way to address the disparity in oral health faced by American Indians and Alaska Natives.⁴⁰ Subsequently, a handful of states across the country have passed similar legislation permitting the adoption of dental therapist training and practice.

Dental therapists are defined as “mid-level practitioners responsible for providing evaluative, preventative, restorative, and minor surgical dental care within their scope of practice.”⁴¹ The addition of dental therapy licensing expands the dental health team and, in turn, increases access to oral health care, especially for populations that are vulnerable and historically underserved.

As of August 2019, eight states, including Arizona, Connecticut, Maine, Michigan, Minnesota, Nevada, New Mexico, and Vermont, have

39 “Shortage Designation Scoring Criteria.” Health Resources and Services Administration, Bureau of Health Workforce, bhw.hrsa.gov/shortage-designation/hpsa-process. Accessed October 2019.

40 Nash, David A., and Ron J. Nagel. “A Brief History and Current Status of a Dental Therapy Initiative in the United States.” *Journal of Dental Education*, vol. 69, no. 8, Aug. 5, 2005, pp. 857-859.

41 “Emerging Professions.” Minnesota Department of Health, dhs.state.mn.us/main/idcplg?IdcService=GET_DYNAMIC_CONVERSION&RevisionSelectionMethod=LatestReleased&dDocName=SIM_Emerging_Professions. Accessed August 2019.

authorized dental therapy for all dental offices. Three states have granted conditional permission in tribal areas, and nine states have indicated they are actively exploring authorization of dental therapy.⁴² Minnesota was the first state to authorize the use of dental therapy in 2009, and has seen incredible success, reporting an increase in patient visits by 27 percent after one year.⁴³

B. ADDITIONAL ALTERNATIVES IN LICENSURE

Dental therapy licensing is not the only route states have taken to increase the number of dental health providers and improve access to care for residents. States like Nebraska have implemented alternative approaches to expand dental teams to include mid-level or second-tier dental providers.

On March 23, 2017, Nebraska Legislative Bill 18 passed, “chang[ing] licensure and scope of practice for dental assistants and dental hygienists,” and modernizing the way dental care is administered.⁴⁴ The legislation, which took effect in 2018, created a new category of licensed dental assistants and expanded the functions that existing dental assistants and licensed dental hygienists can perform. Legislative Bill 18 effectively doubled the tasks that dental assistants are able to perform, gave licensed dental hygienists more autonomy in their work, and created job opportunities for Nebraskans in the way of a licensed dental assistant position. Table 1 on page 9 outlines the changes enacted by Legislative Bill 18.

42 Koppelman, Jane. “States Expand the Use of Dental Therapy.” The Pew Charitable Trusts, Sept. 28, 2016, pewtrusts.org/en/research-and-analysis/articles/2016/09/28/states-expand-the-use-of-dental-therapy. Accessed August 2019.

43 Glans, Matthew. “Research & Commentary: Addressing Idaho’s Dental Health Shortage with Dental Therapy.” The Heartland Institute, Feb. 26, 2019, heartland.org/publications-resources/publications/research--commentary-addressing-idahos-dental-health-shortage-with-dental-therapy. Accessed August 2019.

44 “LB18 - Change licensure and scope of practice for dental assistants and dental hygienists.” Nebraska Legislature, March 29, 2017, nebraska.legislature.gov/bills/view_bill.php?DocumentID=30786. Accessed September 2019.

TABLE 1: NEBRASKA LEGISLATIVE BILL 18 DUTY CHART

Nebraska Legislative Bill (LB) 18			
	Dental assistant	Licensed dental assistant [new]	Licensed dental hygienist
Education	On the job trained or a graduate of a dental assisting program	High school diploma or equivalent [new]	Graduate from a dental hygiene program
		Graduate of a dental assisting program or 1,500 hours of experience [new]	Pass credentialing, practical, and jurisprudence exams
		Pass credentialing and jurisprudence exams [new]	
Duties	1. Perform coronal polishing	1. Take dental impressions for fixed prosthesis* [new]	1. Teeth cleaning, scaling, and root planning
	2. Take x-rays	2. Take dental impressions and make minor adjustments for removable prosthesis* [new]	2. Polish teeth
	3. Place topical local anesthesia [new]	3. Cement prefabricated fixed prosthesis on primary teeth* [new]	3. Preliminary charting, screening
	4. Monitor nitrous oxide with current CPR [new]	4. Monitor and administer nitrous oxide analgesia* [new]	4. Brush biopsies
		5. All procedures authorized for an unlicensed dental assistant	5. Pulp vitality testing
			6. Gingival curettage
			7. Removal of sutures
			8. Application of fluorides and sealants
			9. Impressions of teeth
			10. Application of topical and subgingival agents
			11. X-rays of teeth
			12. Oral health education
			13. Interim Therapeutic Restoration* [new]
			14. Write prescriptions for mouth rinses and fluoride products* [new]
		15. Administer and titrate nitrous oxide* [new]	
		16. All duties an unlicensed dental assistant may perform	
Eligible for expanded function permits? [new]	No	Yes, with (1) 1,500 hours of experience, (2) course, (3) jurisprudence and credentialing exams [new]	Yes, with (1) 1,500 hours of experience, (2) course, and (3) jurisprudence and credentialing exams [new]
Expanded functions with separate permits [new]	None	(1) Restorative level one simple restorations, (2) restorative level two complex restorations, and (3) complete final cementation of fixed prosthesis** [new]	(1) Restorative level one simple restorations, and (2) restorative level two complex restorations [new]
KEY			Legislative Bill 18 also increases the scope of practice for public health dental hygienists: (1) interim therapeutic restoration technique*; (2) writing prescriptions for mouth rinses and fluoride products*; (3) minor denture adjustments to adults* [new]
<p>[new] - This would be added into law by Legislative Bill 18 * This function requires additional education ** A deletion from HHS Committee Amendment Note: Legislative Bill 18 grants the Board of Dentistry authority to approve education and testing of assistants and hygienists.</p>			

Reforming the licensure and scope of practice for dental hygienists and assistants increases the number of available providers while also decreasing costs. Licensed dental assistants in Nebraska, like dental therapists in other states, have helped to increase the number of dental health practitioners, and thus have helped to address the shortage of professionals in the field and provide care to those who might otherwise not have access.

C. BRINGING TELEDENTISTRY TO RURAL PLACES

In other areas of health care delivery, telehealth services have helped alleviate barriers to care for rural residents by expanding access to screening and follow-up visits, opening doors to remote specialty care providers, and eliminating the need to travel long distances. Used primarily for general and mental health services, the technology has revolutionized how individuals who are unable to access traditional means of health care can obtain care in a way that is most practical for them.

More recently, dentistry has been added to the health care professions that utilize telehealth technologies. Teledentistry is defined as “the remote provision of dental care, advice, or treatment through the medium of information technology, rather than through direct personal contact with any patient(s) involved.”⁴⁵ While its use has been limited, teledentistry has proven to have incredible benefits for rural America.

1. EXPANDING TELEDENTISTRY’S REACH THROUGH POLICY

Although teledentistry is a relatively new health care delivery mode, the University of Nebraska Medical Center’s College of Dentistry has been a leader and innovator in the practice for more than a decade. The College of Dentistry has used teledentistry both to provide care in dental shortage areas and as a teaching tool between dental students located in rural areas and faculty on campus. As of 2013, seven teledentistry sites were established in rural communities, including Ainsworth, Burwell, Chadron, Columbus, Gering,

45 Khan, Saad Ahmed, and Omar Hanan. “Teledentistry in Practice: Literature Review.” *Telemedicine and e-Health*, vol. 19, no. 7, July 9, 2013, pp. 565–567, doi: 10.1089/tmj.2012.0200. Accessed August 2019.

Macy, and Norfolk.⁴⁶ This effort compliments the University of Nebraska Medical Center’s Rural Health Opportunities Program, where students are guaranteed admission to their designated University of Nebraska Medical Center program, like dentistry, upon completing their prerequisite degree at a state college. The program is designed to recruit rural students into the health professions, with the intention of such students returning to rural areas to practice.

Moreover, teledentistry is utilized interprofessionally within the Omaha Public Schools system in Nebraska providing dental screenings in their eight School-Based Health Centers and with school nurses within the system.⁴⁷ The School-Based Health Centers are operated by the Charles Drew Health Center and One World Community Health Center, both Omaha-based Federally Qualified Health Centers.

Despite this innovative approach to dental care delivery, the University of Nebraska Medical Center is the only known dental provider using teledentistry in the state of Nebraska.⁴⁸ Barriers exist to the utilization of teledentistry, including the lack of reimbursement for services for Medicaid patients, as well as its omission from the Nebraska Dentistry Practice Act. Policy revisions would help bring clarity to and likely expand the use of teledentistry services in the state, while simultaneously expanding dental services for rural residents.

A number of states have incorporated provisions for the use of teledentistry into statute. Arizona, California, Colorado, Georgia, Minnesota, Oregon, and Washington have adopted policies to allow for the reimbursement of teledentistry services to Medicaid patients.

46 Reinhardt, John, and Kimberly McFarland. “Strategies for Strengthening the Great Plains Oral Health Workforce.” *Great Plains Studies*, Center for Social Sciences, University of Nebraska-Lincoln, 2013, digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2272&context=greatplainsresearch. Accessed August 2019.

47 Trewet-Sloop, Tami, RDH, BS, PHRDH. Personal email interview. Sept. 3, 2019.

48 Ibid.

To effectively implement and integrate teledentistry (and telehealth as a whole) into practice is the necessity of high-speed and dependable broadband service, which many rural areas continue to lack. Nationally, 63 percent of rural residents have broadband service in their homes, compared to 75 percent nationwide.⁴⁹ The foundation on which teledentistry lies is reliable internet access, and unfortunately for many rural areas, this puts them at a disadvantage as they are not able to access teledentistry technologies. In 18 of Nebraska's 93 counties, 5 percent or less of the population has access to broadband.⁵⁰

While measures in the state legislature are being considered to expand broadband services, the bottom line is if patients and dental health care providers do not have access to high-speed internet, teledentistry is not a viable option to address the disparities in access to rural dental health care.

Each of these states, with the exception of Georgia, expanded Medicaid. Tennessee statute defines teledentistry and allows for its use for initial and subsequent examinations.⁵¹

The impacts and outcomes of teledentistry (and broadly telemedicine) vary by community, but can take the form of eliminated transportation costs for traveling health care providers, a decrease in time needed for patients to take off work and the loss of wages that result from not working, improved patient outcomes, and an increase in patients with access to care, among others.⁵² Rural dental providers that use teleconsultation can additionally retain revenue when providers at those offices are able to treat patients in a local facility instead of transferring them to an emergency or specialty care facility. Teledentistry provides an invaluable service to those in rural areas. The focus now must be overcoming barriers to implementation so Americans can reap the benefits.

D. EDUCATING THE NEXT GENERATION OF DENTAL HEALTH PROFESSIONALS

Perhaps the most proactive approach to closing the gap in access to dental care for Americans takes place not in a dental office but instead in the classroom. Colleges and universities across the country have worked for decades to counteract the shortage of dental professionals in rural areas by providing students a chance to work in rural, underserved areas through externships or loan reimbursement programs.

Programs to draw rural students to the dental profession exist within Nebraska's college systems. Some programs offer lower cost, accelerated degrees and incentivize working in the oral health field in rural communities. While effective models exist, programs like the Dental Hygiene Associate of Applied Science Degree at Central Community College need to be replicated at other colleges and recognized by

49 Perrin, Andrew. "Digital Gap Between Rural and Nonrural America Persists." Pew Research Center, May 31, 2019, [pewresearch.org/fact-tank/2019/05/31/digital-gap-between-rural-and-nonrural-america-persists/](https://www.pewresearch.org/fact-tank/2019/05/31/digital-gap-between-rural-and-nonrural-america-persists/). Accessed August 2019.

50 Hladik, Johnathan. "Broadband Is a Basic Service for All Nebraskans." Center for Rural Affairs, Feb. 7, 2019, [cfra.org/news/190207/broadband-basic-service-all-nebraskans](https://www.cfra.org/news/190207/broadband-basic-service-all-nebraskans). Accessed September 2019.

51 "Current State Laws and Reimbursement Policies." Public Health Institute, Center for Connected Health Policy, [cchpca.org/telehealth-policy/current-state-laws-and-reimbursement-policies?keyword=teledentistry](https://www.cchpca.org/telehealth-policy/current-state-laws-and-reimbursement-policies?keyword=teledentistry). Accessed August 2019.

52 "Telehealth Use in Rural Healthcare." Rural Health Information Hub, March 26, 2019, [ruralhealthinfo.org/topics/telehealth#financial-impact](https://www.ruralhealthinfo.org/topics/telehealth#financial-impact). Accessed July 2019.

state policymakers as a proactive approach to closing the gap in dental health providers.

The Central Community College Dental Hygiene Applied Science Degree program was established in 1977. The only program of its kind in Nebraska, it provides students with a faster, less expensive alternative to a traditional Bachelor of Science in Dental Hygiene degree. Students at Central Community College are exposed to the field of dental hygiene through a mix of classroom, laboratory, and clinical assignments while gaining experience through work in the college's dental hygiene clinic. The clinic is open to the public to get the care they need at a discounted price.

The three-year program based in Hastings, Nebraska, provides students with the education and credentials needed to sit for the national and regional exams to become a registered dental hygienist.⁵³ Fifteen students are admitted to the program annually, and there is a two-year waiting list for admission.

In addition to classroom and clinical work, Central Community College dental hygiene students participate in an outreach program and travel with faculty to schools in surrounding counties to offer free preventative screenings to students each spring. An estimated 4,000 area elementary students in rural schools were screened in 2019. Many of these schools served are located within counties with Dental Health Professional Shortage Areas, and often the children screened would otherwise not have access to quality preventative care. Dental hygiene students provide topical fluoride and sealants, and work to educate elementary students and their parents on effective dental hygiene practices and how to prevent future issues from arising.⁵⁴ These hands-on training opportunities in the communities where students call home have become an effective way of demonstrating the need in these locations and have helped attract students back to these areas following the completion of their degree.

53 “Dental Hygiene AAS Degree Plan of Study—Full-Time.” Central Community College, catalog.cccneb.edu/preview_program.php?catoid=37&poid=12397. Accessed July 2019.

54 Cloet, Wanda, and Deb Schardt. Personal interview. June 18, 2019.

Programs like those offered by Central Community College have made strides in closing the gap of dental health professionals in the state of Nebraska.

The work that Central Community College and other institutions across the country are doing is imperative to alleviating the shortage of dental health professionals in many rural areas. However, shortages continue to exist, and there is still much work to be done. Expansion of and support from states for these types of programs and degrees are crucial to ensure Americans are able to have their oral health needs met in a timely and financially feasible manner, no matter where they live.



Between 2007 and 2017, the number of dental hygienists increased 23 percent from 58.2 to 71.6 per 100,000 residents. Yet, 20 Nebraska counties have no dental hygienist, and of those counties, 10 also do not have a dentist (Sioux, Banner, Grant, Arthur, Thomas, Gosper, Blaine, Loup, Hayes, and Wheeler).⁵⁵

55 Wilson, Fernando A., et al. “The Status of the Helathcare Workforce in the State of Nebraska.” University of Nebraska Medical Center, February 2018, unmc.edu/publichealth/hpts/news/The-Status-of-the-Healthcare-Workforce-in-the-State-of-Nebraska-February-2018.pdf. Accessed August 2019.

V. CONCLUSION

A shortage in dental health care providers, financial barriers, the inability or unwillingness of providers to treat Medicaid patients, and limitations to dental health literacy are only a few of the factors keeping individuals in rural communities from accessing and utilizing adequate oral health care.

To improve dental health care delivery in Nebraska and other rural states, one must first recognize that oral and general health cannot be interpreted as separate entities. Instead, they must be acknowledged as aggregate components of overall health and integrated into the broader scope of health care practice and delivery.

The second step is acknowledging that disparities in oral health access in rural communities cannot be solved with one solution. Leveraging the current dental health workforce in a more efficient way, working to create more provider positions, investing in local programs that focus on preventative care, and improving oral literacy in at-risk populations are certainly steps in the right direction. However, there is more work to be done. Tackling the complexities that Medicaid, reimbursement rates, and the incoming expansion population will bring to the oral health field in the coming years will be necessary. And, overall improvement in cost structures and insurance coverage will be an essential part of future efforts to ensure rural Americans have access to affordable and high-quality oral health care.

Improving access to dental health care and the status of oral health in rural America cannot be achieved with one policy or program, but will require lawmakers, health care professionals, and advocates to overcome the current disparities in dental care and health. That is something all rural residents can smile about.

ABOUT THE CENTER FOR RURAL AFFAIRS

Established in 1973, the Center for Rural Affairs is a private, nonprofit organization with a mission to establish strong rural communities, social and economic justice, environmental stewardship, and genuine opportunity for all while engaging people in decisions that affect the quality of their lives and the future of their communities. This institution is an equal opportunity provider and employer.

