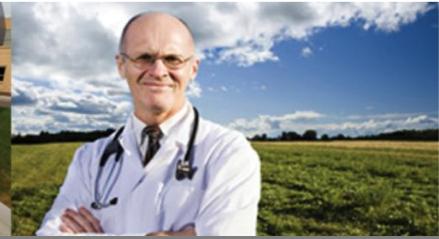


Center *for* Rural Health



Rural Community Collaborations and Models Addressing Oral Health

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National Rural Health Association, Annual Rural Health Conference (Virtual)

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Presenter Bio: Dr. Shawnda Schroeder

[Shawnda Schroeder](#), MA, PhD, is a Research Associate Professor at the Center for Rural Health, University of North Dakota School of Medicine and Health Sciences. In this role she conducts rural health research, serves as lead on statewide program evaluation, and serves on several national and statewide rural and oral health work groups. She serves on the editorial board for the [Journal of Rural Health](#), and is the Director of the [Rural Health Research Gateway](#), a program funded by the Federal Office of Rural Health Policy that is dedicated to the dissemination of rural health research. Dr. Schroeder has studied oral health disparities, workforce models, oral health policy, older adult oral health, and is currently completing program evaluations for the [North Dakota Department of Health's Oral Health Program](#) funded by both the Health Resources and Services Administration and the Centers for Disease Control and Prevention.

- Established in 1980, at The University of North Dakota (UND) School of Medicine and Health Sciences in Grand Forks, ND
- One of the country's most experienced state rural health offices
- UND Center of Excellence in Research, Scholarship, and Creative Activity
- Home to six national programs
- Recipient of the UND Award for Departmental Excellence in Research

Focus on

- Educating and Informing
- Policy
- Research and Evaluation
- Working with Communities
- American Indians
- Health Workforce
- Hospitals and Facilities

Session Objectives

At the end of this session, attendees will be able to . . .

- Describe unique oral health issues and disparities among rural, low income, and underinsured individuals in the U.S. and North Dakota.
- Identify rural models or community interventions that have worked in one rural state that may work to address the oral health needs in their community.
- Recognize and describe the role of various health providers and centers in addressing rural oral health disparities (including public health, federally qualified health centers, rural emergency departments, care coordinators, and school systems).

Importance of Oral Health

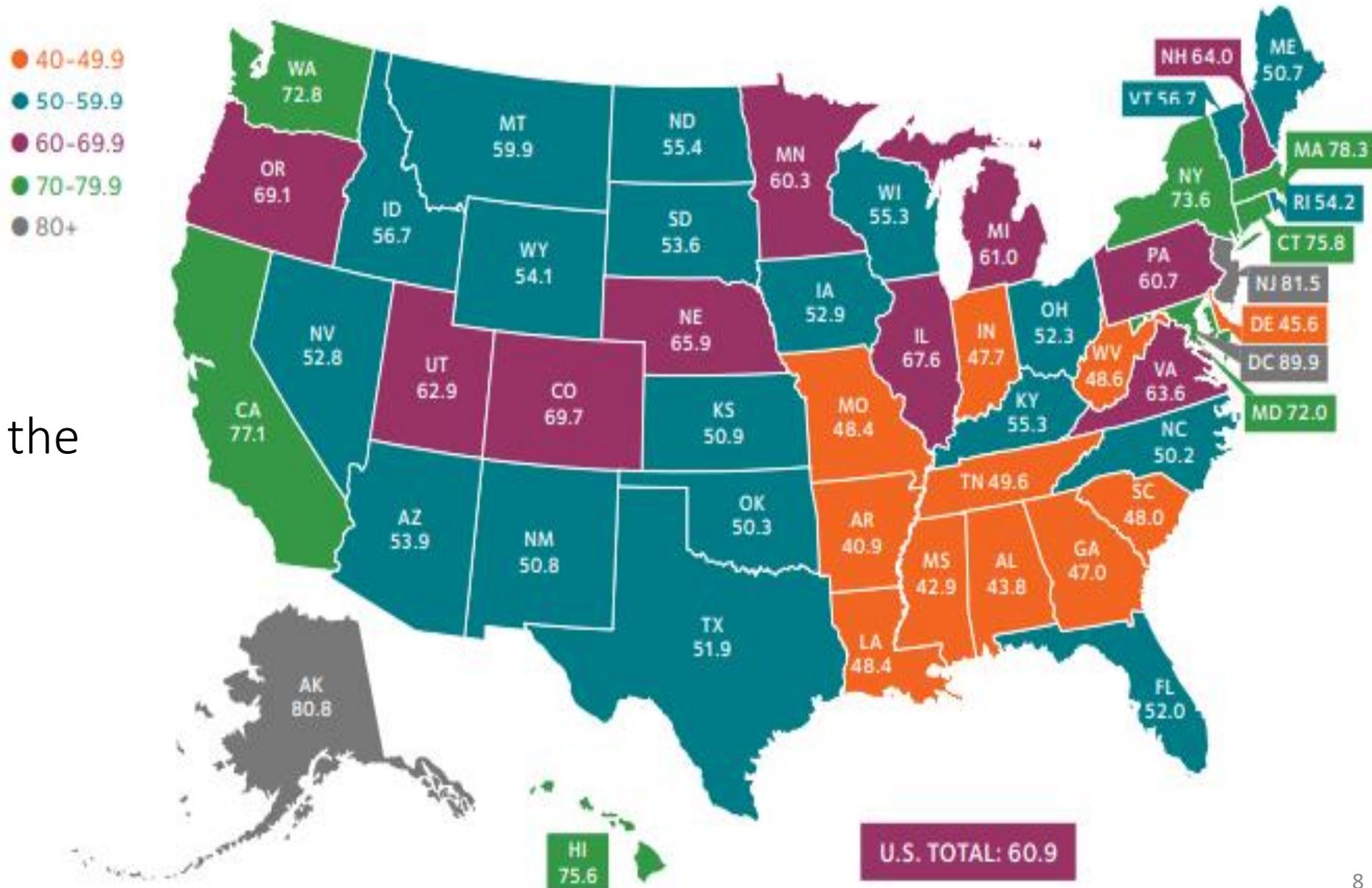
- Cavities are one of the most common chronic conditions among children in the United States.
- Periodontal disease has been associated with a number of health conditions, including heart disease and diabetes.
- Oral health affects our ability to eat, speak, smile, and show emotions.
- Oral health also affects a person's self-esteem, school performance, and attendance at work or school.
- Despite major improvements in oral health for the population as a whole, oral health disparities exist for many racial and ethnic groups, by socioeconomic status, gender, age and geographic location.



Rural Oral Health Disparities

- 55.7% of adults age 18-64 living outside of a metro area visited the dentist in the past year, compared to 65.2% of those living within a metro area.
- Rural children were less likely (73% of Large Rural, 75% of Small Rural) to receive preventive dental care than urban (78%).
- 8.2% of people in rural counties reported full edentulism, having all teeth pulled, compared to 4.3% of urban.
- Approximately 60% of the nation's Dental Health Professional Shortage Areas are in rural America.
- Employers in rural areas are less likely to offer dental insurance than those in more populated areas.

Dentist to 100,000 Population Ratio for the U.S., 2015



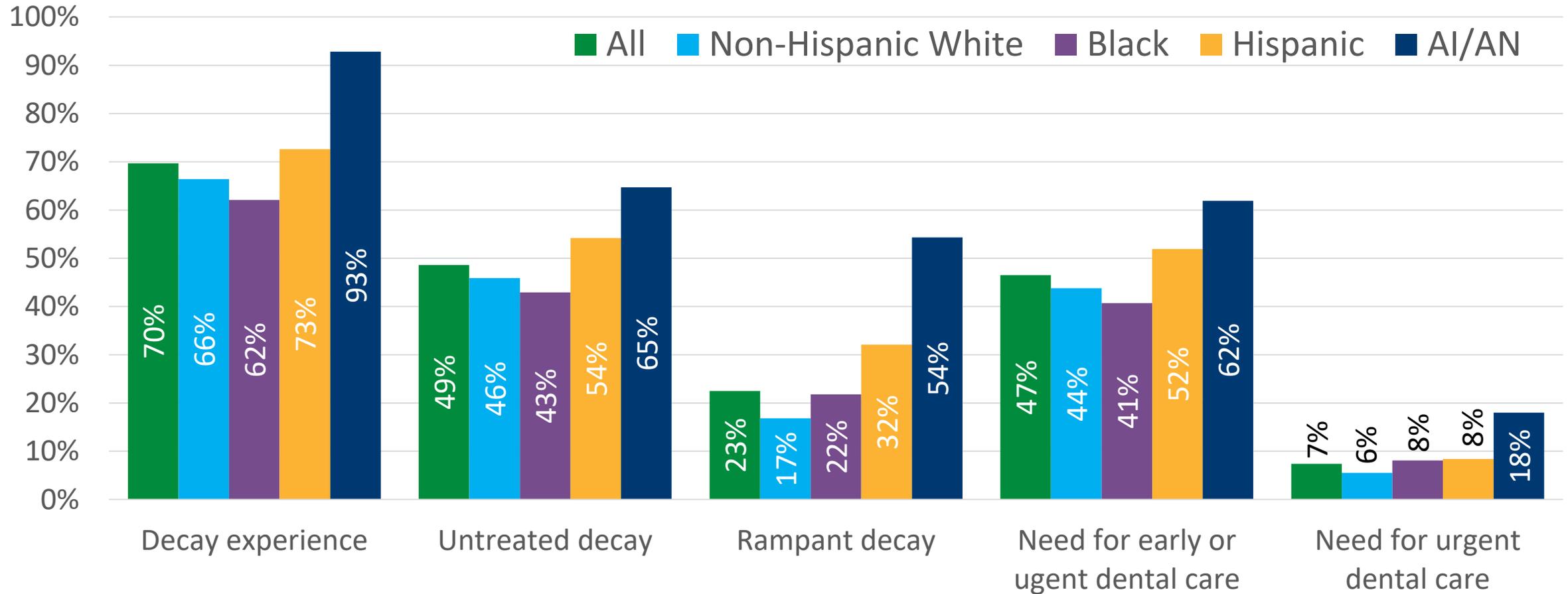
American Dental Association, Health Policy Institute. (2016). The Dentist Workforce: Key Facts. Retrieved from ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIgraphic_0716_1.pdf?la=en

Oral Health Disparities in North Dakota

Compared to non-Hispanic white kindergarteners, those that were of American Indian (AI)/Alaska Native (AN) descent had a significantly higher ($p < 0.05$) prevalence of:

- Decay experience.
- Untreated decay.
- Rampant decay.
- Need of early or urgent care.
- Need of urgent care.

Oral Health Among North Dakota Kindergartners by Race & Ethnicity, 2018-19 School Year



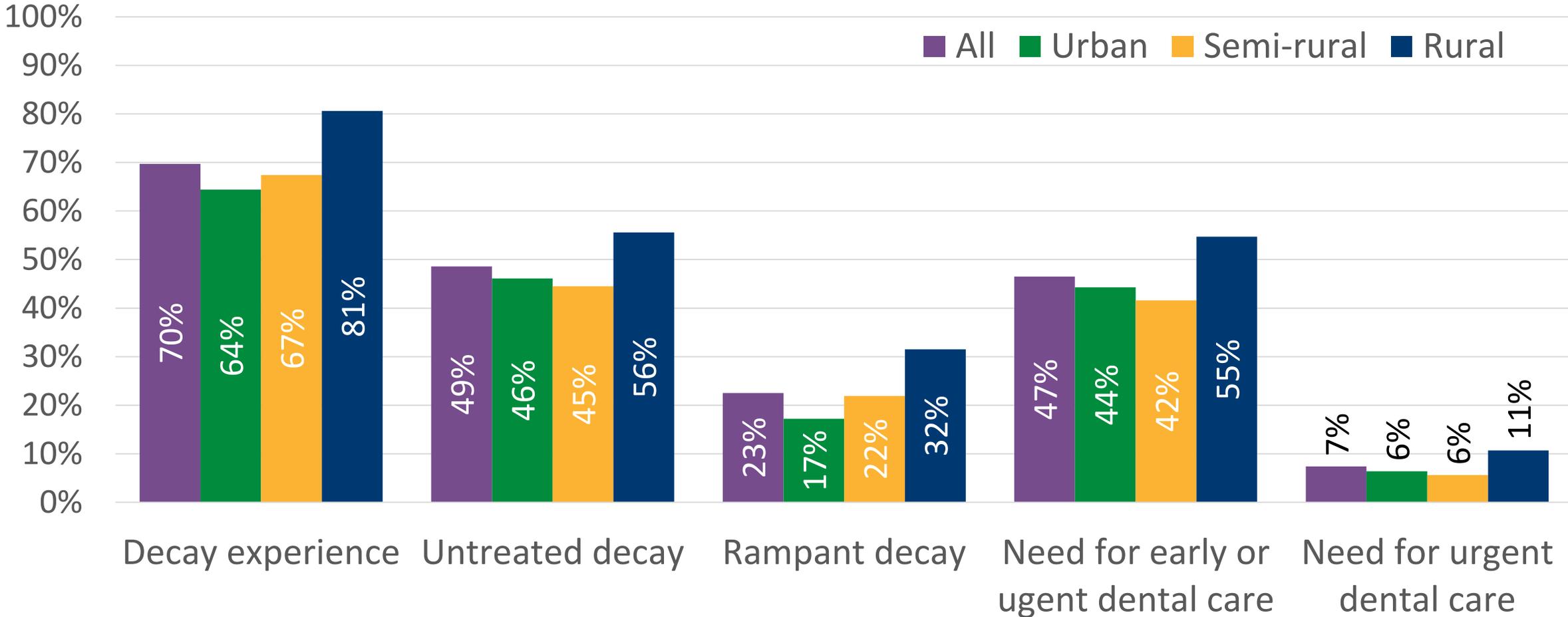
High Rates of Decay and Need for Dental Treatment Among American Indian and Alaska Native Kindergartners in North Dakota. Retrieved from <https://ruralhealth.und.edu/assets/3507-14139/nd-high-rates-of-decay-among-aian.pdf>

Oral Health Disparities in North Dakota

Compared to kindergarteners from semi-rural and urban counties, those in rural areas had a significantly higher ($p < 0.05$) prevalence of:

- Decay experience.
- Untreated decay.
- Rampant decay.
- Need of early or urgent care.

Oral Health Among North Dakota Kindergartners by Geography, 2018-2019



High Rates of Decay and Need for Dental Treatment Among Rural Kindergartners in North Dakota. Retrieved from ruralhealth.und.edu/assets/3506-14138/nd-high-rates-of-decay.pdf

Response to the Need

- North Dakota Department of Health Oral Health Program ([NDDoH OHP](#))
- Health Resources and Services Administration (HRSA), [Grants to States to Support Oral Health Workforce Activities](#)
- Centers for Disease Control and Prevention (CDC), [State Actions to Improve Oral Health Outcomes](#)



HRSA Goals

1. School-based sealant program and care coordination.
2. Medical-dental integration utilizing a public health hygienist.
3. Dental student rotations at a federal qualified health center.
4. Assessing opioid prescribing and training needs among dental professionals.



North Dakota
Oral Health Program
It's All Connected!

CDC Goals

1. School-based sealant program.
2. Community water fluoridation.
3. Oral health surveillance .
4. “Burden of Disease” report.



North Dakota
Oral Health Program
It's All Connected!

Evaluation Activities and Results

- Center for Rural Health contracted to complete the evaluation
- Review of de-identified primary data (patient data)
- Review of secondary data
- Survey research
- Dental licensure data
- Statewide reporting systems data
- IRB approval through the University of North Dakota

Dental Student Rotations

Dental Student Rotations: The Need

- No dental school in North Dakota.
- No reciprocity agreement with neighboring states.
- Rural communities in North Dakota struggle to maintain private dental practices because of low patient volume.
- 39% of indebted dental school graduates in 2019 reported more than \$300,000 of student loan debt.
- Difficult to recruit dentists to rural and underserved areas.

Dental Student Rotations: Response

- Dental schools require students to participate in 10-12 weeks of outreach programming outside the dental school.
- Most require the host organization to pay room and board, and a stipend for meals.
 - This is a barrier for rural clinics and FQHCs and is one of the primary reasons many do not participate in such programming.
- ND Oral Health Program (HRSA funds) covered cost for 2 students.
- Area Health Education Center (AHEC) covered cost for 2 more.
- Rotations were late winter 2019.

Number of Dental Clinical Services by Year and School

Year	School	Number of Students	Restorative	Exams	Preventive	Endo	Extractions	Number of MA Patients	MA \$ Billed
2018	MN	2	75	14	13	3	32	*	*
	Iowa	1	53	8	8	0	17	*	*
2019	MN	2	141	22	23	2	23	157	\$26,266
	Iowa	2	217	64	39	1	45	237	\$34,769

* Specific data point not collected for that year.

Student Experience: Grow your Own

The four dental students had all spent a majority of their lives (prior to dental school) in North Dakota with three of the four coming from rural communities in the state. Students all stated they selected this rotation because of its geographic location (North Dakota), and two of the four pursued this opportunity because an upperclassman “highly recommended it!”

School Debt and Future Salary: Greatest Predictor on Future Practice Type and Location

- Pre-Rotation: Student expressed genuine interest in practicing in an FQHC setting. “I want to serve rural, high-risk, patients in need. I want to practice where I can provide a service. In public health I find a purpose in dentistry.”
- Post-Rotation: When comparing private practice to an FQHC, “this decision will be determined based off of where I can make the most money to pay off loans. The average [private practice] dentist can make \$120,000, but you can make more if you bill more. At an FQHC you can get a scholarship or loan repayment but you can’t make more than the set salary. Money will be the most significant factor in terms of which type of facility I practice at but I would like to stay in an FQHC.”

Additional Rural-Relevant Findings

- Loan repayment programs do not offer enough financial incentive to encourage practice in an FQHC, rural, or North Dakota setting.
- Integrated care: They appreciated working in a health facility where patients could access primary care, dental care, mental health services, and social services and case management all in one location.
- Students loved the program and it reenergized their interest in practicing in a rural or FQHC setting in North Dakota in the future.
- Training and paperwork requirements (in addition to cost) prohibit additional rural and FQHC settings from participating.

Medical-Dental Integration

Medical-Dental Integration: The Need

- High-risk patients are more likely to visit primary care than a dentist in a given year.
- Medical residents receive little, if any, direct training on oral health prevention and education.
- Oral health screens are not a part of well-child visits in North Dakota.
- Rural residents have greater access to primary care than dental care.

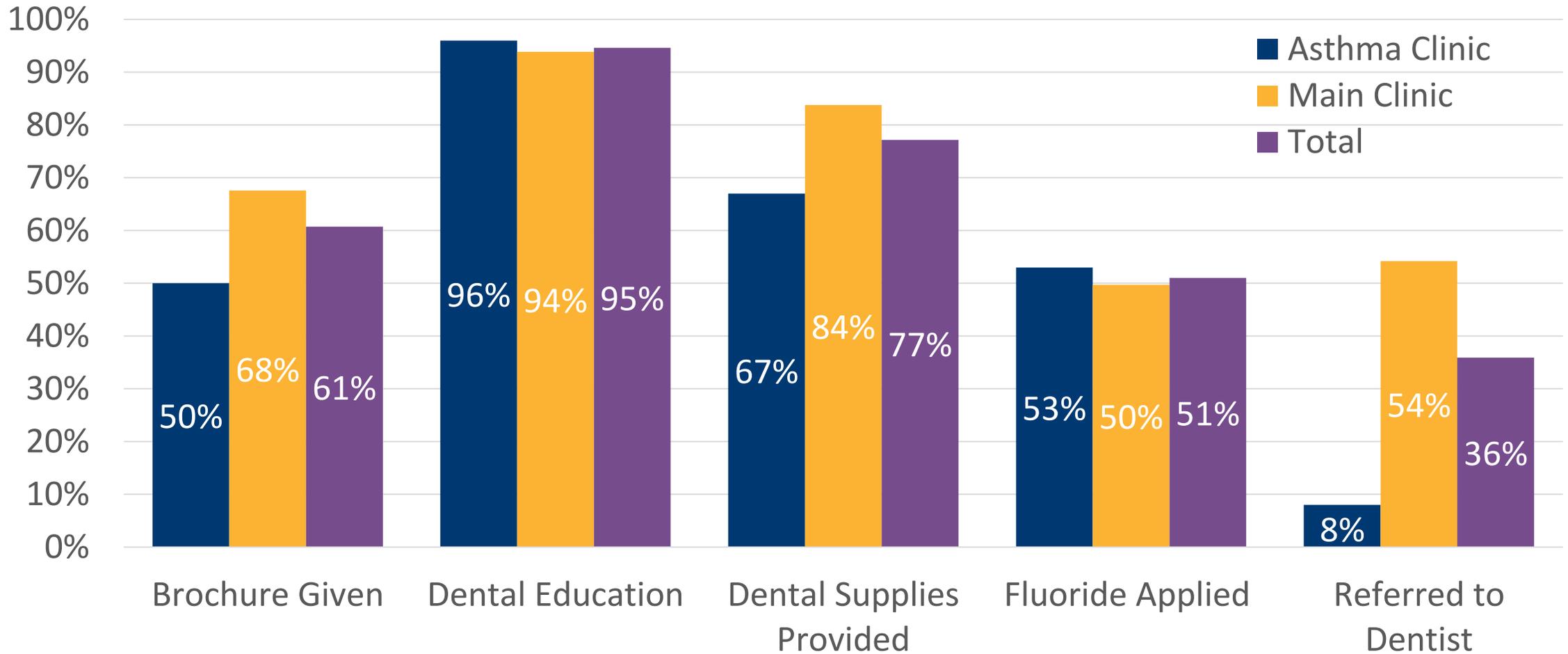
Medical-Dental Integration: Response

- Public health hygienist (PHH) integrated into a university family medicine center.
- PHH provides oral health training for medical residents and clinical staff (lunch and learns).
- PHH provides preventive dental services and education to patients and their families.
- Educational resources available throughout the facility.

Patients Seen by the Public Health Hygienist at the University of North Dakota Center for Family Medicine and the Asthma Clinic (September 1, 2019 through March 11, 2020)

09/01/2019 – 3/11/2020	Asthma Clinic	Main Clinic	Total
Referred to the PHH	131	190	321
Refused Screening	12	11	23
Screened by the PHH	119	179	298
Fluoride Varnish Applied	63	89	152
Brochure Given	60	121	181
Dental Education	114	168	282
Given Dental Supplies	80	150	230
Refused Screening	12	11	23
Referred to Dentist	10	97	107
Sought treatment	5	8	13

Percent of Patients that Received Dental Services & Oral Health Education by Clinic Type, September 1, 2019 through March 11, 2020



Educating Future Physicians

Only one first-year resident had ever conducted a basic oral health screening. First-year medical residents were generally unaware of the correlation between oral health and cerebrovascular disease, low birth weight, coronary artery disease, and diabetes. Upon completing their medical residencies, all indicated they had conducted at least a few oral health screenings, and all residents indicated confidence in their ability to identify gingivitis, cavities, periodontal disease, and gingival hyperplasia.

Additional Rural-Relevant Findings

- Rural area may not have a dental clinic or patient volume to support one, but they DO have primary care.
- Integrating a PHH into a primary care setting benefits rural patients, providers, and area dentists through referral.
- Program has increased fluoride varnish application, dental sealant application, and dental referral.
- Still a need to increase dental visits rates after referrals are made.
- Plan to explore data to determine which population groups are not making scheduled dental appointments (rural? Low-income? Medicaid?)
- Reimbursement?

School-Based Sealant Program

School-Based Sealant Program

- Seal!ND is a school-based dental sealant program that provides oral healthcare to low-income and underserved children in North Dakota.
- The public health hygienist (PHH), under standing orders with a dentist, offers:
 - Oral health education.
 - An oral health screen.
 - Dental sealants.
 - Application of fluoride varnish.

Clinical Reach: School Year, 2018-2019

- 1,999 students served at 48 schools.
 - 97 schools total.
- The PHH sealed 3,879 molars.
- 476 students were referred for dental care.
 - 404 for restorative care.
 - 72 for urgent care.
- 495 students had treated decay.
- 480 students had untreated decay.
- 688 cavities were averted
- Prevented \$53,320 in dental costs.

School Perspective: 2019-2020 School Year

Schools with students in greater need of services were less likely to identify that the program took a great deal of staff time and effort.

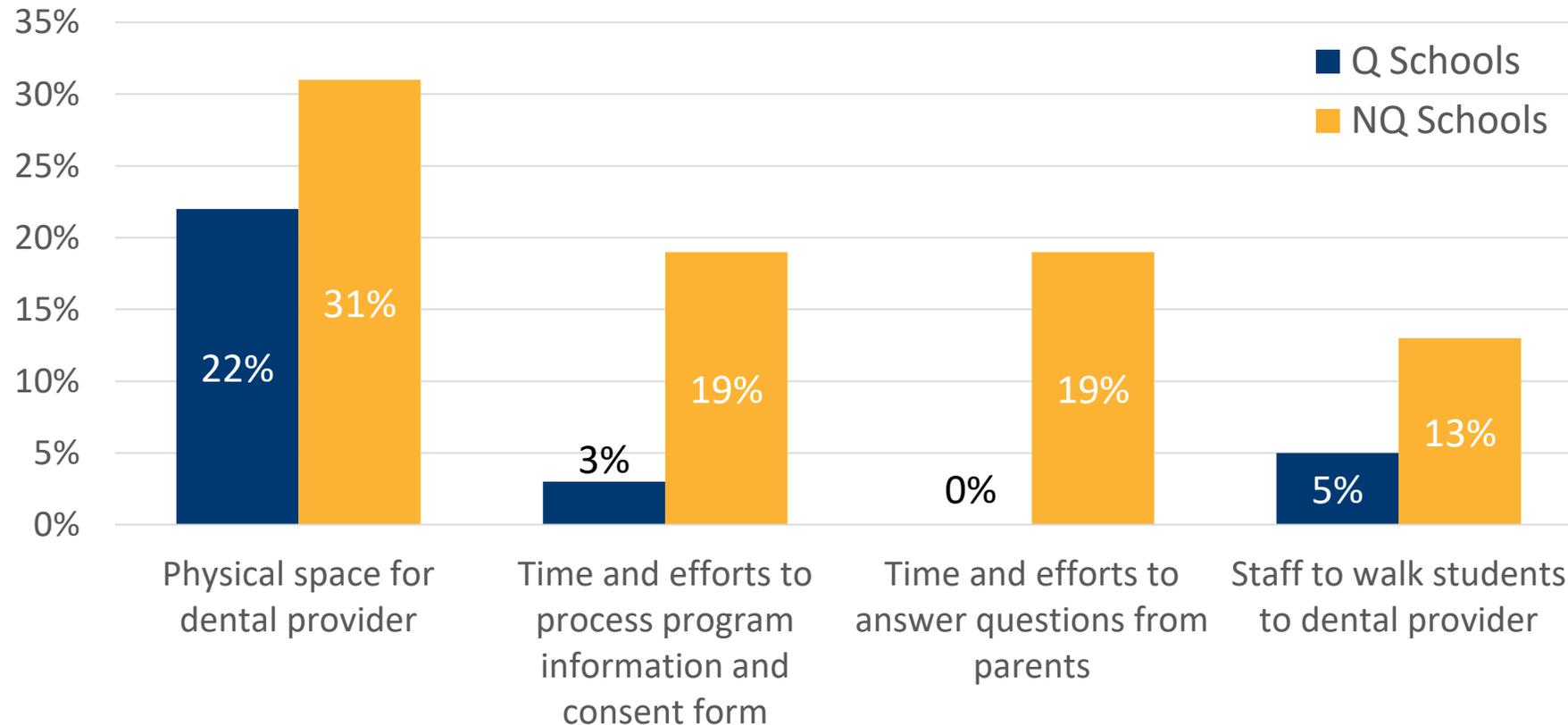


Fig. Percentage of Participants that Agreed or Strongly Agreed that the Following were Challenges to Participating in the Program

School Perspective: 2019-2020 School Year

- The greatest proportion of participants (81%) indicated that it would be helpful to have a list of dental providers who will work with low-income families and accept Medicaid.
- The next two forms of assistance with the greatest percentage of respondents included:
 - Need for materials to explain the dental sealant program in easy-to-understand language (72%).
 - Handouts with frequently asked questions (74%).

Additional Rural-Relevant Findings

- Need to be able to identify dentists for referral who will accept students who live rural or are covered by Medicaid (or both).
- Reimbursement concerns.
- Need to identify dental providers to offer care in the rural schools.
- Rural schools would benefit from a manual with templates and steps to walk them through beginning a school-based sealant program.

Opioid Prescribing and Emergency Room Diversion

Survey of Dentist on Screening and Opioid Prescribing

- 242 dentists completed the 2018 survey.
- Roughly 79% of respondents reported prescribing opioids between 2016 and 2018.
- 91% were registered with the North Dakota Prescription Drug Monitoring Program (PDMP).
- Only 52% had taken continuing education on addictive disease/pain management, opioids, and narcotics.
- Dentist practicing in completely rural areas were 6Xs more likely to report prescribing opioids compared with mostly rural and mostly urban areas ($p < .05$).

Emergency Room Diversion Program

- Identify why individuals utilize the emergency room (ER) for dental pain.
- Develop referral procedures with on-call dentists.
- Create a triage process.
- Consider integrated dental care.
- Identify prevention models that utilize community programs.
- Education for dental providers on prescribing practices.

Summary

Rural communities may address oral health inequities through:

- Medical-dental integration models in emergency rooms, rural health clinics, public health units and/or federally qualified health centers.
- Increase opportunities for dental rotations in rural and underserved communities with preference to dental students from the area, rural community, state.
- Find methods to sustain school-based sealant programs, especially in rural communities.
- Train other providers to offer oral health education and fluoride varnish application in community and clinic settings.

Ongoing Barriers

- Reimbursement, especially in an integrated model.
- Sharing patient information.
- Finding dental clinics accepting Medicaid patients.
- Finding a supervising dentist for PHHs working in community settings.
- Transportation.
- Cost (out-of-pocket).
- Fear and historical trauma.
- Low oral health literacy.
- Coronavirus (COVID-19)

Acknowledgements

EVALUATION

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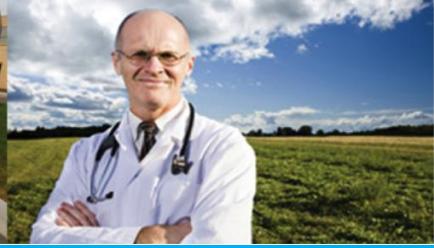
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