

**Testimony**  
**Dr. Shawnda Schroeder**  
**Health Services Committee**  
**Wednesday, July 27, 2016**  
**Center for Rural Health**  
**University of North Dakota School of Medicine and Health Sciences**

Good Morning Madam Chair and members of the Health Services Committee. Thank you for the opportunity to speak with you all today. My name is Shawnda Schroeder and I am an Assistant Professor at the Center for Rural Health, located at the University of North Dakota School of Medicine and Health Sciences. For the past couple of years, I have been leading research on oral health in the state of North Dakota, under a variety of funding sources. I am here today to update you on our current work, to share oral health data with you, and alert you to resources that will be coming in the next few months.

The following work has been funded by the North Dakota Department of Health's Oral Health Program as a subcontract under both the CDC and the DentaQuest Foundation. Other efforts have been funded by the Pew Charitable Trust. All of our efforts have had the same intent – to objectively assess the oral health status of North Dakota and identify populations and/or communities in need of intervention. I have provided the Committee with copies of our five recent fact sheets and one policy brief that have been developed to help inform interested parties on the current oral health status of North Dakota residents. I will share a few key points with you from each of the resources, and hope that you will also take the time to read further on the topics that interest you. There are other resources available online that provide more data, more information, and additional Figures. There are also copies of presentations that have been given by our team on oral health in North Dakota over the last several months.

First, an update on the 2016 oral health workforce. This information is included in a presentation you may access online, but the key points are addressed in Fact sheet #1. Each fact sheet will specify the research methods, data analysis, and data sources for those interested. Today, I will focus on the results.

- North Dakota (55.36) has fewer dentists per 100,000 residents than the national average (60.89)
- Currently, 30% of our counties are designated oral health professional shortage areas (or HPSAs) – all of which are rural counties
- Currently (2016) 32% of our counties have no Dentist and 15% have only 1
- In 2013, North Dakota dentists reported being the busiest in the nation – nationally, 33% of dentists self-reported as not being busy enough – only 5% of North Dakota dentists reported the same
- Figure 3 shows the poor geographic distribution of the oral health workforce. While only 50% of the state's population lives in urban communities, 68%, 60% and 61% of the dental assistants, dental hygienists, and dentists practice in urban areas respectively
- Conversely, while 22% of our state population is in isolated rural (compared to only 2% of the nation) – only 12% of dentists, 11% of dental hygienists, and 8 % of dental assistants practice in those communities

Inadequate distribution of, and poor access to, dental providers can have adverse outcomes on North Dakota residents. A few groups that we have studied include pediatric patients, patients served by federally qualified health centers (FQHCs), and long term care residents.

Our policy brief on FQHCs reiterates the concern of poor geographic dispersion of dental professionals.

- There are 5 FQHCs in North Dakota – 3 of which provide oral health care services at six locations (sites):
  - The Northland Health Centers sites include: Turtle Lake, Rolette, and Minot
  - Family Healthcare Centers are located in Fargo and Moorhead
  - Valley Community provides oral health care at the Grand Forks location
- FQHCs located in rural areas served 58% of the total CHC patient population in North Dakota
- In 2015, the three CHCs had 20,144 patient visits with a dentist, and 8,682 patient visits with a dental hygienist. The services provided included dental exams, cleanings, sealants, fluoride treatments, x-ray, cavity fillings, extractions, crowns, root canals, dentures, and dental emergency services.
- Population growth from migration is expected in cities like Minot, Grand Forks, and Fargo between now and 2025. Thus, even current CHCs in urban communities may face increased patient demand and inadequate workforce. North Dakota also has fewer CHC sites than neighboring states. In South Dakota, there are five CHCs with 44 delivery sites. Minnesota and Montana have 16 CHCs with 76 delivery sites and 17 CHCs with 69 delivery sites, respectively. Additional CHCs, or satellite locations, offering oral health services and more geographically dispersed in the state would provide greater access to care for North Dakota residents. There is also a lack of state financial support for North Dakota CHCs compared to the national average, which makes it difficult for North Dakota CHCs to expand their service areas, or the care provided at existing sites.

Some of our FQHCs have been working to provide oral health care services to long term care residents in North Dakota. We have completed an evaluation (post-assessment) among four of the six long term care facilities participating in the long term care oral health program. You can access the results of that assessment on our website as I do not have time to cover those results today. As part of this study, however, we surveyed all long term care facilities in the state to assess the oral health policies and procedures in place, as well as to identify barriers to providing oral health care to residents. Please review fact sheet #2 for these results. There is also a chartbook sharing the results of each survey question online. What the data illustrate is a need to educate long term care professionals on geriatric oral health and create a culture in which oral health is viewed as part of the overall health of the individual. Only 14% were even aware of the Smiles for Life Curriculum which is a free online curriculum provided by the Department of Health.

- Only 50% of LTC facilities had a written plan of care for dental needs in place and only 3 had been reviewed by a dental professional
- Only 7% of all participating LTC facilities indicated the initial oral health exam was completed by a dental professional
- Rural LTC facilities (80%) were more likely than urban (59%) to have a list of dental providers for resident referral

- Oral health was an identified priority among participating LTC facilities. However, a very low percentage of facilities overall had systems in place to meet the oral health needs of residents. Likewise, those with policies or procedures lacked collaboration or oversight from dental professionals.

Utilizing 2015/16 data from the North Dakota Department of Health's Basic Screening Survey, and the National Youth Risk Behavioral Surveillance System we identified risk factors for poor oral health among pediatric patients, as well as populations at greater risk of poorer oral health. American Indian and lower income youth in North Dakota are at a greater risk of tooth decay, rampant decay, need for treatment, and need for urgent treatment. You can review fact sheet number 4 for more information on these disparities.

The rate of untreated decay was significantly\* higher for American Indian (51%), and other minority children (41%) than for their Caucasian peers (24%) in North Dakota. Compared to non-Hispanic White children, American Indian, and other minority third graders have:

- Significantly lower rates of dental sealants.
- Significantly higher prevalence of rampant decay.
- Significantly higher need for early or urgent care.

American Indian middle school students are less likely than their non-Hispanic White peers to have visited a dentist during the past 12 months, and more likely to have never been to a dentist. This trend has been consistent for eight years. American Indian and other minority middle school students also report more cavities than their non-Hispanic White peers.

It is likely that some of the reason that lower income and American Indian youth have poorer oral health in North Dakota than their higher income and non-Hispanic White peers is because they also report less frequent brushing, lack of oral health care supplies like a tooth brush, and more sugary drink consumption. Fact sheet five identifies some of these disparities.

- While 96% of all non-Hispanic White third grade students have a toothbrush, the same is true for only 49% of their American Indian peers. As a result, only 32% of American Indian youth had brushed their teeth on the day of assessment compared to 66% of non-Hispanic White adolescents.
- Likewise, children attending lower income schools (>50% of children eligible for NSLP) are less likely to have access to a toothbrush and subsequently, less likely to have brushed (48%) on the day of assessment
- 35% of American Indian middle school students in North Dakota reported drinking a can of soda a day compared to only 17% of non-Hispanic Whites

Daily brushing was low overall among North Dakota middle school students (65%) and slowly improved with age. There is need to educate youth on the importance of daily oral health care, with special attention paid to educating American Indian and low income youth. However, without access to oral hygiene supplies, American Indian adolescents cannot improve their brushing or flossing rates. Education must also focus on the risk factors for tooth decay, including consumption of soda and sugary drinks. This rate of consumption also places American Indian youth at a higher-risk for obesity and diabetes.

Two other effective methods to preventing decay include application of fluoride varnish and dental sealants. Though a reimbursable service, fluoride varnish is not being applied to even at-risk patients in the primary care setting. Likewise, the sealant program has a limited reach, requiring additional resources and workforce to meet the needs of all elementary school students in the state.

This year we surveyed family practice physicians and pediatricians in the state to determine if they were aware of the benefits of varnish, to see if any were applying varnish in the clinic setting, and to identify areas for improvement. Though the response rate was low, the results indicated that we in North Dakota are missing the opportunity to prevent decay among pediatric patients under 2 and half years old (which is the age recommended for a first dental visit).

- The American Academy of Pediatrics recommends that all children, beginning at six months of age, should receive an oral health risk assessment by a health care professional; however: Roughly 38% of all providers conducted oral health risk assessments, and 1/3 of those only did so for at-risk patients.
- Only 10% of the providers had billed for fluoride varnish during the last year.
- Few providers (31%) believed that other providers were aware that it was a reimbursable service.

Providers agreed/strongly agreed that well-child visits were an appropriate time for both varnish application (60%) and the oral health risk assessment (86%). If required as part of the well-child checklist, many also believed they would be done. However, few are providing either service for even at-risk patients. It is imperative to apply fluoride varnish in the primary care setting if health care professionals (dental and medical) are to prevent early tooth decay among the youngest, and most at-risk, patients in North Dakota. Please see fact sheet 3, or access the varnish survey chartbook online, for more information.

We will be providing additional materials soon related to older adult's oral health status, additional information on oral health work force, and an update on oral health initiatives in the state and their progress in the last year. All resources are available on our website at [ruralhealth.und.edu](http://ruralhealth.und.edu) under the oral health section.

I would also like to take this opportunity to thank all of our partners in the state that have been willing to provide data and information for all of these resources, many of which also reviewed the final products for accuracy. Some of these include (and please know there are too many to name each) the Department of Health Oral Health Program, the Community HealthCare Association of the Dakotas, the Long Term Care Association, Bridging the Dental Gap, the North Dakota Board of Dental Examiners, the North Dakota Dental Association, the North Dakota Chapter of the American Academy of Pediatrics, and the North Dakota Academy of Family Physicians. Also, to all of those providers in the state – dentists, family practice, long term care and others who have been willing to respond to our surveys.

Thank you again for the invitation to speak today, and I would be happy to now answer any questions you may have.



## Dental Workforce in Rural and Urban North Dakota

*This fact sheet is Number 1 in a series of analyses regarding oral health in North Dakota.*

In 2014, the University of North Dakota Center for Rural Health (CRH) received funding from the Pew Charitable Trusts to explore oral health care access and utilization in North Dakota. The following are data that illustrate issues of access. While utilization of dental care may be low as a result of poor access, it is important to note that access alone will not wholly improve oral health care utilization among the most disparate populations.

### Dentist Workforce

North Dakota has a lower dentist (DDS) to population ratio than the national average, and equal to or lower than the three states responsible for graduating a majority of the state's practicing dentists. Roughly 70% of all licensed North Dakota dentists graduated from universities in Minnesota, Nebraska, or Wisconsin.

**Table 1. Dentist Ratios & Percent of DDS/DMD\* Graduates in 4 states**

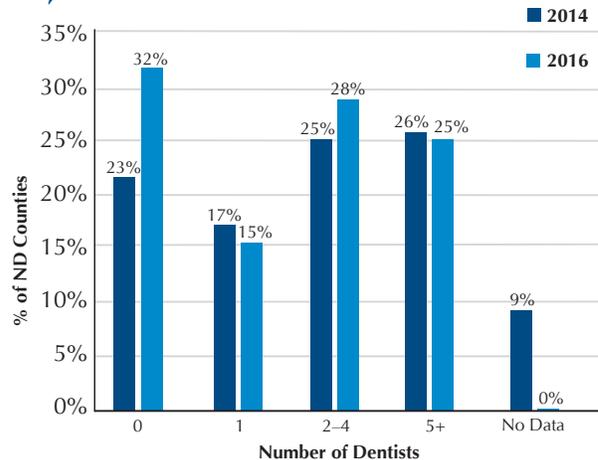
	Dentists per 100,000	% of ND Graduates
ND	55.36	0
MN	60.33	42%
NE	65.92	22%
WI	55.33	6%
U.S.	60.89	-

\* DDS/DMD are both equivalent dental professional degrees

Likely a result of lower access to care than the national average, in 2013 North Dakota DDS also reported being the busiest in the nation with only 5% self-reporting as not busy enough; the national average was 33%.

As of March 2016, 17 of the 53 North Dakota counties had no practicing DDS, eight had one, and 15 had between two and four. Nearly 62% of all practicing DDS were located in the four largest counties: Burleigh, Cass, Grand Forks, and Ward.

**Figure 1. Percent of North Dakota Counties with 0, 1, 2-4, and 5+ DDS**

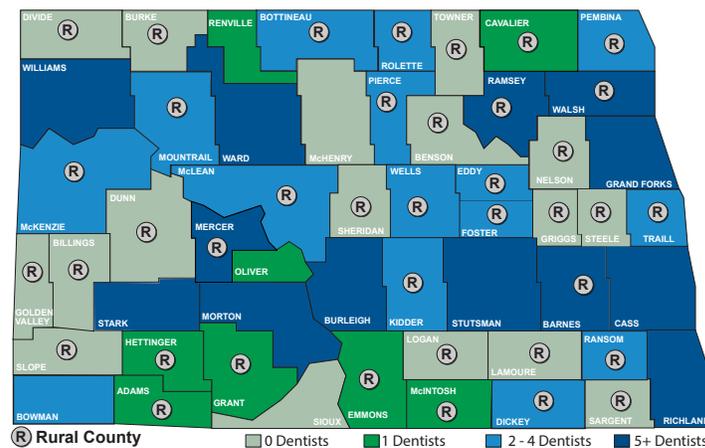


In 2016, 30% of the counties were designated as dental health professional shortage areas:

- Billings
- Dunn
- Golden Valley
- Kidder
- McKenzie
- Pierce
- Griggs
- Mountrail
- Towner
- Steele
- Benson
- Slope
- Nelson
- Grant
- Rolette
- Hettinger

Each of the above counties, and those with no DDS in the map below, were defined as rural by the U.S. Census Bureau.

**Figure 2. Number of DDS in North Dakota Counties**

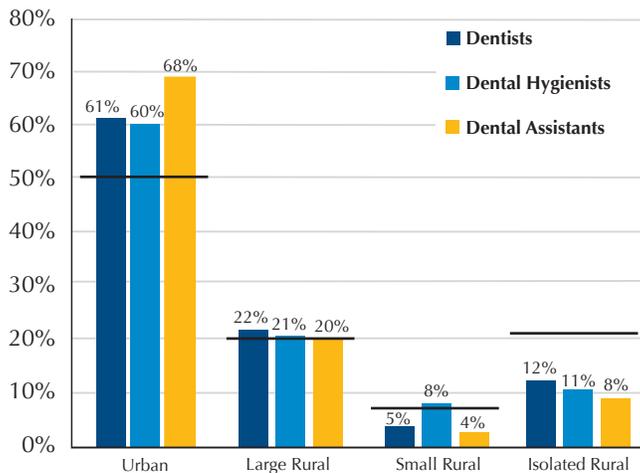


## Rural Dental Workforce

As of March 2016, the state had 405 dentists in practice, 644 dental hygienists, and 590 dental assistants. All three provider types were disproportionately located in urban communities.

- Isolated rural communities accounted for 22% of the total population in North Dakota and only 12% of practicing DDS.
- While 50% of the population were located in urban communities, 61%, 60%, and 68% of dentists, dental hygienists, and dental assistants respectively practiced in urban communities.

**Figure 3. Percent of Dental Workforce**



The black line ( - ) indicates the % of the state population within that geographic category

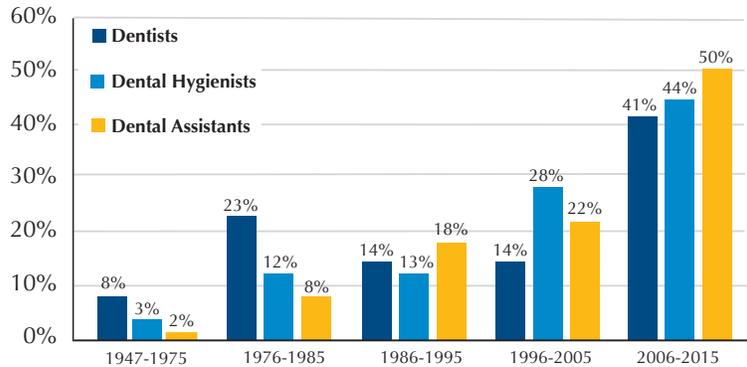
## Conclusions

North Dakota dentists are the busiest in the nation, are disproportionately located in urban communities and counties, and are older than other dental support professionals (hygienists and assistants). Roughly 31% of practicing North Dakota DDS graduated before 1986 with 27 the average age at graduation. This is corroborated by the 2013 survey of North Dakota DDS in which 35% of those practicing intended to retire within 15 years (by 2028).

Workforce issues are exaggerated by:

- Dental Hygienists not being allowed to practice at the top of their scope of work.
- Insufficient dental residency programs in the state, especially in rural communities.
- Lack of a dental school in the state.
- No tuition reciprocity agreements with surrounding dental schools.
- The limited availability of student spots in schools of dentistry nationally.

**Figure 4. Percent of Dental Professional Graduates by Graduation Year**



Poor access to dental care has had a significant impact on the oral health status of rural, poor, Medicaid, and American Indian residents in North Dakota. Learn more by reading the North Dakota Oral Health Report: Needs and Proposed Models, 2014, available at: [ruralhealth.und.edu/projects/nd-oral-health-assessment/pdf/north-dakota-oral-health-report-2014.pdf](http://ruralhealth.und.edu/projects/nd-oral-health-assessment/pdf/north-dakota-oral-health-report-2014.pdf).

## Data

Data were provided by the North Dakota Board of Dental Examiners and the American Dental Association, Health Policy Institute analysis of ADA Masterfile – copyright © 2016 American Dental Association. Shortage designations are available at [bhpr.hrsa.gov/shortage/hpsas/](http://bhpr.hrsa.gov/shortage/hpsas/). The North Dakota survey of DDS workforce is completed by the state Department of Health. Rural counties were defined by the U.S. Census Bureau (2013), Metropolitan and Micropolitan Statistical Areas and Definitions (Data file). Retrieved from [www.census.gov/population/metro/](http://www.census.gov/population/metro/).

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# Policy Brief

## Oral Health Care Service in North Dakota Community Health Care Centers

*This policy brief is complementary information to a series of fact sheets regarding Oral Health in North Dakota.*

Jun Lee, MD and Shawnda Schroeder, PhD

### Key Findings

Sixteen of the 53 counties in North Dakota are designated as dental health professional shortage areas (HPSAs). Only two of the 16 dental HPSA counties have a CHC site, and only one of those two CHC sites provide oral health services. The four federally funded CHCs and their satellite sites are primarily located in the Eastern and Northern halves of the state. A majority of the counties designated as dental HPSAs do not have CHC services, and only one has a CHC that offers access to oral health care. The dental HPSAs are also all located in counties with rural designations. North Dakota also has fewer CHC sites than neighboring states.

Additional CHCs, or satellite locations, offering oral health services and more geographically dispersed in the state would provide greater access to care for North Dakota residents. There is also a lack of state financial support for North Dakota CHCs compared to the national average, which makes it difficult for North Dakota CHCs to expand their service areas, or the care provided at existing sites. There is also opportunity, if funding were available, to grow the dental workforce among existing CHCs that do not yet offer oral health services.

### Introduction

Community health centers (CHCs) are non-profit healthcare providers that act as safety nets to those who are uninsured or underinsured in high need areas. CHCs are open to all residents regardless of their ability to pay. They provide comprehensive primary healthcare services tailored to fit the needs of the community, including primary care, dental care, mental and substance abuse services, vision, and health education.<sup>1</sup> CHCs that are federally funded are also referred to as Federally Qualified Health Centers, or FQHCs. For this brief, we will use the term CHCs.

As of June 2016, there were five federally funded CHCs providing care to North Dakota residents at 18 sites.<sup>1,2</sup> The five CHCs in North Dakota include; Coal Country Community Health, Northland Health Centers, Family Healthcare Center, Valley Community Health Center, and Community Health Service, Inc. Community Health Service, Inc. is headquartered in Moorhead, Minnesota, but has one North Dakota site in Grafton. In North Dakota, oral health services are provided directly by three federally funded CHCs in a total of six satellite locations

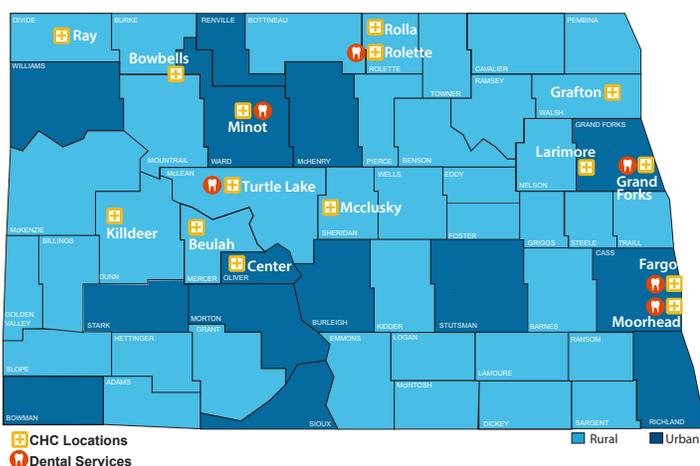
throughout the state, including one in a bordering city in Minnesota. These six sites provided dental services for 12,999 patients in 2015.<sup>1</sup>

The six CHC locations providing oral health services for North Dakota residents include:

Turtle Lake	Northland Health Centers
Rolette	Northland Health Centers
Minot	Northland Health Centers
Fargo	Family Healthcare Center
Moorhead, MN	Family Healthcare Center
Grand Forks	Valley Community Health Centers

## CHC Funding & Patient

Figure 1. CHC Locations and Dental Services in North Dakota



## Demographics in North Dakota

CHCs (or FQHCs) are federally funded through application to the Health Resources & Services Administration’s Bureau of Primary Health Care. Money has been allocated under Section 330 of the Public Health Services Act.<sup>3,4</sup> Federally funded CHCs must provide services regardless of a patient’s ability to pay, and they must have a sliding scale fee schedule based on patient income. Fees are calculated on a sliding scale up to 200% of the Federal Poverty Level (FPL).<sup>4</sup> In North Dakota, federal grants provide 22% of the funding for the CHCs, slightly above the national average of 21%. They are also reimbursed by Medicaid, Medicare, and private insurance as indicated in Table 1.<sup>5</sup> North Dakota was also one of only 15 states in 2012 that did not allocate State Funding to CHCs.<sup>6</sup>

Table 1. Sources of Revenue for Federally Funded Community Health Centers<sup>5</sup>

Location	U.S.	ND
<b>Medicaid</b>	45%	24%
<b>Medicare</b>	6%	11%
<b>Other Public Insurance</b>	2%	0%
<b>Private Insurance</b>	8%	23%
<b>Self-Pay</b>	5%	12%
<b>Federal Grants</b>	21%	22%
<b>State/Local Grants</b>	9%	4%
<b>Foundation/ Private Grants</b>	3%	1%
<b>Other</b>	4%	3%

In 2015, of the 36,016 residents accessing any health service at the four federally funded health centers headquartered in North Dakota, 329 were migrant farmers, 2,224 were homeless residents, and 1,070 were veterans. A majority of those accessing the health care services in North Dakota were poor, and either uninsured or were Medicaid/Medicare recipients. CHCs located in rural areas served 58% of the total CHC patient population in North Dakota.<sup>1</sup> See Table 2.

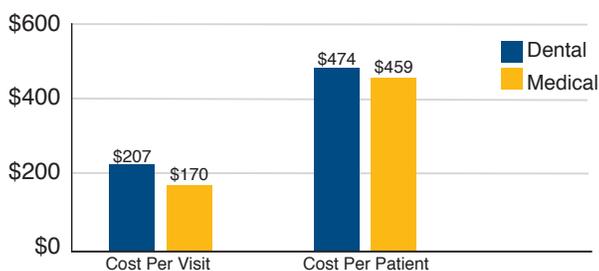
Table 2. North Dakota Community Health Centers’ Population Demographics, 2014<sup>1</sup>

	ND CHC Population	ND Population
<b>Income Status</b>		
≤100% FPL	61%	10%
<200% FP	91%	24%
<b>Health Insurance</b>		
Uninsured	34%	9%
Medicaid	23%	9%
Medicare	10%	13%
<b>Race/Ethnicity</b>		
Hispanic	6%	3%
African American	10%	2%
Asian/Pacific Islander	5%	1%
American Indian/Alaska Native	7%	5%
White	73%	89%

## Oral Health Services in North Dakota CHCs

Three of the four CHCs in North Dakota had oral health professionals to provide dental care services, as of June 2016. Between the three CHCs, there were nine full-time dentists and eight full-time hygienists. In 2015, the three CHCs had 20,144 patient visits with a dentist, and 8,682 patient visits with a dental hygienist. The services provided included dental exams, cleanings, sealants, fluoride treatments, x-ray, cavity fillings, extractions, crowns, root canals, dentures, and dental emergency services. The average dental costs per visit and per patient were greater for dental services than medical care.

Figure 2. North Dakota CHC Dental vs. Medical Costs Per Visit & Per Patient<sup>1</sup>



## Northland Health Centers

Northland Health Center is located in Turtle Lake with six satellite sites located in: Minot; Rolette; Bowbells; McClusky; Ray; and Rolla. Among these sites, three were providing oral health care services:

- Turtle Lake
- Rolette
- Minot

Each site had one full-time dentist and one full-time hygienist, with one additional part-time dentist in Turtle Lake. Northland Health Centers had also requested for funding through the Oral Health Expansion Grant to open a new oral health clinic in Ray, North Dakota by September 2016.

According to Northland Health Center’s dental administrator, Turtle Lake primarily serves patients who are Caucasian while a majority of those seen in Rolette are American Indian. The dental administrator also indicated that Rolette and Minot patients are primarily (80%) covered through Medicaid while Turtle Lake patients have more varied coverage to include Medicaid, private insurance, and out of pocket payments.

Access to, and utilization of, dental care are particularly acute for North Dakota’s elderly residents because Medicare does not cover most dental services. Medicare Part A will only cover limited dental procedures performed within a hospital setting when considered necessary to treat a medical condition.<sup>7,8</sup>

In order to mitigate some of the disparity among the aged population, satellite dental providers within Northland Health Center have begun to visit five different long term care facilities in the area to provide dental exams, hygiene care, and denture adjustments. They are also developing training for certified nurse’s aides to provide oral care to the nursing home residents. Learn more about long term care oral health services by visiting [ruralhealth.und.edu/projects/nd-oral-health-ltc-survey](http://ruralhealth.und.edu/projects/nd-oral-health-ltc-survey) or read the recent fact sheet, *Oral Health Care in North Dakota Long Term Care Facilities* at: [ruralhealth.und.edu/pdf/north-dakota-oral-health-long-term-care.pdf](http://ruralhealth.und.edu/pdf/north-dakota-oral-health-long-term-care.pdf).

## Family Healthcare Center

Family Healthcare Centers are located in West Fargo and Fargo, North Dakota, and Moorhead, Minnesota with oral health services provided in the latter two locations. The majority of their dental patients are served by the medical clinic, but occasionally receive referrals from private practices for Medicaid and uninsured patients. Both sites also receive emergency referrals from Sanford Hospital and treat those patients as walk-ins. Between the Fargo and Moorhead locations, there are four full-time dentists, one part-time dentist, and three full-time hygienists. Collectively, the Fargo and Moorhead clinics provided care to 5,726 dental patients in 2015. Those

5,726 patients had 11,962 dental visits between the two sites. Approximately 30% of those who sought oral health care were 65 and over. A majority of the patients at both locations were covered by Medicaid, with others paying out of pocket or through private insurance.

## Valley Community Health Centers

Valley CHCs are located in both Larimore and Grand Forks, though oral health services are only provided at the Grand Forks office. Patients from Larimore are referred to Grand Forks, with few being referred to a private dental practice in Larimore. In Grand Forks there are two full-time and two part-time dentists and two full-time and two part-time hygienists. In 2015, according to the Uniform Data System, Valley CHCs provided oral health services to 4,256 dental patients who accounted for 10,398 dental visits. The dental director for valley CHCs reported that among the 496 patients ages six through nine, 201 patients received sealants to their first molars to prevent cavities.

## Conclusion

North Dakotans living in poverty are more likely to be uninsured, underinsured, or insured by Medicaid and thus have difficulty gaining access to oral health services. CHCs are helping to fill this need through affordable, and accessible oral health services. In 2014, the percentage of people living in poverty among the counties with CHCs offering oral health services in North Dakota ranged between 8.5% to 31.6% (Rolette). The average rate of poverty for the state overall in 2014 was 11.1%.<sup>9</sup> The rate of poverty was similar in the counties designated as dental HPSAs.<sup>9,10</sup> Additionally, the USDA Economic Research Service (ERS) report stated that rural areas have a larger proportion of their population living in poverty (18.2%) than urban communities (15.1%).<sup>11</sup> While CHCs seek to meet the health care needs of the uninsured, underinsured, Medicaid eligible, and poor, it is imperative to have services that are easily accessible for rural North Dakotans who need and utilize a majority of the existing services. Though only three of the six CHCs providing oral health services are in identified rural communities

(Minot, Rolette, and Turtle Lake) they provide 58% of the patient care.

Sixteen of the 53 counties in North Dakota are designated as dental HPSAs.<sup>10</sup> Only two of the 16 dental HPSA counties have a CHC site, and only one of those two CHC sites provide oral health services (Rolette). The four federally funded CHCs and their satellite sites are primarily located in the Eastern and Northern halves of the state. A majority of the counties designated as dental HPSAs do not have CHC services, and only one has a CHC that offers access to oral health care. The dental HPSAs are also all located in counties with rural designations.<sup>12</sup>

## Recommendations

CHCs are intended to act as safety net providers, providing access to services like oral health care for the poor, rural, and under/uninsured in North Dakota. The existing CHCs that offer oral health services have provided care to a large portion of the state that would have otherwise been unable to access, or pay for, said care. In addition, the rural located CHCs providing oral health care serve a majority of CHC patients, though only three of their oral health clinics are in rural counties. Rural North Dakota residents rely on CHCs for their oral health care. In addition, population growth from migration is expected in cities like Minot, Grand Forks, and Fargo between now and 2025.<sup>13</sup> Thus, even current CHCs in urban communities may face increased patient demand and inadequate workforce. North Dakota also has fewer CHC sites than neighboring states. In South Dakota, there are five CHCs with 44 delivery sites.<sup>2</sup> Minnesota and Montana have 16 CHCs with 76 delivery sites and 17 CHCs with 69 delivery sites, respectively.<sup>14,15</sup> Additional CHCs, or satellite locations, offering oral health services and more geographically dispersed in the state would provide greater access to care for North Dakota residents. There is also a lack of state financial support for North Dakota CHCs compared to the national average, which makes it difficult for North Dakota CHCs to expand their service areas, or the care provided at existing sites. There is also opportunity, if funding were available, to grow the dental workforce among existing CHCs that do not yet offer oral health services.

## Acknowledgements

The CRH would like to thank several individuals at the Community HealthCare Association of the Dakotas (CHAD) for providing data and resources for this brief, and for taking the time to review the final product. Research staff also thank those at each North Dakota CHC site for sharing their stories, experiences, and the data necessary to inform this report. Finally, this work has been funded by the Pew Charitable Trusts.

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## Oral Health Care in North Dakota Long Term Care Facilities

*This fact sheet is Number 2 in a series of analyses regarding oral health in North Dakota.*

Long term care (LTC) facilities refer to those identified as providing skilled nursing or basic care services. The state licenses basic care facilities; they are not certified by Centers for Medicare and Medicaid Services (CMS) to participate in the Medicare/Medicaid programs but are instead eligible for state funding for provided services. A skilled nursing facility is federally designated and may be part of a nursing home or hospital. CMS certifies these facilities if they have the staff and equipment to give skilled nursing care, therapy services, and/or other related health services. In 2016 there were 80 skilled nursing care facilities and 68 basic care. Urban facilities were more likely to be skilled nursing than rural.

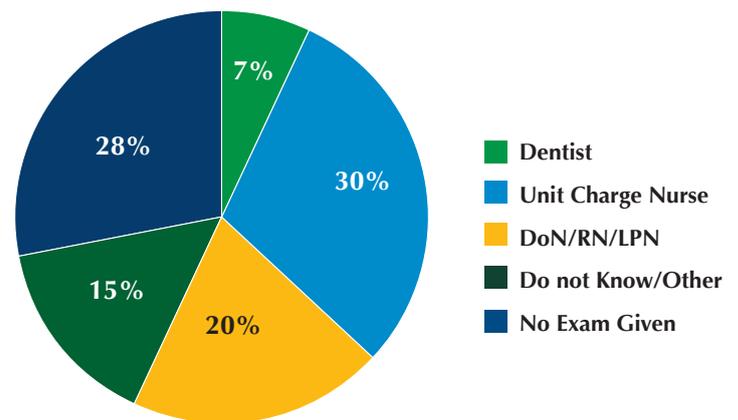
**Table 1. Survey Participants' Facility Type by Rural-Urban Status**

Rural/ Urban Status	Skilled Nursing		Basic Care		Skilled & Basic Combined	
	N	%	N	%	N	%
Urban	10	59%	4	24%	3	18%
Rural	10	40%	7	28%	8	32%
<b>All</b>	<b>20</b>	<b>48%</b>	<b>11</b>	<b>26%</b>	<b>11</b>	<b>26%</b>

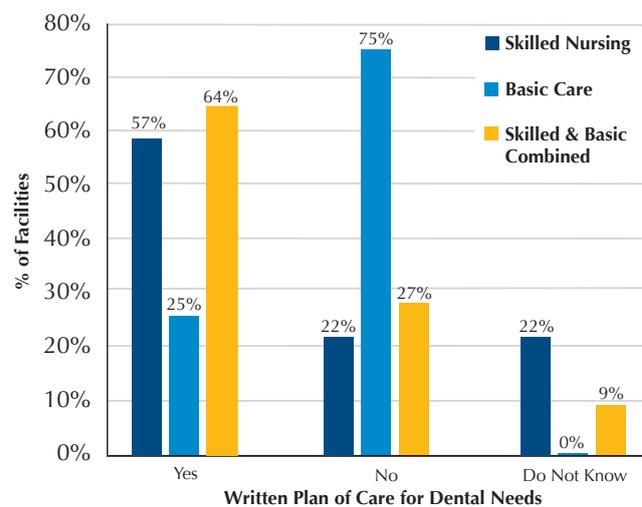
Oral health was a high or essential priority for a majority of LTC facilities (72%). While important, facilities did not report a strong culture of oral health.

- Only 50% of LTC facilities had a written plan of care for dental needs in place.
- A dental professional reviewed, or assisted with, the written plan of care among only 3 facilities.
- Only 7% of all participating LTC facilities indicated the initial oral health exam was completed by a dental professional.

**Figure 1. Provider Responsible for Initial Oral Health Exam of New Residents**

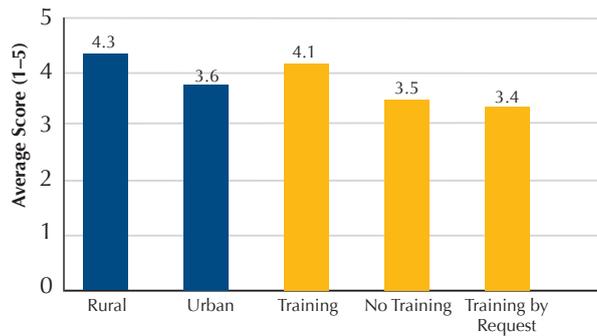


**Figure 2. Percent of LTC Facilities with Written Plan of Care for Dental Needs**



A large majority (78%) of LTC facilities provided oral health care training to their staff. However, only 14% were aware of the Smiles for Life Curriculum<sup>a</sup> offered at no cost by the North Dakota Department of Health. Facilities that indicated providing oral health training were more likely than those with no training or training only by request to rate oral health as an essential priority.

**Figure 3. Average Oral Health Priority by Training, and Rural-Urban Status**



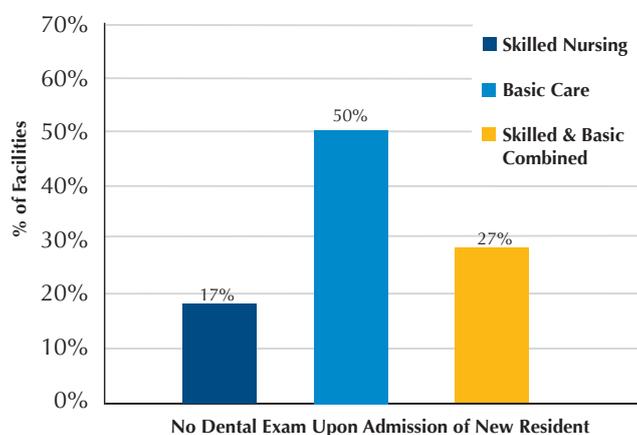
### Rural-Urban Variation

- Resident daily oral health care was a greater priority for rural than urban LTC facilities.
- Rural LTC facilities (80%) were more likely than urban (59%) to have a list of dental providers for resident referral.
- Roughly 48% of rural LTC facilities reported 50% or more of their residents were responsible for their own daily oral health care compared to 20% of urban facilities.
- Rural LTC residents had a shorter wait to see the dentist for non-emergent dental problems than urban.

### Skilled Nursing & Basic Care Facility Variation

- Skilled nursing facilities were more likely (57%) than basic care (25%) to have a written plan of care for dental needs in place.
- Oral health care and services training was less likely in basic care facilities (50% provided training) than nursing (87%), and nursing and basic care combined (91%).
- Basic care facilities more frequently do not complete an oral health exam upon admission of a new resident than skilled nursing facilities.
- Financial viability of hospital (n=10).

**Figure 3. Percent of Facilities that Do Not Complete a Dental Exam at Admission**



## Conclusions

Oral health was an identified priority among participating LTC facilities. However, a very low percentage of facilities overall had systems in place to meet the oral health needs of residents. Likewise, those with policies or procedures lacked collaboration or oversight from dental professionals (including dentists, dental hygienists, and/or dental assistants).

## Recommendations

It is recommended that LTC facilities create strong relationships with local oral health providers.

- Dental professionals should be involved in the development of facility written plans of care for dental needs.
- LTC facilities should require specific geriatric oral health training for all staff, utilizing the free Smiles for Life Curriculum.
- All residents should receive an oral health exam upon admission into a basic or skilled nursing care facility, completed by a dental hygienist or dentist.

## Data

Data were derived from a survey of all LTC basic and skilled nursing care facility in North Dakota, completed in December 2015. The electronic survey had a 32% response rate.

<sup>a</sup>Smiles for Life is a free, online oral health training curriculum. Health-care providers may take advantage of this training to develop knowledge about a variety of oral health care issues. The online training includes the following courses: geriatric oral health; adult oral health; the oral examination; the relationship of oral to systemic health; child oral health; acute dental problems; oral health and the pregnant patient; and, caries risk assessment, fluoride varnish and counseling.

Learn more about Smiles for Life: [www.ndhealth.gov/oralhealth/ndsmilesforlife.htm](http://www.ndhealth.gov/oralhealth/ndsmilesforlife.htm).

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## Pediatric Oral Health Disparities in North Dakota

*This fact sheet is Number 4 in a series of analyses regarding oral health in North Dakota.*

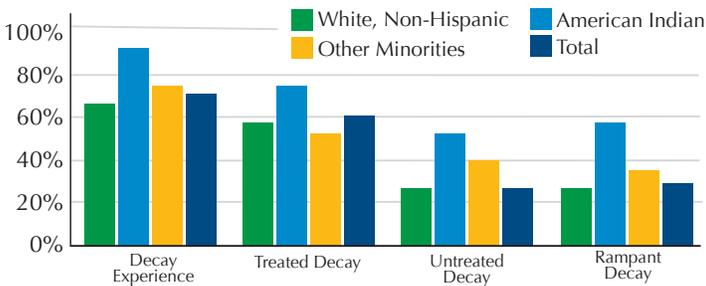
In 2013, North Dakota Medicaid reimbursement rates for child dental services were 63% of private dental benefit plan rates, compared to 49% in the U.S.<sup>1</sup> Though North Dakota has one of the highest pediatric reimbursement rates, adolescents continue to experience poor oral health outcomes. American Indian and low income youth are at the greatest risk of: decay experience; untreated decay; rampant decay; and, need for urgent treatment. Likewise, these populations are less likely to have dental sealants in place to prevent decay, and less likely to have visited a dentist during the past 12 months.

### Third Grade Students in North Dakota

In 2015, roughly 73% of all third grade students in North Dakota had experienced decay, though only 28% had untreated decay. The rate of untreated decay was significantly\* higher for American Indian (51%), and other minority children (41%) than for their Caucasian peers (24%). Compared to non-Hispanic White children, American Indian, and other minority third graders have:

- Significantly lower rates of dental sealants.
- Significantly higher prevalence of rampant decay.
- Significantly higher need for early or urgent care.

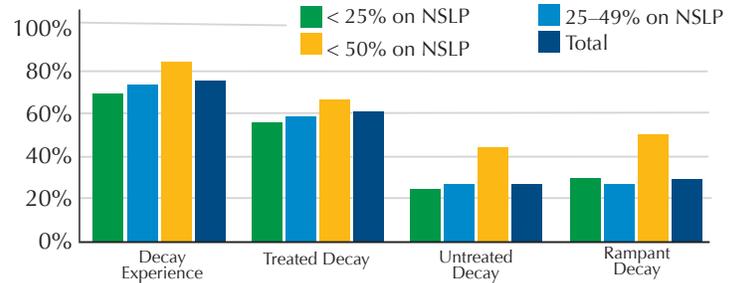
**Figure 1. Rate of Tooth Decay by Race: ND Third Grade Students**



\* All "significant" differences in this report were tested at  $p>0.05$

Likewise, children attending lower income schools (>50% of children eligible for National School Lunch Program (NSLP)) have significantly higher rates of untreated decay, prevalence of rampant decay, and need for early or urgent dental care than students attending higher income schools. See Figure 2. Students attending lower income schools were also less likely to have dental sealants.

**Figure 2. Rate of Tooth Decay by NSLP Status: ND Third Grade Students**



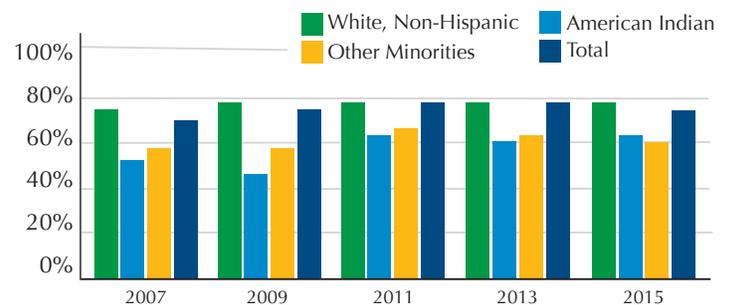
There is very little variation between rural and urban adolescents, and though not statistically significant, rural adolescents have slightly higher rates of rampant decay, untreated decay, and need for treatment.

Several years of data are available through the North Dakota Department of Health. However, comparisons cannot be made because of changes in the survey methodology. Though trends are not presented, it is imperative to note that over time, American Indian, other racial minorities, and lower income students have always reported poorer oral health.

### Middle School Students in North Dakota

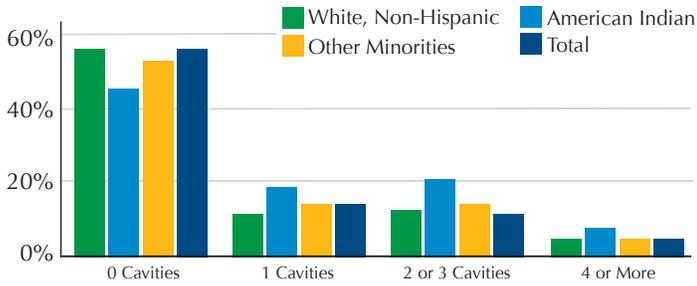
American Indian middle school students are less likely than their non-Hispanic White peers to have visited a dentist during the past 12 months, and more likely to have never been to a dentist. This trend has been consistent for eight years. See Figure 3.

**Figure 3. ND Middle School Students with Dental Visit during Past 12 Months by Race: 2007-2015**



American Indian and other minority middle school students also report more cavities than their non-Hispanic White peers. See Figure 4. This disparity has presented in the data every year, beginning in 2007.

**Figure 4. Number of Cavities among ND Middle School Students by Race\***



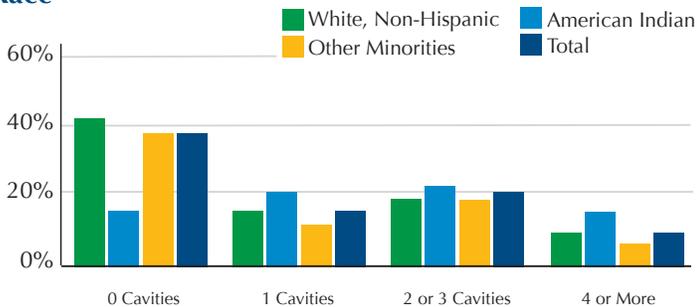
\*Totals will not equal 100% because response category "not sure" has been omitted from the Figure; 11% of all middle school students reported "not sure" in 2015.

## High School Students in North Dakota

American Indian high school students are also below the state average for the percent of students who have visited a dentist during the past 12 months. However, the percent has been steadily increasing from 2007 (55%) to 2013 (62%). See Figure 5.

The percent of both middle and high school students who have visited a dentist during the past 12 months has been steadily increasing over the last eight years. Likely as a result of these preventative dental visits, and other oral health interventions (dental sealants and fluoride varnish) North Dakota adolescents have also seen an increase in the percentage of youth with no cavities. However, this trend is not evident among American Indian high school students. This population has yet to have more than 23% of individuals be cavity free.

**Figure 5. ND High School Student Cavity Rates by Race\***



\*Totals will not equal 100% because response category "not sure" has been omitted from the Figure; 11% of all middle school students reported "not sure" in 2015.

## Conclusions

Tooth decay (cavities) is one of the most common chronic childhood conditions in the United States. Untreated tooth decay can cause pain and infections that may lead to problems with eating, speaking, playing, and learning while also influences other aspects of overall health.<sup>2</sup> In North Dakota, American Indian, other minority, and low income youth are at the greatest risk of decay and untreated decay. They are also the populations least likely to have visited a dentist during the last 12 months, and less likely to have received fluoride varnish, or dental sealants.

## Recommendations

Two effective methods for preventing decay include application of fluoride varnish, and dental sealants. Though a reimbursable service, fluoride varnish is not being applied to even at-risk patients in the primary care setting. See *Fluoride Varnish Application in Primary Care Settings* fact sheet at [ruralhealth.und.edu/pdf/fluoride-varnish-application-primary-care.pdf](http://ruralhealth.und.edu/pdf/fluoride-varnish-application-primary-care.pdf). Primary care providers should take an active role in the prevention or tooth decay among their youngest and most at-risk pediatric patients.

In 2015-16, 3,124 students saw a public health hygienist through the Seal!ND program; 1,495 of those students received dental sealants. If North Dakota's goal is to improve the oral health of its youth, this program requires additional funding, and more significant support and workforce from local dental clinics in order to reach a larger number of students. If resources remain limited, programs and efforts like Seal!ND should focus on providing preventive care to those pediatric populations at high-risk of decay: American Indian; other minority; and, low-income.

## Data

Data were provided by the North Dakota Department of Health, taken from the *Basic Screening Survey of Third Grade Children, 2014-2015*. Middle school and high school data were taken from the *Youth Risk Behavior Surveillance System, 2007-2015*.

1. Health Policy Institute. North Dakota's oral health and well-being. American Dental Association. <http://www.ada.org/en/science-research/health-policy-institute/oral-health-and-well-being/North-Dakota-facts>.
2. Centers for Disease Control and Prevention. Children's oral health. [http://www.cdc.gov/oralhealth/children\\_adults/child.htm#1](http://www.cdc.gov/oralhealth/children_adults/child.htm#1).

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## Social Factors Affecting Pediatric Oral Health in North Dakota

*This fact sheet is Number 5 in a series of analyses regarding oral health in North Dakota.*

National and state based research has found that children who drink soda or sugary drinks daily have a statistically ( $p < 0.05$ ) higher prevalence of tooth decay than their peers who do not consume sugary drinks daily.<sup>1</sup> Untreated decay is statistically more prevalent among North Dakota adolescents who:

- Have never been to the dentist
- Do not regularly brush their teeth
- Drink soda or sugary beverages daily

These adolescents also report a statistically significant lower prevalence of protective dental sealants; rampant decay; and, a need for early and urgent dental care.

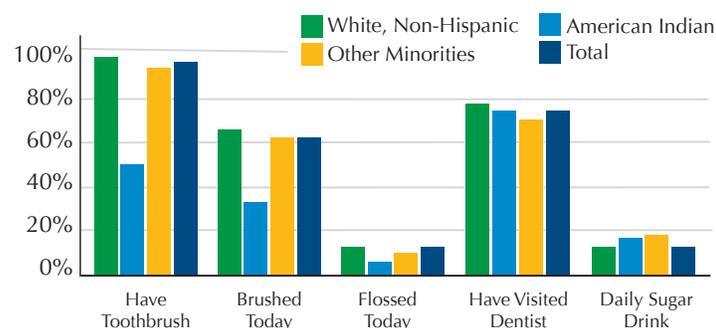
This fact sheet identifies youth in North Dakota who do, and do not, have the appropriate knowledge and resources necessary to practice good oral hygiene. Identified are disparities among: frequency of brushing; consumption of sugary beverages; and, access to oral health care supplies. For more information on the State's rates of pediatric tooth decay, prevalence of sealants, and other oral health outcomes, see fact sheet number four, *Pediatric Oral Health Disparities in North Dakota at [ruralhealth.und.edu/pdf/north-dakota-pediatric-oral-health-disparities.pdf](http://ruralhealth.und.edu/pdf/north-dakota-pediatric-oral-health-disparities.pdf)*.

### Third Grade Students in North Dakota

In 2015, the North Dakota Department of Health's screening survey identified roughly 93% of all third grade students in North Dakota had a toothbrush at home. While 96% of all non-Hispanic White third grade students have a toothbrush, the same is true for only 49% of their American Indian peers.

See Figure 1. As a result, only 32% of American Indian youth had brushed their teeth on the day of assessment compared to 66% of non-Hispanic White adolescents.

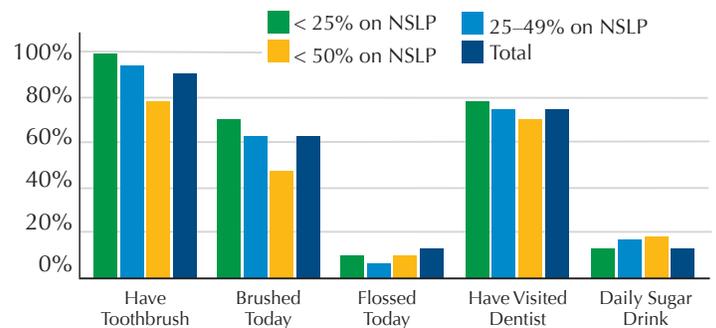
**Figure 1. Pediatric Oral Health Predictors by Race: ND Third Grade Students**



Likewise, children attending lower income schools (>50% of children eligible for the National School Lunch Program (NSLP)) are less likely to have access to a toothbrush and subsequently, less likely to have brushed (48%)

on the day of assessment than students attending schools with <50% of children eligible for NSLP. See Figure 2.

**Figure 2. Pediatric Oral Health Predictors by NSLP Status: ND Third Grade Students**

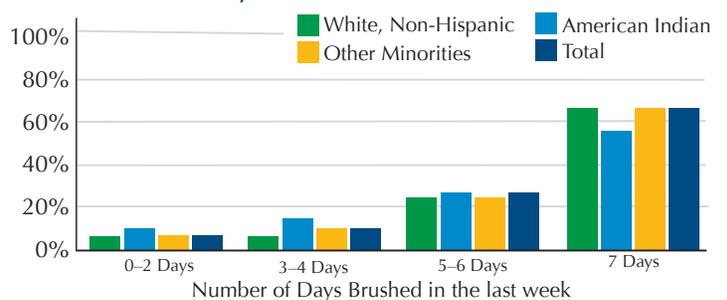


Though not statistically significant, rural adolescents are slightly less likely than their urban peers to brush their teeth, to have been to the dentist, or to own a toothbrush. Several years of data are available through the North Dakota Department of Health. However, comparisons cannot be made because of changes in the survey methodology. Though trends are not presented, it is imperative to note that over time, American Indian, other racial minorities, and lower income students have always reported poorer oral health predictors than non-Hispanic White, and higher income adolescents.

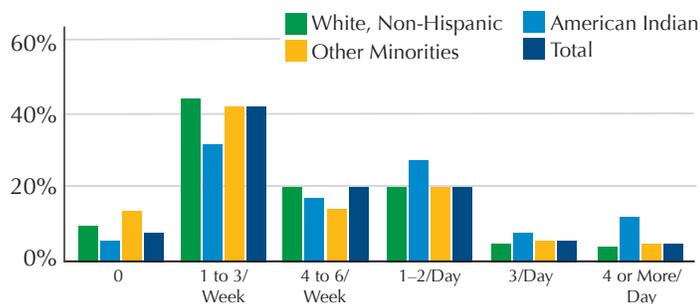
### Middle School Students in North Dakota

Among North Dakota's middle school students, American Indian and other minority adolescents are less likely than their non-Hispanic White peers to have brushed their teeth seven days in the last week. See Figure 3. They are also more likely to have consumed a sugary drink two, three, and four times a day. See Figure 4.

**Figure 3. Frequency of Brushing among ND Middle School Students by Race**



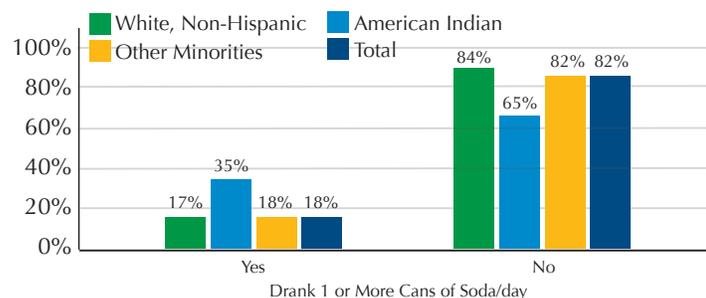
**Figure 4. Sugary Drink Consumption Rates of ND Middle School Students by Race**



## High School Students in North Dakota

High school students in North Dakota are more likely to brush their teeth seven days a week (71%) than are middle school students (65%). American Indians are still less likely to brush daily (65%) than their non-Hispanic White peers (72%). However, this disparity is not as great among high school students as it is among third grade and middle school youth. American Indian high school students in North Dakota are far more likely to consume multiple cans of soda, or sugary drinks, than their non-Hispanic White peers, placing them at a much higher risk of tooth decay. See Figure 5.

**Figure 5. Percent of ND High School Students Drinking 1 or More Cans of Soda/day by Race**



## Conclusions

Tooth decay (cavities) is one of the most common chronic childhood conditions in the United States. Untreated tooth decay can cause pain and infections that may lead to problems with eating, speaking, playing, and learning.<sup>2</sup> There are several contributing factors that lead a child to develop tooth decay, some of which include infrequent brushing, not flossing, consuming sugary drinks or soda, not visiting a dentist annually, and not having access to oral hygiene products like a toothbrush or toothpaste.

In North Dakota, American Indian adolescents are significantly more likely to present with these poor oral health predictors than their non-Hispanic White peers. Rural are at a greater disadvantage than urban, but not significantly. Finally, students who attend schools with a larger percentage of the population participating in the NSLP are less likely to have a toothbrush and less likely to have brushed on the day of assessment.

## Recommendations

Daily brushing was low overall among North Dakota middle school students (65%) and slowly improved with age. There is need to educate youth on the importance of daily oral health care, with special attention paid to educating American Indian and low income youth. However, without access to oral hygiene supplies, American Indian adolescents cannot improve their brushing or flossing rates. Education must also focus on the risk factors for tooth decay, including consumption of soda and sugary drinks. This rate of consumption also places American Indian youth at a higher-risk for obesity and diabetes.

Two other effective methods for preventing decay include application of fluoride varnish and dental sealants. Though a reimbursable service, fluoride varnish is not being applied to even at-risk patients in the primary care setting. See *Fluoride Varnish Application in Primary Care Settings* fact sheet at [ruralhealth.und.edu/pdf/fluoride-varnish-application-primary-care.pdf](http://ruralhealth.und.edu/pdf/fluoride-varnish-application-primary-care.pdf). Primary care providers should take an active role in the prevention of tooth decay among the youngest and most at-risk pediatric patients.

In 2015-16, 3,124 students in North Dakota saw a public health hygienist through the Seal!ND program; 1,495 of those students received dental sealants. If North Dakota's goal is to improve the oral health of its youth, this program requires additional funding and more significant support and workforce from local dental clinics in order to reach a larger number of students. If resources remain limited, programs and efforts like Seal!ND should focus on providing preventive care to those pediatric populations at high-risk of decay: American Indian; other minority; and, low-income.

## Data

Data were provided by the North Dakota Department of Health, taken from the *Basic Screening Survey of Third Grade Children, 2014-2015*. Middle school and high school data were taken from the *Youth Risk Behavior Surveillance System, 2007-2015*. Figures represent 2015 data.

1. North Dakota Department of Health. Basic screening survey for third grade children. 2014-2015.
2. Centers for Disease Control and Prevention. Children's oral health. [http://www.cdc.gov/oralhealth/children\\_adults/child.htm#1](http://www.cdc.gov/oralhealth/children_adults/child.htm#1).

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## Fluoride Varnish Application in Primary Care Settings

*This fact sheet is Number 3 in a series of analyses regarding oral health in North Dakota.*

Fluoride varnish is a pale yellow gel that is applied to a child's teeth using a soft brush. The gel sets quickly, and provides protection against tooth decay. Fluoride varnish has been scientifically proven to prevent or reduce decay, with a more significant effect when accompanied with regular brushing. It is recommended that pediatric patients begin receiving varnish twice a year by the age of two. The American Academy of Pediatrics (AAP) reports that varnish may be applied in the clinic setting two to four times per year beginning at six months of age. The number of treatments are determined by the risk of tooth decay.<sup>1</sup>

In North Dakota, physicians, physician assistants, nurse practitioners, registered nurses, and licensed practical nurses may all assess oral health, apply fluoride varnish, and bill for these services in a primary care setting. Legislation passed in 2007 indicated that healthcare providers could assess oral health and provide varnish in an effort to help prevent tooth decay for high-risk children ages birth through 20 years. Though application has been a billable service, and is a recommendation of the AAP, it was believed that many in North Dakota were still not providing varnish to eligible patients. The Center for Rural Health (CRH) sought to identify how knowledgeable providers were about fluoride varnish application, and how many were providing and billing for the service.

### Pediatricians & Family Practice Physicians

Of the 92 pediatricians that received an invitation to participate, 30 completed the survey for a 33% response rate. Of the 238 eligible family practice physicians that were notified of the survey, 22 completed it for a 9% response rate.

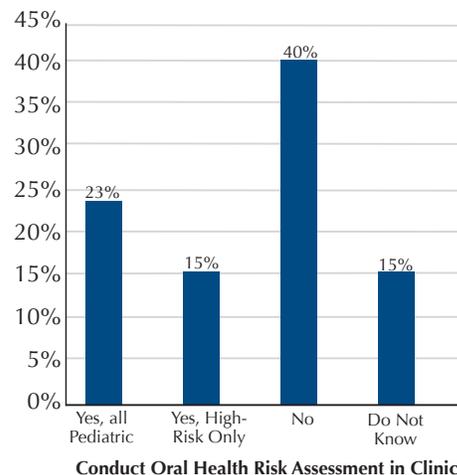
### Oral Health Risk Assessments & Referral

Nearly all pediatricians (90%) and family practice physicians (96%) either agreed or strongly agreed that oral health was an important aspect of overall pediatric health. Fewer providers agreed/strongly agreed that oral health of pediatric patients was a primary concern for clinical providers (73% and 68% respectively).

The AAP recommends that all children, beginning at six months of age, should receive an oral health risk assessment by a health care professional; however:

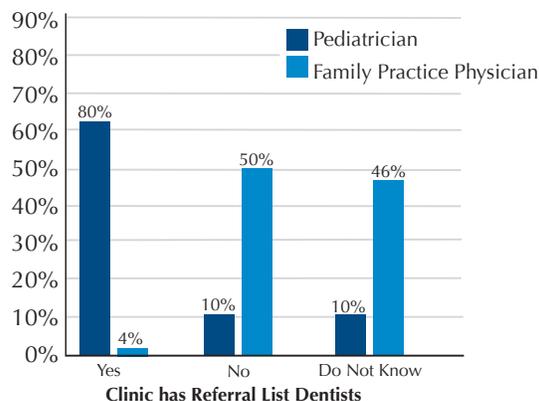
- Only 27% of pediatricians and 18% of family practice physicians indicated that there was an oral health risk assessment tool at their clinic.
- Roughly 38% of all providers conducted oral health risk assessments, but 1/3 of those only did so for at-risk patients.

**Figure 1. Percent of Practices where Providers (pediatricians & family practice physicians) Conduct Oral Health Risk Assessments**



While 92% of providers referred patients to a dentist when needed, family practice physicians were far less likely than pediatricians to have a list of dentists for patient referral.

**Figure 2. List of Dentists for Referral**



## Fluoride Varnish Application

Only one respondent indicated that they, or someone within their clinic, applied fluoride varnish for all pediatric patients within a particular age group. A majority of pediatricians (60%) and family practice physicians (82%) replied that no one within the clinic provided varnish to any patient demographic.

- Only 10% of the providers had billed for fluoride varnish during the last year.
- Few providers (31%) believed that other providers were aware that it was a reimbursable service.
- Family practice physicians who had applied fluoride varnish were more likely to have billed for the service than pediatricians who had applied fluoride varnish.

Though there was a variability in the rate of fluoride varnish application, providers either agreed or strongly agreed that fluoride varnish was an effective preventative oral health care measure (90% of pediatricians and 82% of family practice physicians); no provider disagreed.

## Conclusions

Providers were unaware that fluoride varnish was a reimbursable service, and family practice physicians did not know if varnish application was a quick and easy process. Rates of application and services billed were also low because providers were not knowledgeable on how to determine need for application.

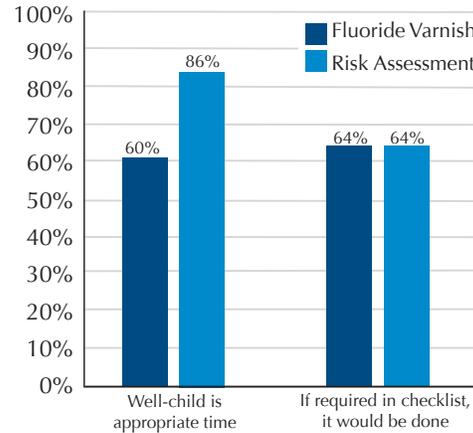
Providers believed that the guardians of their patients were generally unaware of varnish benefits as well. With an ill-informed set of patients, still only 23% of all offices offered informational flyers on oral health and fewer offered pamphlets (12%) on fluoride varnish.

When asked why they were not applying fluoride varnish, though they identified the service as an effective preventative oral health care measure, results indicated a lack of understanding on the importance of oral health for overall patient health. Providers identified a lack of support from their clinic, no policy or protocol in place, and a general impression that this would be the responsibility of the local dental providers; they did not “want to have any problems with turf.” Other identified barriers were training and time, with two others concerned about private insurance reimbursement and billing complications. What is evident is a need to address the importance of oral health for overall patient health, and to educate providers and guardians alike on the importance and benefits of fluoride varnish application in a clinical setting, especially among at-risk patients.

## Recommendations

Providers agreed/strongly agreed that well-child visits were an appropriate time for both varnish application (60%) and the oral health risk assessment (86%). If required as part of the well-child checklist, many also believed they would be done. However, few are providing either service for even at-risk patients.

**Figure 3. Risk Assessment & Varnish Application at Well-Child Visits**



It is imperative to apply fluoride varnish in the primary care setting if health care professionals (dental and medical) are to prevent early tooth decay among the youngest, and most at-risk, patients in North Dakota.

## Data

*Data were derived from a survey of all pediatricians and family practice physicians. The surveys were disseminated electronically through the respective state chapters and associations.*

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