

Evaluation of Dental Student Rotations in North Dakota Federally Qualified Health Centers

North Dakota Department of Health Oral Health Program

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Executive Summary

The recruitment and retention of oral healthcare professionals is a challenge in North Dakota. The state has no dental school and no reciprocity agreements with neighboring schools to encourage student enrollment. Recognizing the need to address oral health workforce shortages and barriers to recruiting new dental professionals, the North Dakota Department of Health Oral Health Program (NDDoH OHP) wrote for and secured, a four-year grant from the [Health Resources and Services Administration^a](#) (HRSA) under the [Grants to States to Support Oral Health Workforce^b](#) program. The grant award runs from September 1, 2018, through August 31, 2022. One of the four proposed goals includes placing dental students in Federally Qualified Health Centers (FQHCs) in North Dakota to both provide needed services and recruiting potential providers. This report presents findings from years one and two of the program.

Dental Students and Clinical Services Provided

In years one (2018) and two (2019), the dental students worked in the clinical setting four days per week for a total of 40 hours per week. In addition, some students did outreach activities in local schools teaching oral healthcare while others spent time working with Spectra’s school-based sealant program. In 2019, the four participating students saw a total of 394 unduplicated patients on medical assistance (MA). Students most frequently performed restorative procedures. In 2019, 62% of procedures were restorative. Students also performed extractions, exams, and a few endodontic procedures. Performance metrics are detailed in Table 1.

Table 1. Number of Dental Clinical Procedures by Year and School of Dentistry

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.
MA: Medical Assistance (to include Medicare and Medicaid).

Student Experiences Before and After the Rotation

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!” When asked what was different about completing a dental rotation in an FQHC compared to in private practice, the students shared similar experiences. Students identified that in an FQHC setting:

- The patient base is very different than in private practice. Patients will arrive with complex social concerns beyond the scope of dental care and a broader spectrum of service needs.
- The patients are generally low-income, on public insurance, and have lower health literacy than in private practice. However, students also noted that the patients they see at an FQHC are grateful for the care received and are very personable.
- You can treat the patients without concern for the “bottom line” or reimbursement rates. You can treat the patient without worrying about your business model.
- You need to work with the patient to determine the “best” care plan, and you have to recognize that the ideal clinical treatment may not be feasible or practical for the patient. This may mean pulling a tooth that you would not have pulled had the patient presented with private dental insurance in a traditional practice setting.
- There is flexibility and a better work-life balance than experienced in a private practice setting.
- You can see more patients in a day than you would in private practice, and the case presentations are more complex. For example, patients present with more advanced dental disease and concerns in an FQHC setting.

Although salary was a leading factor in future practice location and type, following their experience, all students expressed a level of interest practicing in an FQHC in the future. After the rotation, students had a better understanding of the loan repayment program and were appreciative of the information they shared. However, all four students stressed that the current loan repayment programs do not offer enough financial incentive to encourage practice in an FQHC, rural, or North Dakota setting. None of the students had a negative experience to share, and all four students spoke highly of the program, the staff, the patients, and their experience. Students consistently identified the benefits of the high daily caseload, the amazing experience working with these specific providers, the excellent mentorship, and the positive working environment and team-based model of care.

Experience of the FQHC Dental Team

The two dental team members interviewed both stressed how important it is that dental students experience working in an FQHC setting (or in a look-alike). Both highlighted how important it was that students leave the experience understanding the mission of the FQHC and the need for serving this particular patient base as opposed to gaining clinical skill. It was also important that students experiencing an integrated care model recognize that working in an FQHC can provide them the lifestyle they may desire but without the stress of managing a business. Both dental team members interviewed enjoyed hosting the dental students and were eager to continue providing dental rotations. The experience was not what both expected, and instead, was even better than anticipated.

Conclusions and Recommendations

1. The OHP should explore additional opportunities to financially support dental student rotations in FQHC settings throughout North Dakota.
2. The OHP should connect with the primary care office and others to discuss the possibility of increasing the rate of the student loan repayment program.
3. It is recommended that the state of North Dakota work with neighboring dental schools to develop reciprocity agreements.
4. The OHP should identify additional dental student rotation sites in underserved, rural, and FQHC settings. One opportunity may be connecting with previous recipients of dental loan repayments who now have a private practice.
5. Host sites would benefit from a better skill assessment of dental students prior to the rotation.
6. Regardless of setting (rural, underserved, or FQHC), dental students benefit from experiencing an integrated care model prior to graduation.

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Abbreviations

Associate in Applied Science	AAS
Centers for Disease Control and Prevention	CDC
Cardiopulmonary Resuscitation	CPR
Center for Rural Health	CRH
Community Healthcare Association of the Dakotas	CHAD
Community Health Center	CHC
Dental Clinic Manager	DCM
Dental Assistant	DA
Dental Director	DD
Dental Hygienist	DH
Federally Qualified Health Center	FQHC
Health Professional Shortage Area	HPSA
Health Resources and Services Administration	HRSA
Medical Assistance	MA
North Dakota Dental Association	NDDA
North Dakota Department of Health Oral Health Program	NDDoH
North Dakota State College of Science	NDSCS
Oral Health Program	OHP
Primary Care Office	PCO
Registered Dental Hygienist	RDH
State Loan Repayment Program	SLRP
Western Interstate Commission for Higher Education	WICHE

Introduction

North Dakota Department of Health Oral Health Program

The mission of the **North Dakota Department of Health (NDDoH)**^c is to “improve the length and quality of life for all North Dakotans.” At the time of the project period, the NDDoH employed nearly 400 people, and was organized around six sections, including (1) fiscal and operations, which encompasses the primary care office, (2) healthy and safe communities, (3) emergency preparedness and response, (4) environmental health, (5) health resources, and (6) medical services.^a The **NDDoH Oral Health Program (OHP)**^d is located within section two, healthy and safe communities under the **Division of Health Promotion**.^e

The OHP mission is “to improve the oral health of all North Dakotans through prevention and education.” In order to achieve this mission, the OHP has a primary goal of preventing and reducing oral disease by:

- Promoting the use of innovative and cost-effective approaches for oral health promotion and disease prevention.
- Fostering community and statewide partnerships to promote oral health and improve access to dental care.
- Increasing awareness of the importance of preventive oral healthcare.
- Identifying and reducing oral health disparities among specific population groups.
- Facilitating the transfer of new research into practice.

Supporting Oral Health Workforce

The recruitment and retention of oral healthcare professionals is a challenge in North Dakota. The state has no dental school and has no reciprocity agreements with neighboring dental schools to encourage student enrollment. Recognizing the need to address oral health workforce shortages and barriers to recruiting new dental professionals, the OHP wrote for, and secured, a four-year grant from the **Health Resources and Services Administration**^a (HRSA) under the **Grants to States to Support Oral Health Workforce**^b program. The grant award runs from September 1, 2018, through August 31, 2022. One of the four proposed goals includes placing dental students in Federally Qualified Health Centers (FQHCs) in North Dakota to both provide needed services and recruiting potential providers.

Evaluation Activities

The evaluation team at the Center for Rural Health (CRH) at the University of North Dakota School of Medicine & Health Sciences worked with the team at the OHP as well as with the participating FQHC to collect data on the clinical reach of this program and the perceptions of both the participating dental students and FQHC dental team members. This report presents findings from years one and two of the program.

GOAL

Enhance the oral public health infrastructure and capacity by partnering with a Federally Qualified Health Center to place dental students in its facility for their fourth-year rotations.

Need for Oral Health Workforce Recruitment and Retention

Dental Care Provider Shortages in North Dakota

In 2015, North Dakota reported 55.4 dentists per 100,000 population compared to 60.9 per 100,000 for the U.S. as a whole. See Figure 1. Nearly half of the counties (26 of 53) in North Dakota are Dental Health Professional Shortage Areas (HPSAs).f See Figure 2.

Figure 1. Dentist to 100,000 Population Ratio for the U.S., 2015^{g-h}

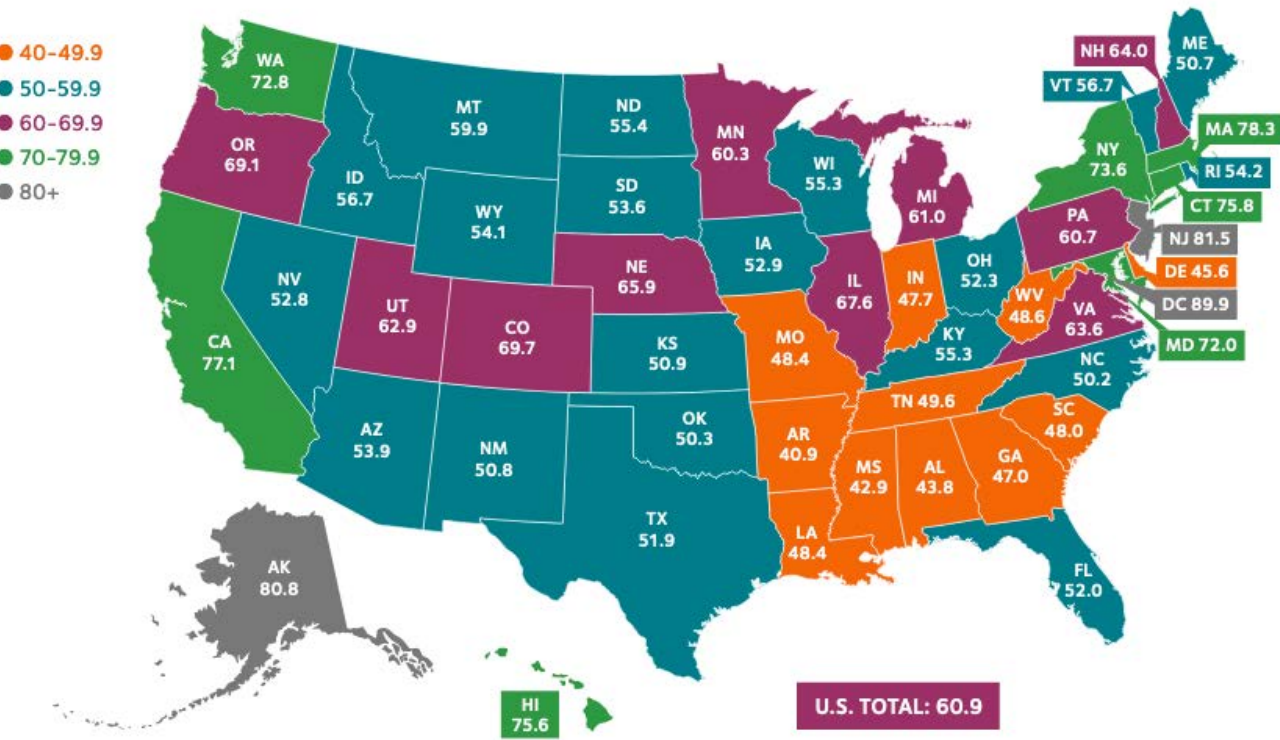
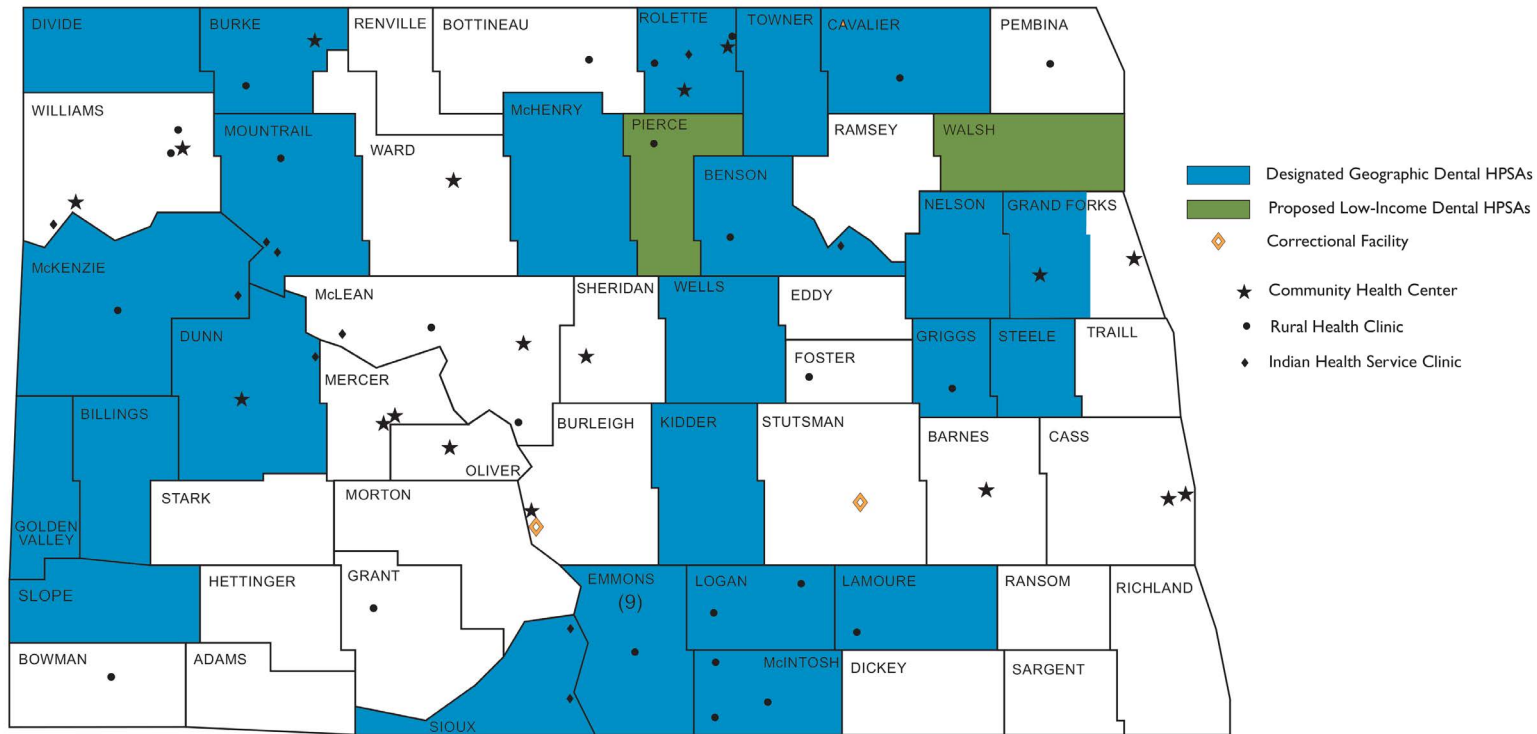


Figure 2. Dental Health Professional Shortage Areas, 2019



As of March 2020, 455 dentists practiced in the state along, with 822 dental hygienists. Of these professionals, 62% of dentists practiced in urban communities. Additionally, 18 of the 53 counties with a total population of more than 50,000 did not have a practicing dentist. A large proportion of dentists in the state (21.7%) intended to retire in the next 15 years. Within this subset, 11% intended to retire within the next five years.ⁱ

Illustrated in Figure 3, the Southwest corner of the state includes four counties with no licensed dentist, three counties with only one licensed dentist, and only one county with 11-25 licensed dental providers. In addition, there are no community health centers (CHC's)/FQHCS in that region that provide dental care. The distance between some communities and the first available dental provider is more than 70 miles. Residents living in the Northwest corner of the state have access to three CHCs/FQHCS, yet none of those clinics offer dental services, with two of the counties reporting no dental provider. See Table 1.

Figure 3. Number of Licensed Dentists in each North Dakota County and Community Health Center/FQHC Locationⁱ

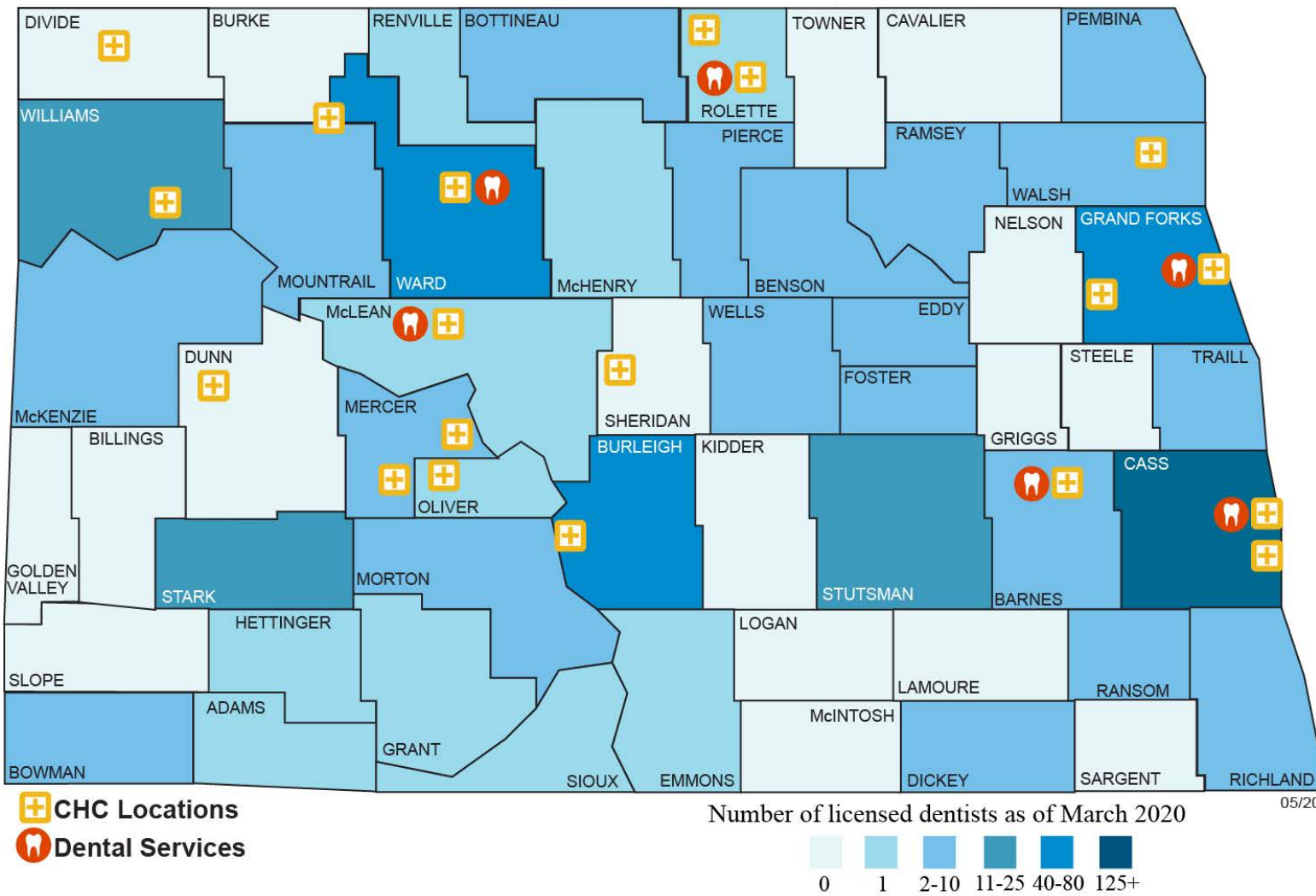


Table 1. Location of CHCs/FQHCs and Dental Services Provided, March 2020

Operated By	City	County	Dental Services
Coal Country Community Health Center	Center	Oliver	No
Coal Country Community Health Center	Hazen	Mercer	No
Coal Country Community Health Center	Beulah	Mercer	No
Coal Country Community Health Center	Killdeer	Dunn	No
Community Health Service Inc.	Grafton	Walsh	No
Family Healthcare Center	Valley City	Barnes	Yes
Family Healthcare Center	West Fargo	Cass	No
Family Healthcare Center	Fargo	Cass	No
Family Healthcare Center	Fargo	Cass	Yes
Northland Health Partners Community	Turtle Lake	McLean	Yes
Northland Health Partners Community	Mcclusky	Sheridan	No
Northland Health Partners Community	Minot	Ward	Yes
Northland Health Partners Community	Minot	Ward	No
Northland Health Partners Community	Bismarck	Burleigh	No
Northland Health Partners Community	Rolette	Rolette	Yes
Northland Health Partners Community	Bowbells	Burke	No
Northland Health Partners Community	Rolla	Rolette	No
Northland Health Partners Community	Ray	Williams	No
Northland Health Partners Community	Williston	Williams	No
Spectra Health	Larimore	Grand Forks	No
Spectra Health	Grand Forks	Grand Forks	Yes

Educating and Training the Oral Health Workforce

The North Dakota State College of Science (NDSCS) is the only college within the state to provide dental education, resulting in an Associate in Applied Science (AAS) degree in dental hygiene, AAS in dental assisting, or a dental assisting certificate. Currently, the school can admit 24 dental hygiene and 20 dental assisting students annually. The college is in Wahpeton, close to the Minnesota border, and draws students from several states (NDSCS, 2017).

North Dakota does not have a dental school and does not have a reciprocity agreement with any neighboring states. Historically, North Dakota had a reciprocity agreement with the University of Minnesota School of Dentistry. This agreement encouraged North Dakota residents to pursue a career in dentistry by providing in-state tuition rates for those accepted into the program. Without a reciprocity agreement, students from within North Dakota interested in a career in dentistry must attend an out-of-state institution and accrue significant debt.

Dental school students in the class of 2019 reported greater school debt than students in medical school, pharmacy, and veterinary school. Specifically, 80% of these dental students took on school debt. The average student loan balance at the end of their education was \$292,169.^j On a 10-year payment plan with a 7% interest rate, this would be a \$3,390 monthly expense for new graduates.^k Important to note is that this is the average debt where many of the students included in the calculation received in-state tuition rates. This is not an option for North Dakota residents who may accrue upward of \$400,000 in school debt.^l In fact, 39% of indebted dental school graduates in 2019 reported more than \$300,000 of student loan debt.^j With no in-state dental school, practicing dentists in North Dakota predominantly graduate from one of four universities in Minnesota, Nebraska (two dental schools), and Wisconsin. In 2016, 42% of all licensed dentists in North Dakota graduated from the University of Minnesota, followed by an additional 22% from schools of dentistry in Nebraska.ⁱ

Need for Recruitment and Retention in Disparate Areas

There is a general need to encourage recruitment and retention of dentists in North Dakota. However, the need for dentists is felt more severely among rural, low-income, and Medicaid populations. In 2020, only 21% (roughly one in five) of practicing dentists in the state were open to accepting Medicaid patients. Roughly 22% limited the number of Medicaid patients, and an additional 29% indicated that they did not see any Medicaid patients.ⁱ Similarly, rural communities in North Dakota struggle to maintain dental practices because of low patient volume.

Federally Qualified Health Centers and Community Health Centers

FQHCs and CHCs are an attempt to close the health services gap for low-income and Medicaid enrolled individuals. FQHCs and CHCs provide family-oriented primary and preventive oral healthcare services for people living in rural and urban medically underserved communities. However, North Dakota still reports significant healthcare access issues with only a few FQHC/CHC sites throughout the geographically large state with even fewer offering dental care. See Figure 2. A majority of dentists look to private practice to generate a larger income and to pay back student loans. Because of this, it can be harder to recruit and retain dentists in FQHC and CHC settings. Stigma toward the patient base may also have an influence on a dental student's decision about where to practice.

Response to the Need

In response to the need to recruit and retain dental providers in North Dakota and to grow the oral public health infrastructure, the OHP proposed:

[We will] contract with one the state's three FQHCs annually to sponsor [financially a] rotation for two fourth-year dental students. Placing dental students in the FQHCs is a new and innovative strategy for ND that can assist communities in building dental workforce. The OHP will also partner with the ND Primary Care Office (PCO) to promote state, federal-state (SLRP), and federal dental loan repayment programs available for newly graduated students who are interested in practicing in ND. Dental student recruitment preference will include dental students from North Dakota with the intent to practice in a ND designated HPSA. HRSA funds will support placement of dental students in the FQHCs and does not duplicate the ND dental loan repayment program.

The North Dakota Dental Association supports efforts to increase access to care in safety-net clinics and collaborates with its members to coordinate referrals in the communities served. Ongoing program evaluation will provide information for quality improvement related to student experience and intention to return to North Dakota.

Evaluation

In year two of the program, OHP contracted with the CRH at the University of North Dakota School of Medicine & Health Sciences to evaluate the OHP's work to support the oral health workforce. In year one, the Center for Social Research at North Dakota State University conducted the evaluation.

Evaluation Methods

In 2019, the CRH evaluation team reviewed the previous year's data and dental student interview results. The CRH team then developed an evaluation plan, interview protocols, and data requests. When templates had been developed, the CRH and the OHP met in person. After finalizing the plan and interview protocols (Appendices A-C) the CRH submitted for and received approval from the University of North Dakota's Institution Review Board. Evaluation activities included:

- Review of aggregate data on dental students' provided patient services.
- Pre-interview with four dental students prior to the dental rotation at the FQHC.
- Post-interview with four dental students after completing a dental rotation at the FQHC.
- Post-interviews with FQHC dental team members.
- Interview with the OHP staff coordinating the program.

Although the grant only covered two dental student rotations from the University of Minnesota School of Dentistry, the participating FQHC also hosted two additional dental students from the University of Iowa College of Dentistry. This evaluation includes the experience of all four dental students.

Dental Student Interview Protocol

The CRH evaluation team contacted each of the participating dental students by email two weeks prior to their dental rotation and again upon completion of the rotation. The emails outlined the purpose of the interviews and the time commitments of the students. The emails also included a cover letter (See Appendices D and E). All four students agreed to participate in both the pre- and post-interviews. Interviews took between 15 and 20 minutes and all eight interviews occurred over the phone. The interviews were not recorded, but the two-member evaluation team took notes throughout, compared notes, and condensed notes into a single interview document for each student.

FQHC Dental Team Interview Protocol

The CRH evaluation team contacted the dental director (DD) at the participating FQHC. She offered the names of two additional dental team members who worked closely with the dental students. After the dental students had completed their rotations, the evaluation team sent an interview invitation and cover letter (Appendix F) to the DD and two additional team members. One team member declined to participate. The interviews took between 15 and 20 minutes and both occurred by phone. The interviews were not recorded, but the two-member evaluation team took notes throughout, compared notes, and condensed notes into a single interview document for each.

Analysis

The CRH evaluation team combined the clinical data from years one and two to measure the reach of the participating dental students. These data were provided in aggregate by the participating FQHC. Dental student interviews from year two were coded, analyzed thematically, and pre- and post-interviews were compared to assess change in attitudes or perceptions based on the experience. The CRH evaluation team did not have access to the raw data from the year one interviews, but results are compared to the findings reported in the document, *Placement of a Dental Student for Rotation at a Federally Qualified Health Care Center*, produced by the Center for Social Research at North Dakota State University.^m

Evaluation Results

Dental schools require students to participate in 10-12 weeks of outreach programming outside the dental school. The University of Minnesota School of Dentistry (as well as other dental schools) require the host organization to pay room and board and a stipend for meals for all participating dental students. This would be a barrier for FQHCs and is likely one of the primary reasons many do not participate in such programming. To overcome the barrier of cost, the state OHP covered these expenses for two students from the University of Minnesota through the HRSA award.

In year one (2018-19), two dental students from the University of Minnesota School of Dentistry completed a five-week rotation from September 10 through October 5, 2018, at Spectra Health in Grand Forks, North Dakota. Spectra Health also hosted one student from the University of Iowa College of Dentistry for a five-week rotation in December 2018. The University of Iowa rotation was supported by the [North Dakota Area Health Education Center](#).ⁿ

In year two (2019-20), two dental students from the University of Minnesota completed a four-week rotation from September 16 through October 11, 2019, and two students from the University of Iowa completed a four-week rotation in December 2019.

Although the University of Iowa students were not supported by the OHP, the objective of the rotation was the same – to promote recruitment of newly graduated dentists to return to work in public health and in North Dakota and to increase students' exposure to FQHCs. Accordingly, all dental students who completed a rotation at Spectra Health in 2018 and 2019 were interviewed, regardless of their college and funding source.

There are five FQHCs and two safety-net dental providers in North Dakota. North Dakota's FQHCs operates 21 clinics in 19 cities, although only five clinics offer dental services. In both years one and two of this award, the OHP contracted with Spectra Health to host two dental students. Although the original four-year grant proposal stated that the OHP would rotate which FQHC in North Dakota was hosting the dental students each year, the requirements for hosting dental students has been a barrier to increasing participation outside of Spectra Health. As a result, the OHP has not worked with other FQHCs in the state to participate. However, the primary goal of hosting two dental students in a public health/FQHC setting has been met.

Spectra Health

Spectra Health (formerly Valley Community Health) is an FQHC in Grand Forks, North Dakota (one of the four urban areas in the state). It has been in operation since 2004 and strives to ensure that high-quality and affordable services are available to everyone in the community. Spectra Health recognizes the importance of integrated care, where behavioral health, oral health, and primary care team members work together with the patient.

The Grand Forks location specializes in general dentistry, including preventive, restorative, and child screenings. The dental clinic is open Monday-Friday from 7:30 am through 5:00 pm. The clinic also offers walk-in and triage dental services five hours a day.^o



Dental Services Provided at Spectra Health

- Cleanings
- Extractions
- Restorative crowns
- Bite guards and night guards
- Fillings
- Composites
- Partial dentures
- Child-safe nitrous gas
- Sealants
- Urgent dental care
- Selective root canals

When Spectra Health was first approached, the clinic was not appropriately structured or accredited to sponsor student rotations. In the following years, structural changes were made to comply with training standards as prescribed by the University of Minnesota. Some of the training standards and tasks Spectra Health and its team members had to complete in order to participate include:

- Dentists on staff needed to be credentialed with the University of Minnesota.
 - » This included paperwork around peer recommendations, previous work experience, Cardiopulmonary Resuscitation (CPR) certification, etc.
 - » Credentialing required the supervising dentists view online modules prepared by the University of Minnesota.
- The clinic had to restructure staffing to allow time for the supervising dentists to review students' work.
- The clinic had to hire an additional dental assistant (DA) in order to appropriately staff and ensure the students had a DA on hand. This was difficult given the state has a shortage of DAs.

Role of the Dental Director

At Spectra Health, the dental director (DD) takes on the responsibility of coordinating the student rotation. This requires that she work with the two universities to find a time to host students that works well for both the dental clinic and the colleges. Additionally, the DD works to ensure the students will have housing and works with the team to build the students' patient schedules before they come.

During the dental rotations, the DD (as the overseeing dentist for the FQHC) approves all of the dental care provided by the students and is there as a colleague to answer questions and coordinate patient care. In this role, she is also there to discuss case management and the sequencing of procedures. During the interview, the DD stressed how important it is for the students (and the patients) to integrate the students into the dental team and to treat them as colleagues and not as students. It is an opportunity for them to gain the confidence they need to practice dentistry independently.

During the rotation, the DD remains available to assist with logistics. This includes coordinating with local dentists to take the students out for lunch or dinner. There are 10 local dentists who have agreed to meet with the students (roughly five for each rotation). The DD shared that "I am their social entertainer" and their colleague.

Role of the Dental Clinic Manager

The Dental Clinic Manager (DCM) is also a practicing registered dental hygienist (RDH) at Spectra Health. In her role as the DCM, she supervises the DAs and manages patients and patient complaints. She sits with the management team for Spectra Health and discusses the health center's direction and areas for change. She also fills in as needed in many roles, including dental assisting, front desk, and scheduling.

During student rotations, the DCM works to introduce the students to the clinic. She provides a tour and can also serve as a DA for the students to assist with various procedures. The DCM is also responsible for assisting the DD with scheduling the students and fills in as the point of contact for students when the DD is not available. The DCM also assigns the DAs to each dental student and is sure to rotate them to gain experience working with different DAs.

Dental Students and Clinical Services Provided

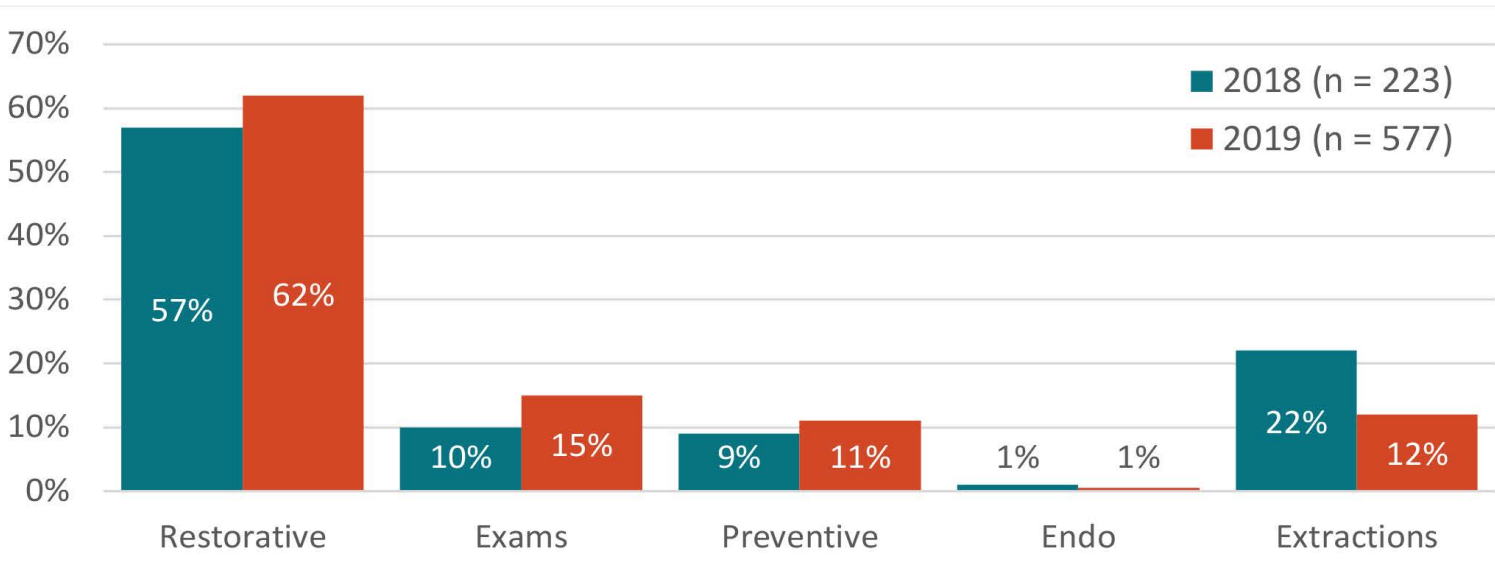
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Table 2. Number of Dental Clinical Procedures by Year and School of Dentistry

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* Specific data point not collected for that year.
MA: Medical Assistance (to include Medicare and Medicaid).

Figure 4. Percentage of Procedures Performed by Dental Students by Procedure Type and Year



Dental Student Engagement and Education

In addition to gaining the clinical experience and exposure to an integrated care model, students participating in this rotation had the opportunity to learn about oral health programs in the state (including loan repayment) and had a chance to meet with other dental providers in the community, growing their professional network. The North Dakota Primary Care Office and the CRH both provided training and information for the students on rural opportunities, how to find these opportunities, and the benefits of working in a rural North Dakota setting.

The Community Healthcare Association of the Dakotas (CHAD) spoke to the benefits of working in a CHC or FQHC. A member of the North Dakota Dental Association (NDDA) spoke to their work and the support they have received in the state. Lunch was provided at these educational sessions by the NDDA and CHAD. The dental director also arranged social gatherings and dinners with local dentists to connect the students to the community and their profession.

Comparing Student Experiences Before and After the Rotation

The four dental students had all spent the 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!”

Prior to the dental rotation, students from the University of Minnesota described having no knowledge around the FQHC model other than FQHCs serving as a “critical access point” for patients. The two dental students placed from Iowa had previous knowledge of the model of care, and one was currently completing a rotation in a community health center (CHC) at the time of the interview.

When asked what was different about completing a dental rotation in an FQHC compared to in private practice, the students shared similar experiences. Students identified that in an FQHC setting:

- The patient base is very different than in private practice. Patients will arrive with complex social concerns beyond the scope of dental care and with a broader spectrum of service needs.
- The patients are generally low-income, on public insurance, and have lower health literacy than in private practice. However, students also noted that the patients they see at an FQHC are grateful for the care received and are very personable.
- You can treat the patients without concern for the “bottom line” or reimbursement rates. You can treat the patient without worrying about your business model.
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- There is flexibility and a better work-life balance than experienced in a private practice setting.
- You can see more patients in a day than you would in private practice, and the case presentations are more complex. For example, patients present with more advanced dental disease and concerns in a FQHC setting.

Desire to Practice in North Dakota and an FQHC Setting

Both before and after their rotations with the FQHC, students were asked to share which factors would play the most significant role in their decision of where to practice, their level of interest practicing in North Dakota, and their interest to practice in an FQHC setting. Though there were three unique questions, the role of salary and school debt were mentioned as an influence for each and across all four students. Other leading factors both before and after the rotation included:

- Location
- Family (desire to live closer to family and/or to practice where their partner had employment)
- Lifestyle (which included projected salary)
- Debt

Of particular interest is one student who prior to the rotation had expressed genuine interest in practicing in an FQHC setting. When asked what the leading factor would be in their decision of where to practice, they said, “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.” Yet, after the rotation, this same student shared that, 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.”

All of the students had some level of interest in practicing in North Dakota in either the immediate future or at some point in their careers. However, here again, students spoke to the importance of working somewhere where they would be able to pay off school loans and how their debt and projected salary would influence their geographic location of the practice. Although salary was a leading factor in future practice location and type, following their experiences, all students expressed a level of interest practicing in an FQHC in the future. See interview notes in Table 3 for details.

Table 3. Students' Level of Interest Working in an FQHC Setting: Pre- and Post-Rotation

	PRE-ROTATION	POST-ROTATION
Student one	Hard to say because have not experienced it yet. Like the idea of a group practice setting with multiple dentists in the office.	Will look for job openings in an FQHC setting. Like the fast pace. Every day is new. Like the flexibility too. Nice to have physicians on staff, pediatricians, social workers, and comprehensive treatment for people. Like treating the whole person and not only their teeth; reintegrate the mouth into the rest of the body.
Student two	Need to pay back loans. If FQHC doesn't allow for student to benefit financially it will not work. Private practice providers shy away from Medicaid patients so they can make more money. Need to work where one can make enough money to pay off school debt.	Great interest but not sure what the starting salary is. Love the environment and the type of patients served. Like having three or four other dentists to bounce ideas off of and to discuss treatment plans. Like working with other health professions as part of the same team.
Student three	Want to serve rural, high-risk, patients in need. Want to practice where one can provide a service. In public health dentistry there is a purpose. Want to increase access to care.	Great interest but concern around the base salary and paying back student debt. Like the complexity of the care needed. Like the challenges in treatment planning. Like working more with the patients. If money were no factor, would practice in an FQHC.
Student four	Would not say no. Leaning toward private practice but might be something to do when older to reduce stress level and have more free time.	Definitely have an interest for a number of reasons. Great work and team-based environment. Great experience. Love helping people who are so appreciative of the care provided.

Loan Repayment Programs

Prior to the rotation, none of the students were familiar with dental loan repayment programs. After the rotation, students had gained a better understanding of the program and were appreciative of the information shared. However, all four students stressed that the current loan repayment programs do not offer enough financial incentive to encourage practice in an FQHC, rural, or North Dakota setting. Instead, it was noted that if a student already intended to practice in one of those settings, this would be an added benefit. It would not incentivize.

Specifically, students shared that after learning about the program [paraphrased responses]:

- I would need more information on how dental loan repayment in addition to the lower salary at rural or FQHC setting compares to the salary of private practice without loan repayment. In private practice I have the opportunity to produce more and therefore make more money compared to an FQHC with fixed salary.
- I know that it isn't something I will do because of the long-term commitment and the fact that you are taxed on the incentive, and if you break the commitment, you have to pay the money back. The loans are \$20,000 a year, and we leave with around half a million dollars in debt. The loan repayment would need to be much higher to cover actual costs. Working the same number of hours in private practice as we would in an FQHC, we can make more money that will supersede what we can make in an FQHC setting with the loan repayment program and then we also have the option to work more hours and increase income.

- The loan repayment isn't enough to make up the difference between private practice salaries. Data indicates that private practice will get you out of debt sooner. I would need to see the base salary plus the loan repayment and how that compares to private practice. It hurts North Dakota students even more because there is no reciprocity and there are not enough WICHE (Western Interstate Commission for Higher Education) scholarships. There is no good incentive for North Dakota students to go off to dental school and then come back.
- I can make more in private practice, and it is a long-time commitment (up to five years).

Students' Overall Experience

Students were also asked to describe their overall experience at the FQHC. They were asked to speak to:

- Their high point (most positive experience), if any.
- Their low point (negative experience), if any.
- If the experience was what they had expected (why or why not).
- Any recommendations for the FQHC or the Oral Health Program.
- If they would recommend a rotation at Spectra Health for future dental students.

"I get goosebumps it was so wonderful!"

None of the students had a negative experience to share, and all four students spoke highly of the program, the staff, the patients, and their experience. Students consistently identified the benefits of the high daily caseload, the amazing experience working with these specific providers, the excellent mentorship, and the positive working environment and team-based model of care.

- Students saw 8-10 patients a day in addition to conducting an oral health screen for primary care patients as needed. This was a good pace. One student indicated they thought they may regress going back to only seeing two people a day at dental school.
- Everyone at the clinic was amazing. The dental team members were so kind and helpful. The rotation was made what it was because of the wonderful staff at Spectra. They went above and beyond and helped students to connect with other providers in the community as well. They did a wonderful job.
- This FQHC provides such efficient care, and students gained so many great skills. At dental school, students work alone, and it was great to work with a team of providers at Spectra.

Every student strongly recommended that their peers complete a rotation at an FQHC, and specifically, at Spectra Health.

- "People ask you all of the time [third years] about where they should go and what they should do. I have told EVERYONE even if you are not from North Dakota go do THIS rotation. It is the BEST rotation and the people are wonderful and I could not recommend them more highly to any student. The dentists are what make the rotation. They will assist you if you need it. They step up and make sure work is quality but that you are learning from them. I would definitely recommend it!"
- "100 percent, a thousand times [I would recommend this rotation]."
- "This program should be recognized and I know on my end I will be promoting it immensely to our program and school and students. And I don't think anything we have here at our school can compare to this experience."
- "Way better than our other rotations we have had. I feel sorry for those who didn't get a rotation like this."

Integrated Care Model

Although future salary and family location may prevent the students from practicing in an FQHC setting in the future, all four students noted that they enjoyed working in an integrated care setting. 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. Paraphrased, students shared that:

- I have had patients previously where I wanted to send messages to their healthcare providers because of suspected diabetes or high blood pressure. In this model, I can refer them for an A1C test or other health screen. It is also beneficial to have a pharmacist on hand.
- "All of those professions working together; I think that they can really provide comprehensive care for patients, and I think that is pretty exciting!"
- In an FQHC setting, you are not looking only at a patient's need for dental treatment. You have to look at the bigger picture and consider if the patient is medically compromised. Outside of this integrated care model, it becomes "too easy for a dentist to go right to the teeth and be too microscopic" regarding the patient's overall health.

"Do not undervalue the social worker, especially among this patient base."

- There isn't a drawback to the integrated care model. It will reduce miscommunication between providers. It is a really new approach to health because historically, "It has always been isolated between fields."
- "Patients are not reliable historians of their healthcare" so it would benefit dental providers if they could see physician notes and have access to an in-house network of providers to rely on for better, holistic, patient care. This removes barriers and simplifies care.

“We did have patients that needed medical consult BEFORE we could treat them so that was awesome to have in same clinic and to just send them upstairs and then they can come back and we can treat them.”

Experiences of the FQHC Dental Team

Spectra Health has four dentists on staff and two who are authorized to oversee dental students through adjunct faculty status at the participating colleges. The DD was contacted and provided two dental providers who worked closely with the dental students. One declined to participate. Interviews were held with the DD (practicing dentist) and one RDH who is also the DCM.

Perception of the Student Experience

The two dental team members interviewed both stressed how important it is that dental students experience working in an FQHC setting (or in a look-alike setting). Both the DD and the DCM stressed how important it was that students leave the experience understanding the mission of the FQHC and the need for serving this particular patient base as opposed to gaining clinical skill. Specifically, they identified skills and benefits that students can only experience during a rotation in an FQHC (or look-alike) setting. See Table 4.

Table 4. Assets of Completing a Dental Rotation in a FQHC: Dental Team Perspectives

Community Mission	Dental Practice and Clinical Skill
They will gain an appreciation for the need among the FQHC patient base and experience providing care to individuals who are very grateful.	Students will leave recognizing the work-life balance benefits of practicing in an FQHC setting. Specifically, no concern with overhead, no stress of managing a business, and more time and concern for the patient without worry about finance.
Ideally, even if they go into private practice, there is hope the experience will spark an interest to give back to the community through dental missions, services for Medicaid, or contracts for services in FQHC settings in the future.	Because the patient base has a low dental IQ, the students are expected to provide oral health education in addition to clinical care. This provides an opportunity to recall and share their knowledge of dental health and hygiene that they have acquired in dental school. It also teaches them how to relay this knowledge at a level that the patient can understand.
They will leave with an appreciation for the work that FQHCs do to “reach those most in need.”	They gain experience providing care in partner with the patient as opposed to for the patient. Meaning, it may not be the preferred clinical care, but it is what is best for the patient’s life situation.
Provides exposure to things that can instill compassion that they will then hopefully apply in future practice.	Students will learn about loan repayment options available to dentists who practice in an FQHC (or North Dakota) setting.
	Students will leave with a better understanding of the FQHC model and how medical-dental integration works.

Both of the individuals interviewed stressed how important it is that students recognize the mission of the FQHC model, the integration of medical and dental care, and that they also understand that working in an FQHC can provide them the lifestyle they may be desiring without the stress of managing a business.

"At an FQHC you can take the time you want to take care of your patients and not have to run a business or own a practice. That is so stressful for a provider, and it can steer the direction of their care. The business model shouldn't dictate the care patients receive or how much time you spend with a patient, and it really doesn't at an FQHC. We do the best job we can without worrying about how long it takes or if we have to re-do a filling. We can focus on the patient and not the business line."

"Dental is a small portion of what we do. If a patient is depressed, we can send them to behavioral health or even primary care [in the same building]. We can take care of so much more at an FQHC than just a cavity. Not to mention our partnerships with the homeless shelter and the women's shelter."

"I worry that they [dental students] do not have enough exposure to develop compassion, and so, when they are here and they experience providing this level of care, they see that and, it instills in them at a young age the need to give back and contribute to the community."

Experience of the Dental Team

Both of those interviewed enjoyed hosting the dental students and were eager to continue providing dental rotations. The experience was not what both expected, and instead, was even better than anticipated. Some of the positive feedback included:

- The students picked up things and worked faster than expected. They start out slow and were quickly seeing a full book of patients.
- Students were confident and eager to take on challenging situations.
- Students may take a couple of days to decompress from dental school and to learn that they are part of a team now as opposed to being tested. When they recognize that they are a colleague and their opinion matters, it is a really cool experience.
- Over time the staff have gotten more used to working with students so everything is just getting better and better. When asked, all staff share that they want to continue hosting dental students.
- Dental students share new information that they have learned in school with the dentists and dental team members, and the dentists, in return, are sharing real world knowledge with the students.

**"We absolutely want
to do it again!"**

Although the team members stated that the experience was an "11 out of 10" and better than they had anticipated, they did share areas for improvement. These included:

- Staff were hesitant at first because of fear of the time commitment and disruption to the daily workflow. However, once the program was in place, the DD and DCM (and other team members) really enjoyed the program.
- At the beginning of the rotation there was confusion around how to professionally refer to the students, which then also made it confusing for patients. The final decision was to refer to them as Dr. First Name; once that was decided, staff easily adapted.
- Participating in student rotations does slow down production. Specifically, "some days I just want to get in there and do some fillings myself," but overall, students adapted quickly and soon had full books.
- It is a lot of work setting up the rotation, to include working with the dental schools in order to secure training credentials and adjunct faculty status. This also includes several online training modules. It would also be nice if other FQHCs would participate in the program.
- It would be nice if rotations were longer. "Once they are in a groove and have process down it's over."
- It would be beneficial if the dental schools or the students' advisors were able to provide a better description of the students' skill sets prior to their arrival. This would allow the FQHC to prepare a more appropriate schedule. For example, if the FQHC knew how many patients a student could see a day prior to their arrival, the FQHC could ensure the student had enough patients (and not too many) on their schedule when they arrived.
- Dental students do well with restorative services but seem to be nervous about diagnosing and doing a full comprehensive exam. It is recommended that they receive more training on that before completing these rotations.

**"Even if they don't want to come
back to North Dakota or to Spectra,
they now understand interworking
of an FQHC, and that is priceless!"**

Experiences of the OHP

According to the state Oral Health Program director, the purpose of hosting two dental students in an FQHC setting was to provide an experience for North Dakota residents to complete their dental rotations in their home state and in an integrated community health setting. The expectations of the grant were met. However, the program director would like to be able to grow the program and host additional students in diverse community settings in the future. Although the original grant proposed outreach and work with additional dental clinic sites each year, the OHP continues to contract with Spectra Health. Spectra continues to host dental students because it is engaged, the OHP has a positive relationship with the dental director at Spectra, and because it has been a challenge engaging additional locations and providers.

Ideas for sustainability focus on engaging additional clinic locations, working with communities to support hosting students financially, and engaging the state dental association and foundation to consider financial support. There is also interest in working to ensure students can gain community dental health experience through the school-based sealant program or mobile dental clinics.

Summary and Recommendations

This program has been highly successful. The dental students have provided clinical care, have gained experience working in an integrated care model, and the dental team has enjoyed working with the students. However, hosting dental students is expensive and can be time-consuming. To encourage dental student rotations in other FQHC settings, and to support the current FQHC hosting dental students, there are a few recommendations for consideration:

1. The OHP should explore additional opportunities to financially support dental student rotations in FQHC settings throughout North Dakota. Opportunities include asks of foundations (such as the North Dakota Dental Foundation and DentaQuest), associations (such as the North Dakota Dental Association), and additional federal and state granting agencies (such as the Health Resources and Services Administration and the Centers for Disease Control and Prevention). Although this is not a sustainable option, it helps ease the financial pressure of the participating FQHCs and can incentivize participation among these clinical settings.
2. The OHP should connect with the primary care office and others to discuss the possibility of increasing the rate of the student loan repayment program. Students consistently stressed that the current loan repayment programs do not offer enough of an incentive to practice in a rural, underserved, or FQHC settings. Additionally, students had concerns regarding the penalty if they left the clinical site. Students indicated that they are young, possibly beginning families, and need to be responsive to partners' job locations as well as their own. Knowing that they would have to pay back the loan forgiveness if life circumstances required them to move to a new location de-incentivized interest in the program.
 - Students also indicated that a cross walk comparing private practice salary without loan repayment next to the salary of a provider in an FQHC setting with loan repayment would be helpful. This would allow students to objectively review the potential income after dental school.
3. It is recommended that the state of North Dakota work with neighboring dental schools to develop reciprocity agreements. North Dakota residents who attend dental school accrue more debt than the average dental student because they have no in-state option and no reciprocity agreements in place with neighboring states. The University of Minnesota School of Dentistry accepts the largest percentage of North Dakota residents and produces the largest number of practicing dentists in the state.
4. The OHP should identify additional dental student rotation sites in underserved, rural, and FQHC settings. However, recognizing that there are barriers to serving as a host site (outside of the financial commitment), it would be beneficial if the OHP developed a toolkit or guide on how to become a host site specifically identifying steps and forms for the facility and the individual dentists who will supervise student care.
5. Host sites would benefit from a better skill assessment of dental students prior to the rotation. It is recommended that the OHP and Spectra Health relay this information to the participating dental schools to improve the experience for both the host site and the students. A better understanding of student skill sets could increase the caseload earlier in the rotation.
6. Regardless of setting (rural, underserved, or FQHC), dental students benefit from experiencing an integrated care model prior to graduation. This experience not only reconnects them to primary care, but helps primary care settings reintegrate the mouth into overall health.

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- Cheri Kiefer, Oral Health Program Director, North Dakota Department of Health
- Janna Pastir, Director, Division of Health Promotion, North Dakota Department of Health

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Any questions regarding this product or the data presented can be directed to:

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APPENDIX A: PRE-INTERVIEW PROTOCOL FOR DENTAL STUDENTS

Before asking questions:

- ☐ Introduce interviewer(s)
- ☐ Review consent letter
- ☐ Provide additional copy of consent
- ☐ Any questions from the interviewee before beginning?

Name of person(s) completing interview: _____

Name of Interviewee: _____

Interview Date: _____

1. Which dental school are you currently attending?
2. Where did you spend most of your life prior to dental school (state, community size, etc.)
 - a. Probe: Any North Dakota connection?
3. What were your motivating factors for completing your dental rotation at **[FQHC Name]** in North Dakota?
 - a. Probe: Was there an interest to work in a federally qualified health center setting prior?
4. Please share what you know about federally qualified health centers, and the role they play in oral health.
5. What do you think may be different about completing a dental rotation at a federally qualified health center than in private practice?
6. What factors will be the most important to you in your decision of where to practice in the future? [Clinic type, and location].
 - a. Probe: Rural or urban?
7. How much interest do you have in practicing in North Dakota in the future?
 - a. Probe: Unpack their answer – why do you/don't you have interest?
8. How much interest do you have in practicing in a federally qualified health center in the future?
 - a. Probe: Unpack their answer – why do you/don't you have interest?
9. Have you heard anything about the North Dakota dental loan repayment program?
10. What do you know about, or expect to experience, working in an integrated care setting where there is both dental care and other services like mental health services, counseling, and primary care?

APPENDIX B: POST-INTERVIEW PROTOCOL FOR DENTAL STUDENTS

Before asking questions:

- ☐ Introduce interviewer(s)
- ☐ Review consent letter
- ☐ Provide additional copy of consent
- ☐ Any questions from the interviewee before beginning?

Name of person(s) completing interview: _____

Name of Interviewee: _____

Interview Date: _____

1. Please share what you know about federally qualified health centers, and the role they play in oral health.
2. What has been different about completing a dental rotation at a federally qualified health center than in private practice?
 - a. Share any lessons learned.
3. What factors will be/have been the most important to you in your decision of where to practice? [Clinic type, and location].
4. How much interest do you have in practicing in North Dakota in the future?
 - a. Probe: Unpack their answer – why do you/don't you have interest?
5. How much interest do you have in practicing in a federally qualified health center in the future?
 - a. Probe: Unpack their answer – why do you/don't you have interest?
6. Are you familiar with state, federal-state (SLRP) and federal dental loan repayment programs that are available to students interested in practicing in North Dakota?
 - a. Probe: Will loan repayment play into your decision of where to practice?
7. Was this experience what you expected (why or why not)?
8. How would you rate your overall experience working in a federally qualified health center?
 - a. Explain
9. Please describe your high point from the rotation (positive take away, if any).
10. Please describe any low point from the rotation (negative experience, if any).
11. Are there any recommendations for the health center, the program, or future students?
12. Would you recommend a rotation in a federally qualified health center to other dental students?
 - a. Why/why not?

APPENDIX C: POST-INTERVIEW PROTOCOL FOR FQHC DENTAL TEAM

Before asking questions:

- ☐ Introduce interviewer(s)
- ☐ Review consent letter
- ☐ Provide additional copy of consent
- ☐ Any questions from the interviewee before beginning?

Name of person(s) completing interview: _____

Name of Interviewee: _____

Interview Date: _____

1. What is your role at the FQHC?
2. Please briefly describe your role working with the dental students.
 - a. Have you worked with dental students before?
 - b. [Dentists only]: Did you do a rotation at a federally qualified health center when you were a dental student?
3. Outside of clinical skill experience, what do you want students to take away from their rotation at a federally qualified health center?
4. Was the experience what you expected (why or why not)?
5. How would you rate your overall experience working with:
 - a. The students?
 - b. And the North Dakota Department of Health Oral Health Program?
6. Please describe your high point from the rotation (positive take away, if any).
7. Please describe any low point from the rotation (negative experience, if any).
 - a. Probe: What barriers did you experience, what were the challenges?
8. Are there any recommendations for the dental school, the Oral Health Program, or future students?
9. Have you heard feedback from any of the patients who received care from the dental students, and if so, what was the feedback?
10. Have you heard feedback from any of the staff at the FQHC about working with the dental students, and if so, what was the feedback?
11. Would you recommend additional dental student rotations at your federally qualified health center, or encourage other federally qualified health centers to host a rotation?
 - a. Why/why not?



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Hello,

The North Dakota Department of Health's Oral Health Program and Spectra Health are working together to provide two dental rotations. The Center for Rural Health at the University of North Dakota School of Medicine & Health Sciences is evaluating this program. We would like to invite you to participate in a short interview to explore your expectations and interests prior to participating in the dental rotation.

The interview can be conducted over phone, in-person, or over videoconference and is anticipated to take no more than 20 minutes. No identifying information will be collected and your responses are anonymous. The interview will not be recorded, but will include two interviewers who will take comprehensive notes during the conversation. The overall results of the program evaluation, including your de-identified interview responses and lessons learned, will be shared back with the Oral Health Program and other interested stakeholders in an effort to ensure the program benefits dental students, the health centers, and the community.

If you have questions about the interview, how your responses will be used, or the purpose of the evaluation, please contact Dr. Shawnda Schroeder at 701.777.0787 or shawnda.schroeder@UND.edu. If you have questions for the University of North Dakota's Institutional Review Board you may contact und.irb@research.und.edu or 701.777.4279.

Thank you for your participation,

A handwritten signature in blue ink that reads "Shawnda Schroeder".

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If you have questions about the interview, how your responses will be used, or the purpose of the evaluation, please contact Dr. Shawnda Schroeder at 701.777.0787 or shawnda.schroeder@UND.edu. If you have questions for the University of North Dakota's Institutional Review Board you may contact und.irb@research.und.edu or 701.777.4279.

Thank you for your participation,

A handwritten signature in blue ink that reads "Shawnda Schroeder". The signature is fluid and cursive, with the first name "Shawnda" being more prominent than the last name "Schroeder".

Shawnda Schroeder, PhD
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<https://und.edu/directory/shawnda.schroeder>