



Medical-Dental Integration in North Dakota: An Evaluation

December 2021

Health of the mouth has historically been separated from overall health. Individuals who are low-income, underinsured, uninsured, or on public assistance are less likely to visit a traditional dental clinic but more likely to need dental services. Recognizing this health inequity, the North Dakota Department of Health (NDDoH) Oral Health Program (OHP) hired a public health hygienist (PHH) in 2018 to work at the University of North Dakota (UND) Center for Family Medicine (CFM) clinic located in Bismarck, North Dakota. This work was funded by the Health Resources and Services Administration. This report provides a review of the [program](#)¹ along with recommendations for future medical-dental integration in North Dakota.

Evaluation Plan

The OHP subcontracts with Dr. Shawnda Schroeder and her team at the UND School of Medicine & Health Sciences to complete program evaluation. Activities include review of patient data, training evaluation, and assessments of medical resident knowledge and experiences. These activities have been approved by UND's Institution Review Board.

Summary of Key Findings

- In three years of service, (November 2018 - August 2021) the PHH provided preventive dental care to 1,211 patients at the CFM.
- Of those patients, 14% had never visited a dental office and 30% had not been to a dental office in the last year.
- Roughly 71% of those 1,211 patients received a fluoride varnish application from the PHH.
- On average, the PHH saw a larger number of patients per month prior to the COVID-19 pandemic.
- Completing medical residency in a facility that integrates medical and dental care has a positive impact on the oral health knowledge and experience of medical providers.

Fluoride Varnish

Fluoride varnish is a sticky, colorless and tasteless paste that contains high levels of fluoride that helps prevent cavities. If cavities are in the early stages, the fluoride can slow or even stop the cavity process. The entire process is fast, painless and takes less than five minutes to apply.

Understanding Medical-Dental Integration: Role of the PHH

The PHH provides direct preventive dental care services and oral health education to pediatric patients and their families. The PHH works as a member of the medical care team, which includes participating in team huddles, provider meetings, and treatment planning. In addition to providing care and educational resources during a patient’s visit, the PHH worked with CFM to add dental-related resources in the waiting room, though this stopped in March 2020 in response to the COVID-19 pandemic. The PHH also provides educational lunch and learns on oral health topics for both medical residents and medical staff.

The PHH and OHP have developed a manual to assist other primary care clinics and family medical centers in adopting a similar medical-dental integration model in North Dakota. This [Medical-Dental Integration Manual²](#) is continually revised.

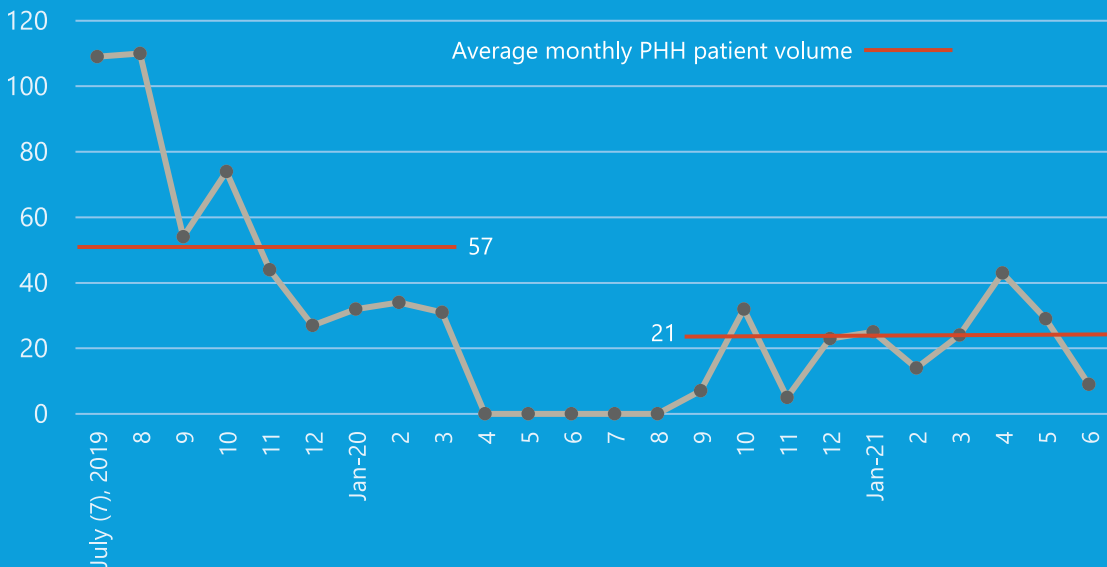
COVID-19 Response

On March 18, 2020, the CFM began operating with only essential staff in response to the global health pandemic (COVID-19). The PHH halted patient education and services. She returned to direct patient care on September 22, 2020.

Community Impact: Patient Reach

Between July 2019 and June 2021, the PHH served 726 patients at CFM. Accounting for the five months of no services, the PHH served an average of 38 patients a month. These patients received oral health screenings, fluoride varnish applications, dental supplies, and dental referral as needed in their primary care facility. However, on average, the PHH saw a larger number of patients per month prior to the COVID-19 pandemic.

Number of Patients Served by the PHH at the Center for Family Medicine (CFM), by Month



Grant year cycles run from September 1 through August 31. In year one, services did not begin in the main clinic until November 2019, and the asthma clinic began services in July 2019. Year two saw a five-month suspension of services in response to the pandemic.

Number of Patients Served by the PHH at the Center for Family Medicine’s (CFM’s) Asthma and Main Clinics: Grant Years One Through Three

	Year One a			Year Two b			Year Three c			TOTAL
	Asthma	Main	Total	Asthma	Main	Total	Asthma	Main	Total	
Referred to PHH	39	437	475	119	177	296	89	351	440	1,211
Refused Screening	4	n.d.	4	12	n.d.	12	10	n.d.	10	26
Fluoride Varnish	19	326	345	63	135	198	47	262	309	852
Dental Supplies	39	391	430	80	148	228	76	256	332	990
Brochure	39	219	258	60	114	174	78	174	252	684
Dental Education d	39	410	449	114	165	279	88	333	421	1,149
Dental Referral	4	205	209	7	86	93	5	139	144	446
Sought Treatment	2	n.d.	2	5	n.d.	5	6	n.d.	6	13

a. Asthma clinic data, July 2019 – August 2019. Main clinic data, November 2018 – August 2019.
 b. Data for both the main clinic and the asthma clinic, September 2019 – March 11, 2020.
 c. Data for both the main clinic and the asthma clinic, September 22, 2020 – August, 2021. n.d. = no data

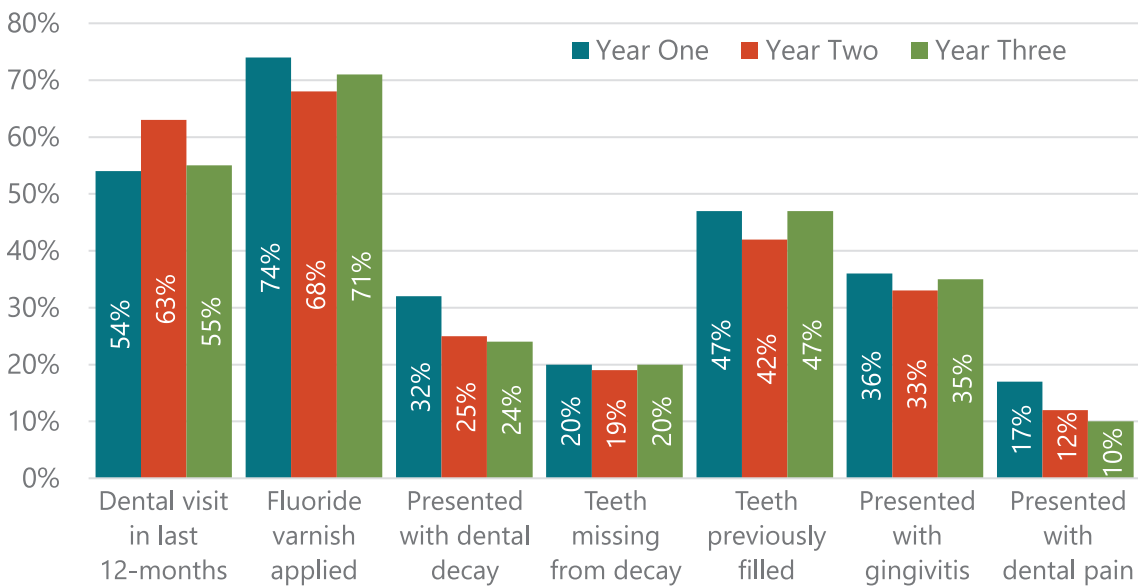




Reach in Year Three

Of the 440 patients from both the main clinic and the asthma clinic, 76% left the office with a new toothbrush and 34% were referred to a dental provider. There was no significant variability by year for patients presenting with dental concerns.

Percentage of Patients Presenting with Dental Concerns, Years One - Three



Training Medical Residents

The PHH hosted two sessions for medical residents in year three. These included:

- Acute Dental Pain: March 2021
- Community Water Fluoridation: June 2021

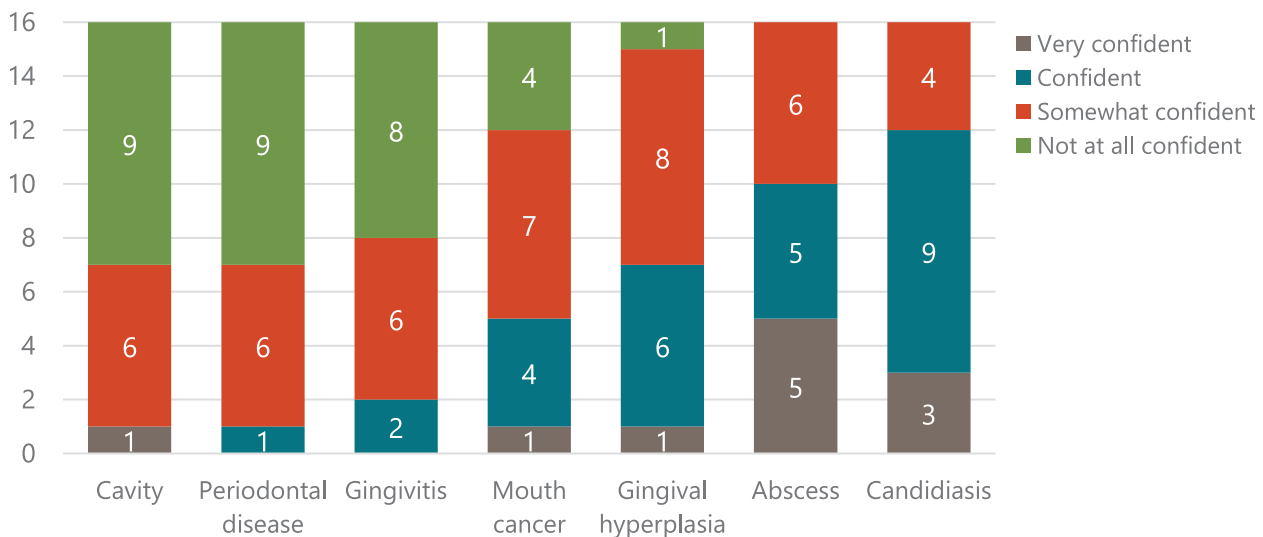
Between 10 and 18 medical residents and clinical care professionals attended each session. Participants completing a training evaluation indicated, on average, that they agreed or strongly agreed that the sessions were relevant to their career, well organized, useful for their work, and enhanced their clinical skills. All either agreed or strongly agreed that they would recommend these sessions to their colleagues. One participant shared the experience of applying fluoride varnish and practicing the clinical skill during the training was really valuable, and that they had never practiced that skill before.

First and Third-Year Residents: Knowledge and Confidence

Sixteen first-year residents were surveyed prior to beginning their residency in the summer of 2019, 2020, and 2021. Among the 16 total first-year residents, 31% had received formal training in medical school related to oral health. Only four (25%) had ever conducted a basic oral health screening and all but one agreed or strongly agreed that oral health is an important factor in overall health.

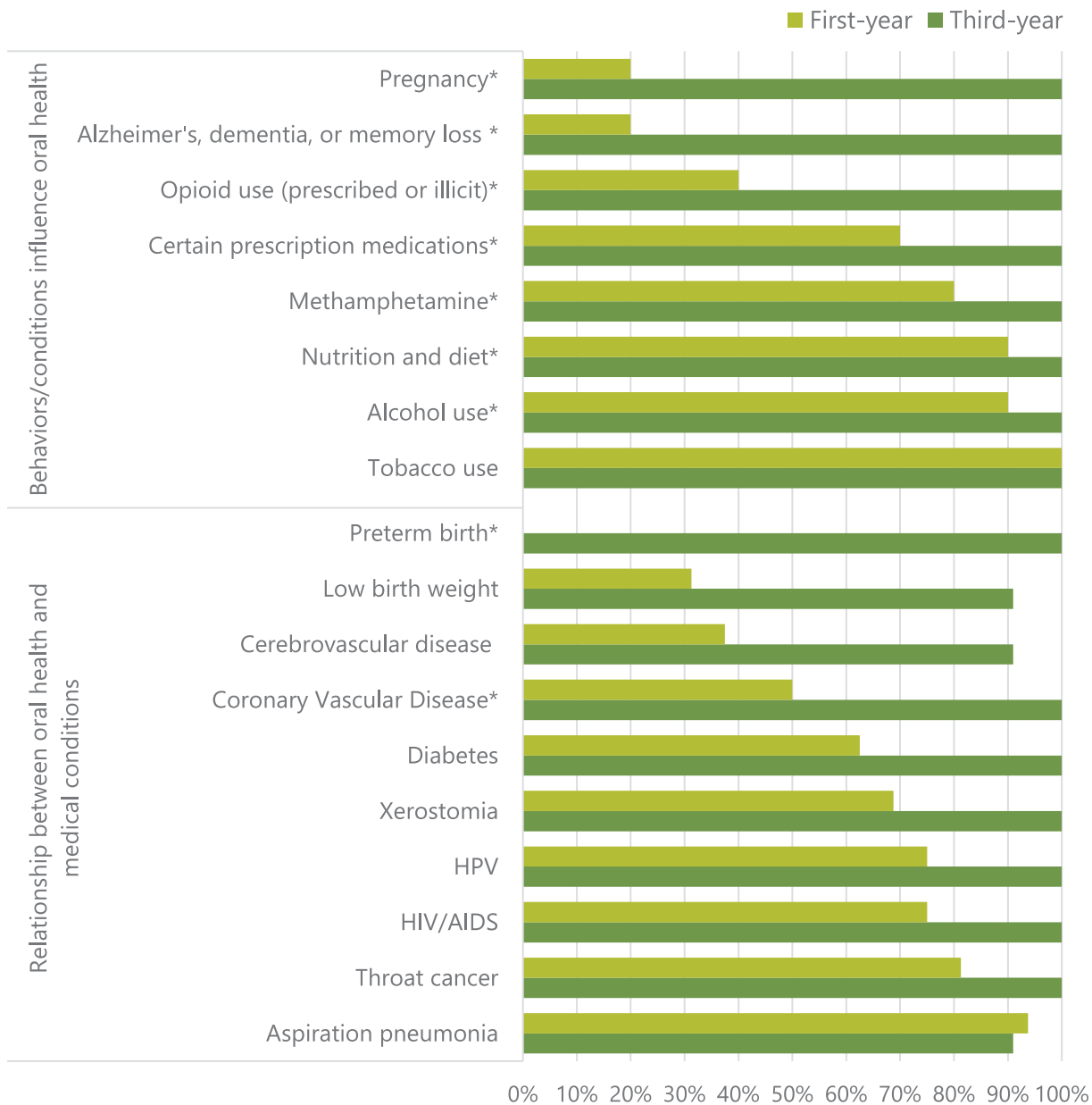
When asked to score their level of comfort identifying a variety of oral health concerns, on average, residents were more comfortable identifying abscess, candidiasis, and gingival hyperplasia. They were less confident in their ability to identify a cavity or periodontal disease.

Number of First-Year Medical Residents by Comfort Level Identifying Common Oral Health Concerns, 2019-2021



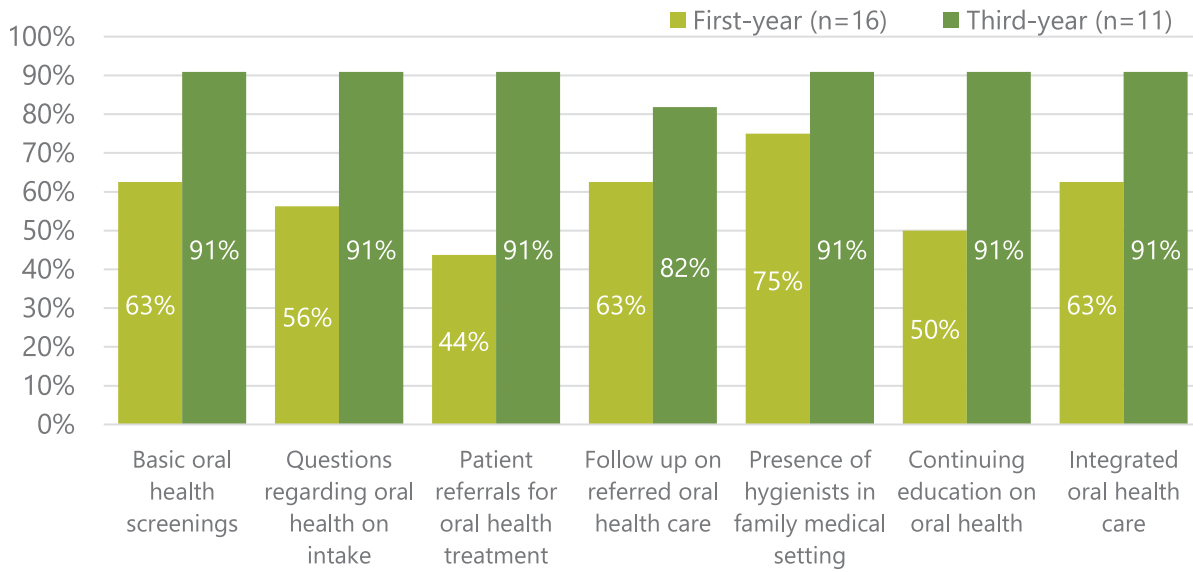
Completing their medical residency in a facility that integrates medical and dental care has a positive impact on the oral health knowledge and experience of these providers. First-year residents were largely unaware of the relationship between pregnancy, dementia, and opioid use on individual oral health. Similarly, they were largely unaware of the relationship between poor oral health and preterm birth, low birth weight, and coronary and cerebrovascular diseases. Conversely, every third-year resident was aware of these relationships outside of one who indicated not being aware of the relationship between oral health and aspiration pneumonia, low birth weight, and cerebrovascular disease.

Percentage of First and Third-Year Medical Residents who were Aware of the Relationship between Behaviors, Medical Conditions, and Oral Health, 2019-2021



After completing their medical residency in a program that has integrated medical and dental care, a large percentage of residents left the program believing it was very important that family medical centers incorporate various oral health services.

Percentage of First and Third-Year Residents Indicating Each Is “Very Important” to Address in a Family Medical Center, 2019-2021 Combined



Summary and Recommendations

Clinical Care

Integrating a PHH, onsite, in a family medical center has an immediate and direct benefit on the oral health of patients in North Dakota, especially the 44% who reported either having never been to the dentist or having not visited in the last 12-months. More than 850 applications of fluoride varnish were applied over the 28 months of service, preventing and slowing tooth decay. The OHP, in partnership with other dental and primary care providers, and both private and public insurers in North Dakota need to work together to develop a sustainable model for integrating additional PHHs into primary care settings throughout the state. This is imperative to offset the growing decline in dental visits, the delayed dental visits among pediatric patients, and the increasing demand on dental offices to focus on treatment (instead of prevention) following delay in care provision in response to the global health pandemic (COVID-19).

Dental Referral

The PHH has not yet identified a strong practice for referral and follow-up for those patients needing dental care. There were 446 patients who were referred for further dental care during the 28 months of service, and only 13 were identified as having sought treatment. Teams should identify what the barriers may be for patients who have been referred to care. A potential barrier may include insurance status of the individual referred. It is imperative that the OHP identify dentists willing to accept new patients, dentists open to accepting pediatric patients, and dental offices willing to accept Medicaid patients and/or to work with patients on payment plans. This gap between referred to, and utilization of, care may also require stronger case management. Patients may need additional follow-up phone calls and/or assistance in making and keeping scheduled dental appointments.

Sealant Application

As of January 28, 2020, a new process was developed for pediatric patients (younger than age 18) in need of dental sealants. If the pediatric patient had not visited the dentist in the last year, and/or they did not have a dental home, their caregiver was given information regarding dental sealants and offered services. However, to date, no dental sealants have been placed in the clinic. The OHP should identify other integrated health systems nationally that have successfully integrated dental sealants into a primary care office. There may be need to educate healthcare providers on the importance of sealants, revise the patient-visit model to suggest sealant application when scheduling the appointment to overcome concerns of time and prepare (share) materials for caregivers that highlight the importance and benefit of dental sealants.

Medical Resident and Clinical Care Team Training

It is clear that students completing their medical residency at a medical center employing a PHH positively impacts the oral health knowledge and care provision among these providers. These data should be highlighted and stress the importance of oral health education among medical residents, and both current and future primary care professionals. One promising practice employed through the OHP and UND is the [Oral Health in Primary Care TeleECHO™ clinic](#)³. These free, 45 to 60 minute, prerecorded trainings can be viewed any time and address best practices in oral health screening, fluoride varnish application, oral health case management, as well as billing for these services in non-dental settings. Each recording includes a didactic lecture and case presentations, as well continuing education credits.

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Citations

1. Public Health Hygienist in a Family Medical Setting: Program Details, health.nd.gov/prevention/oral-health-program/public-health-hygienist-family-medical-setting
2. North Dakota Medical Dental Integration Manual, ruralhealth.UND.edu/assets/3816-16057/medical-dental-integration-manual.pdf
3. Oral Health in Primary Care TeleECHO™ clinic, ruralhealth.UND.edu/projects/project-echo/topics/oral-health