

Evaluation Report: Medical-Dental Integration at the University of North Dakota Center for Family Medicine

North Dakota Department of Health Oral Health Program

September 2020

Prepared by:

Evaluation Team (Authors)

Shawnda Schroeder, PhD, MA
Research Associate Professor
Center for Rural Health
University of North Dakota,
School of Medicine & Health Sciences

Shane Knutson, BS
Center for Rural Health,
University of North Dakota
School of Medicine & Health Sciences

Contributors:

Cheri Kiefer, RN, BSN, RDN, RD
Oral Health Program Director
Division of Health Promotion
North Dakota Department of Health

Vanessa Bopp, PHH, RDH
Public Health Hygienist
Division of Health Promotion
North Dakota Department of Health

EXECUTIVE SUMMARY

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. The primary goal of the project was to enhance the oral public health infrastructure and capacity by placing a public health hygienist in a medical facility to provide care coordination, oral health screenings, fluoride varnish, education, and referrals to low-income and uninsured patients.

Evaluation of this program has been conducted by the Center for Rural Health (CRH) at the University of North Dakota School of Medicine & Health Sciences in partnership with the team at the OHP as well as with the participating family medical center. This report provides a comprehensive review of the program along with recommendations for future medical-dental integration in North Dakota.

EVALUATION RESULTS

The PHH, employed by the OHP, is tasked with providing oral health education to medical residents and medical staff and providing direct oral health care preventive 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 education and resources during a patient's visit, the PHH worked with CFM to add dental related resources in the waiting room. This grant year the PHH also provided two 30-minute educational lunch and learns. These sessions are intended for the residents, but clinical care staff are welcome. 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. To date, no dental sealants have been placed in the clinic.

COVID-19 Response

On March 18, 2020, the UND CFM began operating with only essential staff due to the coronavirus (COVID-19) pandemic. As a result, the PHH halted patient education and services in the clinic and, as an employee of the NDDoH, was reassigned to respond to COVID-19 activities.

On July 20, the PHH welcomed the new class of medical residents at the UND CFM. At that time, the PHH made herself available to all residents and clinical providers. She shared her phone number and stated that she was available to answer general questions around oral health. The UND CFM and OHP continue to meet regularly and brainstorm new ways to utilize the PHH and improve patient oral health while recognizing the restrictions in place given the current global health pandemic.

Patient Reach

Overall, the PHH screened 298 patients, provided fluoride varnish to 152 (51%), gave a brochure to 181 (61%), provided dental education to 282 (95%), gave dental supplies to 230 (77%), and referred 107 (36%) patients to a dentist in the 6.5-month timeframe. A greater percentage of patients who were

referred to the PHH from the main clinic (54%) were referred to a dentist than those that were referred from the asthma clinic (8%). A greater percentage of patients from the main clinic were also given dental supplies than those seen in the asthma clinic.

Of the 298 patients from both the main clinic and the asthma clinic who were screened by the PHH:

- 61% received an educational brochure from the PHH.
- 95% were given verbal oral health education from the PHH.
- 77% received dental supplies from the PHH.
- 67% received an application of fluoride varnish.
- 37% were referred to a dentist.

Among **age cohorts**, there was variability around fluoride application, dental referrals, and the provision of dental supplies. Although 71% of those ages 0-2 and 71% of those 18 and older received fluoride varnish application, the same was true for only 65% of those between the ages of 3-17.

A greater percentage of those **without insurance** were referred to a dentist, received fluoride varnish, and were given an oral health brochure. For example, only 54% of those with some form of private or public health insurance were referred to a dentist compared to 82% of those without any form of health insurance.

Based off of the date of their last dental visit, regardless of race, nearly one in four patients in the main clinic reported they had never visited a dentist. A greater percentage of individuals who identified as American Indian/Alaska Native, Black or African American, or other race were referred to a dentist than those who were White. There was also variability by **race** for rate of fluoride varnish application and provision of dental supplies, dental education, and oral health brochures. In nearly every comparison, a greater percentage of American Indian/Alaska Native patients presented with oral health need when compared to any other racial group.

Based off of the date of their last dental visit, a greater percentage of individuals with health insurance (41%) than those without health insurance (21%) had visited the dentist in the last year. However, a greater percentage of those with health insurance (27%) reported never having been to a dentist compared to those with no health insurance (10%). A greater percentage of those without any public or private insurance presented with possible decay, missing teeth, filled teeth, gingivitis, tooth pain, and a need for dental care referral. For example, only 26% of patients with some form of public or private health insurance presented with missing teeth due to cavities compared to 58% of those with no health insurance.

Oral Health Training for Medical Residents

Training Evaluations

The PHH provided two 30-minute educational lunch and learns on October 23, 2019, (Geriatric Oral Health) and January 22, 2020, (Child Oral Health). On average, there was strong agreement that the trainings were well organized, relevant, and useful. One open-ended comment regarding the geriatric training included, “not enough time to complete lecture. A small pamphlet or handout with most useful points would be great for use.”

Assessments of First- and Third-Year Medical Residents

Six individuals completed a pre-assessment in 2019, and eight completed the pre-assessment survey in 2020 for a total of 14 first-year medical residents. Five individuals completed a post-test in 2019, and three completed the post-assessment in 2020 for a total of eight third-year medical residents. A majority of first-year medical residents are not aware of the relationship between oral health and:

- Low birth weight (64% unaware)
- Cerebrovascular disease (64% unaware)
- Preterm birth (100% unaware)
- Pregnancy (75% unaware)
- Opioid use (63% unaware)
- Alzheimer's, dementia, and/or memory loss (75% unaware)

Conversely, every third-year resident was aware of the connection to oral health for listed behaviors/conditions. Only one of the eight residents indicated not being aware of the relationship between oral health and aspiration pneumonia, low birth weight, and cerebrovascular disease. A greater percentage of third-year residents than first-year indicated that it was *very important* that family medical centers incorporate various oral health services to include patient referrals, basic oral health screens, and integrated oral health.

RECOMMENDATIONS

Based on the evaluation findings outlined in the following report, the CRH has made the following recommendations.

1. The PHH, in partnership with the OHP and the CRH, developed a manual to assist other primary care clinics and family medical centers in adopting medical-dental integration models. It is recommended that this training manual is time stamped, reviewed regularly, and updated as processes change. It is especially important to update the manual in response to any innovative promising practices implemented to address oral health during a global health pandemic. There are opportunities to explore teledentistry and virtual case management. It is also recommended that the OHP allocate time and resources to disseminate the manual.
2. The data collection at UND CFM does not mirror the data collected in the asthma clinic. UND CFM, the OHP, and the CRH should work together to create two standardized data collection instruments so that patient-specific data from both the main clinic and asthma clinic can be combined and reviewed. Conversations have begun on this topic, and the CRH is working on a revised data collection tool for the asthma clinic.
3. 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.
 - Prepare materials for parents that highlight the importance and benefit of dental sealants.

4. Roughly 88% of those referred for dental care did not seek treatment. The CRH evaluation team should work with the PHH, OHP, and UND CFM to 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 (82% of those without insurance were referred for dental care compared to only 54% of those with insurance). 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 for care and utilizing care may also require stronger case management at UND CFM. Patients may need additional follow-up phone calls and/or assistance in making and keeping scheduled dental appointments. This is also an opportunity to identify barriers to care utilization and assist in identifying solutions.
5. Roughly 79% of patients between the ages of 0-2 had never been to the dentist. The OHP and PHH should work with both the clinical care teams at UND CFM and the medical residents to stress the importance of a dental visit at the time of tooth eruption. This education should also be relayed to parents of young children as well as individuals who are pregnant. The OHP should identify existing materials on the importance of dental visits in the first years of life, and if there are not any relevant for this audience, consider developing one that can be shared with patients. It is also important that the OHP and PHH secure a list of available pediatric dentists. It may be necessary to conduct an assessment among North Dakota dentists to determine availability of pediatric care, but more specifically, care for those ages 2 and younger.
6. These data can be utilized with other data in the state to stress the oral health disparities in North Dakota. It is imperative that there are unique strategies developed to specifically address the oral health needs among American Indian and Alaska Native populations, as well as a need to address dental care access and utilization among lower income and uninsured individuals.
7. As the PHH develops training for medical residents and clinical care staff, they would be well served to identify and/or develop simple handouts or products that could accompany the training and serve as a resource for the clinical care teams in the future.
8. A majority of first-year medical residents were not aware of the relationship between oral health and low birth weight (64% unaware), cerebrovascular disease (64% unaware), preterm birth (100% unaware), pregnancy (75% unaware), opioid use (63% unaware), and Alzheimer's, dementia, and/or memory loss (75% unaware). Conversely, every third-year resident was aware of the connection to oral health for listed behaviors/conditions. A greater percentage of third-year residents than first-year indicated that it was very important that family medical centers incorporate various oral health services, including basic oral health screens, patient referral, a PHH onsite, and integrated oral health care. It is clear that students completing their medical residencies at a medical center that has a level of medical-dental integration positively impacts the oral health literacy of the future providers. These data should be highlighted and stress the importance of oral health education among medical residents and future primary care professionals. An area with a significant gap in knowledge related to the relationship between oral health and pregnancy, preterm birth, and low birth rate. It is recommended that the OHP consider expanding services to specifically address women's health and pregnancy. There is opportunity to connect pregnant persons with the PHH during one of their first and one of their last prenatal visits. At the first meeting, the PHH can stress the importance of oral health and pregnancy while at the later visit, the PHH can stress how important dental care is for children in their first years of life.

Table of Contents

EXECUTIVE SUMMARY	2
INTRODUCTION	8
<i>NORTH DAKOTA DEPARTMENT OF HEALTH ORAL HEALTH PROGRAM</i>	8
<i>MEDICAL-DENTAL INTEGRATION</i>	8
EVALUATION METHODS	9
<i>METHODS</i>	9
Dental Education and Services Provided: Patient Data Review	9
Oral Health Training for Medical Residents	9
Interviews with Oral Health Program Staff	10
MEDICAL-DENTAL INTEGRATION MODEL: EVALUATION RESULTS	11
<i>UND CENTER FOR FAMILY MEDICINE</i>	11
<i>ROLE OF THE PUBLIC HEALTH HYGIENIST (PHH)</i>	11
Dental Services, Education, and Training Provided by the PHH	12
Procedural and Workflow Changes in Year Two	13
<i>COVID-19 RESPONSE</i>	14
PATIENT DATA: EVALUATION RESULTS	15
<i>DENTAL SERVICES AND PATIENT EDUCATION PROVIDED IN YEAR TWO</i>	15
<i>INEQUITIES IN ORAL HEALTH STATUS</i>	20
Racial Inequities	20
Age Inequities	21
Gender Inequities	22
Oral Health Inequities by Insurance Type	23
ORAL HEALTH TRAINING FOR MEDICAL RESIDENTS: EVALUATION RESULTS	24
<i>TRAINING EVALUATIONS</i>	24
<i>ASSESSMENTS OF FIRST- AND THIRD-YEAR MEDICAL RESIDENTS</i>	25
Pre-Assessment	25
Post-Assessment	28
SUMMARY AND RECOMMENDATIONS	31
CITATIONS	33
ACKNOWLEDGEMENTS	34
<i>APPENDIX A: NDDoH Organizational Chart</i>	35
<i>APPENDIX B: Training Evaluations</i>	36
<i>APPENDIX C: Pre-Rotation Survey of First-Year Medical Residency Students</i>	37
<i>APPENDIX D: Post-Rotation Survey of First-Year Medical Residency Students</i>	41
<i>APPENDIX E: Electronic Dental Record</i>	45
<i>APPENDIX F: Sample of Materials Provided by PHH for Patient Education</i>	49
<i>APPENDIX G: Brushing and Flossing Calendar for Patients</i>	53
<i>APPENDIX H: Book Available in Patient Waiting Room</i>	54
<i>APPENDIX I: Bright Futures: Oral Health Pocket Guide</i>	55
<i>APPENDIX J: Clinical Workflow for Medical-Dental Integration</i>	56
<i>APPENDIX K: Patient Information on Dental Sealants</i>	57

ABBREVIATIONS

American Dental Association	ADA
Center for Rural Health	CRH
Electronic Health Record	EHR
Health Resources and Services Administration	HRSA
North Dakota Department of Health Oral Health Program	NDDoH OHP
Obstetrics and Gynecology	OB/GYN
Public Health Hygienist	PHH
University of North Dakota Center for Family Medicine	ND CFM

INTRODUCTION

NORTH DAKOTA DEPARTMENT OF HEALTH ORAL HEALTH PROGRAM

The mission of the [North Dakota Department of Health \(NDDoH\)](#)^a is to “improve the length and quality of life for all North Dakotans.” The NDDoH is committed to: improving the health status of the people of North Dakota; improving access to and delivery of quality health care and wellness services; promoting a state of emergency readiness and response; achieving strategic outcomes using all available resources; strengthening and sustaining stakeholder engagement and collaboration; and managing emerging public health challenges.^b The [NDDoH Oral Health Program \(OHP\)](#)^c is located within section two, healthy and safe communities, under the [Division of Health Promotion](#).^d See Appendix A for a copy of the NDDoH organizational chart.

The mission of the OHP 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 health care.
- Identifying and reducing oral health disparities among specific population groups.
- Facilitating the transfer of new research into practice.

MEDICAL-DENTAL INTEGRATION

Health of the mouth has historically been separated from overall health. Additionally, research is clear that 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 OHP wrote for, and secured, a four-year grant from the [Health Resources and Services Administration](#)^e (HRSA) under the [Grants to States to Support Oral Health Workforce](#)^f program. The grant award runs from September 1, 2018, through August 31, 2022. One of the four proposed goals includes placing a public health hygienist (PHH) in a family medical center to assess the value of medical-dental integration for the patient, the primary care providers, future physicians, and the dental team member.

GOAL: Enhance the oral public health infrastructure and capacity by placing a public health hygienist in a medical facility to provide care coordination, oral health screenings, fluoride varnish, education, and referrals to low-income and uninsured patients.

The OHP hired a PHH in 2018 to work at the University of North Dakota (UND) Center for Family Medicine (CFM) clinic located in Bismarck, North Dakota. The original patient focus was pediatric care, but services have expanded to an asthma clinic and to obstetrics and gynecology (OB/GYN). Evaluation of this program has been conducted by the team at the Center for Rural Health (CRH) at the University of North Dakota School of Medicine & Health Sciences in partnership with the team at the OHP as well as with the participating family medical center. This report provides a comprehensive review of the program along with recommendations for future medical-dental integration in North Dakota.

EVALUATION METHODS

In year two of the program (September 1, 2019 – August 31, 2020), the OHP subcontracted with the CRH at the University of North Dakota School of Medicine & Health Sciences to evaluate the OHP's work related to medical-dental integration. In year one, the Center for Social Research at North Dakota State University conducted the evaluation.

METHODS

In the fall of 2019, the CRH evaluation team reviewed the previous year's data and medical resident survey tools and results. The CRH team then developed an evaluation plan, interview protocols, survey instruments, training evaluations, and data requests. When templates had been developed, the CRH and the OHP met in person. After finalizing the evaluation plan and materials, the CRH submitted for, and received, approval from the University of North Dakota's Institution Review Board. Evaluation activities included:

- Review of de-identified data on patients served in the asthma clinic.
- Review of de-identified data on patients served at the UND CFM.
- Pre-survey of first-year medical residents completing a residency at the UND CFM.
- Post-survey of third-year medical residents completing a residency at UND CFM.
- Training evaluations (electronic survey).
- Interview with the OHP staff (to include the PHH) managing the program.

Dental Education and Services Provided: Patient Data Review

Patient data at the UND CFM is collected in the clinic's electronic health record (EHR). De-identified patient data were provided by UND CFM and by the PHH who is responsible for collecting data related to the asthma clinic. The data from both the UND CFM and the asthma clinic were cleaned, merged into a single file, and were reviewed for the following evaluation. Data included services provided, education materials provided, insurance status, age, dental referral, and fluoride varnish application among others.

Oral Health Training for Medical Residents

The PHH provided two 30-minute educational lunch and learns on October 23, 2019, (Geriatric Oral Health) and January 22, 2020, (Child Oral Health). These sessions were intended for the UND CFM residents, but other clinical care staff were welcome. An electronic training evaluation was developed and administered among medical residents. Six individuals completed a training evaluation in January, and nine completed the evaluation in October. The training evaluations asked each attendee to indicate their level of agreement to six statements. Agreement was measured as Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5; and, [Not applicable] = No score. A copy of the training evaluations is presented in Appendix B.

In addition to the specific training evaluations, a questionnaire was developed and administered among medical residents both before and after completing their three-year residency. The pre-test is a paper questionnaire they are invited to complete at the beginning of their three-year residency program, and the post-test is provided to those completing the program. The pre-test gauges medical residents' levels

of awareness of the correlation between oral health and certain medical conditions, their ability to identify oral health conditions, and their perceptions of the importance of oral health integration in a family healthcare setting. The post-test assesses if medical residents' awareness, ability to identify oral health conditions, or perceptions changed during the course of their three-year residencies. Any potential change in perceptions could be a result of any number of factors. However, the evaluation model presumes that changes in awareness, perceptions, or ability to identify oral health conditions would be, at least to some degree, a result of exposure to the PHH in a medical setting and educational materials designed specifically to improve medical residents' and other clinic practitioners' understanding of the linkage between oral health and overall health.

In year one of the grant cycle, a pre-test was administered to first- and second-year residents who were beginning their residency programs on July 1, 2019. A post-test was administered to residents who began their residency programs in July 2016 and completed their residency programs in June 2019. Going forward, first-year residents will receive a pre-test and third-year residents will receive a post-test. It is important to note that in the first year of the evaluation, medical residents did not indicate any identifier on the survey, so it is not possible to compare individuals over time. In year two (surveys completed June and July 2020), the surveys have a unique participant code that allows the respondent to remain anonymous but also allows evaluators to link the pre- and post-survey results over time. See Appendix C-D for copies of both the pre- and post-surveys for medical residents.

Interviews with Oral Health Program Staff

The CRH evaluation team contacted the director of the OHP as well as the PHH providing services at CFM. Both individuals worked closely with the evaluation team throughout the funding period, but formal interviews were held to assess their experiences with this particular grant goal. The interviews took between 15 and 20 minutes, and both occurred by videoconference. 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.

MEDICAL DENTAL INTEGRATION MODEL: EVALUATION RESULTS

The OHP hired a PHH in 2018 to work at the UND CFM clinic located in Bismarck, North Dakota. The purpose of placing the PHH in the family medical center was to assess the value of medical-dental integration for the patient, the primary care providers, future physicians, and the dental team member. The original patient focus was pediatric care, but services have expanded to a pediatric asthma clinic and to obstetrics and gynecology (OB/GYN) at UND CFM.

UND CENTER FOR FAMILY MEDICINE

The UND CFM is staffed by a team of caring and dedicated residents and seasoned doctors, all working together to serve the people of North Dakota. UND CFM is located in Bismarck, North Dakota, and provides preventive and urgent care treatments for pediatric, adult, and geriatric patients.



The UND CFM is a teaching clinic. They help educate doctors specializing in family medicine. During a patient's initial visit, they may be seen by a resident physician (a doctor who has completed medical school and is in residency training) and/or a faculty physician who will instruct the resident if present. Faculty physicians must meet a specific time commitment to provide patient care and supervision to residents.

Services Provided at UND Center for Family Medicine in Bismarck

- General medicine
- Pediatric care
- Skin care
- Geriatrics
- Home visits
- Immunizations
- Obstetrics and gynecology (OB/GYN)
- Colon cancer screening and colonoscopy
- Stress EKG and pulmonary function tests
- Access to laboratory and x-ray tests
- Casts, stitches, and other minor procedures
- Parenting advice and counseling

ROLE OF THE PUBLIC HEALTH HYGIENIST (PHH)

The PHH, employed by the OHP, is tasked with providing oral health education to medical residents and medical staff and providing direct oral health care preventive 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.

As part of this program, the PHH incorporated oral health care coordination services in the pediatric department in 2018 and developed policies, procedures, and promotional and educational materials. As part of the HRSA-funded program, the PHH, in partnership with the OHP and the CRH, also developed a manual to assist other primary care clinics and family medical centers in adopting similar medical-dental integration model. This [Medical-Dental Integration Manual](#) is continually revised.⁸

The PHH and the OHP also developed a standardized patient data collection tool to document oral health services and provided education and dental referrals. The PPH worked with UND CFM Information Technology Department to implement this data collection model and to maintain a workflow through the UND CFM electronic health record (EHR). The ability to integrate the workflow (an electronic dental record) into the existing EHR allows the OHP to monitor patient care and referral and allows the program to track progress, de-identified patient data, and to inform the program evaluation. In the last year, the program expanded beyond pediatric care and now provides services in an asthma clinic and for OB/GYN patients as well. See Appendix E for a copy of the patient data collected in the electronic dental record as part of the health system's EHR.

Dental Services, Education, and Training Provided by the PHH

The PHH is responsible for several activities related to oral health prevention and education. These activities include:

- Completing oral health assessments.
- Offering oral health education, including nutrition counseling on how diet affects the health of teeth. See Appendix F for an example of brochures and educational materials that are available in the waiting room and provided to patients during their appointments.
- Applying fluoride varnish to the teeth of individuals who are identified as high-risk and between the ages of 0-21.
- Referring and scheduling dental appointments for patients as needed.
- Providing follow-up care to ensure recommended dental treatment was completed and patients have identified a dental home.
- Providing [Smiles for Life](#)^h oral health training for the medical residents and staff.
- Developing a medical-dental integration training manual for other interested family medicine and primary care clinics.

Exam rooms include dental-related posters and educational materials. When a patient or child struggled with learning a brushing/flossing routine, the PHH would provide a [monthly schedule](#)ⁱ to help them reach and track a goal to increase their brushing or flossing habits. This schedule was provided by the American Dental Association (ADA) and can be found in Appendix G. When the PHH saw that same patient again, she would follow up on how the chart was working, and pediatric patients loved it.

In addition to providing education and resources during a patient's visit, the PHH worked with CFM to add dental-related resources in the waiting room. See Appendix F for examples of the materials provided by the ADA. The waiting room was outfitted with brochures for the adults, dental coloring pages for the children, and a children's book titled "Ready, Set, Brush" (see Appendix H). These resources were popular. However, front desk staff at the clinic requested that the coloring pages and be removed because they were making a mess. The book was also later removed because of damage.

This grant year the PHH also provided two 30-minute educational lunch and learns on October 23, 2019, (Geriatric Oral Health) and January 22, 2020, (Child Oral Health) utilizing the Smiles for Life curriculum. These sessions are intended for the UND CFM residents, but other clinical care staff are welcome. These

lectures were recorded and are mandatory for all medical residents to view as part of their curriculum. The recorded lectures continue to be made available to six other UND campus sites for future viewing.

After review of evaluation activities in year two, the PHH also made a hard copies of the [Bright Futures: Oral Health Pocket Guide](#) available to medical residents. In the resident survey, medical residents had shared that having a hard copy of the information discussed during the lunch and learns would be helpful. In June 2020, the PHH sent an email to all medical residents, sharing the availability of the pocket guide and encouraging them to pick one up prior to leaving the clinic. At this time, the PHH was no longer in the office as a result of COVID-19 and had to simply make the guide available as opposed to handing them out directly. See Appendix I for more information on the pocket guide.

Bright Futures: Oral Health Pocket Guide

The pocket guide provides health professionals with an overview of preventive oral health supervision and includes information about risk assessment, a tooth eruption chart, a dietary fluoride supplementation schedule, a glossary, and a list of resources. The pocket guide was produced by the National Maternal and Child Oral Health Resource Center.

Procedural and Workflow Changes in Year Two

The PHH and the UND CFM staff and residents work together to maintain a workflow allowing all staff involved to see their patients. Providers place a picture of a tooth on patient doors to signify the patient needs to be seen by the PHH. Once the patient has been seen, the PHH removes the picture from the door to alert UND CFM staff. See Appendix J for the clinical workflow diagram.

Prior to this program, nursing staff had been applying fluoride varnish primarily to children with medical coverage and at the expense of the patient. Once the medical-dental integration pilot started, the PHH was the only staff at CFM to apply fluoride varnish but did so for all pediatric patients identified and at no cost. Nursing staff now also consistently ask patients, regardless of age, when they had their last dental appointment. Among adults, if it has been more than a year or there is a need for a new dental home, the nursing staff offer the services of the PHH. Services include fluoride varnish application, dental hygiene education, help finding a dental home, and/or dental referral. For children, the PHH's services are offered to any child, with a special focus on children who have not been to a dentist within the last year and/or those needing a dental home. All children who visited CFM for a wellness check were offered a fluoride treatment following the ADA's [ADA's guidelines for treatment frequency](#).

The PHH developed referral procedures with three dental offices. With one office, the patient information is bidirectional and the PHH and the one identified dental provider are improving upon the procedure for information flow. After the referral has been faxed to that dental office, the dental office notifies UND CFM (the PHH) if patient was able to be contacted and/or if that patient sought/received dental treatment. There are plans to expand bidirectional referrals to the other dental providers as well after the process has been approved. 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. See Appendix K for the information provided to patients regarding dental sealants. To date, no dental sealants have been placed in the clinic.

COVID-19 RESPONSE

On March 18, 2020, the UND CFM began operating with only essential staff due to the coronavirus (COVID-19) pandemic. As a result, the PHH halted patient education and services in the clinic and, as an employee of the NDDoH, was reassigned to respond to COVID-19 activities. During this time, the evaluation team also worked with the DoH OHP team to identify opportunities to improve the program. It was identified that the PHH could use time outside of the clinic to develop materials that coincide with the medical student trainings.

On July 20, the PHH welcomed the new class of medical residence at the UND CFM. At that time, the PHH made herself available to all residents and clinical providers. She shared her phone number and stated that she was available to answer general questions around oral health. The UND CFM and OHP continue to meet regularly and brainstorm new ways to utilize the PHH and improve patient oral health while recognizing the restrictions in place given the current global health pandemic.

PATIENT DATA: EVALUATION RESULTS

The PHH began seeing patients at the UND CFM in November 2018 and added patients attending the asthma clinic in July 2019. Year one of the grant included 10 months of data for UND CFM and two months of data for the asthma clinic. Year two of the grant includes only 6.35 months of data because services stopped March 18, 2020, in response to the COVID-19 pandemic. The number of services provided in years one and two cannot be compared because they occurred over variable timeframes. However, in year one, the PHH provided 474 dental screenings over 10 months, for an average of 47 screenings a month. In year two, the PHH provided 298 dental screenings over 6.35 months for an average of 47 dental screenings a month. Productivity was nearly identical. See Table 1.

Table 1. Patients Seen by the Public Health Hygienist at the University of North Dakota Center for Family Medicine

	Asthma clinic monthly average		Main clinic monthly average		Total monthly average	
	Year one	Year two	Year one	Year two	Year one	Year two
Referred to the PHH	*	21	*	30	*	51
Refused screening	*	2	*	2	*	4
Screened by the PHH	20	19	43	28	47	47
Fluoride varnish applied	10	10	19	14	20	24
Brochure given	*	9	26	19	*	29
Dental education	*	18	41	26	*	44
Given dental supplies	*	13	37	24	*	36
Refused screening	*	2	*	2	*	4
Referred to dentist	2	2	19	15	19	17
Sought treatment	1	1	4	1	4	2

Notes: Year one asthma clinic data were from July 2019 – August 2019 (2 months).

Year one main clinic data were from November 2018 – August 2019 (10 months).

Year two data for both the main clinic and the asthma clinic were from September 2019 – March 11, 2020, (6.35 months).

* No year one data available.

DENTAL SERVICES AND PATIENT EDUCATION PROVIDED IN YEAR TWO

In the asthma clinic, 131 patients were referred to the PHH. Of those 131, 12 refused screening and 119 were screened. Fluoride varnish was applied to 63 of those patients (53%). See Table 2. Of the patients screened, 50% were given a brochure, 96% received dental education from the PHH, and 67% were given dental supplies. See Figure 1. Ten of these patients were referred to dentist, but only five of those 10 sought treatment.

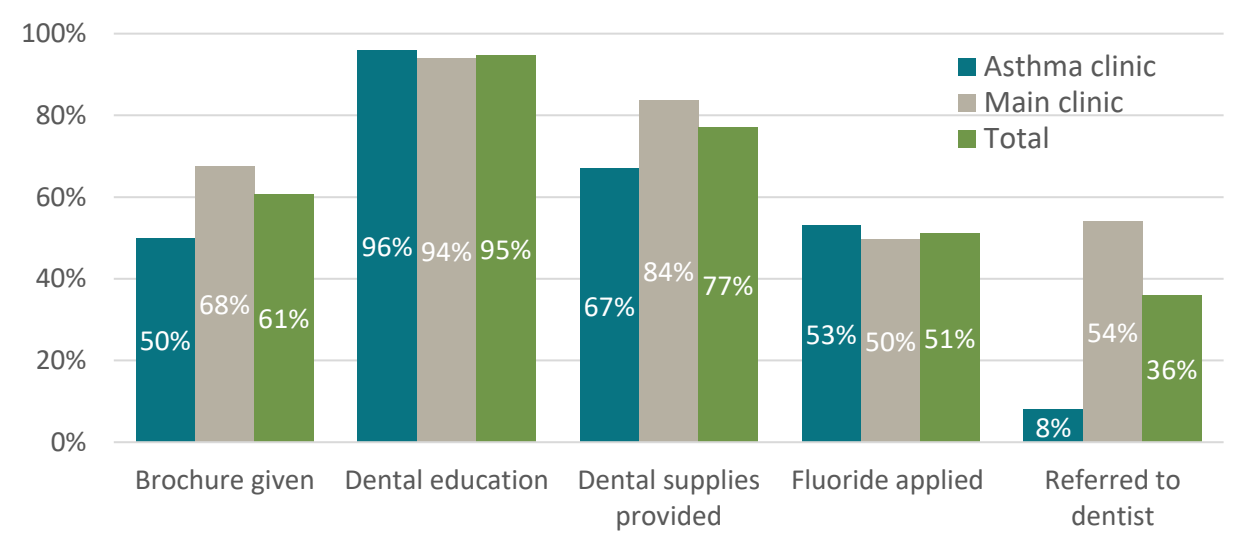
In the main clinic, 190 patients were referred to the PHH. Of those 190, 11 refused screening and 179 were screened. Fluoride varnish was applied to 89 of those patients (50%). See Table 2. Of the patients screened, 68% were given a brochure, 94% received dental education from the PHH, and 84% were given dental supplies. See Figure 1. Roughly 54% of patients screened (97) were referred to dentist, but only eight of those 97 sought treatment.

Overall, the PHH screened 298 patients, provided fluoride varnish to 152 (51%), gave a brochure to 181 (61%), provided dental education to 282 (95%), gave dental supplies to 230 (77%), and referred 107 (36%) patients to a dentist in the 6.5-month timeframe. See Table 2 and Figure 1. A greater percentage of patients who were referred to the PHH from the main clinic (54%) were referred to a dentist than those who were referred from the asthma clinic (8%). A greater percentage of patients from the main clinic were also given dental supplies than those seen in the asthma clinic. See Figure 1.

Table 2. Patients Seen by the Public Health Hygienist at the University of North Dakota Center for Family Medicine

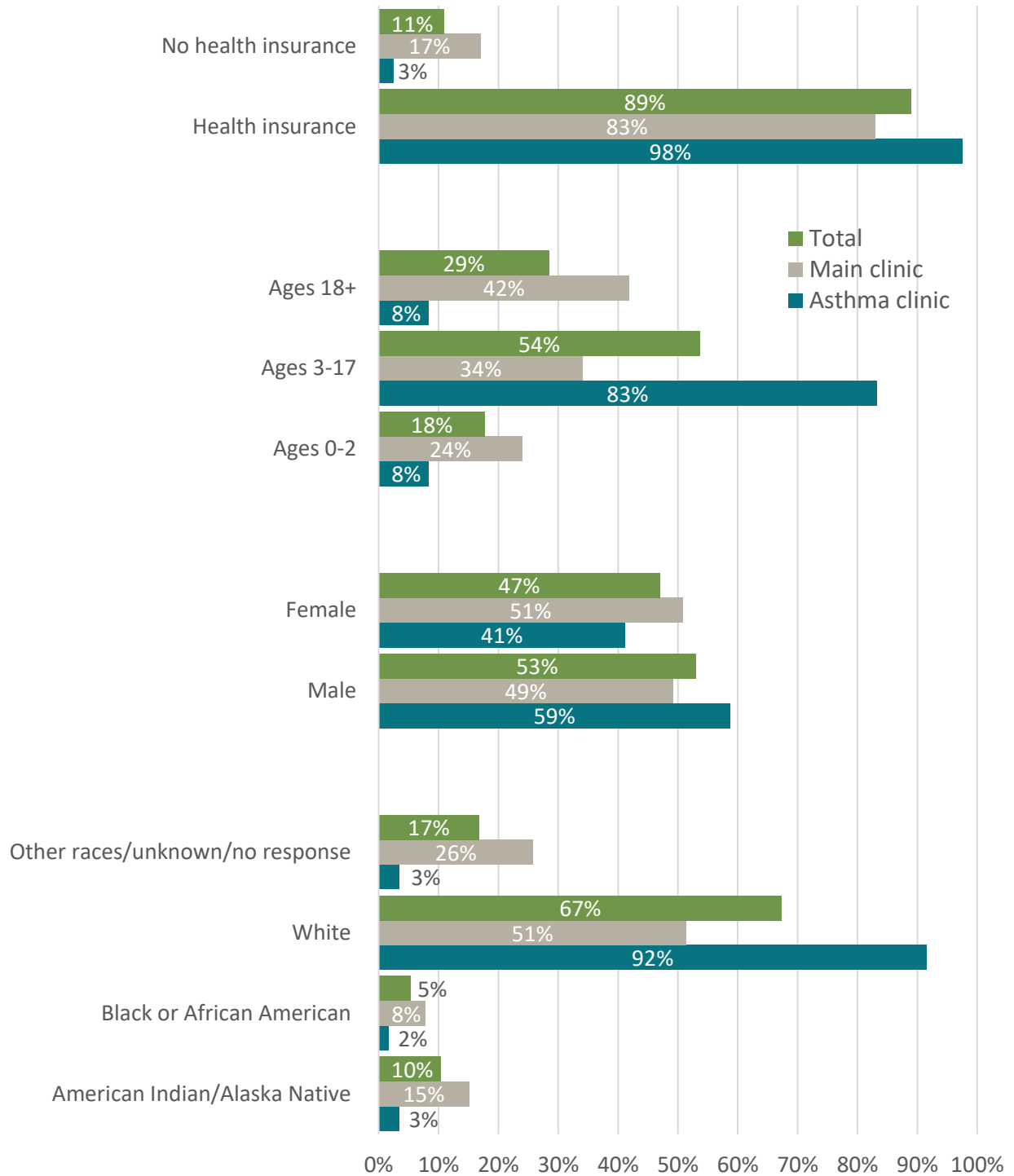
09/01/2019	03/11/2020	Asthma Clinic	Main Clinic	Total
	Referred to the PHH	131	190	321
	Refused screening	12	11	23
	Screened by the PHH	119	179	298
	Fluoride varnish applied	63	89	152
	Brochure given	60	121	181
	Dental education	114	168	282
	Given dental supplies	80	150	230
	Refused screening	12	11	23
	Referred to dentist	10	97	107
	Sought treatment	5	8	13

Figure 1. Percent of Patients Who Received Dental Services and Oral Health Education by Clinic Type, Sept. 2019 - March 2020



Overall, patients were predominately White (67%), between the ages of 3-17 (54%), and held some form of private or public health insurance (89%). However, there was variability by clinic type. See Figure 2.

Figure 2. Demographic and Socioeconomic Variability Between Clinic Types, Sept. 2019 - March 2020

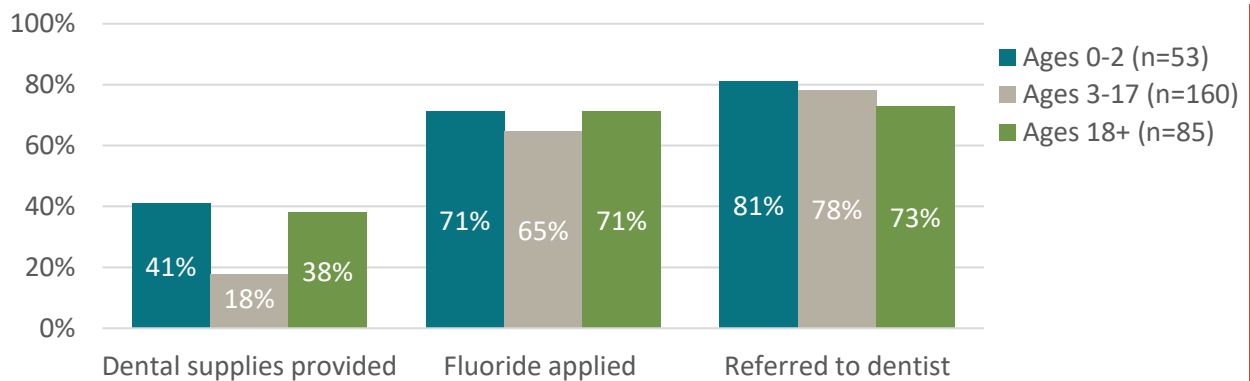


Of the 298 patients from both the main clinic and the asthma clinic who were screened by the PHH:

- 61% received an educational brochure from the PHH.
- 95% were given verbal oral health education from the PHH.
- 77% received dental supplies from the PHH.
- 67% received an application of fluoride varnish.
- 37% were referred to a dentist.

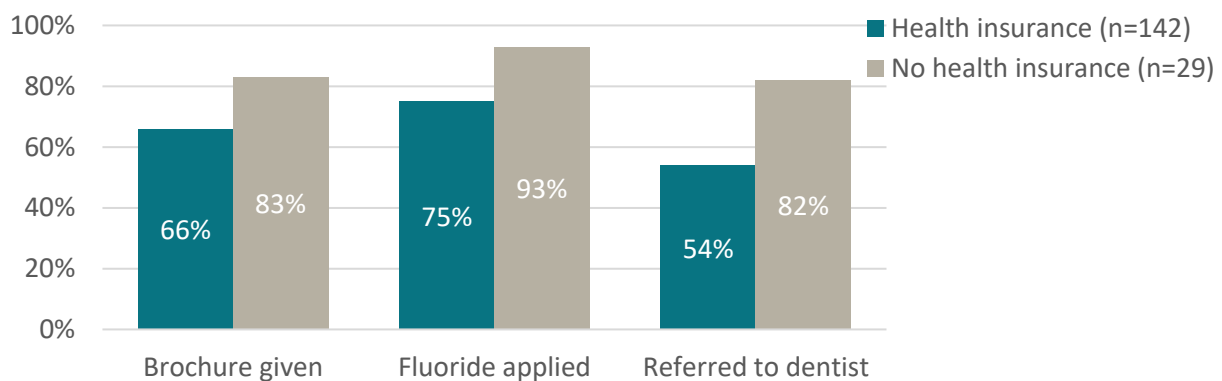
There was little variability by gender for all of the oral health education measures except for reception of a brochure. Only 56% of males accepted a brochure on oral health compared to 66% of females. Among age cohorts, there was variability around fluoride application, dental referrals, and the provision of dental supplies. See Figure 3. Although 71% of those ages 0-2 and 71% of those 18 and older received fluoride varnish application, the same was true for only 65% of those between the ages of 3-17.

Figure 3. Percent of Patients Who Received Dental Services and Oral Health Education by Age Cohort: Sept. 2019 - March 2020



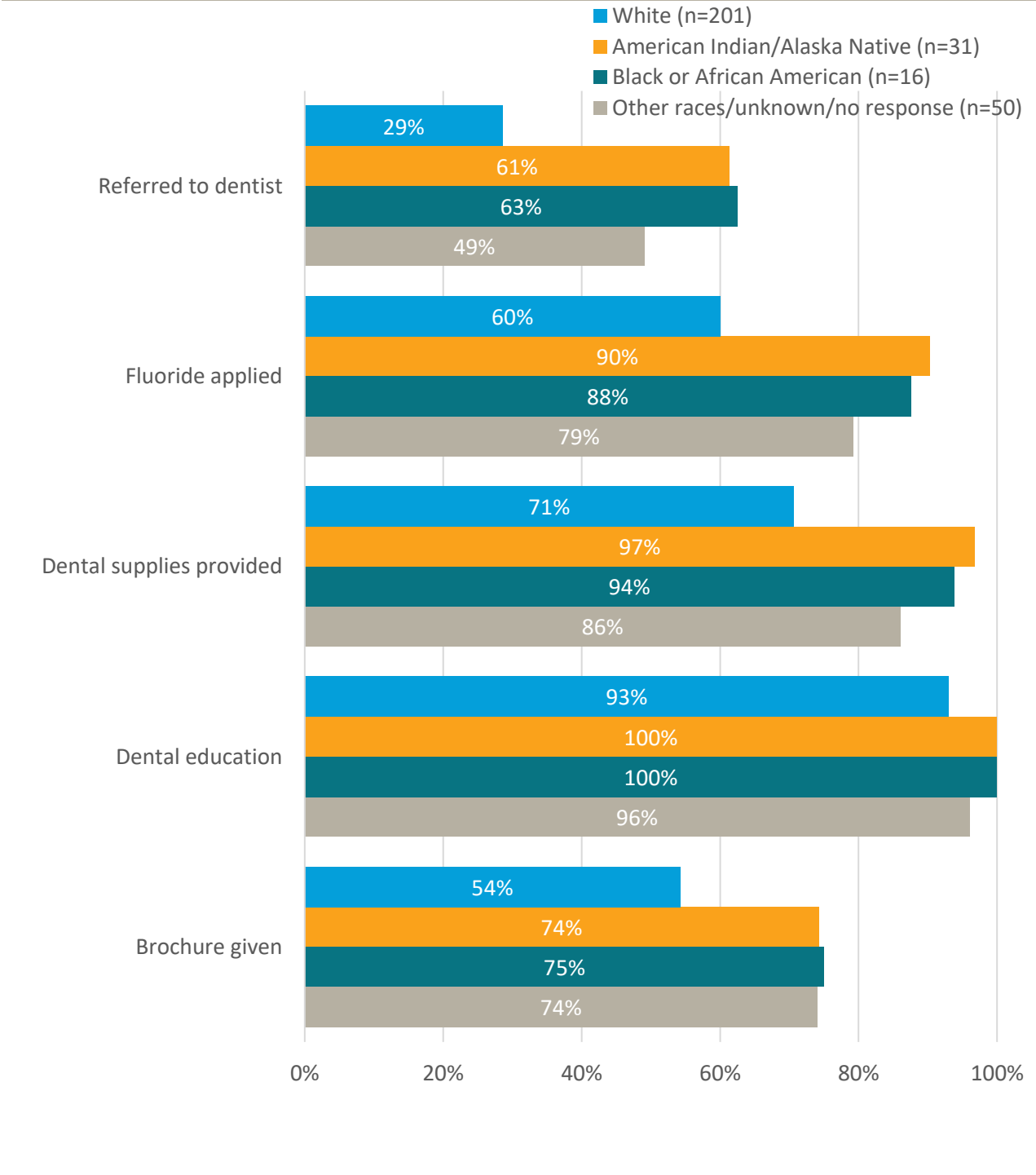
A greater percentage of those without insurance were referred to a dentist, received fluoride varnish, and were given an oral health brochure. See Figure 4. For example, only 54% of those with some form of private or public health insurance were referred to a dentist compared to 82% of those without any form of health insurance.

Figure 4. Percent of Patients Who Received Dental Services and Oral Health Education by Insurance Status: Sept. 2019 - March 2020



A greater percentage of individuals who identified as American Indian/Alaska Native, Black or African American, or other race were referred to a dentist than those who were White. See Figure 5. There was also variability by race for rate of fluoride varnish application and provision of dental supplies, dental education, and oral health brochures.

Figure 5. Percent of Patients Who Received Dental Services and Oral Health Education by Race: Sept. 2019 - March 2020

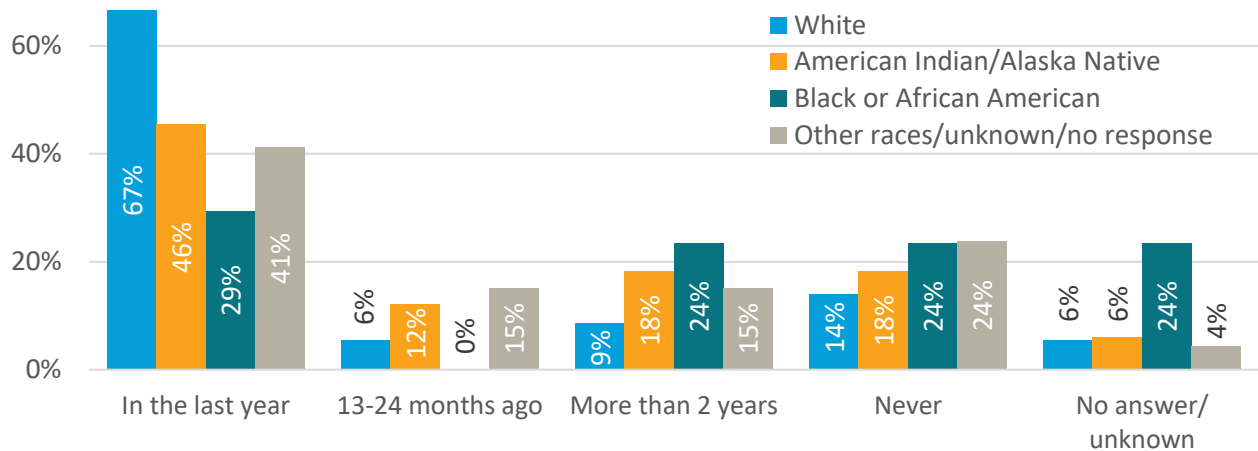


INEQUITIES IN ORAL HEALTH STATUS

Racial Inequities

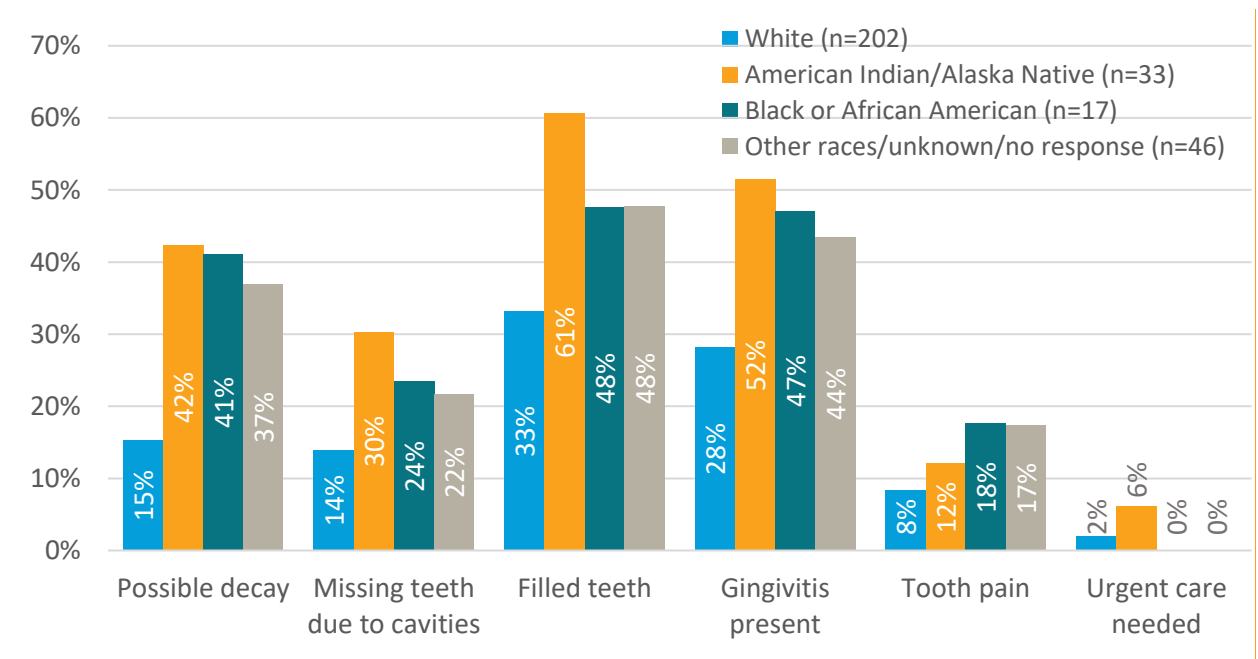
Based off of the date of their last dental visit, regardless of race, nearly one in four patients in the main clinic reported they had never visited a dentist. A greater percentage of those who were White had been to the dentist in the last year compared to any other race. See Figure 6.

Figure 6. Percent of Patients with Dental Visits by Race: Sept. 2019 - March 2020



There were also noticeable racial disparities in oral health status and care need. For example, 42% of patients who identified as American Indian/Alaska Native (AI/AN) had possible decay compared to only 15% of patients who were White. See Figure 7.

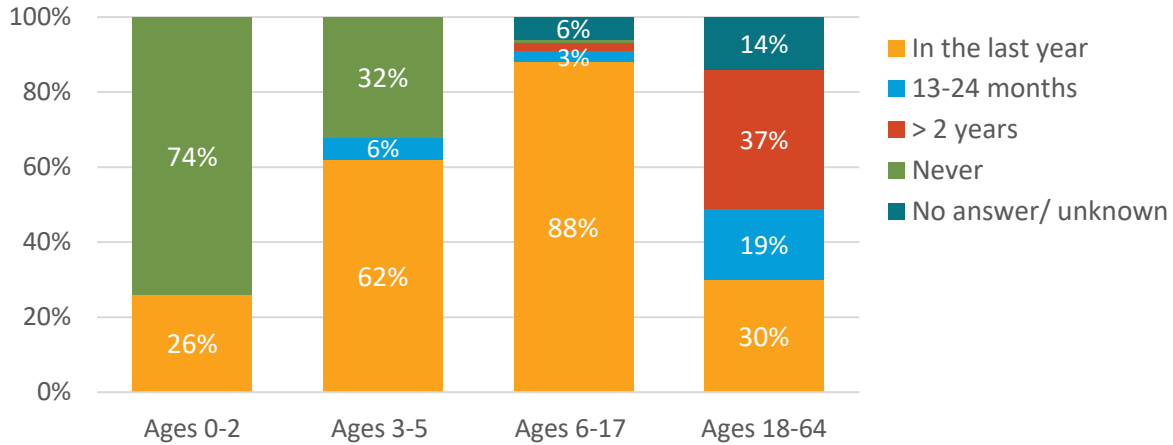
Figure 7. Percent of Patients with Dental Conditions and Care Needs by Race: Sept. 2019 - March 2020



Age Inequities

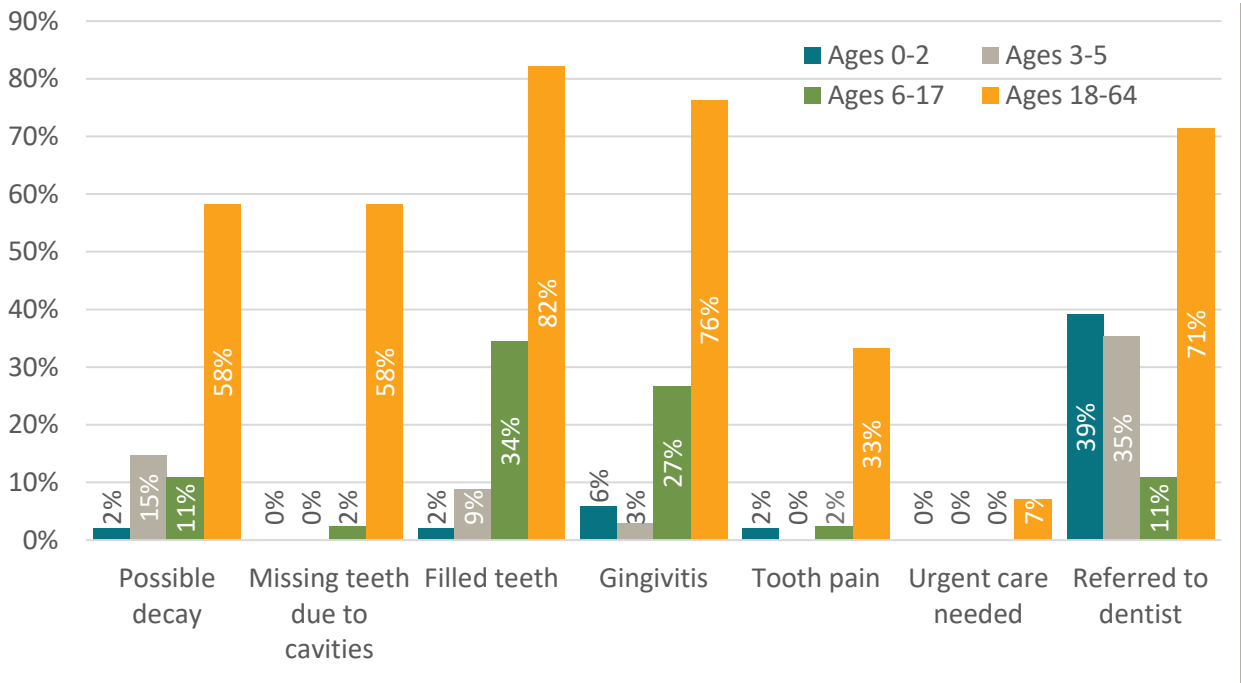
Based off of the date of their last dental visit, a majority of patients ages 2 years and younger had never visited a dentist. A larger proportion of those between ages 3 and 17 had visited a dentist in the last year (69%) compared to other age groups. See Figure 8. Only one person was age 65 years or older.

Figure 8. Percent of Patients with Dental Visits by Age Group: Sept. 2019 - March 2020



A greater percentage of patients in the older cohorts presented with possible decay, filled teeth, gingivitis, tooth pain, missing teeth due to a history of cavities, and need for urgent care. For example, 58% of patients presented with possible decay compared to only 2% of those between 0-2 years of age and 11% of those between the ages 6 and 17. See Figure 9.

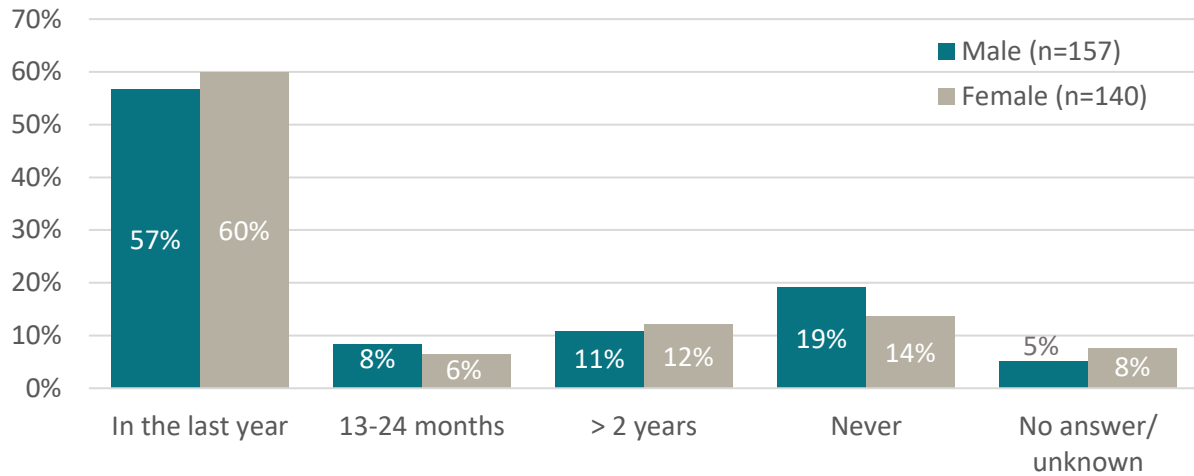
Figure 9. Percent of Patients with Dental Conditions and Care Needs by Age: Sept. 2019 - March 2020



Gender Inequities

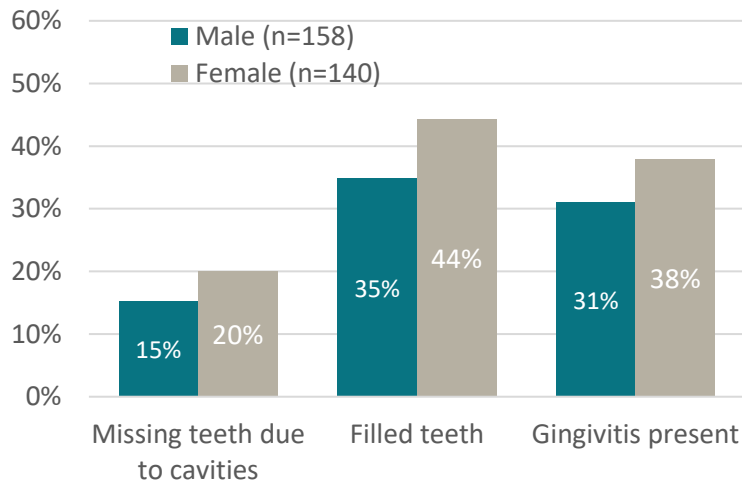
Based off of the date of their last dental visit, a greater percentage of women (42%) than men (35%) had visited the dentist in the last year. See Figure 10.

Figure 10. Percent of Patients with Dental Visits by Gender: Sept. 2019 - March 2020



There was littler variability between men and women. A slightly greater percentage of women than men reported missing teeth due to cavities, filled teeth, and gingivitis; little or no variation was found in the other categories. See Figure 11.

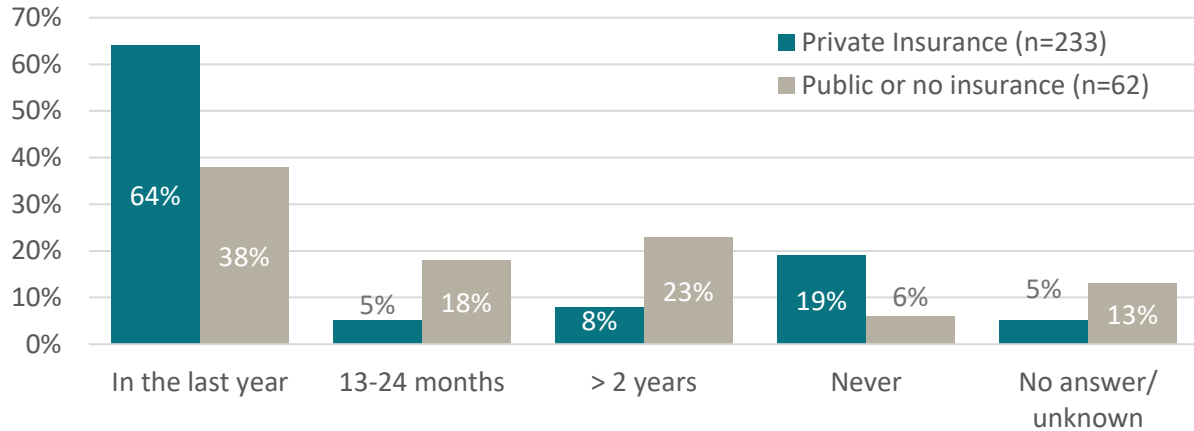
Figure 11. Percent of Patients with Dental Conditions and Care Need by Gender: Sept. 2019 - March 2020



Oral Health Inequities by Insurance Type

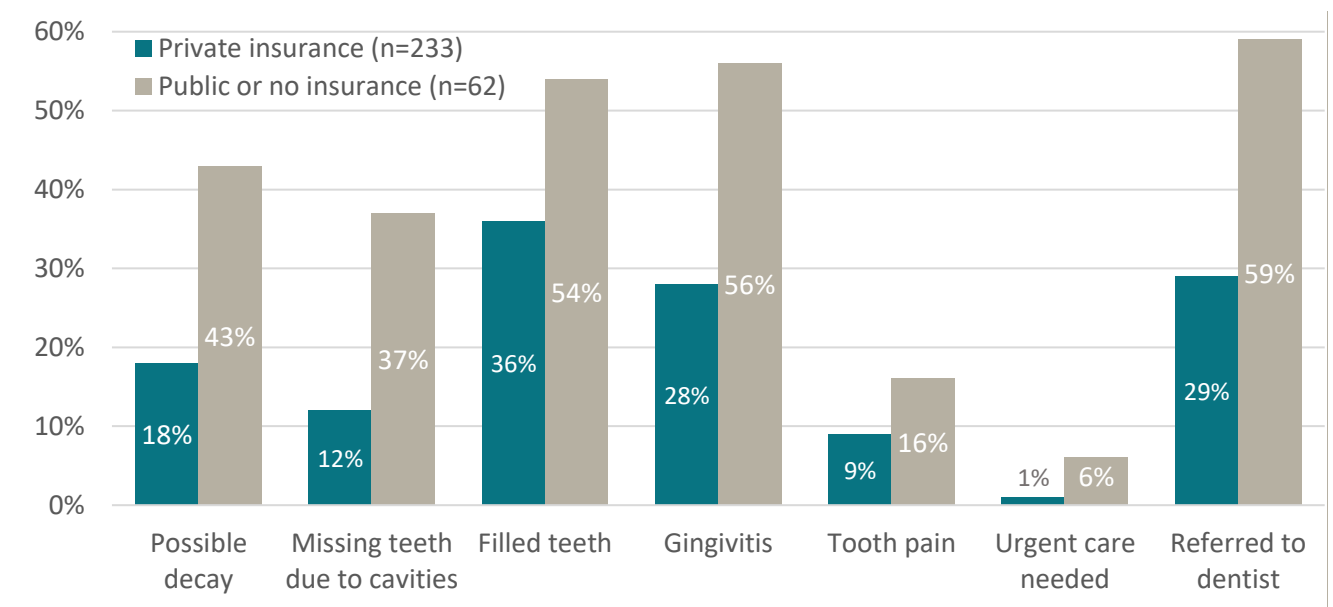
Based off of the date of their last dental visit, a greater percentage of individuals with private health insurance (64%) than those either covered by public health insurance or no health insurance (38%) had visited the dentist in the last year. However, a greater percentage of those with health insurance (19%) reported never having been to a dentist compared to those with no/public health insurance (10%). See Figure 12.

Figure 12. Percent of Patients with Dental Visits by Insurance Status: Sept. 2019 - March 2020



A greater percentage of those with public or no insurance presented with possible decay, missing teeth, filled teeth, gingivitis, tooth pain, and a need for dental care referral. For example, only 12% of patients with private health insurance presented with missing teeth due to cavities compared to 37% of those with public or no health insurance. See Figure 13.

Figure 13. Percent of Patients with Dental Conditions and Care Needs by Insurance Status: Sept. 2019 - March 2020



ORAL HEALTH TRAINING FOR MEDICAL RESIDENTS: EVALUATION RESULTS

To assess the program, the CRH surveyed residents in the first and third years of practice and will continue to do so to measure longitudinal change in knowledge and attitudes around oral health. Additionally, the CRH conducts brief training evaluations to assess both the efficacy of the trainer (the employed PHH) and the relevancy of the topic. Generally, the medical residents took away a great deal of information from the trainings provided by the PHH and have more knowledge and experience around dental care after completion of their residencies.

TRAINING EVALUATIONS

No individual training evaluations were completed in year one of the grant. In year two, the PHH provided two 30-minute educational lunch and learns on October 23, 2019, (Geriatric Oral Health) and January 22, 2020, (Child Oral Health). In August, 2020 the PHH presented the session, Oral Health for Women: Pregnancy and Across the Lifespan. These sessions were intended for the UND CFM residents, but other clinical care staff were welcome. Six individuals completed a training evaluation in January, and nine in October and thirteen in August. The training evaluations asked each attendee to indicate their level of agreement to six statements. Agreement was measured on a five-point scale where 1 = strongly disagree and 5 = strongly agree.

The six statements all received an average score of four (agree) or greater for all three trainings. The six statements that were measured are included in Table 3. No attendees at either training disagreed or strongly disagreed with any of the statements. On average, there was strong agreement that the trainings were well organized, relevant, and useful. One open-ended comment regarding the geriatric training included, “not enough time to complete lecture. A small pamphlet or handout with most useful points would be great for use.” Three open-ended comments regarding the training on oral health for women included: “I would have liked to hear more about interventions and specific plans to help my pregnant patients.” “The xylitol suggestion was fantastic!” “Vanessa is very thorough and helpful, should have more oral health lectures.”

Table 3. Average Level of Agreement to Training Evaluation Measures: October 2019 and January 2020 (Strongly Disagree = 1 – Strongly Agree = 5)

QUESTION	Jan. Training: Child Oral Health (n=6)	Oct. Training: Geriatric Oral Health (n=9)	Aug. Training: Oral health for Women (n=13)
	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>
The training was relevant to my career.	4.67	4.44	4.0
The training/event was well organized.	4.83	4.33	4.58
The materials presented will be useful to me in my work.	4.67	4.33	4.08
The presenter was knowledgeable about the subject matter.	4.83	4.33	4.92
The training enhanced my skills in this topic area.	4.5	4.22	4.0
I would recommend this training to my colleagues/peers.	4.5	4.11	4.17

ASSESSMENTS OF FIRST- AND THIRD-YEAR MEDICAL RESIDENTS

These data will become more valuable over time as we are able to compare year one residents' oral health knowledge and dental care experiences to their knowledge and experience after three years of working with the PHH in the integrated health system. However, the following discussion provides a point-in-time evaluation of the level of knowledge and experience that first- and third-year residents report before and after working in an integrated medical-dental setting.

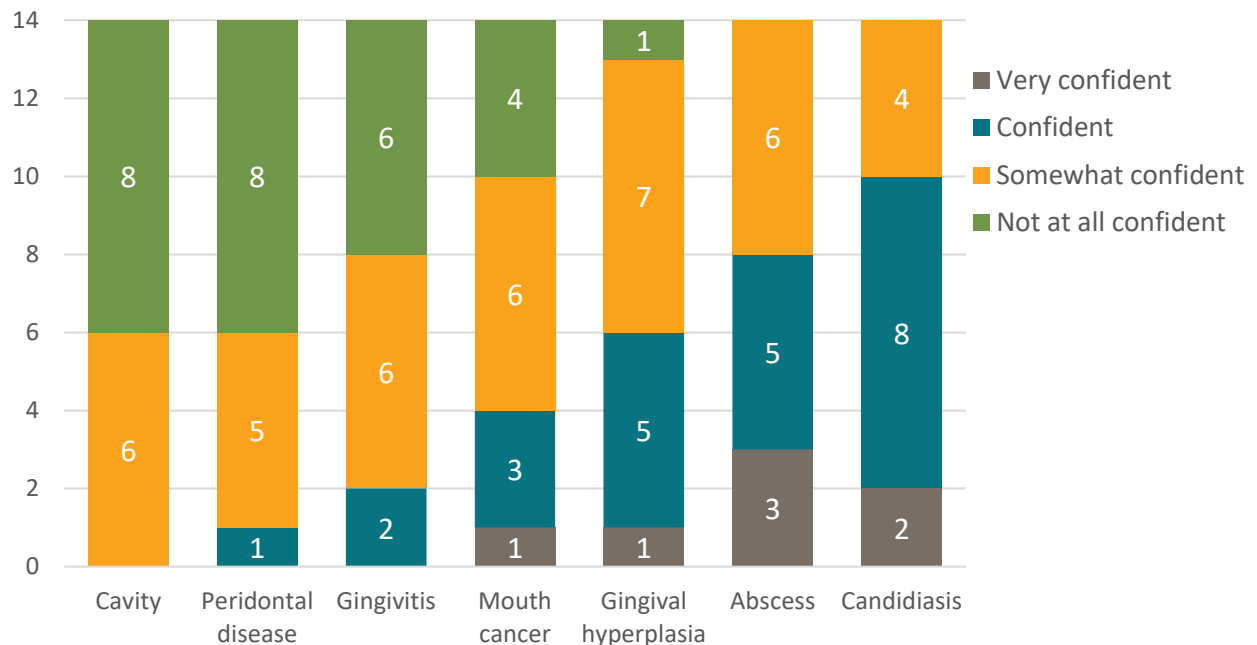
Pre-Assessment

Six individuals completed a pre-test in 2019, and eight completed the survey in 2020 for a total of 14 first-year medical residents. The data provided below speak to the experience of all 14 first-year students.

- Roughly 36% (5/14) had received formal training in medical school related to oral health care.
- Only four (29%) had ever conducted a basic oral health screening.
- More than half of first-year medical residents (57% or 8/14) strongly agreed that oral health is an important factor in overall health; an additional 36% (5/14) agreed. Only one student strongly disagreed.

When asked to identify their level of comfort identifying a variety of oral health concerns, more medical residents were confident identifying gingival hyperplasia, abscesses, and candidiasis with fewer individuals confident identifying cavities, periodontal disease, and gingivitis. See Figure 14.

Figure 14. Number of First-Year Medical Residents by Comfort Level Identifying Common Oral Health Concerns, 2019-2020 (n=14)



In the first year assessment, students were asked to indicate their level of awareness of the correlation between oral health and several medical conditions. The questionnaire used a five-point scale where one was “Not at all aware” and five was “Very aware.” In year two, this question was revised to simply assess aware or not aware. As such, the respondents who had indicated very aware, aware, moderately aware, and somewhat aware in year one were all re-categorized as simply, “aware” for the following analysis. Additionally, in year two, the options included more health conditions and behaviors and was reworded to ask, *Please indicate if you are, or are not, aware of these behaviors or conditions having an influence on an individual’s oral health.* See Figures 15-17 for a presentation of all data. Key findings from both 2019 and 2020 indicate that first-year medical residents are more often not aware of the relationship between oral health and:

- Low birth weight (64% unaware)
- Cerebrovascular disease (64% unaware)
- Preterm birth (100% unaware)
- Pregnancy (75% unaware)
- Opioid use (63% unaware)
- Alzheimer’s, dementia, and/or memory loss (75% unaware)

Figure 15. Number of First-Year Medical Residents Aware/Not Aware of the Influence of Behavior and Medical Conditions on Individual Oral Health in 2019 and 2020 Collectively (n=14)

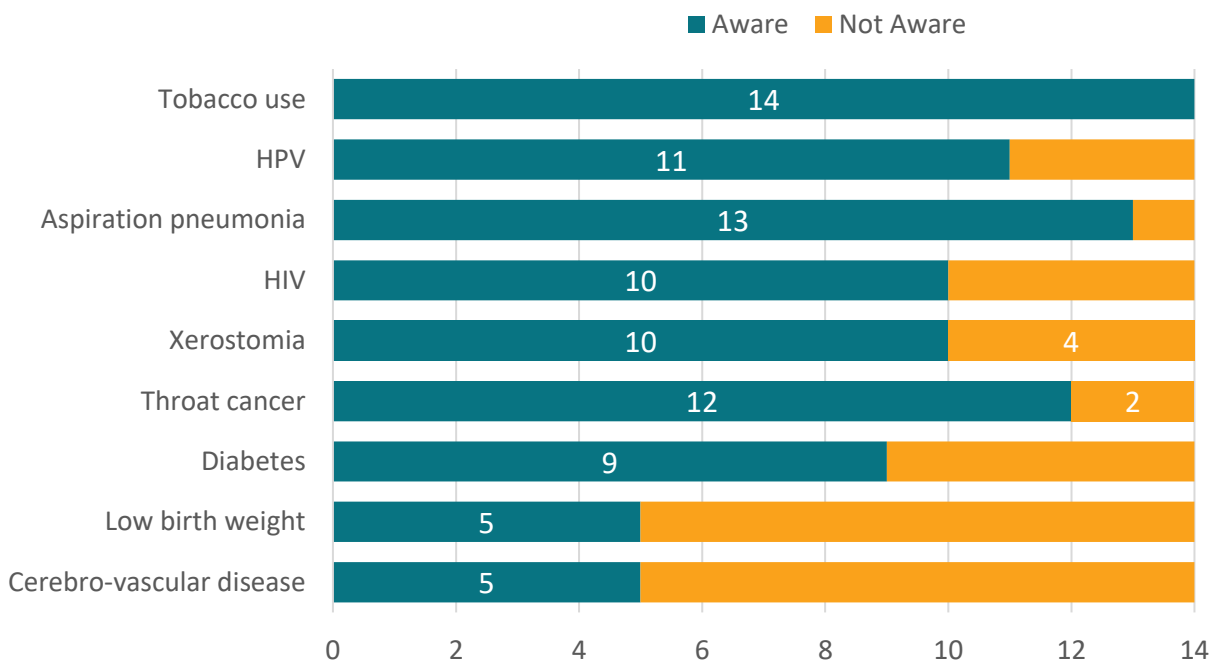
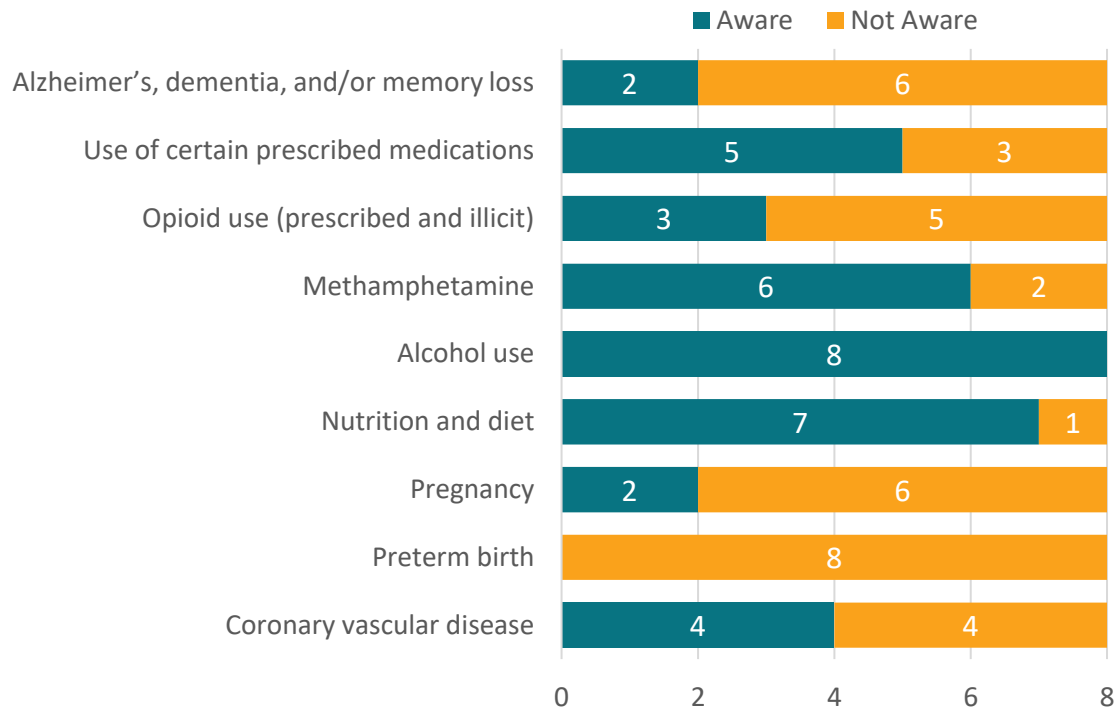


Figure 16. Number of First-Year Medical Residents Aware/Not Aware of the Influence of Behavior and Medical Conditions on Individual Oral Health: 2020 data only (n=8)



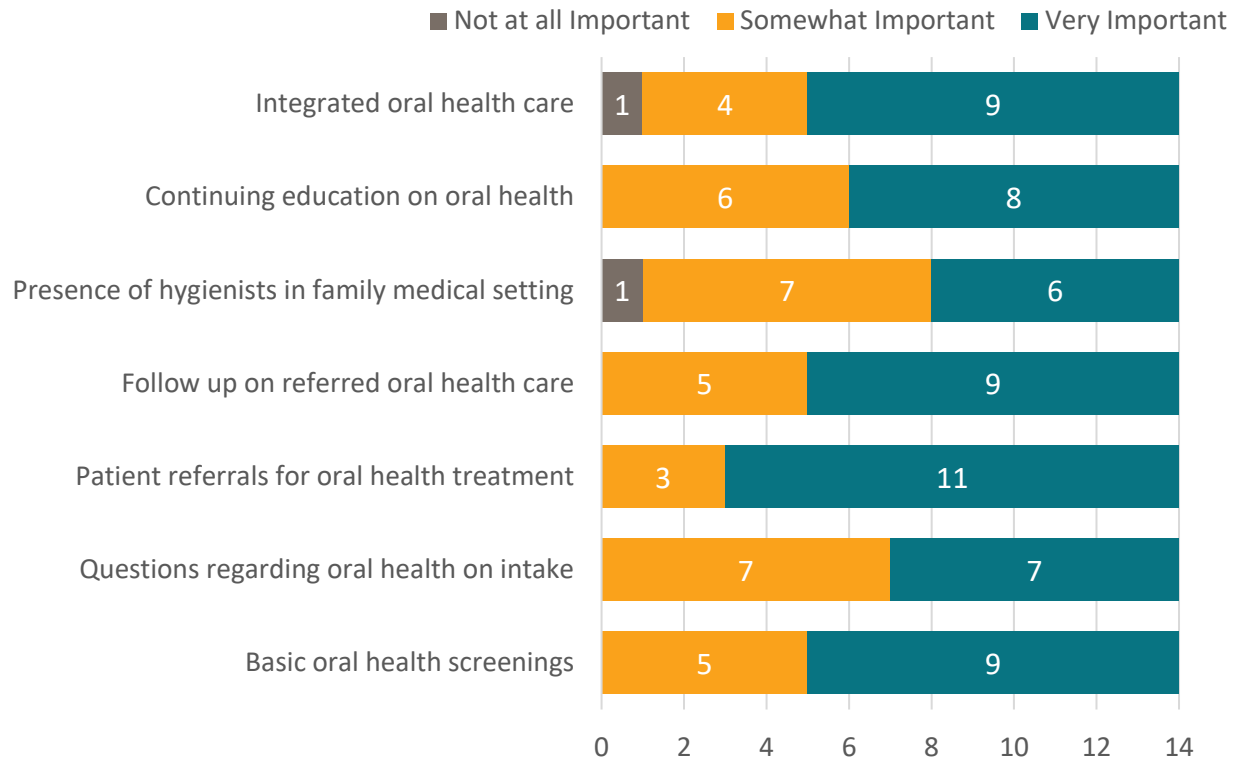
In the first year assessment, medical residents were asked to indicate how important it was that various things were done regarding oral health in a family medical center. They rated their response on a five-point Likert scale: very important, important, moderately important, somewhat important, not at all important. In year two, the new evaluation team revised this measure to a three-point scale: very important, somewhat important, not at all important.

For the purpose of longitudinal data and annual comparisons, year one data were recorded so that very important and important coincided with *very important* while somewhat and moderately important recoded to *somewhat important* matching year two data. See Figure 17.

Key findings from both 2019 and 2020 indicate that:

- Most students (79%) think it is very important for family medical centers to refer patients for oral health treatment.
- Roughly 64% identify that it is very important for family medical centers to:
 - Integrate oral health into the care model.
 - Follow up on referred oral health care.
 - Offer basic oral health screenings.

Figure 17. Number of First-Year Medical Residents Indicating Importance of Oral Health Care in a Family Medical Center in 2019 and 2020 Collectively (n=14)



Post-Assessment

Five individuals completed a post-test in 2019, and three completed the survey in 2020 for a total of eight third-year medical residents. All eight indicated that they agreed or strongly agreed that oral health is an important factor in overall health. All of the residents had conducted a basic oral health screen, and all but one of the eight had referred a patient for dental care. However, two had followed up on the patient after dental referral. The data provided below speak to the experience of all eight. All eight students agreed or strongly agreed that:

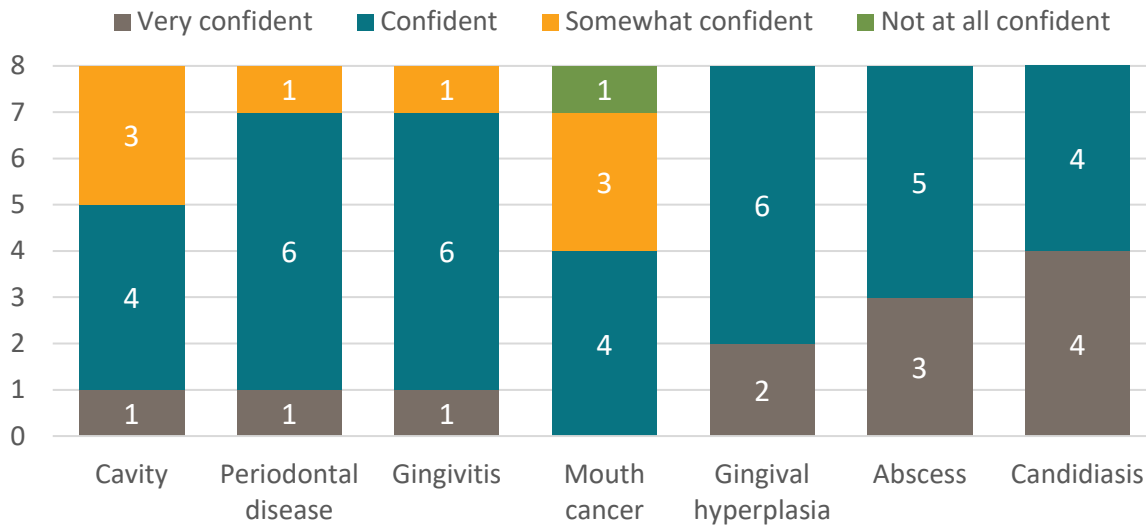
- The PHH was knowledgeable about oral health and overall health.
- The seminars provided them with new information about oral health to which they had not previously been exposed.
- The PHH’s seminars were a positive addition to their residence training.
- The PHH is a positive addition to the UND Center for Family Medicine.

A majority agreed or strongly agreed that:

- The seminars provided by the PHH were informative (one neutral, seven agree/strongly agree).
- They will be able to integrate information from the oral health seminars into their family medical practice (one neutral, seven agree/strongly agree).
- The seminars changed their perceptions on the importance of medical-dental integration and importance of oral health to overall health (one disagree, one neutral, six agree/strongly agree).

When asked to identify their level of comfort identifying a variety of oral health concerns, more medical residents were confident identifying gingival hyperplasia, abscesses, and candidiasis. This is similar to the trend that was evident in the pre-test. See Figure 18.

Figure 18. Number of Third-Year Medical Residents by Comfort Level Identifying Common Oral Health Concerns, 2019-2020 (n=8)



In the first-year post-assessment, students were asked to indicate their level of awareness of the correlation between oral health and several medical conditions. The questionnaire used a five-point scale where one was “Not at all aware” and five was “Very aware.” In year two, this question was revised to simply assess aware or not aware. As such, the respondents who had indicated very aware, aware, moderately aware, and somewhat aware in year one were all re-categorized as simply “aware” for the following analysis. Additionally, in year two, the options included more health conditions and behaviors and was reworded to ask, *Please indicate if you are, or are not, aware of these behaviors or conditions having an influence on an individual’s oral health.*

Key findings from both 2019 and 2020 indicate more third-year residents than first-year were aware of the relationship between various behaviors and health conditions and oral health. Every third-year resident was aware of the connection to oral health for 15 of the 18 listed behaviors/conditions. Only one resident indicated not being aware of the relationship between oral health and aspiration pneumonia, low birth weight, and cerebrovascular disease. This is an important finding given that among first-year residents, there was a lack of health literacy around oral health and:

- Low birth weight (64% unaware)
- Cerebrovascular disease (64% unaware)
- Preterm birth (100% unaware)
- Pregnancy (75% unaware)
- Opioid use (63% unaware)
- Alzheimer’s, dementia, and/or memory loss (75% unaware)

In the first year of assessment, third-year medical residents were asked to indicate how important it was that various things were done regarding oral health in a family medical center. They rated their responses on a five-point Likert scale: very important, important, moderately important, somewhat important, not at all important. In year two, the new evaluation team revised this measure to a three-point scale: very important, somewhat important, not at all important.

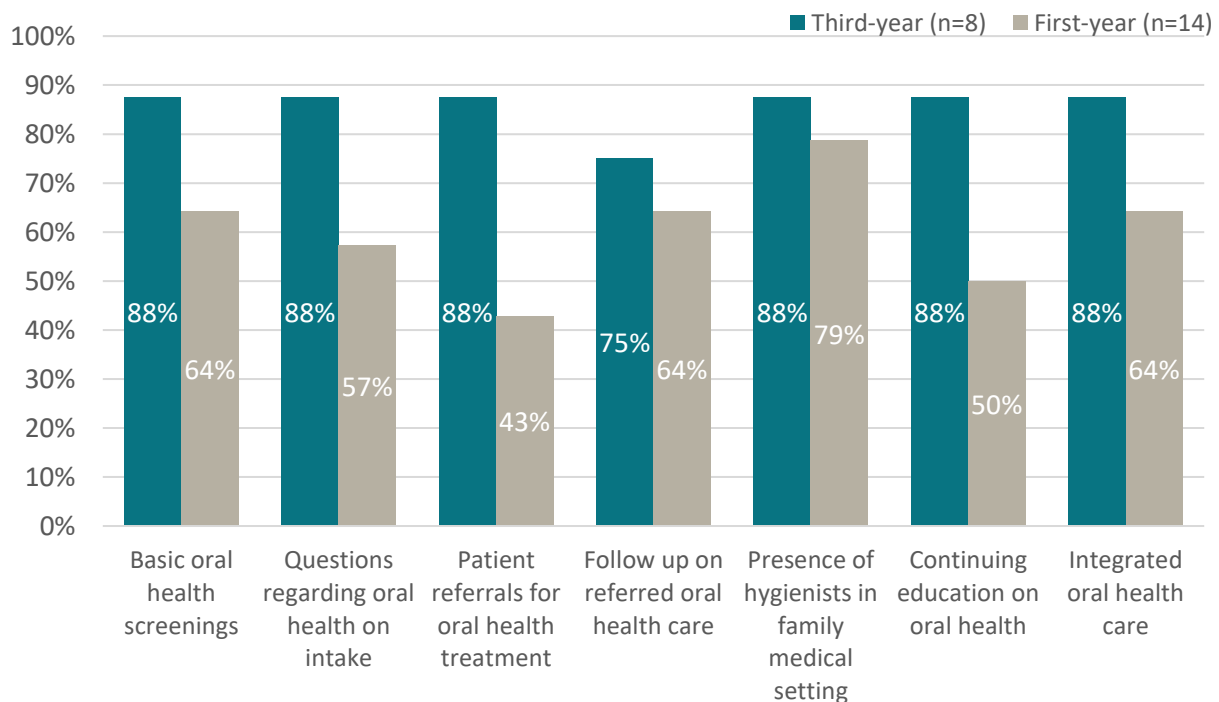
For the purpose of longitudinal data and annual comparisons, year one data were recorded so that very important and important coincided with *very important* while somewhat and moderately important recoded to *somewhat important* matching year two data.

All but one of the eight third-year residents thought it was very important that family medical centers incorporate:

- Basic oral health screenings
- Questions regarding oral health on intake
- Patient referrals for oral health treatment
- Presence of hygienists in family medical setting
- Continuing education on oral health
- Integrated oral health care

The one outlier for each of the above still indicated that it was somewhat important. Two of the eight indicated it was only somewhat important that family medical centers follow up on patients referred to dental care with the remaining six indicating it as very important. These perspectives are different from first-year residents who still find these activities to be somewhat important but not *very important*. See Figure 19.

Figure 19. Percentage of First-Year and Third-Year Residents Indicating Each Is “Very Important” to Address in a Family Medical Center, 2019-2020 Combined



SUMMARY AND RECOMMENDATIONS

Summary One: The PHH, in partnership with the OHP and the CRH, developed a manual to assist other primary care clinics and family medical centers in adopting medical-dental integration models.

Recommendation One: It is recommended that this training manual is time stamped, reviewed regularly, and updated as processes change. It is especially important to update the manual in response to any innovative promising practices implemented to address oral health during a global health pandemic. There are opportunities to explore teledentistry and virtual case management.

It is also recommended that the OHP allocate time and resources to disseminate the manual. Communication strategies can include, but are not limited to, news items for relevant provider groups and organizations in the state and nationally sharing the link to the continually revised manual, submissions to national and state conferences with relevant audiences, webinars for primary care providers on the model and toolkit, and announcements for provider group email lists.

Summary Two: The PHH and the OHP developed a standardized patient data collection tool to document oral health services and provided education and dental referrals. The PPH worked with UND CFM Information Technology Department to implement this data collection model and to maintain a workflow through the UND CFM electronic health record (EHR). The data collection at UND CFM does not mirror the data collected in the asthma clinic.

Recommendation Two: UND CFM, the OHP, and the CRH should work together to create two standardized data collection instruments so that patient-specific data from both the main clinic and asthma clinic can be combined and reviewed. Conversations have begun on this topic, and the CRH is working on a revised data collection tool for the asthma clinic.

Summary Three: 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.

Recommendation Three: 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.
- Prepare materials for parents that highlight the importance and benefit of dental sealants.

Summary Four: A total of 107 patients were referred for dental care, but only 13 sought treatment. This indicates that roughly 88% of those referred for dental care did not seek treatment.

Recommendation Four: The CRH evaluation team should work with the PHH, OHP, and UND CFM to 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 for care and utilizing care may also require stronger case management at UND CFM. Patients may need additional follow-up phone calls and/or assistance in making and keeping scheduled dental appointments. This is also an opportunity to identify barriers to care utilization among patients and assist in identifying solutions.

Summary Five: Roughly 79% of patients between the ages of 0-2 had never been to the dentist.

Recommendation Five: The OHP and PHH should work with both the clinical care teams at UND CFM and the medical residents to stress the importance of a dental visit at the time of tooth eruption. This education should also be relayed to parents of young children as well as individuals who are pregnant. The OHP should identify existing materials on the importance of dental visits in the first years of life, and if there are not any relevant for this audience, consider developing one that can be shared with patients.

It is also important that the OHP and PHH secure a list of available pediatric dentists. It may be necessary to conduct an assessment among North Dakota dentists to determine availability of pediatric care, but more specifically, care for those ages 2 and younger.

Summary Six: Although the data reviewed are limited to patients at one facility, the results mirror trends that have been reported through Basic Screening Surveys and the Behavioral Risk Factor Surveillance System. Specifically, there was greater oral health need among those without insurance than those with, greater oral health need among women than men, and greater need among American Indian and Alaska Native populations than any other racial/ethnic group.

Recommendation Six: These data can be utilized with other data in the state to stress the oral health disparities in North Dakota. It is imperative that there are unique strategies developed to specifically address the oral health needs among American Indian and Alaska Native populations, as well as a need to address dental care access and utilization among lower income and uninsured individuals.

Summary Seven: On average, there was strong agreement that the training was well organized, relevant, and useful. One open-ended comment regarding the geriatric training included, “not enough time to complete lecture. A small pamphlet or handout with most useful points would be great for use.”

Recommendation Seven: As the PHH develops training for medical residents and clinical care staff, they would be well served to identify and/or develop simple handouts or products that could accompany the training and serve as a resource for the clinical care teams in the future.

Summary Eight: A majority of first-year medical residents were not aware of the relationship between oral health and low birth weight (64% unaware), cerebrovascular disease (64% unaware), preterm birth (100% unaware), pregnancy (75% unaware), opioid use (63% unaware), and Alzheimer’s, dementia, and/or memory loss (75% unaware). Conversely, every third-year resident was aware of the connection to oral health for the listed behaviors/conditions. A greater percentage of third-year residents than first-year indicated that it was very important that family medical centers incorporate various oral health services, including basic oral health screens, patient referral, a PHH onsite, and integrated oral health care. It is clear that students completing their medical residency at a medical center that has a level of medical-dental integration positively impacts the oral health literacy of the future providers.

Recommendation Eight: These data should be highlighted and stress the importance of oral health education among medical residents and future primary care professionals. An area with a significant gap in knowledge related to the relationship between oral health and pregnancy, preterm birth, and low birth rate. It is recommended that the OHP consider expanding services to specifically address women’s health and pregnancy. There is opportunity to connect pregnant persons with the PHH during one of their first and one of their last prenatal visits. At the first meeting, the PHH can stress the importance of oral health and pregnancy, while at the later visit, the PHH can stress how important dental care is for children in their first years of life.

CITATIONS

- a. North Dakota Department of Health (NDDoH). (2020). Available at health.nd.gov/
- b. North Dakota Department of Health. *2017-2019 Biennial Report* (2019). Available at health.nd.gov/sites/www/files/documents/About%20Us/2017_2019_Biennial_Report.pdf
- c. North Dakota Department of Health Oral Health Program. (2016). Available at oral.health.nd.gov/
- d. North Dakota Department of Health Promotion. (2019). Available at health.nd.gov/health-promotion
- e. Human Resources and Resources Administration. (2020). Available at hrsa.gov/
- f. Human Resources and Resources Administration. *Grants to States to Support Oral Health Workforce Activities* (2018). Available at hrsa.gov/grants/find-funding/hrsa-18-014
- g. Medical-Dental Integration Model. (September 2020). North Dakota Department of Health oral Health Program. Available at ruralhealth.und.edu/assets/3816-16057/medical-dental-integration-manual.pdf
- h. Smiles for Life: A National Oral Health Curriculum. Available at smilesforlifeoralhealth.org/buildcontent.aspx?tut=555&pagekey=62948&cbreceipt=0
- i. American Dental Association: Mouth Healthy. *2020 Brushing Calendar* (2020). Available at mouthhealthy.org/en/resources/activity-sheets/brushing-calendar
- j. National Maternal and Child Oral Health Resource Center. *Bright Futures: Oral Health – Pocket Guide, 3rd Edition* (2016). Available at mchoralhealth.org/pocket/
- k. American Dental Association Center for Evidence Based Dentistry. *Professionally-Applied and Prescription-Strength, Home-Use Topical Fluoride Agents for Caries Prevention Clinical Practice Guideline* (2013). Available at ebd.ada.org/en/evidence/guidelines/topical-fluoride

ACKNOWLEDGEMENTS

The research and evaluation team at the Center for Rural Health would like to extend special thanks to all of the medical residents at UND CFM who took the time to complete the training evaluations and surveys. Additionally, thank you to the following for their assistance with this evaluation to include data collection, interviews, and document review:

- Cheri Kiefer, Oral Health Program Director, North Dakota Department of Health
- Vanessa Bopp, Public Health Hygienist, Oral Health Program, North Dakota Department of Health
- Monica Paczkowski, Lab Director, Bismarck Center for Family Medicine
- Janna Pastir, Director, Division of Health Promotion, North Dakota Department of Health

The North Dakota Department of Health Oral Health Program provided financial support for this project through a grant award with the Health Resources and Services Administration. The authors assume responsibility for any errors of omission, logic, or otherwise. Any opinions, findings, and conclusions expressed in this publication are those of the authors and do not necessarily reflect the view of the Center for Rural Health, University of North Dakota School of Medicine & Health Sciences, or the study sponsors.

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

Shawnda Schroeder, PhD, MA

Research Associate Professor

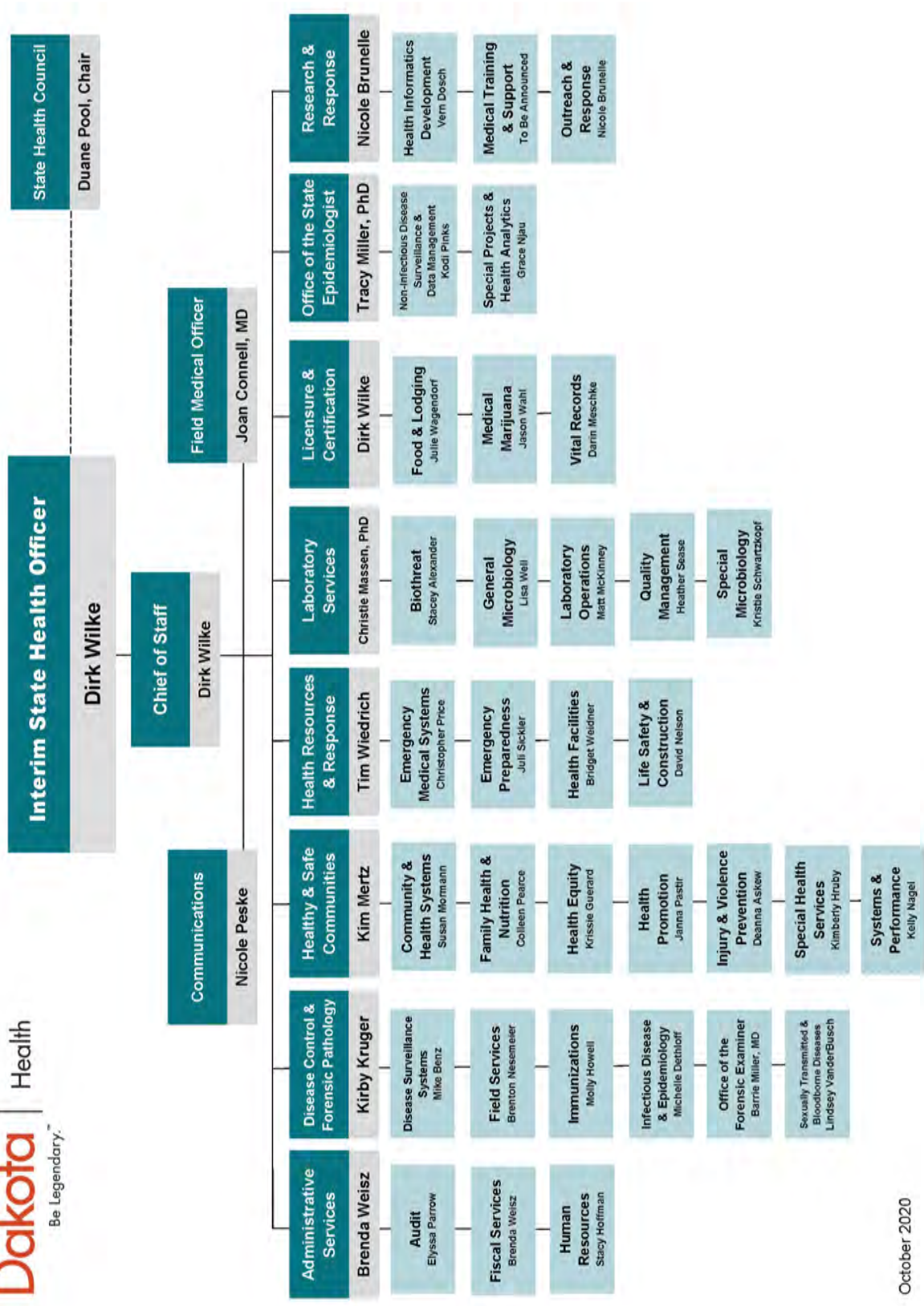
Center for Rural Health

University of North Dakota School of Medicine & Health Sciences

Shawnda.schroeder@UND.edu

701-777-0787

APPENDIX A: NDDoH Organizational Chart



October 2020

APPENDIX B: Training Evaluations



Thank you for attending the training on Child Oral Health

Please consider answering a few questions about today's event. Your anonymous feedback will be used to improve the activities provided by the North Dakota Department of Health Oral Health Program. Your participation is entirely voluntary. There are no negative consequences should you decide not to complete the survey and you can stop the survey at any time. If you have any questions about how the data will be used, please contact the program evaluator, Dr. Shawnda Schroeder at the Center for Rural Health, University of North Dakota at Shawnda.schroeder@UND.edu or 701-777-0787.

Thank you!

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Not Applicable
The training was relevant to my career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The training/event was well organized.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The materials presented will be useful to me in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The presenter was knowledgeable about the subject matter.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The training enhanced my skills in this topic area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend this training to my colleagues/peers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Anything more you would like to share about your experience?



APPENDIX C: Pre-Rotation Survey of First-Year Medical Residency Students

The University of North Dakota Center for Family Medicine and the North Dakota Department of Health are working together to explore and pilot medical dental integration in a family health care setting. The Center for Rural Health at the University of North Dakota is completing an assessment of this program. This assessment includes a short questionnaire to capture your experience with this pilot project in which the Center for Family Medicine has integrated a public health hygienist into the medical center. Please consider taking 5-10 minutes to complete this short survey. Your responses are voluntary, anonymous, and data will only be shared aggregately. This evaluation has been approved by the University of North Dakota Institutional Review Board. If you have questions about the survey or the evaluation, please contact Shawnda Schroeder at Shawnda.schroeder@UND.edu or 701-777-0787.

UNIQUE IDENTIFIER (CODE)

This information is needed to anonymously link your pre-survey with the post survey you will be invited to complete at the end of your residency.

First letter in mother's first name: _____

First digit of social security number: _____

First letter in mother's maiden name: _____

Last digit of social security number: _____

1. Did you receive any formal training in medical school related to oral health care?

- Yes
- No [Skip to Q. 3]

2. Please mark which topics you received formal training on in medical school. Mark all that apply.

- Diabetes and oral health
- Hypertension and oral health
- Medication and oral health
- Nutrition and oral health
- Other _____
- Other _____
- Other _____
- Other _____

3. Have you received any informal training or exposure to oral health care elsewhere?

- Yes
- No [Skip to Q. 5]

4. What type of informal training or exposure to oral health care have you received or been exposed to?

5. Have you ever conducted a basic oral health screening?

- Yes
- No [Skip to Q. 7]

6. How many basic oral health screenings have you conducted?

- A few
- Some
- Many

7. Have you ever observed a patient being referred for dental care?

- Yes No (Skip to Q.9)

8. Was there follow up on the dental referral at a future appointment?

- Yes No Do not know

9. Please indicate how much you agree or disagree with the following statement: Oral health is an important factor in overall health.

- Strongly Disagree Disagree Neutral Agree Strongly Agree

10. How confident are you in your ability to identify each of the following conditions?

	Not At All Confident	Somewhat Confident	Confident	Very Confident
Cavity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Periodontal Disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mouth Cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gingivitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Candidiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gingival Hyperplasia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Abscess	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Please indicate if you are, or are not aware, of a correlation (relationship) between oral health and the following medical conditions.

	Aware	Not Aware
Cerebrovascular disease	<input type="checkbox"/>	<input type="checkbox"/>
Coronary vascular disease	<input type="checkbox"/>	<input type="checkbox"/>
Xerostomia	<input type="checkbox"/>	<input type="checkbox"/>
Throat cancer	<input type="checkbox"/>	<input type="checkbox"/>
Preterm birth	<input type="checkbox"/>	<input type="checkbox"/>
HIV/Aids	<input type="checkbox"/>	<input type="checkbox"/>
HPV	<input type="checkbox"/>	<input type="checkbox"/>
Low birth weight	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes	<input type="checkbox"/>	<input type="checkbox"/>
Aspiration pneumonia	<input type="checkbox"/>	<input type="checkbox"/>

12. Please indicate if you are, or are not, aware of these behaviors or conditions having an influence on an individual’s oral health.

	Aware	Not Aware
Pregnancy	<input type="checkbox"/>	<input type="checkbox"/>
Nutrition and diet	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol use	<input type="checkbox"/>	<input type="checkbox"/>
Tobacco use	<input type="checkbox"/>	<input type="checkbox"/>
Use of methamphetamine	<input type="checkbox"/>	<input type="checkbox"/>
Opioid use (prescribed and illicit)	<input type="checkbox"/>	<input type="checkbox"/>
Use of certain prescribed medications	<input type="checkbox"/>	<input type="checkbox"/>
Alzheimer’s, dementia, and/or memory loss	<input type="checkbox"/>	<input type="checkbox"/>

13. Please rate how important or not important each of the following is in a family medical setting.

	Not At All Important	Somewhat Important	Very Important
Basic oral health screenings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Questions regarding oral health during intake screenings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient referrals for oral health treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Follow up on referred oral health care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Presence of an oral health hygienist in the family medical practice setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continuing education on oral health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integrated oral health care in the family medical setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Where did you attend medical school? (If outside of the United States, just list the country; if within the United States, please spell out which state).

15. What year are you in your residency?

- First year
- Other (please specify): _____

16. Where do you intend to practice medicine upon completion of your residency?

- North Dakota
- Neighboring state (MN, SD, MT)
- Elsewhere in the United States
- Internationally

Other (please specify): _____

17. Where are you most likely to practice upon completion of your residency?

- Rural
- Urban

18. What is your preferred type of practice upon completion of your residency?

- Private practice
- Large healthcare provider
- Small healthcare provider
- Federally Qualified Health Center (FQHC)
- Other (please specify): _____

19. Please provide your age: _____

20. How do you identify?

- Male
- Female
- Non-binary
- Prefer not to answer

21. Please provide any additional comments:

Thank you for completing our survey.

Return your survey to the Survey Administrator for your Session.

APPENDIX D: Post-Rotation Survey of First-Year Medical Residency Students

The University of North Dakota Center for Family Medicine and the North Dakota Department of Health are working together to explore and pilot medical dental integration in a family health care setting. The Center for Rural Health at the University of North Dakota is completing an assessment of this program. This assessment includes a short questionnaire to capture your experience with this pilot project in which the Center for Family Medicine has integrated a public health hygienist into the medical center. Please consider taking 5-10 minutes to complete this short survey. Your responses are voluntary, anonymous, and data will only be shared aggregately. This evaluation has been approved by the University of North Dakota Institutional Review Board. If you have questions about the survey or the evaluation, please contact Shawnda Schroeder at Shawnda.schroeder@UND.edu or 701-777-0787.

UNIQUE IDENTIFIER (CODE)

This information is needed to anonymously link your pre-survey with the post survey you will be invited to complete at the end of your residency.

First letter in mother's first name: _____

First digit of social security number: _____

First letter in mother's maiden name: _____

Last digit of social security number: _____

1. Please indicate your level of agreement with each of the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The seminars provided by the public health hygienist were informative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The public health hygienist that delivered oral health seminars was knowledgeable about oral health and overall health.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The seminars provided me with new information about oral health that I had not previously been exposed to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I will be able to integrate information from the oral health seminars into my family medical practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The seminars changed my perceptions on the importance of medical dental integration and the importance of oral health to overall health.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The seminars provided by the public health hygienist were a positive addition to my residence training.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The public health hygienist is a positive addition to the UND Center for Family Medicine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Did you conduct any basic oral health screenings while doing your resident rotation at the University of North Dakota Center for Family Medicine? Yes No [Skip to Q. 6]

3. How many basic oral health screenings have you conducted? A few Some Many

4. Did you refer any patients for dental care? Yes No (Skip to Q.6)

5. Did you follow up on dental referrals at future appointments? Yes No

6. Please rate your level of agreement with the following statement: Oral health is an important factor in overall health.

Strongly Disagree Disagree Neutral Agree Strongly Agree

7. How confident are you in your ability to identify each of the following conditions?

	Not At All Confident	Somewhat Confident	Confident	Very Confident
Cavity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Periodontal Disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mouth Cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gingivitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Candidiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gingival Hyperplasia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Abscess	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Please indicate if you are, or are not aware, of a correlation (relationship) between oral health and the following medical conditions.

	Aware	Not Aware
Cerebrovascular disease	<input type="checkbox"/>	<input type="checkbox"/>
Coronary vascular disease	<input type="checkbox"/>	<input type="checkbox"/>
Xerostomia	<input type="checkbox"/>	<input type="checkbox"/>
Throat cancer	<input type="checkbox"/>	<input type="checkbox"/>
Preterm birth	<input type="checkbox"/>	<input type="checkbox"/>
HIV/Aids	<input type="checkbox"/>	<input type="checkbox"/>
HPV	<input type="checkbox"/>	<input type="checkbox"/>
Low birth weight	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes	<input type="checkbox"/>	<input type="checkbox"/>
Aspiration pneumonia	<input type="checkbox"/>	<input type="checkbox"/>

9. Please indicate if you are, or are not, aware of these behaviors or conditions having an influence on an individual's oral health.

	Aware	Not Aware
Pregnancy	<input type="checkbox"/>	<input type="checkbox"/>
Nutrition and diet	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol use	<input type="checkbox"/>	<input type="checkbox"/>
Tobacco use	<input type="checkbox"/>	<input type="checkbox"/>
Use of methamphetamine	<input type="checkbox"/>	<input type="checkbox"/>
Opioid use (prescribed and illicit)	<input type="checkbox"/>	<input type="checkbox"/>
Use of certain prescribed medications	<input type="checkbox"/>	<input type="checkbox"/>
Alzheimer's, dementia, and/or memory loss	<input type="checkbox"/>	<input type="checkbox"/>

10. Please rate how important or not important each of the following is in a family medical setting.

	Not At All Important	Somewhat Important	Very Important
Basic oral health screenings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Questions regarding oral health during intake screenings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient referrals for oral health treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Follow up on referred oral health care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Presence of an oral health hygienist in the family medical practice setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continuing education on oral health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integrated oral health care in the family medical setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Where did you attend medical school? (If outside of the United States, just list the country; if within the United States, please spell out which state).

12. What year are you in your residency?

- Third year Other (please specify): _____

13. Where do you intend to practice medicine upon completion of your residency?

- North Dakota
 Neighboring state (MN, SD, MT)
 Elsewhere in the United States
 Internationally
 Other (please specify): _____

14. Where are you most likely to practice upon completion of your residency?

- Rural
- Urban

15. What is your preferred type of practice upon completion of your residency?

- Private practice
- Large healthcare provider
- Small healthcare provider
- Federally Qualified Health Center (FQHC)
- Other (please specify): _____

16. Please provide your age:_____

17. How do you identify?

- Male
- Female
- Non-binary
- Prefer not to answer

18. Please provide any additional comments:

Thank you for completing our survey.
Return your survey to the Survey Administrator for your Session.

APPENDIX E: Electronic Dental Record

Dental Opt Out

Patient decide to

- opt out of screening
- opt out of screening, previously screened

Dental Screening

Date of Service
//

Date of last dental visit ? {Annual}
02/19

Possible decay?
 No Answer Yes No

Missing teeth due to history of cavities?
 No Answer Yes No

Filled teeth
 No Answer Yes No

Gingivitis present?
 No Answer Yes No

Flouride Varnish?
 No Answer Yes No

Tooth pain?
 No Answer Yes No

Patient referred to dentist?
 No Answer Yes No

Urgent care needed
 No Answer Yes No

Case Management?
 Yes
 No

Oral health Education was given

- dental supplies given to patient.
- education discussed,
- education materials given,
- *

Is the patient insured?

No Answer Yes No

Additional comments:

Conditions/Diseases:

Alcohol abuse

Cardiovascular

Diabetes

Obesity

Pregnancy

Substance abuse

Tobacco Use; chewing

Tobacco Use; cigarettes

Tobacco Use; vaping

*

Advice given: "Quitting tobacco is one of the most important things you can do to improve your health"

Questioned the patient if they are willing to give quitting tobacco use a try?

No, offered to the patient that we are committed to helping when they are ready.

Yes, nurse notified to send referral to NO Quits.

Did the patient seek treatment?

No Answer Yes No

Dental Referral

!!! ROUTE TO NURSING, SAVE only !!!

Date

//

***Referral for (chief complaint):

Fluoride Varnish applied

//

Past Medical History:

Additional information

Dental Office

Responsible party:

**Name of facility patient is being referred to:

Referred Provider Address:

Referred Provider Phone #:

Referred Facility Fax #:

Patient Name Format:

LastName, FirstName, MiddleInitial

Patient DOB:

Address:

City:

State:

Zip:

Patient's phone number:

Cell Phone

Insurance Company Name:

Insurance Policy Number:

Dental Sealant

Dental Sealant placed?

- No Answer Yes No

Tooth Screening

<input type="checkbox"/> 1	
<input type="checkbox"/> 2	
<input type="checkbox"/> 3	
<input type="checkbox"/> 4	
<input type="checkbox"/> 5	
<input type="checkbox"/> 12	
<input type="checkbox"/> 13	
<input type="checkbox"/> 14	
<input type="checkbox"/> 15	
<input type="checkbox"/> 16	
<input type="checkbox"/> 17	
<input type="checkbox"/> 18	
<input type="checkbox"/> 19	
<input type="checkbox"/> 20	
<input type="checkbox"/> 21	
<input type="checkbox"/> 28	
<input type="checkbox"/> 29	
<input type="checkbox"/> 30	
<input type="checkbox"/> 31	
<input type="checkbox"/> 32	

Sealant placed on the following teeth:

<input type="checkbox"/> 1	
<input type="checkbox"/> 2	
<input type="checkbox"/> 3	
<input type="checkbox"/> 4	
<input type="checkbox"/> 5	
<input type="checkbox"/> 12	
<input type="checkbox"/> 13	
<input type="checkbox"/> 14	
<input type="checkbox"/> 15	
<input type="checkbox"/> 16	
<input type="checkbox"/> 17	
<input type="checkbox"/> 18	
<input type="checkbox"/> 19	
<input type="checkbox"/> 20	
<input type="checkbox"/> 21	
<input type="checkbox"/> 28	
<input type="checkbox"/> 29	
<input type="checkbox"/> 30	
<input type="checkbox"/> 31	
<input type="checkbox"/> 32	

Electronic Record of Dental Referral Follow-Up

Dental Outgoing Call

Date of outgoing call:

Time of outgoing call (military):

Specify Phone #

Reason for call (outgoing)

- returning call
- lab/xray result
- needs follow up appointment
- referral information
- refill request or information
- *

Did the patient seek treatment?
 No Answer Yes No

Provider:

Topic(s) Discussed:

Advice/Recommendations:

APPENDIX F: Sample of Materials Provided by PHH for Patient Education

PERIODONTAL


Periodontal Disease

Don't wait until it hurts




ADA American Dental Association®
America's leading advocate for oral health

The illustration shows a cross-section of teeth with significant bone loss and red, swollen gums. A dental probe is shown measuring the depth of the periodontal pocket. A large 'SAMPLE' watermark is overlaid diagonally across the image.



Health

Sip and Snack All Day? Risk Decay!



Dr. Jordan Johnson
Family Dentistry
211 E. Chicago Ave.
Suite 500
Chicago IL 60611
(312) 440-2500
Fax (312) 440-2935
www.jordanjohnsondentistry.com

ADA American Dental Association®
America's leading advocate for oral health

The image shows a variety of snacks and drinks: a muffin, cookies, a container of yogurt, a glass of iced tea, and a glass of orange juice. A large 'SAMPLE' watermark is overlaid diagonally across the image.



Parents

Your Child's Teeth

Helpful tips for parents
and caregivers



ADA American Dental Association®
America's leading advocate for oral health

PREVENTION

Basic Flossing

ADA American Dental Association®
America's leading advocate for oral health



PREVENTIVE

Why You Should See Your Dentist

ADA American Dental Association®
America's leading advocate for oral health



PARENTS

Tooth Decay in Baby Teeth


Baby teeth can get cavities!



ADA American Dental Association®
America's leading advocate for oral health

HEALTH

Oral Piercing: Is It Worth It?



ADA American Dental Association®
America's leading advocate for oral health

APPENDIX G: Brushing and Flossing Calendar for Patients

April 2020

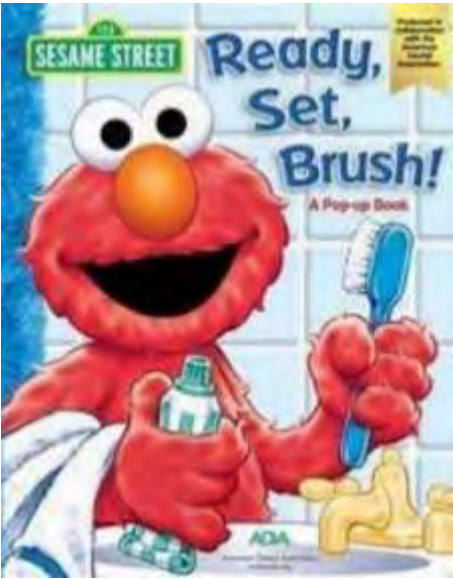


Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> APRIL FOOLS DAY	2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> CHILDREN'S BOOK DAY	3 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	4 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	8 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> PASSOVER BEGINS	9 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> SIBLINGS DAY	11 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> EASTER	13 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	14 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> LOOK UP AT THE SKY DAY	15 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	16 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> PASSOVER ENDS	17 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	18 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
19 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ORTHODOX EASTER	20 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	21 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	22 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> EARTH DAY	23 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> WORLD BOOK DAY	24 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> BIRD DAY	25 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
26 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	27 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	28 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	29 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	30 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

Check off each of the 2 boxes every time you brush. Make it a habit for a great smile!



APPENDIX H: Book Available in Patient Waiting Room



APPENDIX I: Bright Futures: Oral Health Pocket Guide

This pocket guide is designed to be a useful tool for health professionals, including dentists, dental hygienists, physicians, physician assistants, nurse practitioners, nurses, dietitians, and others, in addressing the oral health needs of pregnant and postpartum women, infants, children, and adolescents. The pocket guide provides health professionals with an overview of preventive oral health supervision and includes information about risk assessment, a tooth eruption chart, a dietary fluoride supplementation schedule, a glossary, and a list of resources.

The pocket guide was developed by Paul Casamassimo and Katrina Holt and produced by the National Maternal and Child Oral Health Resource Center.

In addition to hard copies that were made available to medical residents, the guide is free to access online and users can:

- Download the printer-friendly (two pocket guide pages per full sheet of paper) PDF file of Bright Futures: Oral Health—Pocket Guide, 3rd edition.
- Download the e-reader-friendly PDF file to read on a mobile device.

The e-reader and PDF files are available at <https://www.mchoralhealth.org/pocket/>.

Bright Futures ORAL HEALTH Pocket Guide



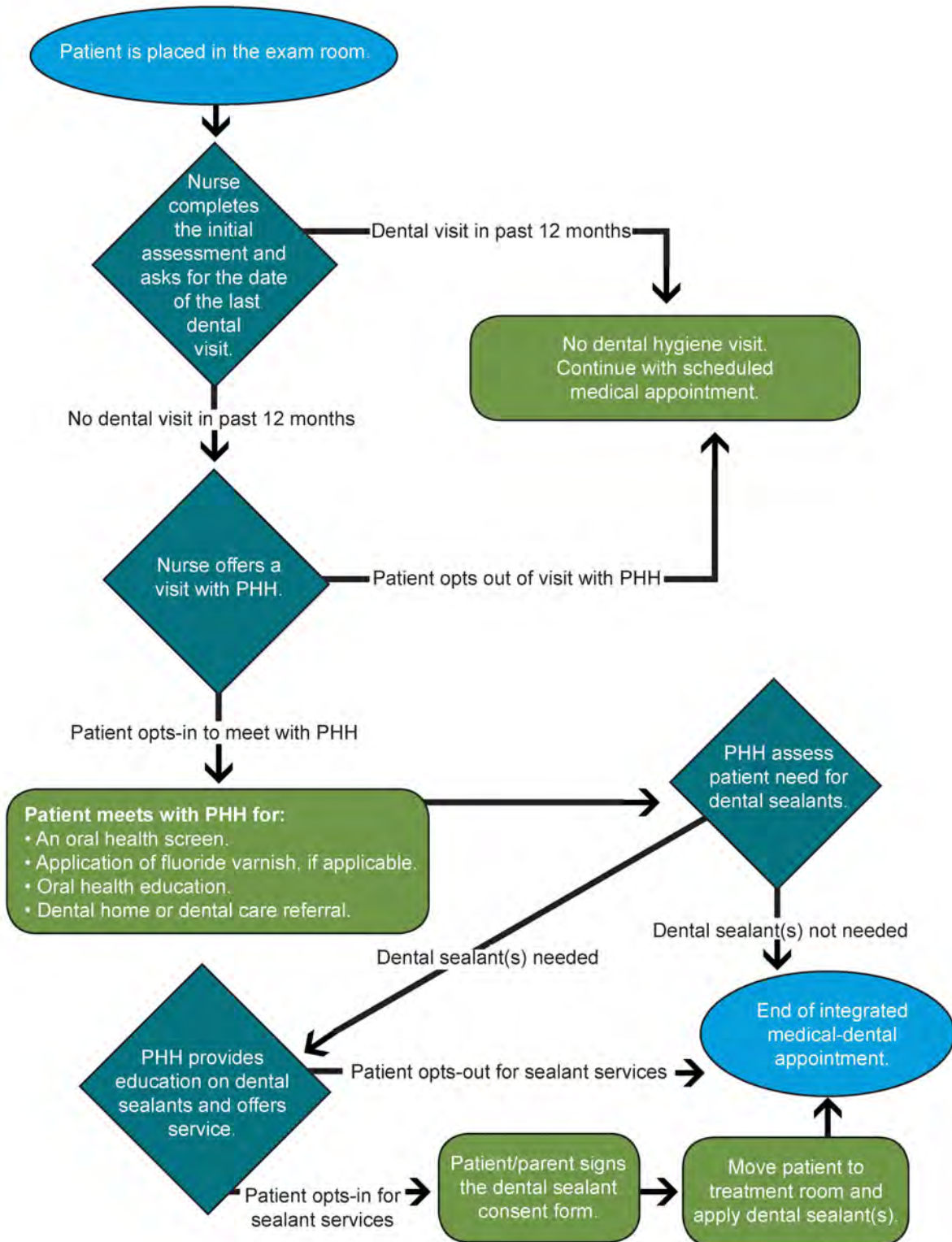
THIRD EDITION




Bright Futures.

prevention and health promotion for infants,
children, adolescents, and their families.™


APPENDIX J: Clinical Workflow for Medical-Dental Integration



APPENDIX K: Patient Information on Dental Sealants




Prevention



Sealants Quick Reference

Tooth decay often occurs on the chewing surfaces of back teeth. The good news is that sealants can help protect these surfaces from tooth decay and improve your chances to stay filling-free.


What causes tooth decay? Your teeth are coated with a sticky film of bacteria called plaque (pronounced PLACK). The bacteria convert the sugars you eat and drink into acids that attack the strong, outer layer of your tooth, called enamel. Over time, this can weaken the enamel and cause cavities.




Even a toothbrush bristle is too big to reach inside a groove in the tooth (magnified).

What is a sealant? A sealant is a material applied to the chewing surfaces of your back teeth, which have deep pits and grooves. The material flows into these pits and grooves and then hardens. Once your teeth are sealed, food and plaque cannot get in. The sealant forms a barrier against acid attacks.

How are sealants applied? Your teeth are cleaned and the chewing surfaces are prepared to help the sealant stick to your teeth. The sealant is painted onto the chewing surface where it bonds to your tooth and hardens. Sometimes a special light is used to help the sealant harden. It usually takes only a few minutes to seal each tooth.



Chewing surface of a molar before a sealant is applied.
Image ©Eliaviv, Inc. All rights reserved.



Chewing surface of a molar protected by a sealant.
Image courtesy of Dr. Adam Francis.

ADA American Dental Association®
America's leading advocate for oral health