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Report: North Dakota Department of Health Oral Health Program: Full Evaluation of the Oral Health Program's Activities under Centers for Disease Control and Prevention (CDC) Grant, State Actions to Improve Oral Health Outcomes

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North Dakota Department of Health Oral Health Program

Notice of Funding Opportunity DP18-1810
Year Four Evaluation Report:
September 1, 2021 – August 31, 2022



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ACRONYMS & ABBREVIATIONS

AFS	American Fluoridation Society
AI/AN	American Indian/Alaska Native
BSS	Basic Screening Survey
CDC	Centers for Disease Control and Prevention
CE	Continuing Education
CME	Continuing Medical Education
CSTE	Council of State and Territorial Epidemiologists
CWF	Community Water Fluoridation
DWP	Drinking Water Program
FLO	Fluoridation Learning Online
FQHC	Federally Qualified Health Center
IRB	Institutional Review Board
MOU	Memorandum of Understanding
ND DEQ	North Dakota Department of Environmental Quality
ND DoH	North Dakota Department of Health
ND DHS	North Dakota Department of Human Services
ND DPI	North Dakota Department of Public Instruction
ND OHSS	North Dakota Oral Health Surveillance System
OHP	Oral Health Program
PHH	Public Health Hygienist
PI	Principal Investigator
RMCM	Ronald McDonald Care Mobile
SEALIND	Name of the North Dakota School-based Dental Sealant Program
SMHS	School of Medicine & Health Science
UND	University of North Dakota
WFRS	Water Fluoridation Reporting System

EXECUTIVE SUMMARY

The Mission of the North Dakota Department of Health (ND DoH) Oral Health Program (OHP) is to improve the oral health of all North Dakotans through prevention and education. Funding from the Centers for Disease Control and Prevention (CDC) State Actions to Improve Oral Health Outcomes enables the OHP to implement oral health promotion and prevention activities that address targeted need within the state. Component one of the grant addresses oral health disparities by both maintaining the existing public health capacity among the OHP, and identifying, implementing, evaluating, and disseminating best practices for oral health promotion and disease prevention among vulnerable populations.

Key Program Components & Strategies

The OHP proposed to use the CDC funding (component one) to support:

1. Reach of SEAL!ND: School-based dental sealant program.
2. Community water fluoridation (CWF).
3. Statewide oral health surveillance.

In years three and four, the team also began an online education series (TeleECHO™) with free continuing medical education (CME) for dental providers and primary care providers.

Evaluation Methods & Analysis

The evaluation was conducted, under a subcontract with the OHP, by staff and faculty in the [Department of Indigenous Health^a](#) at the [University of North Dakota School of Medicine & Health Sciences \(UND SMHS\)^b](#). All of the evaluation activities were submitted to, and approved by, the [UND Institutional Review Board \(IRB\)^c](#).

To measure reach of the school-based dental sealant program (SEAL!ND), the evaluation team interviewed OHP team members and reviewed data collected at the dental screenings. To assess the efficacy of CWF activities, the evaluation team interviewed OHP staff members, reviewed policies and training on CWF, and developed evaluation tools to assess any training on the topic of water fluoridation for diverse audiences. To assess the data surveillance plan, the evaluation team reviewed data collection procedures, interviewed OHP staff and leadership, and reviewed all dissemination materials utilized to share oral health data.

Evaluation Purpose & Dissemination Plan

The evaluation activities are intended to inform the granting agency of the progress made and any noted barriers experienced by the OHP in working to achieve the goals set forth. However, the evaluation team continues to develop additional evaluation products of value to diverse audiences. These include presentations, infographics, briefs, and program reports all of which are made [available online^d](#). Evaluation occurs in real-time, providing the OHP and evaluation team the opportunity to discuss any needed work plan adjustments. Real-time results also assist the team as they prepare future grant activities.

Key Findings: SEAL!ND School-based Sealant Program

Under CDC funding, the OHP continues to administer SEAL!ND specifically among schools that qualify for services; that is, those with 45% or greater of students enrolled in the free and reduced-fee school lunch program. Additional funding sources support SEAL!ND efforts in schools that do not qualify. The OHP suddenly lost a member of the team in a tragic accident. As a result, there was no contracted Public Health Hygienist (PHH) employed for the fall visits. Other OHP staff and contracted partners still visited 18 qualifying schools in the fall (2021).



Three out of every five students who are Indigenous (60%) had untreated decay (including rampant decay) compared to only 36% of their non-Indigenous peers.

Although the program has had a positive impact on the overall health of community, data indicate marked inequities for Indigenous children.

During the 2021-2022 school year, 36 qualifying schools, and 14 non-qualifying schools participated in SEAL!ND; 32 of these 50 schools had two visits. Among the 14 non-qualifying schools, 525 children were screened. Providers placed 942 dental sealants, completed 974 fluoride varnish applications, and referred 154 children.

Among the 36 qualifying schools who were served by either the PHH or private practice, 1,159 students were screened. Nearly four out of five (79%) of the students screened reported a previous visit with a dental professional; 95% of 1,159 students received fluoride varnish at the first visit. At the first visit with qualifying schools, 2,344 teeth were sealed; 47% of those students needed early (35%) or urgent (12%) dental care.

Key Findings: Community Water Fluoridation

In 2020, roughly 96.5% of the state population (694,063) was being served by public water systems receiving optimally fluoridated water (0.7 mg/L). In 2021, North Dakota became one of only nine states in providing water operator continuing education (CE) credits. Water operators in North Dakota who complete the training may now receive four CE credits.

Key Findings: Oral Health Surveillance

In grant year three, (2021) the team completely transformed the North Dakota Oral Health Surveillance System (ND OHSS). The new website provides data in several formats and by subpopulation. In the current grant year all data were updated, and new measures were added. The Basic Screening Survey (BSS) was also conducted among third graders in North Dakota and the team developed the Burden of Disease report entitled *Oral Health in North Dakota: Opportunities and Need to Promote Oral Health Equity*.

Key Findings: Additional Activities

The OHP participated in other activities in this grant year that were, at least partially, supported through CDC funds. These activities included:

- Establishing and participating in the North Dakota Oral Health Coalition.
- Promoting an Oral Health in Primary Care TeleECHO™ Clinic.
- Hosting a Dentistry as Primary Care TeleECHO™ Clinic.
- Mailing of toothbrush kits to schools.
- Development and dissemination of one-page educational materials on good dental hygiene for nearly a dozen diverse population groups (e.g., good dental hygiene for Indigenous Elders, good dental hygiene for baby, and good dental hygiene for teens).

Recommendations: SEAL!ND School-based Sealant Program

- Work with private providers to assess their knowledge, interest, and willingness to participate in school-based sealant programs.
- Maintain partnership with the Ronald McDonald Care Mobile (RMCM) to determine future interest in school-based sealant programs.
- Work to create consistent data collection between provider groups.
- Sustain the PHH workforce employed by the ND OHP.
- Promote the school-based sealant program among parents, schools, and dental providers.
- Create relationships, and explore opportunities, to provide school-based sealant programs in schools located on reservations throughout North Dakota.

Recommendations: Community Water Fluoridation

- Continue to train water operators on importance of CWF and on proper use of water testing equipment, promoting the newly approved Fluoridation Learning Online (FLO) training which offers four CE credits.
- Work with tribal communities to identify water quality and to implement training and education campaigns around safe drinking water.
- Implement/promote campaigns to train trusted entities on speaking to the importance of drinking tap water. This can include primary care providers, dental teams, Head Start teachers, case workers, community health providers, Indigenous Elders, teachers, and more.

Recommendations: Oral Health Surveillance

Update reports annually and implement a strong dissemination campaign for both the *Oral Health in North Dakota: Opportunities and Need to Promote Oral Health Equity* product, as well as the results of the third grade BSS.

PROGRAM DESCRIPTION

The mission of the [ND DoH](#)^e is to “improve the length and quality of life for all North Dakotans.” The ND DoH is committed to: excellence in providing services to the citizens of North Dakota; credibility in providing accurate information and appropriate services; respect for our employees, our coworkers, our stakeholders and the public; creativity in developing solutions to address our strategic initiatives; and, efficiency and effectiveness in achieving strategic outcomes.^f The [OHP](#)^g is situated within the Healthy and Safe Communities Section under the [Division of Health Promotion](#).^h See Appendix A for the organizational chart.

The mission of the OHP is “to improve the oral health of all North Dakotans through prevention and education.” 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.

Funding from the CDC State Actions to Improve Oral Health Outcomes enables the OHP to implement additional oral health promotion and prevention activities.

Key Program Components & Strategies

The OHP utilized CDC funding (component one) to support:

1. Reach of SEAL!ND: School-based dental sealant program.
2. CWF activities and promotion.
3. Statewide oral health surveillance.

Though not specific programs, other deliverables that were completed in year four as required under the CDC award include:

- Conducting the BSS of third grade students.
- Development of the Burden of Disease report entitled *Oral Health in North Dakota: Opportunities and Need to Promote Oral Health Equity*
- Updates to the Surveillance, Communication, and Sustainability Plans.

SEAL!ND: School-based Dental Sealant Program

The OHP established a [school-based dental sealant program](#)ⁱ (SEAL!ND) which has been providing fluoride varnish and dental sealants to students throughout North Dakota since 2012. Under CDC funding, the OHP continues to administer SEAL!ND specifically among schools with 45% or greater of their students enrolled in the free and reduced-fee school lunch program. At the time of the initial CDC award, SEAL!ND was offered in 29 of 136 eligible schools primarily located in rural areas. The goal has been to increase participating schools by 5% annually.

The OHP Prevention Coordinator identifies eligible schools utilizing data from the [North Dakota Department of Public Instruction \(ND DPI\)](#).^j The coordinator then provides educational materials to school administrators, staff, and parents on the benefits of dental sealants, inviting participation in the program. Oral health services provided in participating schools include dental screenings, fluoride varnish application, sealant application, oral health education, and dental referral. This is completed by either the PHH employed by the OHP and supervised by one private practice dentist, or by dental team members who have partnered with the OHP.

Although this particular CDC grant funds dental services provided only in qualifying schools, the program has established sustainability by coordinating SEAL!ND throughout the state. The OHP Prevention Coordinator coordinates SEAL!ND by providing oversight, scheduling, materials, and manuals for both schools and dental teams alike. In 2021-2022, 14 additional schools that did not qualify for services under this grant participated in a school-based sealant program.

Community Water Fluoridation

The North Dakota water fluoridation program began in the 1950s; roughly 96.5% of the state population that are on public water systems receive optimally fluoridated water (0.7 mg/L), thereby exceeding the Healthy People 2030 objective of 77.1%. To maintain this success, the OHP has a Memorandum of Understanding (MOU) with the [Drinking Water Program \(DWP\)](#),^k located within the Department of Environmental Quality (DEQ), [Division of Municipal Facilities](#).^l The MOU ensures the OHP has access to information, reports, and expertise regarding the state's water fluoridation program and that the Fluoridation Coordinator is part of the task force addressing fluoridation issues and challenges. The Coordinator compiles and maintains a list of all fluoridated water systems in the state along with a list of consecutive systems that purchase water from fluoridated water systems. Dollars have also been allocated to the American Fluoridation Society (AFS) to develop educational materials, provide local training, and explore opportunities to increase access to optimally fluoridated water in tribal communities.

Statewide Oral Health Surveillance

The purpose of the statewide oral health surveillance system is to maintain a detailed plan for data collection, analyses, and dissemination. These activities include tracking the recommended core indicators, as identified by the [Council of State and Territorial Epidemiologists \(CSTE\)](#).^m Additionally, the OHP conducted an oral health BSS among kindergarteners in 2018-2019, and among third grade students during the 2021-2022 school year in accordance with [Association of State and Territorial Dental Directors guidelines](#).ⁿ The ND OHSS^o has added new indicators in the last year in response to statewide partnerships. New measures include dental care utilization during pregnancy collected and analyzed by the [North Dakota Pregnancy Risk Assessment Monitoring System](#),^p public perception of community water fluoridation as collected in a survey by AFS, use of the emergency department for dental concerns, dental care provision and varnish application as reported by North Dakota [Medicaid](#),^q and dental provider workforce data provided by the [North Dakota Board of Dental Examiners](#)^r and the ND DoH Primary Care Office.

In year three, the data surveillance activities included developing an entirely new website that provides free access to all data available in North Dakota on overall oral health, and dental care access and utilization. In year four, this website was updated with new data and shared with the State Oral Health Coalition, along with other partners. An additional product developed in year four includes the *Oral Health in North Dakota: Opportunities and Need to Promote Oral Health Equity*. This report is intended to replace the 2012 *Burden of Disease and Plan for the Future*.

Communication Plan

The purpose of the Communication Plan is to identify outreach and dissemination strategies that are necessary to share oral health information with the public, stakeholders, providers, and decision makers. The Communication Plan was submitted to the CDC in July 2021 and details communication methods for sharing oral health education, culturally responsive education, resources for providers, and reports on program activities. The plan was updated in August 2022 and will continue to be reviewed annually.

Surveillance Plan

The purpose of the ND OHSS is to maintain a detailed plan for consistent data collection, analyses, and data dissemination. The ND OHSS is comprised of indicators to address federal recommendations, epidemiological inquiries, data requests, and to guide program and policy development. The state dental director, together with key partners, continue to identify gaps in data needs and data collection. As the ND OHSS has continued to mature, the data collection efforts have expanded to include policy development, surveillance, and evaluation. As of 2020, the ND OHSS contained over 40 indicators that are to be routinely updated.

The OHP seeks, collaborates, and coordinates opportunities to collect oral health data through the integration of existing surveys already conducted by state agencies and other organizations. Many partnerships have been established to leverage resources in data collection. The primary objective of the ND OHSS is to provide actionable data to inform public health programs and policy decisions. These data are only useful if they are tracked overtime, tracked consistently, and reported publicly. The Surveillance Plan, submitted May 2021, outlines all data currently collected as part of the ND OHSS, indicates when the data are updated, and clarifies who is responsible for maintaining the virtual access to the ND OHSS for the public. The plan also details partners, data sources, and dissemination strategies. The plan was updated in August 2022 and will continue to be reviewed annually.

Sustainability Plan

Sustainability is imperative for the success and reach of SEAL!ND. Sustainability is a complex and dynamic process. The OHP defines sustainability as the capacity to carry on with SEAL!ND services even if a major source of funding is no longer available. This includes not only identifying additional funding mechanisms, but also identifying and working with partners who are already providing said services. Those involved with the development of the sustainability plan included both internal and external stakeholders and partners. Internal partners included

the ND DoH Health Statistics and Performance section ND DPI, and the North Dakota Medicaid office. External partners included schools participating in SEAL!ND, partnership organizations with shared goals such as the North Dakota Dental Foundation, collaborating private dental practices and Federally Qualified Health Centers (FQHCs), RMCM staff, and faculty from the North Dakota State College of Science. The sustainability plan was submitted August 2021, updated in August 2022, and continues to be reviewed annually.

Additional Activities in Year Three

The OHP participated in other activities in this grant year that were, at least partially, supported through CDC funds. These activities included:

- Establishing and participating in the North Dakota Oral Health Coalition.
- Promoting an Oral Health in Primary Care TeleECHO™ Clinic.
- Hosting a Dentistry as Primary Care TeleCHO™ Clinic.
- Development and dissemination of one-page educational materials on good dental hygiene for nearly a dozen diverse population groups (e.g., good dental hygiene for Indigenous Elders, good dental hygiene for baby, and good dental hygiene for teens).

Data Limitations: Findings Impacted by Global Health Pandemic

In March 2020, schools, businesses, dental offices, and dental clinics closed throughout the state of North Dakota in response to the global health pandemic (COVID-19). These closures impacted dental service provision and the work of this grant. During the 2021-2022 grant year, organizations had returned to a “new normal” but, to date, still feel the impact of the pandemic. The repercussions include ongoing clinical workflow adaptations, provider and educator workforce shortages, and backlogs of patients requesting dental care prevention and treatment services. Trend data have also been interrupted and there are datasets that will have gaps in care provision for the 2020-2021 grant year. When this occurs, a data note indicates the months of provision that are being reported. These efforts have also been required for the ND OHSS.

EVALUATION & STAKEHOLDER ENGAGEMENT

Year four, component one evaluation activities were conducted under the leadership of Dr. Shawnda Schroeder with UND SMHS under a subcontract with the OHP. [Dr. Schroeder^s](#) has worked collaboratively with the OHP and other oral health stakeholders for several years. All OHP program staff, the PHH, water fluoridation leads, state epidemiologists, and the SEAL!ND Prevention Coordinator were all consulted in the development of the evaluation plan. Collaboratively they have also developed evaluation dissemination strategies utilizing fact sheets, data reports, webinars, and both national and state conferences to share program impact. Key stakeholders both within the OHP and those receiving services because of this funding have participated in surveys, focus groups, and/or individual interviews to better inform the evaluation.

Purpose of Evaluation

The evaluation is intended to inform the granting agency (CDC) of the progress made and noted barriers experienced by the OHP. Evaluation also occurs in real-time, providing the OHP and evaluation team the opportunity to discuss any needed work plan adjustments. Real-time results assist in annual proposal review and submission, and development of future grant activities.

Evaluation Methods & Analysis

The evaluation was conducted by staff and faculty at the UND SMHS. The UND SMHS has faculty and staff with extensive experience in program planning and evaluation for local, county, state, federal, and international programs. They evaluate services on behalf of foundations, state government agencies, and a variety of federal agencies. The evaluators have a wide network of contacts involved in rural health research across the country, as well as connections with key organizations and agencies within North Dakota. The principal investigator (PI) of this evaluation, Dr. Schroeder, was a Research Associate Professor at the Center for Rural Health and is now faculty in the Department of Indigenous Health. She has conducted several statewide evaluations and has been working in oral health research within North Dakota for over seven years. All of the following evaluation activities were submitted to, and approved by, the [UND IRB](#).^c Specific evaluation details are outlined under the respective program goals.

SEAL!ND: SCHOOL-BASED DENTAL SEALANT PROGRAM

The school-based sealant program (SEAL!ND) is covered by awards held at the OHP with both the [CDC](#)^t and the [Health Resources and Services Administration](#).^u During the onset of the COVID-19 pandemic (March 2020), fewer providers were offering school-based services, and the program experienced loss of direct contact with some schools as districts moved to remote learning. In response to the loss of direct services, the OHP dedicated time and resources to the dissemination of toothbrush kits. The kits contained a toothbrush, travel size tube of toothpaste, and floss. Educators were provided with a short 2.5-4 minute video that could be played in the classroom when the bags were handed out, and/or could be shared with parents electronically. In the current year, schools continue to request these toolkits and have viewed these resources as an opportunity to engage students in conversations around good dental hygiene.

Evaluation & Stakeholder Engagement

Process Evaluation

Process evaluation activities seek to answer these questions:

- Is SEAL!ND reaching the intended audience?
- Is there effective collaboration in SEAL!ND?
- What are significant changes that have been made to the program or workflow?
- What are barriers and challenges to achieving target outcomes?
- How can those barriers and challenges be overcome?

Outcome Evaluation

Outcome evaluation activities include review of student data provided by the participating schools and the PHH. These activities seek to answer the following questions:

- How many schools meet the eligibility criteria? How many do not?
- How many students were screened?
- How many/what percent of students received sealants?
- How many/what percent of students had untreated decay?
- How many/what percent of students were referred for treatment?

School Survey

In year two (2019-2020), the evaluation team sent electronic surveys to administrators or non-certified staff at every school participating in SEAL!ND, whether services were provided under this grant or by outside providers. The survey was designed to gauge the schools' experience with both SEAL!ND and dental providers, and to obtain data regarding challenges and barriers. This survey was not conducted in year three because many schools were fluctuating between in-person and remote learning in response to the COVID-19 pandemic. The responses would not have reflected the service provision nor the work of the OHP. Year four the survey was not conducted because schools were already participating in both SEAL!ND and were being asked to participate in the BSS. The survey will be administered during the 2022-2023 school year.

Student (Patient) Data

Site data for all students are compiled by the PHHs employed under this grant, and by additional FQHCs and private providers with signed MOUs through the OHP. The data provide performance measures to calculate and demonstrate program outcomes. The data collected are analyzed by the program evaluators using methods that follow CDC-approved guidelines. Data collection methods employed by the PHH are consistent, however, the systems employed by partnering providers and those offering schools-based services on their own do not all collect the same patient data. These specifications are outlined in the presentation of the findings.

Findings

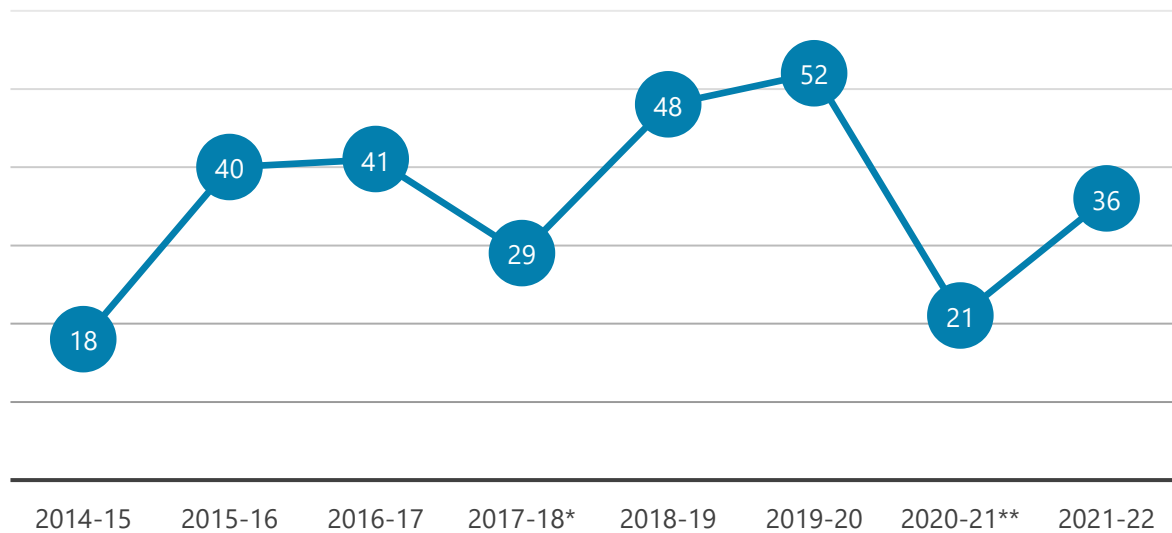
Provider and School Participation

In the first year of tracked services (2014-15), the PHH employed by the OHP (supervised under standing orders by one independent private practice dentist) was responsible for 100% of SEAL!ND services. During the 2015-16 school year, the RMCM and FQHCs began offering school-based care and accounted for roughly 24% and 16% of services respectively. The following school year, private practice began participating in SEAL!ND and accounted for 14% of sealant programs. This illustrates growth and sustainability, bringing in dental partners and providers to offer care in school settings.

Although the CDC funds cover only those dental services provided in qualifying schools, the program has established sustainability by coordinating SEAL!ND activities throughout the state. The Prevention Coordinator provides oversight, scheduling, materials, and manuals for both schools and dental teams alike. During the 2019-2020 school year, 84 schools participated in SEAL!ND; however, only 52 qualified for services (reporting at least 45% of their students enrolled in the free and reduced-fee school lunch program). Prior to the 2020-2021 school year in which the COVID-19 pandemic delayed or stopped service delivery, the number of schools that qualified for, and received, services from the OHP had increased annually and greater than the 5% goal. The most recent school year (2021-2022) increased the number of schools from the previous year by 71% with the PHH and contracted providers visiting 36 total schools.

See Figure 1 and note that the drop in services in 2020-2021 is a reflection of the pandemic. Due to patient backlogs and risk mitigation requirements, many private practice dental offices who had participated in SEAL!ND in years prior did not participate during the 2020-2021 school year.

Figure 1. Number of Qualifying Schools Participating in SEAL!ND, by Year



* Data for 2017-18 were only available for schools served by the PHH and did not include services provided to qualifying schools under a MOU by FQHCs or private dental teams.

** The COVID-19 pandemic led to a nationwide shutdown, temporary school closures, and delayed the reopening, and provision, of services in dental clinics and FQHCs.

SEAL!ND took place in 50 schools in 2021-2022. Of those 50 schools, 36 qualified for services and 14 did not. The 14 schools that did not qualify for SEAL!ND were served by three private practice providers. SEAL!ND has been making progress to return to pre-COVID participation among private practice providers who serve non-qualifying schools. See Table 1.

Table 1. Number of Schools Participating in SEAL!ND in Fall and Spring (2021-22)

	Fall 2021	Spring 2022	Total Schools
Qualifying schools visited by the OHP PHH	3	21	21
Qualifying schools visited by providers with signed MOUs	15	15	15
NON-qualifying schools	14	14	14
	TOTAL		50

Among the 36 qualifying schools, 21 were served by OHP PHHs and 15 were served by providers with signed MOUs. All 14 non-qualifying schools were served by private practice. See Tables 1 and 2. The RMCM has not yet returned to providing school-based sealant programs, and instead, has been focused on other community dental treatment needs following care delay during the 2020-2021 cycle.

Table 2. Number of Schools in North Dakota with a School-Based Dental Sealant Program by Provider and School Year (Qualifying and Non-Qualifying Schools)

School Year:		14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22
SEAL!ND	Private practice providers	0	0	12	49	32	37	12	19
	Community Health Centers*	0	8	13	17	17	24	0	10
	OHP PHH	18	32	41	29	30	19	18	21
Ronald McDonald Care Mobile		0	12	24	18	18	20	0	0
TOTAL Schools		18	52	90	113	97	100	30	50

* This total includes FQHCs, tribal health services provided by Spirit Lake Health Center, and one clinic hosted by the Dental Hygiene Program at the North Dakota State College of Sciences

Student (Patient) Data: Non-Qualifying Schools

Providers visiting non-qualifying schools do not utilize the same data reporting software as providers and PHHs who are contracted with the OHP. However, through strong partnership and collaboration, these providers have agreed to share cumulative data on student impact with the OHP and evaluation team. Though participation does not yet match the pre-COVID numbers, providers are again beginning to visit local schools, applying fluoride varnish, and placing dental sealants. In the last academic year, these providers visited 14 schools provided screening for 525 students and placed 942 dental sealants. See Table 3.

Table 3. Non-Qualifying Schools Participating in SEAL!ND

	2019-2020	2020-2021	2021-2022
Participating schools	28	9	14
Students screened (unduplicated)	1,191	326	525
Fluoride varnish applications*	1,349	449	974
Dental sealants placed*	1,864	632	942
Students referred for follow-up dental care	No data	122	154

* These numbers include duplicate applications; 525 students were screened between the first and second visits. Many of these students received varnish at both visits, and several teeth were either resealed, or newly erupted (a tooth that had grown in that was not present at first visit) between the first and second visits.

Student (Patient) Data: Qualifying Schools

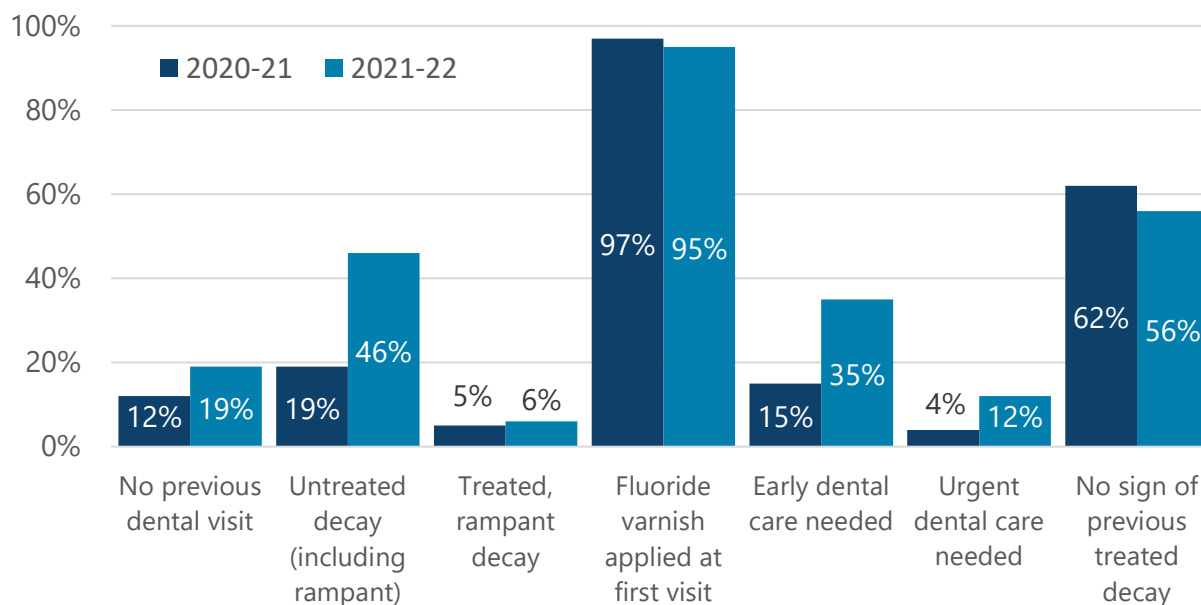
Traditionally, qualifying schools are visited in the fall (first visit), and again in the spring (retention check). The fall and spring visits see the same students. However, because of the tragic loss of the OHP PHH, the OHP had no PHH employed to complete fall visits. As a result, 36 schools qualified for services and participated in SEAL!ND, but only 18 schools had both a fall (first) visit and a retention check. For the remaining schools, the spring visit was considered the first visit, and these students did not have a retention check.

Among the 36 qualifying schools served by either the PHH or private practice:

- 1,159 students were screened between the fall and spring visits.
- 79% of the students screened reported a previous visit with a dental professional.
- 95% of 1,159 students received fluoride varnish at the first visit.
- 2,344 teeth were sealed at the first visit. Between the fall and spring, providers sealed a total of 2,940 teeth for the 1,159 students.
- At first visit, 47% needed early (35%) or urgent (12%) dental care.
- At the time of the first SEAL!ND visit, 41% of students had already had a dental sealant. This is down from 51% of students the previous school year.

Following what has been reported in national data as decline in dental prevention and treatment services during 2020 and 2021, SEAL!ND has noted a decline in oral health among students participating in the program. It is important to note that the data are not comparing or tracking the same students over time. However, among participating schools, the percentage of students presenting with untreated decay, urgent dental care need, and early dental care need is concerning. See Figure 2. Specifically, 19% of students presented with untreated decay or rampant decay at the first visit in 2020-2021. During the 2021-2022 school year, the percentage of students reporting with untreated or rampant decay had more than doubled (46%). To better understand the Medicaid fee and payment model for dental sealants and varnish application, see the ND Medicaid Dental Services Child Fee Schedule.^v

Figure 2. Percentage of Students in Qualifying Schools Needing Treatment and Presenting with Decay: 2020-21 School Year (n = 564) and 2021-2022 (n = 1,159)



Toothbrush Kits and Education Dissemination

In response to the inability to visit schools during the 2020-2021 school year, the OHP Prevention Coordinator and other team members assembled and distributed 47,778 toothbrush kits to 188 schools in North Dakota. The hygiene bags contained a toothbrush, travel size tube of toothpaste, and floss. Educators were provided with two short video links. The first link was to be shared with school teachers and staff as an [informational thank-you video](#).^w This video was roughly 1.5 minutes. The second link provided by [My Kid’s Dentist](#)^x (roughly 3.5 minutes) offered an animated video about [why we brush our teeth](#).^y This was intended as a resource for the students. Educators were encouraged to share this video in class while handing out the hygiene kits and were also encouraged to share with families electronically.

In the current grant cycle, the OHP program provided participating SEAL!ND schools with an infographic to promote the program among parents (See Appendix B). The infographic was able to be disseminated in newsletters, on social media, and at in person events. The Prevention Coordinator presented during one of the TeleECHO sessions, discussing the school-based sealant program. A new partnership was formed between the OHP and Family Voices of North Dakota. The OHP had an article featured in Family Voices Summer/Fall 2022 Newsletters providing information about SEAL!ND.

The full sealant report will provide additional data, figures, and tables.

Recommendations

SEAL!ND has had great success in the fourth year of programming and showed marked increase in participation among schools, dental providers, and students following the global shut-down and the ongoing public health crisis (COVID-19). In addition to continuing school-based dental services, the OHP has strengthened their evaluation plan, developed a sustainability plan, submitted and implemented a communication plan, and has established consistent reporting for all qualifying schools to allow for better long-term tracking and comparison.

Unfortunately, in response to the COVID-19 pandemic, one of the partners in the state (RMCM) previously providing school-based services has halted all school-based care “indefinitely” and is focused now solely on community care. The RMCM does hope to provide care again in school settings but is currently limited by cost, time, increased community demand, and lack of ample providers/resources. The OHP should continue to communicate and work with the RMCM team to explore future opportunities to return to the school setting.

Private practice providers once partnering with the OHP to provide school-based dental services in either qualifying or non-qualifying schools have reduced or eliminated their school-based outreach in response to growing demand for in-clinic care following the shut-down along with workforce shortages. It is recommended that the OHP continue to work and communicate with private practice providers to identify those who may be willing to again (or for the first time) provide care in school-based settings. An additional recommendation is that the OHP consider assessing interest, knowledge, and capacity of private practice providers to participate in their own school-based sealant program. This survey could simultaneously promote school-based dental services while identifying barriers for private practice in offering these services.

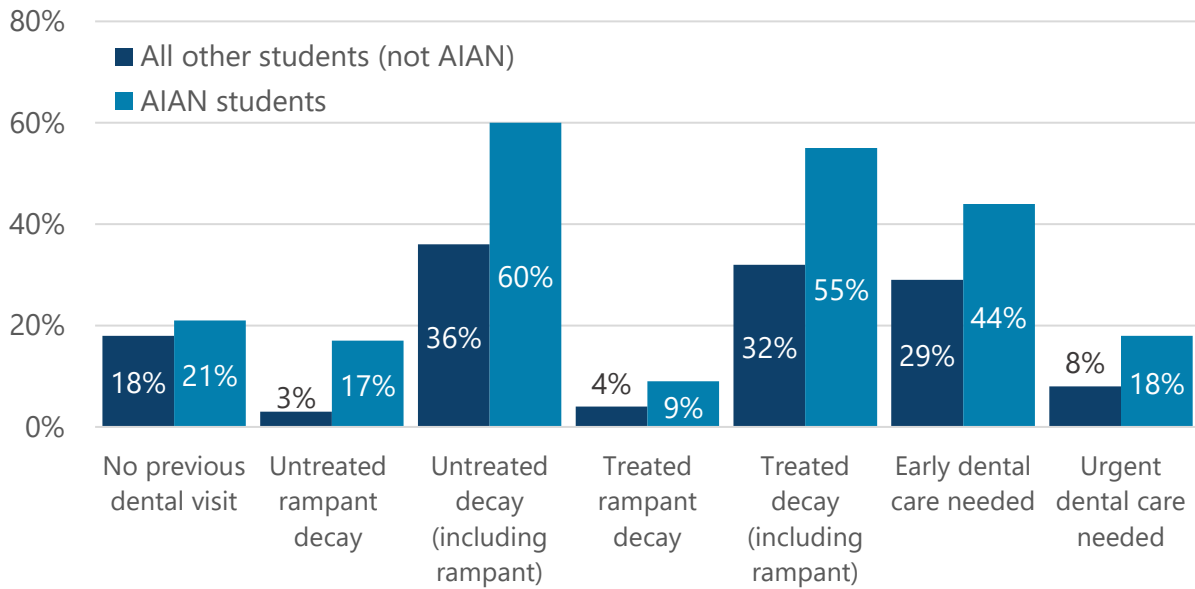
Need to Address Inequity

The primary purpose of the evaluation is to assess if the ND OHP has made progress toward the goal of establishing and implementing a sustainable school-based sealant program to provide preventative oral health services. In this regard, the ND OHP has been highly successful in reengaging schools and provider groups following the global shutdown. They have, undoubtedly, had a positive impact on the health of children in North Dakota, with a focus on serving those in the most under-resourced communities.

However, although the ND OHP has had a positive impact on the overall health of community, data in the current grant cycle indicated marked inequities for children who are American Indian or Alaska Native (AIAN) in North Dakota. See Figure 3.

It is imperative that the ND OHP work with stakeholders nationally, statewide, and locally to partner with community, share results of this work, and allow space for communities to identify opportunities to promote oral health equity, outside of (or in addition to) SEAL!ND.

Figure 3. Percentage of Students in Qualifying Schools Needing Treatment and Presenting with Decay: AIAN (n = 471) and all Other Students (n = 668)



COMMUNITY WATER FLUORIDATION

The water fluoridation program began in the 1950s and roughly 96.5% of the state population that are on public water systems receive optimally fluoridated water (0.7 mg/L), thereby exceeding the Healthy People 2030 objective of 77.1%. To maintain this success, the OHP has a signed MOU with the [DWP^k](#) which is located within the DEQ, [Division of Municipal Facilities^l](#). The MOU ensures the OHP has access to information, reports, and expertise regarding the state’s water fluoridation program and that the Fluoridation Coordinator is part of the task force that addresses fluoridation issues, concerns, and challenges. The OHP also partners, and funds, the American Fluoridation Society to provide education, training, and resources.

The OHP goals and objectives as proposed in the original grant application around community water fluoridation include:

1. Maintain the number of people served by community water systems that receive optimally fluoridated water at 0.7mg/L.
2. Monitor fluoridation levels and the percentage of adjusted water systems that maintain optimally fluoridated water at 0.7mg/L.
3. Educate water treatment personnel on the importance of, and rationale for, recommended fluoridation levels.
4. Monitor fluoridation equipment.

However, in the last several years, and through strong partnerships, the OHP has taken on a larger role in water fluoridation education at the community and provider level.

Evaluation & Stakeholder Engagement

The OHP coordinates with the DEQ Division of Municipal Facilities to report administrative records of monthly water system fluoridation levels to the Water Fluoridation Reporting System (WFRS). The DWP continues to review and follow the Environmental and Administrative Recommendations for Water Fluoridation for program improvement, specifically, the number of systems that conduct split sampling. The OHP Fluoridation Coordinator, the DWP, and partners at AFS² contracted through the OHP all share progress with the evaluation team to ensure that education and training are effective, that fluoridation levels remain at or above the goal, and that community members are consuming or benefiting from water fluoridation.

Process Evaluation

Process evaluation activities seek to answer these questions:

- What are the challenges in sustaining optimally fluoridated water?
- What are key partners hearing among community members and water operators?
- What activities are necessary in the state to ensure optimally fluoridated water levels?
- What activities are required to educate consumers on the safety of tap water and water fluoridation?
- What education materials are required to ensure community members are drinking tap water (as opposed to bottled water or filtered water)?

Outcome Evaluation

Outcome evaluation measures seek to assess the efficacy of training provided on the topic, the need for future education and training, and the community impact of fluoridated water systems.

Evaluation activities seek to answer these questions:

- Are the monthly reported fluoride levels within the recommended range for water system levels as reported to WFRS?
- What percent of North Dakota residents are covered by fluoridated water systems?
- How effective are trainings on the topic of CWF?
- What type of outreach materials are developed/disseminated, and to which audiences?
- How many and what type of equipment are needed and/or replaced?

Findings for Goals One & Two: Maintain and Monitor Fluoridation Levels

In 2020, roughly 96.5% of the state population (694,063) was being served by public water systems receiving optimally fluoridated water (0.7 mg/L).^{aa} See Table 4. In 2018, the most recent year reported by the CDC for state rank, North Dakota ranked five out of 51 for the percentage of the state population served by Community Water Systems with optimal levels of fluoride.^{bb}

Table 4. Fluoridation Status Summary Table

Fluoridation status	Number of systems	Population served	Fluoridated population	Non-fluoridated pop.	Fluoridated Percentage
Adjusted	67	502989	502989	0	100%
Consecutive	191	175442	173378	2064	98.82%
Defluoridated	0	0	0	0	0
Multi-Source	6	12635	12635	0	100%
Natural	13	5061	5061	0	100%
Non-Adjusted	55	23079	0	23079	0
Variable	0	0	0	0	0
Totals	332	719206	694063	25143	96.5%

North Dakota exceeds the Healthy People 2030 objective of 77.1% for “the proportion of people whose water systems have the recommended amount of fluoride.”^{cc} The Fluoridation Coordinator monitors contaminants, provides operator certification and training, conducts inspections of the water systems, and provides technical assistance.

Findings for Goal Three: Educate Water Treatment Personnel

The OHP worked with several partners to ensure that North Dakota residents are receiving fluoridated drinking water, and that providers are trained on how to emphasize the importance of drinking tap water. This goal has expanded from “educate water treatment personnel” to also include, educate the public and providers on the importance of drinking optimally fluoridated tap water. The website, [Community Water Fluoridation](#),^{dd} provides information and resources on the benefits of water fluoridation and links to external programs and reports as well. Some of the specific training and outreach that occurred over the last grant year are presented here.

Fluoridation Learning Online (FLO) Training Credits for Water Operators

The [FLO training](#)^{ee} is a free CDC resource to build the capacity of state fluoridation programs by increasing knowledge and skills necessary to implement and maintain CWF. In 2021, the OHP worked with DEQ and AFS to join only nine other states in providing water operators CE credits. Water operators in North Dakota who complete the training may now receive four CE credits. See Table 5.

Table 5. FLO Water Operator Continuing Education Unit Approvals

	State Abbreviations										
	AR	IA	VT	ND	CO	NH	RI	WV	MO	LA	40 Other States
Equivalent Hours	*	4	4	4	7	7	7	8	8	8	0

* Hours have been approved but the number of hours has not yet been determined or reported.

League of Cities Newsletter

The OHP, in partnership with AFS, wrote an article to be disseminated through the North Dakota League of Cities. This was shared on their blog, in their newsletter, and through the ND DoH. See Appendix C for a copy of the letter. The purpose of the letter was to inform the public on the health and safety of optimally fluoridated tap water, but to also promote the “Rethink Your Drink” campaign. The letter concluded with this call to action: “Next year, a Rethink Your Drink campaign will be launched in North Dakota. This initiative will promote drinking *“water whenever and milk with meals.”* We invite leaders and members of the League of Cities to look for this campaign and consider ways to promote it through proclamations, websites, social media, and local events or activities.”



“The North Dakota League of Cities has served as a key resource for cities and park districts since the early 1900s when the League of North Dakota Municipalities was organized in Grand Forks. City officials had a vision, they recognized the importance of joining together to speak as one voice for the benefit of all.”^{ff}

Rethink Your Drink Campaign

The OHP contracted with KAT & Company, a communications and marketing agency, to implement a Rethink Your Drink Campaign. The purpose of the campaign was to “raise awareness of the impact individuals can have on their health by simply choosing water or natural drinks over soda and sugary drinks.” The primary audience included parents and youth in North Dakota. The campaign specifically focused on distribution of a poster (Appendix D) and a video (Appendix E). See Appendix F for the impact statement provided by KAT & Company. The campaign ran July 11 – Aug. 11, 2022.

Training for Health Care Providers

A TeleECHO Clinic™ focused on training primary care providers on the importance of oral health was led by Dr. Johnny Johnson with AFS on May 13, 2021. He addressed the topic of water fluoridation, shared case examples, and answered questions of local providers. The training was one hour and carried continuing medical education (CME) credits. Although the live training was held in the last grant cycle, the free recording, with CME, is still available and being promoted by OHP. The recording has had 65 views. Roughly 73% of applicable attendees indicated that this session would be leading to professional change in their practice.

Talking with Patients about Safe Drinking Water, Community Water Fluoridation, and Oral Health in the Pediatric and Young Adult Patient

A pediatric dentist, a Diplomate of the American Board of Pediatric Dentistry, a Life Fellow of the American Academy of Pediatric Dentistry, and current President of the American Fluoridation Society speaks to community water fluoridation in North Dakota, how to talk to patients about safe drinking water, and how to explain risks of sugary drinks especially among babies and toddlers.

Presenter(s): Johnny Johnson, Jr., DMD, MS

[Slides](#) | [Recording](#)

Training for Dental Teams

A TeleECHO Clinic™ focused on training dental teams on their role as primary care providers was led by Dr. Johnny Johnson with AFS in April 2022. He addressed the topic of water fluoridation, shared case examples, and answered questions of local dental teams. The training was one hour and carried CE credits for dental team members, as approved by the North Dakota State Board of Dental Examiners. The free recording, with CE, is still available and being promoted by OHP. The recording has had 35 views.

Talking With Patients About Fluoridation and Safe Drinking Water

This session reviews levels of fluoridation in North Dakota's community drinking water and how to talk with patients about using tap water and not bottled water for better oral health. Dr. Johnson shares a case presentation and practical tips for dental teams in North Dakota. He will also speak to where and how to find your community's fluoridation levels. Finally, Dr. Johnson discusses how to read a study about fluoride or fluoridation.

[Slides](#) | [Recording](#) | [Evaluation](#)

Training for Water Operators

In March of 2022, the Director of the OHP (Cheri Kiefer) presented alongside Jim Kershaw (City of Bismarck Water Plant Superintendent) at a three-day conference held for state water operators. They spoke to chemical procurement issues as well as the benefits of fluoride.

Findings for Goal Four: Monitor Fluoridation Equipment

The OHP held several meetings with members of the North Dakota DEQ over this grant period. Meetings consisted of brainstorming training needs, identifying barriers to maintain fluoridated water levels, equipment needs, potential survey opportunities, and opportunities to speak to and address water operators directly. The survey completed in year two did not result in a high response nor did it identify significant equipment needs. As a result, years three and four placed more emphasis on partnership development, appropriate and consistent use of equipment among water operators, and education dissemination for water operators and the public. In meetings with their statewide partners and local community water operators, the OHP continues to maintain an open line of communication to identify if future equipment needs should arise.

Although the operators did not identify equipment concerns, some of the partners did share some inconsistency related to reporting fluoride levels. Specifically, water operators use handheld fluoride devices which may not be measuring the fluoride levels correctly. It was discussed that the readings vary seasonally. For example, total dissolved solids are higher in the spring, and this may be why there has been variation between the handheld devices and the certified lab results. Temperature may also affect readings with handhelds.

An additional concern around use of the handheld readers is that maintenance and accuracy testing is not occurring regularly around the probes in the handhelds. The probes which read the fluoride concentration must be calibrated against known fluoride sample strengths regularly to calibrate them. Probes also have a lifespan of one to two years, and then should be replaced. It will be important for the OHP to ensure that regular and consistent testing is being done, and that probes are regularly replaced to ensure the accuracy of the current CWF rates.

Study on Community Perceptions of Water Fluoridation

Under a subcontract with the OHP, AFS worked with Wakefield Research to develop and deploy a scientific oral health survey of adults in North Dakota. A report on the findings from the study was delivered to the OHP. The report includes insights about people's feelings around their own oral health, support for community water fluoridation, recent access to dental care, toothbrushing and flossing habits, and challenges in monitoring their children's oral health. The report also noted regional differences. Results have been included on the ND OHSS webpage, and datapoints have been included in the state plan as relevant. See key findings in Appendix G.

Recommendations

A majority of North Dakota communities had access to optimally fluoridated water. What North Dakota has not yet explored is:

- Use and impact of well water across the state.
- The level of access to fluoridated water among tribal reservations in the state.
- The proportion of the state's population that drink water from the tap, uses tap water for infants and children, or uses tap water in their cooking.
- How often the probes are changed on the handheld equipment of water operators, and if there are other programs' to assist in assuring accurate water readings (e.g., FLOSS).

Informing the Community

Water system operators identified that it would be helpful to provide more information on the role of water systems and their responsibilities around water fluoridation. It is recommended the OHP work with the DWP to develop a one-page infographic or factsheet that describes the role of state water systems as it relates to CWF. It would be beneficial to use a local pediatrician and dentist to feature on the product, highlighting the safety of drinking tap water and the need to maintain optimal water fluoridation levels for good oral health.

Training Water Operators

The OHP should speak at (or contract someone to speak at) the water system's annual meeting as permitted, and promote FLO and its associated free CE for water operators in North Dakota.

Identifying Need and Behavior Among Tribal Communities

Following conversation with the ND tribal health liaisons, as well as with Dr. Timothy Ricks, it was clear that North Dakota has a lot of work to do to better measure the impact of CWF among persons living on the local reservations. Dr. Ricks is the Chief Dental Officer at the U.S. Department of Health and Human Services. It is generally understood that there is a high reliance on bottled water among persons living on reservations in North Dakota, and that there is not consistent and reliable data on the water quality and fluoridation levels of faucet water. In a recent internal meeting held with state partners, it was noted that some communities are still struggling to maintain consistent access to tap water, relying heavily on bottled water.

Specific recommendations include:

- Identify the fluoridation level of the water that is accessed by local tribal communities.
- Review other state/tribal programs that have increased CWF levels on reservations.
- Identify the steps that would need to be taken to increase the CWF levels for reservations in North Dakota.
- Assess the quality of the drinking water and reliance on bottled water among persons living on reservations in North Dakota.
- Partner with local community/tribal leaders to identify opportunities to improve safe drinking water and prevent dental decay.

STATEWIDE ORAL HEALTH SURVEILLANCE

The purpose of the statewide oral health surveillance is to develop and implement a detailed plan for data collection, analyses, and dissemination. These activities include tracking the recommended core indicators as identified by the [CSTE](#).^m

Evaluations & Stakeholder Engagement

The ND OHSS is comprised of indicators to address federal recommendations, epidemiological inquiries, data requests, and to guide program and policy development. The state dental director, together with key partners, continue to identify gaps in data needs and data collection. As the ND OHSS has continued to mature, the data collection efforts have expanded to include policy development, surveillance, and evaluation. As of 2022, the ND OHSS contains over 40 indicators that are routinely updated by OHP staff, the evaluation team, and key stakeholders.

The goals of the OHP that are evaluated in relation to data surveillance include:

1. Maintain and enhance the oral health surveillance system.
2. Disseminate findings from the oral health surveillance system.

The data system is also utilized to track the overall efficacy of the OHP by measuring progress toward two distinct goals set by the OHP team:

1. Demonstrate reduction in dental caries and untreated decay in third grade children.
2. Demonstrate increase in number of third grade children with dental sealants.

Findings for Goal One: Maintain & Enhance the ND OHSS

The OHP seeks, collaborates, and coordinates opportunities to collect oral health data through the integration of existing surveys already conducted by state agencies and other organizations. Many partnerships have been established to leverage resources in data collection for the ND OHSS. In the last grant year, year three, the oral health evaluation team, under Dr. Schroeder's leadership and in partnership with an epidemiologist (Anastasia Stepanov) from the ND DoH Health Statistics and Performance Section completely transformed the ND OHSS.

The new [web oral health data monitoring system](#)^o provides data in several formats and by geographic group (see screenshot example in Appendix H). To ensure that the data are routinely updated, the evaluation team worked with the epidemiologist to create an internal form that lists all available data sets, the date of new release, and which variables/ reports must be updated annually. This work also included the development and submission of the Statewide Oral Health Surveillance Plan, which was submitted to the CDC in May 2021. This report was updated in spring of 2022 and the state epidemiologist updated all relevant data on the ND OHSS in spring 2022.

Partners/stakeholders include:

- Coordinated School Health Interagency Workgroup (Youth Risk Behavior Survey data)
- ND Department of Human Services (ND DHS), Behavioral Risk Factor Surveillance System coordinator
- ND DPI, Youth Risk Behavior Survey coordinator
- ND DHS, North Dakota Medicaid and State Children’s Health Insurance Program data)
- ND DHS, Division of Vital Records (cleft lip/cleft palate data, oral cancer mortality)
- Head Start Programs (Program Information Report data)
- Schools (Basic Screening Survey data)
- North Dakota Dental Association (state survey data)
- ND DoH, Health Statistics and Performance Section (New Mothers’/Pregnancy Risk Assessment Monitoring System data)
- North Dakota State Board of Dental Examiners (licensure workforce data)
- University of North Dakota Center for Rural Health (Dental Workforce Survey)
- North Dakota DEQ Division of Municipal Facilities (community fluoridation data)
- North Dakota Statewide Cancer Registry
- ND DoH, Tobacco Prevention and Control Program (Youth Tobacco Survey and adult tobacco use and cessation data)
- ND DHS, State Epidemiological Outcomes Workgroup
- North Dakota State Data Center (demographic data)

This current cycle, the OHP also completed the BSS among third grade students. The data will be analyzed in the following year and included in the ND OHSS in 2023.

Findings for Goal Two: Disseminate Findings from the ND OHSS

The OHP wants to improve the dissemination of oral health data and look for unique partnerships to share the work. The most important use of ND OHSS data for the purpose of informing public, decision makers, and program implementors includes the updated burden of disease report, titled *Oral Health in North Dakota: Opportunities and Need to Promote Oral Health Equity*.

The evaluation team as well as members of the OHP have continued to share the newly revised ND OHSS webpage, as well as data that can be found on the ND OHSS. Dissemination activities that have shared data from the ND OHSS or have promoted the webpage in the last grant year have included (but are not limited to):

- Poster presentations at National Oral Health Conference and the Dakota Conference on Rural and Public Health
- Fact sheet development
- National, state, and local conference presentations including those listed above as well as the TeleECHO™ clinics hosted by the OHP
- Reports
- Infographics
- Educational flyers for specific population groups (see example in Appendix I)

Recommendations

The OHP has developed and maintained strong collaborative relationships with partners and stakeholders dedicated to compiling data on oral health. However, the data are not fully utilized. Two significant products and assessments were completed in this cycle to include the updated burden document as well as the BSS for third grade students. It is recommended that there be significant communication and promotion campaigns in year five to share the new state plan (*Oral Health in North Dakota: Opportunities and Need to Promote Oral Health Equity*) and to disseminate the results of the BSS.

The North Dakota Oral Health Coalition was re-established during the 2021-2022 grant cycle. The OHP should work with members of the coalition to identify newsletters, listservs, and other opportunities to share the state plan as well as the ND OHSS. Coalition members can also assist in the development of fact sheets, infographics, and other materials as relevant to the persons and communities they serve in North Dakota.

The OHP is also encouraged to work with state leaders as they move into the 63rd legislative session schedule to begin in January of 2023. Although the OHP is a neutral government agency, it is imperative that the OHP ensure that legislators are aware of the state plan, as well as the ND OHSS, so that they may make data-driven policy decisions.

The OHP should also continue to work with partners to identify questions that remain and potential data sources not yet included in the ND OHSS.

ADDITIONAL ACTIVITIES

The OHP participated in three other activities in this grant year that were, at least partially, supported through CDC funds. These activities included:

- Establishing and participating in the North Dakota Oral Health Coalition.
- Promoting an Oral Health in Primary Care TeleECHO™ Clinic.
- Hosting a Dentistry as Primary Care TeleCHO™ Clinic.
- Development and dissemination of one-page educational materials on good dental hygiene for nearly a dozen diverse population groups.

North Dakota Oral Health Coalition

The OHP contracted with the [Community HealthCare Association of the Dakotas](#)⁹⁹ to serve as the administrative lead of the [North Dakota Oral Health Coalition](#).^{hh} In this last year, the coalition has been re-established and has held both virtual and in person meetings, as a collective, and in topic-specific workgroups. Members of the OHP not only serve on the coalition, but also serve as lead for several of the working groups.

Oral Health TeleECHO™ Clinics

According to the Project ECHO webpage: “The Project ECHO® (Extension for Community Healthcare Outcomes) model was established in 2003 at the University of New Mexico, School of Medicine, to develop the capacity to demonopolize knowledge and amplify the capacity to provide best practice care for underserved populations. The ECHO model™ develops knowledge and capacity amongst rural community-based providers through:

- Using technology
- Improving outcomes
- Case-based learning
- Tracking data

This model is committed to addressing the needs of the most vulnerable populations by equipping rural community providers with the right knowledge, at the right place, and at the right time to locally deliver high-quality care. The ECHO model does not actually “provide” care to patients. Instead, it dramatically increases access to specialty treatment expertise in rural and underserved areas by providing front-line clinicians with the knowledge and ongoing support they need to manage patients with complex conditions.”

The TeleECHO™ model follows that a group of health professionals come together virtually at a scheduled date and time to discuss a specific topic in healthcare, followed by a patient case presentation. Topics, schedules, and case presentations are identified by a group of volunteers recognized as the Advisory (Hub) Team. The one-hour sessions occur at the same time each week or month, and carry free CE/CME for dental and medical professions. The OHP has supported one TeleECHO™ series a year for the last two years: (1) 2020-2021: *Oral Health in Primary Care TeleECHO™* series; and (2) 2021-2022: *Dentistry as Primary Care TeleECHO™* series.

Oral Health in Primary Care TeleECHO™ Series

Many individuals in North Dakota lack access to, or do not regularly utilize, dental care. The CDC's Division of Oral Health has stated that there are opportunities to integrate medical and dental services in different healthcare and public health settings to support populations with unmet oral health needs and associated chronic diseases. In response, the OHP worked with Dr. Schroeder to host eleven virtual TeleECHO™ clinics on oral health practices in primary care.

The [Oral Health in Primary Care TeleECHO™](#)ⁱⁱ was focused on improving access to oral health care for patients in rural and underserved communities throughout North Dakota.^{dd} By building and strengthening capacity among primary care and other providers responsible for supporting patient well-being, we can improve oral health among the most disparate populations. The intended audience included any individuals in North Dakota providing clinical care in a primary care setting, family medical center, rural health clinic, FQHC, local public health unit, community health center, or pediatrician's office.

The eleven sessions included:

- The need to address oral health in primary care settings
- Completing pediatric dental screens in primary care settings
- Applying and billing for fluoride varnish application in a health care setting
- Talking with patients about safe drinking water, community water fluoridation, and oral health in the pediatric and young adult patient
- Screening for, and discussing oral health concerns among older adults
- Importance of discussing and addressing oral health among pregnant persons
- Providing oral health care for adults who are covered by Medicaid or uninsured
- Preventing use of non-dental facilities for dental care in North Dakota
- Implementing medical-dental integration in North Dakota
- Working with patients who are American Indian or Alaska Native: Oral health screening, referral, and education
- Discussing oral health and prevention strategies with patients in non-dental settings

These trainings are available online and continue to offer free CME for medical and dental providers. The OHP promotes these recorded training opportunities at coalition meetings, in newsletters, and among other stakeholders and partners.

Dentistry as Primary Care TeleECHO™ Series

Primary care is any health care delivered with the patient and community in mind. Oral health and good dental hygiene are essential components of primary care and overall health. In this sense, dental teams serve as members of the larger body of primary care providers in North Dakota. The [Dentistry as Primary Care TeleECHO™ series](#)^{jj} focused on providing local training and case presentations to assist dental teams in providing comprehensive care to members of our community.

The twelve sessions included:

- Integration of oral health and overall health
- Importance of, and how to, complete blood pressure screenings in dental settings
- Importance of collecting patient health information in dental clinics and the relation to systemic and oral health
- Nutrition and chronic disease: how to have these conversations in dental settings
- Talking with patients about fluoridation and safe drinking water
- Role of North Dakota dental teams in addressing pediatric oral health school-based programs
- How medical-dental integration is working in North Dakota
- Caring for patients who are covered by Medicaid and billing for the services
- Connecting dental professionals with emergency departments reducing use of the ED for dental pain
- Dementia friendly dental practices
- Caring for patients who are Indigenous in North Dakota
- Dementia friendly dental practices: Treatment planning

These trainings are available online and continue to offer free CE for dental providers. The OHP promotes these recorded training opportunities at coalition meetings, in newsletters, and among other stakeholders and partners.

One Page Resources for Community

The OHP worked with Dr. Schroeder and students enrolled in the Masters of Public Health program at the University of North Dakota to develop resources that combine data and tips for supporting positive dental hygiene habits. These resources were widely distributed (digitally) to partners and community leaders. The promotion of these resources is ongoing.

- [Protect Your Baby's Teeth and Gums](#) ^{kk}
- [North Dakota Oral Health: Pre-Kindergarten](#) ^{ll}
- [Promoting Healthy Smiles in Grades K-5](#) ^{mm}
- [Protecting Your Smile in Middle and High School](#) ⁿⁿ
- [Protecting your Adult Smile](#) ^{oo}
- [Taking Care of your Teeth in Later Life](#) ^{pp}
- [Healthy Baby, Healthy Smile](#) ^{qq}
- [Protecting the Smiles of our Indigenous Children](#) ^{rr}
- [Indigenous Teen Dental Habits to Promote Social, Physical, and Mental Health](#) ^{ss}
- [Maintaining a Healthy Adult Smile and Setting an Example for Indigenous Youth](#) ^{tt}
- [Protect the Health of You and Your Tribe Through Good Dental Hygiene](#) ^{uu}
- [Protecting Oral Tradition by Promoting Oral Health Among Our Elders](#) ^{vv}

EVALUATION USE, DISSEMINATION & SHARING PLAN

Evaluation results are used for:

- Real-time performance improvement.
- Work plan development for future grant continuations.
- Informing stakeholders and the public on the progress and activities of the OHP.

Performance Improvement

As the contracted evaluation team (UND) conducts surveys, focus groups, and/or review of primary and secondary data, results are shared back with members of the OHP team. The UND team shares results verbally on monthly check-in calls, via email with interested partners/ stakeholders, and formally in reports or fact sheets. Specifically, the evaluation team shares results in real-time to improve the grant activities. For example, schools were surveyed at mid-point in the school year so results of the survey could inform ongoing work, communication with the schools, and future resource development. Similarly, the OHP invites the evaluation team to be part of all future planning calls to consider data collection strategies prior to the implementation of new work.

Dissemination of Results

It is important that the community, state provider groups, and other state-based oral health programs know what the OHP has done in the last year. It is imperative to share lessons learned, as well as success stories, so that other states can learn from North Dakota and so other statewide partners know where to go for collaboration. In the last grant year, the contracted evaluation team has worked with the OHP to develop several products, presentations, and posters to highlight the work of the OHP. Public facing evaluation products are available on the OHP webpage at health.nd.gov/prevention/oral-health-program/oral-health-program-evaluation.^d

EXAMPLES

Dental Student Rotations at a Federally Qualified Health Center in North Dakota

December 2021

North Dakota has no dental school and no reciprocity agreements with neighboring universities to encourage student enrollment. Recognizing the need to address oral health disparities, Rotations and Services recruiting new dental professionals, the North Dakota Department of Health Oral Health Program (OHP) and the North Dakota Area Health Education Center (AHEC) recently support two dental students at one Federally Qualified Health Center (FQHC) in North Dakota, Spectra Health.

Spectra Health

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

Dental Services Provided at Spectra Health

- Cleanings
- Restorative services
- Periodontics
- Fillings
- Endodontics
- Composites
- Sedation
- Urgent dental care
- Pediatric root canals
- Child-size nitrous gas
- The growth and night guards

Care Provided by Dental Students

Students have traditionally reported a greater number of pediatric services than preventive. Following the shutdown response to the COVID-19 pandemic, however, dental students now contribute to reducing the backlog of pediatric patients in need of preventive services. A majority of patients who receive care from the dental students are those who are covered by medical assistance (MAGI Medicaid).



739
Restorative procedures



367
Preventive visits



884
Patients who were billed for Medicaid





\$120,093
Worth of care billed for Medicaid

In the past three years, six students from the University of Minnesota and three students from the University of Iowa provided dental clinical care for hundreds of patients at Spectra Health (2019-2021).

Evaluation of SEALIND: School Year 2020-2021

North Dakota Department of Health Oral Health Program's School-Based Dental Sealant Program


UND School of Medicine & Health Sciences UNIVERSITY OF NORTH DAKOTA


December 2021

North Dakota School-Based Sealant Program: 2020-2021


The North Dakota Department of Health Oral Health Program (NDDOH OHP) established a school-based dental sealant program in 2012 which continues to provide dental sealants, fluoride varnish applications, oral health education, and dental screenings and referrals for students in their school setting.




30
schools participated




890
children screened



1,411
teeth protected with a dental sealant



1,294
applications of fluoride varnish



222
referrals for follow-up care of 1st screening

Percentage of Students with no Previous Dental Visit

Nearly 1 in 3 students who were kindergarten (27%) reported no previous dental visit. However, for 1 in 8 8th graders who were kindergarten (12%).

The North Dakota Oral Health Program assembled and distributed 427,218 toothbrush kits to 188 schools in North Dakota.

UND School of Medicine & Health Sciences UNIVERSITY OF NORTH DAKOTA

Conclusions & Recommendations

North Dakota's school-based pediatric programs address issues around oral health equity by improving access to oral health screenings and dental services in rural and tribal areas and providing free hygiene products to students in need. With ongoing funding, this program provides oral care to 44% of the top state population needs and identifies who are in greatest need. It also identifies a greater percentage of those who were kindergarten and those who were in kindergarten, but not in dental programs. It is imperative to continue to support and give participants in the school-based oral care program, and to identify opportunities to increase oral care for young children and children who are in greatest need.

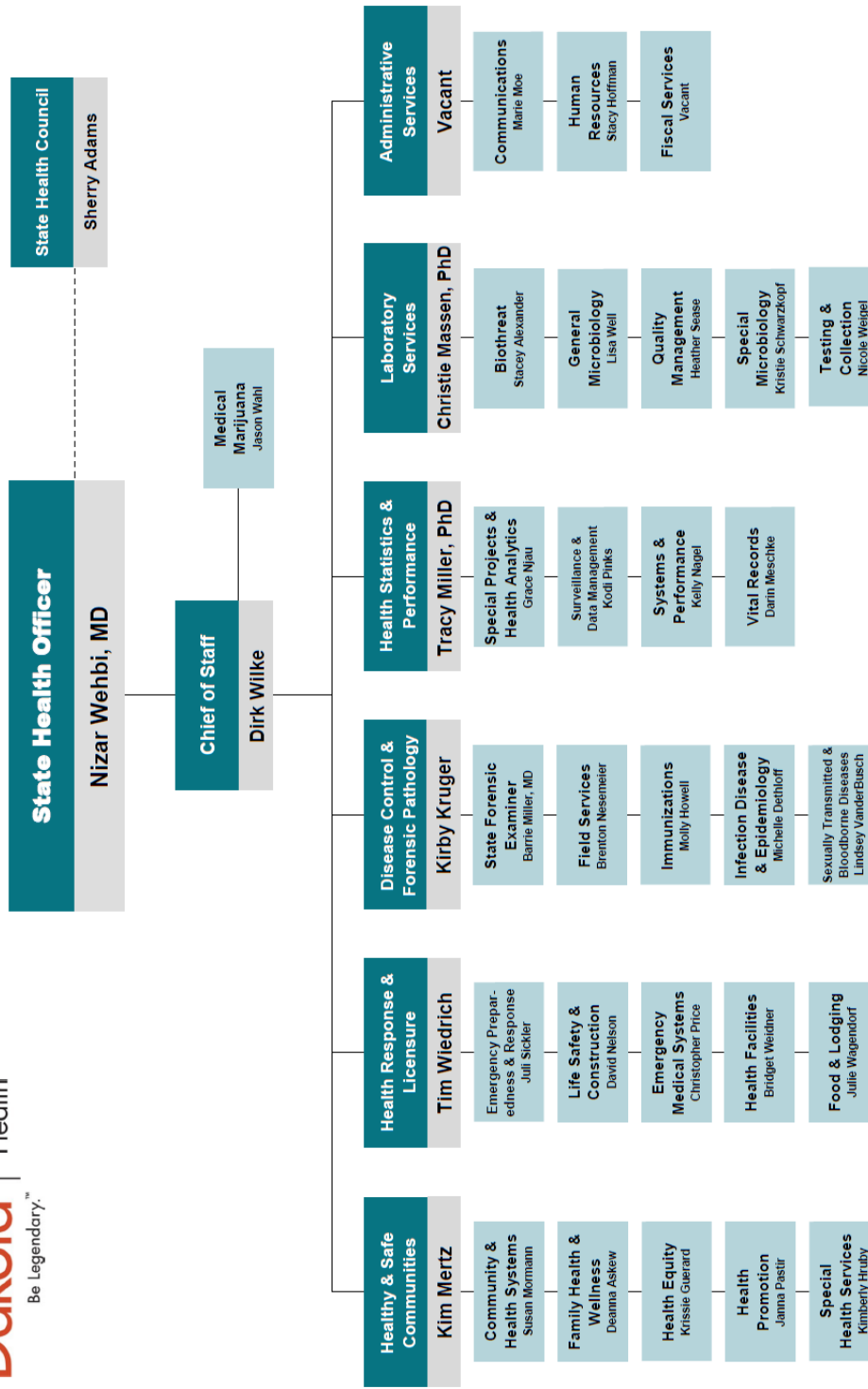
More information: health.nd.gov/prevention/oral-health-program/school-based-dental-sealant-program

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Appendix A: North Dakota Department of Health Organizational Chart



April 2022

Available at https://www.health.nd.gov/about/art_9_22_21.pdf

Appendix B: SEAL!ND Infographic

SEAL!ND: North Dakota School-Based Sealant Program

SEAL!ND brings a public health dental hygienist into the school setting two times a year in order to provide direct preventive services.

To have your child participate in the program, complete the consent form that was sent home and be sure to ensure your child is at school the day the dental professional visits.

Services provided through SEAL!ND include:

- Oral health screening
- Oral health education
- Fluoride varnish application
- Dental sealant application



Dental Sealants

Dental sealants are thin coatings painted on the surface of back molars that can last up to nine years. Once applied, sealants protect against 80% of cavities for two years and continue to protect against 50% of cavities for up to four years.

Fluoride Varnish

Fluoride varnish is a protective coating that is painted on the face of all teeth to help prevent cavities and to help slow or stop cavities that have just started. Varnish must be reapplied every six months.



Learn more about SEAL!ND using the QR code or by visiting: tinyurl.com/SEALND

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Dakota | Health
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Appendix C: Fluoride Campaign in League of Cities Newsletter



A Healthy Drink That Benefits Our Cities

By the ND Department of Health Oral Health team, in partnership with the American Fluoridation Society

Water is the healthiest drink that children or adults can consume. Drinking water or beverages made with water helps to keep people hydrated. In addition, water helps protect a person's joints and maintain the correct body temperature. What's more, water has no calories or sugar, so drinking it is an excellent way to maintain a healthy body weight and reduce the risk of diabetes.

Besides being far less expensive than bottled water, most of the tap water that public water systems provide in North Dakota contains the right amount of fluoride. This is an added benefit. Fluoride is a mineral that protects teeth from cavities. All sources of water — lakes, rivers, and groundwater — contain some fluoride. Most cities adjust the naturally occurring fluoride in the water to levels for maximum cavity reductions. This is called water fluoridation. Fluoride does not add any taste or smell to the water. People who don't like the taste or smell of their water can purchase a filtered pitcher that takes out certain compounds without removing beneficial fluoride.

The Centers for Disease Control and Prevention (CDC) reports that drinking fluoridated water reduces cavities by 25% over a lifetime. That impact is significant because cavities are caused by the acid produced by the bacteria on our teeth. Dental cavities are the most common chronic disease in children and teens in the United States. Although fluoride can be found in toothpaste, people need to get fluoride from both water and toothpaste. According to [CDC information on community water fluoridation](#), fluoride in tap water and toothpaste "provide important and complementary benefits."

A healthy city supports efforts to prevent disease and makes it easier for residents to live a healthy lifestyle. Dental cavities can be very costly to treat. In fact, according to the [Children's Dental Health Project](#), the lifetime cost of treating a single cavity on a permanent molar can exceed \$6,100!

If a cavity is left untreated, it can cause a toothache or an infection that can threaten a person's overall health. Communities that engage in water fluoridation are helping to prevent cavities,

ensuring that fewer children miss school and fewer adults miss work. That's good for them and good for the quality of life in the cities across our state.

Nearly 690,000 citizens receive fluoridated tap water, placing North Dakota in the [top five](#) of all U.S. states. We should take great pride that our state ranks so highly. Water operators and engineers work hard to provide safe and healthy water. In most cities, they go one step further by using their expertise to ensure that it contains the right amount of fluoride. They've done their part. Now, it is up to us — drink tap water and encourage others to do likewise and enjoy the health benefits it offers.

Sometimes, facts about water fluoridation can be overshadowed by misinformation found online or on social media. Misinformation can spread far and wide. The [U.S. Surgeon General](#) has called health misinformation “a serious threat to public health.” For accurate information about fluoride and fluoridation, people should talk to their local dentist or visit the [CDC's website](#). Information about oral health resources, data, and statistics, can also be found on the North Dakota Department of Health's [Oral Health resources webpage](#).

Next year, a Rethink Your Drink campaign will be launched in North Dakota. This initiative will promote drinking “*water whenever and milk with meals.*” We invite leaders and members of the League of Cities to look for this campaign and consider ways to promote it through proclamations, websites, social media, and local events or activities.

References and resources:

[CDC Community Water Fluoridation](#); [CDC Water Fluoridation Basics](#); [CDC Dental Carries | Tooth Decay](#); [CDC Community Water Fluoridation](#); [CDC 2018 Fluoridation Statistics](#); [2021 HHS Confronting Health Misinformation Advisory PDF](#); [American Fluoridation Society](#); [ND Department of Health Oral Health Program](#)

Cheri Kiefer, RN, BSN, RDN, RD is the Oral Health program director for the North Dakota Department of Health. For more information, she can be reached at ckiefer@nd.gov.

###



rethink YOUR DRINK

Sugary drinks can cause: (juice, soda, etc.)

- Tooth decay
- Cavities
- Gum disease

vs.

Tap Water

- Helps keep teeth clean
- Contains fluoride (strengthens teeth)
- Consists of no sugar

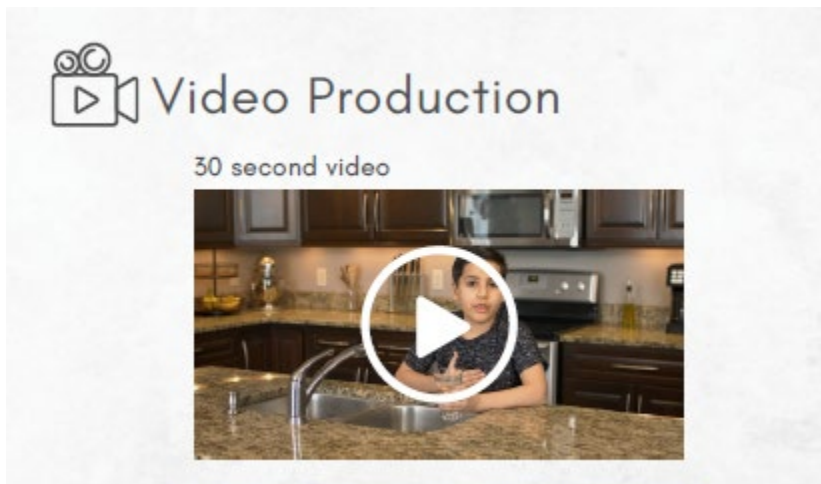
**The choice is clear,
LITERALLY!**

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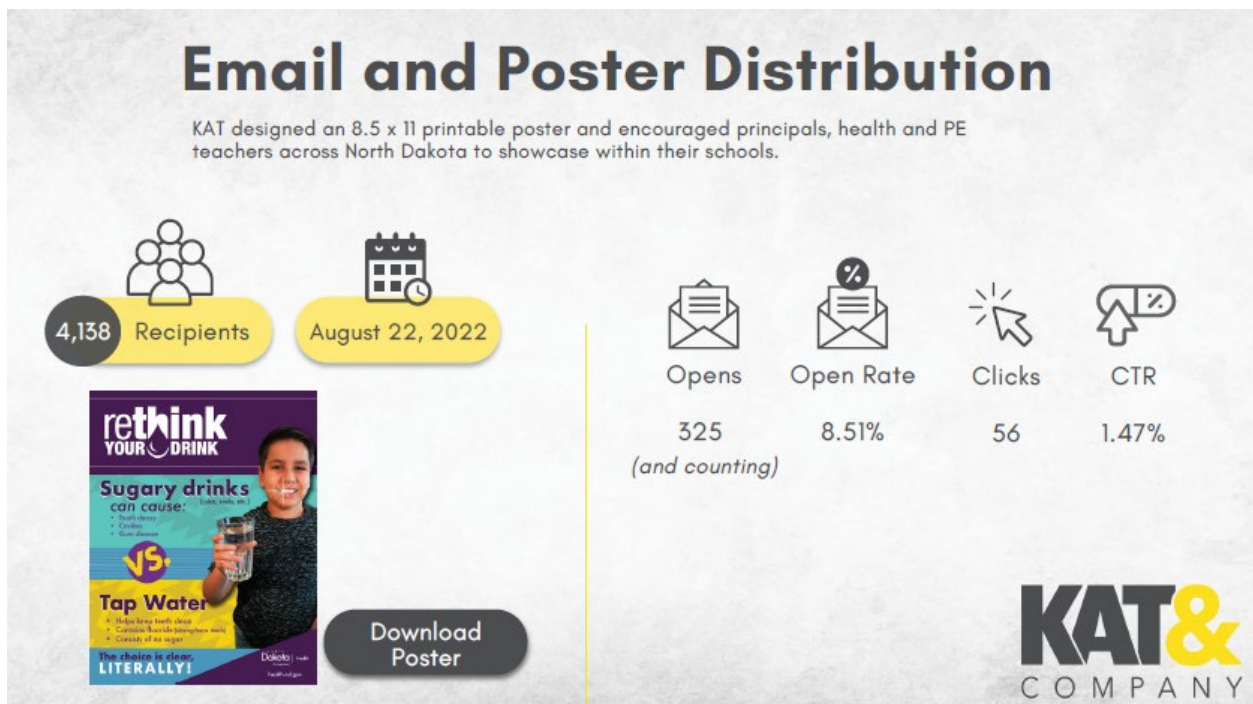
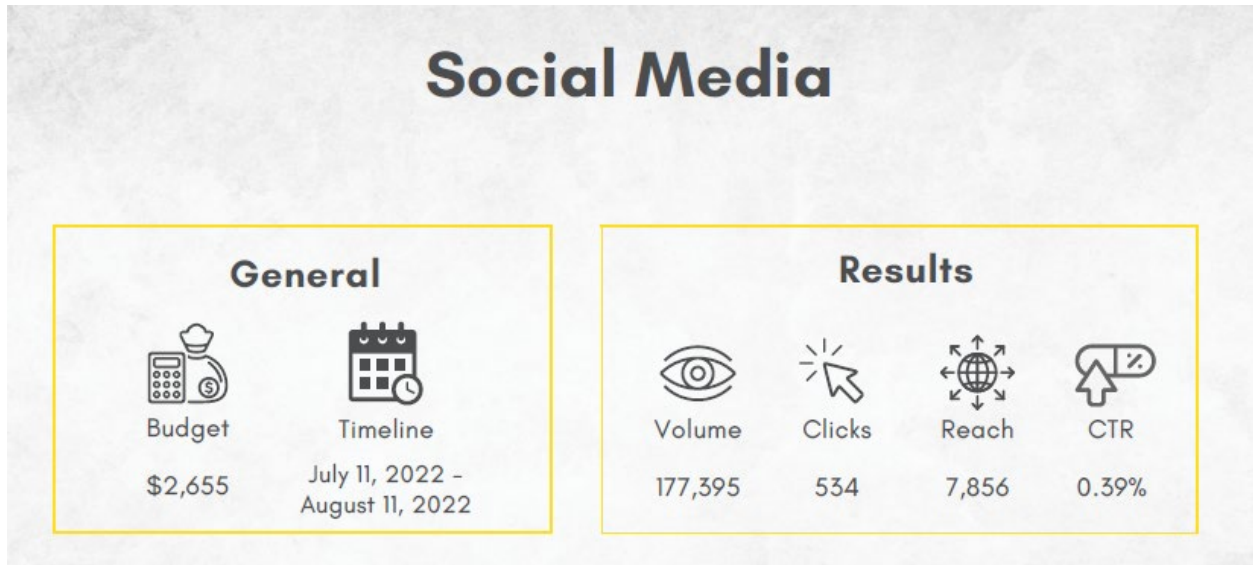
Appendix E: Video – Rethink Your Drink



Available at, health.nd.gov/prevention/oral-health-program/community-water-fluoridation



Appendix F: Reach of Kat & Company's Campaign



Appendix G: AFS Survey Results (Sample): Community Assessment

KEY FINDINGS

Many North Dakota adults do not see a dentist at least once a year and do not maintain once-a-day oral care. This results in North Dakota adults paying the price with teeth and gum pain.

Just 60% of North Dakota adults see a dentist at least once a year, even though 90% believe that's what they should be doing. Furthermore, maintaining daily oral care is not a priority for some North Dakota adults. Around 1 in 7 (14%) brush their teeth once every few days or less frequently, and 1 in 5 (20%) never floss their teeth.

Not maintaining proper dental care is having a negative effect on dental health. Many (30%) North Dakota adults feel their teeth and gums are in fair or poor shape. Furthermore, nearly 2 in 5 (38%) have experienced pain or discomfort from their teeth and gums in the past six months. As North Dakota adults find it hard to maintain daily oral care and end up with teeth and gum discomfort, there is something they can add to their everyday habits to help with dental care: fluoride.

KEY FINDINGS

Fluoride can help improve dental health, yet a lot of North Dakota adults do not recognize or reap the benefits of it.

While many North Dakota adults do not see the dentist on a yearly basis and experience teeth and gum discomfort, fluoride can play an important role in helping to prevent tooth decay and mitigate further deterioration. Among all US states, North Dakota has one of the highest prevalence of fluoride in tap water. The good news is that the majority (78%) of North Dakota adults support fluoridation in drinking water. However, while nearly all (96%) North Dakota adults drink water with their meals, a quarter (26%) of them forgo the tap water with fluoride in favor of bottled water.

There are also many adults who are not using fluoridated toothpaste or who are not aware whether their toothpaste contains fluoride. About 1 in 10 (12%) North Dakota adults rarely or never use a brand of toothpaste with fluoride in it, and 1 in 6 (17%) don't even know if their toothpaste contains fluoride. Among parents, 1 in 5 (22%) rarely or never use a brand of toothpaste for their children that contains fluoride (and another 12% of parents do not know if their children's toothpaste has fluoride in it). Programs should target parents to educate them on how to best keep their children's teeth and gums healthy.

KEY FINDINGS

North Dakota parents require more education in taking care of their children's dental health as many lack the knowledge needed to keep their children's teeth and gums healthy.

A quarter (25%) of North Dakota parents admit they are only somewhat or not at all confident in knowing everything they can do to help keep their children's teeth and mouth healthy. They often find themselves juggling the challenges of limiting their children's intake on sugary foods and drinks and getting them to brush regularly, all the while without having a lot of knowledge in either area.

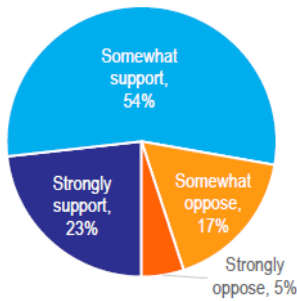
Sugar intake can wreak havoc on teeth and gums. The majority of parents (63%) indicate their children drink soda at least a few days a week. In addition, many parents are misinformed on certain products that are marketed as healthy or natural even when these products contain a lot of sugar. For example, more than 2 in 5 (44%) parents believe fruit juice is healthy for children to drink when it's 100% natural juice.

Nearly all parents (96%) report their children brush their teeth at least once a day. That said, half (51%) of North Dakota parents usually or always have their young children under age 6 brush their own teeth. This can lead to teeth and gum issues, as children that young do not have the knowledge, patience and motor skills needed to thoroughly brush and clean their own teeth.

A LARGE MAJORITY OF N.D. ADULTS SUPPORT WATER FLUORIDATION

An overwhelmingly majority of North Dakotans (78%) support water fluoridation. On the other hand, those who oppose water fluoridation are more likely to be from the Northwest region of the state.

STANCE ON FLUORIDATION
N=500



STANCE ON FLUORIDATION	NORTHEAST n=75*	SOUTHEAST n=176	NORTHWEST n=102	SOUTHWEST n=125	URBAN n=256	RURAL n=222
Strongly support	28%	23%	27%	19%	22%	25%
Somewhat support	47%	58%	41%	64%	53%	56%
Somewhat oppose	20%	12%	28%	13%	19%	15%
Strongly oppose	5%	7%	4%	3%	6%	5%

Appendix H: Screenshot of ND OHSS

Oral Health - Data & Statistics

Monitoring dental care access and oral health status data is important to the people of North Dakota, to public and private oral and primary health care providers, to government agencies, and to those working in oral health prevention. The North Dakota Oral Health Program's Oral Health Surveillance System is dedicated to:

- Reporting annual oral health workforce data.
- Conducting, and reporting the results of, oral health basic screening surveys among specific subpopulations of the state. Surveys have assessed the oral health status of:
 - Nursing home residents.
 - Third-grade students.
 - Kindergarten students.
- Reporting annual oral health data provided through Medicaid.
- Annually updating and tracking public-use data on oral health.

Under funding from the Centers for Disease Control and Prevention, the Oral Health Program monitors the burden of oral disease, use of the oral health care delivery system, and the status of community water fluoridation at a state level. Learn more about the [National Oral Health Surveillance System](#). One of the efforts undertaken by the Oral Health Program is to complete a Basic Screening Survey among various subsets of the state's population. For more information on [Basic Screening Surveys](#), access information provided by the Association of State & Territorial Dental Directors.



[Adolescent Reports](#)

Adolescent dental visit rates and oral health status reports



[Adult Reports](#)

Adult (ages 18-64) dental visit rates and oral health status reports



[Older Adult Reports](#)

Older adults (ages 65+) dental visit rates and oral health status reports



[Cancer Data](#)

Oral and Pharyngeal cancer incidence and mortality rates



[Dental Workforce Reports](#)

Access to care, retirement plans, and workforce distribution reports



[Oral Health by Race](#)

Data on oral health status and dental visit rates by race in North Dakota



[Oral Health Program Reports](#)

Reach and impact of the Oral Health Program's activities



[Healthy People 2030](#)

Measures collected nationally to improve health and well-being

Protect your Baby's Teeth and Gums

DON'T



Clean a pacifier or utensil in your mouth. Germs from your mouth can spread to your baby and cause decay.



Use bottled water to mix with formula if fluoridated water is an option.



Give apple juice, orange juice, chocolate milk, or other sugary beverages. These can decay baby teeth.



Put baby to bed with a bottle. The sugar in the milk or formula will sit on the teeth or gums all night and can cause decay.

DO



Eat healthy foods (with no added sugar) and drink properly fluoridated (faucet) water. Fluoridated water protects teeth from decay.



Schedule a dental appointment after the first tooth erupts and by the first birthday.



Wipe down gums after feeding and before bed with a clean, damp cloth to remove germs and sugar that can cause decay.



Take care of your own dental health to protect from spreading germs that can cause decay in baby's teeth.

5 Ways to Prevent Kids' Tooth Decay. American Dental Association. mouthhealthy.org/~media/MouthHealthy/Files/Infographics/ADA_MH_5ways.pdf?la=en

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