

North Dakota Department of Health, Oral Health Program NOFO DP18-1810, Component 2 Year Two Evaluation Report

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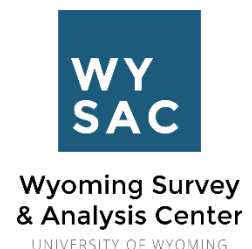
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List of Acronyms and Abbreviations

AI/AN	American Indian/Alaska Native
BP	Blood Pressure
CDA	Certified Dental Assistant
CDC	Centers for Disease Control and Prevention
CDHC	Community Dental Health Coordinator
CVD	Cardiovascular Disease
DDS	Doctor of Dental Surgery
DMD	Doctor of Medicine in Dentistry
EHR	Electronic Health Record
FQHC	Federally Qualified Health Center
IHS	Indian Health Services
LPN	Licensed Practical Nurse
ND	North Dakota
NDDoH	North Dakota Department of Health
NDHIN	North Dakota Health Information Network
OHP	Oral Health Program
RDA	Registered Dental Assistant
RDH	Registered Dental Hygienist
RN	Registered Nurse
TA	Technical Assistance
WYSAC	Wyoming Survey & Analysis Center

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Executive Summary

The North Dakota Department of Health Oral Health Program (NDDoH OHP) is dedicated to improving all North Dakotans' oral health through prevention and education. Because oral health and overall health are interconnected, a greater emphasis is being placed on increasing coordination between dental and medical providers. Centers for Disease Control and Prevention (CDC) funding through the State Actions to Improve Oral Health (DP18-1810) Component 2 cooperative agreement allows the state to implement evidence-based strategies that address hypertension in dental clinics. This report summarizes Year 2 (September 1, 2019-August 31, 2020) of Component 2 activities.

To implement Component 2, the OHP partners with dental providers, who provide blood pressure screenings for adult patients and conduct bidirectional referrals. Within the project, bidirectional referrals are defined as a process in which a dental provider refers a patient for services when high blood pressure is identified and receives feedback from the medical provider on that referral. All new dental offices participating in Component 2 receive training on best practices for screening patients' blood pressure. Refresher courses are available for dental offices from Year 1 of the Component 2 project. After receiving training on blood pressure measurement, dental providers screen adult patients for high blood pressure using a standardized protocol, referring those detected for high blood pressure to partner medical practices. Dental practices track the number of screenings provided; the number detected to have high blood pressure, the number referred to a medical practice, and the number receiving follow-up on their referral. Component 2 goals are:

- To facilitate local and statewide adoption and implementation of best practice protocols for blood pressure screening to reduce hypertension; and
- To improve overall health by increasing access to care using a bidirectional referral process between dental and medical health professionals.

The NDDoH OHP contracts with the Wyoming Survey & Analysis at the University of Wyoming to provide evaluation services for Component 2. WYSAC reviews data from multiple sources (training evaluations, referral trackers, provider interviews, etc.) to conduct a comprehensive evaluation and share key findings and recommendations back to the OHP.

Key Findings from Year 2

- Additional offices joined the project during Year 2:
 - Four new dental practices with seven office locations were trained in the blood pressure protocol.
 - One of these new dental practices (with two office locations) later discontinued participation during Year 2.
 - At the end of Year 2, a total of six dental practices with eight office locations provided blood pressure screenings and referrals.
- 34 dental professionals were trained on blood pressure measurement and referral protocols.
- Dental providers conducted 14,266 blood pressure screenings during Year 2. Dental providers detected 1,369 high blood pressure readings, made 332 referrals to medical providers, and received follow-up on 151 referrals from medical providers.
- The OHP exceeded its five-year goal to increase blood pressure screenings by 5% and is progressing towards its five-year goal of partnering with 24 dental offices.

Recommendations

- Continue to recruit new dental practices and provide blood pressure training to new partners.
- Enhance engagement with medical providers to support bidirectional referral processes.
- Investigate possible explanations for perceived gaps in screening numbers — for example, why there is high variability in high blood pressure detection across providers. When feasible, the OHP should consider appropriate solutions (e.g., revising the blood pressure protocol).
- Develop a sustainability plan to support the continuation of blood pressure screenings after Component 2 funding expires.

Program Description

The North Dakota Department of Health Oral Health Program (NDDoH OHP) is dedicated to improving the oral health of all North Dakotans through prevention and education. Because the impacts of oral health and overall health are interconnected, a greater emphasis is being placed on increasing coordination between dental and medical providers. Oral health providers are an underutilized group of professionals that can help bridge the gap by working collaboratively with medical partners on strategies to prevent cardiovascular diseases (CVD). Centers for Disease Control and Prevention (CDC) funding through the State Actions to Improve Oral Health (DP18-1810) Component 2 cooperative agreement allows the state to begin implementing medical-dental integration activities, ultimately improving the oral and cardiovascular health of North Dakotans. This funding runs from September 1, 2018, through August 21, 2023.

Overview

To implement Component 2, the OHP partners with dental providers, who provide blood pressure screenings for adult patients and conduct bidirectional referrals. Within the project, bidirectional referrals are defined as a process in which a dental provider refers a patient for services when high blood pressure is identified and receives feedback from the medical provider on that referral. All new dental offices participating in Component 2 receive training on best practices for screening patients' blood pressure. Refresher courses are available for dental offices from Year 1 of the Component 2 project. After receiving training on blood pressure measurement, dental providers screen adult patients for high blood pressure using a standardized protocol, referring those detected for high blood pressure to partner medical practices. Dental practices track the number of screenings provided, the number detected to have high blood pressure, the number referred to a medical practice, and the number receiving follow-up on their referral. The logic model for Component 2 (Figure 1) illustrates the intended activities and outcomes for Component 2.

Goals and Objectives

Program goals are:

- To facilitate local and statewide adoption and implementation of best practice protocols for blood pressure screening to reduce hypertension; and
- To improve overall health by increasing access to care using a bidirectional referral process between dental and medical health professionals.

Activities

During Year 2, the OHP planned to meet its objectives through the following activities:

Training and Technical Assistance

- Provide continuing education to NDDoH OHP staff on hypertension.
- Provide training and technical assistance for dental providers on blood pressure protocols and medical-dental integration. This includes the following topics:
 - Blood pressure measurement, including cutoffs and recommendations for different levels of high blood pressure;
 - Processes for referring a patient to their primary care provider;

- Processes on follow-up care; and
 - Processes to ensure the patient followed through on the referral that was initiated.
- Provide funding for partnering dental providers to receive Community Dental Health Coordinator (CDHC) training.

Strategy Implementation

- Recruit dental providers to participate in Component 2 strategies.
- Dental providers screen patients for high blood pressure and refer those with an elevated reading to partnering medical providers using a bidirectional referral process.

Monitoring and Data Collection

- Assess the feasibility of connecting dental providers to the North Dakota Health Information Network (NDHIN) for referral tracking and monitoring.
- Track implementation of the blood pressure protocol and referral process through internal tools.

Component 2 Program Outcomes

To track short-term outcomes, the OHP monitors the number of adults receiving blood pressure screenings, referrals, and referral follow-ups at dental practices. This helps staff when monitoring progress on Component 2 intermediate and long-term outcomes. By the end of the funding period in August 2023, Component 2 aims to achieve the following:

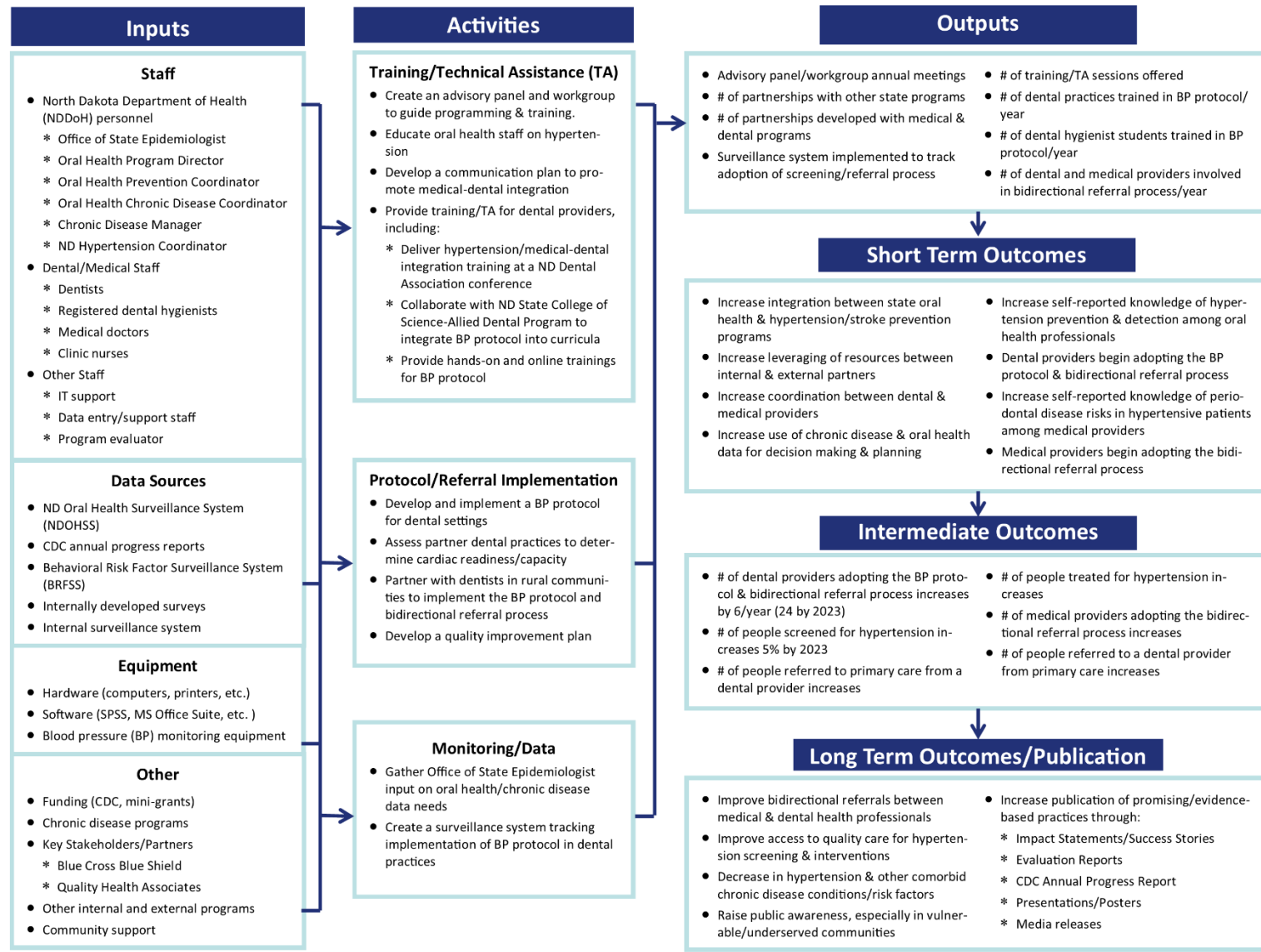
- Increase the number of blood pressure screenings conducted by five percent compared to the first year of the project.
- Adopt the medical-dental bidirectional referral process at 24 dental practices.

Stakeholder Engagement

Key stakeholders are actively engaged in evaluation design, data collection, and review of findings. Component 2 evaluation's primary stakeholders are OHP staff, who meet regularly with external evaluators to collaborate on evaluation design and data collection. This ensures that the evaluation activities align with program activities and are able to accurately assess program outcomes. For example, OHP staff provide feedback on data collection tools to ensure they can be used within dental offices, including a diversity of workflow processes and record-keeping systems. OHP staff also consult with the evaluator regularly to review evaluation findings, helping to ensure that data is presented in the appropriate context and that findings are continuously used to improve programming.

Other stakeholders include dental providers, medical providers, other NDDoH program staff, and other public health professionals. These stakeholders are engaged in evaluation processes on an as-needed basis to provide additional perspectives and input.

Figure 1. Component 2 logic model



Purpose of Evaluation

Intended Users and Use of Evaluation

Because this is a pilot program, evaluation efforts in Year 1 and Year 2 have focused on processes and systems. Most of these findings are formative and used by OHP and stakeholders to improve program systems, partnership engagement and education, as well as communication tools. In Years 3-5, process evaluation will continue, and evaluation efforts will begin to focus more heavily on outcomes and impacts. Progress in outcomes such as provider participation, screening, and referrals will be monitored over time. Evaluation users will largely be internal stakeholder groups, who will determine if activities are conducted as planned and if the activities have resulted in increased referral and treatment for hypertension.

Over time, indicator data reported by participating dental practices will be used to further educate medical and dental providers, public health officials, decision makers, and the general public on the importance of medical-dental integration and how Component 2 has advanced North Dakota in addressing the burden of chronic disease. Dissemination may be done through fact sheets, reports, poster presentations, and/or conference presentations.

Evaluation Methods and Analysis

The NDDoH OHP has contracted with the Wyoming Survey & Analysis Center at the University of Wyoming (WYSAC) to evaluate Component 2 strategies, activities, and outcomes. The OHP and WYSAC worked collaboratively to design an evaluation plan that meets the needs of its intended audience and stakeholders.

Key Evaluation Questions

The evaluation approach for Component 2 is both process and outcome in nature. Process evaluations include surveys and interviews with dental providers to monitor and obtain feedback on program efficiency and effectiveness. Outcome evaluation activities use referral data collected from participating dental offices and the OHP. A full list of evaluation questions and data sources is found in Table 1. The evaluation for Component 2 aims to answer the following overarching evaluation questions:

- Process: How were Component 2 activities conducted?
- Outcome: How did Component 2 achieve outcomes?

Process Evaluation Questions

1. How many partnerships with medical and dental providers are developed?
2. How many trainings are delivered on the blood pressure protocol?
3. How many dental providers and dental hygienist students have been trained in the blood pressure protocol?
4. How efficient and effective is the training for providers on the comprehensive blood pressure protocol?
5. How efficient and effective is the collaboration between the OHP and partnering dental practices?
6. What are barriers and challenges to implementing medical-dental integration?
7. How can those barriers and challenges be overcome?

Information on partnerships and trainings will be collected from the DP18-1810 monthly progress reporting tool and will be used to help determine if the activities being conducted are successfully

leading to the intended outcomes. Personnel in participating dental practices will be surveyed annually to gauge program efficiency and effectiveness. Partnering dental providers will provide feedback to assess program strengths, challenges and opportunities for improvement and feedback on OHP staff. This feedback will provide insights on how to guide continuous program quality improvements.

To supplement annual surveys, evaluators conduct focus groups and/or structured interviews during the project to collect additional information about the effectiveness of medical-dental integration.

Outcome Evaluation Questions

1. How many medical and dental practices are involved in the bidirectional referral process?
2. How many blood pressure screenings were conducted at participating dental practices?
3. How many blood pressure screenings indicated high blood pressure?
4. How many blood pressure referrals were made to a medical provider?
5. How many referrals received a follow-up?
6. What proportion of dental providers report an increase in referrals from medical providers?

Participating dental practices track the number of dental patients screened and referred to a medical provider. Data provided by participating dental practices on the relevant performance measures will demonstrate program outcomes.

Evaluation Limitations

Although this evaluation intends to be comprehensive in nature, there are limitations to the data that is collected. Surveys and interviews of providers may have a response bias towards answers they perceive as preferable. Infrequently, referral records may have some missing or unknown values.

While the data collected can be used to determine whether Component 2 was implemented as intended and led to the short-term outcomes of increased screenings and referrals, it cannot be used to determine if patient and/or population health improved as a result of the intervention.

Although the evaluation intended to use *patients* as the unit of analysis for tracking blood pressure screening and referrals, this did not prove feasible when considering the limitations of dental electronic health records (EHRs) for tracking this data. Specifically, dental EHRs often do not have a place for providers to record patient vitals or demographics. Instead, the unit of analysis for this data is the number of *screenings* conducted that result in referral and follow-up. Because of this shift, some counts could include duplicate patients – for example, if a patient visits a dental practice multiple times (such as for a cleaning and then a cavity filling), they may be screened more than once.

One dental provider was unable to report data for July and August 2020, leading to an underestimate of the number of screenings, referrals, and follow-ups. We consider this underestimate to be slight and do not think it would have a strong effect on the total outcomes in this report.

Table 1. Data source grid for Component 2

Evaluation Question	Indicator/Performance Measure	Method of Collecting Data	Timeframe	Key Evaluation Staff
How many partnerships with medical and dental providers are developed?	Number of partnerships with medical and dental providers.	Data collected by OHP from program records.	Data collected by OHP and reported monthly.	Lead: OHP Staff, Cheri Kiefer/Melissa Kainz Support: Contract Evaluators, Sandra Biller/Laran Despain
How many trainings are delivered on the blood pressure protocol?	Number of trainings provided on the blood pressure protocol.	Data collected by OHP from program records.	Data collected by OHP and reported monthly.	Lead: OHP Staff, Cheri Kiefer/Melissa Kainz Support: Contract Evaluators, Sandra Biller/Laran Despain
How many dental providers and dental hygienist students have been trained in the blood pressure protocol?	Number of dental providers and dental hygienist students trained on the blood pressure protocol.	Data collected by OHP from program records.	Data collected by OHP and reported monthly.	Lead: OHP Staff, Cheri Kiefer/Melissa Kainz Support: Contract Evaluators, Sandra Biller/Laran Despain
Is the training for providers on the comprehensive blood pressure protocol effective?	Responses to medical-dental integration provider survey, focus groups, and/or interviews.	Data collected by evaluation team from a survey of dental providers.	Data collected by evaluation team and reported annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: OHP Staff, Cheri Kiefer/Melissa Kainz
Is the collaboration between the OHP and partnering dental practices effective?	Responses to medical-dental integration provider survey, focus groups, and/or interviews.	Data collected by evaluation team from dental providers.	Data collected by evaluation team and reported annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: OHP Staff, Cheri Kiefer/Melissa Kainz
What are barriers and challenges to implementing medical-dental integration?	Responses to medical-dental integration provider survey, focus groups, and/or interviews.	Data collected by evaluation team from dental providers.	Data collected by evaluation team and reported annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: OHP Staff, Cheri Kiefer/Melissa Kainz
How can those barriers and challenges be overcome?	Responses to medical-dental integration provider survey, focus groups, and/or interviews.	Data collected by evaluation team from dental providers.	Data collected by evaluation team and reported annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: OHP Staff, Cheri Kiefer/Melissa Kainz
How many medical and dental practices are involved in the bidirectional referral process?	Number of dental practices that have adopted blood pressure screening procedures.	Data collected by OHP from program records.	Data collected by OHP and reported annually.	Lead: OHP Staff, Cheri Kiefer/Melissa Kainz Support: Contract Evaluators, Sandra Biller/Laran Despain

How many medical and dental practices are involved in the bidirectional referral process?	Number of medical practices working with dental providers.	Data collected by OHP from program records.	Data collected by OHP and reported annually.	Lead: OHP Staff, Cheri Kiefer/Melissa Kainz Support: Contract Evaluators, Sandra Biller/Laran Despain
How many blood pressure screenings were conducted at participating dental practices?	Number of adults screened in participating dental practices.	Data collected by participating dental providers from their records.	Data reported to OHP and contract evaluators annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: Contracted dental providers
How many blood pressure screenings indicated high blood pressure?	Number of adults who screen positive for high blood pressure.	Data collected by participating dental providers from their records.	Data reported to OHP and contract evaluators annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: Contracted dental providers
How many blood pressure referrals were made to a medical provider?	Number of adults who screened positive for high blood pressure and were referred to a medical provider.	Data collected by participating dental providers from their records.	Data reported to OHP and contract evaluators annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: Contracted dental providers
How many referrals received a follow-up?	Number of adults receiving a follow-up.	Data collected by participating dental providers from their records.	Data reported to OHP and contract evaluators annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: Contracted dental providers
What proportion of dental providers report an increase in referrals from medical providers?	% of dental providers reporting an increase in referrals (from provider survey).	Data collected by evaluation team from dental providers.	Data collected by evaluation team and reported annually.	Lead: Contract Evaluators, Sandra Biller/Laran Despain Support: Contracted dental providers

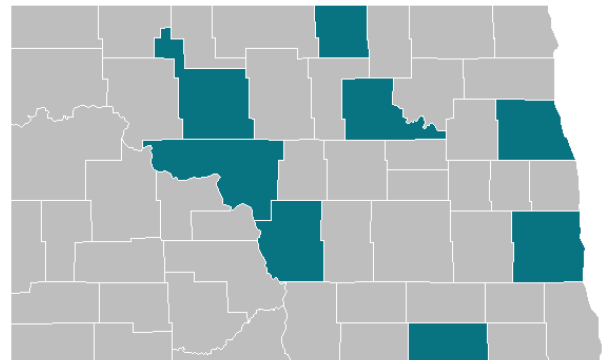
Findings

Of note: COVID-19 emerged as a global pandemic midway through Year 2 of Component 2. The effects of the pandemic are wide-reaching, at one point causing a temporary closure of dental and medical offices. Component 2 activities continued when possible, and evaluation findings will reflect the reductions in services resulting from COVID-19 impacts.

During Year 1, the OHP successfully developed partnerships with three dental practices to begin implementing the bidirectional referral process. During Year 2, the OHP began to partner with four dental practices with a total of seven office locations, which would have exceeded its goal of six locations for Year 2. Unfortunately, one of the new dental practices (with two offices) received training to implement blood pressure screenings, but ultimately stopped participating in the project.

Types of partner dental practices include Federally-Qualified Health Centers (FQHCs, 3), nonprofit dental clinics (1), Indian Health Services (IHS; 1), and private practices (1). Partner dental practices are located in Benson, Burleigh, Cass, Dickey, Grand Forks, McLean, Rolette, and Ward counties (Figure 2).

Figure 2: Component 2 provider locations



North Dakota map with counties having at least one Component 2 provider highlighted in blue.

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The following sections describe the results for Year 2 process and outcome measures.

Process: How Were Component 2 Activities Conducted?

Trainings

All five new dental offices received blood pressure training in 2019, with 31 total people trained. Table 2 describes how many people were trained at each practice and their professional role within the dental office. Providers completed training evaluations, and these evaluations were further analyzed. Because these findings are self-reported, they may be biased. For example, providers might over- or underestimate the change in knowledge they attribute to the training.

At trainings, participants completed a three-question pre- and post-test to assess participants' basic knowledge regarding blood pressure. These questions asked about the factors affecting a blood pressure reading, how common hypertension is in primary care settings, and what lifestyle changes have the biggest impact on blood pressure. Participants had an average score of 81.4% in the pre-test and 95.1% at post-test (Figure 3). Additionally, the percentage of participants with a perfect score on the test increased from 52.9% at pre-test to 88.2% at post-test.

Table 2. Year 2 blood pressure trainings at dental practices, by profession

	DDS/ DMD	RDH/RDA/ CDA	RN/LPN	CNA	Other/ Unknown	Total
Private Practice 1	1	1	1	0	1	4
Private Practice 2*	0	5	0	0	6	11
FQHC	1	6	0	0	1	8
IHS	1	2	4	2	2	11
Total	3	14	5	2	10	34

Notes: DDS=Doctor of Dental Surgery, DMD=Doctor of Medicine in Dentistry, RDH=Registered Dental Hygienist, RDA=Registered Dental Assistant, CDA=Certified Dental Assistant, RN=Registered Nurse, LPN=licensed practical nurse.

* later discontinued participation in the Component 2 project

Source: OHP Training Surveys, 2019

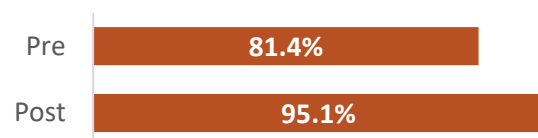
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Training evaluations also asked participants to rate their level of blood pressure knowledge before and after the trainings using the following questions: “How would you rate your level of knowledge about training content before you attended this training?” and “How would you rate your level of knowledge about training content after you attended this training?” Response options were listed as “advanced,” “intermediate,” “basic,” and “none.” The proportion of providers that reported their knowledge as advanced increased from 32.3% pre-training to 67.7% post-training (Figure 4). These results, in combination with the improvements found in pre-and post-tests, suggest that participant knowledge improved after the trainings.

In addition to changes in knowledge, training evaluations asked participants to report expected improvements to their practices, as well as their level of commitment to change. When asked about improvements, 94.1% of providers reported improvements to their level of *competence*, and 88.2% expected improvements in their *performance* (Figure 5). When asked if the training would cause them to make changes at their practice, 79.4% responded yes. 64.7% of providers reported high levels of commitment to making changes (Figure 6). Some providers reported barriers to change, which included time constraints (n=3), resource availability (n=2), fundamental delivery system redesign necessary (n=1), and resistance to change (n=1).

Figure 3. Blood pressure knowledge increased among providers following trainings.

Average score of pre- and post-tests

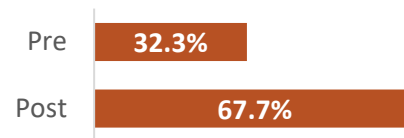


Source: OHP Training Surveys, 2019

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Figure 4. More providers felt they had advanced knowledge of blood pressure following trainings.

Proportion of providers rating their blood pressure knowledge as “advanced”

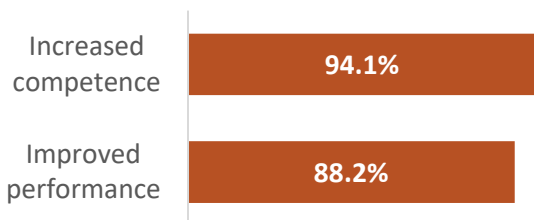


Source: OHP Training Surveys, 2019

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Figure 5. Providers felt trainings resulted in improved competence and performance.

% of providers answering “yes”

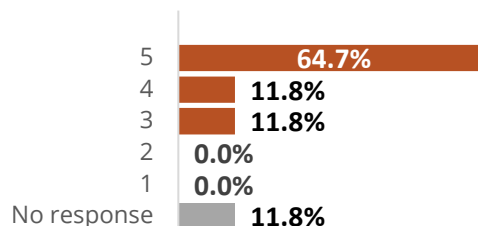


Source: OHP Training Surveys, 2019

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Figure 6. Most providers were highly committed to change following trainings.

Provider ranking of commitment to change, from 1 (not committed) to 5 (highly committed)



Source: OHP Training Surveys, 2019

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The analysis of training evaluations reveals that dental staff perceive the blood pressure trainings to be effective and result in positive changes at their practices. At this point, there are no observed negative aspects of the trainings that should be modified or discontinued.

Community Dental Health Coordinator Training

In addition to blood pressure trainings and resources, the OHP allows partner dental providers to use Component 2 funding for Community Dental Health Coordinator (CDHC) trainings. These trainings, provided by Alamance Community College, allow for staff to serve as case managers and address oral health disparities within their community. According to the American Dental Association (n.d.), CDHCs

can empower people in underserved communities to manage their own oral health. When disease requires treatment, the CDHC can link patients with dentists who can provide that treatment and can help obtain other services —such as childcare or transportation — that patients may need in order to receive care. (p. 2)

During Year 2, two dental providers took advantage of this training.

Strategy Implementation

During Year 2, the OHP continued to utilize a blood pressure protocol for use in dental settings. A draft of this protocol was completed and finalized by the NDDoH during Year 1.

For Year 2 of Component 2, the OHP set a target of six additional dental offices to partner with on bidirectional referral strategies. The OHP was on track to meet this target by partnering with seven dental offices. Unfortunately, one of these dental practices (with two dental offices) stopped participation in the project, resulting in the OHP being one location short of meeting its goal. It is currently implementing Component 2 in eight dental offices, which is 33.3% of its five-year goal of partnering with 24 dental offices.

During Year 2, partner dental practices were able to provide 14,266 blood pressure screenings for their patients, and this is further described in the outcome evaluation. The OHP also developed partnerships

with an additional four dental practices to begin implementing Component 2 in Year 3 and began providing trainings for them so they can begin screenings correctly at the beginning of the Year 3 contract.

Monitoring and Data Collection

The reporting requirements for Component 2 bidirectional referral strategies are new for partnering North Dakota dental practices, and as such, the project required a new tool for data collection. Through collaboration between the OHP and contracted evaluators, the team developed data collection spreadsheet during Year 1 of this project. This spreadsheet captures the number of screenings for high blood pressure provided, the number of screenings that showed a high blood pressure, the number of referrals that were made, and the number of referrals that dental providers followed up on. The tool also collects demographic information such as race, ethnicity, age, and gender.

In the first year of implementation, OHP staff discovered that some dental practices have challenges providing requested data due to their record-keeping systems. Specifically, dental electronic health records (EHRs) often do not have a place for providers to record patient vitals or demographics. OHP staff continues to coordinate with partner dental sites to identify reporting systems that work specifically for them (such as paper forms).

Refinements to the data collection spreadsheet were completed early in Year 2 as OHP staff worked with dental practices individually to identify better methods to gather data and identify ways to collect additional information (such as whether patients are on blood pressure medication).

OHP staff also investigated the functionality of the North Dakota Health Information Network (NDHIN) for facilitating referrals, and this system was found to have limitations when working with dental EHR systems. Specifically, there were limitations with connecting dental EHRs to the NDHIN, costs, and the ability to make referrals. As the NDHIN expands its capacity, OHP staff may reassess the system to determine if it becomes a feasible referral solution.

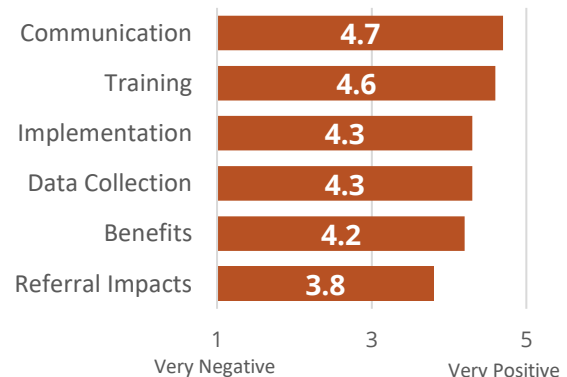
Provider Survey

During Year 2, the evaluators conducted a survey of providers to assess Component 2 goals and identify opportunities for improvement. The provider survey collected information about various aspects of the Component 2 project, including training, implementation, data collection, communication, referral impacts, and perceived benefits. Six of seven partner dental practices responded to the survey. The seventh dental practice later discontinued participation in the project.

Overall, respondents had positive reactions to Component 2 during the survey (Figure 7). OHP

Figure 7. A survey of dental providers showed positive reactions to Component 2.

Average score of responses by survey section



Source: Component 2 Provider Survey, 2020

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communication and training regarding the project had the highest overall score. Component 2 benefits and referral impacts had the lowest overall score, although responses were still typically positive. Qualitative questions provided context and allowed evaluators to form recommendations. In response to survey results, evaluators made recommendations to OHP staff:

- **Revise blood pressure protocols** to further clarify guidelines and provide opportunities for adaptation.
- **Expand engagement with medical providers** to increase referrals from primary care to dental practices.

Evaluators also observed that most sites provided blood pressure screenings before their partnership with Component 2, and the possibility for adapting site selection criteria was discussed with the OHP. It was determined that many dental providers may not take blood pressures correctly, possibly because there are currently no continuing education requirements regarding blood pressure for dental practitioners in North Dakota (North Dakota Board of Dental Examiners, n.d.). Because current procedures at dental offices may not reflect best practices, additional blood pressure training and assistance with referral processes may prove beneficial even for sites that are already engaged in the process. Changes to site selection are not considered necessary at this point.

Evaluators shared full results from the provider survey with the OHP in a separate report. This survey will be administered annually to observe changes to responses over time.

Outcome: How Did Component 2 Achieve Outcomes?

Short-Term Outcomes

During Year 2 of Component 2 implementation, eight partnering dental offices conducted 14,266 blood pressure screenings from September 2019 through August 2020. Of these screenings, 1,369 had a high blood pressure reading, 332 were referred to a medical provider, and 151 referrals received a follow-up (Figure 8). These counts could include duplicate patients – for example, if a patient visits a dental practice multiple times (such as for a cleaning and then a cavity filling), they may be screened more than once. Almost half (45%) of referrals received follow-ups, closing the loop on the bidirectional referral

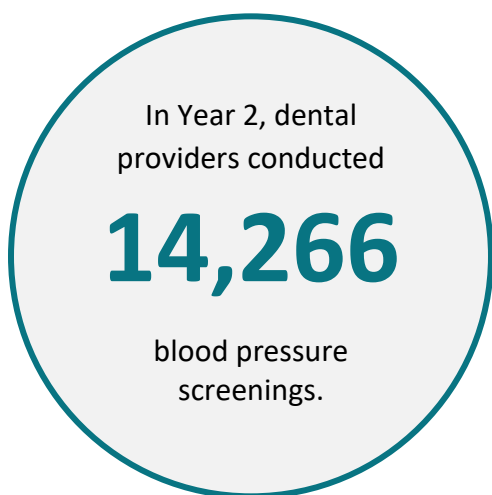
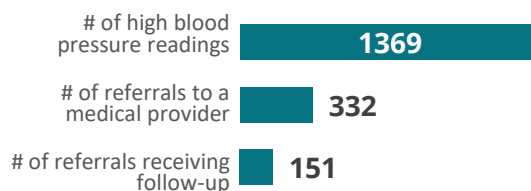


Figure 8. Over 1,300 high blood pressure readings were reported.

Number of high blood pressure readings, referrals, and follow-ups



Note: One provider is missing data for July and August 2020.

Source: Component 2 Data Collection Tool, 2020

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process. Of note, one dental provider was unable to report data for July and August 2020, leading to an underestimate of the number of screenings, referrals, and follow-ups. We consider this underestimate to be slight and do not think it would have a strong effect on the totals in this report. The practice that dropped out did not provide screening data to the OHP.

About 9.6% of all screenings had a high blood pressure reading, although this proportion varies from 1.9% to 23.1%, depending on the dental practice. This variability in detection across practices may have a number of reasons, including patient demographics, patient volume, location, type of practice (for example, FQHC vs. private practice), or provider adherence to the blood pressure protocol.

The COVID-19 pandemic had a significant impact on the ability of dental practices to provide blood pressure screenings. From March 20, 2020, until May 5, 2020, all North Dakota dental offices were closed to non-emergency appointments. The number of screenings conducted in April 2020 was a mere 17% of the screening numbers from April 2019 (based on the providers implementing Component 2 in both years), reflecting this severe disruption in services (Figure 9). Screening counts quickly increased after offices were able to reopen (Figure 10), but it is unclear how future developments may impact screenings. As of October 2020, North Dakota has one of the highest rates of daily new COVID-19 cases per 100,000 people in the country, and new cases continue to rise nationally.

While not specified in the evaluation plan, demographic data was collected for five out of the six dental practices. Blood pressure screenings by race, ethnicity, age, and gender are presented in Table 3.

Intermediate/Long-Term Outcomes

By the end of the five-year funding period in August 2023, Component 2 aims to achieve the following:

- Increase the percentage of adults screened for high blood pressure by five percent.
- Adopt the medical-dental bidirectional referral process at 24 dental practices.

Because Component 2 uses metrics that the OHP had not been tracking previously, Year 1 was used to establish baseline measures and five-year targets. During the first year, dental providers conducted 13,147 blood pressure screenings. By Year 5, the OHP aims to increase that number by five percent, to a total of 13,804 blood pressure screenings. The target increase of five percent is a goal indicated by the CDC, the funding agency. The OHP has already exceeded this goal and will build on this momentum to continue expanding blood pressure screenings.

The second long-term outcome of this project is to have 24 dental practices adopt the bidirectional referral process. The OHP met its goal for Year 2 of this grant and made additional partnerships to expand the work during Year 3.

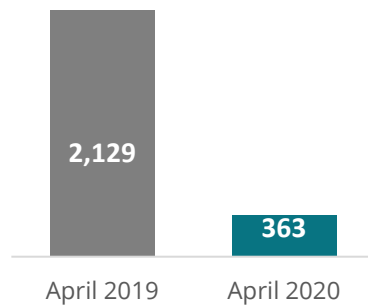
Patient Impacts

A patient was found to have blood pressure of 205/133 (wrist) and 267/157 (upper arm). The 33-year-old had a history of high blood pressure, but he did not report taking medications for the high blood pressure. He was referred to our medical clinic who transported him to the ER after a consultation. The patient returned and said he was re-prescribed blood pressure medication and is taking it again. He was able to have two teeth safely extracted.

-Component 2 dental provider

Figure 9. COVID-19 restrictions caused a major reduction in BP screenings.

of BP screenings conducted

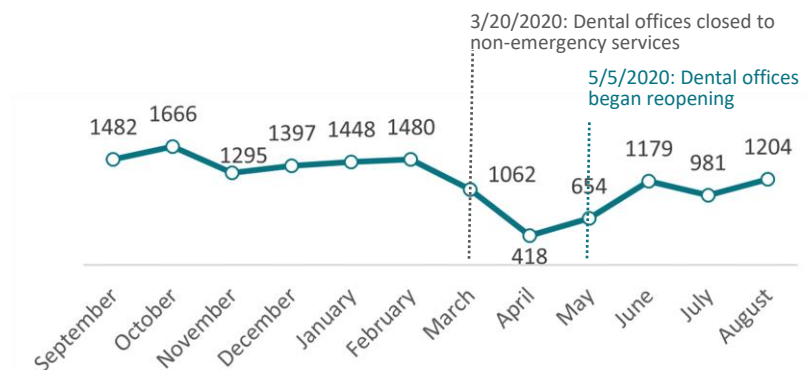


Note: Only dental providers conducting screenings in both years were included.

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Figure 10. BP screenings dropped dramatically in April, but quickly rebounded once dental offices reopened.

of BP screenings conducted by month, Sept. 2019-Aug. 2020



Note: One provider is missing data for July and August 2020

Source: Component 2 Data Collection Tool, 2020

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Table 3. Demographics of patients receiving blood pressure screenings

Percent		Percent	
Race		Age	
American Indian/Alaskan Native	14.7%	Under 18	2.8%
Asian	1.3	18-24	9.0
Black/African American	4.9	25-34	21.3
Native Hawaiian or Other Pacific Islander	0.2	35-44	19.5
White	50.0	45-54	13.6
Two or more races	1.5	55-64	16.3
Unknown/Did not answer	27.4	65 and over	17.5
Total	100.0	Total	100.0
Ethnicity		Gender	
Hispanic/Latino	4.5	Women	59.1
Non-Hispanic/Latino	67.1	Men	40.9
Unknown/Did not answer	28.4	Total	100.0
Total	100.0		

Note: One dental practice is not included in these numbers due to discrepancies in the data.

Source: Component 2 Data Collection Tool, 2020.

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Recommendations

To date, the OHP has been successful in recruiting training, and supporting dental practices in providing blood pressure screenings and referrals. As such, recommendations are focused on the continuation and improvement of current practices and are focused in the areas of evaluation, training and support, implementation, and sustainability.

It bears repeating that the COVID-19 pandemic continues to have a significant impact on planning and implementation of Component 2 activities within dental practices. Adaptations to changing circumstances should be an expectation as providers and program staff respond to new developments. This can include reduced expectations for increasing program participation (taking on new work while revenue is limited) and reduced numbers of screenings, referrals, and follow-ups because of reduced patient encounters.

Evaluation

The OHP and the evaluators will collaborate to refine the existing evaluation plan to enhance utilization and address emerging needs. Specifically, revisions will be made to the provider survey so that the OHP and evaluators can better understand referral processes and variability in data across practices. The evaluators are also prepared to adapt evaluation as necessary in light of COVID-19 or other disruptions. Whenever possible, data collection will remain consistent across years to lend itself to improved comparability.

Training and Support

Blood pressure trainings for dental providers received positive responses and results during evaluation. The contractor providing these trainings has changed for Year 3, and they completed trainings for Year 3 dental practices between July and October 2020. By completing blood pressure training early on, the OHP hopes to facilitate implementation of blood pressure screenings as close as possible to the start of their contract. Evaluation should assess, to the extent possible, how well the new contractor is able to provide blood pressure trainings. This can include improvements in knowledge, competency, or intention to change.

Other recommendations for support emerged from provider surveys, including possible enhancements to the blood pressure protocol and increased engagement with medical providers. Enhancements to the blood pressure protocol would make opportunities for adaptation more explicit to improve consistency in blood pressure screening practices across dental providers. Increased engagement with medical providers would enhance partnerships and potentially lead to increased referrals from medical providers to dental practices. This engagement can be initiated by the OHP or the dental providers themselves.

The provider survey also revealed consistently positive feedback regarding the support provided by the OHP to dental practices. This support should continue and be improved whenever possible.

Implementation

Dental providers have excelled at providing blood pressure screenings for their adult patients. The OHP should continue to support these efforts and provide additional training and resources whenever appropriate.

It is unclear why there is considerable variation in the proportion of high blood pressure detected among blood pressure screenings and whether this may have an impact on patients. During Year 3, the evaluators hope to investigate this further and better understand this variability, making program recommendations when appropriate.

Similarly, about half of detected high blood pressure readings do not result in a referral to a medical provider. Anecdotally, some providers have reported that patients may be resistant to receiving a referral. Providers also have varying practices for giving referrals. The evaluators plan to investigate this further during Year 3, again making program recommendations as necessary.

Sustainability

As the OHP continues to refine its training and support for dental providers, it should begin developing plans for sustainability. This may include increasing state-level support for blood pressure screenings through expanded partnerships, policy development, and/or leveraging of funds. The OHP may also support dental providers in sustaining these practices by encouraging positive medical-dental partnerships, integrating blood pressure screening into workflows or protocols, and developing policies. Development of a sustainability plan is an expectation of the DP18-1810 cooperative agreement for Year 3 and is a natural next step in this work.

Evaluation Use, Dissemination and Sharing Plan

Component 2 evaluation is used to identify best practices and lessons learned for implementing blood pressure screenings and referrals in medical practices. These best practices and lessons learned are used internally to for continuous improvement and externally for replication and increased awareness.

Internal Use

The external evaluators are in regular communication with the OHP to discuss evaluation and promote continuous improvement. Evaluators engage the OHP in development of evaluation tools to ensure their utility and ability to address emerging evaluation needs. Results from evaluation work are shared informally as soon as appropriate with the OHP so that they may use findings and recommendations to adapt their practices in real time. The evaluators and OHP hold monthly calls to discuss updates and communicate frequently via email. Formal evaluation documents consist of reports and fact sheets, developed at the time complete data is available, typically once per year.

The OHP uses evaluation results to adapt their activities so that they better lead to the intended program outcomes. For example, the OHP is currently investigating opportunities to increase engagement with medical practices as a part of Component 2, a recommendation that emerged from the provider survey. The OHP is highly committed to making data-driven decisions, and actively utilizes evaluation to improve its programming.

Dissemination and External Use

Evaluation results are disseminated within the NDDoH, among oral health professionals and other external stakeholders, and broadly to the general public. Within the NDDoH, evaluation reports and fact sheets are used to support awareness of OHP efforts and will also assist other programs that intend to implement a similar approach. For example, the NDDoH's Heart Disease & Stroke Prevention Program and Diabetes Prevention and Control Program (both also within the Division of Health Promotion) plan to engage in similar approaches to implement referral processes across providers (for example, between chiropractors and medical providers), and they may be able to utilize Component 2 evaluation results when planning their strategy.

Dissemination of evaluation results can include external stakeholders such as dental providers, dental associations, state agencies, and other professionals. These stakeholders may use evaluation results to

learn about the effectiveness of Component 2 strategies in addressing chronic disease. They may also use it to inform their approach when replicating the strategy in another state or region.

Evaluation results may also be shared with the general public, which is expected to increase awareness of and support for Component 2 or other similar efforts.

Evaluation results are typically disseminated in the form of reports and fact sheets as soon as they are approved for publication, typically once per year. They are posted on the NDDoH website, and may also be distributed via email, listserv, or other media. The OHP also plans to share findings at conferences or other professional events.

References

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