Assessing the State of Collaborative Dental Hygiene Practice in Minnesota

Report on the Survey of Licensed Dental Hygienists

July 2020
Acknowledgement

This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling $1,660,032 with no percentage financed with nongovernmental sources. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement by HRSA, HHS or the U.S. Government.
### Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD</td>
<td>Board of Dentistry</td>
</tr>
<tr>
<td>BSDH</td>
<td>Bachelor of Science in Dental Hygiene</td>
</tr>
<tr>
<td>CDHP</td>
<td>Collaborative Dental Hygiene Practice</td>
</tr>
<tr>
<td>CHC</td>
<td>Community Health Center</td>
</tr>
<tr>
<td>CPDH</td>
<td>Collaborative Practice Dental Hygienist</td>
</tr>
<tr>
<td>DH</td>
<td>Dental Hygienist</td>
</tr>
<tr>
<td>DSAC</td>
<td>Dental Services Advisory Committee</td>
</tr>
<tr>
<td>FQHC</td>
<td>Federally Qualified Health Center</td>
</tr>
<tr>
<td>HHS</td>
<td>Health and Human Services</td>
</tr>
<tr>
<td>HRSA</td>
<td>Health Resources and Services Administration</td>
</tr>
<tr>
<td>MDA</td>
<td>Minnesota Dental Association</td>
</tr>
<tr>
<td>MDH</td>
<td>Minnesota Department of Health</td>
</tr>
<tr>
<td>MnDHA</td>
<td>Minnesota Dental Hygienists’ Association</td>
</tr>
<tr>
<td>Normandale</td>
<td>Normandale Community College</td>
</tr>
<tr>
<td>ORHPC</td>
<td>Office of Rural Health and Primary Care</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>WIC</td>
<td>Women Infant and Children</td>
</tr>
</tbody>
</table>
Table of Contents
Acknowledgement ................................................................................................................................. 1
Acronyms and Abbreviations .................................................................................................................. 2
Background ............................................................................................................................................... 4
Survey Objectives ..................................................................................................................................... 6
Methodology ............................................................................................................................................... 6
Results and Analysis ............................................................................................................................... 7
  Section I: Employment and Education Level .......................................................................................... 7
  Section II: Practice Setting ..................................................................................................................... 8
  Section III: Collaborative Dental Hygiene Practice Settings ................................................................. 9
  Section IV: Interest in Non-Traditional Practice Settings ..................................................................... 15
Section V: “Minnesota’s 21st Century Dental Team: Toward Access for All” Website ............................ 17
Discussion ................................................................................................................................................... 18
Recommendations ...................................................................................................................................... 19
Conclusion ................................................................................................................................................ 20
References .................................................................................................................................................. 21
Appendix A: Short History of Minnesota’s Collaborative Dental Hygiene Practice Legislation Since Passage in 2001.......................................................................................................................................................... 22
Appendix B: Survey Questionnaire Licensed Dental Hygienists 2019 ..................................................... 24
Background
Minnesota has long been at the forefront of advancing innovative models in healthcare, including new dental hygiene workforce models that were developed to increase access to oral health care. Collaborative dental hygiene practice (CDHP) is a Minnesota model authorized by statute that expands preventive and therapeutic care for the underserved across the state.\(^1\) CDHP allows dental hygienists to enter into a written collaborative agreement with a Minnesota licensed dentist to provide care in non-traditional dental or community settings, without the patient being seen first by a dentist or a dentist being on-site. A collaborative agreement is a formal written document that outlines the professional relationship between a dental hygienist and a dentist, identifies protocols and settings, and authorizes services to be provided by a licensed dental hygienist.

Seeing the potential in Minnesota for innovation, in July 2015, the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) awarded Normandale Community College (Normandale) a grant to advance CDHP and dental hygiene-based dental therapy. The project, titled “Innovative Pathways to Advanced Practice for Dental Hygienists: Meeting the Needs of Minnesota's Underserved Populations,” set out the following goals:

Goal 1: Strengthen the collaborative practice infrastructure
Goal 2: Make access to preventive and primary health care services available to more members of underserved populations
Goal 3: Educate a workforce that is better prepared to provide high-quality oral health care to diverse and underserved populations
Goal 4: Maximize the opportunity that Minnesota has to provide leadership in creating innovative workforce models

Soon after receiving HRSA funding, the Normandale project team along with a professional program evaluator developed a detailed evaluation plan consistent with the project work plan to ensure that the grant’s goals, objectives, deliverables, and intended outcomes would be achieved. Goal 1 of the work plan included two important first steps: conducting a review of previous studies regarding collaborative dental hygiene practice, followed by developing a new statewide survey of licensed dental hygienists to better understand how extensively CDHP is being utilized in Minnesota.

Historical Review of Studies on Collaborative Dental Hygiene Practice in Minnesota
This survey is not the first of its kind in Minnesota. Since the initial passage of legislation related to collaborative dental hygiene practice in 2001, individuals and organizations have conducted several surveys and studies with dental hygienists and dentists. Studies were conducted to:

- Understand expanded functions, alternative practice settings, and barriers to signing a collaborative agreement;
- Identify types of continuing education topics of interest to dental hygienists; and
- Explore new career growth opportunities for collaborative dental hygiene practice.

These surveys and studies have provided valuable information and snapshots through time that capture the evolving state of collaborative dental hygiene practice in the state:

\(^1\) [https://www.revisor.mn.gov/statutes/cite/150A.10](https://www.revisor.mn.gov/statutes/cite/150A.10)
• **2003**: Funded by the Minnesota Department of Health (MDH) Normandale and Apple Tree Dental surveyed Minnesota licensed dental hygienists to determine their interest in working under the newly authorized collaborative practice opportunity.²

• **2010 – 2011**: MDH contracted with Minnesota Management and Budget (MMB) to conduct surveys of dental hygienists and dentists to collect and analyze data on Minnesota’s oral health workforce and to improve infrastructure to support dental hygienists and dentists practicing with a collaborative agreement.³

• **2016**: A Normandale dental hygiene faculty member interviewed dental hygienists for her Master’s thesis with the goal of identifying strengths and limitations of the current Minnesota collaborative agreement and the importance of addressing the oral health needs of unserved and underserved Minnesotans.⁴

• **2018**: The Rural Health Advisory Committee Report “Strengthening the Oral Health System in Rural Minnesota” emphasized leveraging expertise in oral health and advised Minnesota to encourage the oral health workforce to practice “at the top of their license.” ⁵ It suggested that greater use of collaborative agreements between dentists and dental hygienists moves the dental workforce closer to accomplishing this level of practice.

• **2017-2018**: The MDH Office of Rural Health and Primary Care (ORHPC) conducted a qualitative study of collaborative practice dental hygienists by interviewing 22 oral health professionals including dental hygienists, dentists, and program managers.⁶ The findings of this study have been presented at various state-wide forums such as the September 30, 2019 Dental Services Advisory Committee (DSAC) meeting.⁷ Data and insights from this study were also included in the oral health issue brief titled ‘Collaborative Practice as a Strategy for Increasing Access to Oral Health Care in Minnesota’ published in May 2019 by The Network for Public Health Law.⁸

In addition to the irregularly occurring studies and surveys above, the Minnesota Board of Dentistry and MDH Office of Rural Health and Primary Care (ORHPC) have partnered to include survey questions related to the oral health workforce within its biannual license renewal. Response to the questions was optional and therefore resulted in inconsistent response rates that are subject to potential bias and inconsistent data. Realizing the potential to obtain information specific to collaborative practice, in January 2018 the BOD moved the survey questions from the final step in the license renewal process to immediately prior to payment, thereby requiring licensees to respond.

According to the 2016-2017 of this workforce survey, only 11% of dental hygienists reported having a collaborative agreement with dentists. Furthermore, of those who responded as having a collaborative

---


⁶ Minnesota Department of Health, Office of Rural Health and Primary Care. Report on Collaborative Practice Dental Hygiene – Lessons from the Field in Growing an Innovative Practice. 2020 (Forthcoming)


agreement, only four percent reported using it all the time and 72% reported never using it. This recent information, although incomplete due to placement within the license renewal, provides a stark reminder of the need for the HRSA project to improve and expand the collaborative dental hygiene practice infrastructure in Minnesota (project Goal 1).

Survey Objectives
Normandale conducted this survey to supplement the data collected through the ORHPC and MDH workforce survey and to achieve the following objectives:

- Identify professional/work settings where collaborative practice is currently being utilized in the state;
- Improve understanding of alternative practice settings and other new career growth opportunities for dental hygienists;
- Identify ways to encourage dental hygienists and dentists to utilize collaborative agreements; and
- Fulfill the HRSA grant ‘Innovative Pathways to Advanced Practice for Dental Hygienists’ requirements by establishing consistent baseline data.

Methodology
The HRSA survey project team followed standard statistical methodology for every stage of designing and implementing the survey of dental hygienists, from designing the questionnaire to analyzing the data for this report.

Survey Questionnaire
The team reviewed all previously available surveys to ensure that the information collected in this current survey was consistent and comparable. The team shared the new draft questionnaire with Collaborative Dental Hygiene Practice advisory committee members for their feedback. The draft survey was then pilot tested and feedback was used to improve the questionnaire.

Once the questions were finalized, an online survey was developed using Qualtrics experience management platform. In April 2019, The Minnesota Board of Dentistry (BOD) sent the survey link to 5,500 Minnesota licensed dental hygienists whose email addresses were in the BOD system. Two reminder emails were also sent prior to closing the survey.

Survey Questionnaire Setup
The questionnaire was divided into the following five sections (see Appendix B):

Section I: Employment and Education Level
Section II: Practice Settings
Section III: Collaborative Dental Hygiene Practice Settings
Section IV: Interest in Non-Traditional Practice Settings
Section V: “Minnesota’s 21st Century Dental Team: Access for All” website

Survey Response
A total of 1,247 dental hygienists (22.6%) responded to the survey. This response rate is considered a statistically acceptable rate of return for an online survey conducted outside of an organization.
Data Analysis
SPSS Statistics software version 25 was used to analyze the quantitative data. Simple frequencies, cross tabulations and weighted percentages were produced. For qualitative data analysis including identification of themes, NVivo software was used.

Results and Analysis
Section I: Employment and Education Level
This section included questions on duration of dental hygiene-related employment, the current working position pertaining to licensure as a dental hygienist and the highest level of education of respondents.

As shown in Table 1, almost half of the survey respondents had dental hygiene-related employment for more than 20 years (46.5%). This survey, as well as the 2003 Normandale/Apple Tree Dental and 2010 MDH surveys, found similar results: those dental hygienists who had been in the profession for a greater number of years responded to the surveys in greater numbers. One possible explanation for this is that prior to a change in statute in 2017, dental hygienists were required to accrue 2,400 hours of clinical experience prior to considering a collaborative practice role. For some hygienists, this took years of employment. This could result in an older demographic responding to the survey.

<table>
<thead>
<tr>
<th># of Years of Dental Hygiene Related Employment</th>
<th># of Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 years (never had dental hygiene-related employment)</td>
<td>4</td>
<td>0.3</td>
</tr>
<tr>
<td>1-5 years</td>
<td>152</td>
<td>12.2</td>
</tr>
<tr>
<td>6-10 years</td>
<td>175</td>
<td>14.1</td>
</tr>
<tr>
<td>11-15 years</td>
<td>173</td>
<td>13.9</td>
</tr>
<tr>
<td>16-20 years</td>
<td>162</td>
<td>13.0</td>
</tr>
<tr>
<td>More than 20 years</td>
<td>579</td>
<td>46.5</td>
</tr>
<tr>
<td>Total</td>
<td>1,245</td>
<td>100.0</td>
</tr>
</tbody>
</table>

When asked about respondents’ current working position (paid or unpaid/volunteer) related to their license as a dental hygienist, 85% reported working as dental clinicians. Almost a tenth (8.7%) of respondents reported not working in any position related to their license at the time of the survey. Table 2 displays the highest level of education attained by respondents. As can be seen, more than half of the respondents had associate degrees and almost one-third held bachelor’s degrees. A few doctorate professionals also responded to the survey.
### Table 2: Highest Level of Education

<table>
<thead>
<tr>
<th>Highest Level of Education</th>
<th># of Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate</td>
<td>13</td>
<td>1.0</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>693</td>
<td>55.6</td>
</tr>
<tr>
<td>Post Associate Certificate</td>
<td>44</td>
<td>3.5</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>386</td>
<td>31.0</td>
</tr>
<tr>
<td>Post Bachelor’s Certificate</td>
<td>13</td>
<td>1.0</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>85</td>
<td>6.8</td>
</tr>
<tr>
<td>Post Master’s Certificate</td>
<td>5</td>
<td>0.4</td>
</tr>
<tr>
<td>Doctorate Degree</td>
<td>7</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,246</td>
<td>100.0</td>
</tr>
</tbody>
</table>

It is worth comparing these results to the 2003 Normandale/Apple Tree survey results, at which time 25.7% of respondents had a bachelor’s degree. The increase in baccalaureate-prepared dental hygienists responding to the survey is encouraging, as is the increase in the number of institutions offering baccalaureate degrees and those providing the dual admissions and enrollment model. Together, these can be taken as early indicators that this approach to educating dental hygienists is growing and beginning to have an impact on the field.

### Section II: Practice Setting

In this section, respondents were asked to identify the geographic area in which they worked or volunteered. Chart 1 shows that more than half of the respondents were working or volunteering in the Twin Cities metro area. This finding is consistent with the Minnesota Board of Dentistry 2016-2017 licensure survey, which reported that 60% of dental hygienists worked in the seven-county metro area. Since 55% of the state’s population lives in the Twin Cities, we would expect approximately the same percent of dental hygienists to practice there.
Another question in this section was related to the practice settings where respondents worked or volunteered. For this question, respondents were allowed to select more than one setting. Not surprisingly, three-fourths of the respondents were practicing at traditional office settings (Chart 2).

It is important to remember that the numbers of dental hygienists working in traditional and non-traditional settings are not inversely related. In other words, an increase in hygienists practicing in non-traditional settings does not necessarily correlate with a decline in numbers practicing in traditional dental offices. People will still need the services of a dentist and most will continue to go to their dental office for all their oral health care needs. Dental hygienists in alternative practice settings primarily see individuals who are currently under- or unserved by a dentist or dental hygienist.

Growth in the numbers of dental hygienists working in non-traditional settings is encouraging, but there is still work to be done. Findings suggest the U.S. dental public health workforce is small, and most state programs have scant funding. Furthermore, the majority of dental hygiene programs in the United States do not have any faculty members with a degree in public health. There is still unmet need to address the oral health of all our citizens. It will therefore be critical to analyze that need in greater detail going forward in order to determine the ideal availability of dental hygienists working in non-traditional settings.

Section III: Collaborative Dental Hygiene Practice Settings
Survey respondents who selected “Non-traditional Practice Settings” as their work or volunteer settings in Section II were asked to respond to Section III.

Chart 3 shows that the majority of the respondents working in a non-traditional practice did not work under a collaborative agreement. Looking at the chart, however, we can extrapolate that over the years, that collaborative agreements are increasing. Although the original legislation was passed in 2001, the 2019 survey highlighted significantly lower implementation of the CDHP model than might be expected almost 20 years later. However, the almost 20% of respondents who had a collaborative agreement of five or fewer years suggests that the collaborative health model is spreading and making an impact. Going forward, we would expect to see a greater need for ongoing professional development for dental

---

10 Ibid.
hygienists with a collaborative agreement as well as for organizations in the community that are the nontraditional practice settings.

Challenges to Practicing with a Collaborative Agreement
Respondents were asked to identify the challenges to practicing with a collaborative agreement that they face or have faced (Table 3). Billing and/or reimbursement issues and finding a dentist willing to sign a collaborative agreement were the most frequently cited challenges.

<table>
<thead>
<tr>
<th>Challenges to practicing with a collaborative agreement</th>
<th>Percent*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billing and/or reimbursement issues</td>
<td>36.6</td>
</tr>
<tr>
<td>Finding a dentist to enter into a collaborative agreement</td>
<td>36.1</td>
</tr>
<tr>
<td>Need for a state-wide data reporting repository</td>
<td>23.6</td>
</tr>
<tr>
<td>Lack of tracking for referred patients for treatment completion</td>
<td>16.7</td>
</tr>
<tr>
<td>Consent to care forms not signed or returned</td>
<td>15.3</td>
</tr>
<tr>
<td>Working with community partners</td>
<td>13.4</td>
</tr>
</tbody>
</table>

* Percent does not add up to 100 as multiple responses were allowed for this question.

Respondents also had an opportunity to answer an open-ended question about other challenges not already listed. Responses included:

- Difficult to put the agreement together and outline all the services and duties that will be performed
- Finding a space to practice in
- Lack of awareness and support within the dental community
- Lack of education from dental and dental hygiene institutions: inadequate job of preparing and encouraging dental hygienists and dentists to work in or sign agreements for CDHP
- Minnesota licensure policies: control by the Board of Dentistry (i.e. need for a dental hygiene board within the Board of Dentistry)
Similar findings were reported in the 2017-2018 MDH ORHPC qualitative study that assessed facilitators and challenges for those currently engaged in collaborative dental hygiene practice. That study identified lack of awareness and education about this model as a major challenge, as well as finding a dentist willing to enter into a collaborative agreement, identifying a dentist who accepts the referral or provides follow-up care, and working with community partners.

Moreover, the previously referenced Normandale faculty member’s master’s thesis, which was based on interviews with dental hygienists, similarly identified lack of awareness and education regarding collaborative practice among the dental profession as a challenge.\(^\text{11}\) The findings also indicated difficulty finding dentists to sign a collaborative agreement and availability of only a few referral sources as challenges to collaborative practice. This thesis pointed out other obstacles such as unwillingness by dentists to sign a collaborative agreement and their concerns about liability, competition, and the extra work it could require. It identified reimbursement as another challenge along with the lack of emphasis from the Minnesota Board of Dentistry on collaborative agreements and not mandating collaborative agreement registrations with the board.

The third-ranked challenge in the 2019 Normandale survey was the need for a statewide data reporting repository. Although lack of a repository was identified in this survey, the topic was not noted as a challenge in previous surveys. The absence of a unified state-wide process for tracking utilization and quantifying unmet need hinders efforts to expand access and to conduct impact analysis.

**Barriers to Expansion of Collaborative Dental Hygiene Practice**

Respondents who indicated they were working with a collaborative practice agreement were asked to identify the top barriers to expanding collaborative dental hygiene practice (Chart 4). Of particular note are the two top items, both of which relate to state infrastructure needs and concerns. These issues and the ability to establish a collaborative agreement with other health care providers require legislation and/or administrative action by State agencies or health plans. Examples of efforts underway at the time of this report include submission of proposals to Governor Walz’ Children’s Cabinet and Blue-Ribbon Commission to allow collaborative practice dental hygienists to be the “pay to provider” in Minnesota Health Care Programs and to reimburse them for risk assessment using the relevant ADA CDT codes for screening, assessment, and caries risk assessment. All four remaining items received significantly lower response rates and address issues of technical assistance and communication/outreach to other parties. With support of the HRSA grant, Normandale and the Collaborative Dental Hygiene Practice advisory committee have addressed these issues by developing online resources offering information sessions.

Respondents also answered an open-ended question about other barriers to expanding collaborative dental hygiene practice. Answers included the following:

- Lack of knowledge about opportunities available through collaborative agreements
- Inadequate public knowledge of what a dental hygienist is educated and licensed to do
- Identification of best ways to reach dentists and dental hygienists to inform and encourage them to become a part of collaborative practice
- Dental educators in all the professions are not educating students on innovative models
- Level of interest of dental hygiene students or new graduates in public health/community dental care

The additional issues raised in the open-ended questions support the identified need for continued efforts of the Collaborative Dental Hygiene Practice advisory committee to raise professional and public awareness. Future evaluation of the impact of the use of resources developed by the committee could assess progress in reducing these barriers.

**Information to Promote and Encourage Dental Hygienists to Participate in CDHP**

Chart 5 presents the kind of information needed to promote and encourage dental hygienists’ participation in collaborative dental hygiene practice.
Respondents were also asked to suggest other tactics and identified additional need for:

**Education and professional development:**
- Continued education and promotion of collaborative practice / public health and ongoing access to care issues is seen as the number one way to inspire individuals, practices and partners to explore and establish agreements to serve more people
- Increased opportunities for professional development in Greater Minnesota
- More research published in the journals making it a commonly known practice
- Spread the word – Normandale Community College website page\(^{12}\) easily accessible and with understandable videos

**Communication with dentists and other stakeholders:**
- Getting dentists informed so they are more willing and open to enter in an agreement
- More acceptance by the dental community
- Having a registry of dentists/offices willing to take referrals
- Endorsement from Medical/Nursing Associations
- State supported initiatives and support from advocacy groups

**Insurance and billing resources:**
- Explanation of payment for services and barriers to care
- Insurance and billing courses or CEs and an online billing guidance

---

Table 4 presents the list of resources that respondents felt are needed to support collaborative practice dental hygienists and serve as potential resolutions to the barriers and challenges in practicing and expanding collaborative practice.

<table>
<thead>
<tr>
<th>Resources</th>
<th>Number of Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples of written dental hygiene collaborative agreements</td>
<td>114</td>
<td>52.8</td>
</tr>
<tr>
<td>Tutorials on billing and reimbursement</td>
<td>113</td>
<td>52.3</td>
</tr>
<tr>
<td>Mentorship group</td>
<td>110</td>
<td>50.9</td>
</tr>
<tr>
<td>Board of Dentistry requirements on collaborative dental hygiene practice</td>
<td>104</td>
<td>48.1</td>
</tr>
<tr>
<td>Networking group</td>
<td>103</td>
<td>47.7</td>
</tr>
<tr>
<td>Toolkit with current resources</td>
<td>58</td>
<td>26.9</td>
</tr>
</tbody>
</table>

* Percent does not add up to 100 as multiple responses were allowed for this question.

The HRSA grant has brought about new opportunities for communication and professional development to better support collaborative practice dental hygienists. For example, each dental hygiene program is required to include a course on the topic of community dental health. In Minnesota, dental hygiene program chairs and faculty are not typically experienced in collaborative dental hygiene practice. Educational materials are available to them through the Normandale 21st Century Dental Team website, which provides a toolkit of current resources. The HRSA project manager and communications lead spoke at dental hygiene-sponsored meetings and made in-person visits to dental hygiene programs for soon-to-be graduating students. Grant deliverables included creation of online tutorials on specific topics that are now available to faculty as teaching tools. To quote a faculty member, “This will be so much better than my usual lecture. I don’t really know enough to answer all their questions.”

The enthusiasm of the dental hygiene students who were introduced to collaborative dental hygiene practice suggests a need to build on this momentum. Reaching out to and teaching students who will soon enter the field of oral health care will help realize the HRSA goal to expand the number of dental hygienists working with a collaborative agreement. Prior to the close of the HRSA grant, the project team will hold discussions with the members of the Collaborative Dental Hygiene Practice advisory committee on ways to ensure the group can continue to provide the resources and development oral hygienists have indicated they need.

**Most Important Aspects of Working/Volunteering in Alternative Settings**

The final question in Section III: Collaborative Dental Hygiene Practice Settings asked respondents to identify aspects of working or volunteering in an alternative setting that were most important to them (Chart 6).

Respondents reported that “helping to improve access to care to those in need” was the most important aspect of working or volunteering in an alternative practice settings. The second highest group of topics largely had to do with professional development and satisfaction, while the lowest tier primarily had to do with wages, benefits, and career opportunities. This suggests that those working or volunteering in alternative practice settings are motivated by a range of intangible factors in addition to wages and benefits. In spite of these intrinsic factors, however, it is important that we remain cognizant of wages and benefits for dental hygienists working in these settings, in order to make the model a financially viable way to increase access to care.
Respondents were asked to select and rank their top five choices. The percentages presented in Chart 6 are weighted percents for each aspect. Weighted percents reflects the relative importance of each response and smooth out and enhance the accuracy of the data.

**Section IV: Interest in Non-Traditional Practice Settings**

Questions in this section were asked of only those who were working in the traditional settings at the time of this survey. According to the responses, there were 954 (76.4%) respondents who indicated they worked in traditional settings.

**Interested in Practicing Dental Hygiene in Other than Non-traditional Settings**

In this section, respondents working in a traditional setting were asked about their interest in practicing dental hygiene in a non-traditional setting (either paid or volunteer.) Chart 7 below indicates that about half of the respondents were interested in a non-traditional practice setting, with most preferring to work in a paid position. This finding indicates a high potential to expand the number of collaborative dental hygiene practices, thereby increasing access to currently underserved individuals and communities.
Preferred Choice for Alternative Employment Settings
Respondents who were working in a traditional practice were asked to rank in the order of preference up to five alternative employment settings from a provided list. Table 5 presents practice settings selected by respondents based on weighted percents. (Weighted percent reflects the relative importance of each response and smooths out and enhances accuracy of the data.) Although the setting rankings are fairly close together, it is worth noting that senior housing/assisted living was the lowest-ranked setting. With the numbers of older Americans continuing to grow, it will be important that dental hygienists receive education on taking care of the oral health needs of the elderly, both in private practice and settings such as nursing homes and assisted living facilities. With a great deal of current policy interest in medical-dental integration to address the impact of oral health on overall health, it is also worth noting that medical facilities/clinics were the top preferred settings.

Table 5: Preferred Choices for Alternative Employment Settings

<table>
<thead>
<tr>
<th>Employment Settings</th>
<th>Weighted Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Facility/Medical Clinic</td>
<td>10.6</td>
</tr>
<tr>
<td>Public Health Clinics (Child and Teen Checkups; WIC)</td>
<td>10.2</td>
</tr>
<tr>
<td>Schools (Pre-K through 12)</td>
<td>10.1</td>
</tr>
<tr>
<td>Community Health Center (CHC)/Federally Qualified Health Centers (FQHC) and Hospitals</td>
<td>8.0</td>
</tr>
<tr>
<td>Head Start/Early Head Start Program</td>
<td>8.0</td>
</tr>
<tr>
<td>Mobile dental van</td>
<td>7.9</td>
</tr>
<tr>
<td>Public health agency</td>
<td>7.0</td>
</tr>
<tr>
<td>Senior housing/assisted living</td>
<td>6.8</td>
</tr>
</tbody>
</table>

* Percent does not add up to 100 as multiple responses were allowed for this question.

Factors that Heighten Interest in Non-traditional Practice Settings
The final question for Section IV asked respondents who worked in a traditional setting to identify aspects which would heighten their interest in working or volunteering in an alternative practice setting.
Respondents were asked to rank in order of preference their five top choices of factors from the given list. This question was included in the 2003 Normandale/Apple Tree Dental survey of licensed dental hygienists as well. Table 6 shows a comparison of responses for both surveys for the top five choices. Factors that were in the top five both in 2003 and 2019 are in bold.

Sixteen years after the implementation of the first survey, “helping to improve access to care to those in need” has remained the most important factor in heightening the interest of dental hygienists to work or volunteer in non-traditional practice settings. Interestingly, the 2019 survey shows various aspects of professional development and expanding professional opportunities dominate the list of factors. This information suggests potential avenues for communicating with retirees, new graduates, and dental hygienists in private practice about the opportunities and rewards of working in non-traditional practice settings.

<table>
<thead>
<tr>
<th>Table 6: Factors that Heighten Interest in Non-traditional Practice Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2003 Survey of Licensed Dental Hygienists</strong></td>
</tr>
<tr>
<td>1) Helping to improve access to care to those in need</td>
</tr>
<tr>
<td>2) Working outside the traditional dental practice setting</td>
</tr>
<tr>
<td>3) Professional growth and development</td>
</tr>
<tr>
<td>4) Greater variety and flexibility of work schedule</td>
</tr>
<tr>
<td>5) Working with other health care professionals</td>
</tr>
</tbody>
</table>

Section V: “Minnesota’s 21st Century Dental Team: Access for All” Website
The last section of the survey asked respondents if they had visited the webpage ‘Minnesota’s 21st Century Dental Team Toolkit’ housed on the Normandale Community College website. The recently updated webpage provides guidance how one can become part of CDHP. Some of the salient topics include:

- Collaborative agreement template
- Link to Board of Dentistry registration for collaborative agreements
- CDHP tutorial videos that award continuing education credit
- A Help Desk to answer questions pertaining to collaborative dental hygiene practice (e.g. collaborative agreements, working in community settings, etc.)
- Tutorial on ‘How to start a non-profit’
- Statutes (laws), rules and regulations regarding CDHP in Minnesota
- Minnesota Health Care Program (MHCP) dental provider manual/DHS Dental Service Page
- Department of Human Services CDHP enrollment criteria and forms

The toolkit also provides information on the following oral health topics:

- Dental therapy: dental hygiene-based model
Medical-dental integration: advancing health equity

Highlights and resources: videos, publications, and other information

The toolkit is available at [http://www.normandale.edu/mndentalteam](http://www.normandale.edu/mndentalteam).

Table 7 shows that only about eight percent of the respondents had visited the website, in spite of the fact that it directly addresses many of the challenges identified in the survey, such as finding appropriate guidance, lack of understanding and information about the model and developing new community programs. This points to a need to continue promoting the website and its resources in order to ensure current and prospective collaborative practice dental hygienists have the tools and information they need to work under this model.

<table>
<thead>
<tr>
<th>Website</th>
<th>Number of Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visited Normandale Website “Minnesota’s 21st Century Dental Team: Toward Access for All”</td>
<td>Yes 90</td>
<td>7.9</td>
</tr>
<tr>
<td></td>
<td>No 1,047</td>
<td>92.1</td>
</tr>
<tr>
<td></td>
<td>Total 1,137</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Discussion

Evidence collected over the years through qualitative and quantitative data and evaluations in Minnesota suggests that the collaborative dental hygiene practice model is a promising strategy to address the access to oral health care issues for underserved populations in the state. However, the evidence also indicates that despite the passage of collaborative dental hygiene practice legislation in 2001, relatively few collaborative agreements are in place and a majority of the oral health workforce still lacks an understanding of the model and its implementation.

Based on that evidence, Normandale submitted a proposal to HRSA for a project focused on expanding opportunities for dental hygienists to pursue advanced education that would allow them to work at the top of their scope and to meet the oral health needs of Minnesota’s underserved and vulnerable populations.

Since receiving the HRSA grant in 2015 to advance CDHP in the state, the Normandale project team has carried out numerous activities to strengthen the collaborative practice infrastructure. Listed below are activities that the project team has implemented to increase awareness and understanding about the model:

- Conducted nearly two dozen information sessions across the state to explain the language in the statutes and to create understanding about the potential use of this model
- Expanded resources and enhanced the website “Minnesota’s 21st Century Dental Team Toolkit”
- Organized professional development opportunities such as three oral health summits, two rural Minnesota Oral Health Coalition regional meetings, and numerous online resources found in the “Minnesota’s 21st Century Dental Team Toolkit”
- Presented an overview of CDHP to students in three soon-to-be-graduating dental hygiene programs
• Developed web-based tutorials that support the steps involved in CDHP
• Prepared numerous social media posts to gain attention of oral health professionals and the public
• Presented locally, nationally and globally on the CDHP model
• Engaged in conversations with stakeholders to address reimbursement issues
• Continued data collection and analysis such as a survey of all the licensed dental hygienists in the state in 2019 and working with the Minnesota Board of Dentistry and ORHPC MDH to collect data on collaborative practice dental hygienists through licensure data
• Continued efforts by the CDHP Advisory Committee to identify and reduce barriers and challenges for the CDHP model
• Developed academic programs such as BSDH programs and dual enrollment opportunities
• Updated and added health literacy, diversity, and cultural competency concepts in dental therapy courses and pedagogical methods

The foundational structures and resources for improving and expanding this delivery model developed within the HRSA grant specifically address barriers identified in this survey. The findings of the survey also suggest strategies for future action to build upon this foundation.

Recommendations
With these survey results, trend data from the historical surveys, and Normandale’s experience implementing the HRSA project, we have identified a number of recommendations to move this work forward.

• Support sustainability through infrastructure and reimbursement by:
  o Allowing collaborative practice dental hygienists to be the “pay to” provider in Minnesota Health Care Program.
  o Adding reimbursement for risk assessment using the relevant ADA CDT codes for screening, assessment, and caries risk assessment in order to support individualized care plans and increased access to and utilization of appropriate services.
  o Addressing the identified broader, long-standing issues within Minnesota Health Care Programs including low reimbursement rates and administrative complexity.
  o Determining an approach to document all referrals and dental services provided through collaborative dental hygiene practice.

• Increase understanding of CDHP requirements by:
  o Continuing informational sessions and conversations to increase awareness and education about the model.
  o Encouraging utilization of available resources to develop better understanding of CDHP-Normandale toolkit/website.
  o Promoting this model by professional organizations such as Minnesota Dental Hygienists’ Association, Minnesota Oral Health Coalition and the Minnesota Dental Association.
  o Supporting dental hygiene and dentist educators through teaching tools as they introduce CDHP to students.

• Expand professional growth and networking by:
  o Increasing the number of baccalaureate-prepared dental hygienists and collaborative agreements.
Creating a registry or repository on collaborative practice dental hygienists to network with other CPDHs.

Encouraging dental hygienists and dentists to work together to sign collaborative agreements.

Creating opportunities to network with other CPDHs.

Sharing success stories and challenges.

Offering continuing education courses/workshops.

Conclusion
Oral health is increasingly understood as essential to overall health. An improved delivery system designed to reach under-served, at-risk populations holds great promise for lowering healthcare costs for people with diabetes, heart disease, and other health conditions. Innovative workforce models offering assessment, triage and care coordination for needed treatment can reduce untreated dental disease and last resort use of emergency departments by people who cannot access the traditional delivery system. By facilitating inter-professional collaboration and top of license practice, collaborative dental hygiene practice holds the potential to accomplish the goals of the triple aim of health reform: better care for individuals, better health outcomes for populations, and better value/lower per capita costs. Further, while we have not yet fully achieved the triple aim, collaborative dental hygiene practices offer opportunities to add a fourth aim, often identified as attaining joy in work or advancing health equity.\(^\text{13}\)

References


Minnesota Department of Health, Office of Rural Health and Primary Care. Report on Collaborative Practice Dental Hygiene – Lessons from the Field in Growing an Innovative Practice. 2020 (Forthcoming)
Appendix A: Short History of Minnesota’s Collaborative Dental Hygiene Practice Legislation Since Passage in 2001

The following diagram shows a snapshot of the progression of the collaborative dental hygiene practice model through legislative changes.

In 2001, the original “limited authorization for dental hygienists” statute (M.S. 150A.10 Subd. 1a) was enacted through lobbying efforts of the oral health advocates of CDHP. This law allowed licensed dental hygienists to be employed or retained by a health care facility, program or nonprofit organization to perform certain dental hygiene services for patients without first being examined by a dentist, as long as clinical experience requirements were met and the dental hygienist had a written collaborative agreement with a licensed dentist who would accept responsibility for the dental hygienist’s services. In 2003, statute was revised and authorization for “application of topical preventive or prophylactic agents, including fluoride varnish and pit and fissure sealants,” were added. In 2005, “administration of local anesthetic and nitrous oxide inhalation analgesia” was included.
In 2017, the description of “health care facility, program, or nonprofit organization,” was more clearly defined as “For the purposes of this subdivision, a health care facility, program or nonprofit organization includes a hospital; nursing home; home health agency; group home serving the elderly, disabled, or juveniles; state-operated facility licensed by the commissioner of human services or the commissioner of corrections; and federal, state, or local public health facility, community clinic, tribal clinic, school authority, Head Start program, or nonprofit organization that serves individuals who are uninsured or who are Minnesota health care public program recipients”. Additional clinical experience requirements or hours of clinical practice to enter into collaborative dental hygiene practice were removed.

Dental hygienists practicing with a written collaborative agreement with a dentist should not be confused with the new dental workforce models of dental therapist and advanced dental therapist established by the 2009 Minnesota Legislature (M.S. 150A.105 and 150A.106). These professionals’ practice under a “collaborative management agreement” (different from the “collaborative agreement” required under M.S.150A.10 Subd.1a).
Appendix B: Survey Questionnaire Licensed Dental Hygienists 2019

Assessing the State of Collaborative Dental Hygiene Practice in Minnesota
2019 Survey of Licensed Dental Hygienists

Section I: Employment and Education Level
(Ask the following questions from all the dental hygienists)

1. What year were you first licensed as a dental hygienist? __ __ __ (e.g. 1976)

2. How many years of dental hygiene-related employment do you have?
   - 0 years (never had a dental hygiene-related employment)
   - 1-5 years
   - 6-10 years
   - 11-15 years
   - 16-20 years
   - More than 20 years

3. What is your highest level of education?
   (Mark only one response)
   - Certificate
   - Associate degree
   - Post Associate Certificate
   - Bachelor’s degree
   - Post Bachelor’s Certificate
   - Master’s degree
   - Post Master’s Certificate
   - Doctorate degree

4. Are you currently working in a position, (paid or unpaid/volunteer), related to your licensure as a dental hygienist?
   (Mark all that apply)
   - Yes, as a dental hygiene clinician
   - Yes, as an educator, researcher, administrator, manager, or advocate
   - No, not working in any position related to my licensure (If marked ‘No’ then end the survey)
Section II: Practice Settings

(Ask the following questions from all working dental hygienists)

5. Identify the geographic area(s) in which you work or volunteer.  
(Mark all that apply)
- Twin Cities metro area
- Greater Minnesota area (outside the Twin Cities)
- A state other than Minnesota

6. In which of the following settings do you work or volunteer?  
(Mark all that apply for each of the settings below)

Traditional dental office setting (dental care that is typically delivered through a fee-for-service, private practice system):
- Traditional dental office setting (either a small private practice or a large group practice)

Non-traditional practice setting (dental care delivered in settings other than a traditional dental office setting, aimed at increasing accessibility):
- Community Health Center (CHC)/Federally Qualified Health Center (FQHC)
- Hospital
- Medical facility/medical clinic
- Home health care agency
- Long term care facility/nursing home
- Elderly housing/assisted living complex
- Public health agency (state, county, city)
- Public health clinics (Child and Teen Checkups; WIC)
- Correctional facility
- Tribal or Indian Health Service clinic
- Schools (pre-K through 12)
- Head Start/Early Head Start program
- Mobile dental van
- Community-based or faith-based or non-profit organization
- Other (please specify): ____________________

Administrative or academic setting:
- Education, research, administration, management, and/or advocacy setting
Section III: Collaborative Dental Hygiene Practice Settings

(Ask questions to all DHs working in non-traditional or admin settings)

Collaborative dental hygiene practice: dental hygienists who have entered into a written “collaborative agreement” with a licensed dentist, extending preventive and therapeutic care to people in non-traditional dental and/or community settings, without the patient being seen first by a dentist or a dentist being on-site, as specified by law.

Collaborative dental hygiene practice agreement (“collaborative agreement”): a formal written document that outlines the professional relationship between a dental hygienist and a dentist; identifies protocols, settings and authorization for services to be provided by a licensed dental hygienist.

7. How long have you been practicing under an active collaborative practice agreement?
   □ Do not have a collaborative practice agreement
   □ 1-5 years
   □ 6-10 years
   □ 11-15 years
   □ More than 15 years

*Please continue the survey even if you do not practice under an active collaborative agreement. We are seeking input from all Minnesota licensed dental hygienists.

8. Which of the following are challenges to practicing with a collaborative agreement? (Mark all that apply)
   □ Consent to care forms not signed or returned
   □ Finding a dentist willing to sign a collaborative agreement
   □ Billing and/or reimbursement issues
   □ Working with community partners
   □ Lack of a tracking mechanism to determine treatment completion for referred patients
   □ Need for a state-wide data reporting repository to identify services previously provided, i.e. avoid duplication of services

9. What other challenges to practicing with a collaborative agreement are there? (open text response)

10. Which of the following are barriers to expanding collaborative dental hygiene practice? (Mark all that apply)
    □ Unable to bill for screening or assessment services provided by a dental hygienist
    □ Unable to directly bill an insurance company or the Department of Human Service (DHS) for services
    □ Finding appropriate guidance on development of a collaborative agreement
    □ Difficulties with identifying dentists who accept referrals
    □ Unable to have a collaborative agreement with other health care providers (e.g. physician, nurse practitioner, etc.)
11. What other barriers to expanding collaborative dental hygiene practice are there? (open text response)

12. What information would best promote and encourage dental hygienists to participate in collaborative dental hygiene practice?
   (Mark all that apply)
   - □ Clear explanation of steps for collaborative dental hygiene practice
   - □ Examples of dental hygienists practicing in community settings
   - □ Interviews of dentists who are in a collaborative agreement with a dental hygienist
   - □ Social media updates
   - □ Continuing emphasis of dental education programs on collaborative dental hygiene practice as an employment option
   - □ Dental professional associations’ endorsement (e.g. MnDHA, MDA, Oral Health Coalition)
   - □ Please suggest other options: _________________

13. What resources are needed to support collaborative practice dental hygienists?
   (Mark all that apply)
   - □ Networking group
   - □ Mentorship group
   - □ Board of Dentistry’s requirements on collaborative dental hygiene practice
   - □ Tutorials on billing and reimbursement
   - □ Examples of written dental hygiene collaborative agreements
   - □ Toolkit with current resources
   - □ Please suggest other resources: _________________

14. What aspects of working or volunteering in an alternative setting are most important to you? Drag and drop five items into the box, with #1 being your most preferred choice.
   - □ Working outside the traditional dental practice setting
   - □ Greater autonomy
   - □ Career opportunities
   - □ Greater variety and flexibility of work schedule
   - □ Professional growth and development
   - □ Greater opportunity to use knowledge and skills
   - □ Performing a variety of professional responsibilities
☐ Working with other health care professionals
☐ Work environment
☐ Salary
☐ Benefits package
☐ Helping to improve access to care to those in need
☐ Other (please specify): ____________________

Section IV: Interest in Non-Traditional Practice Settings

(Assk questions to DHs working in traditional setting only)

15. Are you interested in practicing dental hygiene in settings other than a traditional dental practice?
(Mark all that apply)
☐ Yes, in a paid position
☐ Yes, in an unpaid/volunteer position
☐ No

16. Of the following alternative employment settings, drag and drop five items into the box, with #1 being your most preferred choice.
☐ Community Health Center (CHC)/Federally Qualified Health Center (FQHC)
☐ Hospital
☐ Medical facility/medical clinic
☐ Home health care agency
☐ Long term care facility/nursing home
☐ Elderly housing/assisted living complex
☐ Public health agency (state, county, city)
☐ Public health clinics (Child and Teen Checkups; WIC)
☐ Correctional facility
☐ Tribal or Indian Health Service clinic
☐ Schools (pre-K through 12)
☐ Head Start/Early Head Start program
☐ Mobile dental van
☐ Community-based or faith-based or non-profit organization
☐ Other (please specify): ____________________

17. What aspects of working or volunteering in an alternative setting would heighten your interest?
Drag and drop five items into the box, with #1 being your most preferred choice.
☐ Working outside the traditional dental practice setting
☐ Greater autonomy
☐ Career opportunities
☐ Greater variety and flexibility of work schedule
☐ Professional growth and development
☐ Greater opportunity to use knowledge and skills
☐ Performing a variety of professional responsibilities
☐ Working with other health care professionals
☐ Work environment
☐ Salary
☐ Benefits package
☐ Helping to improve access to care to those in need
☐ Other (please specify): ____________________

Section V: “Minnesota 21st Century Dental Team: Access for All” website

Have you viewed the Normandale Community College ‘Minnesota 21st Century Dental Team: Toward Access for All’ website?

☐ Yes
☐ No

Please bookmark the ‘Minnesota 21st Century Dental Team: Toward Access for All’ website for professional resources, updates and dental hygiene connections: http://www.normandale.edu/mndentalteam

The “Innovative Pathways to Advanced Practice for Dental Hygienists” initiative is supported by Grant Number D85HP2894 from the Health Resources and Services Administration (HRSA), an operating division of the U.S. Department of Health and Human Services.

Thank you for participating in the survey!