Dental Hygiene Workforce in Iowa: Current Capacity and Implications for Access to Care for the Underserved

Policy Report

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Executive Summary

Background & Methods

In response to evidence suggesting an oversupply and potential underemployment among dental hygienists in Iowa, this project examined dental hygiene workforce in Iowa in order to evaluate the extent of underemployment and other employment-related factors that may influence workforce capacity. This report summarizes findings from three data sources: state relicensure data for hygienists (2017), data from a survey of Iowa hygienists (2018), and reports from the Iowa Department of Public Health about hygienists providing services under public health supervision.

Key findings

Employment characteristics

- More than 8 in 10 hygienists in Iowa worked in private practice, and 4% worked in a community-based public health setting.
- The unemployment rate among licensed dental hygienists was 1.7%, which was low compared to all occupations in Iowa (3.1%). However, there was considerable geographic variation in the unemployment rate, with the highest rate in southeast Iowa (5.5%).
- 12% of Iowa dental hygienists hold multiple jobs in dental hygiene, which is considerably higher than the multiple jobholding rate among all U.S. workers (5%). However, there was considerable geographic variation in the multiple jobholding rate, with the highest rate in southeast Iowa (20%).
- More than one-third of hygienists worked part-time. Among those working part time, 15% desired additional work hours.
- Among dental hygienists working in private practice, 12% spent more than 10% of their work hours on activities other than seeing dental hygiene patients

Job-seeking experiences

- Over half of recent job-seekers had a difficult time finding a job they wanted.
- The greatest barrier to finding employment was the ability to find a full-time job (49%).

Pay and benefits

- Dental hygienists were primarily paid hourly (88%).
- The most common benefits were paid vacation (87%), reduced cost or free dental care for self (84%), and paid holidays (83%). Paid parental leave was the least common benefit reported (10%).

Working with underserved populations and in public health settings

- Almost 9 in 10 hygienists reported providing clinical dental hygiene services to individuals with special needs.
- There was a high level of interest in providing hygiene services in public health settings, with 50% or more hygienists at least somewhat interested in most types of public health settings. The settings with the most interest were elementary schools, preschools, and Head Start programs.
- There was also a high level of interest in providing services via teledentistry, with 57% at least somewhat interested in providing services via this model.

Dental hygienists working under public health supervision

- The size of the workforce providing services under public health supervision has grown considerably, from 14 dental hygienists in 2004 to 95 in 2017.
- Hygienists working under public health supervision provided almost 200,000 total services under public health supervision in 2017.

Conclusions and Policy Implications

Statewide unemployment among licensed dental hygienists is low. However, there was considerable geographic variation, with the highest unemployment rate in the southeast region.

There is conflicting evidence regarding the degree of underemployment in the dental hygiene workforce. Underemployment indicators include the desire for additional work hours and time spent on activities below scope of practice. More than twice as many hygienists worked part-time compared to Iowa dentists (37% vs. 18%, respectively). Although finding full-time employment was the greatest barrier among recent job-seekers, only 9% of hygienists wanted to work additional hours. Conversely, 24% of all hygienists wanted to work fewer hours.

Regarding practicing to the full scope of practice, more than 1 in 10 private practice hygienists spent more than 10% of their work hours on activities other than seeing hygiene patients. This suggests potential untapped capacity to see additional hygiene patients, although it may be influenced by cancellations or failed appointments rather than unscheduled time.

Statewide indicators concur with national projections of an oversupply of hygienists. Recent job-seekers noted a high degree of difficulty finding desired employment. The multiple jobholding rate of 12% was considerably higher than for all U.S. workers (5%), although the rate among Iowa hygienists was comparatively lower than among hygienists other states.

Geographic indicators of unemployment align with geographic areas of need. The southeast region had the highest unemployment rate, as well as some of the lowest dental utilization rates among Medicaid-enrolled children. The southeast could therefore be considered a priority area for developing employment opportunities for hygienists to target improving access to care.

Hygienists had a high level of interest in providing services in community-based settings. Community-based care delivery options include providing services under public health supervision or via teledentistry – both of which could be used to improve access for underserved populations.

Results related to underemployment and oversupply, taken together with the degree of interest in community-based practice, present an opportunity to increase innovation and employment opportunities involving providing hygiene services outside of the dental office. Teledentistry, increased use of public health supervision, an increased efforts toward care coordination are three avenues to improve access that could be readily implemented in the near term within the current scope of practice laws for hygienists in Iowa.

Teledentistry models are not currently in use in Iowa as the Iowa Dental Board is in the rulemaking process for teledentistry at the time of this report. However, if approved, Iowa could look to other states where teledentistry models have gained momentum (e.g., California, Colorado, New York). Populations that could benefit the most from this model include low-income children and older adults in long-term care; in both cases, numerous individuals can be accessed at a single location (e.g., schools, nursing homes).

Policy levers for **increasing the use of public health supervision** require a better understanding of motivations among employers, supervising dentists, and dental hygienists for utilizing this model. Increasing the allowable settings to include primary care medical offices would extend the reach of the dental home and increase access points into the dental care delivery system. This approach supports the move to integrate oral health into primary care.[1]

In addition to increasing the use of public health supervision, workforce efforts should also be directed toward **increasing care coordination** in order to ensure referral completion. In 2017, hygienists working under public health supervision referred over 65,000 patients to a dentist. However, for most of these referrals – with the important exception of the I-Smile™ program – it is unknown what proportion successfully received care in a dental office.

1 Safety Net Medical Home Initiative. Oral Health: An Essential Component of Primary Care. Implementation Guide. October 2016.

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Background

In Iowa and nationwide, oral health disparities are manifested in higher rates of disease and poorer access to care for the populations most in need. A key issue in the goal of oral health improvement for these populations is improving access to preventive services. In 2016, only 50% of Medicaid-enrolled children in Iowa received a preventive dental service.[2] Dental hygienists' (DH) scope of practice is primarily focused on the promotion of oral health and prevention of dental disease.

A survey of Florida DH found that among those currently practicing, 15% were seeking additional employment.[3] We received similar reports of underemployment anecdotally after releasing a preliminary study of DH workforce in Iowa.[4] Additionally, in the DH community, there is well-documented difficulty nationally finding full-time positions, resulting in most DH working more than one job.[5] These indicators of potential underemployment are compounded by the fact that there is a projected surplus of DH in Iowa and nationwide in the coming decade, with a concurrent projected shortage in dentist workforce.[6] If excess workforce capacity exists in Iowa, there may be opportunities to redirect this capacity toward improving access to preventive services for Iowa's vulnerable populations.

Iowa is one of several states with a *public health dental hygiene* model in which hygienists can provide preventive services in public health settings without requiring a dentist on-site. This practice model offers an existing mechanism that could be expanded to increase potential entry points into the dental care delivery system. Thus, there is a need to examine the current and potential capacity of this unique subset of the DH workforce.

This report summarizes a project to examine the dental hygiene workforce in Iowa, and to determine the extent of underemployment of DH in the state. Project activities were guided by an advisory committee composed of Iowa stakeholders interested in oral health access and workforce issues (**Appendix 1**).

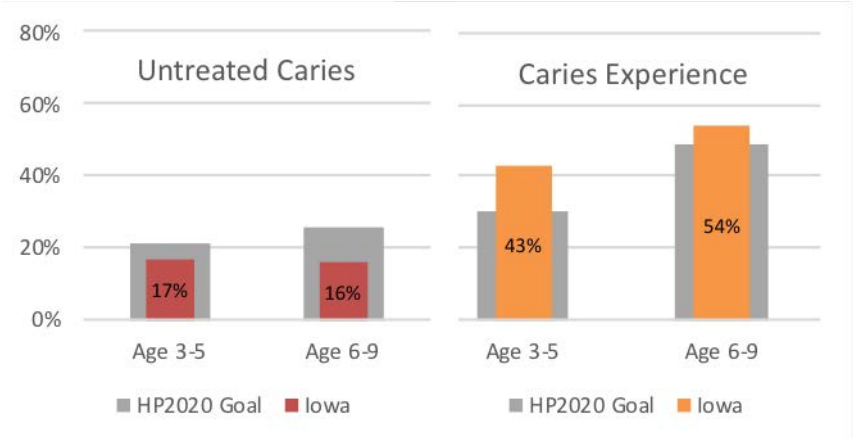
Demand for Dental Care in Iowa

In order to improve access to care, it is necessary to examine the demand for dental care in Iowa. Demand is shaped by burden of disease and access to care among vulnerable and underserved populations in Iowa, including young children, older adults, pregnant women, racial/ethnic minorities, and low-income populations of all ages. Where state-level data are not available, national trends are presented.

Children

In 2016, less than one-fifth of young children in Iowa had untreated caries, whereas almost half had caries experience (**Figure 1**). While Iowa rates of untreated caries in children have met Healthy People 2020 goals, rates of caries experience have not, suggesting a need for increased efforts toward disease prevention.

Figure 1. Rates of untreated caries and caries experience in Iowa children compared to Healthy People 2020 goals, 2016



Data source: Iowa Department of Public Health. Burden of Oral Disease. December 2016.

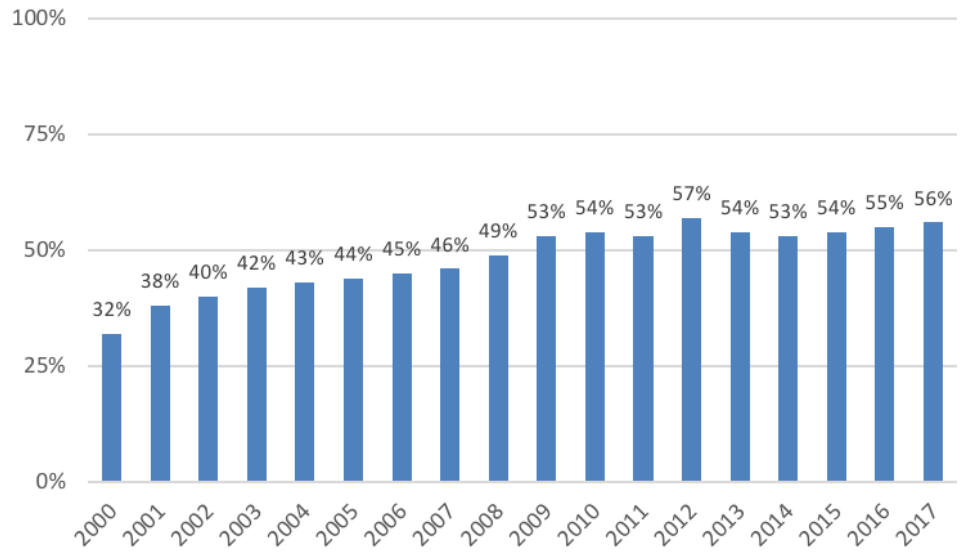
2 Iowa Department of Public Health, Oral Health Center. FFY 2016 EPSDT Preventive Dental Services Report, Age 1-20. https://idph.iowa.gov/Portals/1/userfiles/34/ohc_reports/epsdt_age_1_thru_20_prevent_2016.pdf
3 Florida Department of Health. 2015-2016 Workforce Survey of Dental Hygienists. 2016.
4 Reynolds JC, Kuthy RA, Pooley MJ, Kelly MC, McKernan SC. Dental Hygiene Workforce in Iowa: Snapshot and Recommendations for a Workforce Monitoring System. 2014. University of Iowa Public Policy Center. Iowa City, IA.
5 Institute of Medicine and National Research Council. 2011. Improving Access to Oral Health Care for Vulnerable and Underserved Populations. Washington, DC: The National Academies Press.
6 Health Resources and Services Administration. National and State-Level Projections of Dentists and Dental Hygienists in the US, 2012-2025. US Department of Health and Human Services. February 2015.

Children with special health care needs in Iowa are of interest because they experience significant barriers to dental care. In Iowa, 5.4% of parents of these children reported unmet need for dental care in 2010, which was higher than unmet need among children without special healthcare needs (3.8%).[7]

Among all Medicaid-enrolled children age 1-20, the proportion receiving a dental service increased from 32% in 2000 to 56% in 2017 (**Figure 2**). This increase in Medicaid utilization rate among children is similar to national trends. Despite improving trends, almost half of low-income children statewide do not receive a dental visit annually. In 2017, seven counties (Scott, Palo Alto, Des Moines, Clinton, Lee, Fremont, and Emmet) had 50% or fewer Medicaid-enrolled children with a dental visit (**Figure 3**).

Utilization of dental care is considerably higher in privately enrolled children compared to those with public insurance. In 2013, 64% of privately insured children in Iowa had a dental visit compared to 54% of those with public insurance.[8]

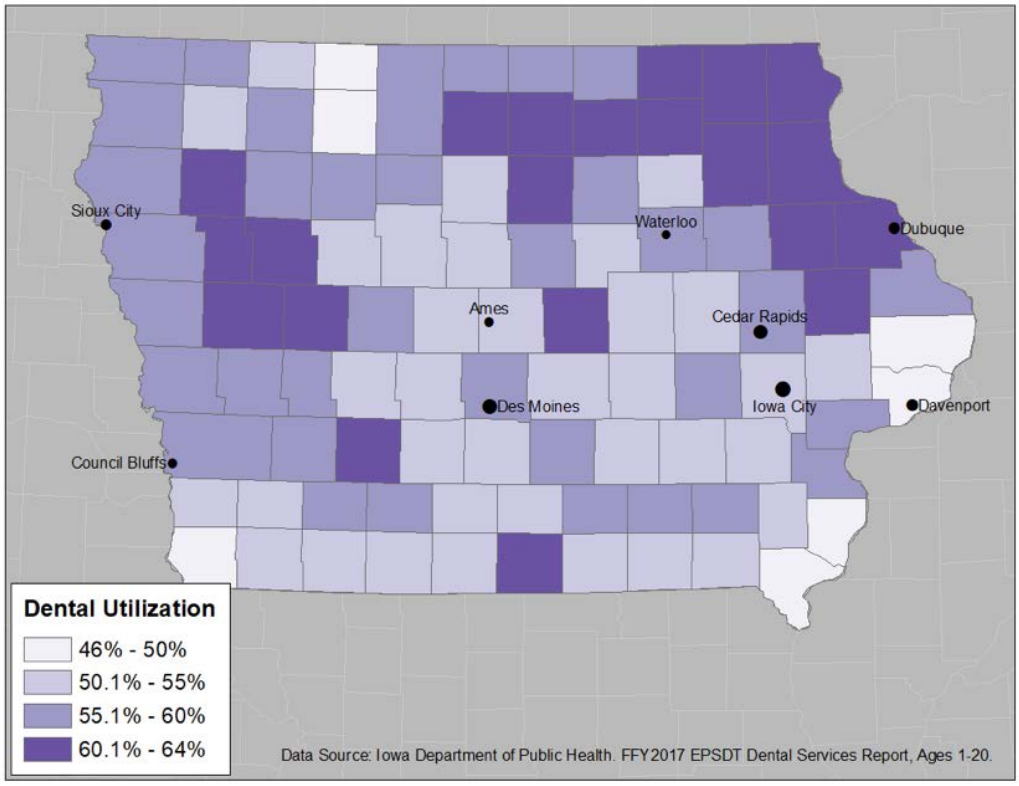
Figure 2. Proportion of Medicaid-enrolled children age 1-20 who received a dental service, 2000-2017



Data source: Iowa Department of Public Health EPSDT Reports, age 1-20, 2000-2017.

7 Iowa Department of Public Health. Burden of Oral Disease. December 2016.
8 American Dental Association Health Policy Institute. Oral Health Care System: Iowa. 2015. Available here.

Figure 3. Proportion of Medicaid-enrolled children age 1-20 with a dental visit, 2017



Low-Income Adults

Few state-level data are available regarding oral health outcomes in adults. Nationally, rates of tooth decay in adults have increased over the past decade.[9,10] Nationally in 2009-10, almost half of U.S. adults had periodontal disease.[11]

Low-income adults in the IowaCare program, which preceded the state's 2014 Medicaid expansion, reported considerably poorer oral health status relative to physical health status, and dental problems were the most commonly reported chronic health condition (43%) – more than back or neck problems, arthritis, or high blood pressure.[12]

Recent dental utilization rates among Medicaid-enrolled adults in Iowa are estimated to be between 25-50% depending on the method of assessment.[13,14] In 2016, approximately 4 in 10 Medicaid-enrolled adults reported an unmet need for dental care.[15]

9 Dye BA, Thornton-Evans G, Li X, Iafolla TJ. Dental caries and tooth loss in adults in the United States, 2011–2012. NCHS data brief, no 197. Hyattsville, MD: National Center for Health Statistics. 2015.

10 Dye BA, Li X, Thornton-Evans G. Oral health disparities as determined by selected Healthy People 2020 oral health objectives for the United States, 2009–2010. NCHS data brief, no 104. Hyattsville, MD: National Center for Health Statistics. 2012.

11 Eke PI, Dye BA, et al. Update on prevalence of periodontitis in adults in the United States: NHANES 2009 to 2012. J Periodontol 2015;86(5):611-22.

12 Damiano PC, Momany ET, Willard JC, et al. First Evaluation of the IowaCare Program. 2008. University of Iowa Public Policy Center. Iowa City, IA.

13 Reynolds JC, McKernan SC, et al. Evaluation of the Dental Wellness Plan: Member Experiences after Two Years. 2017. Iowa City, IA: University of Iowa Public Policy Center.

14 McKernan SC, Momany ET, et al. Access, Utilization, and Cost Outcomes: Iowa Dental Wellness Plan Evaluation 2014-2016. 2017. Iowa City, IA: University of Iowa Public Policy Center.

15 Reynolds JC, McKernan SC, Damiano PC, Sukalski J, McInroy B. Evaluation of the Dental Wellness Plan: Member Experiences after Two Years. 2017. University of Iowa Public Policy Center. Iowa City, IA.

Pregnant Women

In 2016, only 55% of Iowa pregnant women received a preventive dental visit during pregnancy, and 18% needed to see a dentist for a problem. Among pregnant women enrolled in Medicaid, 21% had difficulty finding a dental clinic that would take Medicaid.[16]

Racial/Ethnic Minorities

We were not able to find state-level information about racial/ethnic disparities in oral health or access to care. However, nationwide, Black and Latino children and adults have significantly higher rates of caries experience and untreated caries, and significantly lower rates of dental utilization compared with White children and adults.[17] The proportion of Iowa's population that is White is expected to decrease from 91% to 76% from 2010 to 2050; therefore, access to dental care for racial/ethnic minorities will continue to be an important issue in Iowa.[18]

Older Adults

In 2014, 13% of Iowans age 65-74 were edentulous, which was approximately the same as the national average.[19] In 2016, 70% of adults age 65+ had a dental visit, which is above the national average of 67%.[20]

Of particular interest are older adults living in long-term care facilities, as this population is known to experience particular barriers to care. Iowa has 431 skilled nursing facilities with approximately 23,000 residents.[21] A recent survey of nursing home directors found that 40% were not able to get dental services for their dentate residents, and 36% were not able to get dental services for their edentulous patients.[22] Further, only 45% had any dental treatment provided for their residents on site. Among 874 Medicaid-enrolled adults living in a long-term care facility in Iowa for at least 2 years from 2007-2014, only 36% received a preventive dental procedure while living in the facility.[23]

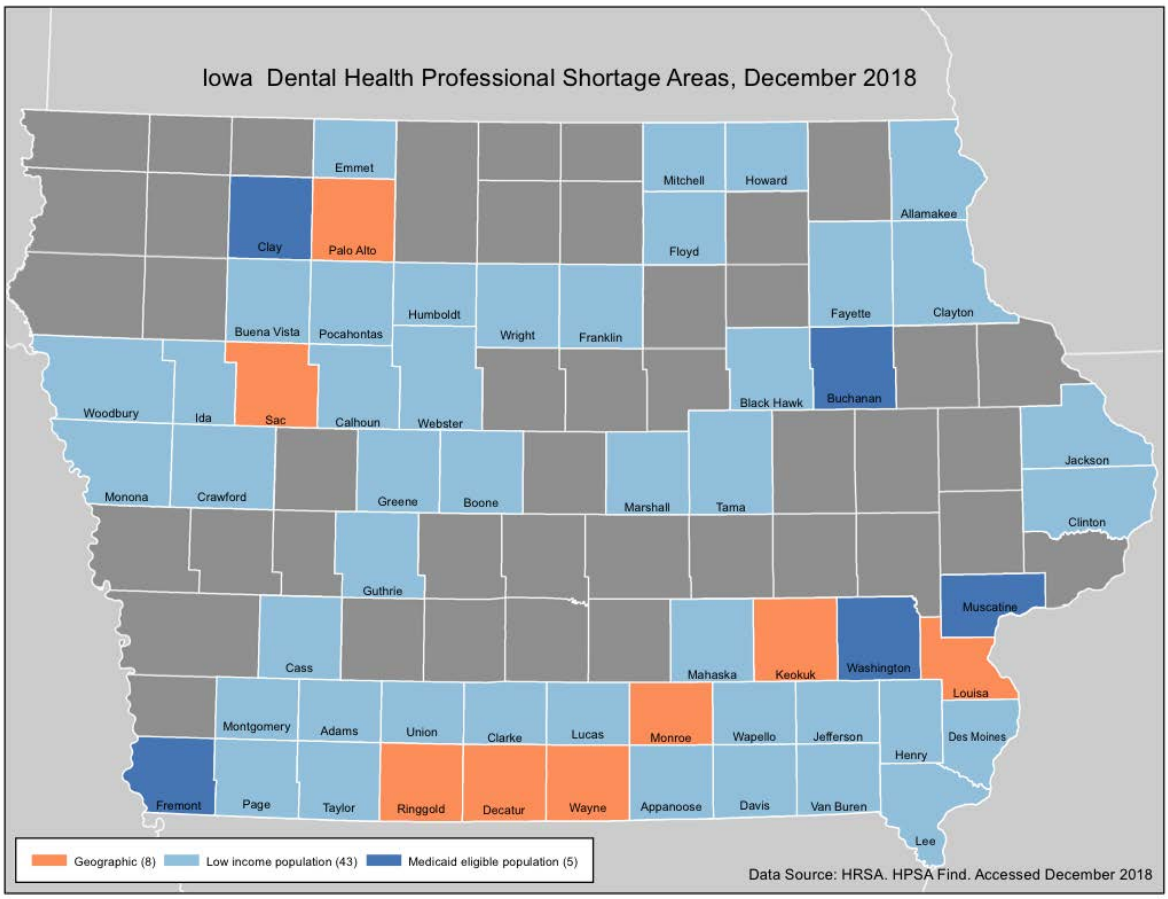
Oral Health Workforce Supply Issues in Iowa

From 2016-2026, the Iowa Workforce Development projects that the number of dental hygienists will increase from 2,220 to 2,605, an annual growth rate of 1.7%.[24] They project a similar growth rate for dentists (1.8%, from 1,410 to 1,660) during the same time period. However, national projections that take into account both supply and demand suggest an anticipated surplus of dental hygienists in Iowa in the coming decade, with a concurrent projected shortage in dentist workforce.[25]

Dental providers in Iowa are not evenly distributed throughout the state, and fewer dentists are choosing to practice in rural areas.[26] As of December 2018, there were 56 Iowa counties with dental Health Professional Shortage Area (HPSA) designations (**Figure 4**), including a total state population of 535,912 living in HPSAs.[27] More than half of HPSA-designated counties are located in the southernmost part of the state. The US Health Resources and Services Administration (HRSA) posits that maximizing use of DH may buffer the projected dentist shortage, particularly through expanding scope of practice laws.[28]

16 Iowa Department of Public Health, Bureau of Family Health. Iowa Pregnancy Risk Assessment Monitoring System (PRAMS): 2016 Survey Frequencies. August 2018. Available here.
17 Healthy People 2020, Midcourse Review. Chapter 32: Oral Health.
18 Iowa's Changing Demographics. Presentation by Gary Krob, State Data Center Coordinator. June 2016. Accessed 5 Dec 2018. Available here.
19 Iowa Department of Public Health. Burden of Oral Disease. December 2016.
20 Oral Health America. A State of Decay: Are Older Americans Coming of Age without Oral Healthcare? Vol IV, 2018. Accessed 11 Dec 2018. Available here.
21 Iowa Department of Human Services. Nursing Facility Compilation Report. 2018. Available here. Accessed 29 Mar 2019.
22 Nunez B, et al. Opinions on the provision of dental care in Iowa nursing homes. Spec Care Dentist 2011;31(1):33-40.
23 Kelly MC, Caplan J, et al. Preventive dental care among Medicaid-enrolled senior adults: from community to nursing facility residence. JPHD 2018;78(1):86-92.
24 Iowa Workforce Development. 2016-2026 Occupational Projections. September 2018. Available here.
25 Health Resources and Services Administration. National and State-Level Projections of Dentists and Dental Hygienists in the US, 2012-2025. US Department of Health and Human Services. February 2015.
26 Reynolds JR, McKernan SC, Kuthy RA. Changes in Urbanicity of Iowa Dentists' Practice Locations, 1997-2013 – Second Brief in a Series. University of Iowa Public Policy Center, Iowa City, IA. July 2015.
27 HRSA. Designated Health Professional Shortage Areas Statistics. 4th quarter FY2018. Accessed 5 Dec 2018. Available here.
28 Ibid.

Figure 4. Iowa Dental Health Professional Shortage Areas, December 2018



Public Health Supervision

The Iowa Dental Board ruled in 2004 that dental hygienists could practice in public health settings under the public health supervision (PHS) of a dentist. PHS allows a dental hygienist to provide preventive services in public health settings without needing a prior examination by a dentist. To practice under PHS, a dental hygienist must have at least one year of clinical experience and obtain a written supervision agreement by a dentist who determines which preventive services can be provided and in what types of public health settings.[29] Dental hygienists working under PHS must annually report the number of services provided, by setting, to the Iowa Department of Public Health. Iowa is one of 36 states with a dental hygiene PHS type model.[30]

Dental Hygiene Education Programs

Iowa currently has six dental hygiene education programs, an increase from only two programs in 1997 (**Table 1**). More than one-quarter of hygienists attended out-of-state programs, and the most frequently attended Iowa programs were Des Moines Area Community College and Hawkeye Community College.

29 Iowa Dental Board. Public Health Supervision. Accessed 5 Dec 2018. Available here.
30 Naughton DK. Expanding Oral Care Opportunities: Direct Access Care Provided by Dental Hygienists in the United States. J Evid Based Dental Practice 2014;14:171-182.e1.

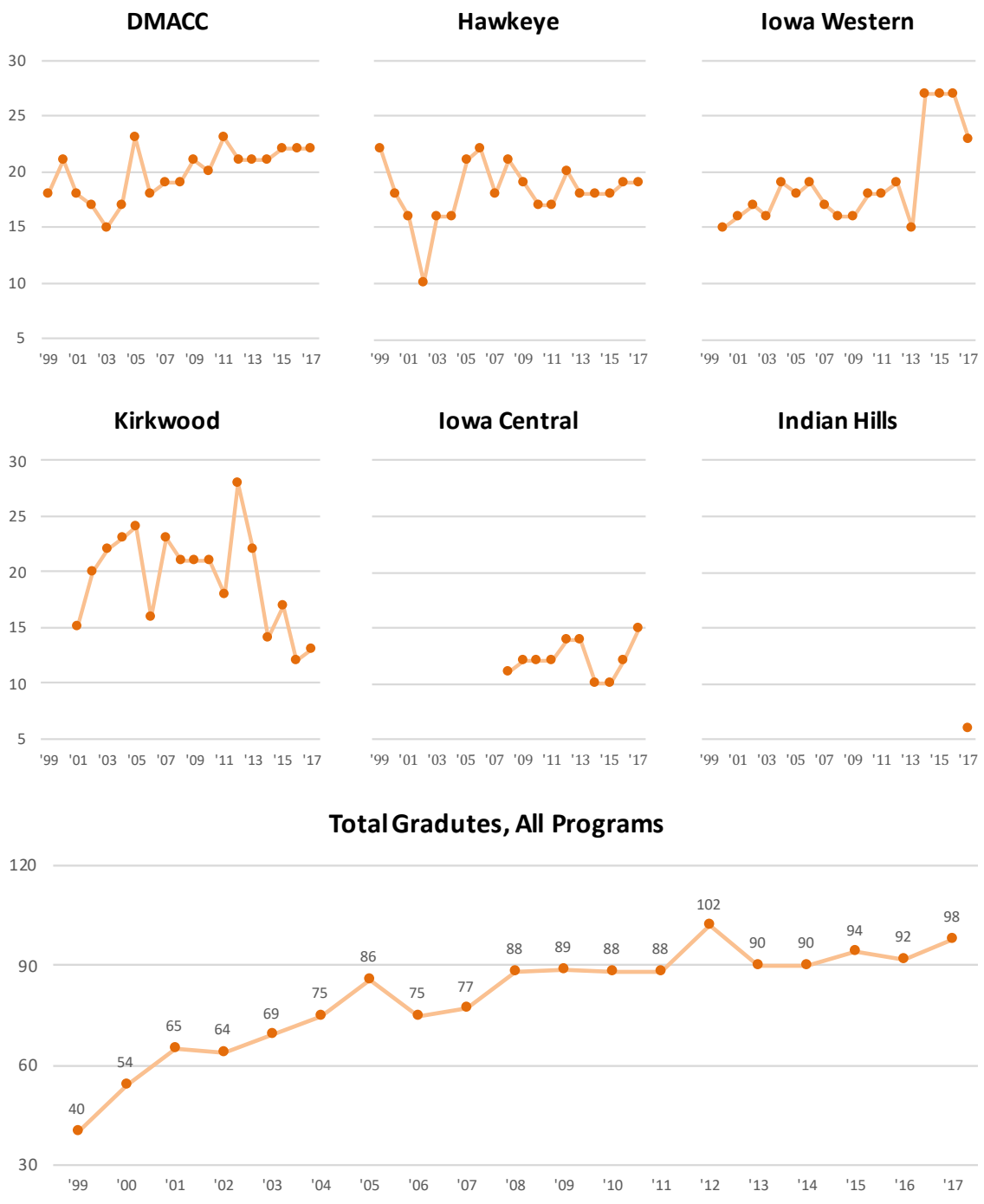
Table 1. Iowa dental hygiene education programs

Program	Location	Year opened	Proportion of licensed Iowa hygienists attended (2017, n=2080)
Des Moines Area Community College	Ankeny	1973	24%
Hawkeye Community College	Waterloo	1975	22%
Kirkwood Community College	Cedar Rapids	1999	12%
University of Iowa	Iowa City	1953-1995	8%
Iowa Western Community College	Council Bluffs	1998	4%
Iowa Central Community College	Fort Dodge	2006	4%
Indian Hills Community College	Ottumwa	2016	0%*
Out-of-state programs	-	-	26%

* Program had not yet graduated its first class at the time data were collected

The number of hygienists graduating from Iowa's dental hygiene education programs annually has more than doubled in the past 20 years, from 40 graduates in 1999 to 98 in 2017 (**Figure 5**). However, there were inconsistent trends in graduating class sizes by school; graduating class sizes increased at DMACC and Iowa Western, whereas they either fluctuated or stayed relatively consistent at Hawkeye, Kirkwood, and Iowa Central. Therefore, the total increase in the number of graduates appears to be more a function of the increase in the number of programs rather than growth in graduating class sizes.

Figure 5. Number of graduates in Iowa's dental hygiene education programs, 1999-2017



Data source: American Dental Association Health Policy Institute, Survey of Allied Dental Education. Dental Hygiene Program Reports: 1999-2018.

Summary

Indicators of dental need among underserved populations, along with workforce supply issues, underscore potential opportunities for the dental hygiene workforce to contribute to improved access to care. Our evaluation identified several populations that could specifically benefit from expanding the capacity of the dental hygiene workforce, including:

- Low-income children in regions of the state with the low rates of dental utilization
- Low-income adults, including pregnant women
- Older adults residing in long-term care facilities

Methods

This workforce assessment uses data from three sources:

1) Dental hygiene relicensure data from the Iowa Dental Board (2017)
2) Data from a survey of dental hygienists in Iowa (administered summer 2018)
3) Data from the Iowa Department of Public Health about Public Health Supervision DH workforce and services provided (2004-2017)

Relicensure Data

Relicensure data from the Iowa Dental Board (IDB) includes information gathered from dental hygienists (n=2317) during the license renewal process in 2017. Only those with a current work address in Iowa were included (n=2080).

Survey of Dental Hygienists

A survey was sent by mail to all licensed dental hygienists in Iowa (n=2080) in May 2018. A postcard reminder was sent 1 week later, and a second survey was sent 2 weeks later only to those who had not yet responded. Respondents were given the option to complete the survey online. Hygienist addresses were obtained from IDB relicensure data. Hygienists were included in the sample if they had a primary work address in the state of Iowa or, if no primary work address was listed, had a mailing address in Iowa.

Survey Instrument

Survey questions included original items as well as items adapted from previous dental hygiene workforce surveys in other states and nationwide.[31,32,33,34,35,36,37,38] The survey instrument was pretested by the members of the advisory committee, as well as 3 dental hygienists, one each working in private practice, public health, and dental hygiene education. A copy of the survey is located in **Appendix 2**.

Analyses

Descriptive analyses were conducted for all survey items, as well as limited bivariate analyses. All survey results are weighted by age as described below, and all analyses were conducted using IBM SPSS Version 25.

Response Rates and Response Bias

In total, 1215 dental hygienists responded to the survey for a response rate of 58%. Of those, 6% (n=75) were not currently working in Iowa and therefore only completed a subset of the survey, whereas 94% (n=1140) completed the full survey.

Survey respondents were significantly ($p<.05$) more likely to be older compared to non-respondents (**Table 2**); 37% of respondents were age 50 or older compared to 22% of non-respondents.[39] There were also statistically significant differences between respondents and non-respondents with regard to geographic region (as defined by Iowa Workforce Development [IWD] regions). **Figure 6** shows a map of the IWD regions for reference.

31 Arizona Dental Hygiene Workforce Survey Data Tables 2003-04, Arizona Department of Health Services, Office of Oral Health. Phoenix, Arizona. June 2007.
32 Canadian Dental Hygienists Association. Job Market & Employment Survey: Report of Findings. 2013.
33 Health Resources and Services Administration. Survey developed by the American Dental Hygienists Association. 2013. Available here.
34 Michigan Department of Community Health. Survey of Dental Hygienists: Survey Findings 2009. 2010.
35 Florida Department of Health. 2015-2016 Workforce Survey of Dental Hygienists. 2016.
36 Center for Health Workforce Studies. The Oral Health Workforce in Maine. December 2012.
37 Massachusetts Department of Public Health. A Report on the Commonwealth's Dental Hygiene Workforce: Results and Recommendations from a 2007 Statewide Survey. December 2007.
38 Pennsylvania Department of Health, Bureau of Health Planning, Division of Plan Development. 2011 Pulse of Pennsylvania's Dentist and Dental Hygienist Workforce: A Report on the 2011 Survey of Dentists and Dental Hygienists, Volume 5. November 2012.
39 Note: 9 respondents removed the ID from the paper survey and were therefore unable to be linked to administrative data used to examine non-response bias. Thus there is a discrepancy between the total number of respondents (n=1215) and the number of respondents used to examine non-response bias (Table 1, n=1206).

Figure 6. Iowa Workforce Development Regions

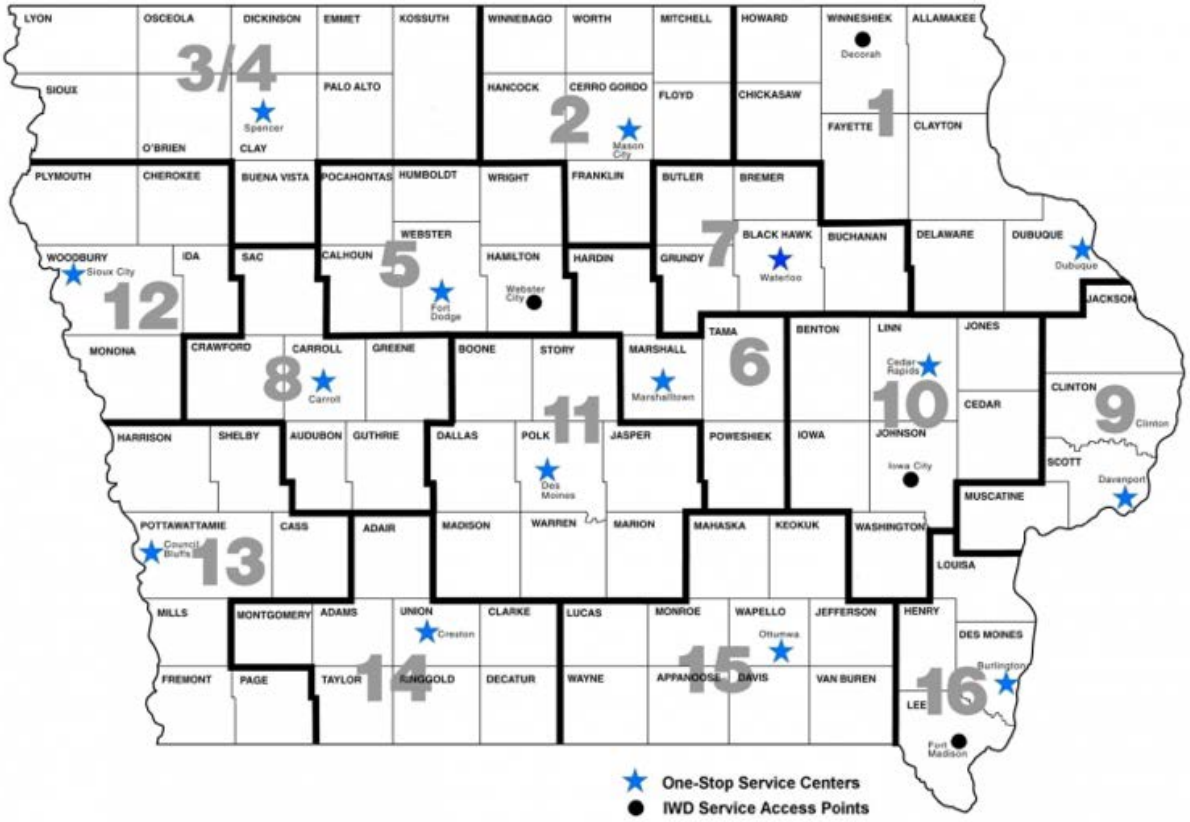


Table 2. Comparison of survey respondents and non-respondents, by demographic characteristics

	Survey respondents (n=1206)	Non-respondents (n=874)
Age*		
<30	12%	18%
30-39	29%	37%
40-49	22%	24%
50-59	25%	15%
≥60	12%	7%
Gender		
Female	100%	99%
Male	<1%	1%
Iowa Workforce Development Region*		
1	8%	7%
2	5%	3%
3/4	4%	4%
5	2%	2%
6	3%	1%
7	7%	4%
8	2%	2%
9	10%	9%
10	19%	20%
11	25%	30%
12	5%	5%
13	4%	5%
14	1%	1%
15	2%	3%
16	3%	3%

* Chi-square test statistically significant at p>0.05

To correct for differences in age between respondents and non-respondents, we generated nonresponse weights for each age category. All survey results presented in this report are therefore weighted by age group up to the total population of Iowa dental hygienists. **Table 3** contains the weight calculations.

Table 3. Post-stratification weight calculation

Age group	Population (N)	Respondents* (n)	Post-stratification weights (1/(n/N))
<30	294	139	2.12
30-39	667	337	1.98
40-49	475	255	1.86
50-59	433	280	1.55
≥60	210	129	1.63
TOTAL	**2079**	**1140**	

*Includes respondents to full survey only

Public Health Supervision Data

Data from the Iowa Department of Public Health included PHS agreements as well as reports of services provided by PHS dental hygienists from 2004-2017. These were used to examine trends in the overall size of the workforce, service provision, and recent statewide geographic trends.

Findings

Demographic and Practice Characteristics

Dental hygienists in Iowa were almost exclusively female (99%) and white (98%) (**Table 4**). Almost one-third were age 50 or older, and over half had children under age 18 living in the household. A majority of hygienists' highest level of education was an associate's degree, although almost one-third had a bachelor's degree or higher.

Table 4. Demographic characteristics of Iowa dental hygienists

	Iowa dental hygienists
Age*	
<30	14%
30-39	32%
40-49	23%
50-59	21%
≥60	10%
Gender*	
Female	99%
Male	1%
Race/Ethnicity†	
White	98%
Multiple race or origin	1%
Hispanic	0.5%
American Indian/Alaska Native	0.4%
Asian	0.2%
Other race or origin	0.2%
Black	0.1%
Highest level of education†	
Dental hygiene certificate	8%
Associate degree	62%
Bachelor's degree	27%
Master's degree or higher	3%
Marital status†	
Married or in a marriage-like relationship	88%
Never married and not in a marriage-like relationship	5%
Divorced	5%
Widowed	0.7%
Separated	0.6%
Children under age 18 living in household†	
Yes	56%
No	44%

*Includes all licensed Iowa dental hygienists (n=2080)

†Includes full survey respondents only (n=1140)

The vast majority of dental hygienists worked in private practice (85%), and 6% worked in clinical or community-based public health (**Table 5**). Twelve percent (n=232) worked more than one job in dental hygiene. Two-thirds worked full time, whereas 5% (n=107) were not currently employed in dental hygiene.

Table 5. Practice characteristics of all Iowa dental hygienists

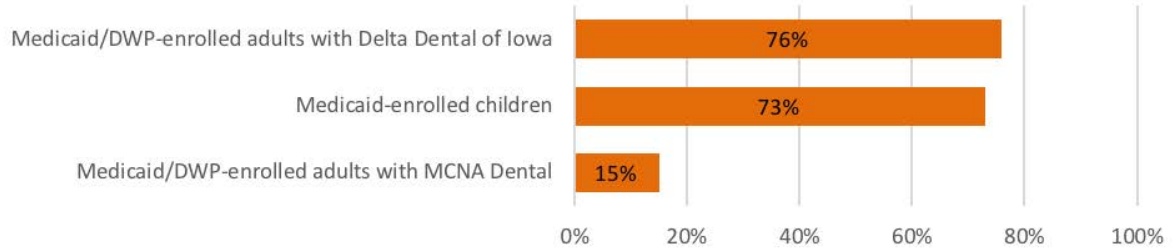
	Iowa dental hygienists (n=2080)[40]
Primary practice setting*	
Private solo practice (1 dentist)	35%
Private group practice (2+ dentists)	50%
Corporate or DSO-affiliated practice	5%
Community-based public health setting	4%
Community Health Center	2%
DH or DA education program	1%
Dental school	1%
Other	2%
Practice specialty†§	
General practice	96%
Pediatric dentistry	3%
Periodontics	2%
Other	3%
Years at current primary job†	
0-5	43%
6-10	18%
11-20	25%
>20	15%
Practice status	
Currently practicing	95%
Not currently practicing, not seeking employment	2.6%
Not currently practicing, seeking employment	1.6%
Retired	0.9%
Work more than one job in DH*	
Yes	12%
No	88%

*Excludes those not currently practicing (n=143)
†Includes full survey respondents only (n=1140)
§ Respondents could select more than one option; therefore, total is greater than 100%.

Clinically active dental hygienists were asked to select which traditionally underserved groups of patients were accepted at their primary job. Among hygienists working in private practice (e.g., private solo, group, or corporate/DSO), over three-quarters reported acceptance of Medicaid/Dental Wellness Plan (DWP)-enrolled adults with Delta Dental as well as Medicaid-enrolled children, whereas less than one-quarter reported acceptance of Medicaid/DWP-enrolled adults with MCNA Dental (**Figure 7**).

40 For data validation reasons, all practice-related questions listed in Table 3 were asked in the survey as well as in the IDB relicensure data. Proportions were almost identical between both sources; therefore, the results are from relicensure data except where indicated as survey data.

Figure 7. Acceptance of publicly insured patients at primary job among hygienists working in private practice



Unemployment

The unemployment rate among Iowa dental hygienists, which is calculated as those who are seeking employment over the total labor force (excluding individuals who are retired or not seeking employment), was 1.7%. This is lower than the unemployment rate among all occupations in Iowa in 2017 (**Figure 8**). **Figure 9** shows a map of the proportion of dental hygienists who are unemployed and seeking employment by IWD region. The highest unemployment rate was in the southeast (region 16), with a rate of 5.5%.

Figure 8. Unemployment rate among dental hygienists and all occupations, Iowa, 2017

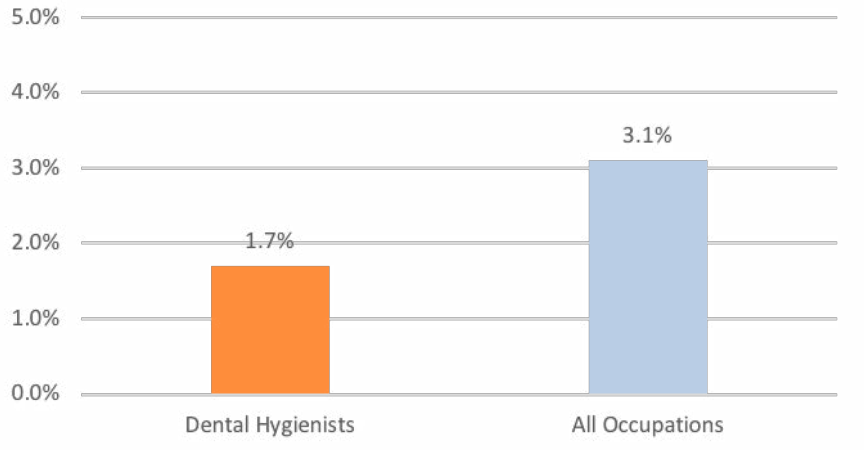
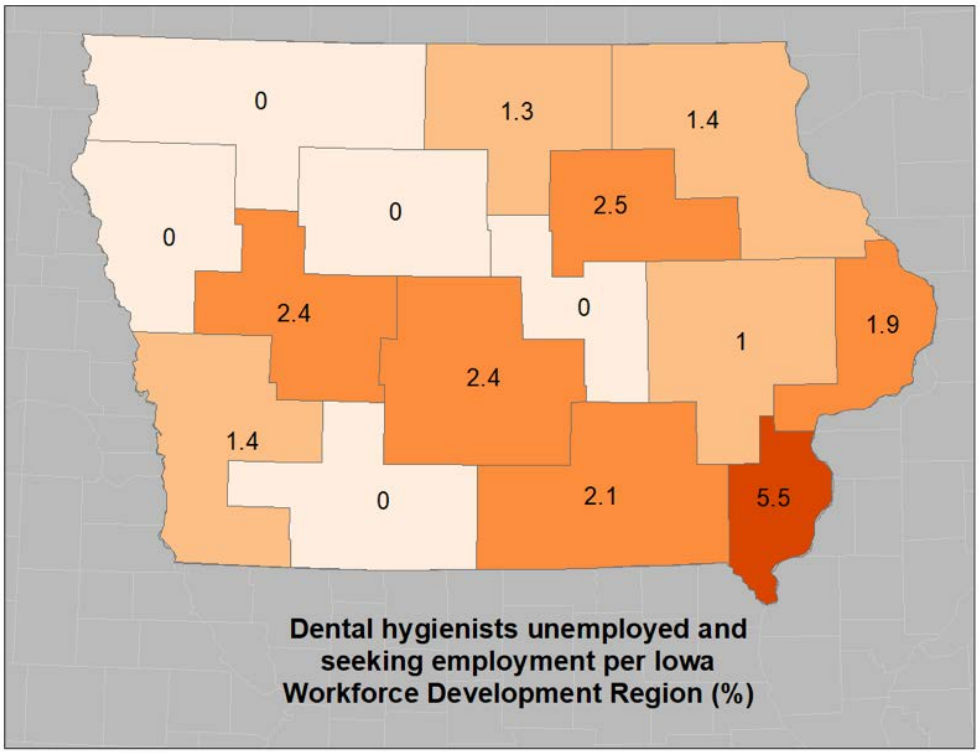
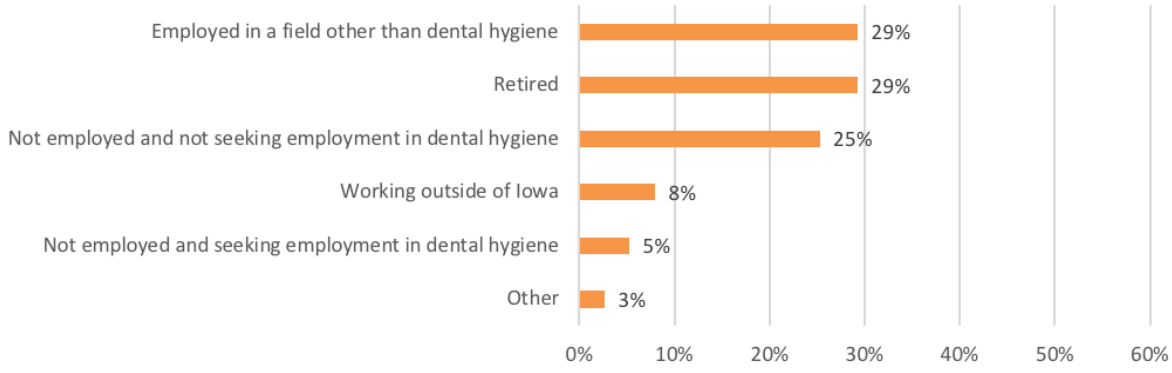


Figure 9. Map of dental hygienists unemployed and seeking employment per IWD region (%)



Among survey respondents not currently working in dental hygiene in Iowa (n=75), the most common reasons were being employed in another field, retirement, and not seeking employment in dental hygiene (**Figure 10**).

Figure 10. Employment status among survey respondents not working in dental hygiene in Iowa (n=75)



Multiple Jobholding

The vast majority of working dental hygienists in Iowa (88%) work one job, whereas 10.7% (n=120) work two and 1.5% (n=17) work three jobs or more, for a multiple jobholding rate of 12%. This is lower than other recent state dental hygiene workforce assessments, which have found multiple jobholding rates ranging from 15-27% (**Figure 11**).[41,42,43,44] The multiple jobholding rate was highest in the southeast (region 16), with 20% of hygienists working multiple jobs (**Figure 12**).

41 Florida Department of Health. 2015-2016 Workforce Survey of Dental Hygienists. 2016.
42 Virginia Department of Health Professions, Healthcare Workforce Data Center. Virginia's Dental Hygienist Workforce: 2015. January 2016.
43 Center for Health Workforce Studies. The Oral Health Workforce in Maine. December 2012.
44 Pennsylvania Department of Health, Bureau of Health Planning, Division of Plan Development. 2011 Pulse of Pennsylvania's Dentist and Dental Hygienist Workforce: A Report on the 2011 Survey of Dentists and Dental Hygienists, Volume 5. November 2012.

Figure 11. Multiple jobholding rates among dental hygienists by state, compared to all U.S. workers

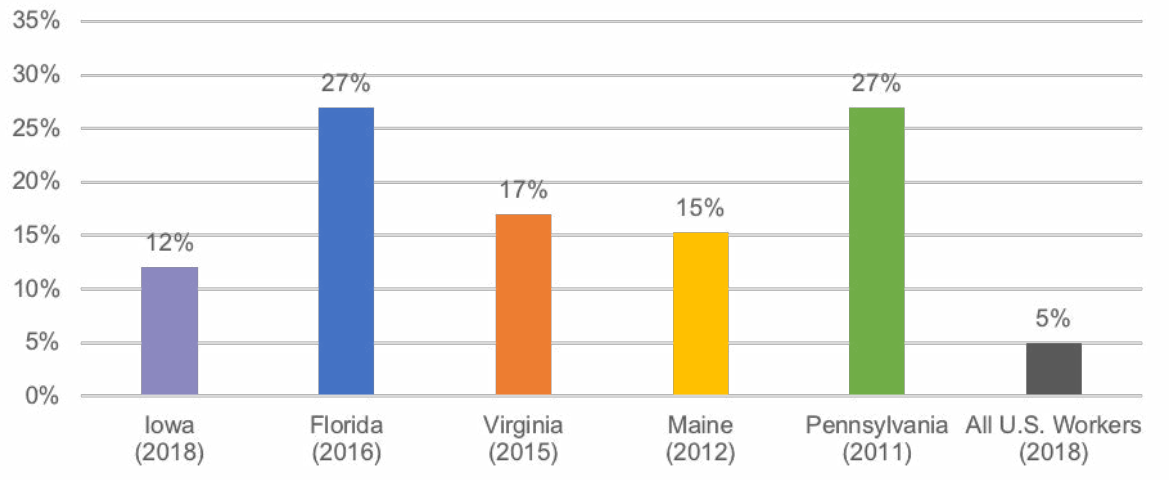
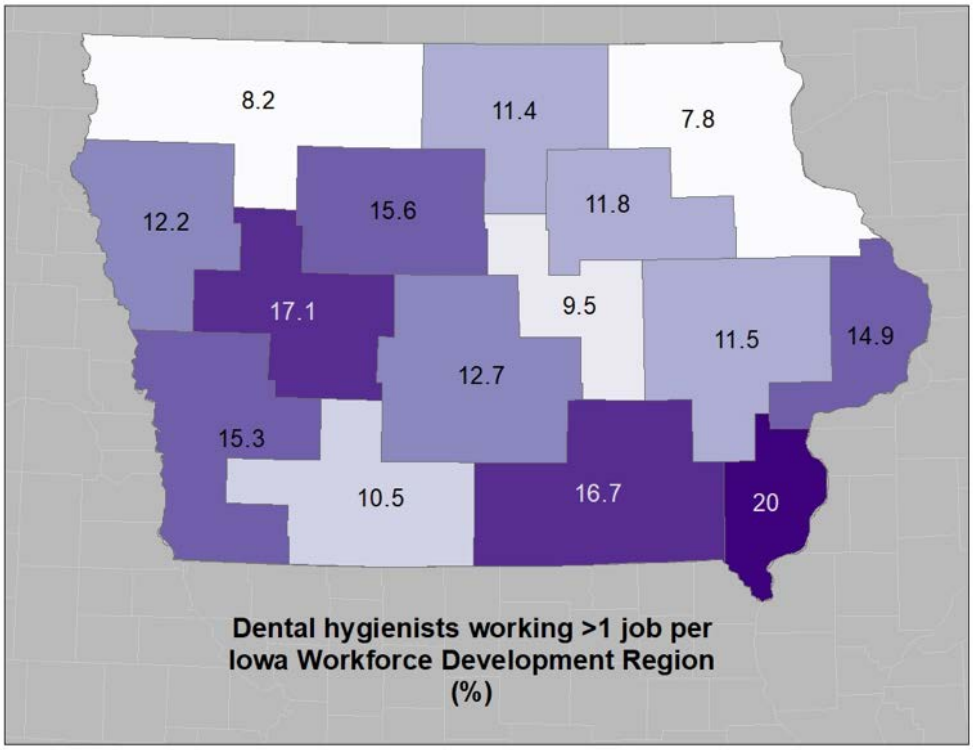


Figure 12. Multiple jobholding rates among dental hygienists per IWD region (%)



Younger dental hygienists were significantly more likely to work more than one job compared with older dental hygienists (p=0.038) (**Table 6**). Among hygienists under age 30, 17% worked more than one job, whereas 9% of those age 60+ did.

Table 6. Dental hygienists' age by number of jobs worked, n(%)

	1 job		2+ jobs	
Age	**N**	**%**	**N**	**%**
<30	244	83%	51	17%
30-39	586	88%	77	12%
40-49	420	89%	54	11%
50-59	380	88%	53	12%
≥60	191	91%	18	9%

Full- and Part-time Employment

Almost 6 in 10 hygienists worked full time (32+ hours/week) at their primary/only job (**Figure 13**). Among those with secondary jobs (11% of hygienists), a majority work 8 hours per week or less at the secondary job. Based on the total hours worked, more than one-third work part-time. Older dental hygienists were significantly more likely to work full-time compared to younger hygienists (p<.001) (**Table 7**).

Figure 13. Number of hours worked per week at primary and secondary dental hygiene jobs

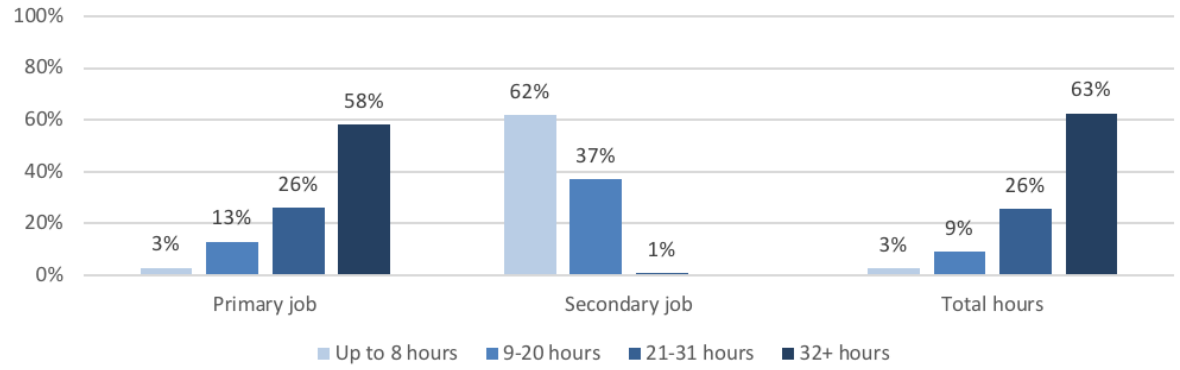


Table 7. Dental hygienists' age by full vs. part time

	Part time		Full time	
Age	N	%	N	%
<30	53	18%	235	82%
30-39	238	37%	412	63%
40-49	179	38%	288	62%
50-59	175	41%	253	59%
≥60	117	57%	88	43%

Note: Total work hours were used to calculate full time vs. part time status.

Among all dental hygienists, 9% desire to work more hours (**Figure 14**). However, hygienists working fewer hours were significantly more likely to desire additional hours (p<.001) (**Table 8**). Among all hygienists working part-time, 15% desired additional work hours.

Among those desiring more work hours, over two-thirds desire 8 or fewer additional hours (**Figure 15**). There was no association between the desire to work more/fewer hours and dental hygienists' age, or number of children in the household.

Figure 14. Dental hygienists' desired work hours compared to existing total work hours

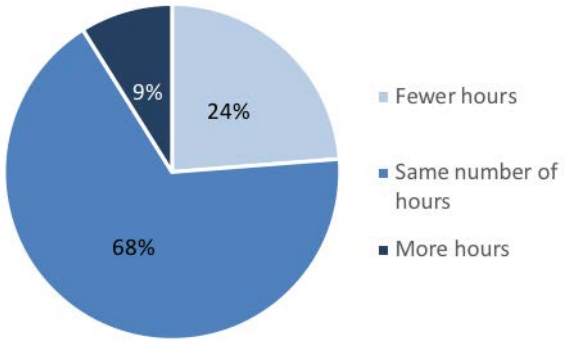


Figure 15. Number of additional hours desired among dental hygienists wanting more work hours

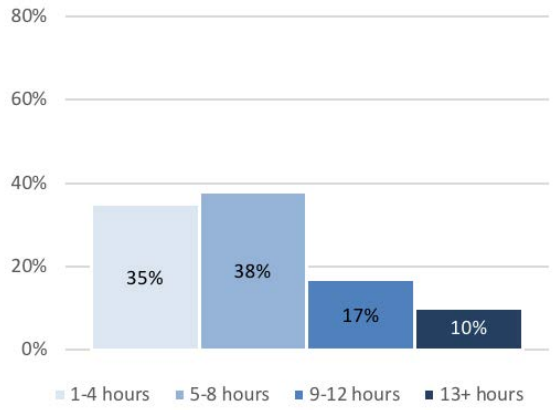


Table 8. Dental hygienists' desired work hours by hours worked per week

	Desired work hours		
Hours worked per week	**More hours**	**Same number of hours**	**Fewer hours**
8 or fewer hours	22%	74%	4%
9-20 hours	22%	72%	7%
21-31 hours	13%	67%	20%
32+ hours	4%	67%	29%

Clinical Productivity

Clinically active dental hygienists (94% [n=1071] of survey respondents) saw an average of 8.6 patients in an 8-hour work day, with 54% of hygienists seeing 8 patients per day (**Figure 16**). For over one-third of hygienists, the typical wait time for a new patient appointment was one month or longer (**Figure 17**).

Figure 16. Number of patients seen in an 8-hour work day

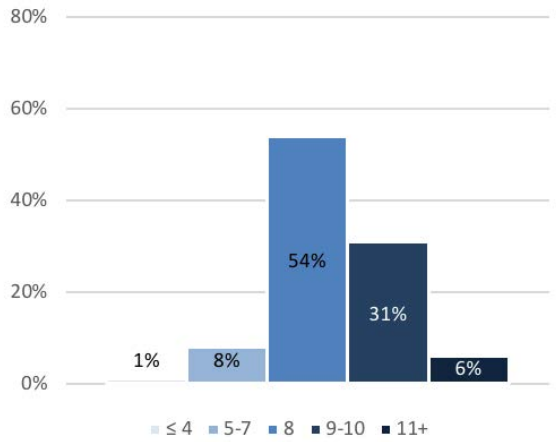
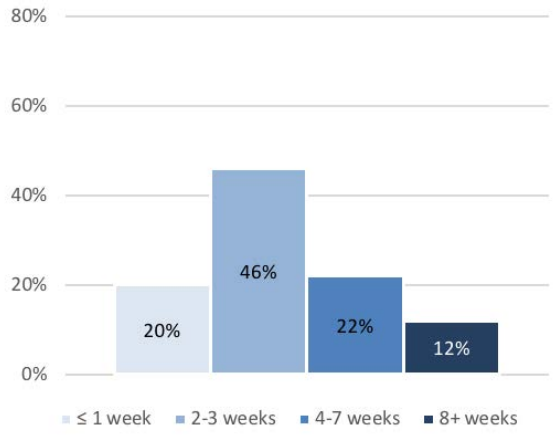
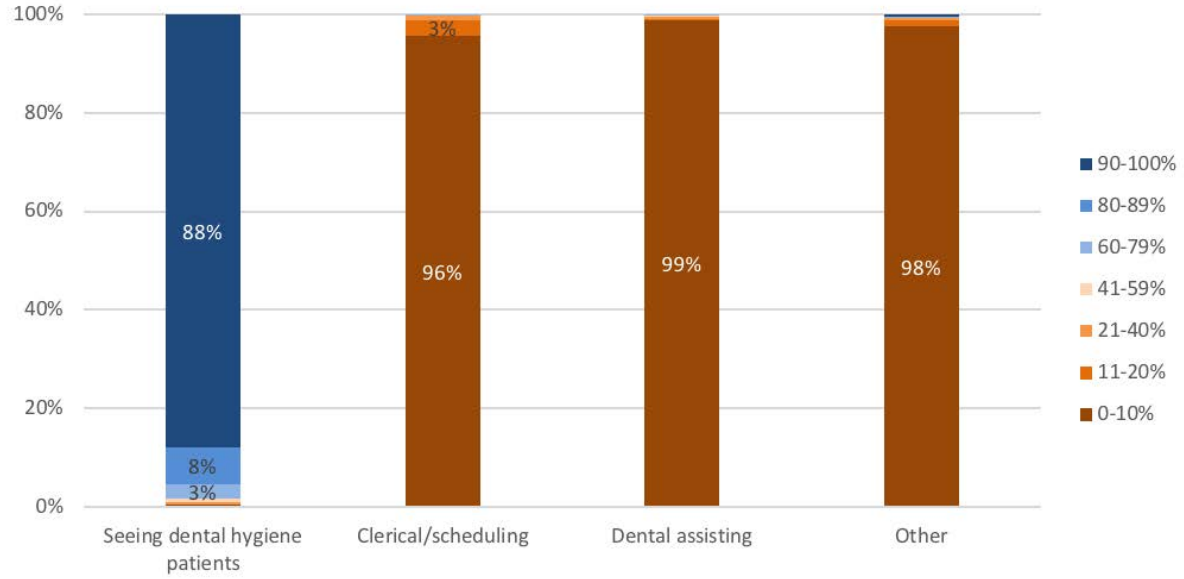


Figure 17. Typical wait-time for new patients to schedule a dental hygiene appointment



Among dental hygienists working in private or corporate/DSO practice (90% of survey respondents), 12% spent more than 10% of their work hours (e.g., more than 4 hours in a 40-hour week) on activities other than seeing dental hygiene patients (**Figure 18**). Among those spending time on clerical activities, dental assisting, or other non-patient activities, very few spent more than 10% of their work hours doing so.

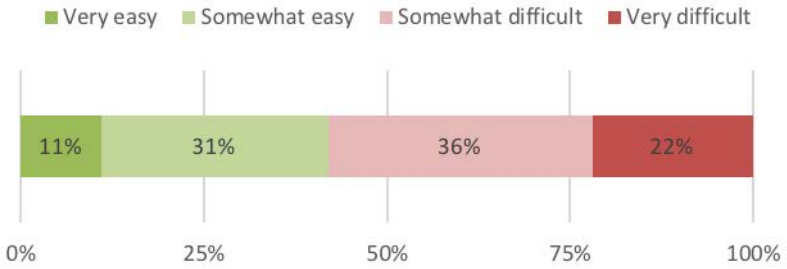
Figure 18. Percent of work time spent on clinical and non-clinical activities among hygienists in private practice



Job-Seeking Experiences

Among dental hygienists who had looked for work in dental hygiene in the last 5 years (43% of survey respondents), over half said it was difficult to find the job they wanted (**Figure 19**). There was no association between job-seeking difficulty and rural/urban geographic location.[45]

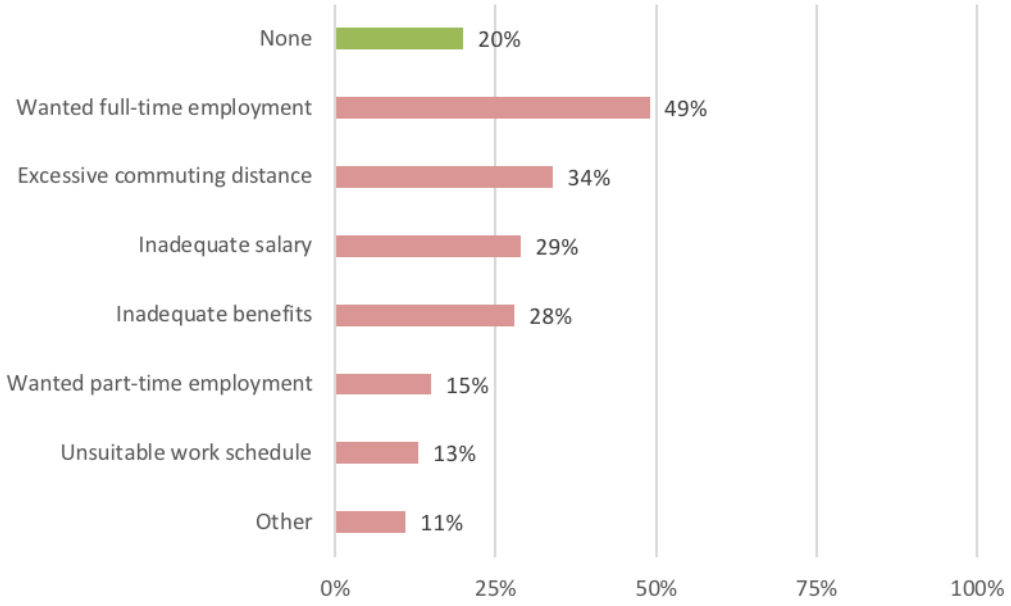
Figure 19. Hygienists' experience finding work as a clinical dental hygienist in the past 5 years



When asked about the types of barriers they experienced when looking for a clinical hygiene job, 80% listed at least one barrier. The most common barriers were 1) wanting full-time employment but having difficulty finding it (49%), and 2) excessive commuting distance (34%) (**Figure 20**).

45 Urbanicity was defined at the county level using the USDA's Rural-Urban Continuum Codes (RUCC), with codes 1-3 indicating rural and 4-9 indicating urban counties. Iowa RUCCs were accessed here.

Figure 20. Types of barriers to finding desired employment



Note: Respondents could select more than one option; therefore total is greater than 100%.

Career Satisfaction

The vast majority (94%) of dental hygienists are satisfied with their dental hygiene career, with only 6% indicating that they were dissatisfied (**Figure 21**). Hygienists were generally satisfied with most aspects of their current job (**Figure 22**). However, almost one-quarter of dental hygienists were dissatisfied with their employment benefits.

Figure 21. Career satisfaction among dental hygienists

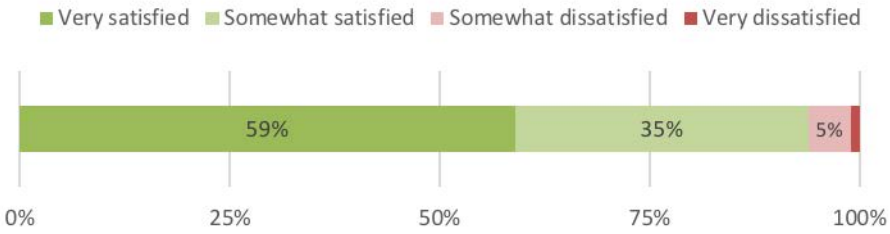
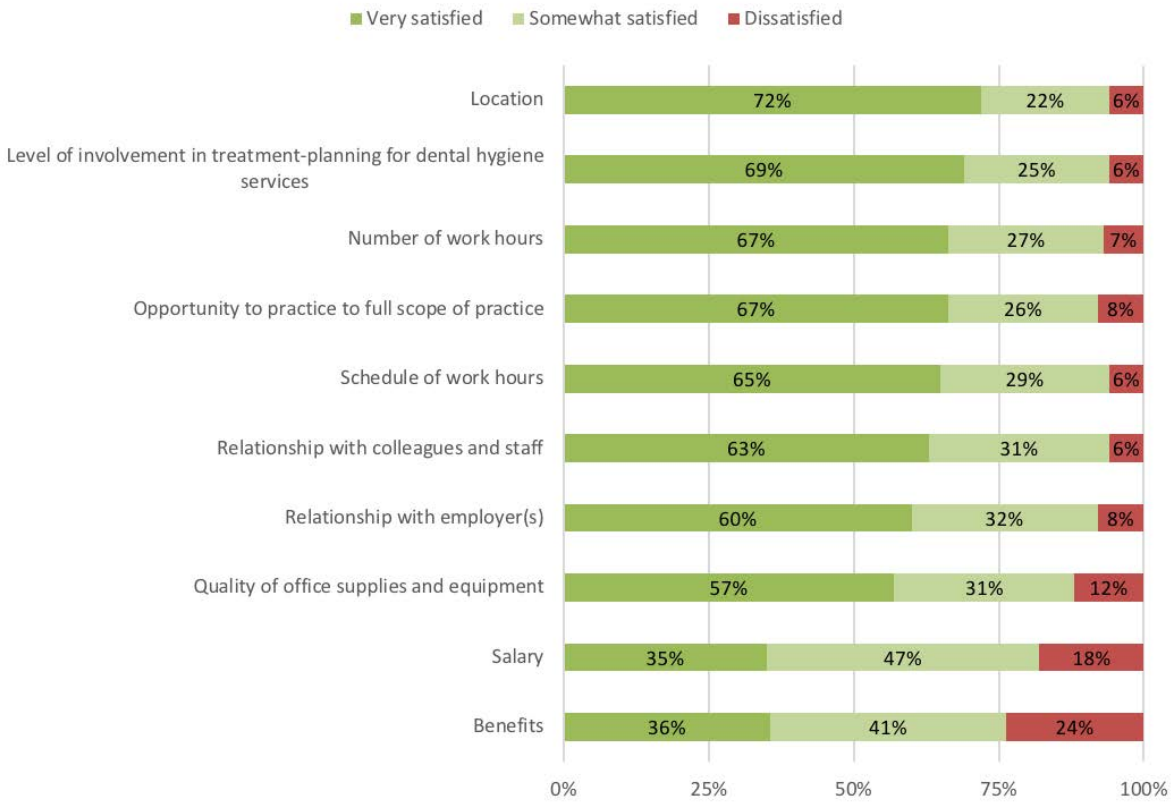


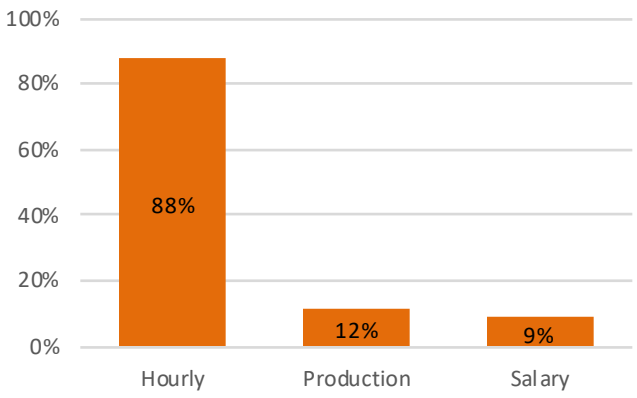
Figure 22. Dental hygienists' satisfaction with aspects of current job



Pay and Benefits

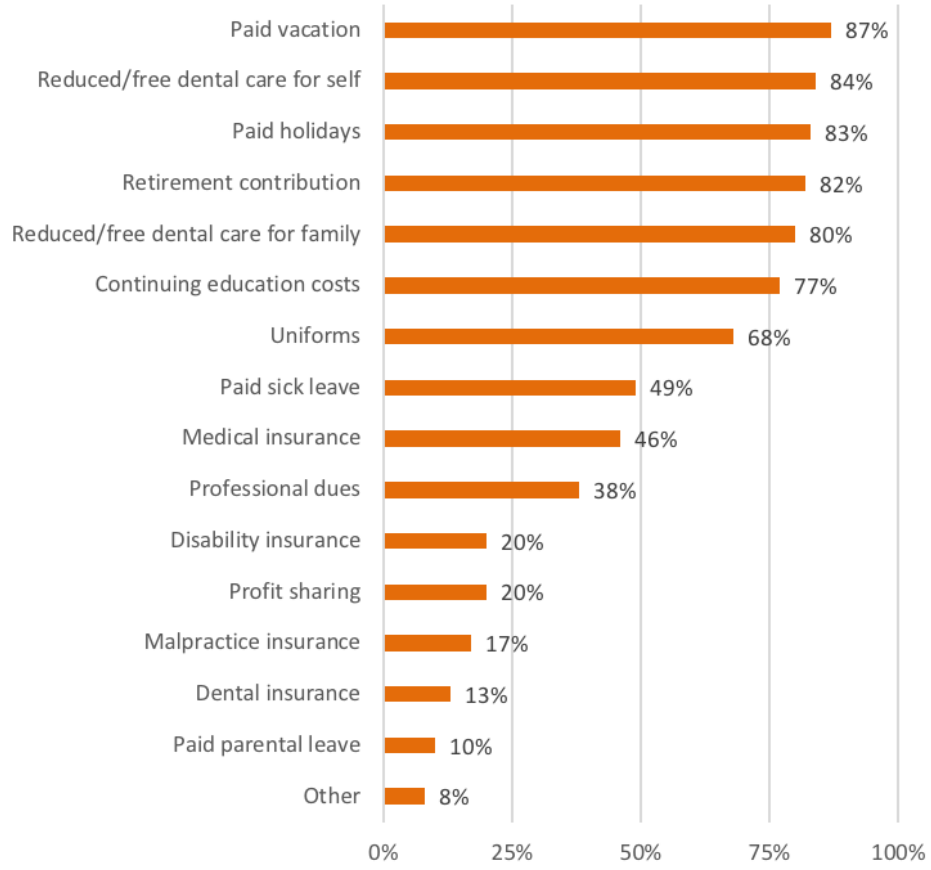
Dental hygienists were primarily paid hourly, with a small percentage paid on production or via salary **(Figure 23**). More than 8 in 10 dental hygienists received the following employment benefits (**Figure 24**): reduced or free dental care for themselves and/or their family, paid vacation, paid holidays, and retirement plan contribution. Less than half received medical insurance.

Figure 23. Dental hygienists' compensation



Note: Respondents could select more than one option

Figure 24. Dental hygienists' employment benefits



Note: Respondents could select all that apply.

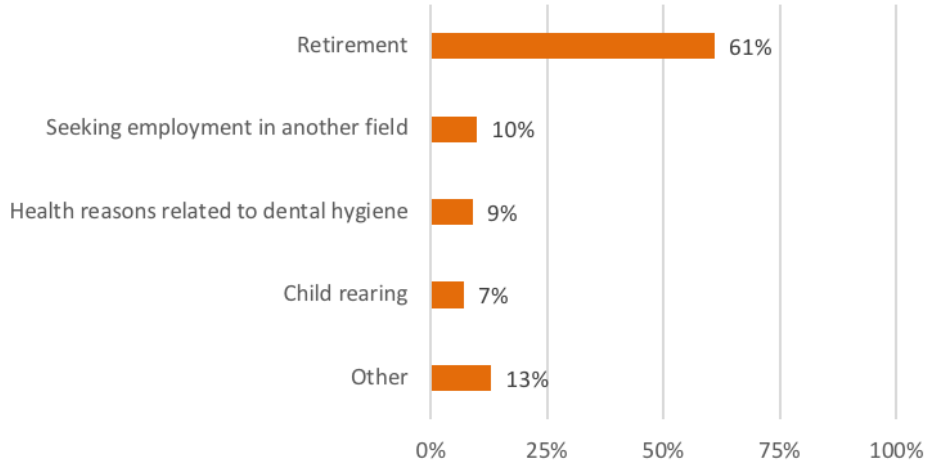
Career Plans

When asked about career plans in the next five years, more than two-thirds planned to remain in their current position, whereas 8% planned to leave dental hygiene permanently and 10% were not sure about their career plans (**Table 9**). Among those planning to leave dental hygiene either temporarily or permanently, or who are not sure about their career plans, the most common reason for their plans was retirement (61%) (**Figure 25**).

Table 9. Dental hygienists' career plans in the next five years

	Iowa dental hygienists
Remain in my current position	69%
Leave dental hygiene permanently	8%
Seek a different type of dental hygiene position (e.g., education, administration, public health)	6%
Seek a similar position in another setting	5%
Leave dental hygiene temporarily but plan to return	<1%
Don't know/Not sure	10%
Other	1%

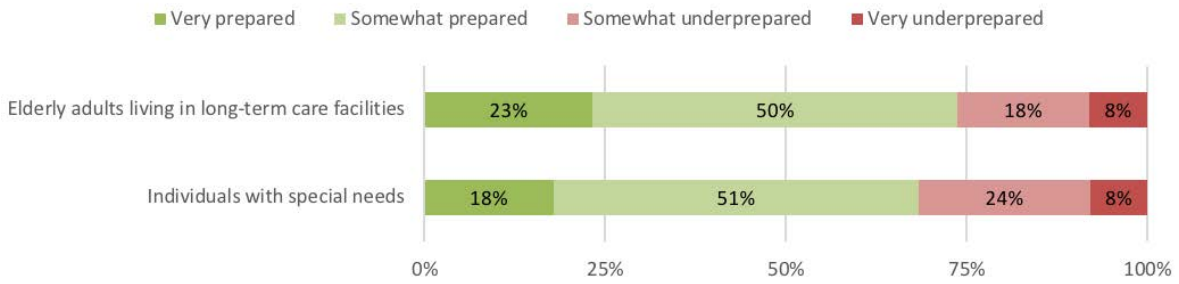
Figure 25. Reason for leaving the workforce among those planning to leave dental hygiene in the next 5 years



Working with Underserved Populations and in Public Health Settings

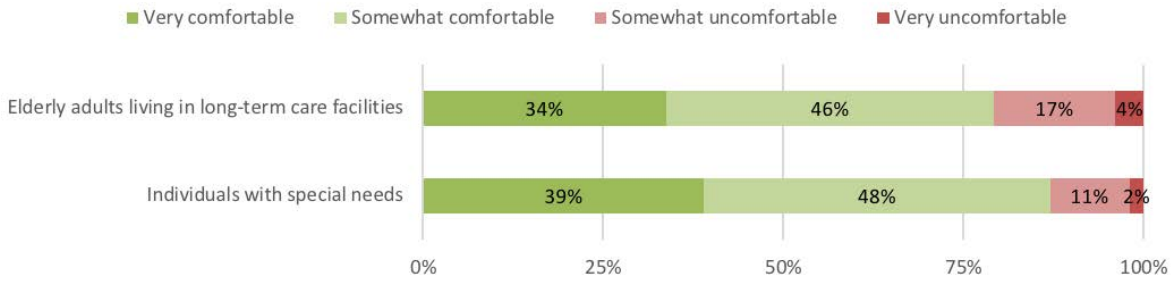
Hygienists were asked about the degree to which their dental hygiene program prepared them to work with two types of underserved populations: elderly adults in long-term care (LTC) facilities, and individuals with special needs. Approximately one-quarter felt they were underprepared to work with elderly adults in LTC, and nearly one-third felt similarly about individuals with special needs (**Figure 26**).

Figure 26. Perceptions of educational preparedness for working with underserved populations



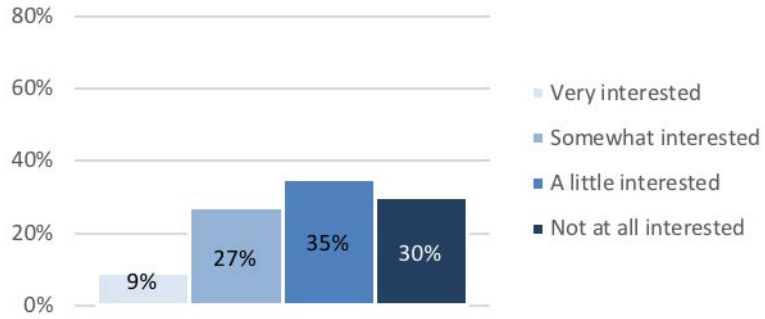
When asked about current level of comfort working with these populations, 21% were uncomfortable working with elderly adults in LTC, whereas 13% said the same about individuals with special needs (**Figure 27**).

Figure 27. Current level of comfort working with underserved populations



A total of 87% reported that they currently provide clinical dental hygiene services to individuals with special needs. Among the 13% who do not, a majority had little to no interest in serving this population (**Figure 28**).

Figure 28. Level of interest in providing services to individuals with special needs among dental hygienists not currently seeing this patient population



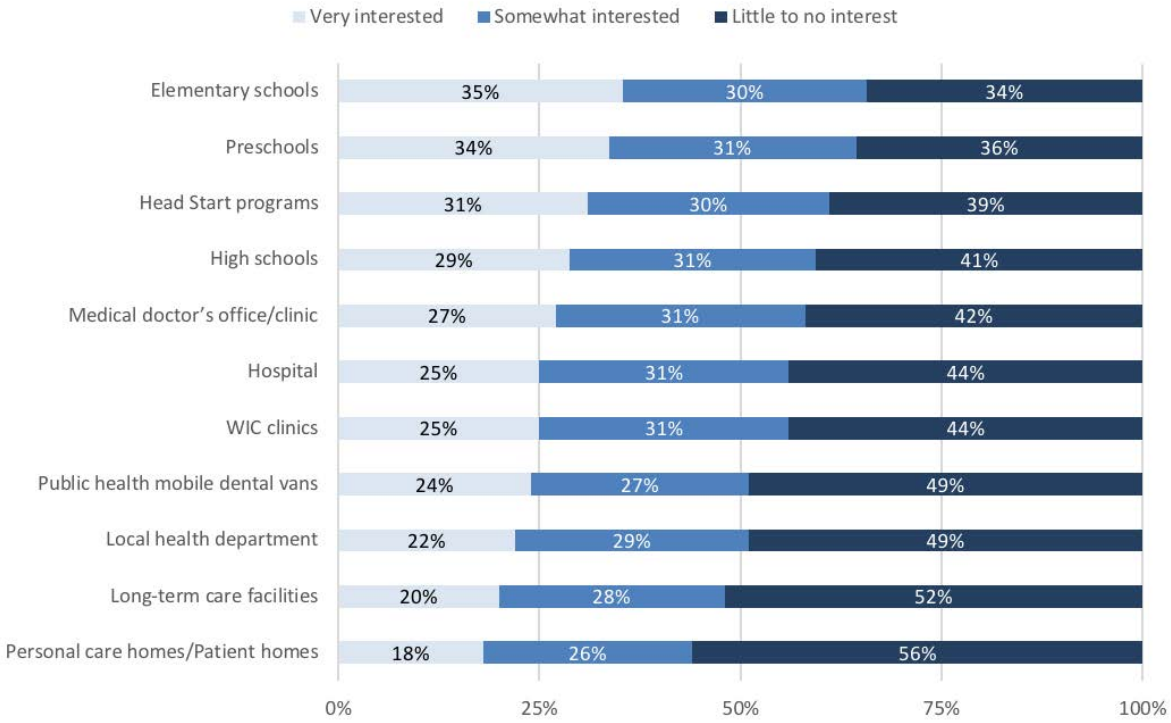
Hygienists were also asked about their level of interest in providing clinical dental hygiene services at outreach locations. The proportion and number of dental hygienists currently providing services in these settings ranges from 0-3% (**Table 10**). Among those *not* currently providing services in these settings, the three settings with the most interest were elementary schools, preschools, and Head Start programs, with at least 30% of hygienists *very interested* in providing services in these settings (**Figure 29**).

There were statistically significant differences between the desire for more work hours (yes/no) and level of interest in providing services in outreach settings. Hygienists who are interested in working more hours were significantly more interested than those who do not desire more work hours in all outreach settings except mobile dental vans and patient homes. Among hygienists desiring more work hours, there was the highest interest in providing services in preschools, elementary schools, and high schools.

Table 10. Proportion of dental hygienists who currently provide outreach services

	Iowa dental hygienists (%)
Elementary schools	3.1%
Preschools	2.8%
Head Start programs	2.8%
WIC clinics	2.4%
High schools	1.8%
Local health department	1.3%
Long-term care facilities	0.8%
Public health mobile dental vans	0.5%
Medical doctor's office/clinic	0.3%
Hospital	0.5%
Personal care homes/Patient homes	0.2%

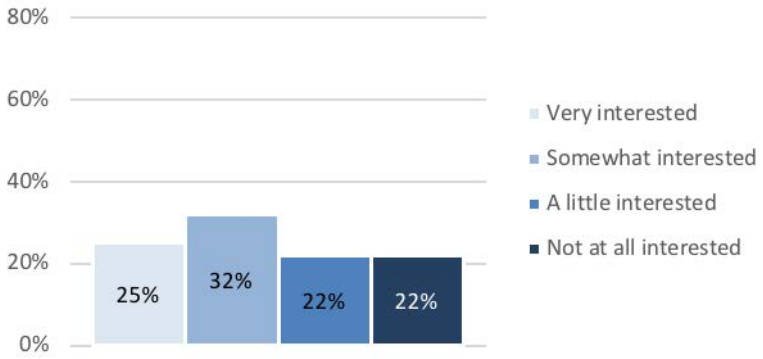
Figure 29. Level of interest in providing services in new outreach settings



Teledentistry

Only 24% of hygienists were previously aware of the teledentistry model of care. When asked how interested they were in providing clinical dental hygiene services via teledentistry, a majority were somewhat or very interested (**Figure 30**). Hygienists who desire more work hours were significantly more likely to be very interested in providing services via teledentistry compared to those who do not desire more work hours (36% vs. 24% very interested, respectively, p<.001).

Figure 30. Level of interest in providing dental hygiene services via teledentistry



Dental Hygienists Working Under Public Health Supervision

From 2004-2017, the number of dental hygienists providing services under public health supervision (PHS) increased from 14 to 95 (**Figure 31**). In 2017, the three most common settings in which PHS dental hygienists provided services were schools, Federal Public Health programs (which mainly included WIC programs), and Head Start programs (**Table 11**). The areas of the state with the most PHS dental hygienists were IWD regions 10 and 11, which include the Iowa City-Cedar Rapids and Des Moines metro areas (**Figure 32**).

Figure 31. Number of supervising dentists and PHS dental hygienists providing services, 2004-2017

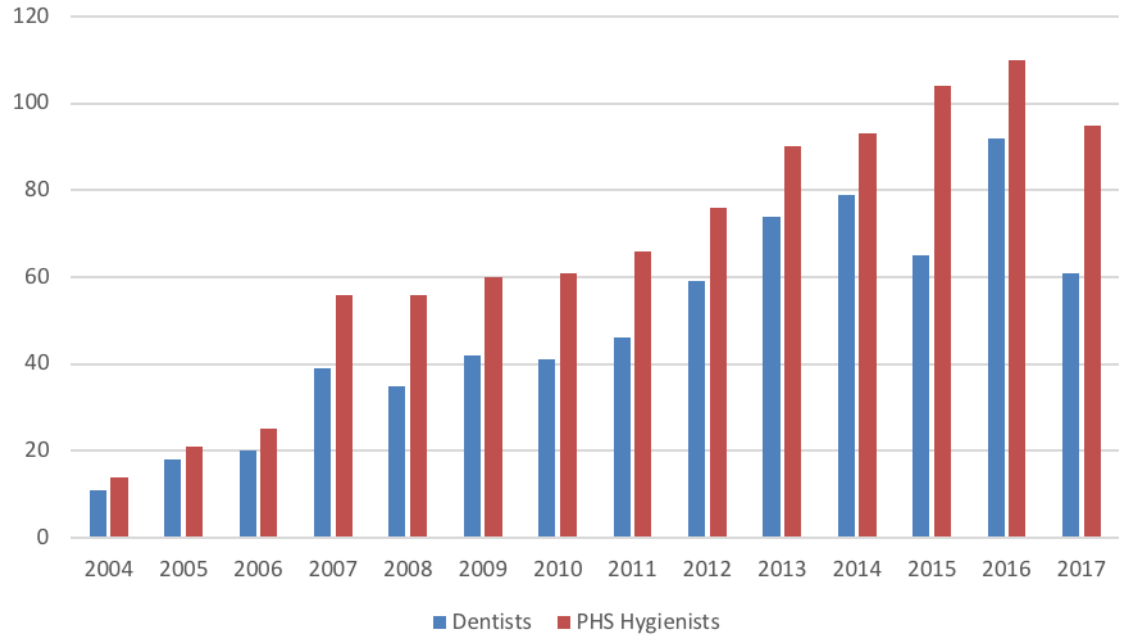
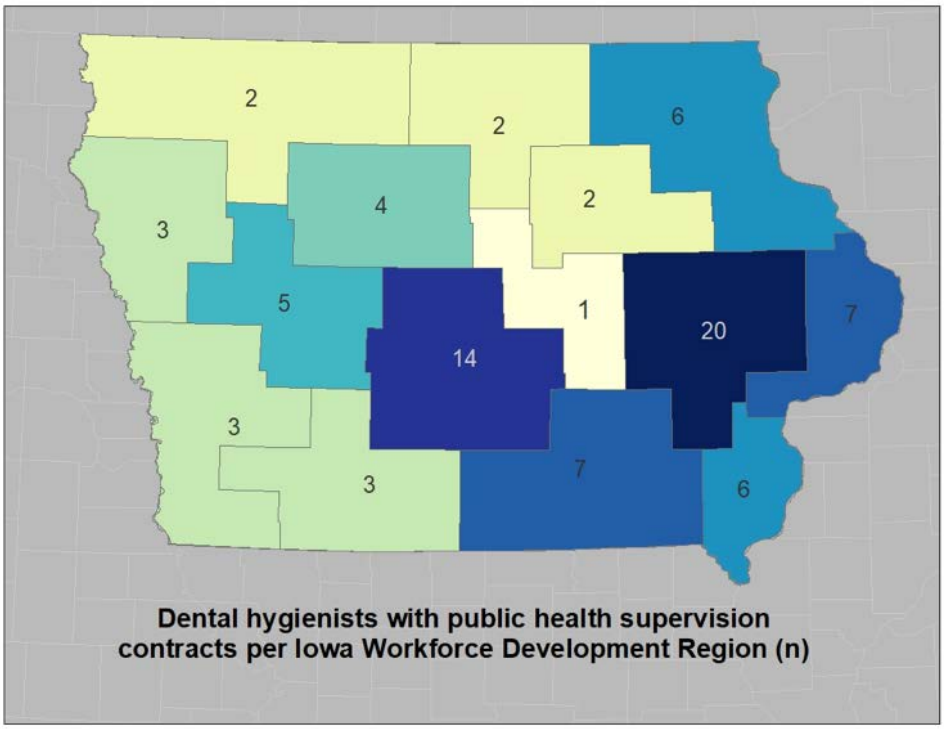


Table 11. Settings in which public health supervision dental hygienists provided services, 2017

	Hygienists providing services under public health supervision (n=95)	
Setting	**N**	**%***
Schools	57	60%
Federal Public Health Program1	42	44%
Head Start	36	38%
Local Public Health Program2	18	19%
Nursing Facility	13	14%
State Public Health Program3	13	14%
Child Care Center	10	11%
Free Clinic	6	6%
FQHC	2	2%
Nonprofit Community Health Center	1	1%
Public Health Dental Van	0	0%

*Note: Dental hygienists may be listed in more than one category, therefore proportions do not add up to 100%.
[1] Federal Public Health Programs primarily include Women, Infant, and Children (WIC) centers
[2] Local Public Health Programs include local health departments or other local service delivery locations (e.g., senior centers, YMCA, etc.)
[3] State Public Health Programs include I-Smile services

Figure 32. Number of dental hygienists with public health supervision per IWD region

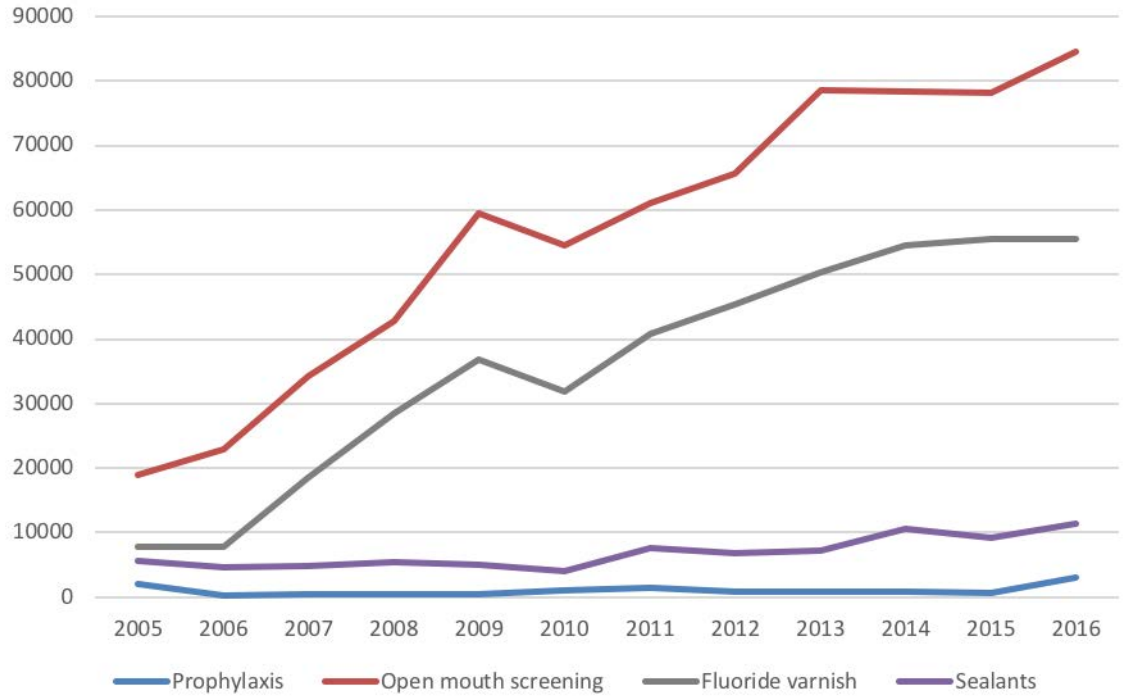


Dental hygienists working under PHS provided almost 200,000 total services under public health supervision in 2017 (**Table 12**). Looking historically, the two types of services with the most growth since 2005 are screenings and fluoride varnish (**Figure 33**).

Table 12. Services provided by public health supervision dental hygienists by setting, 2017

	Screening	Fluoride varnish	Sealant	Prophy
Schools	48,038	28,108	50,360	0
Federal Public Health Program	21,339	15,761	4	40
Head Start	7,681	7,539	0	0
Nursing Facility	2,561	1,017	0	1,051
Child Care Center	1,591	1,262	0	0
State Public Health Program	1,331	541	2,299	0
Local Public Health Program	910	620	161	23
Free Clinic	80	8	0	20
Nonprofit Community Health Center	80	80	0	0
FQHC	57	44	0	364
Public Health Dental Van	0	0	0	0
TOTAL	**83,668**	**54,980**	**52,824**	**1,498**

Figure 33. Total number of patients seen by dental hygienists under PHS, by service, 2005-2016



Dental hygienists working under PHS referred over 66,000 patients to a dentist in 2017 (**Table 13**). 12% (n=7701) of those referrals were for urgent needs. The total number of referrals provided has increased concomitantly with the increase in the size of the PHS dental hygiene workforce since 2005 (**Figure 34**). Additionally, the proportion of total referrals for urgent needs has fluctuated between 10-20% since 2004, but has been at the lowest level in 2016-2017 at 11-12% (**Figure 35**).

Table 13. Number of regular and urgent referrals provided by PHS dental hygienists, 2017

	Age 0-20		Age 21+		Total
	Regular	Urgent	Regular	Urgent	
Schools	34,294	5,485	103	0	39,882
Federal Public Health Program	14,553	662	707	217	16,139
Head Start	5,748	864	0	0	6,612
Child Care Center	1,487	102	0	0	1,589
Local Public Health Program	647	119	92	52	910
State Public Health Program	250	100	315	31	696
FQHC	36	0	241	0	277
Nursing Facility	0	0	175	28	203
Free Clinic	28	41	42	0	111
Nonprofit Community Health Center	78	0	2	0	80
Public Health Dental Van	0	0	0	0	0
TOTAL	**57,121**	**7,373**	**1,677**	**328**	**66,499**

Figure 34. Total number of referrals to dentists provided by PHS dental hygienists, 2005-2017

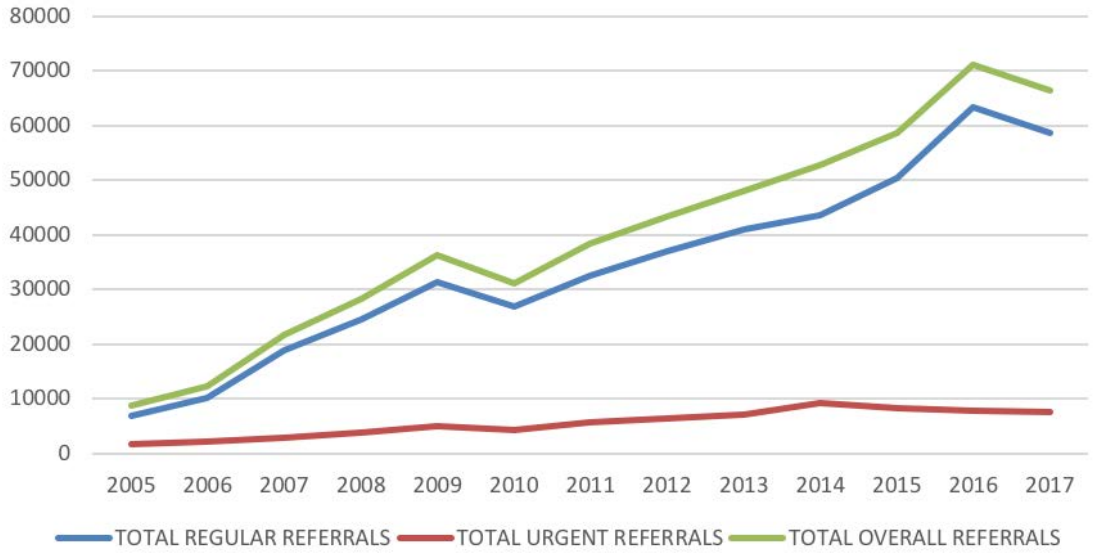
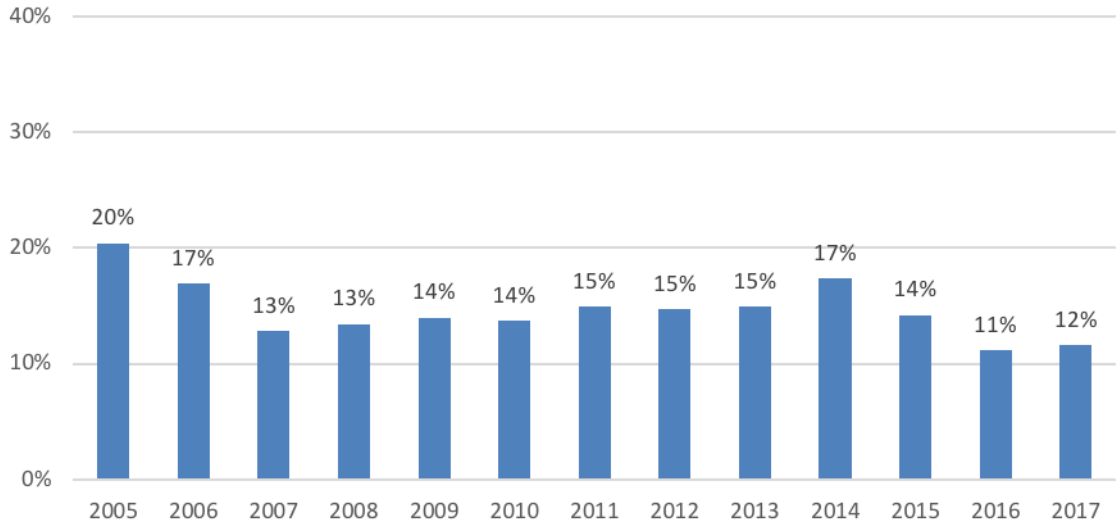


Figure 35. Urgent referrals as a percentage of total referrals, 2005-2017



Conclusions and Policy Implications

Statewide unemployment among licensed dental hygienists is low. However, there was considerable geographic variation, with the highest unemployment rate in the southeast region.

There is conflicting evidence regarding the degree of underemployment in the dental hygiene workforce. Underemployment indicators include the desire for additional work hours and time spent on activities below scope of practice. More than twice as many hygienists worked part-time compared to Iowa dentists (37% vs. 18%, respectively). Although finding full-time employment was the greatest barrier among recent job-seekers, only 9% of hygienists wanted to work additional hours. Conversely, 24% of all hygienists wanted to work fewer hours.

Regarding practicing to the full scope of practice, more than 1 in 10 private practice hygienists spent more than 10% of their work hours on activities other than seeing hygiene patients. This suggests potential untapped capacity to see additional hygiene patients, although it may be influenced by cancellations or failed appointments rather than unscheduled time.

Statewide indicators concur with national projections of an oversupply of hygienists. Recent job-seekers noted a high degree of difficulty finding desired employment. The multiple jobholding rate of 12% was considerably higher than for all U.S. workers (5%), although the rate among Iowa hygienists was comparatively lower than among hygienists in other states.

Geographic indicators of unemployment align with geographic areas of need. The southeast region had the highest unemployment rate, as well as some of the lowest dental utilization rates among Medicaid-enrolled children. The southeast could therefore be considered a priority area for developing employment opportunities for hygienists to target improving access to care.

Hygienists had a high level of interest in providing services in community-based settings. Community-based care delivery options include providing services under public health supervision or via teledentistry – both of which could be used to improve access for underserved populations.

Results related to underemployment and oversupply, taken together with the degree of interest in community-based practice, present an opportunity to increase innovation and employment opportunities involving providing hygiene services outside of the dental office. Teledentistry, increased use of public health supervision, an increased efforts toward care coordination are three avenues to improve access that could be readily implemented in the near term within the current scope of practice laws for hygienists in Iowa.

Teledentistry models are not currently in use in Iowa as the Iowa Dental Board is in the rulemaking process for teledentistry at the time of this report. However, if approved, Iowa could look to other states where teledentistry models have gained momentum (e.g., California, Colorado, New York). Populations that could benefit the most from this model include low-income children and older adults in long-term care; in both cases, numerous individuals can be accessed at a single location (e.g., schools, nursing homes).

Policy levers for **increasing the use of public health supervision** require a better understanding of motivations among employers, supervising dentists, and dental hygienists for utilizing this model. Increasing the allowable settings to include primary care medical offices would extend the reach of the dental home and increase access points into the dental care delivery system. This approach supports the move to integrate oral health into primary care.[46]

In addition to increasing the use of public health supervision, workforce efforts should also be directed toward **increasing care coordination** in order to ensure referral completion. In 2017, hygienists working under public health supervision referred over 65,000 patients to a dentist. However, for most of these referrals – with the important exception of the I-Smile™ program – it is unknown what proportion successfully received care in a dental office.

Acknowledgements

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46 Safety Net Medical Home Initiative. Oral Health: An Essential Componenent of Primary Care. Implementation Guide. October 2016.

Appendix 1: Project Advisory Committee

Name	Affiliation	Role/Representation
Bob Russell	Iowa Department of Public Health	State Public Health Dental Director, Bureau of Oral Health and Delivery Systems
Jill Stuecker	Iowa Dental Board	Executive Director
Emily Boge	Iowa Dental Hygienists' Association	President 2016-2017, Immediate Past President, 2017-2018
Shaunda Clark	Iowa Dental Hygiene Education Programs	Dental Hygiene Program Director, Kirkwood Community College
Ryan Murphy	Iowa Workforce Development	Communications & Labor Market Information Division
Mary Kelly		Independent consultant
Laurie Traetow	Iowa Dental Association	Executive Director
Shawn Hedlund	Iowa Dental Association	Dentist representative
Suzanne Heckenlaible	Delta Dental of Iowa Foundation	Representative from funding agency
Beth Jones	Delta Dental of Iowa Foundation	Representative from funding agency
Matt McGarvey	Telligen Community Initiative	Representative from funding agency

Survey of Iowa Dental Hygienists

Survey instructions: Answer each question by marking the box to the left of your answer.

You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

☐ Yes
☐ No ➔ If No, Go to #4

If you make a mistake, please **cross out** the incorrect answer and **circle** the correct answer. If there is a question that you are uncomfortable answering, feel free to skip to the next question. If you have questions, please call 1-800-710-8891.

When you have finished the survey, please return it in the enclosed envelope.

1. **Are you currently working in Iowa in the field of dental hygiene?**
   - [1] ☐ Yes ➔ If **Yes**, please go to **page 2**
   - [2] ☐ No ➔ If **No**, we are still interested in hearing from you! Please answer the questions in the box below and return the survey in the postage-paid envelope.

If You Are Not Currently Working in Dental Hygiene:

2. What is your current employment status?

- [1] ☐ Not currently employed and seeking employment in dental hygiene
- [2] ☐ Not currently employed and not seeking employment in dental hygiene
- [3] ☐ Employed in a field other than dental hygiene
- [4] ☐ Other (please describe): _____
- [5] ☐ Working outside of Iowa → **END OF SURVEY. Thank you for your participation! Please return it in the postage-**
- [6] ☐ Retired → **END OF SURVEY. Thank you for your participation! Please return it in the postage-**

3. What is your primary reason for not currently working in dental hygiene? *Please select only one.*

- [1] ☐ Child rearing
- [2] ☐ Health reasons related to dental hygiene
- [3] ☐ Entering the workforce for the first time/looking for a job
- [4] ☐ Other (please describe): _____

END OF SURVEY. Thank you for your participation!
Please return it in the enclosed postage-paid envelope.

If You Are Currently Working in Dental Hygiene:

4. In an average week, how many total jobs do you work in dental hygiene?
This includes only distinct jobs with separate employers. Do not count separate locations that are within the same employer (e.g., satellite clinics).

[1] ☐ One
[2] ☐ Two
[3] ☐ Three or more

The following questions ask about your *primary* job and your *secondary* job. Your *primary job* is the job where you spend the most time. If you only have one job in dental hygiene, please skip the secondary job questions.

PRIMARY JOB

5. What is the practice setting of your primary job?
[1] ☐ Private practice
[2] ☐ Corporate or DSO-affiliated practice
[3] ☐ Community health center
[4] ☐ Community-based public health setting
[5] ☐ DH or DA education program
[6] ☐ Dental school
[7] ☐ Other, please describe: _____

6. If your primary job is in a practice or clinic, what is the practice specialty? *If multiple, select all that apply.*
[1] ☐ General practice
[2] ☐ Periodontics
[3] ☐ Pediatric dentistry
[4] ☐ Other, please describe: _____
[5] ☐ Not applicable

7. How many years have you been employed at your primary job? *If less than one, write 0.*
☐☐ # years

8. On average, how many total hours do you work per week at your primary job?
☐☐ # hours

9. At your primary job, about what percent of your time each week is spent doing the following activities? *(Total should = 100%)*

Seeing dental hygiene patients	_____ %
Dental assisting	_____ %
Clerical/scheduling	_____ %
Other, please describe:_____	_____ %
_____	
_____	

10. Do you consider your primary job full-time or part-time?
[1] ☐ Full-time
[2] ☐ Part-time

SECONDARY JOB

If you only have one job in dental hygiene, skip to #16 (bottom of page).

11. What is the practice setting of your secondary job?

1☐ Private practice
2☐ Corporate or DSO-affiliated practice
3☐ Community health center
4☐ Community-based public health setting
5☐ DH or DA education program
6☐ Dental school
7☐ Other, please describe: _____

12. If your secondary job is in a practice or clinic, what is the practice specialty? *If multiple, select all that apply.*

1☐ General practice
2☐ Periodontics
3☐ Pediatric dentistry
4☐ Other, please describe: _____
5☐ Not applicable

13. How many years have you been employed at your secondary job? *If less than one, write 0.*

☐☐ # years

14. On average, how many total hours do you work per week at your secondary job?

☐☐ # hours

15. At your secondary job, about what percent of your time each week is spent doing the following activities? *(Total should = 100%)*

Seeing dental hygiene patients	_____ %
Dental assisting	_____ %
Clerical/scheduling	_____ %
Other, please describe:_____	_____ %

_____

16. Thinking about the total number of hours you work in dental hygiene, would you prefer to work fewer hours, the same number, or more hours per week doing dental hygiene-related activities?

1☐ Fewer hours
2☐ Same number of hours
3☐ More hours: How many more hours per week would you like to work?
  1☐ 1-4 hours
  2☐ 5-8 hours
  3☐ 9-12 hours
  4☐ More than 12 hours

About your primary job

17. Do you currently see dental hygiene patients in a dental clinic or practice setting?

[1]☐ Yes
[2]☐ No ➔ **If No, skip to #21**

18. At your primary job, on average, how many total dental hygiene patients do you see in an 8-hour work day?

		# patients/8-hour day

19. At your primary job, what is the typical wait time for a <u>new patient</u> to schedule a dental hygiene appointment with you?

[1]☐ 1 week or less
[2]☐ 2-3 weeks
[3]☐ 4-7 weeks
[4]☐ 8 weeks or more
[5]☐ Don't know

20. Which groups of patients does your primary job site currently accept? *Select all that apply.*

[1]☐ Medicaid-enrolled children
[2]☐ Medicaid/Dental Wellness Plan-enrolled adults with Delta Dental of Iowa
[3]☐ Medicaid/Dental Wellness Plan-enrolled adults with MCNA Dental

21. Please indicate how you are compensated at your primary dental hygiene job. *Select all that apply.*

[1]☐ Hourly
[2]☐ Salary
[3]☐ Commission/Production (based on number of patients seen)

22. At your primary job, which benefits does your employer offer you? Please select all benefits that are offered, even if you do not use them (e.g., if you have health insurance through your spouse).

- [1] ☐ Reduced/free dental care for self
- [2] ☐ Reduced/free dental care for family
- [3] ☐ Paid vacation
- [4] ☐ Paid holidays
- [5] ☐ Paid sick leave
- [6] ☐ Continuing education costs
- [7] ☐ Retirement plan contribution
- [8] ☐ Allowance for uniforms/scrubs
- [9] ☐ Medical insurance
- [10] ☐ Dental insurance
- [11] ☐ Disability insurance
- [12] ☐ Liability/malpractice insurance
- [13] ☐ Profit sharing plan
- [14] ☐ Professional dues
- [15] ☐ Paid maternity/paternity leave
- [16] ☐ Other, please describe: _____
- [17] ☐ **None**

23. Have you looked for work as a clinical dental hygienist in the last 5 years?

- [1] ☐ Yes
- [2] ☐ No ➔ **If No, skip to #26**

24. The last time you looked for work as a clinical dental hygienist, how easy or difficult was it for you to find a job you wanted?

- [1] ☐ Very easy
- [2] ☐ Somewhat easy
- [3] ☐ Somewhat difficult
- [4] ☐ Very difficult

25. What kinds of difficulty, if any, did you experience when you were looking for a job as a clinical dental hygienist? *Select all that apply.*

- [1] ☐ None
- [2] ☐ Wanted full-time employment but had difficulty finding it
- [3] ☐ Wanted part-time employment but had difficulty finding it
- [4] ☐ Unsuitable work schedule
- [5] ☐ Inadequate salary
- [6] ☐ Inadequate benefits
- [7] ☐ Excessive commuting distance
- [8] ☐ Other, please describe: _____

Professional Satisfaction & Career Plans

26. How satisfied are you with dental hygiene as a career?

[1]☐ Very satisfied
[2]☐ Somewhat satisfied
[3]☐ Somewhat dissatisfied
[4]☐ Very dissatisfied

27. How satisfied are you with the following aspects of your current primary job? Please circle the number that indicates your level of satisfaction.

	Very satisfied	*Somewhat satisfied*	*Somewhat dissatisfied*	*Very dissatisfied*
a. Number of work hours	**1**	**2**	**3**	**4**
b. Schedule of work hours	**1**	**2**	**3**	**4**
c. Salary	**1**	**2**	**3**	**4**
d. Benefits	**1**	**2**	**3**	**4**
e. Relationship with employer(s)	**1**	**2**	**3**	**4**
f. Relationship with colleagues & staff	**1**	**2**	**3**	**4**
g. Location	**1**	**2**	**3**	**4**
h. Opportunity to practice to full scope of practice	**1**	**2**	**3**	**4**
i. Quality of office supplies and equipment	**1**	**2**	**3**	**4**
j. Level of involvement in treatment-planning for dental hygiene services	**1**	**2**	**3**	**4**

28. What are your expected career plans in the next five years?

[1]☐ Remain in my current position
[2]☐ Seek a similar position in another setting
[3]☐ Seek a different type of dental hygiene position (e.g., education, administration, public health)
[4]☐ Leave dental hygiene temporarily but plan to return
[5]☐ Leave dental hygiene permanently
[6]☐ Don't know/Not sure
[7]☐ Other, please describe: _____

29. If you expect to leave the dental hygiene workforce in the next 5 years, either temporarily or permanently, what is the <u>primary</u> reason for your plans? *Please select only one.*

[1]☐ Child rearing
[2]☐ Health reasons related to dental hygiene
[3]☐ Seeking employment in another field
[4]☐ Retirement
[5]☐ Other, please describe: _____
[6]☐ Not applicable – not leaving the dental hygiene workforce

<u>Working with Underserved Populations</u>

30. To what extent do you feel that your dental hygiene education program prepared you to work with <u>elderly adults living in long-term care facilities</u>? Do you feel that you were…

[1]☐ Very prepared
[2]☐ Somewhat prepared
[3]☐ Somewhat underprepared
[4]☐ Very underprepared

31. Currently, how comfortable are you working with elderly adults living in long-term care facilities?

[1]☐ Very comfortable
[2]☐ Somewhat comfortable
[3]☐ Somewhat uncomfortable
[4]☐ Very uncomfortable

32. To what extent do you feel that your dental hygiene education prepared you to work with <u>individuals with special needs</u>? (e.g., developmentally disabled, mental illness, sensory loss, behavioral disorders, etc.) **Do you feel that you were…**

[1]☐ Very prepared
[2]☐ Somewhat prepared
[3]☐ Somewhat underprepared
[4]☐ Very underprepared

33. Currently, how comfortable are you working with individuals with special needs?

[1]☐ Very comfortable
[2]☐ Somewhat comfortable
[3]☐ Somewhat uncomfortable
[4]☐ Very uncomfortable

34. Do you currently provide clinical dental hygiene services to individuals with special needs?

[1]☐ Yes ➔ **If Yes, skip to #36**
[2]☐ No

35. How interested would you be in providing clinical dental hygiene services to individuals with special needs?

[1]☐ Very interested
[2]☐ Somewhat interested
[3]☐ A little interested
[4]☐ Not at all interested

36. How interested would you be in providing <u>clinical</u> dental hygiene services at each of the following settings? Please circle the number that indicates your level of interest.

	Very interested	*Somewhat interested*	*A little interested*	*Not at all interested*	*I already perform clinical activities in this setting*
a. High schools	**1**	**2**	**3**	**4**	**5**
b. Elementary schools	**1**	**2**	**3**	**4**	**5**
c. Preschools	**1**	**2**	**3**	**4**	**5**
d. Head Start programs	**1**	**2**	**3**	**4**	**5**
e. WIC clinics	**1**	**2**	**3**	**4**	**5**
f. Long-term care facilities	**1**	**2**	**3**	**4**	**5**
g. Public health mobile dental vans	**1**	**2**	**3**	**4**	**5**
h. Local health department	**1**	**2**	**3**	**4**	**5**
i. Medical doctor's office/clinic	**1**	**2**	**3**	**4**	**5**
j. Hospital	**1**	**2**	**3**	**4**	**5**
k. Personal care homes/Patient homes	**1**	**2**	**3**	**4**	**5**

Teledentistry

Teledentistry is a model of dental care delivery that combines telecommunications and dentistry via exchange of clinical information and images over remote distances. In states that permit teledentistry, dental hygienists can provide preventive services and collect clinical information in community-based settings using remote technologies such as intraoral cameras and digital radiographs. Clinical information is then transmitted back to the supervising dentist for treatment planning purposes.

37. Were you previously aware of the teledentistry model of care delivery?

[1]☐ Yes
[2]☐ No

38. How interested would you be in providing clinical dental hygiene services in community-based settings via teledentistry?

[1]☐ Very interested
[2]☐ Somewhat interested
[3]☐ A little interested
[4]☐ Not at all interested

About You

39. What is the overall highest level of education that you have completed?

[1]☐ Dental hygiene certificate
[2]☐ Associate degree
[3]☐ Bachelor's degree
[4]☐ Master's degree or higher

40. What is your race or origin? *Select all that apply.*

[1]☐ American Indian/Alaska Native
[2]☐ Asian
[3]☐ Black/African American
[4]☐ Hispanic/Latino
[5]☐ Middle Eastern/North African
[6]☐ Native Hawaiian or other Pacific Islander
[7]☐ White
[8]☐ Other race or origin, please describe: _____

41. Are you currently…

[1]☐ Married or in a marriage-like relationship
[2]☐ Divorced
[3]☐ Widowed
[4]☐ Separated
[5]☐ Never married and not in a marriage-like relationship

42. Do you have any children under age 18 living in your household?

[1]☐ Yes
[2]☐ No

43. We are interested in any other comments you may have about opportunities for the dental hygiene workforce to improve access to dental care in Iowa.

_____

_____

_____

_____

_____

_____

Thank you for completing this questionnaire.
Please return it in the enclosed postage-paid envelope.