

2021 Pennsylvania's Dentist and Dental Hygienist Workforce Survey Report

Bureau of Health Promotion
and Risk Reduction

Bureau of Epidemiology
Division of Community
Epidemiology



pennsylvania
DEPARTMENT OF HEALTH

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I. Executive Summary

The 2021 Pennsylvania's Dentist and Dental Hygienist Workforce report presents findings from the 2021 Dentist Survey and 2021 Dental Hygienist Survey. These surveys were designed to collect information on the characteristics and distribution of the dentist and dental hygienist workforces within the commonwealth.

The surveys were conducted in conjunction with the biennial license renewal for dentists and dental hygienists. It is important to note that dentists and dental hygienists receiving their first license were not included in the survey.

Dentists

In 2021, 9,174 dentists renewed their license and responded to the dentist survey. Data were available for analysis for 9,127 dentists. Of these 9,127 dentists, 8,456 (92.6%) were employed in dentistry. Among these 8,456 dentists, 7,869 (93.1%) provided direct patient care in Pennsylvania.

The average age of dentist respondents was 52 years. The majority of dentists (65.7%) were males and 31.3% were females. Dentist self-identified race was 69.9% White, 14.2% Asian, and 2.6% Black. Most dentists identified as non-Hispanic (97.8%). Among licensed dentists, 82.7% lived in Pennsylvania and 8.2% lived in neighboring states.

In 2021, 26.4% of respondents who provided direct patient care in Pennsylvania practiced in a dental specialty. The most common specialties were orthodontics (25.2%), oral surgery (23.4%), pediatric dentistry (19.2%), endodontics (12.1%), periodontics (11.2%), prosthodontics (6.2%), and anesthesiology (2.1%).

In 2021, 20.2% of dentists provided direct patient care in rural counties in Pennsylvania. The rate of dentists providing direct patient care per 100,000 population was 40.7 in rural counties and 56.5 in urban counties in Pennsylvania in 2021.

Medicaid patients and Medicare patients were accepted by 26.7% and 34.5% of dentist respondents who provided direct patient care in Pennsylvania. New patients were accepted by 95.1% of dentist respondents in 2021. Of those who accepted new patients, 32% accepted Medicaid patients and 40% accepted Medicare patients.

In addition, 33.3% of dentist respondents who provided direct patient care in Pennsylvania planned to practice for 16 or more years and 16.3% for less than three years. The primary reason for young dentists (21 - 34 years of age) who provided direct patient care to leave in less than six years was due to family concerns. Retirement was the primary reason for older dentists (45 years of age or older) to leave in less than six years.

Dental Hygienists

In 2021, 7,530 (86.3%) were employed in dental hygiene. Of these respondents, 7,169 (95.2%) provided direct patient care in Pennsylvania.

Among respondents who provided direct patient care in the commonwealth: 1) 74% completed an associate degree in dental hygiene as their highest level of education and 6.6% were enrolled in a higher education program in dental hygiene, 2) 24% held their primary job in a rural county and the rate was 46.6 per 100,000

population in rural counties and 51.2 per 100,000 population in urban counties, 3) 19% were employed in more than one position and 90.2% were employed by private dental practices owned by partnerships and solo dentists, 4) 95.5% were satisfied or very satisfied with their primary job and 93.1% were satisfied or very satisfied with dental hygiene as a career, 5) 51% had practiced for 16 years or longer and 35% anticipated practicing for 16 years or longer, and 6) 43% planned to leave dental hygiene in less than six years and the reasons for leaving included were: retirement (42.0%), physical demands (16.2%), stress/burnout (14.5%), change careers (10.2%), family reasons (8.0%), completing further training (4.7%), financial reasons (2/7%), and relocation (1/3%).

II. Background

Dentists diagnose and treat conditions and diseases that are generally related to the oral cavity (mouth) and provide preventive health advice to patients. Dentists perform a variety of activities, such as applying dental varnishes to prevent cavities in children, removing tooth decay, filling cavities, repairing fractured teeth and bones of the jaw, reading x-rays, performing corrective surgery on gums and supporting bones to treat gum diseases, extracting teeth, and providing replacements for missing teeth. In addition, dentists may administer anesthetics and write medication prescriptions in conjunction with these activities.

Individuals studying to become dentists complete at least eight years of education following high school. In addition to completing a bachelor's degree, individuals must take the Dental Admission Test (DAT) before applying for admission to dental school. Upon graduation from an accredited dental school, a dentist receives a degree of either a Doctor of Dental Surgery (D.D.S.) or a Doctor of Dental Medicine (D.M.D.). Dentists may practice in general dentistry or may choose to undergo further training by completing a residency program in one of the specialty areas of dentistry that include orthodontics, oral and maxillofacial surgery, pediatric dentistry, periodontics, prosthodontics, endodontics, oral pathology, oral and maxillofacial radiology, or public health dentistry. Dental residencies require one to four years to complete, depending on the area of specialty.

In all 50 states, the District of Columbia, and territories, dentists must be licensed to practice dentistry. To obtain a license, dentists must graduate from an accredited dental school and pass a licensing clinical examination accepted by the state where they wish to practice. In Pennsylvania, the State Board of Dentistry (board) within the Department of State is responsible for regulating dental practice through licensure, registration, and certification of members of the dental professions. The board also licenses dental hygienists upon completing an approved dental hygiene education program and passing written and clinical examinations. Individuals who have completed a board-approved training program and passed a certification examination may become certified by the State Board of Dentistry as an expanded function dental assistant. Expanded function dental assistants may perform higher level procedures under the direct supervision of a dentist. General dental hygienists provide preventive dental care such as cleaning teeth and educating patients on good oral health practices.

A licensed dental hygienist may become certified by the State Board of Dentistry as a public health dental hygiene practitioner upon completion of 3,600 hours of practice under the supervision of a dentist and after securing appropriate professional liability insurance. Public health dental hygiene practitioners may provide dental hygiene services in certain public health settings without the supervision of a dentist.

III. Methods And Technical Notes

Dentists and dental hygienists renew their Pennsylvania license to practice every two years through the Department of State, Bureau of Professional and Occupational Affairs (BPOA). In cooperation with the BPOA, the Department of Health's Primary Care Office surveys dentists and dental hygienists renewing their licenses. The surveys are designed to collect information on the characteristics and distribution of the dentist and dental hygienist workforces in the commonwealth.

In 2021, dentists and dental hygienists licensed under the State Board of Dentistry were surveyed during the license renewal period. The surveys were conducted online. Because these surveys are tied to the licensure renewal process, the data captured does not include first-time licensees or most individuals in training. Surveys without a valid license number and surveys with inactive or expired license numbers were removed. Data analysis was conducted on valid surveys returned by both dentists and dental hygienists.

The information presented in this report, unless noted, is based upon actual response counts. Participants may choose to answer or skip a question and thus the extent of non-response (missing) data varies. Non-response bias results when respondents differ in meaningful ways from non-respondents. It can affect how well the response data represents the population being surveyed. For these reasons, caution should be exercised when interpreting the response data and descriptive findings presented in this report. The survey questions used for both dentists and dental hygienists have changed over the different survey years, resulting in some differences in the data collected.

IV. Dentists Licensed in PA Responding to the 2021 Dentist Survey

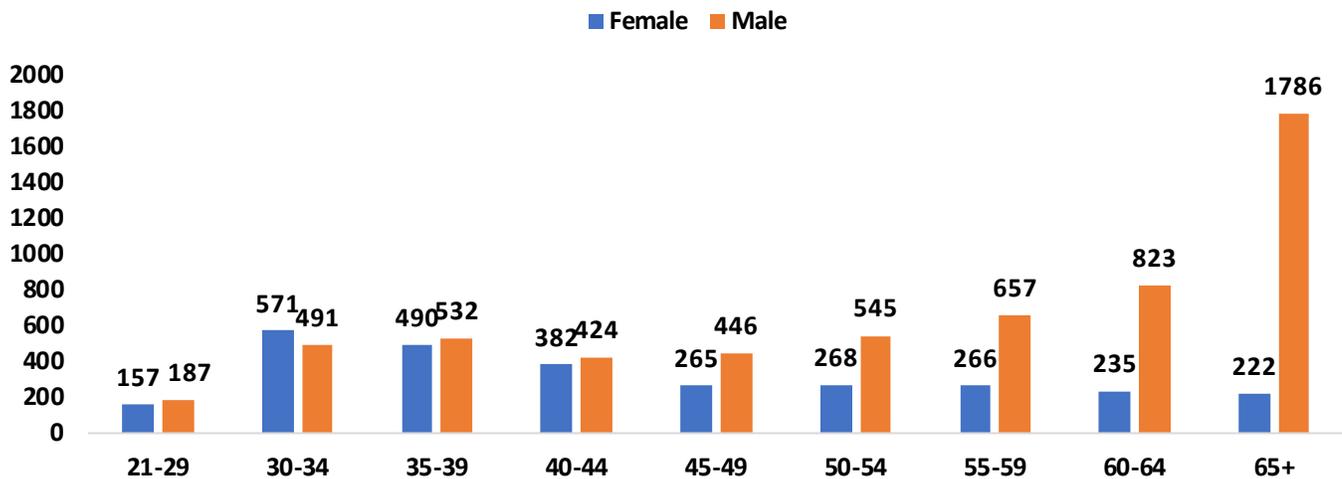
Age and Sex

In 2021, 9,174 dentists renewed their licenses and responded to the dentist survey. Data were available for analysis for 9,127 dentists. The average age of dentist respondents was 52 years. Table 1 lists the distribution of dentist respondents by age group and sex in 2021. The majority of dentists identified as male (67.3%) than female dentists (32.7%) and 40 (0.4%) identified as other gender. Among male respondents, there were more dentists in the older age groups than in the younger age groups. Approximately two thirds of male dentists who responded were aged 50 years or older, and close to one third of male dentists were aged 65 years or older. Among female respondents, there were more dentists in the younger age groups than in the older age groups. Only one third of female dentists were aged 50 years or older. By age group, the gender difference became larger among older age groups, as shown in Figure 1. Of note, the expected age upon dental graduation was around 25 years and the survey was not conducted until the renewal of the dental license, which might be the reason that there were fewer dentists in the age group of 21-29 years.

Table 1. Respondents Licensed in Pennsylvania by Age Group, 2021 Dentist Survey

Age Group	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
21-29	187	3.2%	157	5.5%	344	3.9%
30-34	491	8.3%	571	20.0%	1,062	12.1%
35-39	532	9.0%	490	17.2%	1,022	11.7%
40-44	424	7.2%	382	13.4%	806	9.2%
45-49	446	7.6%	265	9.3%	711	8.1%
50-54	545	9.3%	268	9.4%	813	9.3%
55-59	657	11.2%	266	9.3%	923	10.6%
60-64	823	14.0%	235	8.2%	1,058	12.1%
65+	1,786	30.3%	222	7.8%	2,008	23.0%
Total	5,891	100.0%	2,856	100.0%	8,747	100.0%

Figure 1. Dentist Respondents Licensed in Pennsylvania by Age Group, 2021 Dentist Survey



Race and Ethnicity

The distribution of respondents by race and ethnicity is listed in Table 2. Majority of dentists self-identified ethnicity were non-Hispanic Whites (69.9%), followed by non-Hispanic Asians (14.2%). Non-Hispanic Black and Hispanic dentists comprised 2.6% and 2.2% of total dentists, respectively, while American Indians/Alaska Natives and Native Hawaiians/other Pacific Islanders comprised 0.2% of total dentists, respectively.

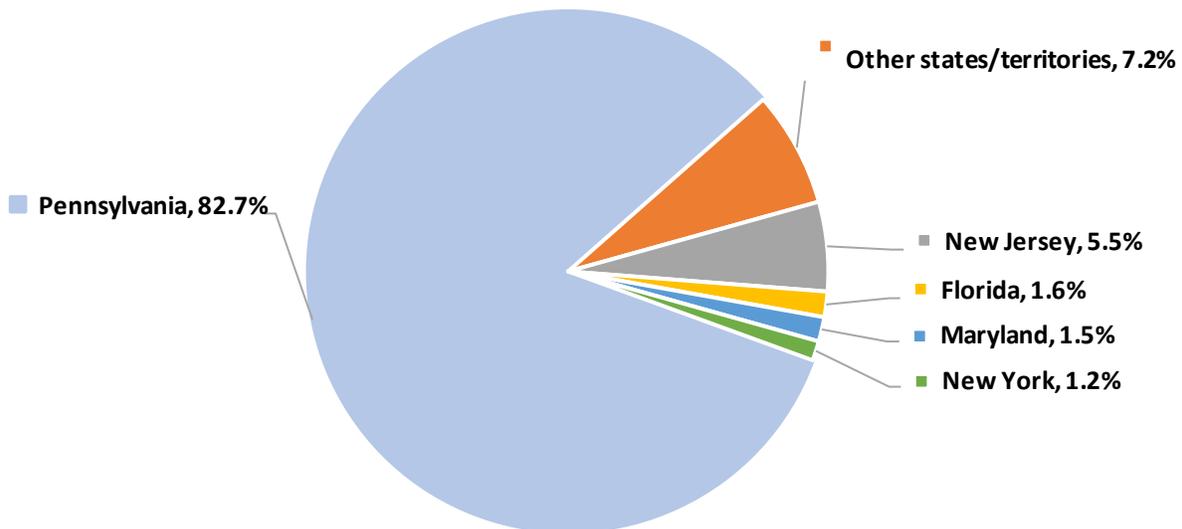
Table 2. Respondents Licensed in Pennsylvania by Race and Ethnicity, 2021 Dentist Survey

Race and Ethnicity	Number	Percent
Non-Hispanic White	6,376	69.9%
Non-Hispanic Asian	1,297	14.2%
Other	983	10.8%
Non-Hispanic Black	240	2.6%
Hispanic or Latino	198	2.2%
Native Hawaiian/Other Pacific Islander	19	0.2%
American Indian/Alaska Native	14	0.2%
Total	9,127	100.0%

Residence

Figure 2 presents the state of residence for dentist respondents. In 2021, 82.7% of dentist respondents resided in Pennsylvania, followed by 5.5% in New Jersey, 1.6% in Florida, 1.5% in Maryland, and 1.2% in New York. In addition, 7.2% resided in other states or territories, and 0.3% resided outside the US, meaning that they resided in those areas but maintained a dental license in Pennsylvania.

Figure 2. Respondents Licensed in Pennsylvania by State of Residence, 2021 Dentist Survey

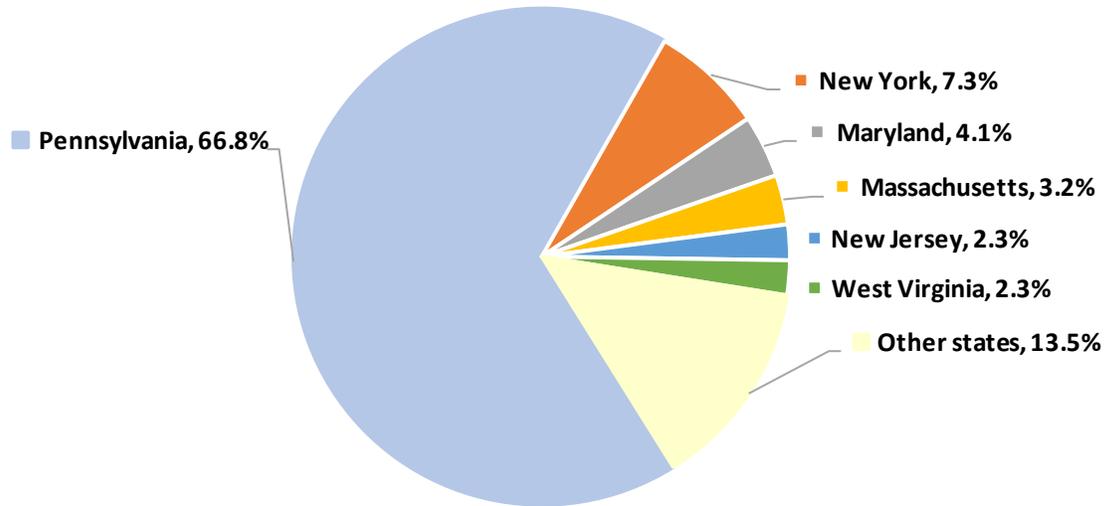


Dental Education

Figure 3 displays the states from which dentist respondents graduated from a dental school. In 2021, 66.8% of respondents reported that they graduated from a dental school in Pennsylvania, followed by 7.3% in New

York, 4.1% in Maryland, 3.2% in Massachusetts, 2.3% in New Jersey, and 2.3% in West Virginia. In addition, 13.5% graduated from a dental school in other states or territories, and 0.5% graduated from a dental school outside of the US.

Figure 3. Respondents Licensed in Pennsylvania by State of Dental School Graduation, 2021 Dentist Survey



Board Certification

Table 3 lists the board certification of respondents for dental specialty. In 2021, the most common board certification was Oral and Maxillofacial Surgery (4.5%), followed by Pediatric Dentistry (3.3%), and Orthodontics (3.0%). Less than 1% of respondents were certified in Endodontics (0.9%), Prosthodontics (0.7%), Oral and Maxillofacial Pathology (0.3%), and Oral and Maxillofacial Radiology (0.2%).

Employment

Table 4 lists the current employment status of 8,896 respondents who provided this information. In 2021, 92.6% of dentist respondents were employed in dentistry for direct or indirect patient care, 2.9% retired, and the remaining 4.5% were unemployed, employed but not in dentistry, or on leave.

Table 5 shows the current employment type of 8,428 respondents who provided this information. The majority of dentists were involved in direct patient care (93.4%). Approximately 4% worked in education/academia, 1.9% worked in administration, and 0.1% worked in research.

Table 3. Respondents Licensed in Pennsylvania by Board Certification, 2021 Dentist Survey

Certification	Number	Percent
American Board of Oral and Maxillofacial Surgery		
Yes	368	4.5%
No	7,761	95.5%
American Board of Pediatric Dentistry		
Yes	267	3.3%
No	7,817	96.7%
American Board of Orthodontics		
Yes	247	3.0%
No	7,898	97.0%
American Board of Dental Public Health		
Yes	115	1.4%
No	8,025	98.6%
American Board of Endodontics		
Yes	75	0.9%
No	8,072	99.1%
American Board of Prosthodontics		
Yes	57	0.7%
No	8,042	99.3%
American Board of Oral and Maxillofacial Pathology		
Yes	25	0.3%
No	8,043	99.7%
American Board of Oral and Maxillofacial Radiology		
Yes	17	0.2%
No	8,036	99.8%

Note: each question was asked individually.

Table 4. Respondents Licensed in Pennsylvania by Current Employment Status, 2021 Dentist Survey

Current Employment Status	Number	Percent
Employed in dentistry, direct or indirect	8,388	92.6%
Retired	260	2.9%
Student, leave of absence, or sabbatical	146	1.6%
Unemployed, seeking work in dentistry	122	1.4%
Employed not in dentistry	49	0.5%
Unemployed, not seeking work in dentistry	37	0.4%
Other	30	0.3%
Unemployed, disabled	23	0.3%
Total	8,896	100.0%

Table 5. Respondents Licensed in Pennsylvania by Current Employment Type, 2021 Dentist Survey

Current Employment Type	Number	Percent
Direct patient care	7,869	93.4%
Education	348	4.1%
Administrative	158	1.9%
Not employed as a dentist	23	0.3%
Other	20	0.2%
Research	10	0.1%
Total	8,428	100.0%

V. Dentists Who Provided Direct Patient Care in PA, 2021 Dentist Survey

This section provides information on dentists who responded to the 2021 Pennsylvania dentist survey and provided direct patient care in Pennsylvania. In 2021, out of 8,428 dentists who reported employment information, 7,869 (93.4%) reported that they provided direct patient care.

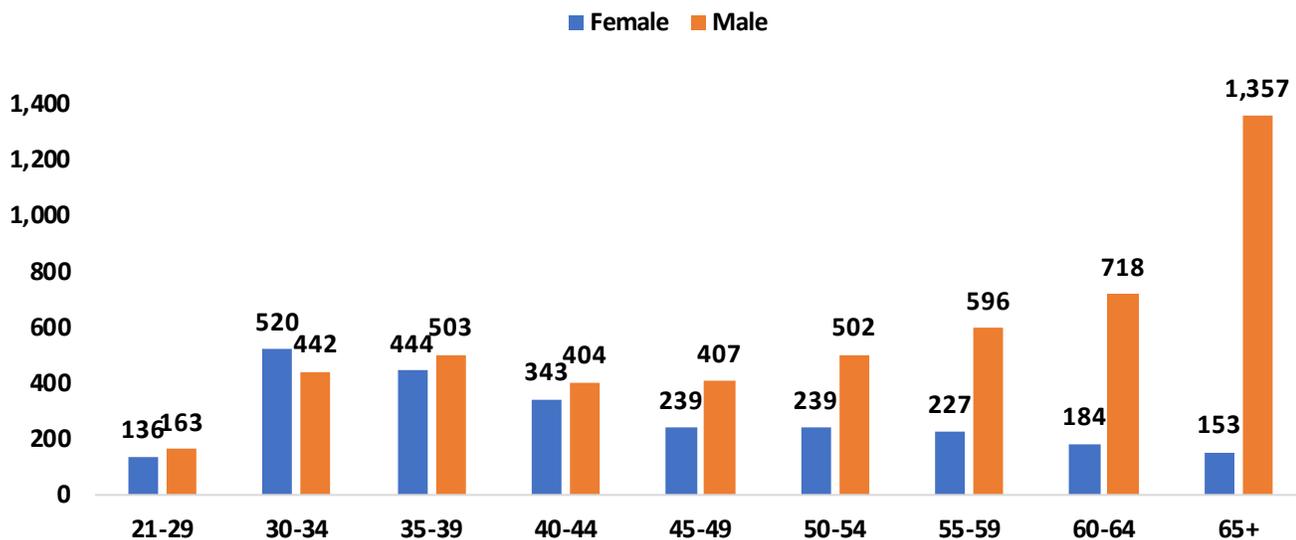
Age and Sex

In 2021, more male than female dentists provided direct patient care in Pennsylvania and the average age was 51 years. Table 6 lists the distribution of respondents who provided direct patient care by age group and sex. For male dentists, in general, the percentage increased with age, but for female dentists, the percentage first increased with age but then decreased, with a pattern different from male dentists. Overall, more than half (52.5%) of dentist respondents who provided direct patient care were aged 50 years or older. This gender difference became larger among older age groups (Figure 4).

Table 6. Respondents Who Provided Direct Patient Care in Pennsylvania by Age Group and Sex, 2021 Dentist Survey

Age Group	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
21-29	163	3.2%	136	5.5%	299	3.9%
30-34	442	8.7%	520	20.9%	962	12.7%
35-39	503	9.9%	444	17.9%	947	12.5%
40-44	404	7.9%	343	13.8%	747	9.9%
45-49	407	8.0%	239	9.6%	646	8.5%
50-54	502	9.9%	239	9.6%	741	9.8%
55-59	596	11.7%	227	9.1%	823	10.9%
60-64	718	14.1%	184	7.4%	902	11.9%
65+	1,357	26.6%	153	6.2%	1,510	19.9%
Total	5,092	100.0%	2,485	100.0%	7,577	100.0%

Figure 4. Respondents Who Provided Direct Patient Care in Pennsylvania by Age and Sex, 2021 Dentist Survey



Race and Ethnicity

The distribution of race and ethnicity for dentist respondents who provided direct patient care in Pennsylvania in 2021 is listed in Table 7.

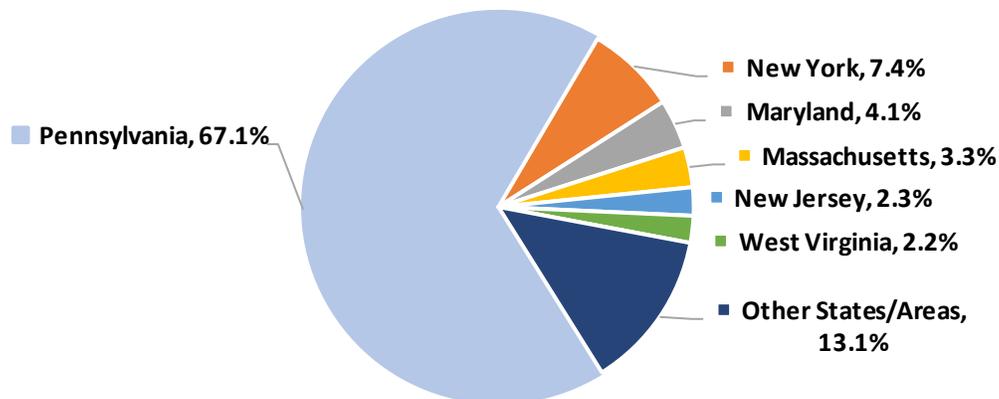
Table 7. Respondents Who Provided Direct Patient Care in Pennsylvania by Race, 2021 Dentist Survey

Race and Ethnicity	Number	Percent
Non-Hispanic White	5,459	69.4%
Non-Hispanic Asian	1,166	14.8%
Other	850	10.8%
Non-Hispanic Black	196	2.5%
Hispanic or Latino	170	2.2%
Native Hawaiian/Other Pacific Islander	16	0.2%
American Indian/Alaska Native	12	0.2%
Total	7,869	100.0%

Dental Education

Figure 5 displays the states from which respondents received their dental education. In 2021, 67.1% of respondents who provided direct patient care in Pennsylvania graduated from a dental school in Pennsylvania. Approximately a quarter (23.5%) of dentists graduated from a neighboring state or a state close to Pennsylvania, including New York (7.4%), Maryland (4.1%), Massachusetts (3.3%), New Jersey (2.3%), and West Virginia (2.2%). In addition, 13.1% of dentists graduated from other states or territories and 0.5% of dentists who provided direct patient care in Pennsylvania graduated from countries outside of the US.

Figure 5. Respondents Who Provided Direct Patient Care in Pennsylvania by State of Dental School Graduation, 2021 Dentist Survey



Board Certification

Table 8 displays the certification status of respondents who provided direct patient care in Pennsylvania in 2021. In 2021, the most common board certification was Oral and Maxillofacial Surgery (4.5%), followed by Pediatric Dentistry (3.3%), and Orthodontics (3.0%).

Specialty

Figure 6 presents the dental practice specialties of respondents who provided direct patient care. Among 7,821 dentists who responded to the specialty question, 5,757 (73.6%) reported that they practiced as a general dentist and 2,064 (26.4%) reported that they practiced as a specialist. Common specialties were orthodontics (25.2%), oral surgery (23.4%), pediatric dentistry (19.2%), endodontics (12.1%), periodontics (11.2%), prosthodontics (6.2%), anesthesiology (2.1%), and other specialties (0.7%).

Table 9 lists the number of hours that dentist respondents spent on direct patient care in Pennsylvania each week in the past 12 months in 2021. Over half of the dentists (57.8%) worked full-time or close to full-time in direct patient care. Approximately 6% of dentists worked over 40 hours per week in direct patient care. Compared to females, male dentists worked more hours per week, especially over 40 hours per week. Among general dentists, most worked 31 to 40 hours per week (55.2%), 22.1% worked 21 to 30 hours per week, 11.6% worked 11 to 20 hours per week, 6.3% worked 10 or less than 10 hours per week, and 4.8% worked over 40 hours per week.

Table 8. Respondents Who Provided Direct Patient Care in Pennsylvania by Board Certification, 2021 Dentist Survey

Certification	Number	Percent
American Board of Oral and Maxillofacial Surgery		
Yes	321	4.5%
No	6,760	95.5%
American Board of Pediatric Dentistry		
Yes	232	3.3%
No	6,811	96.7%
American Board of Orthodontics		
Yes	209	3.0%
No	6,887	97.0%
American Board of Dental Public Health		
Yes	104	1.5%
No	6,995	98.5%
American Board of Endodontics		
Yes	60	0.8%
No	7,043	99.2%
American Board of Prosthodontics		
Yes	41	0.6%
No	7,010	99.4%
American Board of Oral and Maxillofacial Pathology		
Yes	14	0.2%
No	7,028	99.8%
American Board of Oral and Maxillofacial Radiology		
Yes	10	0.1%
No	7,014	99.9%

Note: each question was asked individually.

Figure 6. Dental Specialties of Dentist Respondents Who Provided Direct Patient Care in Pennsylvania, 2021 Dentist Survey

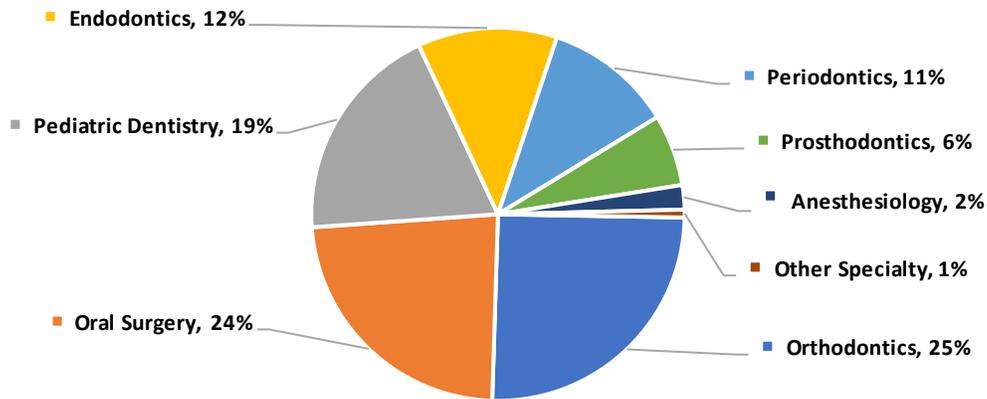


Table 9. Respondents Employed in Dentistry by the Number of Hours Spent Providing Direct Patient Care in Pennsylvania Each Week, 2021 Dentist Survey

Hours	Male	Female	Total
1 to 10	289 (6.4%)	141 (6.6%)	430 (6.4%)
11 to 20	600 (13.2%)	325 (15.2%)	925 (13.8%)
21 to 30	964 (21.2%)	503 (23.6%)	1,467 (22.0%)
31 to 40	2,391 (52.5%)	1,104 (51.8%)	3,495 (52.3%)
More than 40	306 (6.7%)	60 (2.8%)	366 (5.5%)
Total	4,550 (100.0%)	2,133 (100.0%)	6,683 (100.0%)

Figure 7 displays the number of hours per week that dental specialists spent on direct patient care in the past 12 months in 2021. Approximately three quarters of dentists in the specialties of pediatric dentistry, endodontics, and prosthodontics worked more than 20 hours per week in the past 12 months. Compared to other specialties, fewer dentists in the specialties of periodontics and orthodontics worked more than 20 hours per week in the past 12 months.

Figure 7. Hours of Direct Patient Care and Specialty among Dentist Respondents in Pennsylvania, 2021 Dentist Survey

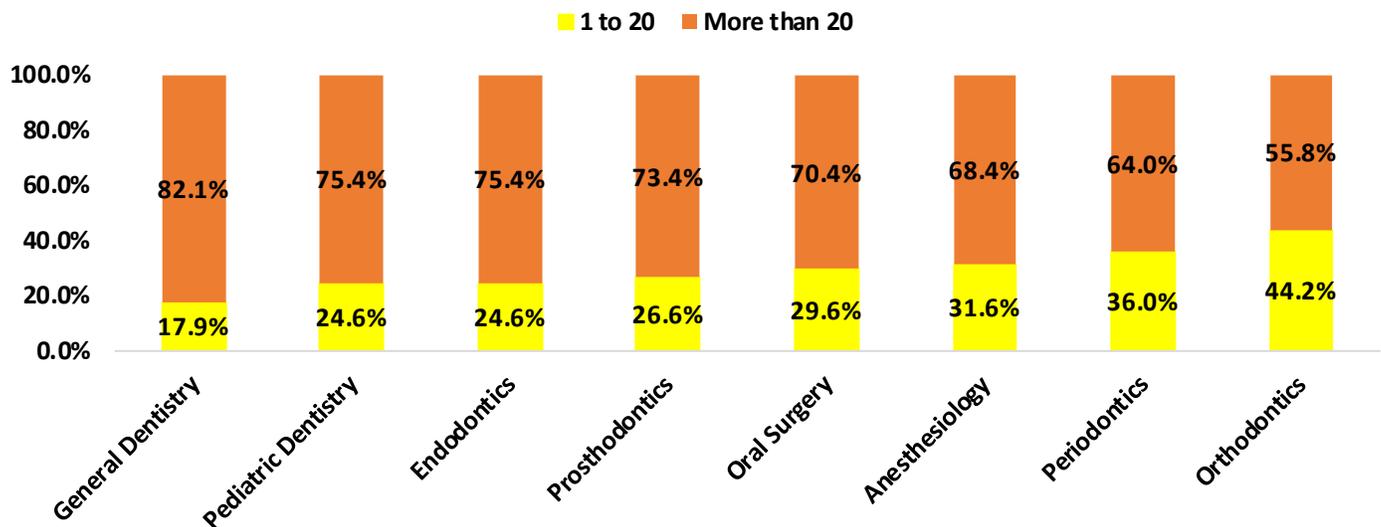
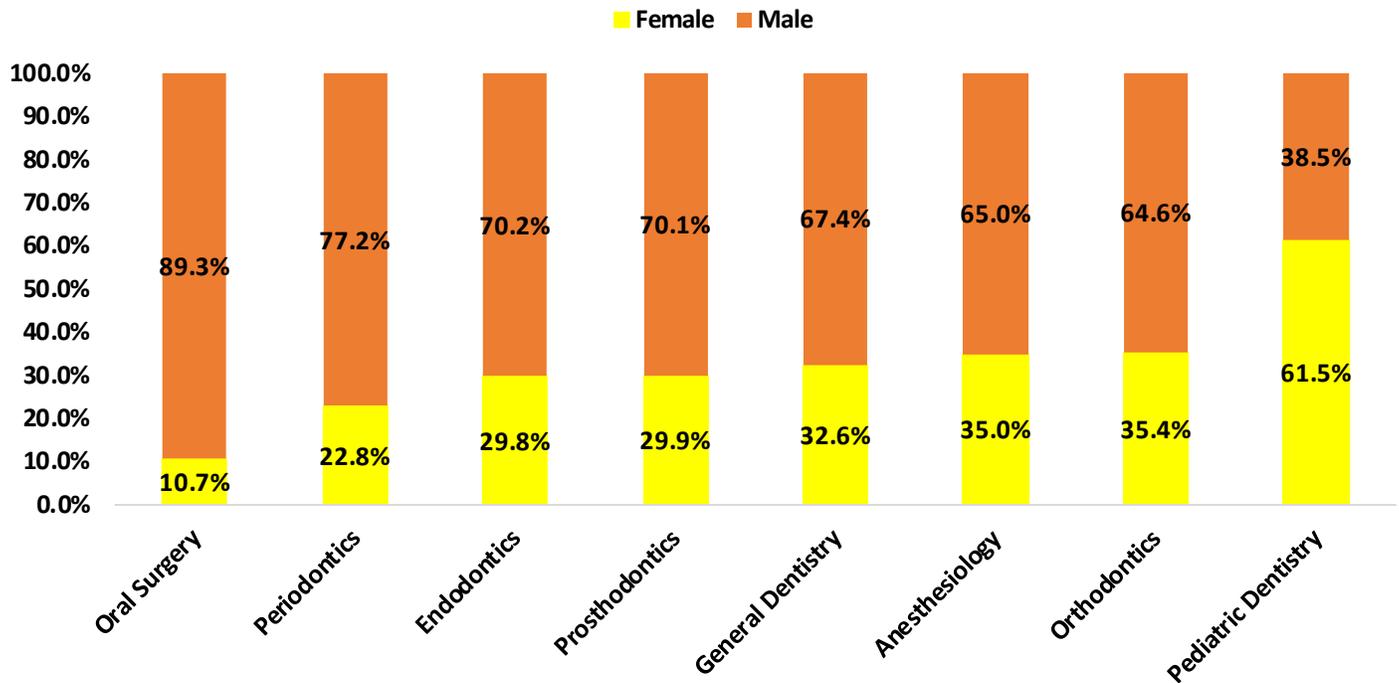


Figure 8 displays dental specialties by sex among of dentist respondents who provided direct patient care in Pennsylvania in 2021. In general, there were more male than female dentists in most specialties except for pediatric dentistry.

Figure 8. Dental Specialties by Sex among of Dentist Respondents Who Provided Direct Patient Care in Pennsylvania, 2021 Dentist Survey



Geography

In 2021, among dentist respondents who provided direct patient care in Pennsylvania, 6,805 reported practicing in 67 counties. Across the commonwealth, the rate of respondents who provided direct patient care in Pennsylvania was 52.4 per 100,000 population in 2021. Based upon the Center for Rural Pennsylvania’s definition of rural and urban counties, Pennsylvania has 19 urban counties and 48 rural counties. In 2021, 79.8% of dentists who provided direct patient care in Pennsylvania practiced in urban counties and 20.2% practiced in rural counties. Based on the survey response data, the rate of dentists providing direct patient care was 56.5 per 100,000 population in urban counties and 40.7 per 100,000 population in rural counties. Map 1 presents the state-wide variation in these rates by county.

Table 11. Respondents Who Provided Direct Patient Care in Pennsylvania by Practice Ownership, 2021 Dentist Survey

Practice Ownership	Number	Percent
Private Practice (Full/Part Owner)	3,920	52.5%
Employee of Another Dentist/Facility	3,152	42.2%
Other	397	5.3%
Total	7,469	100.0%

Figure 9 displays the distribution of practice ownership by sex among dentist respondents who provided direct patient care in Pennsylvania in 2021. Among 7,268 dentists with ownership and gender information, 3,809 fully or partially owned a private dental practice, 3,074 were employees of a dentist or a facility, and 385 worked for other institutions or organizations. In males, the percentage of dentists who fully- or partially-owned a private practice was higher than the percentage of those working for another dentist, facility or other settings. In females, the percentage of dentists who fully- or partially-owned a private practice was lowest compared to working for another dentist, facility or other settings.

Figure 9. Respondents Who Provided Direct Patient Care in Pennsylvania by Ownership and Sex, 2021 Dentist Survey

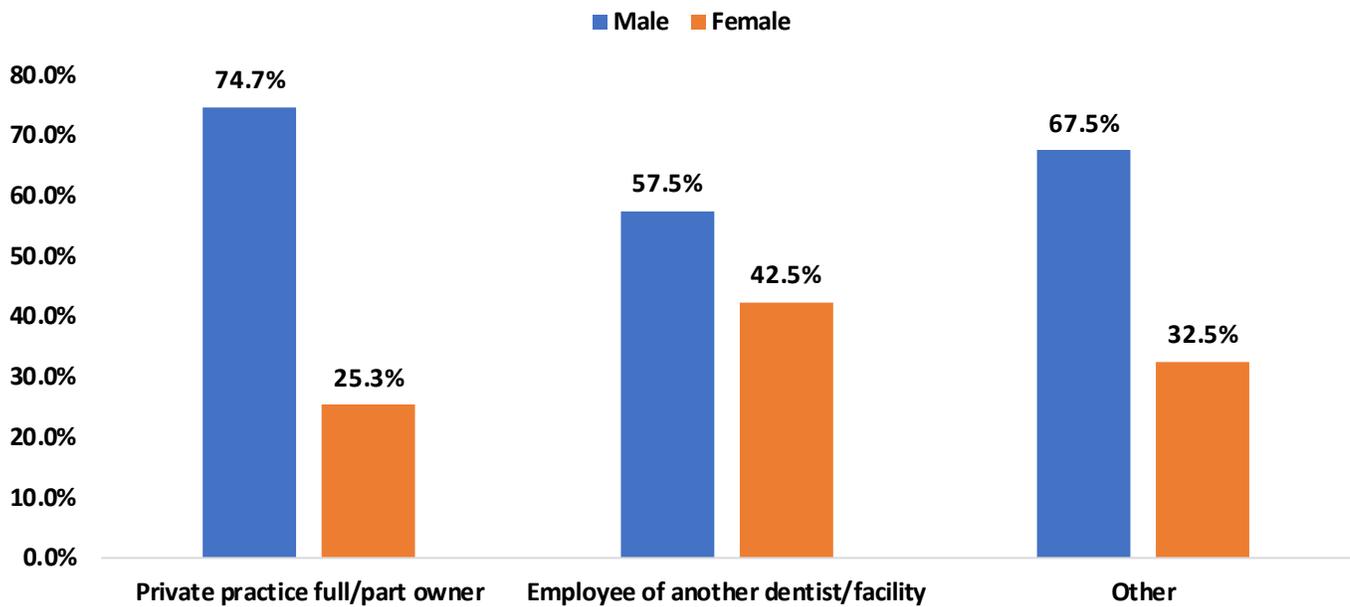
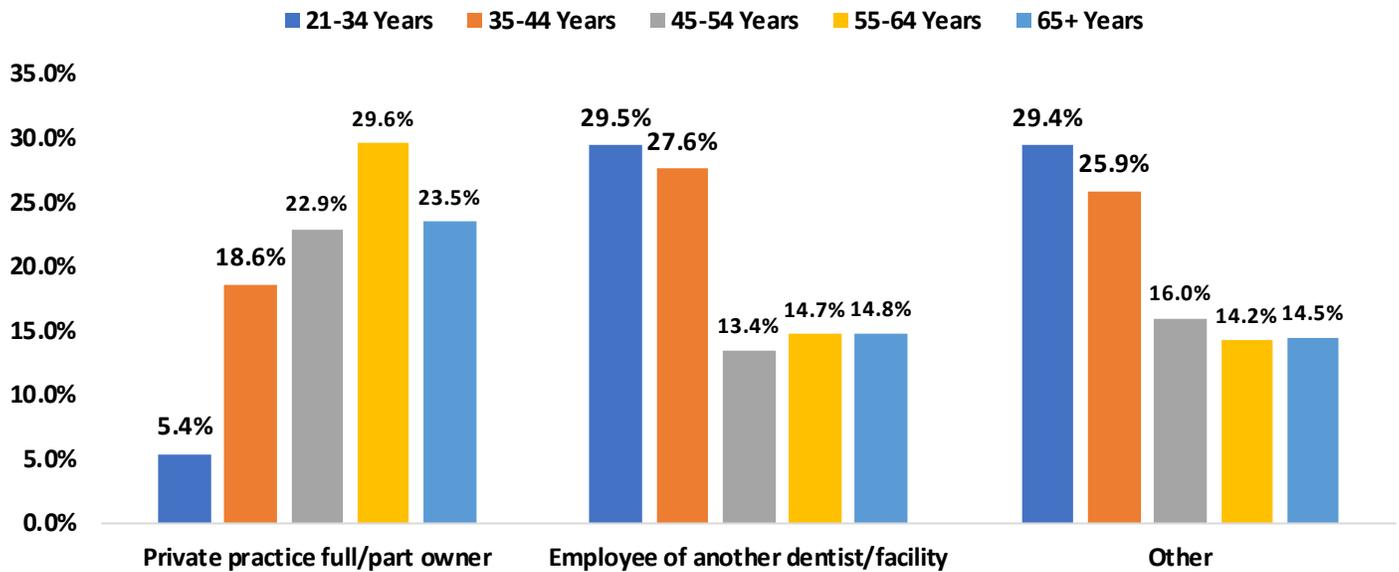


Figure 10 displays the ownership of employment by age group among dentist respondents who provided direct patient care in Pennsylvania in 2021. More dentists of older ages (45-54, 55-64, and 65+ years) owned a private dental practice than dentists at younger ages (21-34 and 35-44 years). Dentists at younger ages were more likely to be an employee of a dentist or a facility and were also more likely to work for other institutions or organizations.

Figure 10. Respondents Who Provided Direct Patient Care in Pennsylvania by Private Practice Ownership and Age Group, 2021 Dentist Survey



Accepted Dental Coverage

Figure 11 presents a comparison of dental health insurance accepted among respondents providing direct patient care in Pennsylvania. In 2021, nearly 90% of dentists accepted private insurance. Slightly over one quarter and slightly over one third of dentists accepted Medicaid and Medicare, respectively. Slightly less than half of the dentists accepted the Children’s Health Insurance Program (CHIP).

Figure 11. Dental Health Insurance Accepted among Dentist Respondents Who Provided Direct Patient Care in Pennsylvania, 2021 Dentist Survey

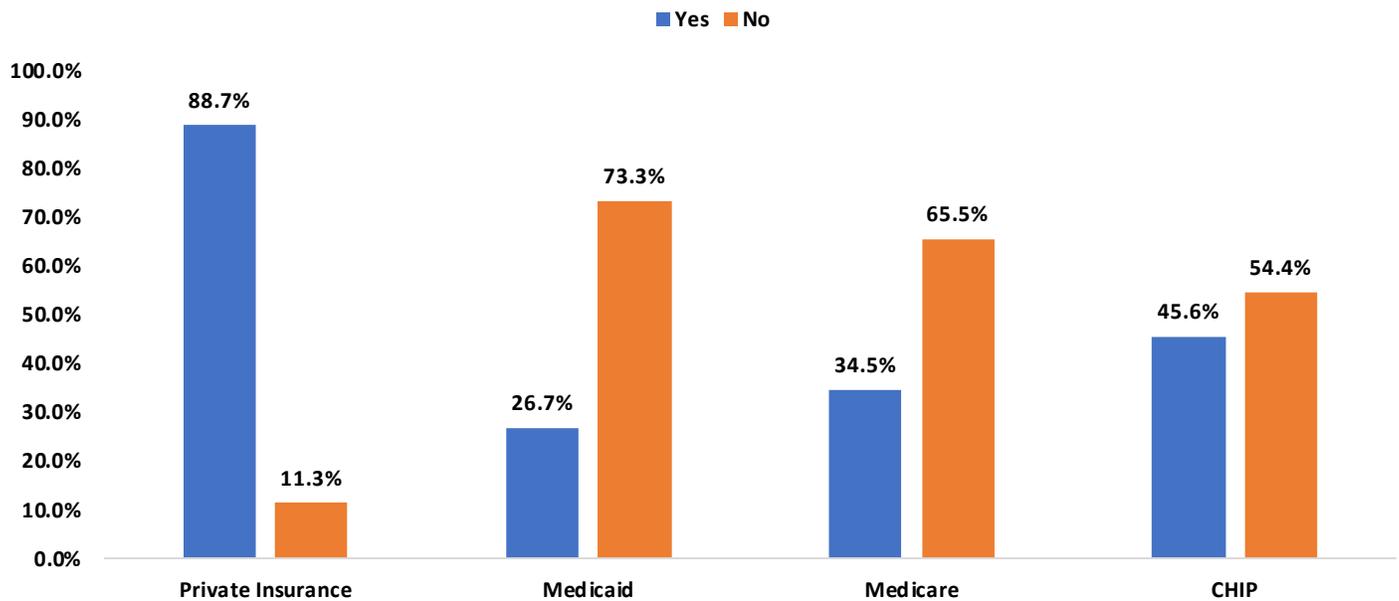


Table 12 lists the dental health insurance accepted among respondents providing direct patient care by specialty of practice in Pennsylvania. For private insurance, most general dentists (89.3%) and specialists had high acceptance rates, such as oral surgery (95.5%), pediatric dentistry (94.3%), orthodontics (93.5%), and

endodontics (90.3%). Periodontics (69.0%) and prosthodontics (43.0%) had relatively low acceptance rates for private insurance compared to other specialties.

Most anesthesiologists (77.5%) and pediatric dentists (63.0%) accepted Medicaid. Acceptance was low among oral surgeons (49.8%), orthodontists (33.1%), general dentists (23.5%), and dentists in prosthodontics (6.3%), endodontics (6.1%), and periodontics (3.1%). For Medicare, the acceptance was as follows: 64.0% in oral surgery, 41.0% in anesthesiology, 37.4% in general dentistry, 25.4% in pediatric dentistry, 11.1% in endodontics, 10.9% in prosthodontics, 9.2% in orthodontics, and 8.5% in periodontics.

For the Children's Health Insurance Program (CHIP), pediatric dentistry (72.7%), oral surgery (66.2%), and anesthesiology (57.5%) had the highest acceptance rates while periodontics (6.7%) and prosthodontics (7.1%) had the lowest acceptance rates. CHIP was accepted by 45.2% of general dentists.

New Patients

In 2021, 95.1% of dentists who provided direct patient care in Pennsylvania accepted new patients. Among general dentists, 94.1% accepted new patients. Figure 12 displays the status of accepting new patients by dental insurance coverage among dentist respondents who provided direct patient care in Pennsylvania. In 2021, almost all dentist respondents accepted new patients if they were uninsured (98.1%) or covered by private insurance (96.1%). Over half (54.7%) of respondents accepted new patients who were covered by Children's Health Insurance Program (CHIP). Most dentists did not accept new patients if they were covered by Medicaid or Medicare. Among all general dentists, 24.1% accepted new patients covered by Medicaid, 34.7% accepted new patients covered by Medicare, 45.3% accepted new patients covered by CHIP, and 91.8% accepted new patients covered by private health insurance.

Children

Figure 13 displays the distribution of age groups for children seen by Pennsylvania dentists. In 2021, approximately 90% of dentist respondents who provided direct patient care in Pennsylvania provided care to children. A little over a quarter of the dentists see children aged five years or older (28.2%), 6.1% will see them at four years (6.1%), 23.7% will see them at three years, 16.2% will see them at two years (16.2%), 12.3% will see them at one-year-old, and 13.6% will see them at less than one-year-old.

Translation

In 2021, 22.0% (1,702 out of 7,739) of respondents who provided direct patient care in Pennsylvania reported using translation services. Figure 14 displays translation services used by respondents who provided direct patient care by specialty in Pennsylvania. Dentists in the specialties of pediatric dentistry (55.5%) and oral surgery (51.5%) used more translation services and dentists in the specialties of endodontics (15.2%) and periodontics (15.2%) used less translation services. Approximately one-fifth of general dentists used translation services.

Table 12. Respondents Who Provided Direct Patient Care in Pennsylvania by Acceptance of Dental Coverage and Specialty, 2021 Dentist Survey

Specialty	Private Insurance		Medicaid		Medicare		CHIP	
	Yes	No	Yes	No	Yes	No	Yes	No
Anesthesiology	29 (72.5%)	11 (27.5%)	31 (77.5%)	9 (22.5%)	16 (41.0%)	23 (59%)	23 (57.5%)	17 (42.5%)
Endodontics	223 (90.3%)	24 (9.7%)	15 (6.1%)	231 (93.9%)	27 (11.1%)	217 (88.9%)	40 (16.3%)	206 (83.7%)
General Dentistry	5,051 (89.3%)	608 (10.7%)	1,322 (23.5%)	4,316 (76.6%)	2,093 (37.4%)	3,509 (62.6%)	2,542 (45.2%)	3,081 (54.8%)
Oral Surgery	450 (95.5%)	21 (4.4%)	233 (49.8%)	235 (50.2%)	300 (64.0%)	169 (35.9%)	310 (66.2%)	158 (33.8%)
Orthodontics	477 (93.5%)	33 (6.5%)	168 (33.1%)	340 (66.9%)	46 (9.1%)	457 (90.9%)	258 (50.6%)	251 (49.3%)
Other Specialty	8 (61.5%)	5 (38.5%)	9 (69.2%)	4 (30.8%)	8 (61.5%)	5 (38.5%)	6 (46.2%)	7 (53.8%)
Pediatric Dentistry	367 (94.3%)	22 (5.6%)	243 (62.9%)	143 (37.1%)	97 (25.3%)	285 (74.6%)	280 (72.7%)	105 (27.3%)
Periodontics	156 (69.0%)	70 (31.0%)	7 (3.1%)	218 (96.9%)	19 (8.4%)	205 (91.5%)	15 (6.7%)	208 (93.3%)
Prosthodontics	55 (43.0%)	73 (57.0%)	8 (6.2%)	120 (93.8%)	14 (10.9%)	114 (89.1%)	9 (7.1%)	118 (92.9%)
Total	1771 (87.2%)	261 (12.8%)	714 (35.5%)	1300 (64.5%)	527 (26.3%)	1475 (73.7%)	941 (46.8%)	1070 (53.2%)

Figure 12. Respondents Who Provided Direct Patient Care in Pennsylvania and Accepted New Patients by Dental Coverage, 2021 Dentist Survey

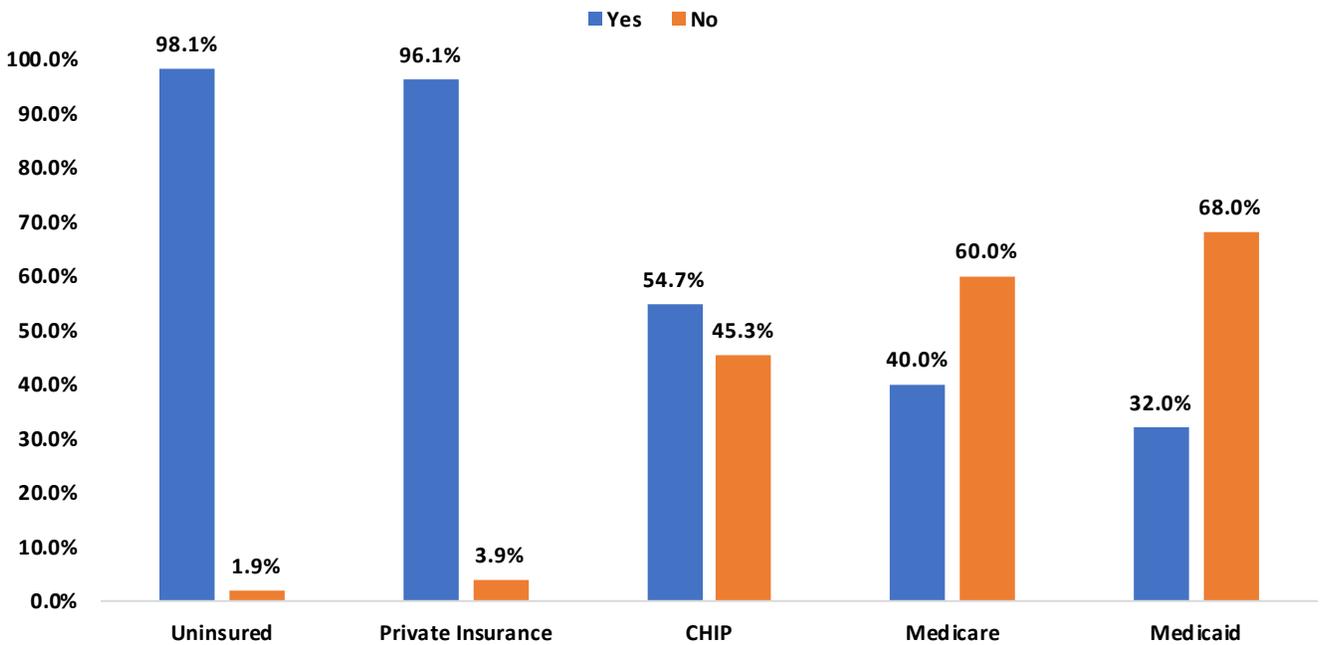


Figure 13. Respondents Who Provided Direct Patient Care in Pennsylvania by Age of Children Seen, 2021 Dentist Survey

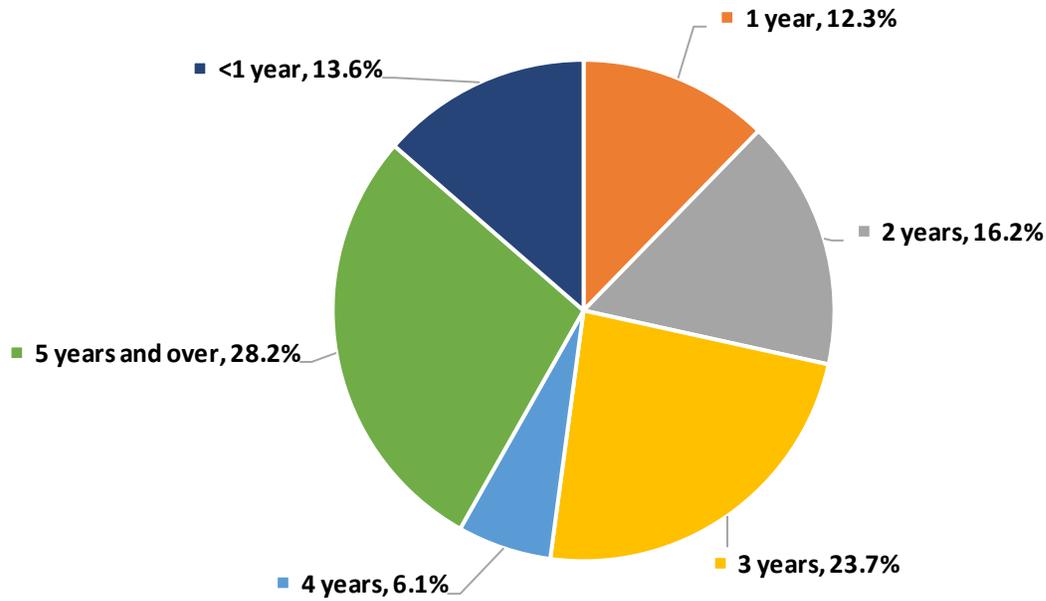
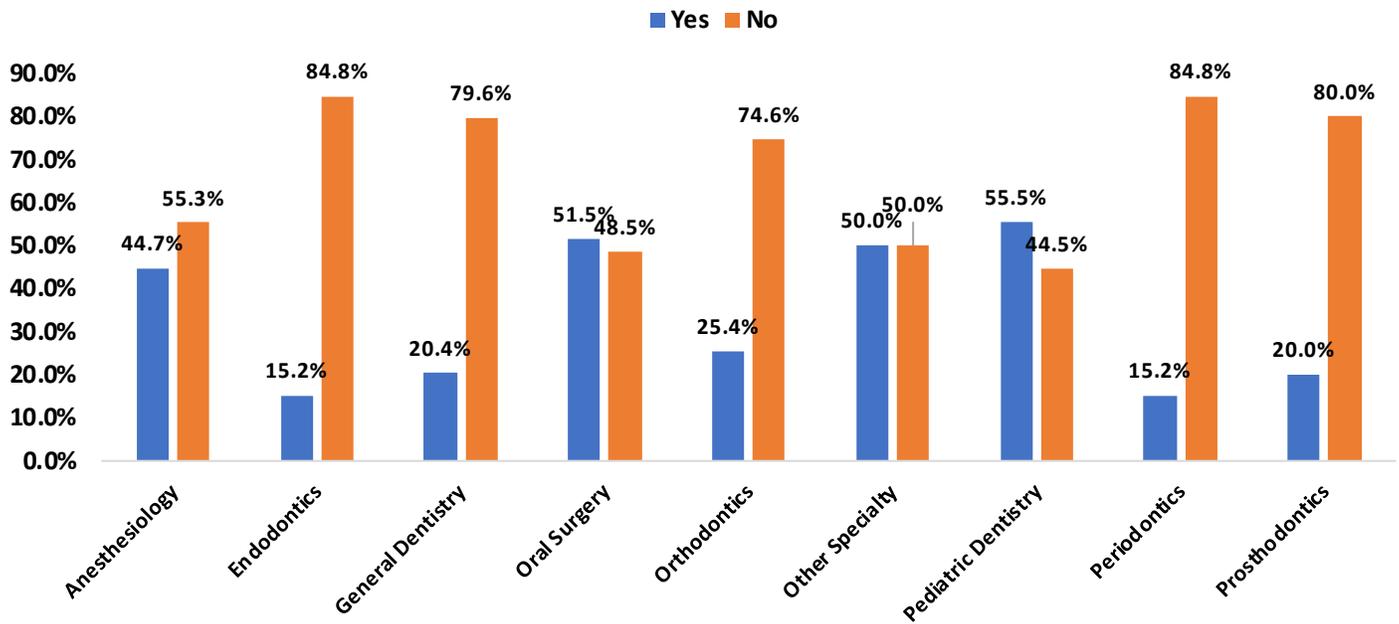


Figure 14. Translation Services Used in the Last Year by Respondents Who Provided Direct Patient Care by Specialty in Pennsylvania, 2021 Dentist Survey



Electronic Health Records

In 2021, 58.8% (4,549 out of 7,735) of respondents who provided direct patient care in Pennsylvania reported using an electronic health records (EHR) system to collect, store and retrieve patients’ clinical information. Among 5,186 dental generalists, 3,732 (72.0%) used an HER system. Figure 15 displays EHR system usage by respondents who provided direct patient care by specialty in Pennsylvania. Figure 16 displays the ability to electronically exchange patients’ clinical information by respondents who provided direct patient care by specialty.

Figure 15. Electronic Health Record Usage by Respondents Who Provided Direct Patient Care by Specialty in Pennsylvania, 2021 Dentist Survey

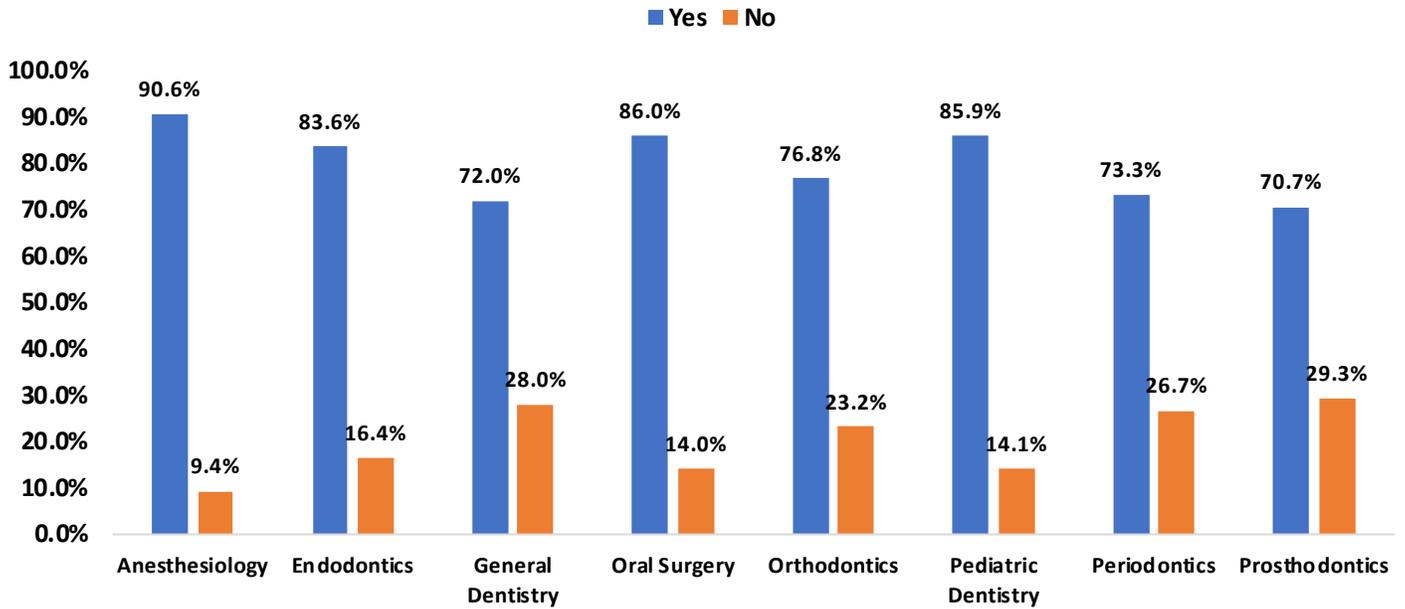
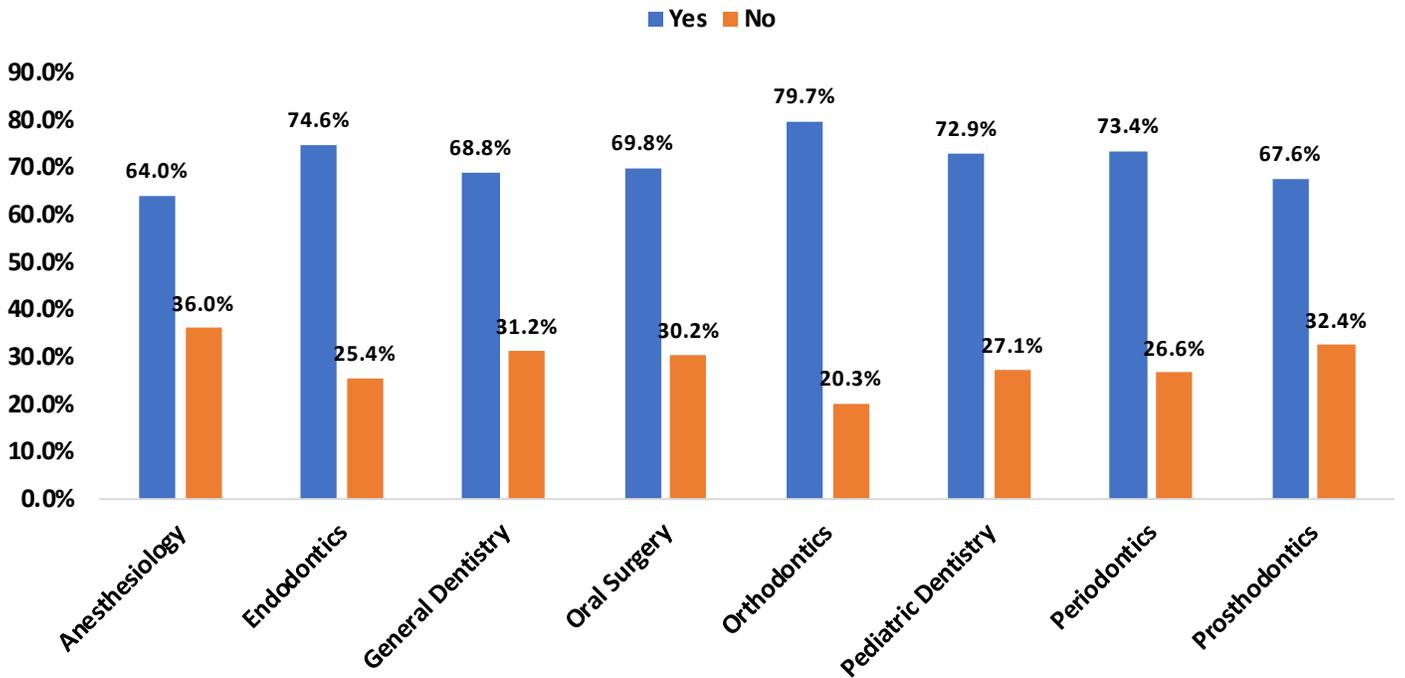


Figure 16. Ability to Electronically Exchange Patients' Clinical Information by Respondents Who Provided Direct Patient Care by Specialty in Pennsylvania, 2021 Dentist Survey



Professional Satisfaction

Figure 17 displays the degree of overall dental career satisfaction among dentist respondents who provided direct patient care in Pennsylvania. In 2021, 95.9% of dentist respondents who provided direct patient care were either satisfied or very satisfied with their dental careers. Among general dentists, 95.3% were either satisfied or very satisfied with their dental careers.

Figure 17. Respondents Who Provided Direct Patient Care in Pennsylvania by Overall Dental Career Satisfaction, 2021 Dentist Survey

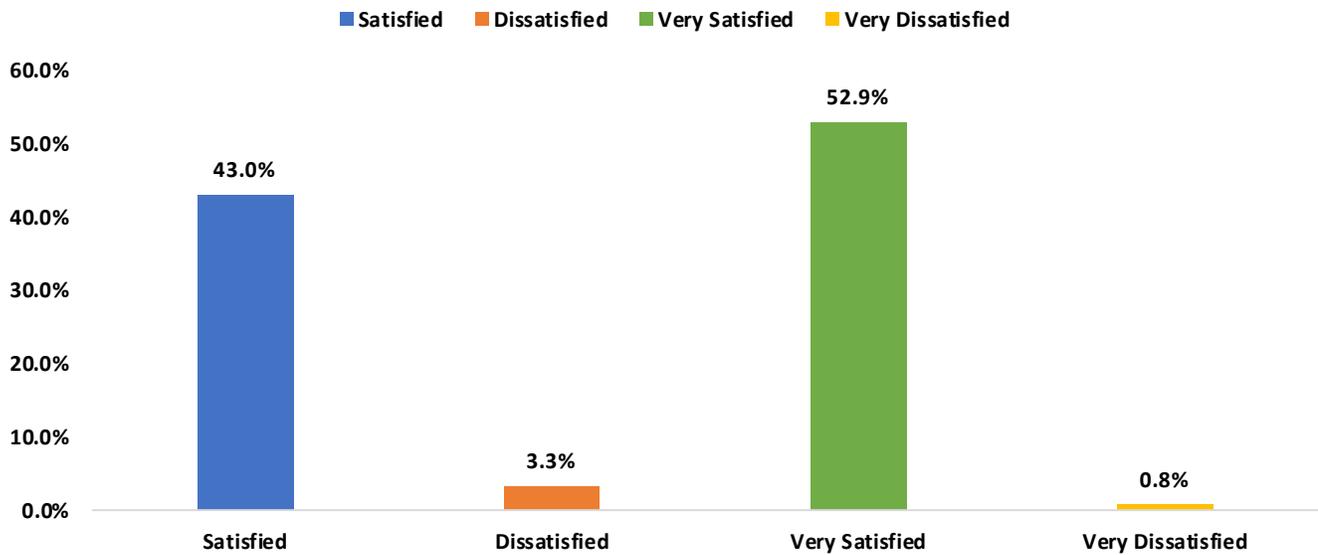


Figure 18 displays overall dental career satisfaction by specialty among dentist respondents who provided direct patient care in Pennsylvania. The overall career satisfaction included “satisfied” and “very satisfied”. In general, most dentists were satisfied with their career.

Figure 18. Respondents Who Provided Direct Patient Care in Pennsylvania Reporting Overall Satisfaction by Specialty, 2021 Dentist Survey

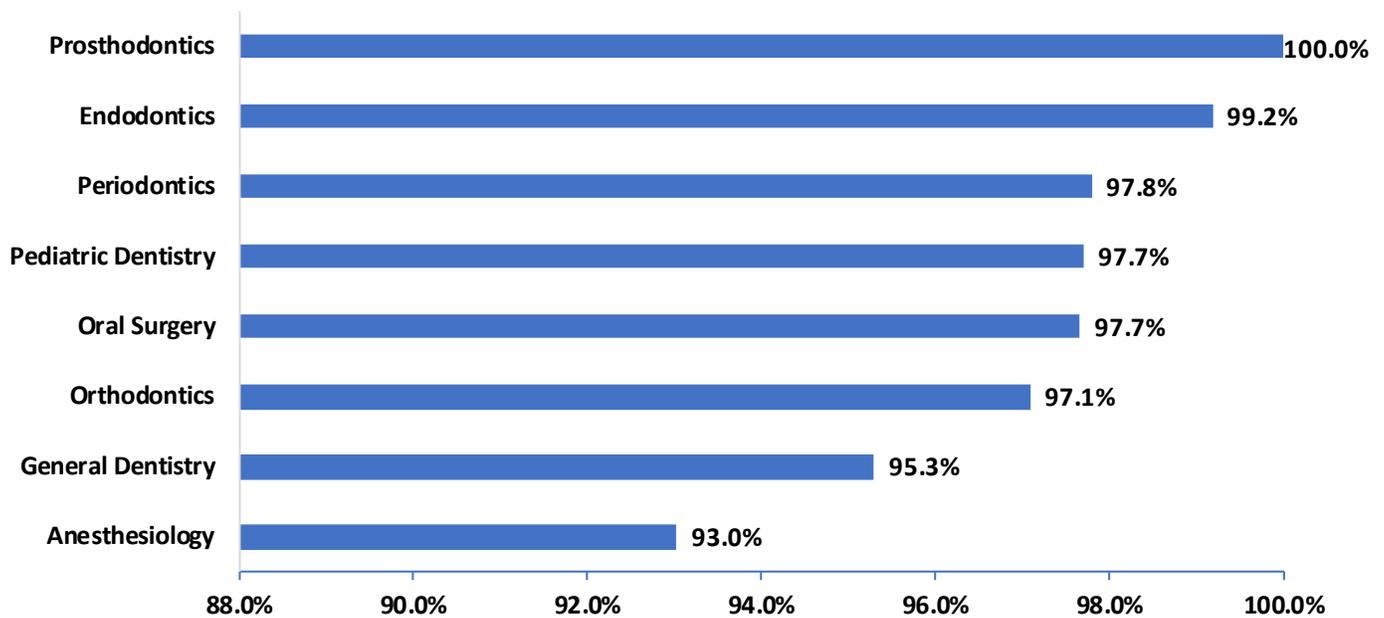


Figure 19 displays the overall degree of satisfaction by age group among dentist respondents who provided direct patient care in Pennsylvania in 2021. In general, more dentists in the younger age groups reported being “satisfied” than dentists in the older age groups. However, more dentists in the older age groups reported being “very satisfied” than dentists in the younger age groups.

Figure 19. Respondents Who Provided Direct Patient Care in Pennsylvania by Overall Dental Career Satisfaction by Age, 2021 Dentist Survey

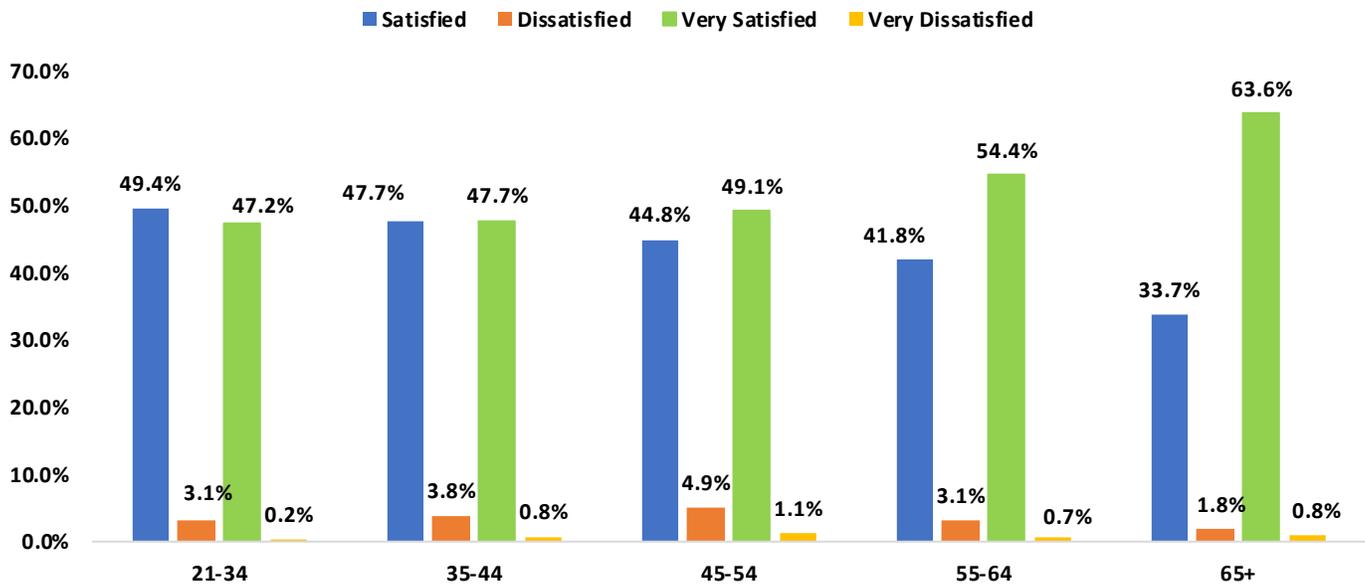


Table 13 lists the reasons for professional satisfaction in the dental career. The top five reasons of patient relationships, decision-making autonomy, practice environment, intellectual challenge, and financial reasons comprised over 95% of all reasons for satisfaction.

Table 13. Reasons for Satisfaction among Dentist Respondents Who Provided Direct Patient Care in Pennsylvania, 2021 Dentist Survey

Top Five Reasons for Satisfaction	Number	Percent
Patient relationships	4,488	58.7%
Decision-making autonomy	1,484	19.4%
Practice environment	528	6.9%
Intellectual challenge	459	6.0%
Financial reasons	423	5.5%
Staff relationships	144	1.9%
Ability to help patient	53	0.7%
Multiple reasons	50	0.7%
Other	17	0.2%
Total	7,618	100.0%

Table 14 lists the reasons for professional dissatisfaction in the dental career. The top five reasons of financial reasons, availability of leisure time, insurance, staff relationships, and practice environment comprised three quarters of all reasons for dissatisfaction.

Table 14. Reasons for Dissatisfaction among Dentist Respondents Who Provided Direct Patient Care in Pennsylvania, 2021 Dentist Survey

Top Five Reasons for Dissatisfaction	Number	Percent
Financial reasons	1,148	23.3%
Availability of leisure time	1,118	22.7%
Insurance	614	12.5%
Staff relationships	568	11.6%
Practice environment	356	7.2%
Patient relationships	296	6.0%
Other	292	5.9%
Decision making autonomy	276	5.6%
Time spent with patients	130	2.6%
Regulations	119	2.4%
Total	4,917	100.0%

Length of Practice

Table 15 presents the length of time during which respondents who provided direct patient care in Pennsylvania practiced dentistry. Among these dentists, approximately 50% had practiced 16 years or longer. The other 50% of dentists practiced at various lengths ranging from less than three years to less than 16 years.

Table 15. Respondents Who Provided Direct Patient Care in Pennsylvania by Years Practicing Dentistry in Pennsylvania, 2021 Dentist Survey

Length of Dental Practice in Pennsylvania	Number	Percent
Less than 3 years	1,326	17.9%
3 to less than 6 years	725	9.8%
6 to less than 11 years	846	11.5%
11 to less than 16 years	648	8.8%
16+ years	3,843	52.0%
Total	7,388	100.0%

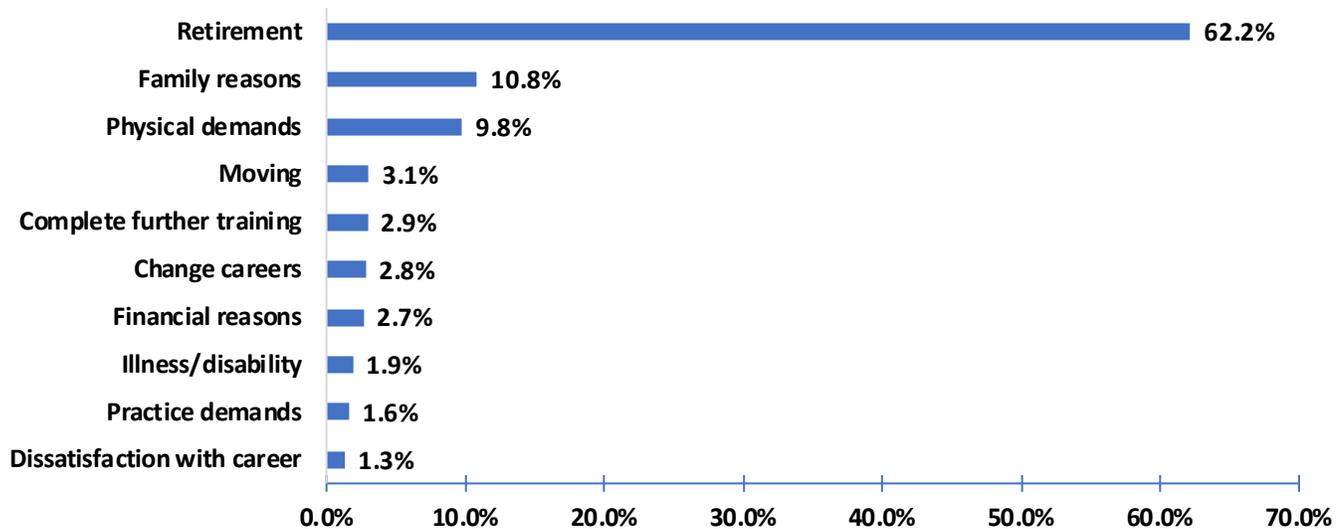
With regards to the anticipated length of time in practice, over one third of dentists reported 16 years or longer (33.3%) in future practice, followed by 19.5% for six to ten years of practice. The other 47.2% of dentists anticipated various length of practice, including 16.3% for less than three years, 17.6% for three to five years, and 13.4% for 11 to 15 years (Table 16).

Table 16. Respondents Who Provided Direct Patient Care in Pennsylvania by Years Anticipating Practicing Direct Patient Care in Pennsylvania, 2021 Dentist Survey

Anticipated Dental Practice	Number	Percent
Less than 3 years	1,208	16.3%
3 to less than 6 years	1,305	17.6%
6 to less than 11 years	1,449	19.5%
11 to less than 16 years	995	13.4%
16+ years	2,472	33.3%
Total	7,429	100.0%

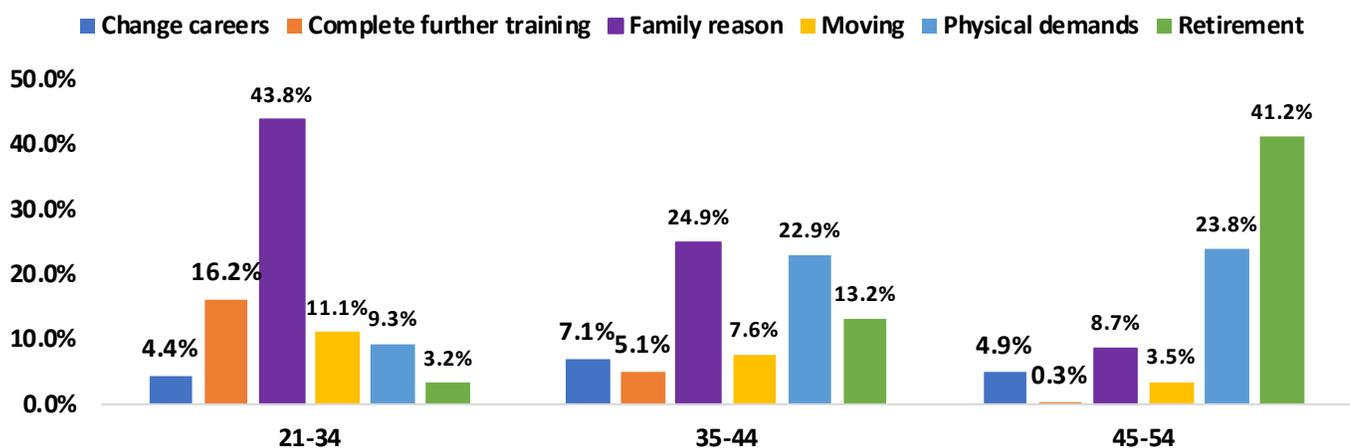
Figure 20 displays the primary reasons for leaving direct patient care in Pennsylvania in less than 6 years among dentist respondents who provided direct patient care in Pennsylvania in 2021. Close to two thirds of dentists indicated that retirement (62.2%) was the primary reason for leaving direct patient care in Pennsylvania in less than 6 years.

Figure 20. Primary Reasons for Leaving Direct Patient Care in Pennsylvania in Less Than 6 Years among Dentist Respondents Who Provided Direct Patient Care in Pennsylvania, 2021 Dentist Survey



For dentist respondents aged 55 years or older, retirement was the primary reason for leaving direct patient care in less than six years (96.0% among those aged 65 years or older; 85.6% among those aged 55 to 64 years). Figure 21 displays the primary reasons for leaving direct patient care in Pennsylvania in less than six years by age group among dentist respondents less than 55 years of age. For younger dentists aged 21 to 34 years and 35 to 44 years, family reason was the primary reason for leaving direct patient care in less than six years (43.8% for those aged 21 to 34 years and 24.9% for those aged 35 to 44 years). Completing further training was also a main reason for leaving direct patient care in less than six years for dentists aged 21 to 34 years, and physical demand was another main reason for dentists aged 35 to 44 years. For dentists aged 45 to 54 years, retirement (41.2%) and physical demand (23.8%) were two main reasons for leaving direct patient care in less than six years.

Figure 21. Primary Reasons for Leaving Direct Patient Care in Less Than Six Years by Age Group among Dentist Less Than 55 Years of Age, Pennsylvania, 2021 Dentist Survey



VI. All Dental Hygienists Licensed in PA, 2021 Dental Hygienist Survey

This section provides information on all the dental hygienists who responded to the 2021 Pennsylvania dental hygienist relicensing survey. A total of 8,812 dental hygienists renewed their licenses in 2021 and responded to the survey.

Age and Sex

In 2021, the average age of dental hygienist respondents was 46 years. Table 17 lists the distribution of dental hygienist respondents by age group and sex in 2021. Majority of dental hygienist respondents were females (98.8%) and there were only 107 (1.2%) male dental hygienist respondents in Pennsylvania in 2021. For female dental hygienist respondents, the age distribution was generally equivalent across all age groups except for the age group of 65 years or older.

Race and Ethnicity

Table 18 displays the distribution of race and ethnicity among dental hygienist respondents in 2021. Majority of dental hygienists were non-Hispanic Whites (93.5%) and the other races each comprised of 2% or less among the dental hygienists in 2021.

Table 17. Respondents Licensed in Pennsylvania by Age Group, 2021 Dental Hygienist Survey

Age Group	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18-29	24	22.4%	1,022	12.0%	1,046	12.1%
30-34	16	15.0%	1,052	12.4%	1,068	12.4%
35-39	17	15.9%	1,007	11.8%	1,024	11.9%
40-44	8	7.5%	953	11.2%	961	11.2%
45-49	12	11.2%	868	10.2%	880	10.2%
50-54	17	15.9%	1,097	12.9%	1,114	12.9%
55-59	3	2.8%	1,064	12.5%	1,067	12.4%
60-64	4	3.7%	909	10.7%	913	10.6%
65+	6	5.6%	538	6.3%	544	6.3%
Total	107	100.0%	8,510	100.0%	8,617	100.0%

Table 18. Respondents Licensed in Pennsylvania by Race and Ethnicity, 2021 Dental Hygienist Survey

Race	Number	Percent
Non-Hispanic White	7,324	93.5%
Hispanic or Latino	163	2.1%
Non-Hispanic Asian	148	1.9%
Non-Hispanic Black	126	1.6%
American Indian/Alaska Native	38	0.5%
Other	25	0.3%
Native Hawaiian/Other Pacific Islander	6	0.1%
Total	7,830	100.0%

Residence

Figure 22 displays the state of residence among dental hygienist respondents in 2021. The majority of dental hygienist respondents resided in Pennsylvania (89.0%). A small number of dental hygienists lived in neighboring or nearby states, including New Jersey (2.7%) and Ohio (1.4%). Approximately 6.9% of dental hygienists lived in the other 47 states or territories in the US and less than 0.1% lived outside of the US.

Dental Hygiene Education

Figure 23 displays the states in which respondents graduated from dental hygiene school. The majority of dental hygienist respondents reported that they graduated from a dental hygiene school in Pennsylvania (77.5%). Nearly 20% of dental hygienist respondents reported that they graduated from a dental hygiene school in a neighboring or nearby state, including West Virginia (5.8%), Maryland (4.4%), New York (3.1%), New Jersey (2.6%), and Ohio (2.4%). Approximately 4.3% of dental hygienists reported that they graduated from a dental hygiene school in other states or territories. Only 0.04% of dental hygienists graduated from a dental hygiene school outside of the US.

Figure 22. Respondents Licensed in Pennsylvania by State of Residence, 2021 Dental Hygienist Survey

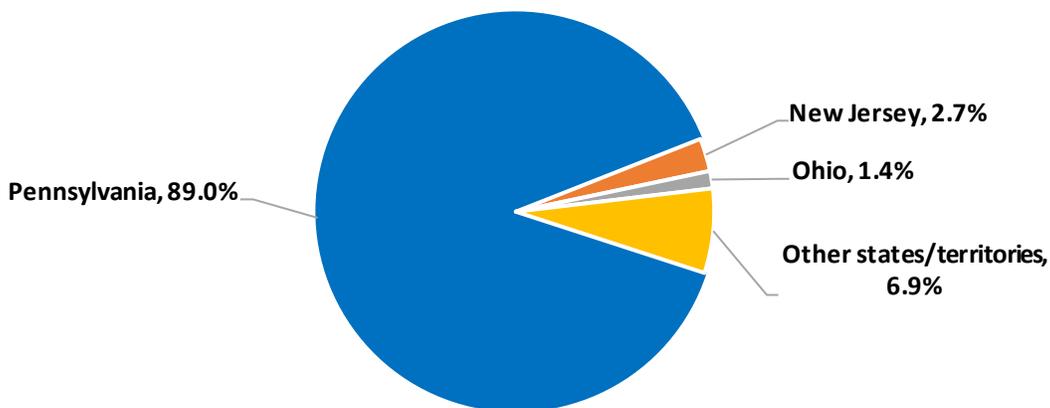


Figure 23. Respondents Licensed in Pennsylvania by State of Graduation from Dental Hygiene School, 2021 Dental Hygienist Survey

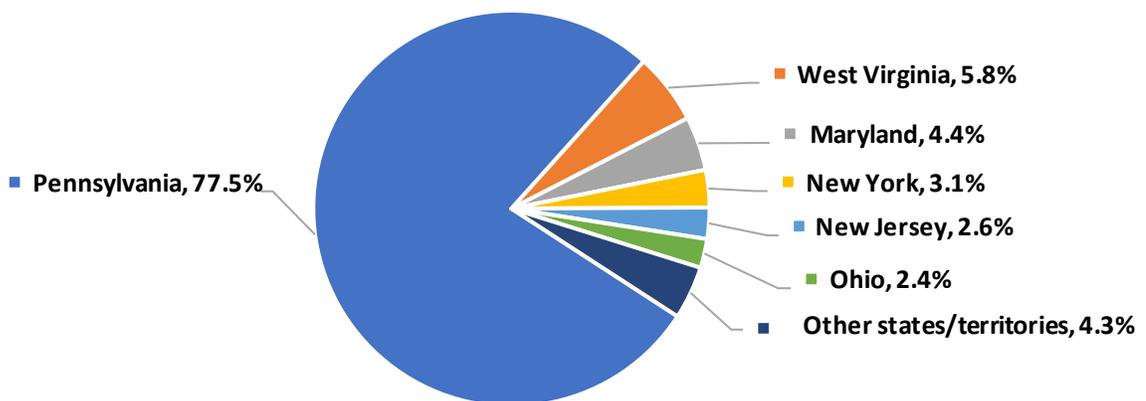


Table 19 displays the highest dental hygiene degree reported by dental hygienist respondents. Most dental hygienist respondents reported that the highest degree obtained was an associate degree (71.5%) and 2.2% of dental hygienist respondents reported that they had a master's degree in dental hygiene.

Table 19. Respondents Licensed in Pennsylvania by Highest Dental Hygiene Degree, 2021 Dental Hygienist Survey

Highest Dental Hygiene Degree	Number	Percent
Associate degree	6,245	71.5%
Bachelor's degree	1,766	20.2%
Certificate	536	6.1%
Master's degree	188	2.2%
Total	8,735	100.0%

Table 20 displays the enrollment in a higher education program among dental hygienist respondents and 93.3% reported that they did not enroll in any higher education program.

Table 20. Dental Hygienist Survey Respondents Licensed in Pennsylvania by Enrollment in a Higher Education Program, 2021 Dental Hygienist Survey

Higher Education Program	Number	Percent
Dental hygiene associate degree	233	2.7%
Dental hygiene bachelor's degree	142	1.6%
Other bachelor's degree	93	1.1%
Other master's degree	62	0.7%
Other non-degree	36	0.4%
Dental hygiene master's degree	12	0.1%
Not enrolled	8,077	93.3%
Total	8,655	100.0%

Dental Hygiene Certification

Through additional training, dental hygienists can become certified to perform advanced duties with or without direct supervision. Dental hygienist respondents reported certification of an expanded function dental assistant certificate or Pennsylvania dental hygiene local anesthesia permit. Respondents could select more than one type of certification. Table 21 displays the number of respondents who held dental hygiene certifications.

Table 21. Respondents Licensed in Pennsylvania by Dental Hygiene Certification, 2021 Dental Hygienist Survey

Certification	Number	Percent
Dental hygiene local anesthesia permit	3,896	45.7%
Expanded function dental assistant certificate	243	3.0%

Note: each question was asked individually.

Public Health Dental Hygiene Practitioners

Public health dental hygiene practitioners (PHDHPs) were first certified in Pennsylvania in January 2010. PHDHPs were created to increase access to dental services for individuals living in Health Professional Shortage Areas (HPSAs) by allowing these dental hygienists to perform educational, preventive, therapeutic,

intra-oral and radiologic procedures without supervision of a dentist at identified public health practice sites. PHDHPs are required to refer patients to a dentist annually. Identified practice sites include schools; correctional facilities; health care facilities such as hospitals; personal care homes; domiciliary care facilities; older adult daily living centers; federally qualified health centers (FQHCs); childcare centers; medical offices in dental shortage areas; and public or private institutions under the jurisdiction of a federal, state or local agency. In 2021, 938 (11.0%) of dental hygienist respondents reported that they were certified as PHDHPs in Pennsylvania and 278 (29.6%) reported performing as a PHDHP in their primary job.

Employment

Table 22 displays the employment status of dental hygienist respondents in 2021.

Table 22. Respondents Licensed in Pennsylvania by Employment Status, 2021 Dental Hygienist Survey

Employment Status	Number	Percent
Employed, in dental hygiene	7,530	86.3%
Employed, but not in dental hygiene	344	3.9%
Unemployed, seeking work in dental hygiene	245	2.8%
Other	226	2.6%
Unemployed, not seeking work in dental hygiene	192	2.2%
Retired	115	1.3%
Student, leave of absence, or sabbatical	48	0.6%
Unemployed, disabled	30	0.3%
Total	8,730	100.0%

Table 23 displays the position held by dental hygienist respondents in 2021.

Table 23. Respondents Employed in Dental Hygiene by Position Held in Primary Job, 2021 Dental Hygienist Survey

Position	Number	Percent
Direct patient care	7,169	95.6%
Educator	153	2.0%
Administration/management	92	1.2%
Other	80	1.1%
Researcher/consultant	5	0.1%
Not employed as a dental hygienist	1	0.01%
Total	7,500	100.0%

Table 24 lists the approximate number of hours per week respondents who were employed in dental hygiene provided direct patient care in Pennsylvania in 2021. Among respondents employed in dental hygiene, approximately 95% provided one or more hours per week in direct patient care. Most dental hygienists (80.2%) spent over 20 hours per week in direct patient care. In addition, among 326 dental hygienist respondents who were not in direct patient care and responded to the question of planning to return to direct patient care in the next five years, 169 (51.8%) answered “Yes, I plan to return to direct patient care in the next five years”.

Table 24. Respondents Employed in Dental Hygiene by the Number of Hours per Week Spent on Direct Patient Care in Pennsylvania, 2021 Dental Hygienist Survey

Hours	Number	Percent
0	410	5.5%
1 to 10	437	5.8%
11 to 20	639	8.5%
21 to 30	1875	25.0%
31 to 40	3796	50.7%
More than 40	337	4.5%
Total	7,494	100.0%

VII. Dental Hygienists Providing Direct Patient Care in PA, 2021 Dental Hygienist Survey

This section provides information on dental hygienists who responded to the 2021 Pennsylvania dental hygienist relicensing survey and provided direct patient care in Pennsylvania. Respondents who provided direct patient care in Pennsylvania are defined as those respondents who reported employment in dental hygiene and provided at least one hour of direct patient care in Pennsylvania per week during the prior year. In 2021, 7,169 dental hygienist respondents indicated that they provided direct patient care.

Age and Sex

In 2021, the average age of dental hygienist respondents who provided direct patient care was 45 years. Table 25 lists the distribution of respondents who provided direct patient care in Pennsylvania across age groups for 2021. Except for the group of 65 years of age or older, the distribution of dental hygienist respondents across each age group is generally equivalent.

Race and Ethnicity

The distribution of dental hygienist respondents who provided direct patient care in Pennsylvania by race and ethnicity, in 2021, is listed in Table 26. Majority of dental hygienist respondents who provided direct patient care were non-Hispanic whites (93.5%). Each of the other racial groups comprised of 2% or less of dental hygienist respondents, including Hispanics (2.1%), non-Hispanic Asians (1.9%), and non-Hispanic Blacks (1.6%).

Table 25. Respondents Who Provided Direct Patient Care in Pennsylvania by Age Group, 2021 Dental Hygienist Survey

Age Group	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18-29	22	2.3%	944	97.7%	966	13.7%
30-34	14	1.5%	905	98.5%	919	13.0%
35-39	13	1.6%	814	98.4%	827	11.7%
40-44	6	0.7%	796	99.3%	802	11.4%
45-49	9	1.2%	715	98.8%	724	10.3%
50-54	16	1.8%	892	98.2%	908	12.9%
55-59	2	0.2%	859	99.8%	861	12.2%
60-64	3	0.4%	686	99.6%	689	9.8%
65+	5	1.4%	349	98.6%	354	5.0%
Total	90	1.3%	6,960	98.7%	7,050	100.0%

Dental Hygiene Education

Figure 24 displays the states in which respondents who provided direct patient care in Pennsylvania graduated from dental hygiene schools. Majority of respondents (77.7%) who provided direct patient care in Pennsylvania graduated from schools in Pennsylvania and less than 0.1% graduated from dental hygiene schools outside of the US. Some dental hygienists graduated from dental hygiene schools in neighboring or

nearby states, including West Virginia (5.7%), Maryland (4.6%), New York (3.0%), Ohio (2.5%), and New Jersey (2.4%).

Table 26. Respondents Who Provided Direct Patient Care in Pennsylvania by Race and Ethnicity, 2021 Dental Hygienist Survey

Race and Ethnicity	Number	Percent
Non-Hispanic White	5,999	93.5%
Hispanic or Latino	137	2.1%
Non-Hispanic Asian	123	1.9%
Non-Hispanic Black	102	1.6%
American Indian/Alaska Native	31	0.5%
Other	21	0.3%
Native Hawaiian/Other Pacific Islander	5	0.1%
Total	6,418	100.0%

Figure 24. Respondents Providing Direct Patient Care by State of Graduation, 2021 Dental Hygienist Survey

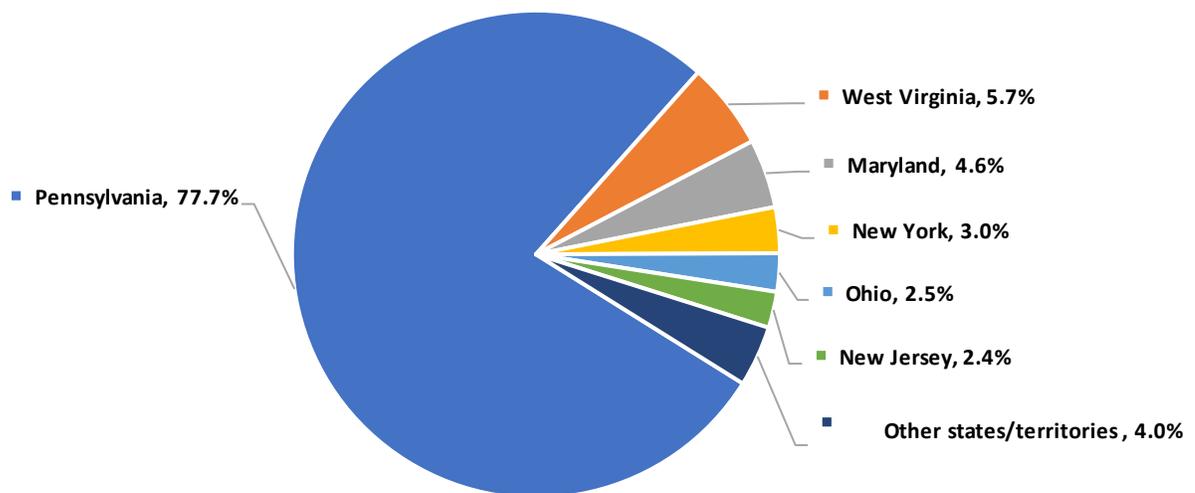


Table 27 lists respondents by their highest dental hygiene degree. In general, three quarters of respondents who provided direct patient care in Pennsylvania completed an associate degree as their highest dental hygiene degree.

Table 27. Respondents Who Provided Direct Patient Care in Pennsylvania by Highest Dental Hygiene Degree, 2021 Dental Hygienist Survey

Dental Hygiene Degree	Number	Percent
Associate degree	5,296	74.0%
Bachelor's degree	1,383	19.3%
Certificate	421	5.9%
Master's degree	60	0.8%
Total	7,160	100.0%

Figure 25 displays the dental hygiene degree respondents attained by age group. The distribution of obtaining an associate degree was almost equally high among those aged 18-34 years, 35-44 years, and 45-54 years; the

distribution was lower among those aged 55-64 years and 65 years or older. The distribution of obtaining a bachelor's degree was similar among those aged 18-34 years, 35-44 years, 55-64 years, and 65 years or older, and was lower among those aged 45-54 years. Very few dental hygienists obtained a master's degree.

Figure 25. Respondents Who Provided Direct Patient Care in Pennsylvania by Highest Dental Hygiene Degree and Age Group, 2021 Dental Hygienist Survey

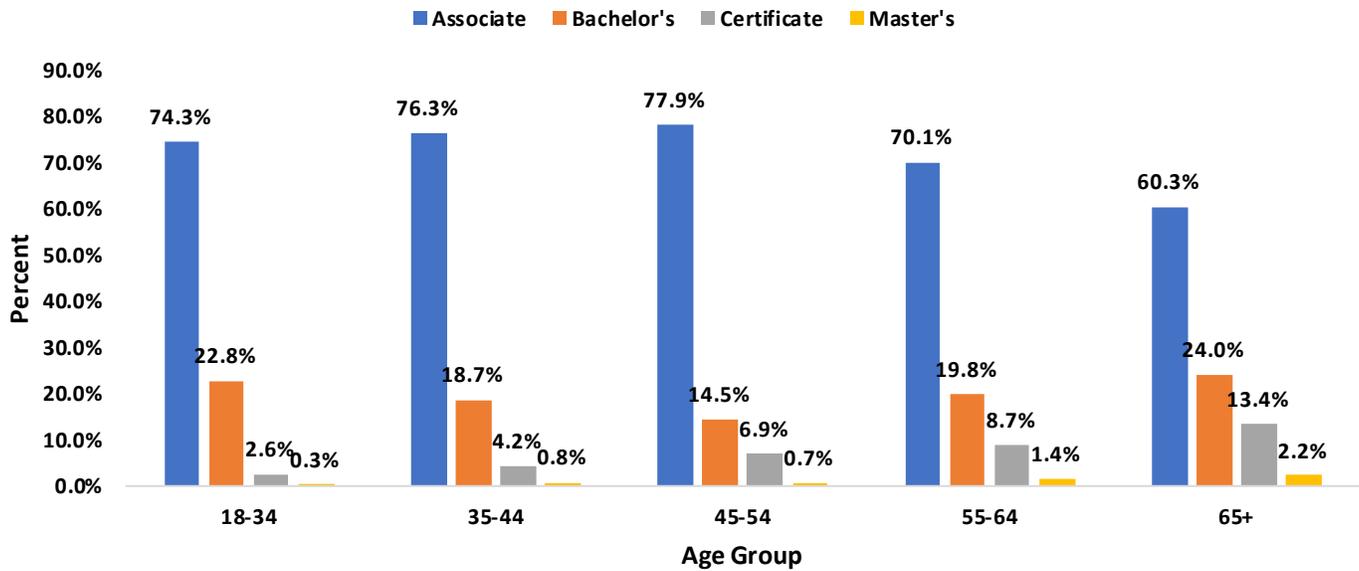


Table 28 lists dental hygienist respondents who provided direct patient care in Pennsylvania by enrollment in a higher education program. In 2021, only 6.6% of respondents who provided direct patient care in Pennsylvania were enrolled in higher education programs such as dental hygiene associate or bachelor's program.

Table 28. Respondents Who Provided Direct Patient Care in Pennsylvania by Enrollment in a Higher Education Program, 2021 Dental Hygienist Survey

Higher Education Program	Number	Percent
Not enrolled	6,635	93.4%
Dental hygiene associate degree	206	2.9%
Dental hygiene bachelor's degree	122	1.7%
Other bachelor's degree	68	1.0%
Other master's degree	35	0.5%
Other non-degree	27	0.4%
Dental hygiene master's degree	9	0.1%
Total	7,102	100.0%

Table 29 lists dental hygienist respondents who provided direct patient care in Pennsylvania by enrollment in a higher education program by age group. In general, younger dental hygienist respondents were more likely to enroll in a higher education program than their older counterparts. Close to half (46.3%) of dental hygienist respondents who provided direct patient care in Pennsylvania and enrolled in a higher education program were aged 18 to 34 years, followed by 21.6% among those aged 35 to 44 years, and 19.1% among those aged 45 to 54 years. Approximately one in 10 of those aged 55 to 64 years were enrolled in a higher education program. Less than 3% of dental hygienist respondents aged 65 years or older were enrolled in a higher education program.

Table 29. Enrollment in a Higher Education Program among Respondents Who Provided Direct Patient Care in Pennsylvania by Age Group, 2021 Dental Hygienist Survey

Age Group	Number	Percent
18-34	216	46.3%
35-44	101	21.6%
45-54	89	19.1%
55-64	50	10.7%
65+	11	2.4%
Total	467	100.0%

Dental Hygiene Certification

Table 30 lists the number of respondents who provided direct patient care in Pennsylvania by the type of dental hygiene certification(s) they held. Respondents may possess multiple certificates. Through additional training, dental hygienists can become certified to perform advanced duties with or without direct supervision. Respondents reported certification of an expanded function dental assistant certificate or Pennsylvania dental hygiene local anesthesia permit. Respondents could select more than one type of certification. In 2021, 2.8% of dental hygienist respondents held an expanded function dental assistant permit and 47.3% held a dental hygiene local anesthesia permit.

Table 31 displays expanded function dental assistants by age group. In 2021, 1,461 respondents worked as expanded functional dental assistants in their primary duties. The percentage was higher in the youngest age group (33.3%). In the other age groups, the percentages were comparable and were around 20% except in those aged 65 years or older.

Table 30. Respondents Who Provided Direct Patient Care in Pennsylvania by Dental Hygiene Certification, 2021 Dental Hygienist Survey

Certification	Number	Percent
Expanded function dental assistant permit	186 out of 6,660	2.8%
Dental hygiene local anesthesia permit	3,314 out of 7,004	47.3%

Table 31. Respondents Who Provided Direct Patient Care in Pennsylvania by Expanded Function Dental Assistant in Primary Job by Age Group, 2021 Dental Hygienist Survey

Age Group	Number	Percent
18-34	487	33.3%
35-44	325	22.2%
45-54	297	20.3%
55-64	282	19.3%
65+	70	4.8%
Total	1,461	100.0%

Table 32 displays dental hygienist respondents who provided direct patient care in Pennsylvania and worked as school dental hygienists in their primary jobs by age group in 2021. More respondents worked as school dental hygienists in the younger age groups (34.3% for 18-34 years and 22.3% for 35-44 years). Far fewer respondents (3.2%) worked as school dental hygienists in the age group of 65 years or older. Of note, the survey question was not formatted properly to capture the dental hygienists that were working as Certified

School Dental Hygienists and might include hygienists who work in schools but are not Certified School Dental Hygienists.

Table 32. Respondents Who Provided Direct Patient Care in Pennsylvania and Worked as a School Dental Hygienist in Primary Job by Age Group, 2021 Dental Hygienist Survey

Age Group	Number	Percent
18-34	282	34.3%
35-44	183	22.3%
45-54	168	20.5%
55-64	162	19.7%
65+	26	3.2%
Total	821	100.0%

Table 33 displays dental hygienist respondents who provided direct patient care in Pennsylvania and administered local anesthesia in their primary job by age group. In general, more dental hygienist respondents in the younger age groups (18-34 years of age) administered local anesthesia in their primary job than in the older age groups.

Table 33. Respondents Who Provided Direct Patient Care in Pennsylvania and Administered Local Anesthesia in Primary Job by Age Group, 2021 Dental Hygienist Survey

Age Group	Number	Percent
18-34	1,275	46.4%
35-44	705	25.6%
45-54	440	16.0%
55-64	297	10.8%
65+	33	1.2%
Total	2,750	100.0%

Public Health Dental Hygiene Practitioners (PHDHP)

PHDHPs were created as a specific job title to increase access to dental services for individuals living in Health Professional Shortage Areas (HPSAs) by allowing these dental hygienists to perform educational, preventive, therapeutic, intra-oral and radiologic procedures without the supervision of a dentist at identified public health practice sites. PHDHPs are required to refer patients to a dentist annually. PHDHPs were first certified in Pennsylvania in January of 2010. In 2021, 694 out of 6,967 (10.0%) respondents who provided direct patient care in Pennsylvania were certified as PHDHPs. Of these 694 respondents, only 217 (31.3%) reported performing as a PHDHP in their primary job (Table 34). In addition, 7.6% of respondents who provided direct patient care in Pennsylvania intended to apply for a PHDHP certification in 2021 (Table 35).

Table 34. Respondents Who Provided Direct Patient Care in Pennsylvania by PHDHP Certification or Working as PHDHPs, 2021 Dental Hygienist Survey

Public Health Dental Hygiene Practitioners (PHDHP)	Number	Percent
Licensed as an PHDHP	694 out of 6,967	10.0%
Worked as an PHDHP	217 out of 694	31.3%

Table 35. Respondents Who Provided Direct Patient Care in Pennsylvania Intended to Apply for a PHDHP Certificate, 2021 Dental Hygienist Survey

Intended to Apply for a PHDHP Certificate	Number	Percent
No	5,497	92.4%
Yes	450	7.6%
Total	5,947	100.0%

Table 36 displays dental hygienist respondents who provided direct patient care in Pennsylvania and were public health dental hygiene practitioners in their primary job by age group. In general, middle-aged dental hygienist respondents (45 to 64 years of age) were more likely to be public health dental hygiene practitioners in their primary job than their younger or older counterparts.

Table 36. Respondents Who Provided Direct Patient Care in Pennsylvania and Were Public Health Dental Hygiene Practitioners in Their Primary Job by Age Group, 2021 Dental Hygienist Survey

Age Group	Number	Percent
18-34	31	14.3%
35-44	51	23.5%
45-54	63	29.0%
55-64	63	29.0%
65+	9	4.1%
Total	217	100.0%

Hours Providing Direct Patient Care

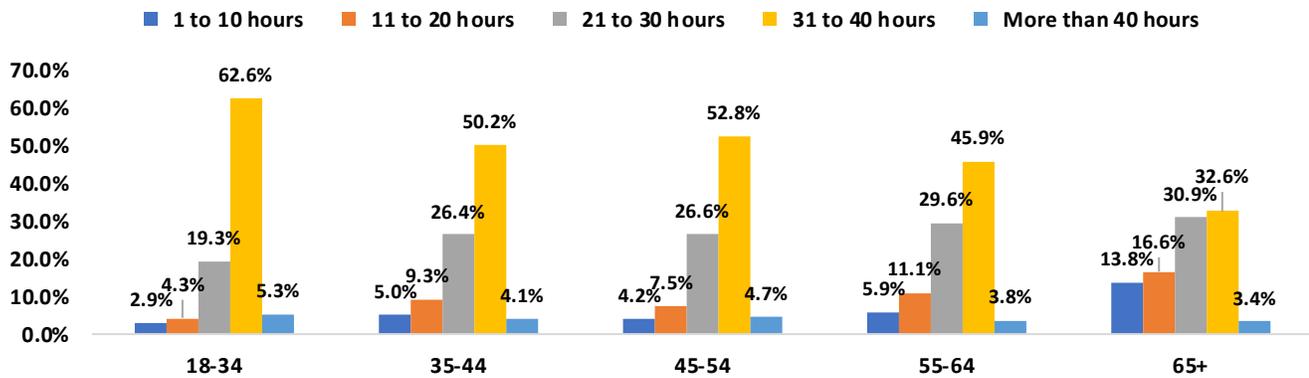
Table 37 lists respondents by the number of hours they provided direct patient care in Pennsylvania each week in the past 12 months. Over half of the dental hygienists who provided direct patient care worked over 30 hours each week in the prior year, followed by a quarter of dental hygienists who worked 21 to 30 hours. Nearly 5% of dental hygienists worked more than 40 hours per week in the past 12 months in 2021.

Table 37. Respondents by the Number of Hours per Week Providing Direct Patient Care in Pennsylvania, 2021 Dental Hygienist Survey

Hours	Number	Percent
1 to 10 hours	348	5.1%
11 to 20 hours	593	8.7%
21 to 30 hours	1,814	26.7%
31 to 40 hours	3,721	54.8%
More than 40 hours	316	4.7%
Total	6,792	100.0%

Figure 26 displays the number of hours respondents provided direct patient care by age group. Among the younger respondents aged 18 to 34 years, 62.6% spent 31 to 40 hours per week on direct patient care, compared to 50.2% among those aged 35 to 44 years, 52.8% among those aged 45 to 54 years, 45.9% among those aged 55 to 64 years, and 32.6% among those aged 65 years or older. In addition, a slightly larger proportion of younger respondents tended to work more than 40 hours a week than their older counterparts.

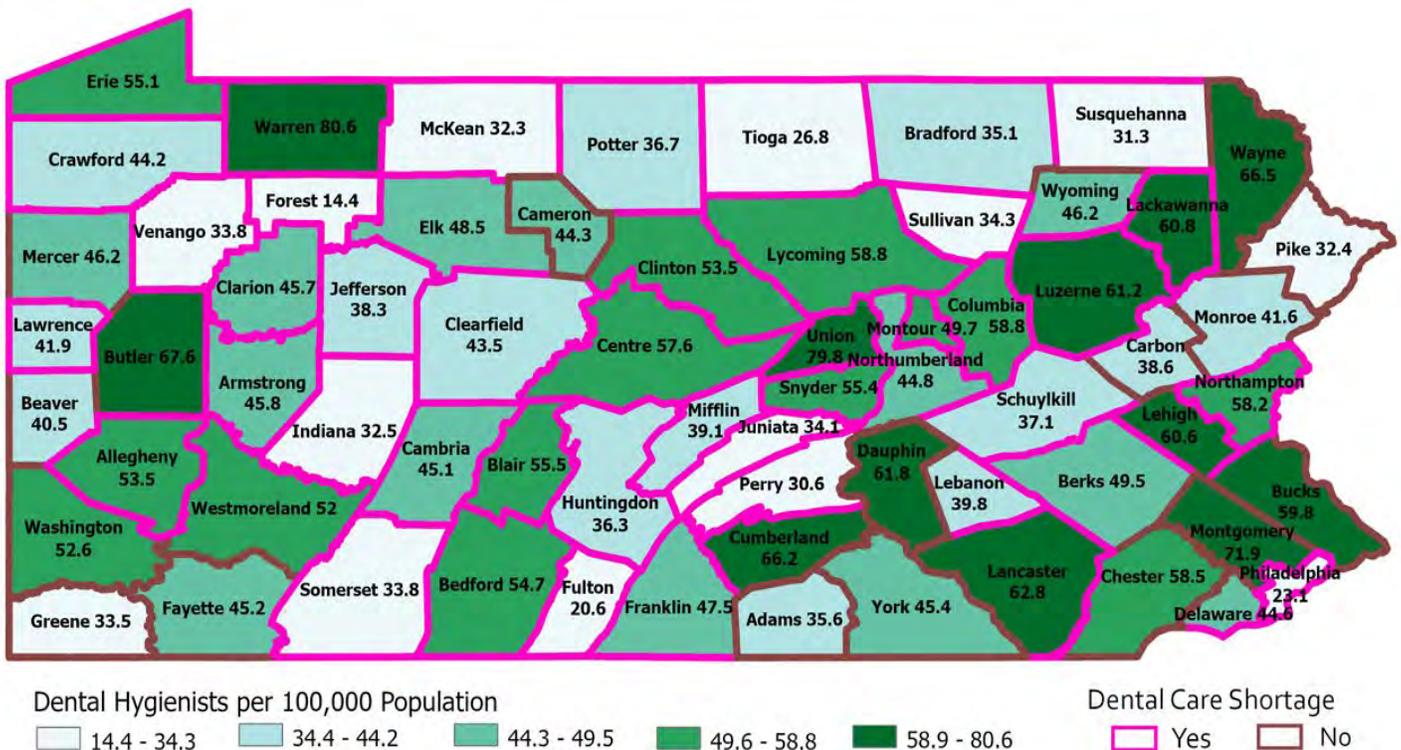
Figure 26. Respondents by the Number of Hours Spent on Providing Direct Patient Care in Pennsylvania and Age Group, 2021 Dental Hygienist Survey



Geography

In 2021, 7,169 dental hygienist respondents provided direct patient care in Pennsylvania. The rate of respondents who provided direct patient care in Pennsylvania was 55.2 per 100,000 population. Among respondents who provided county information in the survey, 1,576 were employed in the rural counties and 4,922 were employed in the urban counties. The rate was 46.6 per 100,000 population (range: 13.8 to 81.7 per 100,000) in the rural counties, compared to 51.2 per 100,000 population in urban counties (range: 23.5 to 74.1 per 100,000). Please note: the average rates in the rural counties and urban counties were lower than the average rate in the state because county information was missing in some respondents. Map 2 shows the wide variation in rates of respondents who provided direct patient care in Pennsylvania per 100,000 population, from the lowest of 14.4 per 100,000 in Forest County to the highest of 80.6 per 100,000 in Warren County.

Map 2. Dental Hygienists Who Provided Direct Patient Care per 100,000 Population by County of Primary Practice in Pennsylvania, 2021 Dental Hygienist Survey



Employment

In 2021, 80.6% of dental hygienist respondents who provided direct patient care in Pennsylvania were employed in one position and 19.4% were employed in two or more positions. Figure 27 displays respondents who provided direct patient care in Pennsylvania and were employed in one or more than one dental hygiene position by age group. Generally, dental hygienists held similar number of positions in all age groups.

Figure 27. Respondents Who Provided Direct Patient Care in Pennsylvania by the Number of Dental Hygiene Positions and Age Group, 2021 Dental Hygienist Survey

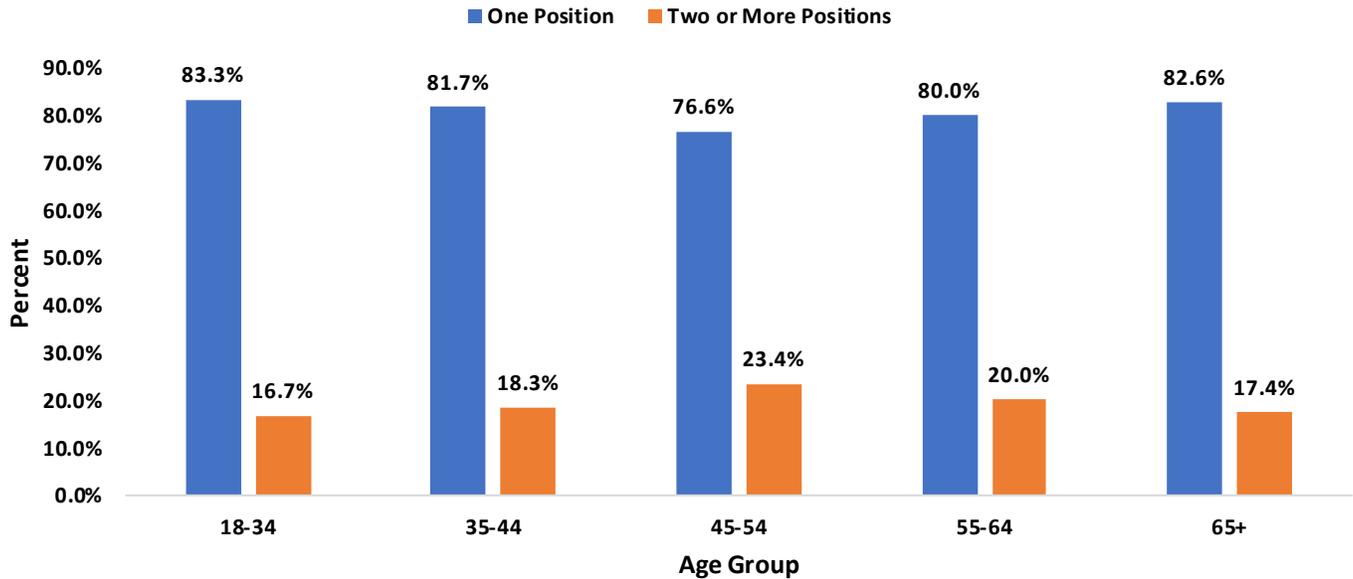


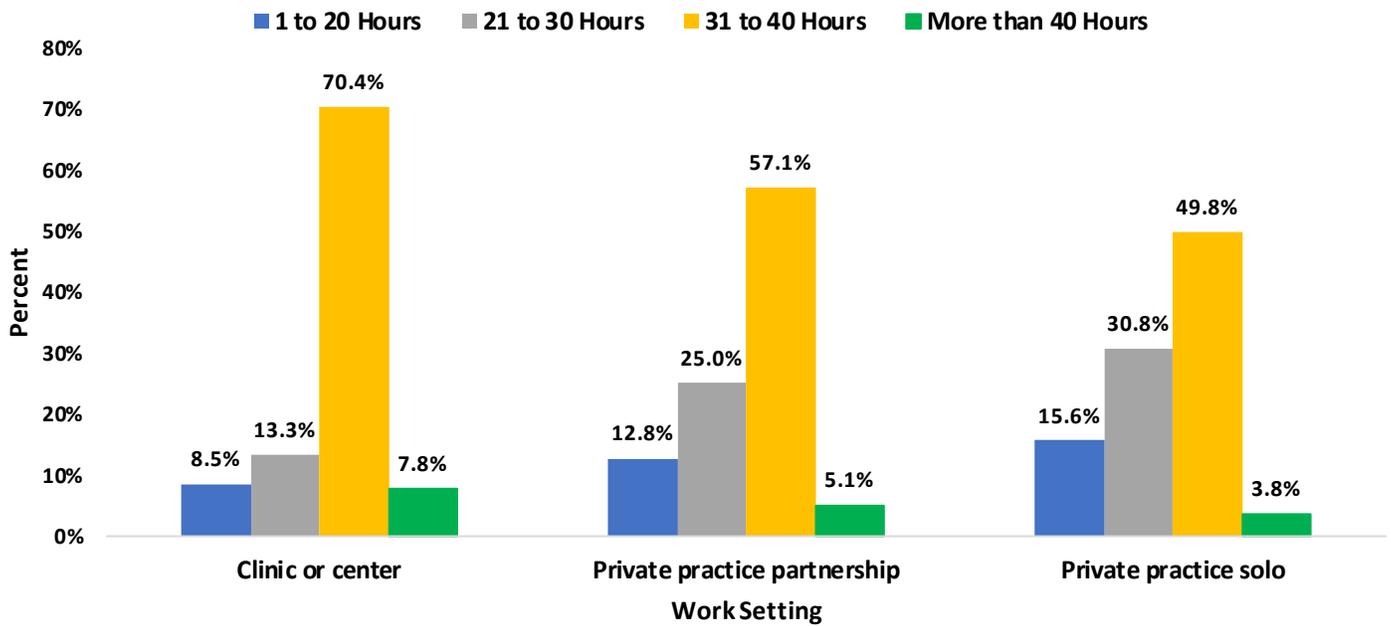
Table 38 lists respondents who provided direct patient care in Pennsylvania by their primary employment setting. In 2021, private dental practices, both partnerships and solo dentists, employed 90.2% of dental hygienist respondents who provided direct patient care in Pennsylvania.

Table 38. Respondents Who Provided Direct Patient Care in Pennsylvania by Primary Employment Setting, 2021 Dental Hygienist Survey

Employment Setting	Number	Percent
Private practice solo	3,202	47.9%
Private practice partnership	2,828	42.3%
Clinic or center	547	8.2%
Mobile dental unit	42	0.6%
Retail/industry/business site	29	0.4%
Correctional facility	18	0.3%
School health	16	0.2%
Other	4	0.1%
Total	6,686	100.0%

Figure 28 displays the number of hours respondents worked per week at their primary job by several major employment settings. Clinics or centers had the highest proportion of respondents who worked 31 to 40 hours per week (70.4%), followed by private practice partnership (57.1%), and private practice solo dentist setting (49.8%).

Figure 28. Respondents Who Provided Direct Patient Care in Pennsylvania by the Number of Hours Worked Per Week at Their Primary Job and Employment Setting, 2021 Dental Hygienist Survey



Level of Work

Respondents who provided direct patient care in Pennsylvania performed work at the level of a dental hygienist, expanded function dental assistant, school hygienist, public health dental hygiene practitioner, or dental hygiene local anestheticist at their primary job.

Table 39 lists the number of respondents who provided direct patient care in Pennsylvania by the level(s) they performed in their primary job in 2021. The total number of responses is greater than the number of respondents because each question was asked individually. In 2021, 7,169 dental hygienists worked on direct patient care. Among these 7,169 dental hygienists, 2,750 worked as dental hygiene local anestheticists, 822 worked as school hygienists, 217 worked as public health dental hygiene practitioners, and 1,462 worked as expanded function dental assistants.

Table 39. Respondents Who Provided Direct Patient Care in Pennsylvania by Level of Work Performed in Their Primary Job, 2021 Dental Hygienist Survey

Level of Work	Number
Dental hygienist – direct patient care	7,169
Dental hygiene local anestheticist	2,750
School hygienist	822
Public health dental hygiene practitioner	217
Expanded function dental assistant	1,462

Note: each question was asked individually.

Professional Satisfaction/Dissatisfaction

Table 40 lists dental hygienist respondents' satisfaction with their primary job. In 2021, 95.5% of dental hygienist respondents who provided direct patient care in Pennsylvania were very satisfied or satisfied with their primary job. Less than 5% of dental hygienist respondents who provided direct patient care in Pennsylvania were dissatisfied or very dissatisfied with their primary job.

Table 40. Respondents Providing Direct Patient Care in Pennsylvania by Primary Job Satisfaction, 2021 Dental Hygienist Survey

Current Primary Job Satisfaction	Number	Percent
Very Satisfied	3,254	47.9%
Satisfied	3,238	47.6%
Dissatisfied	262	3.9%
Very Dissatisfied	44	0.7%
Total	6,798	100.0%

Figure 29 displays the satisfaction with their primary job by age group among dental hygienist respondents who provided direct patient care in Pennsylvania. In 2021, respondents aged 65 years or older had the highest percentage (56.1%) of being very satisfied with their primary job. The combination of being very satisfied and being satisfied was largely equivalent in all age groups.

Figure 29. Satisfaction among Respondents Who Provided Direct Patient Care in Pennsylvania on Dental Hygiene as a Primary Job by Age Group, 2021 Dental Hygienist Survey

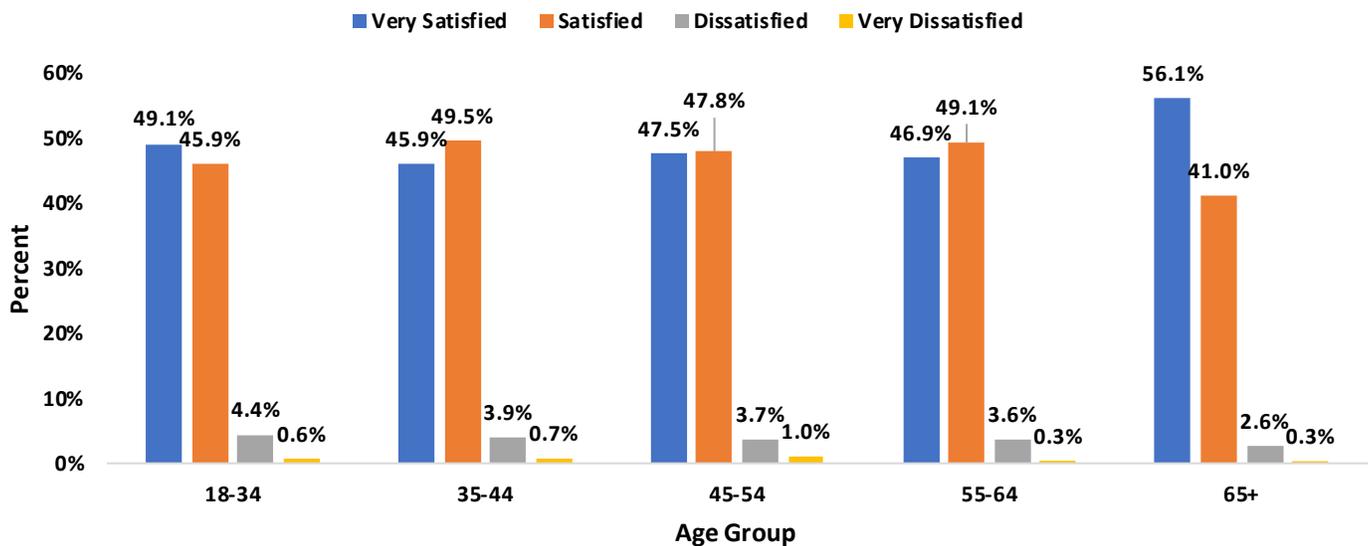


Table 41 displays the career satisfaction among dental hygienist respondents who provided direct patient care in Pennsylvania. In 2021, 93.1% of dental hygienist respondents who provided direct patient care in Pennsylvania were very satisfied or satisfied with their career. Approximately 7% of dental hygienist respondents who provided direct patient care in Pennsylvania were dissatisfied or very dissatisfied with their career.

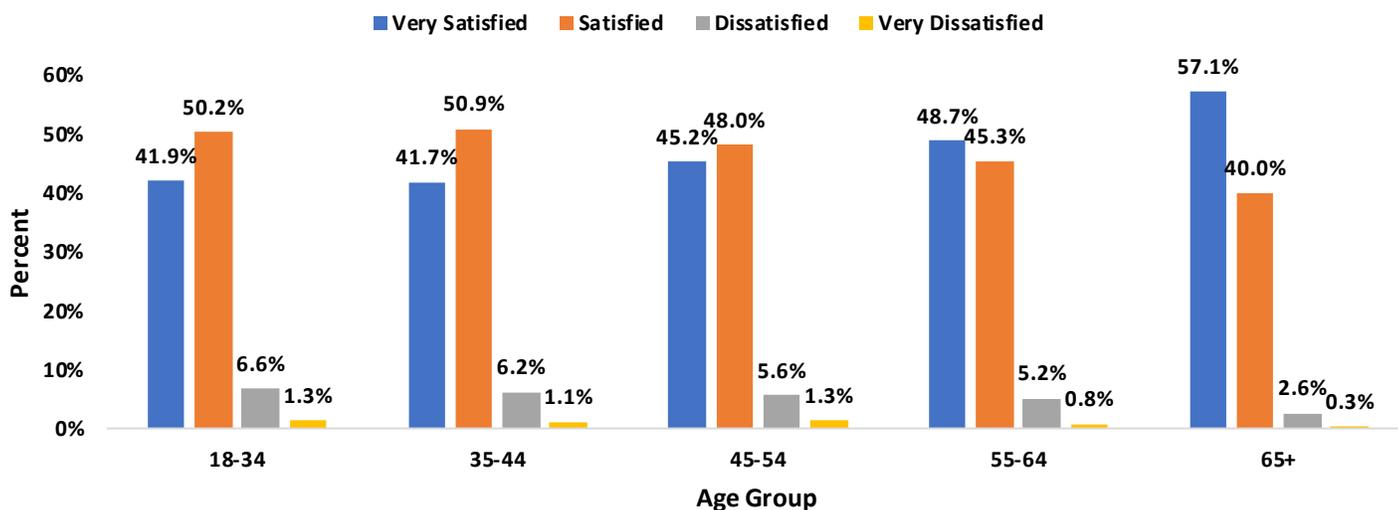
Figure 30 displays the career satisfaction by age group among dental hygienist respondents who provided direct patient care in Pennsylvania. In 2021, respondents aged 65 years or older had the highest percentage

(57.1%) of being very satisfied with their career. The combination of being very satisfied and being satisfied was largely equivalent in all age groups.

Table 41. Respondents Who Provided Direct Patient Care in Pennsylvania by Satisfaction with Dental Hygiene as a Career, 2021 Dental Hygienist Survey

Career Satisfaction	Number	Percent
Very Satisfied	3,058	44.9%
Satisfied	3,282	48.2%
Dissatisfied	392	5.8%
Very Dissatisfied	74	1.1%
Total	6,824	100.0%

Figure 30. Satisfaction among Respondents Who Provided Direct Patient Care in Pennsylvania on Dental Hygiene as a Career by Age Group, 2021 Dental Hygienist Survey



Length of Practice

Table 42 presents the length of practice among dental hygienist respondents who provided direct patient care in Pennsylvania. Over half (51.3%) of respondents who provided direct patient care in Pennsylvania have been a dental hygienist in Pennsylvania for 16 years or longer.

Table 42. Respondents Who Provided Direct Patient Care in Pennsylvania by Years as a Dental Hygienist in Pennsylvania, 2021 Dental Hygienist Survey

Length of Practice	Number	Percent
Less than 3 years	709	10.4%
3 to less than 6 years	761	11.2%
6 to less than 11 years	975	14.4%
11 to less than 16 years	861	12.7%
16+ years	3,488	51.3%
Total	6,794	100.0%

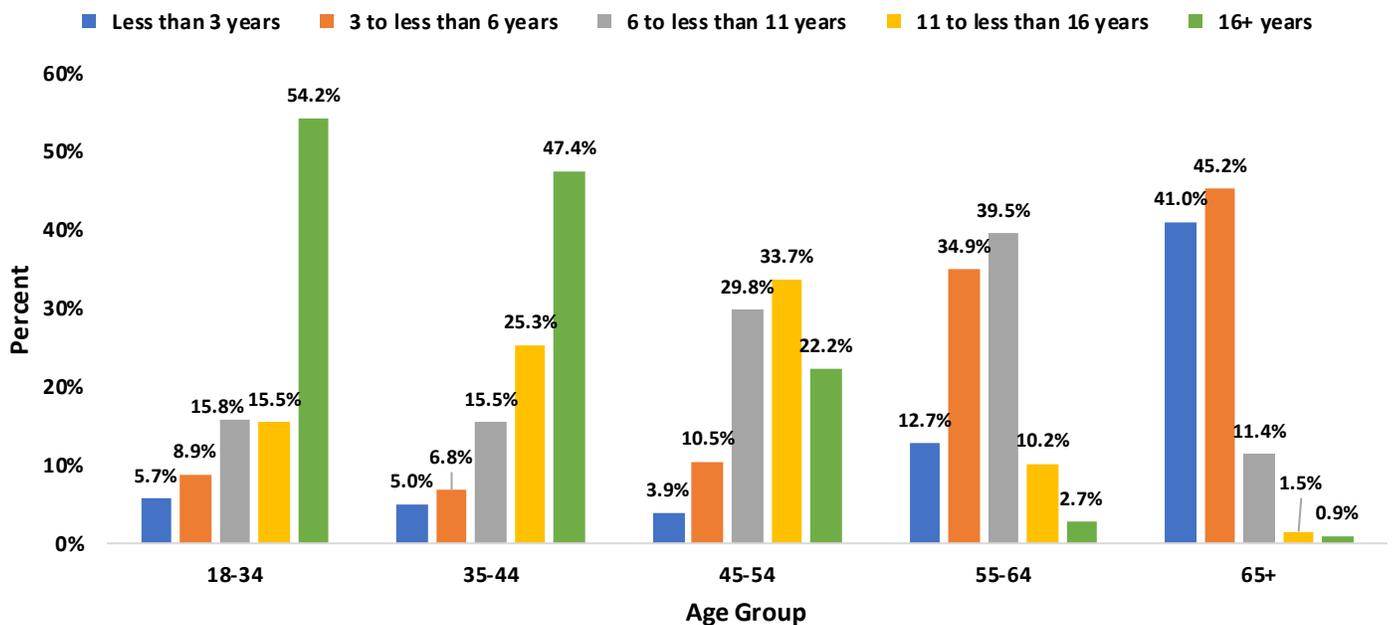
Table 43 presents the anticipated length in direct patient care among dental hygienist respondents who provided direct patient care in Pennsylvania. In 2021, 31.1% of respondents anticipated that they would stay in direct patient care in dental hygiene for 16 years or longer.

Table 43. Anticipated Length of Time Being in Direct Patient Care among Respondents Who Provided Direct Patient Care in Pennsylvania, 2021 Dental Hygiene Survey

Anticipated Length of Time	Number	Percent
Less than 3 years	561	8.5%
3 to less than 6 years	1,086	16.4%
6 to less than 11 years	1,589	24.0%
11 to less than 16 years	1,328	20.1%
16+ years	2,057	31.1%
Total	6,621	100.0%

Figure 31 displays the anticipated length of time staying in direct patient care among dental hygienist respondents who provided direct patient care by age group in Pennsylvania. In general, younger respondents tended to stay longer in direct patient care. Specifically, 54.2% of respondents aged 18 to 34 years indicated that they would stay in direct patient care for 16 years or longer, followed by 47.4% among respondents aged 35 to 44 years, 22.2% among respondents aged 45 to 54 years, 2.7% among respondents aged 55 to 64 years, and 0.9% among respondents aged 65 year or older.

Figure 31. Respondents Who Provided Direct Patient Care in Pennsylvania and Anticipate Being in Direct Patient Care in Pennsylvania by Anticipated Time and Age Group, 2021 Dental Hygienist Survey



Leaving Direct Patient Care in Less Than Six Years

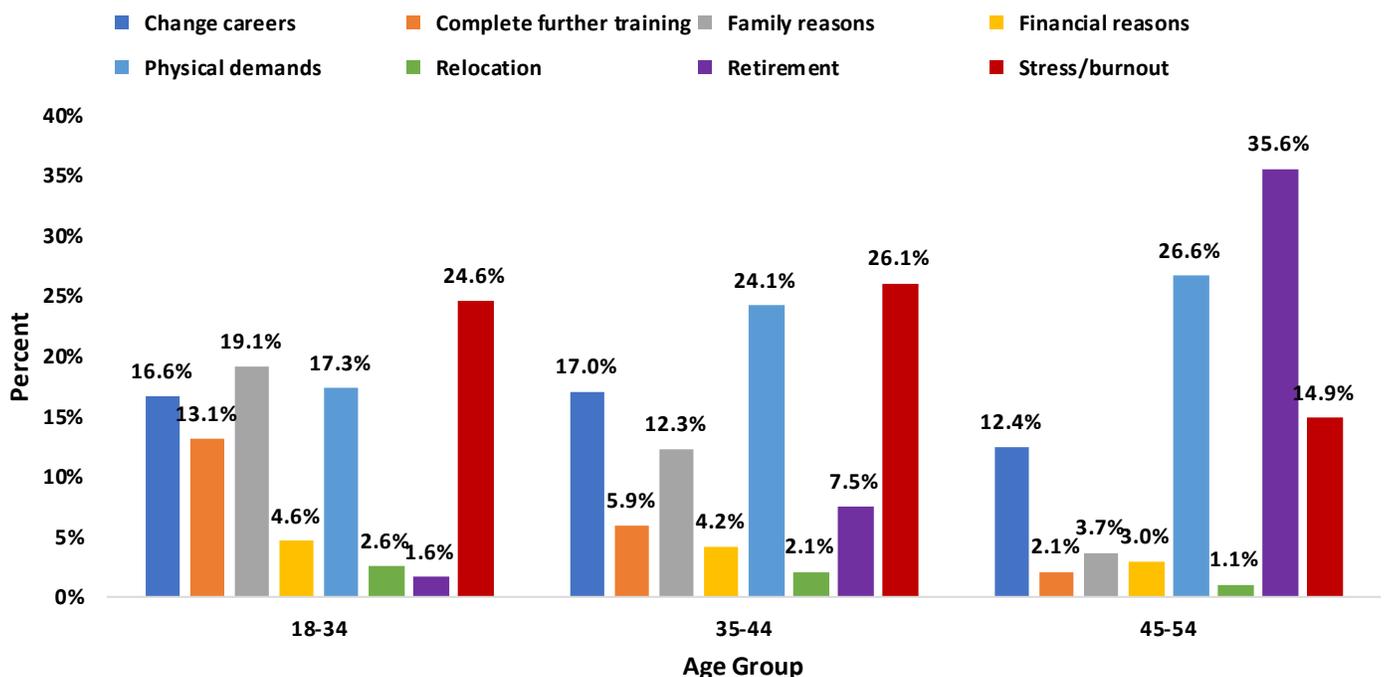
Of dental hygienists who provided direct patient care in Pennsylvania, 3,048 responded to the question of planning to leave direct patient care in less than six years. The primary reason for leaving was retirement (42.0%), followed by physical demands (16.2%), stress/burnout (14.5%), change careers (10.2%), family reasons (8.0%), completing further training (4.7%), financial reasons (2.7%), and relocation (1.3%) (Table 44).

Table 44. Respondents Who Provided Direct Patient Care in Pennsylvania and Planned to Leave Direct Patient Care in Less Than Six Years by Principal Reason for Leaving, 2021 Dental Hygienist Survey

Reasons Leaving Direct Patient Care in Less Than Six Years	Number	Percent
Retirement	1,279	42.0%
Physical demands	493	16.2%
Stress/burnout	442	14.5%
Change careers	312	10.2%
Family reasons	245	8.0%
Complete further training	143	4.7%
Financial reasons – salary/income	83	2.7%
Relocation	40	1.3%
Other	11	0.4%
Total	3,048	100.0%

Figure 32 displays the reasons why respondents who provided direct patient care in Pennsylvania planned to leave in less than six years by age group. Because retirement was the primary reason for leaving direct patient care in less than six years for those aged 65 years or older and for those aged 55 to 64 years, the figure excluded these two age groups. As shown, physical demand, stress or burnout is the primary reason for dental hygienists to leave direct patient care in less than six years for younger dental hygienists less than 45 years of age. In addition, dental hygienists aged 18 to 34 years were more likely to leave direct patient care in less than six years for family reasons. For dental hygienists aged 35 to 44 years, career changes were another reason to leave and for dental hygienists aged 45 to 54 years, retirement was the primary reason to leave.

Figure 32. Respondents Who Provided Direct Patient Care in Pennsylvania and Planned to Leave Direct Patient Care in the Less Than Six Years by Reason for Leaving and Age Group, 2021 Dental Hygienist Survey



VIII. Appendices

Appendix 1: Dentists Providing Direct Patient Care in PA by County of Primary Practice

County	Number	Percent
Pennsylvania	6,805*	100.0%
Rural counties	1,374	20.2%
Urban counties	5,431	79.8%
Adams	40	0.5%
Allegheny	817	10.8%
Armstrong	16	0.2%
Beaver	60	0.8%
Bedford	18	0.2%
Berks	171	2.3%
Blair	52	0.7%
Bradford	22	0.3%
Bucks	491	6.5%
Butler	125	1.7%
Cambria	54	0.7%
Cameron	**	**
Carbon	22	0.3%
Centre	71	0.9%
Chester	335	4.4%
Clarion	12	0.2%
Clearfield	29	0.4%
Clinton	13	0.2%
Columbia	28	0.4%
Crawford	28	0.4%
Cumberland	163	2.2%
Dauphin	152	2.0%
Delaware	334	4.4%
Elk	10	0.1%
Erie	129	1.7%
Fayette	57	0.8%
Forest	**	**
Franklin	65	0.9%
Fulton	**	**
Greene	11	0.2%
Huntingdon	12	0.2%
Indiana	25	0.3%

County	Number	Percent
Jefferson	16	0.2%
Juniata	**	**
Lackawanna	142	1.9%
Lancaster	245	3.3%
Lawrence	34	0.5%
Lebanon	56	0.7%
Lehigh	222	2.9%
Luzerne	148	2.0%
Lycoming	43	0.6%
McKean	13	0.2%
Mercer	76	1.0%
Mifflin	14	0.2%
Monroe	68	0.9%
Montgomery	725	9.6%
Montour	24	0.3%
Northampton	135	1.8%
Northumberland	25	0.3%
Perry	13	0.2%
Philadelphia	751	10.0%
Pike	15	0.2%
Potter	**	**
Schuylkill	48	0.6%
Snyder	16	0.2%
Somerset	31	0.4%
Sullivan	**	**
Susquehanna	8	0.1%
Tioga	12	0.2%
Union	23	0.3%
Venango	10	0.1%
Warren	18	0.2%
Washington	109	1.4%
Wayne	24	0.3%
Westmoreland	162	2.2%
Wyoming	7	0.1%
York	193	2.6%

* The total number in the state does not equal to the total number in the counties because of missing values in counties.

** Numbers less than six are withheld for privacy purposes and are not displayed in the county results, although they are included in the total Pennsylvania numbers and total rural/urban numbers.

Appendix 2: Dental Hygienists Providing Direct Patient Care in PA by County of Primary Practice

County	Number	Percent
Pennsylvania	7,169*	100.0%
Rural counties	1,576	24.3%
Urban counties	4,922	75.7%
Adams	37	0.6%
Allegheny	668	9.9%
Armstrong	30	0.5%
Beaver	68	1.0%
Bedford	26	0.4%
Berks	212	3.2%
Blair	68	1.0%
Bradford	21	0.3%
Bucks	386	5.7%
Butler	131	2.0%
Cambria	60	0.9%
Cameron	**	**
Carbon	25	0.4%
Centre	91	1.4%
Chester	313	4.7%
Clarion	17	0.3%
Clearfield	35	0.5%
Clinton	20	0.3%
Columbia	38	0.6%
Crawford	37	0.6%
Cumberland	172	2.6%
Dauphin	177	2.6%
Delaware	257	3.8%
Elk	15	0.2%
Erie	149	2.2%
Fayette	58	0.9%
Forest	**	**
Franklin	74	1.1%
Fulton	**	**
Greene	12	0.2%
Huntingdon	16	0.2%
Indiana	27	0.4%

County	Number	Percent
Jefferson	17	0.3%
Juniata	8	0.1%
Lackawanna	131	2.0%
Lancaster	347	5.2%
Lawrence	36	0.5%
Lebanon	57	0.9%
Lehigh	227	3.4%
Luzerne	199	3.0%
Lycoming	67	1.0%
McKean	13	0.2%
Mercer	51	0.8%
Mifflin	18	0.3%
Monroe	70	1.0%
Montgomery	616	9.2%
Montour	9	0.1%
Northampton	182	2.7%
Northumberland	41	0.6%
Perry	234	3.5%
Philadelphia	14	0.2%
Pike	370	5.5%
Potter	19	0.3%
Schuylkill	6	0.1%
Snyder	53	0.8%
Somerset	22	0.3%
Sullivan	25	0.4%
Susquehanna	**	**
Tioga	12	0.2%
Union	11	0.2%
Venango	34	0.5%
Warren	17	0.3%
Washington	31	0.5%
Wayne	110	1.6%
Westmoreland	34	0.5%
Wyoming	184	2.7%
York	12	0.2%

* The total number in the state does not equal to the total number in the counties because of missing values in counties.

** Numbers less than six are withheld for privacy purposes and are not displayed in the county results, although they are included in the total Pennsylvania numbers and total rural/urban numbers.

Appendix 3: 2021 Dentist Survey Questionnaire

1. Year of Birth

2. National Provider Identifier (NPI) for Individuals (not organizations) – If known, please enter your 10-digit individual NPI number. (Note: NPI search tool is located at: <https://npiregistry.cms.hhs.gov/>)

Answer options
Unknown
Known
N/A

2a. My Individual NPI

3. Gender Identity

Answer options
Female
Male
Non-Binary/Third Gender
Transgender Man
Transgender Woman
Transgender
Prefer not to say
Prefer to self-describe

4. Sexual Orientation

Answer options
Heterosexual
Gay/Lesbian/Homosexual
Bisexual/Pansexual
Prefer not to say
Prefer to self-describe

5. Ethnicity

Answer options
Hispanic or Latino
Not Hispanic or Latino
Prefer not to say

6. Race

Answer options
American Indian/Alaska Native
Asian
Black/African American
Native Hawaiian/Other Pacific Islander
White/Caucasian
Prefer not to say
Other _____

7. State of Residence

7a. County of Residence

8. In which state did you graduate from dental school?

8a. In what year did you obtain this degree?

9. In what year was your first dental license issued?

10. Are you board certified from the American Board of Dental Public Health?

Answer options
Yes
No
N/A

11. Are you board certified from the American Board of Endodontics?

Answer options
Yes
No
N/A

11a. Are you board certified from the American Board of Oral and Maxillofacial Pathology?

Answer options
Yes
No
N/A

11b. Are you board certified from the American Board of Oral and Maxillofacial Radiology?

Answer options
Yes
No
N/A

11c. Are you board certified from the American Board of Oral and Maxillofacial Surgery?

Answer options
Yes
No
N/A

11d. Are you board certified from the American Board of Orthodontics?

Answer options
Yes
No
N/A

11e. Are you board certified from the American Board of Pediatric Dentistry?

Answer options
Yes
No
N/A

11f. Are you board certified from the American Board of Prosthodontics?

Answer options
Yes
No
N/A

12. Select the employment status that most closely resembles your current employment status?

Answer options
Employed in dentistry, direct or indirect
Employed not in dentistry
Retired
Student, leave of absence, or sabbatical
Unemployed, disabled
Unemployed, not seeking work in dentistry
Unemployed, seeking work in dentistry
Other

13. Select the employment situation that most closely resembles your primary employment situation.

Answer options
Administrative
Direct patient care
Education
Not employed as a dentist
Research
Other

14. Please estimate the number of hours you spent providing direct patient care in Pennsylvania during a typical week in the past 12 months, at your primary practice location. (Note: Direct patient care includes the amount of time a dentist spends directly with patients in a dental practice setting.)

Answer options
Zero hours per week
More than zero hours per week
N/A

14a. Number of hours you spent providing direct patient care in Pennsylvania during a typical week in the past 12 months, at your primary practice location.

15. Please estimate the number of hours you spent providing direct patient care in Pennsylvania during a typical week in the past 12 months, at your secondary practice location (Note: Direct patient care includes the amount of time a dentist spends directly with patients in a dental practice setting.)

Answer options
Zero hours per week
More than zero hours per week

N/A

15a. Number of hours you spent providing direct patient care in Pennsylvania during a typical week in the past 12 months, at your secondary practice location.

16. Please estimate the number of hours you spent providing direct patient care in Pennsylvania during a typical week in the past 12 months, at your third practice location (Note: Direct patient care includes the amount of time a dentist spends directly with patients in a dental practice setting.)

Answer options
Zero hours per week
More than zero hours per week
N/A

16a. Number of hours you spent providing direct patient care in Pennsylvania during a typical week in the past 12 months, at your third practice location.

17. Do you most closely identify as a generalist or a specialist?

Answer options	Skip
Generalist	Go to question 19
Specialist	Go to question 19
Other	Go to question 19

18. If you most closely identify as a specialist, indicate the category that most closely represents the specialty in which the majority of your dental practice time is spent.

Answer options	Skip
Endodontics	Go to question 20
Geriatric Dentistry	Go to question 20
Oral Surgery	Go to question 20
Orthodontics	Go to question 20
Pathology	Go to question 20
Pediatric Dentistry	Go to question 20
Periodontics	Go to question 20
Prosthodontics	Go to question 20
Radiology	Go to question 20
Other	Go to question 20

19. If you most closely identify as a generalist, do you practice in the following areas?

19a. Endodontics

Answer Options
Yes
No

19b. Geriatric Dentistry

Answer Options
Yes
No

19c. Oral Surgery

Answer Options
Yes
No

19d. Orthodontics

Answer Options
Yes
No

19e. Pathology

Answer Options
Yes
No

19f. Pediatric Dentistry

Answer Options
Yes
No

19g. Periodontics

Answer Options
Yes
No

19h. Prosthodontics

Answer Options
Yes
No

19i. Radiology

Answer Options
Yes
No

19j. Other

Answer Options
Yes
No

20. What is the address of your primary practice location?

Answer Options

Pennsylvania
Not in Pennsylvania
Not Applicable

20a. Primary Practice Location Street Address

20b. Primary Practice Location City

20c. Primary Practice Location State

20d. Primary Practice Location Zip Code

20e. Primary Practice Location County

20f. Please estimate the percentage of your patients at this primary practice location who pay with Medicaid (enter 0% if you have no patients paying with Medicaid).

20g. Please estimate the percentage of your patients at this primary practice location who pay on a sliding fee scale. (enter 0% if you do not offer a sliding fee scale)

20h. Total number of full-time dental hygienists and dental assistants at your primary location:

20i. Total number of part-time dental hygienists and dental assistants at your primary location:

20j. Is your primary practice location inpatient-only?

Answer options
Yes
No
Unknown
N/A

21. What is the address of your secondary practice location?

Answer options
Pennsylvania
Not in Pennsylvania
Not Applicable

21a. Secondary Practice Location Street Address

21b. Secondary Practice Location City

21c. Secondary Practice Location State

21d. Secondary Practice Location Zip Code

21e. Secondary Practice Location County

21f. Please estimate the percentage of your patients at this secondary practice location who pay with Medicaid (enter 0% if you have no patients paying with Medicaid).

21g. Please estimate the percentage of your patients on a sliding fee scale at your secondary practice location

21h. Total number of full-time dental hygienists and dental assistants at your secondary practice location:

21i. Total number of part-time dental hygienists and dental assistants at your secondary practice location:

21j. Is your secondary practice location inpatient-only?

Answer options
Yes
No
Unknown
N/A

22. What is the address of your third practice location?

Answer options
Pennsylvania
Not in Pennsylvania
Not Applicable

22a. Third Practice Location Street Address

22b. Third Practice Location City

22c. Third Practice Location State

22d. Third Practice Location ZIP Code

22e. Third Practice Location County

22f. Please estimate the percentage of your patients at this third practice location who pay with Medicaid (enter 0% if you have no patients paying with Medicaid)

22g. Please estimate the percentage of your patients on a sliding fee scale at your third practice location

22h. Total number of full-time dental hygienists and dental assistants at your third practice location

22i. Total number of part-time dental hygienists and dental assistants at your third practice location

22j. Is your third practice location inpatient-only?

Answer options
Yes
No
Unknown
N/A

23. Do you provide general dentistry for patients with severe developmental or physical limitations or disabilities?

Answer options
Yes

No
N/A

24. What is the youngest age of children you regularly see in your office/clinic?

Answer options
< 1 year
1 year
2 years
3 years
4 years
5 years and over
Do not see children

25. Do you regularly see geriatric patients in your office/clinic?

Answer options
Yes
No

26. Which organization best describes the employer you work for the most hours each week?

Answer options
Consulting/contractual/locum tenens
FQHC
FQHC Look-Alike
Group practice
Government – federal/state/local
Health system
Hospital
Hospital inpatient only
Private practice – employee
Private practice full/part owner
Public health organization – federal/state/local
Rural health clinic
State correctional facility
Urgent care center/clinic
University/academic center
Other – independent organization
N/A
Other _____

27. Which setting best describes where you work the most hours each week?

Answer options
Academic institution
Ambulatory surgical facility
Correctional facility
Emergency department
Hospital – federal/state
Hospital
Long-term care center
Nursing home
Office/clinic

Public Health – federal/state/local
Urgent care/convenient care
Other _____

28. Do you accept the following coverage plans?

28a. Medicaid

Answer options
Yes
No

28b. Medicare supplemental insurance

Answer options
Yes
No

28c. Children’s Health Insurance Program (CHIP)

Answer options
Yes
No

28d. Private insurance

Answer options
Yes
No

29. Are you currently accepting new patients?

Answer options	Skip
Yes	Go to question 29a
No	Go to question 30
Unknown	Go to question 29a

29a. Medicaid

Answer options
Yes
No
Unknown
N/A

29b. Medicare

Answer options
Yes
No
Unknown
N/A

29c. Children’s Health Insurance Program (CHIP)

Answer options
Yes
No
Unknown
N/A

29d. Private insurance

Answer options
Yes
No
Unknown
N/A

29e. Uninsured

Answer options
Yes
No
Unknown
N/A

30. In the past 6 months, have you utilized language interpretive services to patients? (Languages other than English)

Answer options	Skip
Yes	Go to question 30a
No	Go to question 31
Unknown	Go to question 31
N/A	Go to question 31

30a. In which languages did you utilize language interpretive service to patients?

Answer options (checkboxes)	
<input type="checkbox"/>	Arabic
<input type="checkbox"/>	Korean
<input type="checkbox"/>	Chinese
<input type="checkbox"/>	Russian
<input type="checkbox"/>	French
<input type="checkbox"/>	Sign language
<input type="checkbox"/>	German
<input type="checkbox"/>	Spanish
<input type="checkbox"/>	Hindi
<input type="checkbox"/>	Urdu
<input type="checkbox"/>	Italian
<input type="checkbox"/>	Other _____

31. Does your dental practice use an electronic health records (EHR) system to collect, store and retrieve your patients’ clinical information?

Answer options
Yes
No
Unknown
N/A

32. Does your dental practice currently have the ability to electronically exchange patients' clinical information with other providers?

Answer options
Yes
No
Unknown
N/A

33. Overall, how satisfied are you with your dental career?

Answer options
Very satisfied
Satisfied
Dissatisfied
Very Dissatisfied

34. What is the greatest source of your professional satisfaction?

Answer options
Decision making autonomy
Patient relationships
N/A – completely dissatisfied
Financial reasons – salary/income/benefits
Practice environment
Intellectual challenge
Staff relationships
Other _____

35. What is the greatest source of your professional dissatisfaction?

Answer options
Availability of leisure time
Patient relationships
Time spent with patients
Decision making autonomy
Financial reasons – salary/income/benefits
Practice environment
Staff relationships
N/A – completely satisfied
Other _____

36. How long have you practiced dentistry in Pennsylvania?

Answer options
Less than 3 years

3 to less than 6 years
6 to less than 11 years
11 to less than 16 years
16+ years

37. How much longer do you anticipate practicing dentistry in Pennsylvania?

Answer options
Less than 3 years
3 to less than 6 years
6 to less than 11 years
11 to less than 16 years
16+ years

38. How much longer do you anticipate practicing direct patient care as a dentist in Pennsylvania?

Answer options
Less than 3 years
3 to less than 6 years
6 to less than 11 years
11 to less than 16 years
16+ years

39. If you plan to leave direct patient care in Pennsylvania in less than 6 years, indicate your primary reason below

Answer options
Change careers
Complete further training
Dissatisfaction with career
Family reasons
Financial reasons – salary/income/benefits
Illness/disability
Physical demands
Practice demands
Retirement
Stress/burnout
Not Applicable
Other

Appendix 4: 2021 Dental Hygienist Survey Questionnaire

1. **Year of Birth**
2. **National Provider Identifier (NPI) for individuals (not organizations)**– If known, please enter your 10-digit individual NPI number (Note: NPI search tool is located at: <https://npiregistry.cms.hhs.gov/>)

Answer Options
Unknown
Known
N/A

2a. My Individual NPI

3. Gender Identity

Answer Options
Female
Male
Non-Binary/Third Gender
Transgender Man
Transgender Woman
Transgender
Prefer not to say
Prefer to self-describe

4. Sexual Orientation

Answer Options
Heterosexual
Gay/Lesbian/Homosexual
Bisexual/Pansexual
Prefer not to say
Prefer to self-describe

5. Ethnicity

Answer Options
Hispanic or Latino
Not Hispanic or Latino
Prefer not to say

6. Race

Answer Options
American Indian/Alaska Native
Asian
Black/African American
Native Hawaiian/Other Pacific Islander
White/Caucasian

Prefer not to say
Other _____

7. State of Residence

7a. County of Residence

8. In which state did you graduate from dental hygiene school?

8a. In what year did you obtain this degree?

9. What is your highest level of dental hygiene education completed?

Answer Options
Certificate
Associate
Bachelor
Master

10. Are you currently enrolled in any of the following higher education programs?

Answer Options
Dental hygiene associate degree
Dental hygiene bachelor's degree
Dental hygiene master's degree
Other non-degree
Other bachelor's degree
Other master's degree
Not enrolled

11. Are you certified in Pennsylvania as an expanded function dental assistant?

Answer Options
Yes
No
N/A

12. Do you perform as an expanded function dental assistant in your primary job?

Answer Options
Yes
No
N/A

12a. Do you perform as a Pennsylvania school hygienist in your primary job?

Answer Options
Yes

No
N/A

13. Do you hold a Pennsylvania dental hygiene local anesthesia permit?

Answer Options
Yes
No
N/A

13a. Do you administer local anesthesia as a dental hygienist in your primary job?

Answer Options
Yes
No
N/A

14. Are you licensed as a public health dental hygiene practitioner (PHDHP)?

Answer Options	Go to question number:
Yes	14a
No	15
N/A	15

14a. Do you perform as a PHDHP in your primary job?

Answer Options	Go to question number:
Yes	14b
No	15
N/A	15

14b. In which county do you primarily practice at as a PHDHP?

14c. What type of practice site do you primarily practice at as a PHDHP?

Answer Options
Correctional Facility
Domiciliary care facility
Federally Qualified Health Center (FQHC)
Health care facility
Older adult daily living center
Public/private federal/state institution
Personal care home
School
Other
N/A

15. Do you intend to apply for a PHDHP license?

Answer Options
Yes
No
Already licensed as a PHDHP
N/A

16. Select the employment status that most closely resembles your current employment status?

Answer Options
Employed in dental hygiene
Employed not in dental hygiene
Retired
Student, leave of absence, or sabbatical
Unemployed, disabled
Unemployed, not seeking work in dental hygiene
Unemployed, seeking work in dental hygiene
Other

17. What type of position do you hold in your primary job?

Answer Options
Administration/management
Direct patient care
Educator
Not employed as a dental hygienist
Other non-patient care
Researcher/consultant
Other

17a. If not in direct patient care, do you plan to return to direct patient care in the next 5 years?

Answer Options
Yes
No
N/A

18. Indicate the approximate number of hours you spent providing direct patient care each week in Pennsylvania during the last year (including all positions). Note: For the purpose of this report, direct patient care includes the amount of time a dental hygienist spends directly with patients in a dental practice setting and patient-specific office work.

Answer Options	Go to question number:
Zero	Closing statement of survey (<i>Thank you! You have finished the survey</i>)
1 – 10 hours	19
11 – 19 hours	19
20 – 30 hours	19

31 – 40 hours	19
More than 40 hours	19
Other _____	19

19. In how many positions are you employed as a dental hygienist?

Answer Options
1
2
3 or more
N/A

20. Identify the setting that most closely represents your primary job.

Answer Options
Clinic or center
Private practice partnership (excluding retail site)
Private practice solo (excluding retail site)
Mobile dental unit or community setting using portable dental equipment
Retail/industry/business site
School health (K-12/college/university)
Other _____

20a. In which state is your primary job located?

20b. In which county is your primary job located?

20c. Indicate the number of hours you work in your primary job per week?

Answer Options
1 – 10 hours
11 – 19 hours
20 – 30 hours
31 – 40 hours
More than 40 hours

21. In the past 6 months, were you able to communicate with patients in a language other than English without using an interpreter?

Answer Options	Go to question number:
Yes	21a
No	22
N/A	22

21a. In which languages, other than English, did you communicate with patients without using an interpreter? (checkboxes)

Answer Options
Arabic
Chinese
French
German
Hindi
Italian
PA Dutch
Polish
Russian
Sign Language
Spanish
Urdu
Vietnamese
N/A
Other _____

22. How satisfied are you with your current primary job?

Answer Options
Very Satisfied
Satisfied
Dissatisfied
Very Dissatisfied

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

Answer Options
Very Satisfied
Satisfied
Dissatisfied
Very Dissatisfied

24. How long have you been a dental hygienist in Pennsylvania?

Answer Options
Less than 3 years
3 to less than 6 years
6 to less than 11 years
\11 to less than 16 years
16+ years

25. How much longer do you plan to remain in dental hygiene?

Answer Options
Less than 3 years
3 to less than 6 years

6 to less than 11 years
11 to less than 16 years
16+ years

26. How much longer do you plan to remain in direct patient care as a dental hygienist in Pennsylvania?

Answer Options
Less than 3 years
3 to less than 6 years
6 to less than 11 years
11 to less than 16 years
16+ years

27. If you plan to leave direct patient care in Pennsylvania in less than 6 years, indicate your primary reason below

Answer Options
Change careers
Complete further training
Family reasons
Financial reasons – salary/income/benefits
Physical demands
Retirement
Stress/burnout
Not applicable
Other _____