

Dental Industry Analysis: National Summary Report

Prepared for

Association of Dental Support Organizations

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Executive Summary

- In 2022, there was an average of 60.8 dentists per 100,000 residents across the United States, representing a 1.9% increase in licensed providers per capita over the prior decade.
 - The rate of growth of dentists outpaced population growth, driven by a growing pipeline of new dental school graduates and dentists working longer careers, with some remaining in the profession for 40 years or more.
- Supply of dentists ranges widely across the U.S., ranging from Massachusetts with 82 dentists per 100,000 to Georgia with 47.
 - Over the decade from 2012 to 2022, states like North Carolina, Texas, Nevada, Florida, and Arizona saw the fastest growth in the U.S. but remain below the national average.
 - Over the same decade, states like Pennsylvania, New York, and New Jersey remained above the national average but saw below-average growth or decline in supply of dentists.
- Urban areas in the United States have the highest concentrations of dentists and a younger dental workforce. By comparison, rural areas have the lowest share of dentists with fewer than 10 years of experience, and risk supply shortages with an aging workforce.
 - 10.3% of Americans live in dental health provider shortage areas, most pronounced in rural areas.
- Supply of dentists in the U.S. is shifting geographically, with the fastest in sun belt metro areas in places like Texas, Florida, Arizona, and North Carolina.
 - States including Pennsylvania, Ohio, and Wisconsin face upcoming supply shortages with an aging workforce and outward migration.
 - Early career dentists are more likely to opt for smaller and mid-sized metro areas with populations between 1 and 5 million residents.
- Rates of office consolidation are high across all states, with the average dental office employing more staff.
 - Group practices are now the most common dental model as the traditional solo practice declines and more dentists opt for group or DSO-affiliated practices.
- Over the past five years, each new graduating class from dental school has an increasing share of women and people of color. Recent graduates of dental school are approximately half women half non-white, and women made up 56 percent of new dental school enrollment in the 2022-2023 school year.
 - The highest rates of DSO participation are among early career, women, and dentists of color.
- The pipeline for dental hygienists recovered from a downturn in 2020 but it remains insufficient to meet the growing demand for allied dental health professions, as the number of new dentists continues to grow quickly.
 - Ratio of dental hygiene school graduates to dental school graduates is approximately 1.1 to 1, below many industry benchmarks.

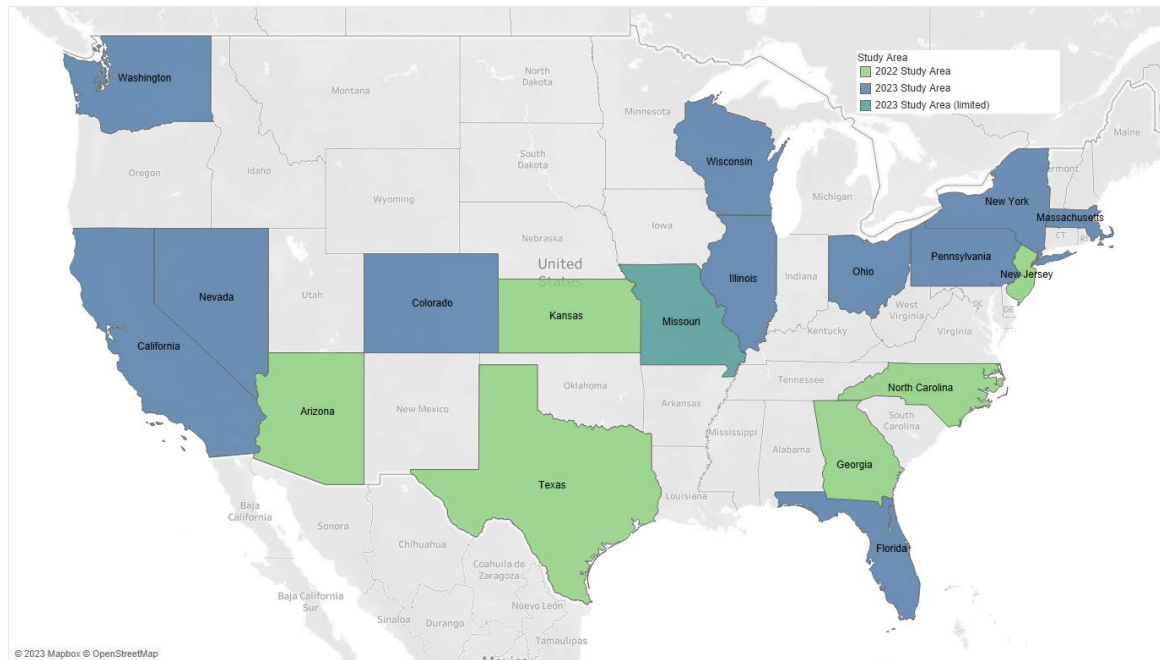
Introduction

Dentistry is a profession and industry that is vital for the health and well-being of Americans, as well as being a source of good-paying jobs, employing over 1 million people in the U.S. in 2022. Access to dental services is closely linked to better oral health outcomes for children and adults, and quality of oral health is correlated with overall health outcomes. To better understand the dental industry, RTI both analyzed 16 states in detail and examined national-level trends in the economics, demographics, and supply of dentistry and dental offices.

The study provides a broad view of the dental industry in the United States, focusing on areas such as the supply of dentists and access to dental care by geography; industry trends such as size, ownership, and Dental Support Organization (DSO) affiliation; wages, employment, and job openings for dentists, dental hygienists, and dental assistants; dental education; and demographics. This report presents national-level conditions and trends in the dental industry, which may illuminate future economic opportunity and policy directions.

This report complements a series of state-level reports prepared by RTI for the Association of Dental Support Organizations (ADSO) and summarizes national data and high-level findings across the 17 states outlined in Figure 1 below.

Figure 1: Study Area States in 2022-2023



Supply of Licensed Dentists

Nationwide, there were 60.8 dentists per 100,000 residents in the United States in 2021, a 1.9% increase from ten years prior. From 2012 to 2022, the number of active dentists in the U.S. has increased by over 13,600 – a 7% increase in total supply outpacing national population growth (6%). In states analyzed, the range of dental supply ranged from 82 dentists per 100,000 in Massachusetts to just 47.3 in Georgia.¹

Table 1. Dentists Working in Dentistry per 100,000 Residents, 2011–2021

Year	2011		2021		10-Year Change	Growth Rank
	Ratio	Rank	Ratio	Rank		
National						
United States	59.7	-	60.8	-	1.9%	-
Sample Area States						
Massachusetts	78.4	2	82.0	1	4.6%	11
California	76.3	5	78.9	3	3.4%	16
New Jersey	78.7	1	77.5	4	-1.6%	31
New York	74.7	7	71.9	7	-3.8%	41
Washington	70.3	8	70.8	8	0.7%	22
Illinois	65.6	12	68.5	10	4.4%	13
Colorado	68.1	11	68.2	11	0.1%	25
Pennsylvania	59.2	20	58.0	19	-1.9%	33
Arizona	53.6	27	58.0	20	8.2%	4
Wisconsin	54.1	25	57.2	23	5.4%	9
Nevada	52.6	29	55.7	25	5.9%	6
North Carolina	47.2	43	55.0	25	16.5%	1
Texas	48.2	40	54.2	28	12.3%	2
Florida	49.9	35	53.6	30	7.4%	5
Ohio	51.7	30	51.0	36	-1.5%	29
Kansas	49.9	34	50.0	38	0.0%	26
Georgia	46.6	46	47.3	45	1.4%	18

Source: ADA Health Policy Institute.

Notes: Ranking excludes Washington, DC and Puerto Rico.

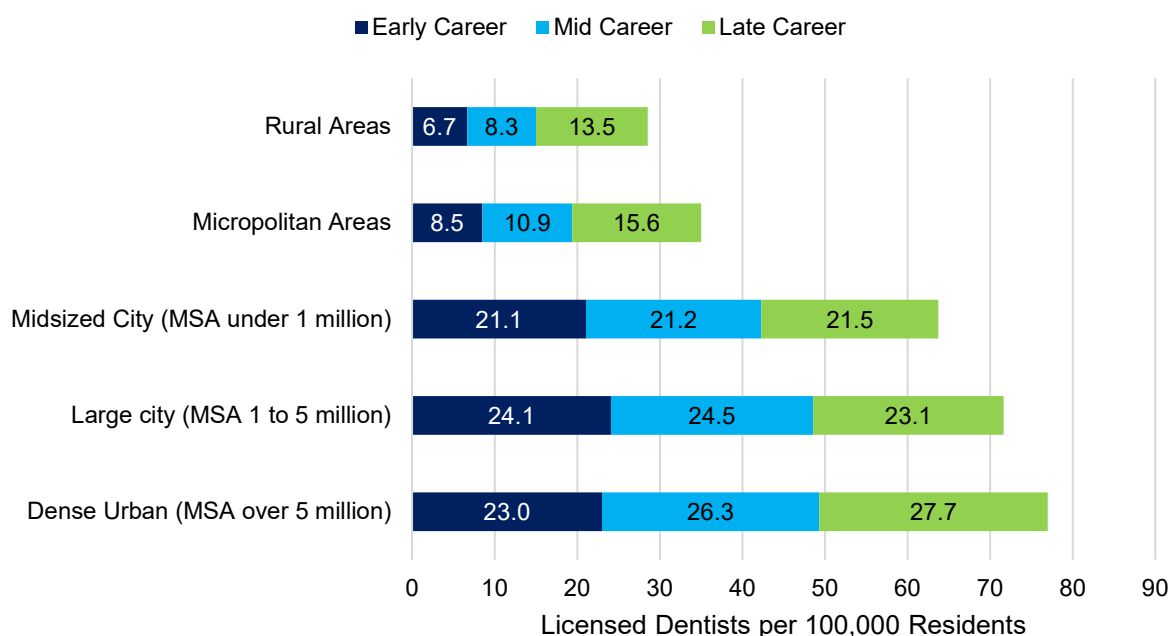
¹ ADA Health Policy Institute

In addition to examining public data from the ADA and public health agencies, RTI measured the number of dentists through state licensure data. While less exact for statewide counts, licensure data can help articulate the geographic distribution of dentists across the state as well as variations in how long dentists in different areas have been active. RTI accessed and analyzed dental licensure records for 16 states, representing almost 210 million people and over 138,000 dentists.

Among states analyzed, there were 66.2 dentists per 100,000 residents. This compares to 60.8 reported from the American Dental Association, suggesting that a small percentage of licensed dentists are not actively practicing in clinical settings, or that states analyzed had higher rates of coverage than the nation at large. RTI connected each record with a geographic identifier through zip code or county data where available and connected them with a metro area.

Licensure analysis allowed a better understanding of where dentists locate and the relative age and experience of dentists in different places. Across the country, the supply of dentists varies widely, with stark disparities within states by Metropolitan Statistical Area (MSA). Smaller MSAs, rural counties, and micropolitan areas have among the lowest levels of coverage. These areas also have a disproportionately older workforce—large cities over 1 million people have 32.9% of dentists in their early career compared to just 22.4% in rural areas. This suggests that disparities between urban and rural areas could deepen as older dentists retire.

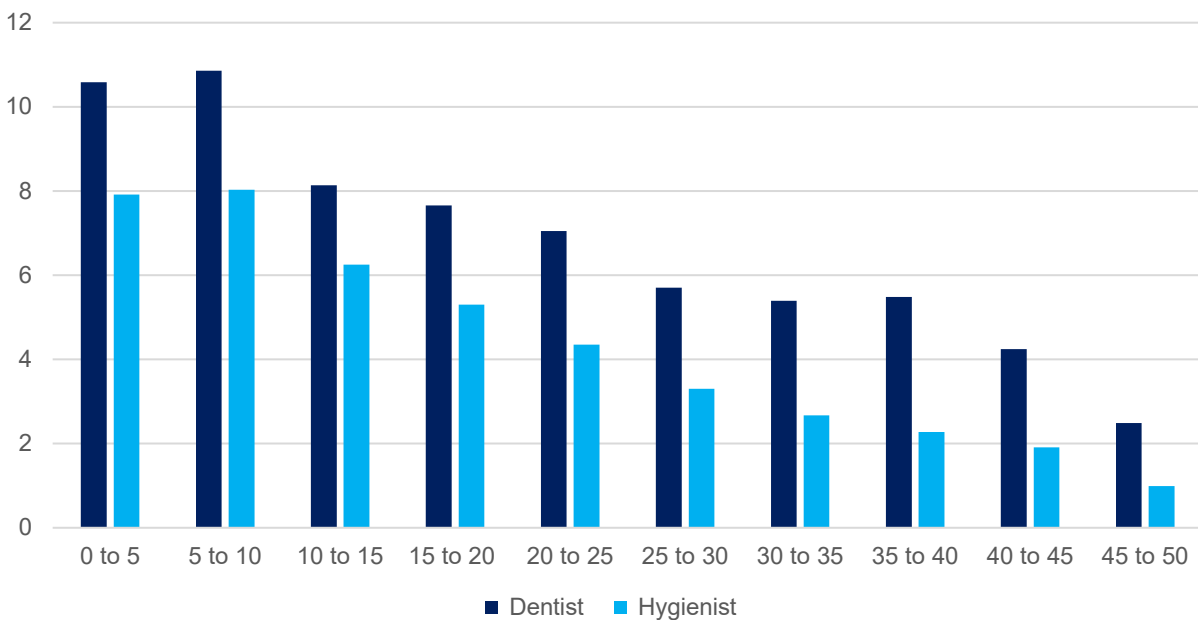
Figure 2. Active, Licensed Dentists per 100,000 Residents, by Metropolitan Statistical Area category and Population: 2023



Source: State Licensing Boards from 16 states. See state level reports for details. Early Career <10 years, Mid-Career 10-24 years, Late Career 25+. Given state-by-state differences in licensing and reporting methodologies, state-by state-comparisons are not exact.

While we would expect a steady decrease in active licenses by time, dental licenses show very little decline, just four percent, between years 25 and 40. There are more dentists registered for 30 to 35 years than from 35 to 40. In several states, there is a bimodal or “barbell shaped” distribution of dentists by age, with more dentists in the 30–40-year tenure category than the 15–25. Ohio, for example, has peaks at 0-5 and at 30-35, with an inflection point at 20-25. There is low decline from license volume from 25 to 40 years of tenure, with totals dropping only by 4% from the beginning of this period to the end. Hygienists, by contrast, show a much more regular decline as tenure increases.

Figure 3. Active, Licensed Dental Professionals per 100,000 Residents: 2023



Note: Represents license data aggregated across 15 states with available Dentist licenses and 10 states with available Hygienist licenses. Due to differences reporting and license requirements, results may not be comparable from state to state.

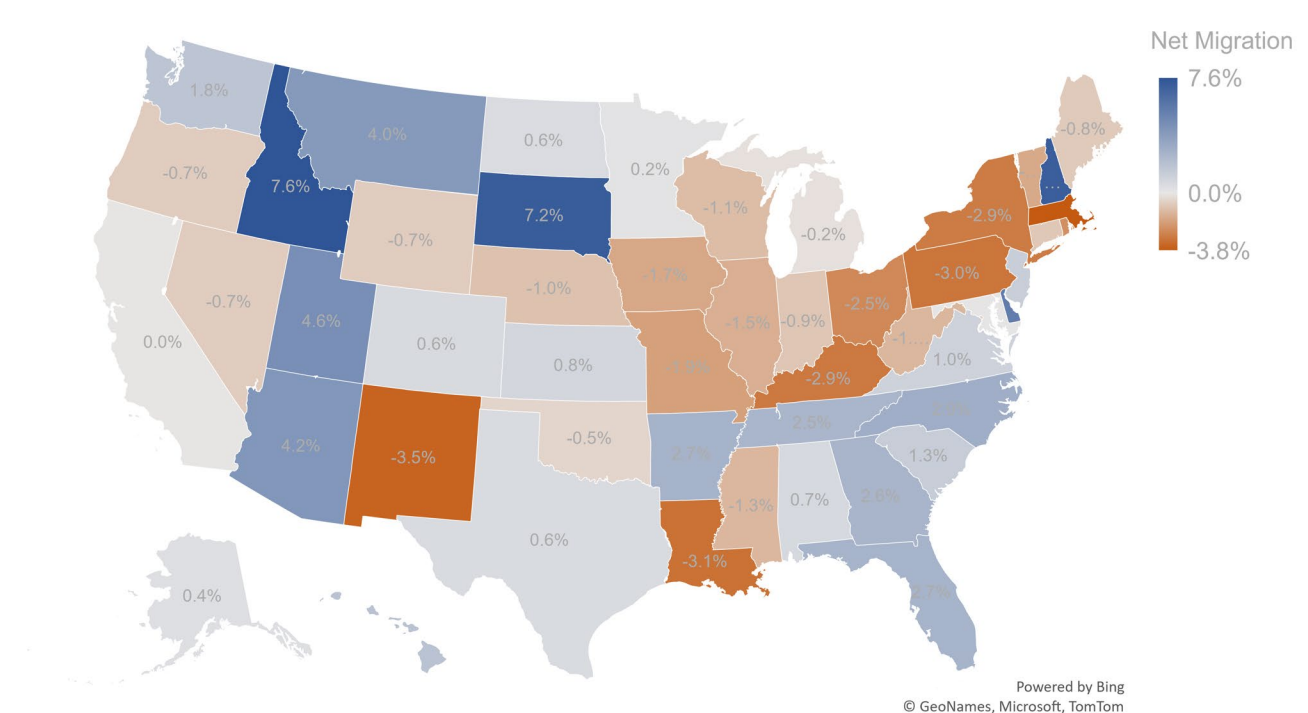
This unexpected result could indicate that the US had a wave of dentists enter practices in the late 1970s to early 1990s and that dentists from this era are working past retirement age or continuing to keep their licenses active. Additionally, it indicates that some mid-career dentists have left the profession or moved states, leaving a gap between senior, late-career dentists and newly licensed dentists who make up the largest cohort of practitioners.

State Supply Dynamics

There are also wide gaps in growth rates across states, following population shifts, migration, and new dental schools opening. During this time, North Carolina saw a 29% increase in dentists, compared to a 3% decline in New York. To replace retiring dentists or keep up with greater demand from a growing population, supply of dentists by state relies on the number of dentists trained in a state and the net rates of migration.

Supply and migration are related to presence of dental schools. New graduates of dental schools may choose to move to states or markets with a higher need for dental practitioners. On net, dentists move from states with a high number of new dental graduates and high supply, such as Massachusetts and Pennsylvania, to places with few or no dental school graduates such as Idaho or New Hampshire. Dentists have also moved towards high growth states in the southeast such as North Carolina, Florida, and Georgia. See Appendix A to see full numbers of dental school graduates.

Figure 4: Net Migration of Dentists: 2019-2022



Source: American Dental Association Health Policy Institute, 2022.

Among states analyzed in this study, growth in the supply of dentists per capita was most marked in North Carolina, Texas, Florida, Arizona. There were notable declines in Ohio, Pennsylvania, New York, and New Jersey. (See Appendix B)

Health Provider Shortage Areas

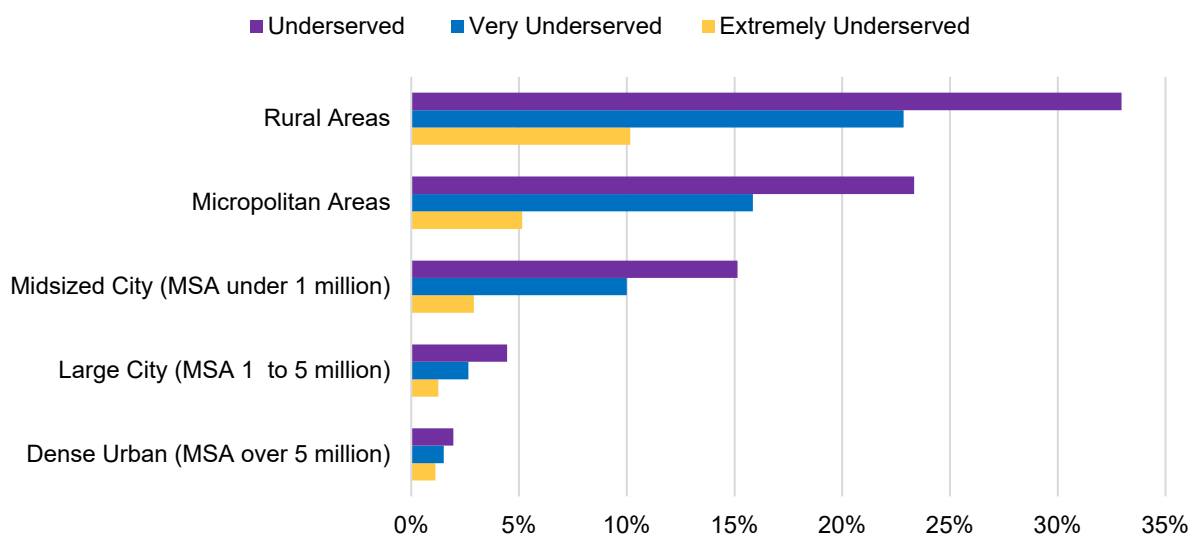
Across the country, many people live in areas with limited access to healthcare. The Health Resources and Services Administration (HRSA) tracks access to healthcare by geography, which is used to understand where shortages exist.

The Health Resources and Services Administration (HRSA) typically defines an underserved population as having fewer than 25 dentists per 100,000 residents (1 dentist for 4,000 residents). They also give scores to areas with particularly pressing needs that are labeled as

high priority. Nationally, 10.3% of Americans live in underserved geographies. Additionally, 6.9% are considered very underserved (in areas with above average prioritization codes), and 2.5% are extremely underserved (in the top 17% of prioritization among shortage areas).

As seen in Figure 5, the highest level of shortages is found rural areas, where over 33% of the population is underserved. Micropolitan areas and smaller MSAs also tended to have higher percentages of shortages and shortage areas with higher prioritization scores.

Figure 5: Percent of residents in Health Care Shortage Areas by Metropolitan Statistical Area category and population: 2023



Source: Health Resources and Services Administration Health Provider Shortage Areas.

Notes: “Very Underserved” indicates a prioritization rating of 15 or higher. “Extremely Underserved” indicates a prioritization rating of 18 or higher.

To correct for shortages in coverage, the United States would need an estimated 26,345 dentists to begin practicing in underserved areas, almost four times the number of dental graduates in 2021.² The full set of data related to HPSAs by state is in Appendix Table 4.

Trends in Dental Offices

As noted by ADA, Association of Dental Support Organizations, and prior RTI research, the dental practice model is changing. Dental practice ownership is declining as only 73% of dentists in private practice reported being owners in 2021, down from nearly 85% in 2005. This trend is most pronounced among younger dentists and women dentists.³ High levels of student debt among recent graduates, costs associated with opening a dental practice, and business

² . This estimate includes numbers needed to correct for shortages at facilities such as rural health clinics, federally qualified health centers, correctional facilities, and other health care providing facilities that do not cover a specific geography and are excluded from the analysis above.

³ American Dental Association, Health Policy Institute (2022). *Practice ownership among dentists continues to decline*, <https://www.ada.org/resources/research/health-policy-institute/us-dental-practice-ownership-trends>.

challenges are contributing to a decline in solo practice ownership among younger dentists. New dentists, including those with 10 years of experience or less, are less likely than prior generations of dentists to own their own practice.

Dental office employment nationally grew between 2012 and 2022 with a 18.5% increase in the total number of employees, surpassing 1 million total workers. This outpaced the growth in number of standalone dental offices nationally, which grew by 5.9% from 2012 to 2022. While employment per dental office increased by 11.9% to 7.5 employees, the number of dentists per office was static with a growth rate of 1.2 percent, as shown in Table 2. Changing dynamics of office employment show the increasing presence of other dental professionals to support dentists.

Table 2. Summary Statistics on Dental Offices: 2012 and 2022

Indicator	2012 value	2022 value	2012–22 Change
Total Number of Establishments	126,813	134,328	5.9%
Total Number of Employees	851,794	1,009,363	18.5%
Total Number of Licensed Dentists	188,884	202,536	7.2%
Employees per Office	6.7	7.5	11.9%
Licensed Dentists per Office	1.5	1.5	1.2%

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, American Dental Association, Health Policy Institute.

While wages for dental professionals can vary widely from state to state, the median U.S. dentists earned \$155,040 in 2022. The median hygienist earned \$81,400 and the median assistant earned \$44,820.⁴ Office consolidation into group practices have reduced rates of solo ownership. Recent data from ADA show that younger dentists concentrated in group practices with a single or multiple locations. As shown in Table 3, only 15% of dentists with less than 10 years of experience work as a solo practitioner, compared to 49% of dentists who have more than 25 years of experience.

⁴ Bureau of Labor Statistics, Occupational Employment Statistics 2022 Estimates. Limited to North American Industry Classification System 62 Health Care and Social Assistance, Occ Codes 29-1021, 29-1291, and 31-9091

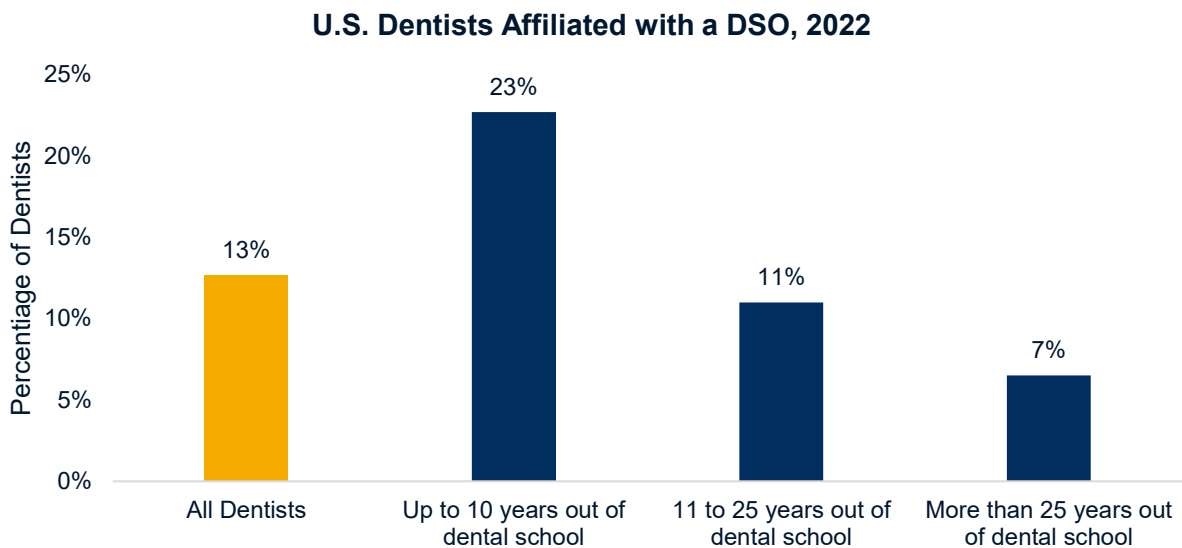
Table 3. Summary Statistics on Dental Practice Ownership Models: 2022

Number of Affiliated Locations in the Dental Practice	% of Dentists
100+ locations	9%
50-99 locations	2%
10-49 locations	3%
2-9 locations	10%
1 location & more than 1 dentist	40%
Solo practice	36%
<hr/>	
Percent of Dentists Affiliated with a Dental Support Organization (DSO)	13%

Source: American Dental Association, Health Policy Institute.

Over the decade from 2012 to 2022, dental offices across the U.S. consolidated which is reflected in the higher share of younger dentists working in group practices, particularly those in a single location with more than one dentist. There were more total employees and more dentists per office than 10 years prior. Some of this consolidation has occurred as DSOs have increased. Nationally, 13 percent of dentists reported affiliation with a DSO. Among specialties, orthodontists (18%) have the highest DSO affiliation rates. There are also significant differences by gender, with 15% of women dentists affiliated with DSOs compared to 12% of men.⁵

Figure 6. U.S. Dentists Affiliated with a DSO, by Tenure: 2022

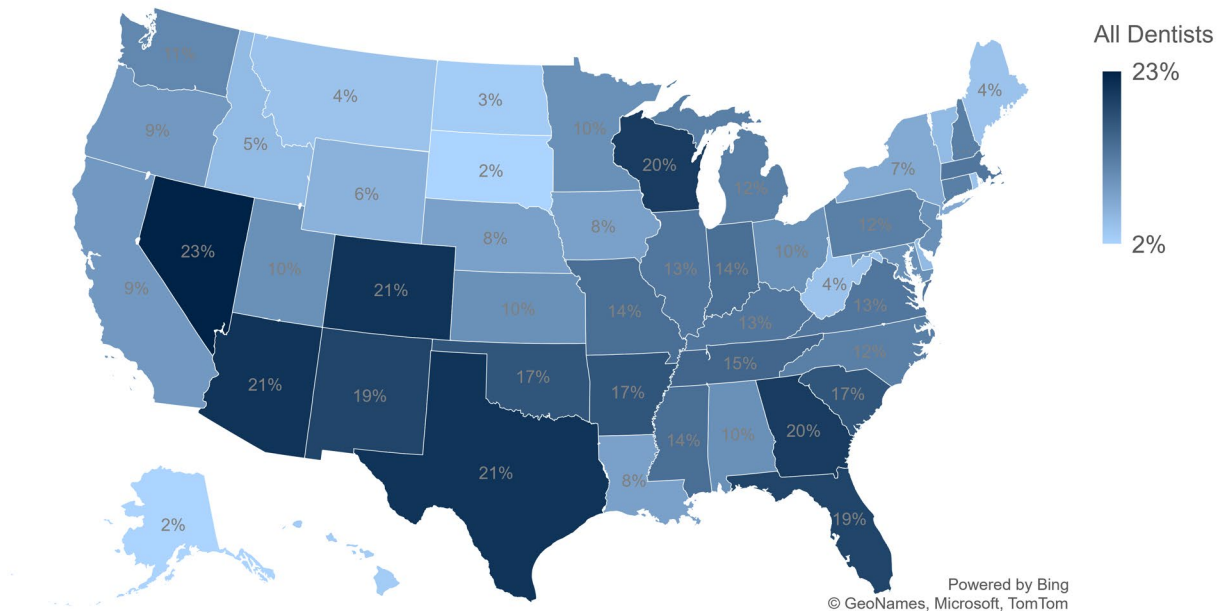


Source: American Dental Association, Health Policy Institute.

⁵ American Dental Association, Health Policy Institute. (2023). "Practice Modalities Among U.S. Dentists." [Practice Modalities Among U.S. Dentists | American Dental Association \(ada.org\)](https://www.ada.org/Practice-Modalities-Among-U.S.-Dentists)

Geographically, DSOs were more prevalent in Southeast and Southwest, and rates ranged from 2% in Alaska and South Dakota to 23% in Nevada. Figure 7 outlines DSO participation rates by state.

Figure 7: Percent of dentists affiliated with a DSO by State, 2022



Source: American Dental Association, Health Policy Institute.

Participating in government insurance programs such as Medicaid and the Children’s Health Insurance Program (CHIP) can increase access to dental care for disadvantaged populations. Nationally, 43% of dentists participated in one of these programs in 2020. There was a wide range among states. In 2019, 60% of dentists in Colorado participated, compared to just 29% in Illinois.⁶

Quality of Dental Care and Oral Health Outcomes

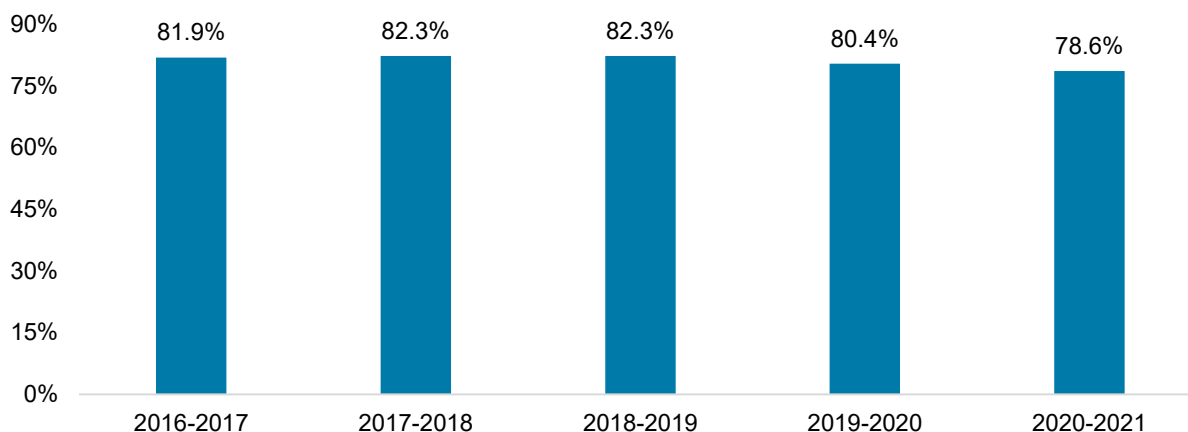
Across the United States, dental visits declined in 2020–2021, and many indicators of oral health issues — including children’s cavities and untreated tooth decay — increased as many patients delayed regular dental care during the COVID-19 pandemic. Nationally, the cost of a regular dental visit varies based on the procedures, including an oral exam, prophylaxis, X-rays, and fluoride treatment. Costs vary based on geography and cost of living in each state. The average cost of a routine dental visit is \$293.⁷

⁶ American Dental Association, Health Policy Institute, Dentist Participation in Medicaid or CHIP, https://www.ada.org/-/media/project/ada-organization/ada/ada-org/files/resources/research/hpi/hpigraphic_0820_1.pdf.

⁷ Wasserman Medical National Dentistry Advisory Service (NDAS) Comprehensive Fee Report, 2022.

Figure 8 shows the percentage of children 1–17 years of age who have visited a dentist or oral healthcare provider since 2017. The data highlights two important trends. First, the percentage of children having dentist visits has declined after 2019. Some of this decline in recent years can be attributed to the COVID-19 pandemic, which negatively impacted the number of dentist visits for children and adults.⁸ (For rates by state, see Appendix Table 1).

Figure 8. Children in the United States Who Visited a Dentist in the Past 12 Months for Any Reason: 2017–2021



Note: The National Survey of Children’s Health (NSCH) is a household survey that is collected annually to provide national- and state-level information on the health and well-being of children ages 0–17 years in the United States. The HRSA Maternal and Child Health Bureau (MCHB) funds and directs the survey, while the U.S. Census Bureau administers it and prepares the final dataset. The survey covers a variety of topics related to child health and development, including questions on dental visits, preventative practices, and oral health issues.
Source: Health Resources and Services Administration, National Survey of Children’s Health.

Table 4 shows the condition of children’s teeth as reported by their parents or guardian. Nationally, more than three-quarters of respondents indicated that the condition of their child’s teeth was “excellent or very good.” In 2021, 5.9% of respondents across the US said the condition of their child’s teeth was “fair or poor,” up from 5.5% in 2017.

Table 4. Condition of Child’s Teeth, Ages 1–17 Years, in the United States 2017–2021

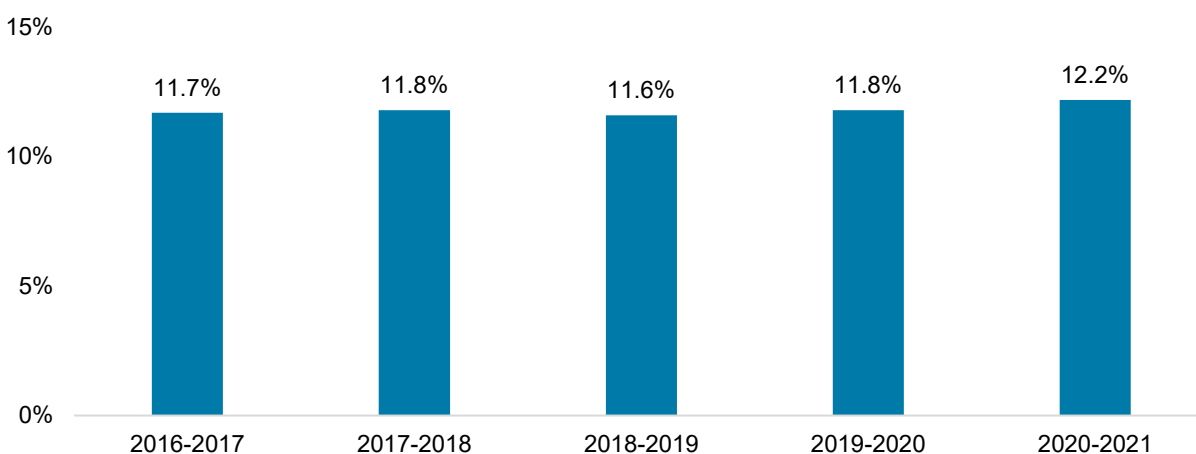
	Excellent or Very Good (%)	Good (%)	Fair or Poor (%)
2016-2017	78.5	16	5.5
2017-2018	78.8	15.6	5.6
2018-2019	79.1	15.4	5.5
2019-2020	78.3	16.1	5.6
2020-2021	76.8	17.3	5.9

⁸ Kranz, A. M., Chen, A., Gahlon, G., & Stein, B. D. (2021). 2020 trends in dental office visits during the COVID-19 pandemic. *Journal of the American Dental Association*, 152(7), 535–541; Danagoulain, S., & Wilk, T. A. (2022). Locking out prevention: Dental care in the midst of a pandemic. *Health Economics*, 31(9), 1973–1992.

Source: Health Resources and Services Administration, National Survey of Children’s Health.

Across the United States, slightly more than one-tenth of children had tooth decay or cavities between 2017 and 2021 (see Figure 9). The U.S. average has been relatively steady, with a slight increase in 2021.

Figure 9. Children with Tooth Decay or Cavities in the Past 12 Months in the United States: 2017–2021



Source: Health Resources and Services Administration, National Survey of Children’s Health.

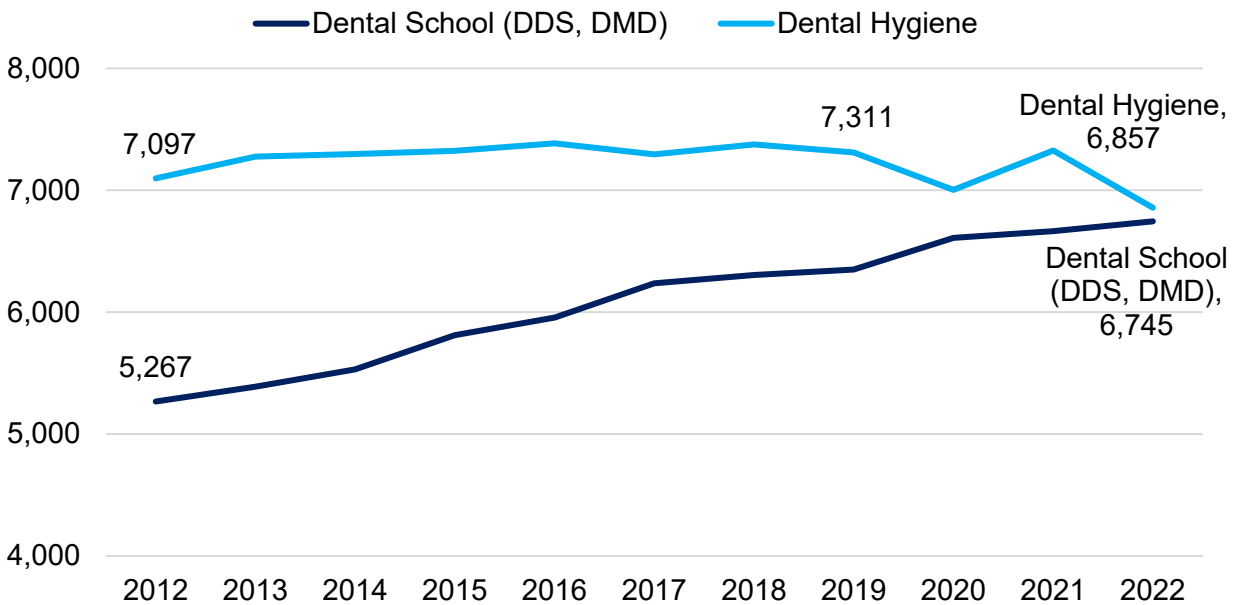
Full state-level data related to children’s dental health by state is located in Appendix Tables 2 and 3.

Dental Education

Since 2012, the pipeline of new dental graduates has increased, while dental hygiene graduates have stagnated. The number of graduating dentists steadily increased from 5,267 in 2012 to 6,745 in 2022, a 28.1% increase in the number of graduates over the decade. Growth among dental hygiene graduates was much slower. Between 2012 and 2022, the number of dental hygiene graduates decreased by 3.4% from 7,097 to 6,857.

Low graduation totals in 2020 and 2022 reflect the impacts of the pandemic, with fewer dental hygiene students graduating in 2020 and fewer starting 2-year programs with expected graduating rates in 2022. Excluding 2020 and 2022, growth of hygienist graduates from 2012 to 2019, before the pandemic, was just 3%. The hygienist graduate to dentist graduate ratio decreased from 1.3 to 1.02 over this period, below many benchmark ratios for providers.

Figure 10: U.S. Dental and Dental Hygiene graduates by year, 2012-2022



Source: American Dental Association Commission on Dental Accreditation, 2023

According to data from the ADA Health Policy Institute, there were 66 dental schools in the United States in 2021, compared to 56 in 2011, with new schools opening in Arizona, California, Florida, Illinois, Maine, Missouri, New York, North Carolina, and Utah. In 2022, three new dental schools opened in California, Texas, and Tennessee, but have yet to graduate their first class.⁹ Dental schools in California, New York, Pennsylvania, Florida, and Texas graduated the largest number of dentists. New York, Illinois, and Utah had the largest net increase in graduating dentists per year. Table 5 and Appendix Figure 2 present graduate totals by state.

⁹ American Dental Association Health Policy Institute. 2023. "2021-22 Survey of Dental Education Report 1 - Academic Programs, Enrollment, and Graduates. Table 17: CODA-accredited and Canadian Dental School Graduates, 2011 to 2021."

Table 5. Dental School Graduates by State, 2011-2021

State	2012 Grads	2022 Grads	% Change
California	654	749	15%
New York	558	743	33%
Massachusetts	404	459	14%
Pennsylvania	343	391	14%
Texas	270	320	19%
Florida	220	314	43%
Illinois	136	304	124%
Michigan	206	275	33%
Arizona	176	217	23%
Kentucky	146	180	23%
Ohio	167	177	6%
Tennessee	127	175	38%
Nebraska	130	165	27%
Missouri	97	148	53%
Utah	0	146	N/A
North Carolina	76	137	80%
Maryland	124	134	8%
New Jersey	108	127	18%
Minnesota	109	121	11%
Colorado	90	119	32%
Indiana	102	118	16%
Virginia	101	103	2%
Wisconsin	79	99	25%
Georgia	66	89	35%
Nevada	82	89	9%
Iowa	75	80	7%
Alabama	66	77	17%
Louisiana	59	76	29%
South Carolina	57	76	33%
Washington, D.C.	75	73	-3%
Oregon	70	71	1%
Washington	64	71	11%
Oklahoma	56	64	14%
Maine	0	63	N/A
Puerto Rico	46	60	30%
Connecticut	47	49	4%
West Virginia	46	46	0%
Mississippi	35	40	14%
United States	5,267	6,745	28%

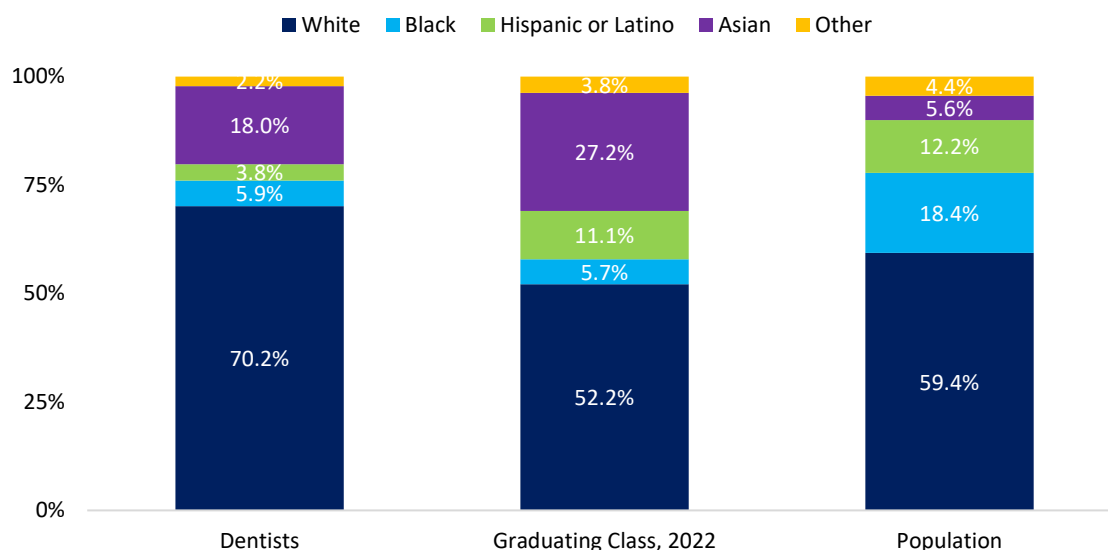
Source: ADA Health Policy Institute, 2023

Notes: States without dental schools in 2012 and 2022 are excluded.

The most recent graduating classes of dentists reflect the growing diversity of dentists in the United States. In 2022, dental school graduates were more racially diverse than the country, with 47.8% identifying as non-white compared to 40.6% non-white in the overall population. Asian graduates represent over 27 percent of the graduating class, while Black graduates are underrepresented compared to the country. The graduating class is also more racially and ethnically diverse than the current dentistry profession, which is 70.2% white. Hispanic and Latino dentists represent just 3.8% of the current workforce but make up 11.1% of recent graduates.¹⁰

In 2022, 52.9% of graduates were women, and the gender of graduates was at or near an even split between men and women in all states analyzed. However, looking at the intersection of gender and race/ethnicity, there were more men among white graduates than in other racial and ethnic groups. Among white graduates, just 46.6% were women compared to 58.1% among Asian graduates, 60.7% among Hispanic or Latino graduates, and 65.8% among Black graduates. The share of women is likely to keep growing. Of first year students in the 2022-23 academic year, 56.4% are women, compared to just 47.2% in 2012-13.¹¹

Figure 11. Racial and Ethnic Demographics of Dentists in the United States



Note: Hispanic or Latino is an ethnicity, not a race. Each of the races can be calculated as either including or excluding Hispanic or Latinos (e.g., “Black, not Hispanic or Latino” or “Black, including Hispanic or Latino”). To avoid double counting, we selected each race category for those who did not identify as Hispanic or Latino. Analysis of graduating class excludes students with missing information and students who are nonresident aliens for whom race data is not available.

Source: U.S. Census Bureau, American Dental Association Commission on Dental Accreditation, U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS). U.S. Census Bureau, American Community Survey, 2021.

¹⁰ "American Dental Association Health Policy Institute. 2023. "2022-23 Survey of Allied Dental Education Report 1 - Dental Hygiene Education Programs, Table 13: 2022 Graduates of Accredited Dental Hygiene Programs by Citizenship, Age, Ethnicity/Race and Gender."

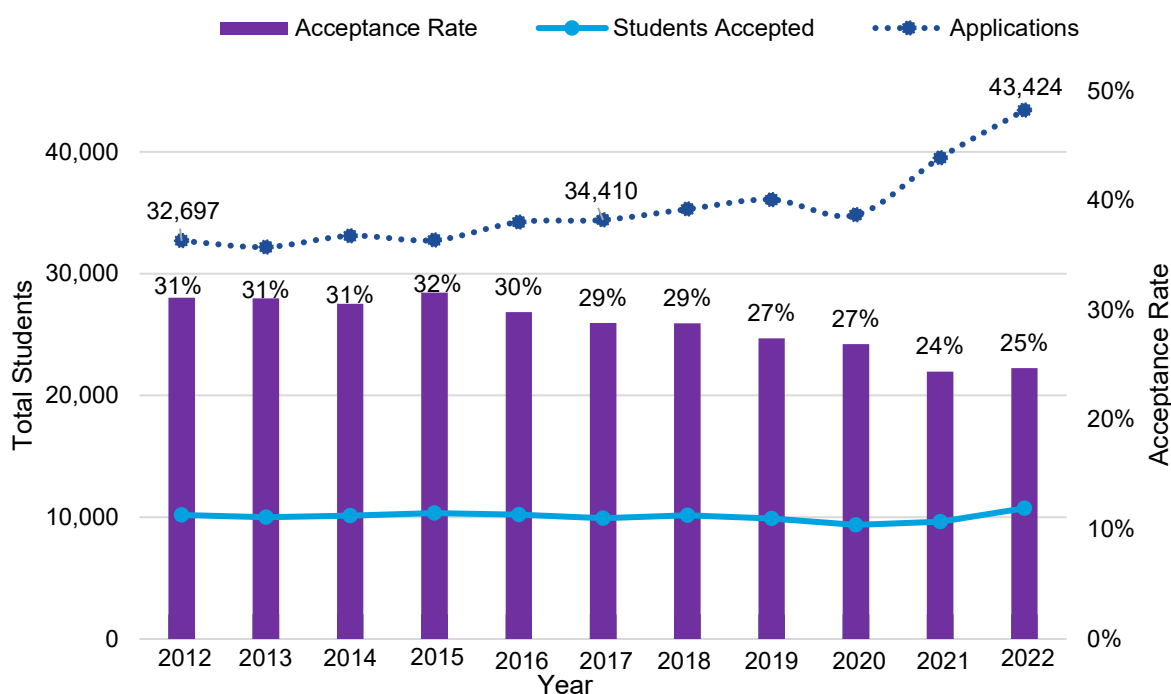
¹¹ Ibid.

The total cost of attendance of four years of dental school was \$295,990 on average for resident students and \$325,891 for non-resident students as of 2021, and the average debt per dental school graduate was \$293,900, with 83% of dental school graduates taking out loans to pay for dental school as of 2022.¹²

Dental Hygiene Education

Admission to dental hygiene programs, most often at community colleges, is competitive. As seen in Figure 12 below, the acceptance rate of dental hygiene programs is low, varying from 32% to 24% over the last decade. These programs experience a high number of applications but are limited by the size of the program. In 2022, programs accepted a record number of students but also had a record number of applications, up 25% from 2020. However, only 25% of applicants were admitted. This limits the number of new dental hygienists that graduate each year and helps contribute to the shortage of dental hygienists. While new programs have opened in recent years, they are not numerous or large enough to alleviate the shortage.

Figure 12. Total Applications and Students Accepted in Dental Hygiene Programs Recognized by the ADA CODA



Source: ADA Health Policy Institute, ADA Commission on Dental Accreditation (CODA)

Nationwide, ten dental hygiene programs have closed since 2014 and many other programs are offering fewer seats. To select among a rapidly rising number of applicants, schools are adopting increasingly stringent entry requirements for potential students including the ADA

¹² American Dental Association Health Policy Institute. 2023. "2020-21 Survey of Dental Education Report 2 -Tuition, Admission, and Attrition"; American Student Dental Association. (2023). "Dental Student Debt." Retrieved from <https://www.asdanet.org/index/get-involved/advocate/issues-and-legislative-priorities/Dental-Student-Debt>.

administered Admissions Test for Dental Hygiene, a standardized test which was launched in spring of 2023 and has been added to many dental hygiene program admissions requirements.

Nationally, there were 332 dental hygiene programs as of 2023, according to data from the ADA's Health Policy Institute.¹³ Between 2018 and 2023, 22 programs closed, and 24 new programs were opened.¹⁴ Like dental graduates, California, Texas, and New York had the greatest number of dental hygiene graduates. Colorado saw the greatest growth in the number of graduates with a 41% increase over this five-year period, followed by Tennessee with a 37% increase, and Rhode Island with a 26% increase. While enrollment in dental school programs grew across nearly all states with a dental school between 2017 and 2022, there was wide variation across states in dental hygiene enrollment and graduation. Nationally, the number of graduates dropped from 2021 to 2022 due to decreased first-year enrollment in 2020 due to the COVID-19 pandemic.

Table 6. Dental Hygiene Graduates by State, 2017-2022

State	2017	2022	% Change
California	788	665	-16%
Texas	486	532	9%
New York	401	413	3%
Florida	347	330	-5%
Georgia	253	274	8%
Pennsylvania	265	235	-11%
Ohio	244	232	-5%
North Carolina	270	231	-14%
Tennessee	169	231	37%
Massachusetts	216	230	6%
Illinois	306	224	-27%
Arizona	226	216	-4%
Michigan	292	203	-30%
Washington	204	188	-8%
Utah	154	181	18%
Minnesota	197	161	-18%
Wisconsin	157	156	-1%
Indiana	111	134	21%
Oregon	126	124	-2%
Missouri	161	123	-24%
Maryland	130	119	-8%
Colorado	81	114	41%
Connecticut	121	107	-12%
Virginia	155	103	-34%
South Carolina	92	101	10%
Idaho	82	100	22%
New Jersey	149	97	-35%

¹³ "American Dental Association Health Policy Institute. 2023. "2022-23 Survey of Allied Dental Education Report 1 - Dental Hygiene Education Programs, Table 2: Comparison of First-Year Student Capacity Versus Enrollment by Educational Setting, 2022-23."

¹⁴ Based on comparison of data on programs in the 2022-2023 and 2017-2018 Surveys of Allied Dental Education

Kentucky	99	91	-8%
Iowa	98	85	-13%
Louisiana	66	73	11%
Oklahoma	72	72	0%
Maine	68	68	0%
Mississippi	69	66	-4%
New Mexico	69	66	-4%
Kansas	85	61	-28%
West Virginia	72	61	-15%
Alabama	53	44	-17%
Arkansas	45	44	-2%
Wyoming	39	42	8%
Nebraska	39	34	-13%
Hawaii	30	33	10%
South Dakota	32	31	-3%
Nevada	26	26	0%
Delaware	23	25	9%
Rhode Island	19	24	26%
New Hampshire	34	21	-38%
Montana	16	18	13%
North Dakota	23	14	-39%
Vermont	16	14	-13%
Alaska	10	11	10%
District of Columbia.	8	9	13%
United States	7,294	6,857	-6%

Source: American Dental Association Health Policy Institute, 2023

Dental hygiene programs are affordable compared to the earnings potential for a dental hygienist. For the 2022-2023 school year, the median duration of dental hygiene programs was 64 weeks, and the median total cost of attendance was \$22,439 for in-district students, \$26,149 for out-of-district students, and \$36,371 for out of state nonresident students.¹⁵ Licensing and education requirements for dental hygienists vary from state to state which can impact training costs. Additionally, the allowed duties of hygienists vary from state to state which affects the level of compensation.

Conclusion

In previous work, RTI highlighted an ongoing, long-term shift in the dental industry and the economics of dentistry. Since 2010, these trends include a more diverse workforce emerging out of dental schools, consolidation of offices and the decline of the traditional solo practice model, and migration of dentists to larger metro areas in sun belt states. The United States has a growing number of dental schools and the ADA projects that total supply of dentists will increase over the next 40 years as more professionals enter the industry and careers continue to extend past the traditional retirement age. At the same time, the data shows a decline in

¹⁵ "American Dental Association Health Policy Institute. 2023. "2022-23 Survey of Allied Dental Education Report 1 - Dental Hygiene Education Programs."

access to care in rural areas and an aging workforce in certain geographies that presents risks for loss of care and succession plans for small practices.

In an industry where demand is stable, trends can develop slowly, but there are future trends to consider. An older workforce approaching retirement, especially in less densely populated areas, threatens to exacerbate shortages of dental professionals and care availability. Education capacity bottlenecks, especially for hygienists, threatens the supply of new professionals needed to meet growing demand. Meanwhile, patterns of dentist migration towards high-growth states threatens to leave some areas with lower numbers of dentists. Meanwhile, the dental profession is moving away from solo practices and towards multi-office ownership models, including DSOs. Overall, the data and analysis conducted suggests the need for forward-looking policy to address the needs of the modern dentist, dental office, and dental health workforce to ensure the continuity of dental care and improve oral health outcomes across the country.

Appendix A: State Tables

Appendix Table 1. Children Who Visited Dentist in the Past 12 Months for Any Reason, by State: 2020–2021

State	Saw a Dentist or Other Oral Healthcare Provider (%)	No Dental or Oral Healthcare Visits (%)
Hawaii	87.7	12.3
New Hampshire	85.4	14.6
Colorado	84.8	15.2
Vermont	84.8	15.2
Connecticut	84.5	15.5
Idaho	84.4	15.6
Massachusetts	84.2	15.8
Washington	84.0	16.0
District of Columbia	83.9	16.1
Wyoming	83.7	16.3
Montana	82.9	17.1
Iowa	82.1	17.9
Utah	82.1	17.9
West Virginia	82.1	17.9
Nebraska	82.0	18.0
New Mexico	81.8	18.2
Rhode Island	81.2	18.8
Maryland	81.0	19.0
Pennsylvania	80.9	19.1
Kansas	80.7	19.3
South Carolina	80.5	19.5
Oregon	80.1	19.9
Delaware	80.0	20.0
Michigan	80.0	20.0
North Carolina	79.8	20.2
Maine	79.7	20.3
Texas	79.6	20.4
Wisconsin	79.6	20.4
South Dakota	79.4	20.6
New Jersey	79.3	20.7
Alaska	79.1	20.9
Arizona	78.8	21.2
National Average	78.6	21.4
Alabama	78.6	21.4
Georgia	78.1	21.9
Illinois	78.1	21.9
California	77.8	22.2
Oklahoma	77.3	22.7
Indiana	77.0	23.0
Kentucky	77.0	23.0
Virginia	76.8	23.2
Tennessee	76.7	23.3
Mississippi	76.6	23.4
Minnesota	76.5	23.5
Arkansas	76.4	23.6
New York	76.3	23.7
Louisiana	76.2	23.8
North Dakota	75.9	24.1
Nevada	75.0	25.0
Missouri	74.2	25.8
Ohio	74.0	26.0
Florida	72.9	27.1

Note: Sorted from highest to lowest percentage of “Saw a Dentist or Other Oral Healthcare Provider.”
Source: Health Resources and Services Administration, National Survey of Children’s Health.

Appendix Table 2. Condition of Child’s Teeth, Age 1–17 Years, by State: 2020–2021

State	Excellent or Very Good (%)	Good (%)	Fair or Poor (%)
Massachusetts	82.7	15	2.3
Rhode Island	81.9	14.5	3.6
Utah	82.4	13.8	3.8
Connecticut	81.4	14.7	3.9
Hawaii	80.2	15.8	4.0
Georgia	78.8	17.1	4.0
Vermont	82.6	13.3	4.0
Minnesota	81.7	14.2	4.1
Iowa	79.9	16.0	4.1
Colorado	80.0	15.8	4.2
New Hampshire	83.6	12.1	4.3
Pennsylvania	81.0	14.6	4.4
Nebraska	82.2	13.3	4.4
Washington	82	13.4	4.5
Maine	82.2	13.2	4.6
South Dakota	81.2	14.2	4.6
North Dakota	80.7	14.6	4.6
Ohio	79.2	16.1	4.7
Montana	80.2	15.1	4.8
Michigan	74.4	20.7	4.9
New Jersey	79.1	16.0	4.9
Kansas	80.1	14.9	5.0
Maryland	78.4	16.6	5.0
Alaska	79.0	16.0	5.1
District of Columbia	81.7	13.2	5.1
South Carolina	78.1	16.8	5.1
West Virginia	78.7	16.2	5.2
Wyoming	75.4	19.4	5.2
Idaho	78.7	16.1	5.3
Illinois	75.8	18.8	5.4
Kentucky	78.5	16.0	5.5
Texas	73.5	20.8	5.7
National Average	76.8	17.3	5.9
Oregon	77.7	16.4	5.9
Indiana	75.8	18.3	6.0
Wisconsin	77.9	15.8	6.3
Virginia	77.8	15.9	6.3
Delaware	77.9	15.7	6.4
Missouri	76.9	16.7	6.4
Oklahoma	75.9	17.7	6.4
Alabama	77.0	16.6	6.4
Arizona	75.1	18.3	6.6
New York	75.0	18.4	6.7
North Carolina	78.6	14.6	6.8
Louisiana	72.7	20.0	7.3
Mississippi	75.7	16.9	7.3
Tennessee	76.9	15.7	7.4
Florida	76.5	16.0	7.5
New Mexico	74.4	18.0	7.5
California	72.9	19.4	7.7
Arkansas	71.2	20.9	7.9
Nevada	70.7	20.5	8.8

Note: Sorted from lowest to highest percent of “Fair or Poor.”

Source: Health Resources and Services Administration, National Survey of Children’s Health.

Appendix Table 3. Children with Tooth Decay or Cavities in the Past 12 Months, by State: 2020–2021

State	Yes, Had Decayed Teeth or Cavities (%)	No Decayed Teeth or Cavities (%)
Rhode Island	8.4	91.6
Nebraska	8.5	91.5
Minnesota	8.7	91.3
Washington	8.7	91.3
Maine	9.1	90.9
Massachusetts	9.2	90.8
Vermont	9.6	90.4
New Hampshire	9.7	90.3
Connecticut	10.0	90.0
Pennsylvania	10.0	90.0
Maryland	10.1	89.9
South Dakota	10.2	89.8
Hawaii	10.6	89.4
Kentucky	10.6	89.4
Colorado	10.7	89.3
Montana	10.7	89.3
Ohio	10.7	89.3
Virginia	10.7	89.3
Alaska	10.9	89.1
Iowa	11.0	89.0
North Dakota	11.0	89.0
Georgia	11.3	88.7
New Jersey	11.3	88.7
District of Columbia	11.5	88.5
Indiana	11.5	88.5
New Mexico	11.6	88.4
New York	11.8	88.2
Wisconsin	11.8	88.2
National Average	12.2	87.8
North Carolina	12.3	87.7
South Carolina	12.3	87.7
Florida	12.4	87.6
Kansas	12.4	87.6
Oregon	12.4	87.6
Delaware	12.5	87.5
Missouri	12.5	87.5
Utah	12.5	87.5
Alabama	12.7	87.3
Arkansas	12.7	87.3
Illinois	12.7	87.3
Tennessee	12.8	87.2
Texas	12.8	87.2
Arizona	13.2	86.8
Nevada	13.3	86.7
Oklahoma	13.6	86.4
Michigan	14.0	86.0
West Virginia	14.0	86.0
Mississippi	14.4	85.6
Idaho	14.6	85.4
California	14.8	85.2
Wyoming	15.3	84.7
Louisiana	16.5	83.5

Note: Sorted from highest to lowest percent of “No Decayed Teeth or Cavities.”

Source: Health Resources and Services Administration, National Survey of Children’s Health.

Appendix Table 4. Population in Dental Healthcare Provider Shortage Areas: 2021

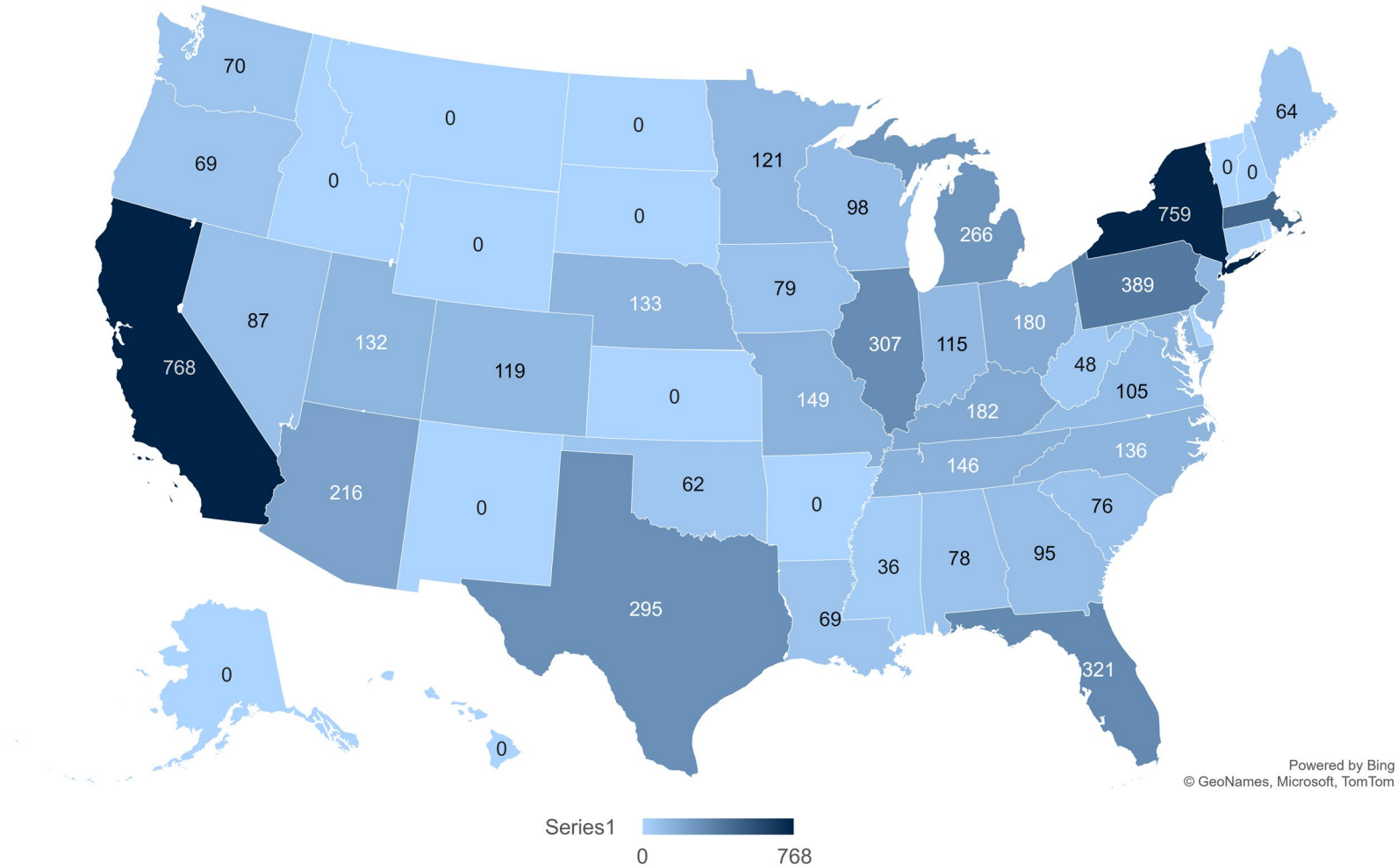
State	Rank	Underserved	Very Underserved	Extremely Underserved
New Jersey	1	0.0%	0.0%	0.0%
Nebraska	2	0.1%	0.0%	0.0%
Massachusetts	3	0.7%	0.0%	0.0%
California	4	1.5%	1.2%	0.8%
New Hampshire	5	2.1%	2.1%	0.0%
Vermont	6	2.2%	0.0%	0.0%
Arizona	7	4.2%	4.2%	3.8%
Texas	8	4.6%	2.7%	1.3%
Rhode Island	9	5.2%	4.8%	4.8%
Wyoming	10	5.7%	3.5%	2.1%
New York	11	6.5%	6.0%	3.0%
Pennsylvania	12	6.9%	4.5%	1.1%
Connecticut	13	6.9%	6.0%	0.0%
Minnesota	14	7.2%	2.6%	0.3%
Hawaii	15	7.6%	3.9%	0.0%
Illinois	16	8.2%	4.9%	1.6%
Michigan	17	8.2%	4.5%	1.1%
Ohio	18	8.2%	6.0%	3.0%
Utah	19	8.4%	1.2%	0.0%
Colorado	20	8.5%	1.3%	0.4%
North Dakota	21	8.8%	1.4%	0.6%
Iowa	22	9.1%	3.3%	0.9%
Maryland	23	9.7%	5.4%	0.5%
National Average		10.3%	6.9%	2.5%
Nevada	24	10.4%	10.0%	4.4%
Arkansas	25	11.1%	7.8%	3.3%
Maine	26	11.2%	9.5%	1.3%
Wisconsin	27	11.4%	4.5%	1.6%
Kansas	28	12.2%	3.6%	0.9%
Indiana	29	12.6%	8.5%	0.9%
Florida	30	12.6%	7.7%	3.7%
Idaho	31	12.8%	4.6%	0.0%
Kentucky	32	14.0%	12.1%	7.2%
Virginia	33	14.0%	8.6%	2.1%
Washington	34	15.8%	12.3%	0.7%
Oklahoma	35	16.1%	11.2%	3.5%
South Dakota	36	16.1%	7.7%	5.2%
Georgia	37	16.2%	12.8%	6.5%
Oregon	38	18.0%	10.0%	1.5%
Montana	39	18.7%	6.0%	1.1%
Delaware	40	19.7%	19.7%	0.0%
South Carolina	41	20.0%	7.0%	0.8%
Tennessee	42	20.5%	9.0%	2.5%
New Mexico	43	20.8%	18.9%	12.1%
Louisiana	44	21.5%	12.4%	6.1%
North Carolina	45	23.1%	18.5%	5.2%
Mississippi	46	24.1%	17.0%	7.9%
Missouri	47	27.0%	25.6%	6.5%
West Virginia	48	29.4%	24.3%	9.7%
Alaska	49	32.4%	20.1%	3.1%
Alabama	50	47.3%	32.8%	14.2%

Note: Sorted and ranked from lowest to highest percentage of “Underserved Population.” “Very Underserved” indicates a prioritization rating of 15 or higher. “Extremely Underserved” indicates a prioritization rating of 18 or higher.

Source: Health Resources and Services Administration, Healthcare Provider Shortage Areas.

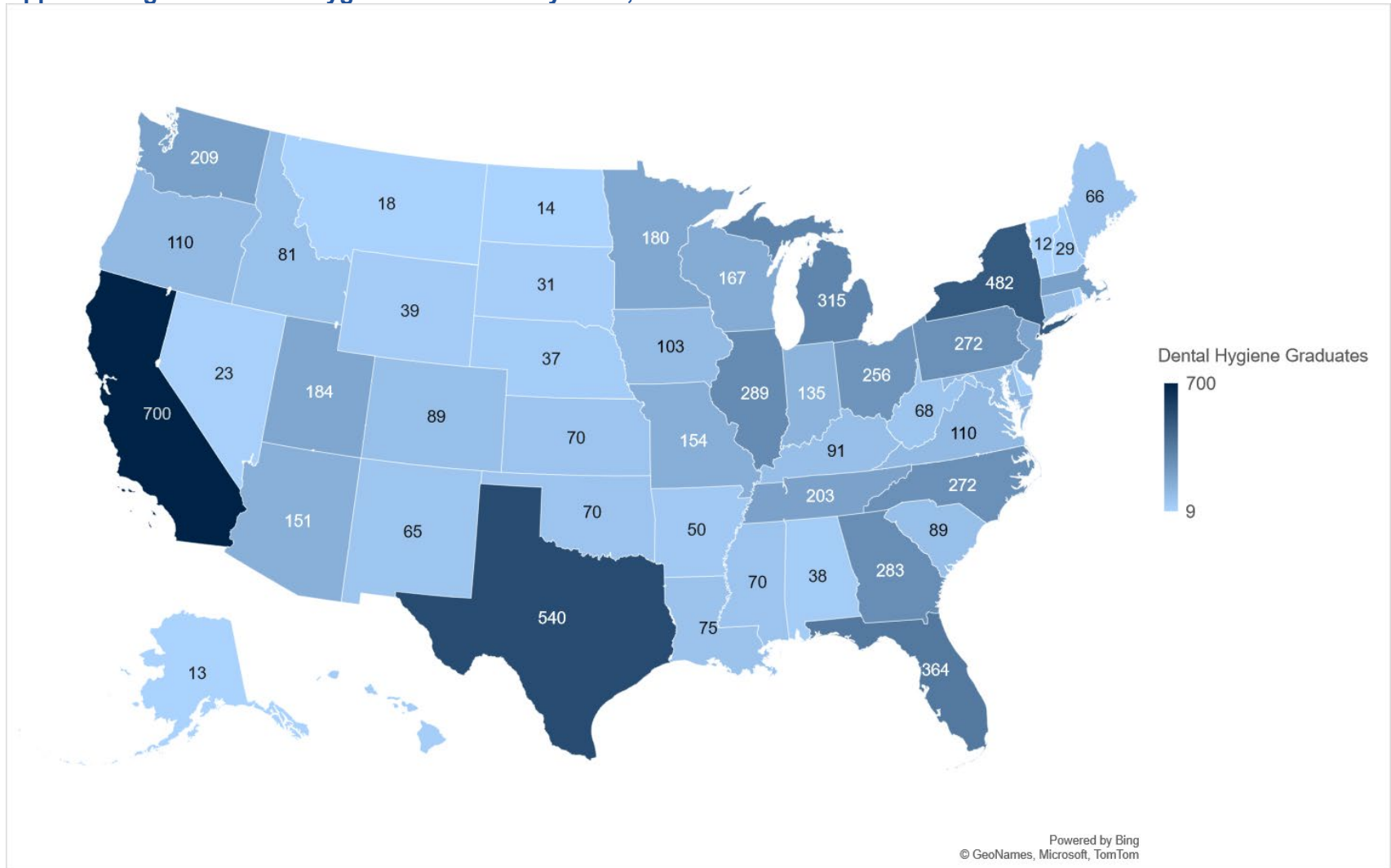
Appendix B: Dentist State-Level Dynamics

Appendix Figure 1: Dental School Graduates by State, 2021



Source: ADA Health Policy Institute, 2023

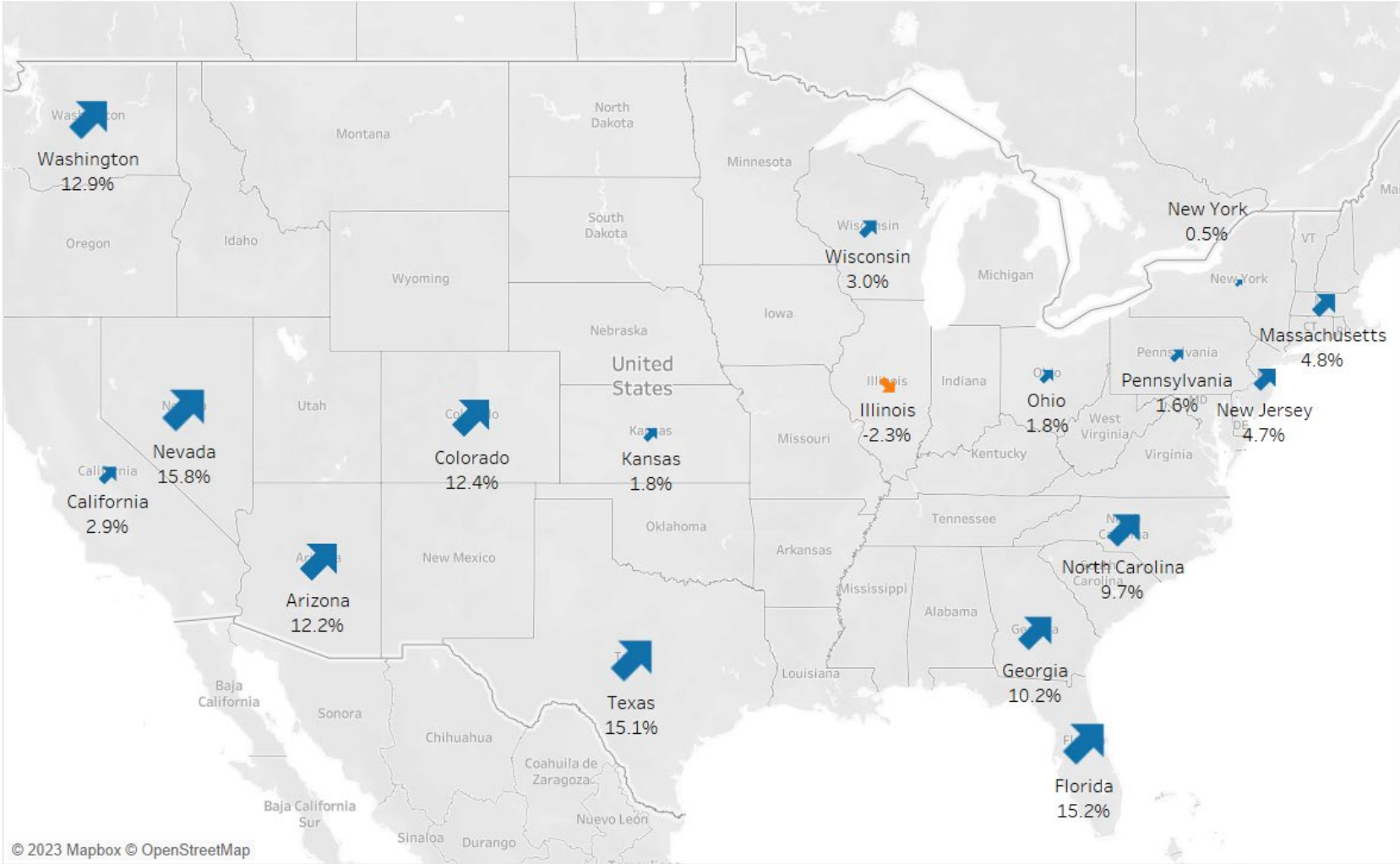
Appendix Figure 2: Dental Hygiene Graduates by State, 2021



Source: ADA Health Policy Institute, 2023

Appendix Figure 3: Change in state population for states analyzed, 2012-2022

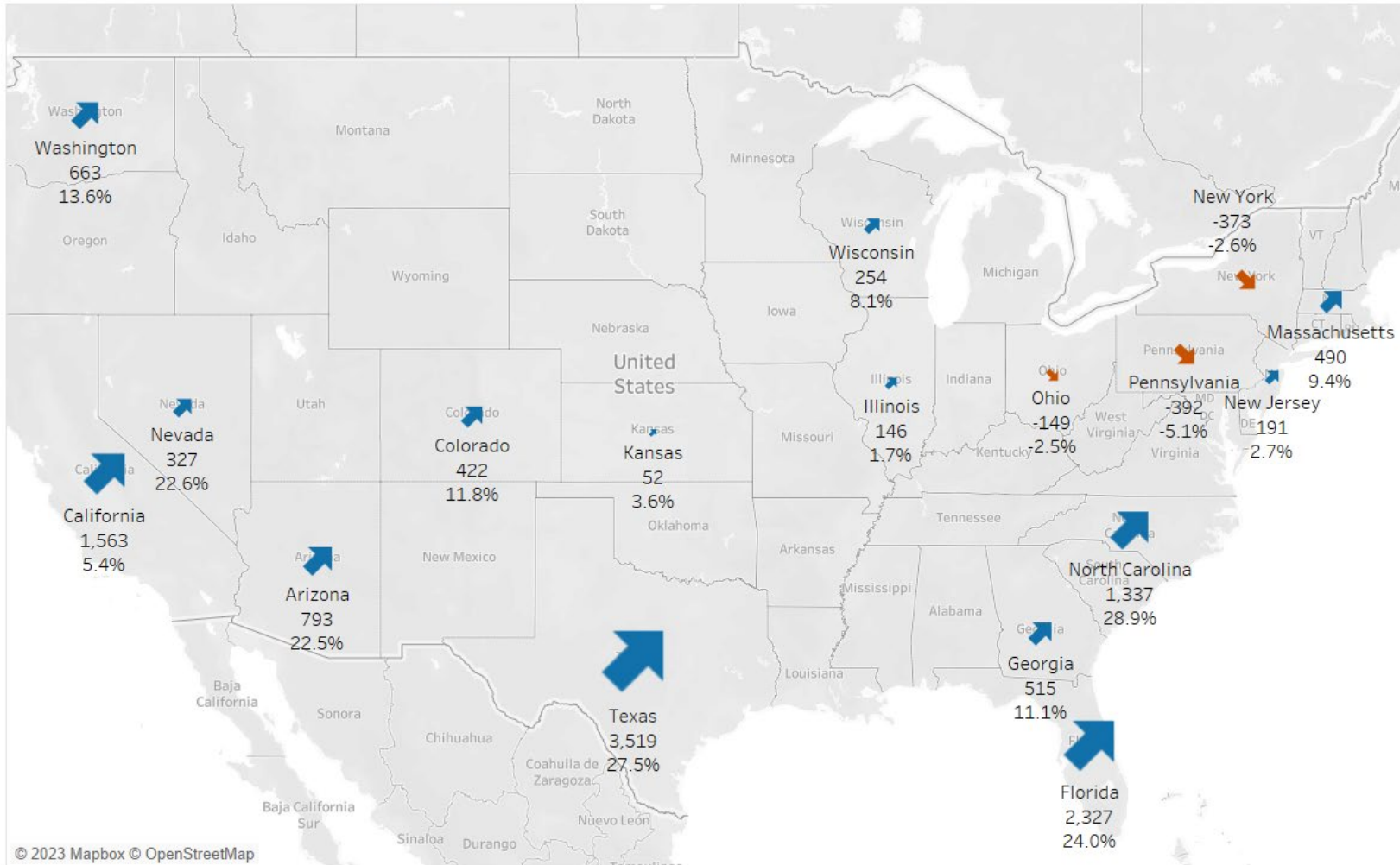
Change in State Population: 2012-2022



Source: U.S. Census Bureau

Appendix Figure 4: Change in number of dentists for states analyzed, 2012-2022

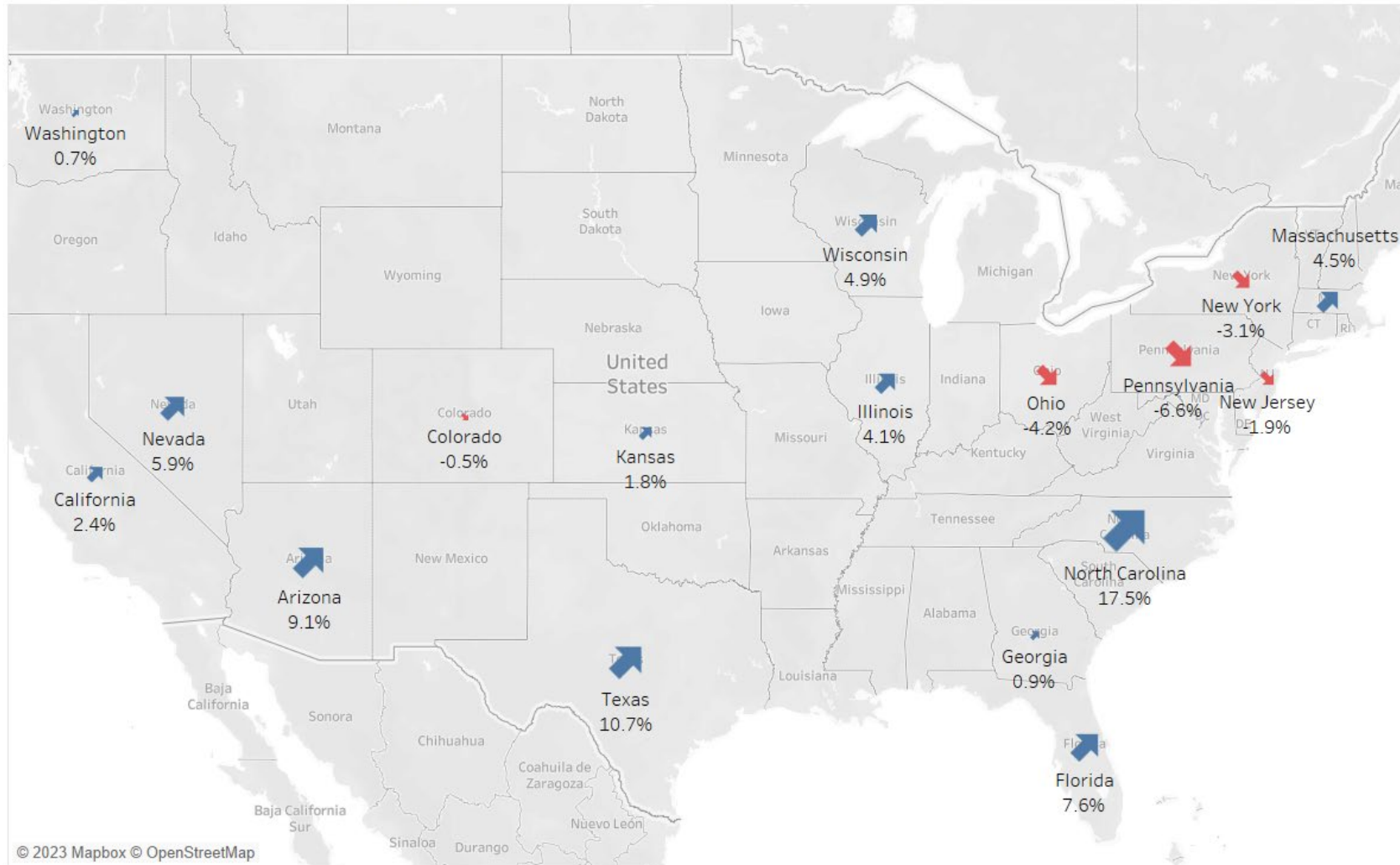
Change in Active, Licensed Dentists: 2012-2022



Source: ADA Health Policy Institute, 2023.

Appendix Figure 5: Change in number of dentists per 100,000 residents for states analyzed, 2012-2022

Change in Dentists Per 100,000 Residents: 2012-2022



Source: ADA Health Policy Institute, 2023; U.S. Census Bureau American Community Survey