



Oral Health Workforce Projections, 2017-2030: Dentists and Dental Hygienists

This factsheet presents national-level supply and demand projections for dentists and dental hygienists from 2017 through 2030 using HRSA's Health Workforce Simulation Model (HWSM).¹

Dentists are licensed oral health care providers who diagnose, treat and prevent oral diseases, and perform surgical procedures on the teeth, bone and soft tissues of the oral cavity. Dentists may also serve as researchers or teachers, including supervising students in dental schools.² To become a dentist, an individual most often must complete four years of undergraduate education and earn a Doctor of Dental Surgery (DDS), Doctor of Dental Medicine (DMD), or Doctor of Medicine in Dentistry (DMD) degree from an accredited dental program. Additional post-doctoral training is required to become certified as a dental specialist (e.g., periodontist, oral surgeon, endodontist, orthodontist, etc.). This training usually requires a 2- to 6-year residency in an accredited program related to the chosen specialty.² Although licensure requirements vary by state, most states require a dentist to have a DDS or DMD degree and pass both written and clinical exams before being granted a license to practice.³

Dental hygienists are licensed oral health care professionals who clean teeth, examine patients for signs of oral diseases such as gingivitis, and provide other preventive dental care. They also educate patients about oral health.³ A dental hygienist typically needs an associate's degree in dental hygiene, which usually takes 3 years to complete. All states require dental hygienists to be licensed, although licensure requirements and scopes of practice vary by state.

METHODS

While the nuances of modeling workforce supply and demand may differ to a small extent for individual health occupations, the basic HWSM framework remains the same across all occupations. For supply modeling, the HWSM's major components include common labor-market factors like unemployment and new entrants to the workforce (e.g., newly trained dentists and dental hygienists), demographic and geographic characteristics of

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The National Center for Health Workforce Analysis informs public and private sector decision-makers on health workforce issues by expanding and improving health workforce data, disseminating workforce data to the public, and improving and updating projections of the supply and demand for health workers. Visit the website: <https://bhw.hrsa.gov/national-center-health-workforce-analysis>

¹ This model uses a micro-simulation approach where supply is projected based on the simulation of career choices of individual health workers. Demand for health care services is simulated for a representative sample of the current and future U.S. population based on each person's demographic and socioeconomic characteristics, health behavior, and health risk factors that affect their health care utilization patterns. For more information on data and methods, please see: <https://bhw.hrsa.gov/sites/default/files/bhw/nchwa/projections/hwsm-technical-report-to-dea.pdf>.

² American Dental Association. Dentists: Doctors of Oral Health [online]. October, 2019. Accessed at: <https://www.ada.org/en/about-the-ada/dentists-doctors-of-oral-health>.

³ Composite descriptions of health occupations examined in this report are sourced from: Bureau of Labor Statistics. Occupational Outlook Handbook, Dentists and Dental Hygienists [online]. October, 2019. Accessed at: <https://www.bls.gov/ooh/healthcare/dentists.htm> and <https://www.bls.gov/ooh/healthcare/dental-hygienists.htm>.

the existing workforce, and workforce participation decisions (e.g., patterns in retirement and hours worked). The model assumes that current supply patterns for oral health professionals remain the same throughout the forecast period and projects forward in one-year increments. Each annual supply estimate becomes the starting point for the subsequent year, with the process repeated through 2030.

For demand modeling, the HWSM assumes that demand equals supply in 2017,⁴ the baseline year of study for which data is available for analysis, and applies current, national-level oral health utilization patterns across future population demographics. The model provides demand projections under a “status quo” scenario, which assumes current oral health care use and delivery patterns for dental services remain the same in 2030 as they are in 2017. Using these assumptions and population inputs, the model attempts to capture national-level changes in disease burden and health use behavior associated with large-scale population and demographic changes. However, the model only accounts for shifts in dentist or dental hygienist usage from large predictable population changes, such as aging of the population.

The status quo scenario does not reflect potential changes in oral health care utilization patterns in future years resulting from advancements in medicine and technology, or from shifts in oral health care delivery and payment models. Quantifying changes to demand due to innovations in oral health care delivery models, payment reform, team-based care, health-seeking behaviors, and other health system-level factors presents many challenges. HRSA will continue incorporating such factors into its future workforce projections as the evidence-base evolves and reliable data sources become available.

FINDINGS: DENTISTS

Nationally, approximately 190,510 full-time equivalent (FTE) dentists across all dental specialties were active in the U.S. workforce in 2017. This includes approximately 151,170 general dentists and 7,320 pediatric dentists, with the remaining 32,020 dentists providing specialty care. The total supply (the sum of all types of dentists included in study) is predicted to increase by 9 percent to 207,930 FTEs in 2030, which is similar to the projected growth in the U.S. population between 2017 and 2030.⁵ However, supply is projected to grow at a faster rate for some specialists, including pediatric dentists (50 percent), endodontists (17 percent), orthodontists (16 percent) and oral surgeons (13 percent). The supply of general dentists is projected to grow 6 percent over the projection period, while no growth in supply is projected for periodontists (*Exhibit 1*).

Under the status quo scenario, the national demand for dentists is projected to increase by 9 percent to 206,850 FTEs in 2030. Roughly similar growth rates are also predicted in the demand for general dentists (9 percent), oral surgeons (7 percent), endodontists (7 percent), periodontists (11 percent) and other dentists (12 percent), while the demand for pediatric dentists (2 percent) and orthodontists (-1 percent) is expected to grow slowly or not at all (*Exhibit 1*).

These estimates suggest the U.S. will have an adequate supply of dentists as an entire occupation to meet projected growth in demand for oral health services in 2030 under the status quo scenario. Supply is also projected to be adequate to meet demand for pediatric dentists, orthodontists, endodontists, oral surgeons, and other dentists (e.g., periodontists, dental public health providers, etc.). However, demand for general dentists is predicted to exceed supply by 2030. This potential shortage could lead to an opportunity

⁴ The assumption that supply equals demand at baseline is a standard approach in workforce projection modeling. Please refer to: Ono T, Lafortune G, Schoenstein M. “Health workforce planning in OECD countries: a review of 26 projection models from 18 countries.” *OECD Health Working Papers*, No. 62. France: OECD Publishing; 2013: 8-11.

⁵ U.S. Census Bureau. 2017 National Population Projections Tables, September 6, 2018. Accessed December 10, 2019 at: <https://www.census.gov/data/tables/2017/demo/popproj/2017-summary-tables.html>.

where specialties with predicted surpluses may cover at least some portion of a possible shortfall in general dentists. National-level health workforce projections may mask a potential mal-distribution of providers and supply-demand disparities at the state and local level, and hence should not be extrapolated to the level of a region, health system, facility, or community.

Exhibit 1. Projected Supply and Demand for Dentists in the United States, 2017-2030

	Total Dentists	General	Pediatric	Endo-dontists	Oral Surgeons	Ortho-dontists	Perio-dontists	Other Dentists ^d
Supply (Status Quo scenario)								
Estimated supply, 2017	190,510	151,170	7,320	5,390	7,070	9,990	5,480	4,090
New entrants, 2017-2030	81,860	60,060	5,650	2,780	3,520	4,920	2,260	2,670
Changing work patterns	-9,970	-7,570	-470	-290	-430	-540	-330	-340
Attrition ^a , 2017-2030	-54,470	-42,980	-1,530	-1,580	-2,200	-2,760	-1,920	-1,500
Projected supply, 2030	207,930	160,680	10,970	6,300	7,960	11,610	5,490	4,920
Net growth, 2017-2030	17,420	9,510	3,650 ^c	910	890	1,620	10	830
% growth, 2017-2030	9%	6%	50%	17%	13%	16%	0%	20%
Demand (Status Quo scenario)^b								
Estimated demand, 2017	190,510	151,170	7,320	5,390	7,070	9,990	5,480	4,090
Projected demand, 2030	206,850	165,490	7,470	5,750	7,590	9,890	6,080	4,580
Total growth, 2017-2030	16,340	14,320	150	360	520	-100	600	490
% growth, 2017-2030	9%	9%	2%	7%	7%	-1%	11%	12%
Adequacy of supply, 2030								
Supply-demand	1,080	-4,810	3,500	550	370	1,720	-590	340
Percent adequacy (supply/demand)	101%	97%	147%	110%	105%	117%	90%	107%

Source: 2017 American Dental Association (ADA) Master file combined with published statistics from ADA, and estimates from HWSM.

Notes: All numbers reflect full time equivalents (FTEs); Numbers presented are rounded to the nearest ten; Negative numbers are shown with a minus sign; Numbers may not sum to totals due to rounding.

^a Includes retirements and mortality.

^b The model assumes that demand and supply are equal in 2017.

^c Supply of pediatric dentists is projected to grow rapidly relative to growth in demand for dental services among children and adolescents. However, an estimated 72% of dentist visits by children and adolescents are to general dentists rather than to pediatric dentists. The growing supply of pediatric dentists combined with a projected shortage of general dentists could result in pediatric dentists providing a larger share of dental care to children and adolescents in the future⁶

^d Prosthodontists are the largest component of the "Other Dentists" category.

⁶ Surdu, S. et al. The pediatric dental workforce in 2016 and beyond. *The Journal of the American Dental Association*. 150(7):609-617

FINDINGS: DENTAL HYGIENISTS

Approximately 147,470 FTE dental hygienists were active in the national workforce in 2017. Assuming the continuation of current training levels and workforce participation patterns, the supply of dental hygienists is projected to grow by 29,190 FTEs – from 147,470 FTEs in 2017 to 176,660 FTEs in 2030 – a 20 percent increase nationally (*Exhibit 2*).

Under the status quo scenario, which assumes the current (2017) dental hygienist demand equals the current supply (147,470 FTEs), the demand for dental hygienists is projected to grow by 7 percent to 157,240 FTEs in 2030. These estimates suggest that supply is adequate to meet the demand for dental hygienists at a national level. However, the excess supply of dental hygienists at the national level may mask a mal-distribution of these providers and shortages at state and local levels.

Exhibit 2. Projected Supply and Demand for Dental Hygienists in the United States, 2017-2030

Supply (Status Quo scenario)	Total
Estimated supply, 2017	147,470
New entrants, 2017-2030	79,490
Changing work patterns	-10,150
Attrition ^a , 2017-2030	-40,150
Projected supply, 2030	176,660
Net growth, 2017-2030	29,190
% growth, 2017-2030	20%
Demand (Status Quo scenario) ^b	Total
Estimated demand, 2017	147,470
Projected demand, 2030	157,240
Total growth, 2017-2030	9,770
% growth, 2017-2030	7%
Adequacy of supply, 2030	Total
Supply-demand	19,290
Percent adequacy (supply/demand)	112%

Sources: 2013-2017 American Community Survey combined with 2018 Survey of Allied Dental Education and estimates from HWSM.

Notes: All numbers reflect full time equivalents (FTEs); Numbers presented are rounded to the nearest ten; Negative numbers are shown with a minus sign; Numbers may not sum to totals due to rounding.

^a Includes retirements and mortality.

^b Demand growth for status quo scenario assumes that demand and supply are equal in 2017 and reflects changing demographics only.