

Is There a Shortage of Dental Hygienists and Assistants in California?



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Findings From the 2003 California Dental Survey

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Executive Summary

This report investigates whether general dentists in private practice in California have experienced a shortage (as defined by delays or length of time to hire) of dental hygienists and assistants, and whether their perceptions of a shortage of these personnel are concordant with their experiences. The information provided in this report serves as the starting point for examining dental personnel shortage issues, using data reported by general dentists in private practice in California.

The capacity to provide dental care depends on several factors, including age of the dentist, number of hours worked within a week, and the number of dental auxiliary personnel—such as hygienists or dental assistants—in the office. A shortage of auxiliary personnel is likely to reduce the capacity of dentists to provide dental care. One measure of shortage is experienced delays in hiring such personnel.

Summary of Key Findings

Dental Hygienists

- Approximately one-half of general dentists in private practice in California employed hygienists.
- For each full-time dentist employing a hygienist, there was the equivalent of 20 hygienist hours per week. Among general dentists in private practice who employed hygienists, more than two-thirds employed only part-time hygienists.
- Full-time hygienists more often received certain benefits than part-time hygienists, although hourly wages were similar. Most commonly offered benefits to hygienists were dental care, paid vacations, and bonuses.
- Approximately one-half of general dentists in California who employed hygienists reported having a current opening or had an opening in the past year for a hygienist. The majority of dentists with current openings were hiring for part-time positions. Almost one-third of those hiring in the prior year were hiring for a new position and 70% were hiring for an existing position.
- Dentists without recent (current or past year) hygienist openings reported longer tenure of and fewer benefits offered to the hygienists in their practice than dentists with openings.

Executive Summary (cont.)

- Approximately one-half of dentists with any recent hygienist openings—11% of all general dentists in private practice in California—experienced delays of longer than 1.5 months to hire hygienists. Dentists who reported delays paid their existing hygienists higher salaries than those not experiencing delays. In addition, dentists who reported delays offered a number of benefits more frequently to their full-time hygienists than those dentists without delays. This difference was not seen for part-time hygienists.
- Dentists who practiced in the Greater San Francisco Bay Area, Sacramento Region, and Southern California counties other than Los Angeles, more often reported experiencing recent delays of longer than 1.5 months to hire hygienists.
- Differences in delay by geographic variation, salary, and gender of dentist existed independent of alternative explanations such as size of practice, ratio of hygienist to dentist in the county, number of dentist visits per week, practice ownership, and number of benefits offered.
- Almost all dentists who experienced recent delays in hiring hygienists perceived a shortage of these personnel. Dentists with delays more often reported negative impacts of shortage of hygienists on their practice such as longer patient waiting times and job stress compared to those not experiencing delays.



Dental Assistants

- Nearly all general dentists in private practice (96%) employed dental assistants and more than one-half had more than two full-time equivalent dental assistants. General dentists in private practice more often employed registered dental assistants than non-registered assistants.
- Full-time dental assistants more often received certain benefits, such as medical and dental benefits, than did part-time assistants. Registered dental assistants received higher salaries than non-registered assistants and had longer tenures with the practice. Most commonly offered benefits to dental assistants were dental care, vacations, and bonuses.
- Slightly more than one-half of dentists in California reported having a current opening or one in the prior year for dental assistants.
- Most of the new hires in the prior year were for existing positions and twice as many were for registered dental assistant (RDA) positions than for non-registered dental assistant (NDA) positions. Two in five dentists anticipated hiring additional dental assistants (DA) in the following year.

Executive Summary (cont.)

- About two in five dentists with openings experienced recent delays of longer than one month to hire dental assistants—20% of all general dentists in private practice in California. Dentists who experienced delays were offering more medical insurance benefits to full-time but less medical insurance benefits to their existing part-time dental assistants in their practice. Dentists who experienced delays in hiring dental assistants least often practiced in the San Joaquin Valley region of California.
- Differences in delay by specialist (vs. general) dentists remained independent of alternative explanations including size of practice, number of dentist visits per week, practice ownership, number of benefits offered, and salary of dental assistants.
- About eight in 10 dentists who experienced delays in hiring dental assistants perceived a shortage of these personnel. Dentists experiencing delays most often reported a negative impact on aspects of their practice such as longer patient waiting times and quality of patient care, compared to those who did not experience delays.

Conclusions

This report found evidence that half of dentists with openings for hygienists—about 11% of all general dentists in private practice in California—experienced delays in hiring these personnel. Delays (realized shortage) were more common among dentists practicing in certain geographic areas of California, and among dentists paying higher salaries to their existing hygienists. Dentists looking to hire part-time hygienists more often experienced delays as well. Further examination of the characteristics of geographic areas is necessary to identify whether these delays are related to supply or demand factors (beyond those examined in this report) and the appropriate solutions to alleviate delays in hiring. However, the perception of a shortage of hygienists was more widespread than the data on realized shortage/delay supported. In other words, a high percentage of dentists who did not have recent openings for hygienists and those that did not experience delays also perceived a shortage of hygienists. It is likely that these perceptions were based on more distant past experiences or experiences of peers.

Delays are one method of examining shortage and other methods may provide additional information on whether there is a shortage of hygienists in California. For example, the perception of shortage may be based on perceived difficulties of hiring hygienists with particular characteristics, such as part-time hygienists who can work specific hours, hygienists with special training, or with many years of experience.

Executive Summary (cont.)

Similarly, hygienists' preferences for employment in dental practices with specific characteristics may play a role in the perception of shortage of hygienists, by dentists. Hygienists may be looking for dental practices that provide specific benefits or specific hours to accommodate their work schedules. These alternative explanations for the perception of shortage were not examined in this report and could be examined in future studies.

This report also provided evidence that dentists experienced delays in hiring dental assistants—20% of general dentists in private practice in California, yet delays could not be attributed to examined measures of supply of dental assistants such as geographic location or the overall ratio of dental assistants to dentists in a given geographic area. However, delay in hiring dental assistants was more likely to be experienced by specialist dentists indicating the possibility that these dentists may have been seeking assistants with special training. Overall, the perceptions of shortage of dental assistants were more prevalent than dentists' experience of delays. This perception of shortage may be due to alternative explanations such as dentists seeking assistants with particular characteristics or dental assistants' requirement for certain work environments. Neither set of factors was included in this analysis.



Introduction

The capacity to provide dental care depends on several factors, including—but not limited to—age of the dentist, number of hours worked within a week, and the number of dental auxiliary personnel, such as assistants or hygienists in the office.¹ The American Dental Association (ADA) publishes data on the number of dental hygienists and dental assistants in private dental practices nationally; it has identified a slow increase in the percentage of dental hygienists employed in dental practices (63.1% in 1997 to 68.7% in 2001) and an increase in the weekly salaries of hygienists. However, there has been a slight decrease in the proportion of dental assistants (DAs) employed in dental practices nationally (94.1% in 1997 to 93.9% in 2001), while there was an increase in the weekly salaries of assistants. Some dentists have reported difficulties in filling vacant dental hygienist and dental assistant positions.² Anecdotally, dentists in California have perceived a shortage of dental hygienists and assistants and concern over hiring and retaining such personnel.

Using data from a California survey of dentists in 2003, this report primarily investigates whether general dentists in private practice have experienced delays in hiring (i.e., a long time to hire) dental hygienists and assistants, and whether their perceptions of a shortage of these personnel are concordant with their experiences. Delays in hiring of personnel can reduce the capacity of the general dentist to provide care and, consequently, negatively impact access to dental care. This report does not provide a definite answer on whether delays in hiring dental hygienists and assistants are a direct consequence of the shortage of these personnel. Both delays and the potential shortage of allied dental personnel may be a consequence of other factors unexamined in this report. However, the information provided here can serve as the starting point for examining such issues, using data reported by general dentists in private practice in California.

¹ <http://bhpr.hrsa.gov/shortage/hpsaguidepc.htm>. January 25, 2005

² 2002 *Survey of Dental Practice: Employment of Dental Practice Personnel*. American Dental Association: Chicago, IL. March 2004.

Distribution of Dentists, Dental Hygienists, and Registered Dental Assistants in California

A total of 26,533 dentists were licensed to practice in California in 2002 (Exhibit 1).^{3,4} Of these, approximately 90% were estimated to be general dentists in private practice.⁵ Evidence of uneven distribution of dentists in some geographic areas has emerged in California.⁶ The largest concentration of dentists practiced in Los Angeles County, followed by Orange, San Diego, Santa Clara, Alameda, and San Francisco counties. In comparison, many rural Northern California counties had few dentists. A total of 12,486 dental hygienists were registered to practice in California, with the largest concentration in Los Angeles County (based on their license address) and the fewest in rural Northern California counties. A total of 31,372 dental assistants were registered in California. The geographic distribution of registered dental assistants (based on registration address) was relatively similar to that of dentists and hygienists (Exhibit 1).

³ Dental Board of California Licensing Data (<http://www.dbc.ca.gov/>)

⁴ The 2002 data on licensed dentists in California was the most recent data available at the time of this study and was used to draw the sample for the survey of dentists.

⁵ UCLA Center for Health Policy Research estimate.

⁶ Mertz EA and Grumbach K. Identifying communities with low dentist supply in California. *Journal of Public Health Dentistry*. 61(3): 172-177. 2001.

Exhibit 1. Geographic Distribution of Dentists, Dental Hygienists, and Registered Dental Assistants in California Counties, 2002

	Total Licensed Dentists in California ¹	Estimated Number of Dentists in Active Private Practice Providing General and Pediatric Care ²	Dental Hygienists ³	Registered Dental Assistants ³
Alameda	1,256	1,132	573	1,416
Alpine	0	0	0	0
Amador	23	18	15	69
Butte	135	118	101	266
Calaveras	21	16	18	49
Colusa	4	4	6	12
Contra Costa	818	713	606	1,449
Del Norte	15	14	5	22
El Dorado	129	106	128	281
Fresno	449	400	322	772
Glenn	7	7	7	33
Humboldt	85	77	56	215
Imperial	37	31	7	52
Inyo	12	11	12	12
Kern	249	247	193	564
Kings	48	40	45	109
Lake	21	21	15	69
Lassen	22	21	13	50
Los Angeles	7,306	6,683	2,252	5,325
Madera	42	42	38	137
Marin	325	269	217	243
Mariposa	7	7	5	17
Mendocino	65	56	35	100
Merced	83	75	46	221
Modoc	3	2	0	7
Mono	5	5	11	9
Monterey	278	254	159	473
Napa	108	90	91	129
Nevada	83	72	94	155
Orange	2,848	2,448	1,347	2,387
Placer	282	229	264	486
Plumas	16	16	10	24
Riverside	780	717	382	1,434
Sacramento	917	853	542	1,674
San Benito	19	16	26	90
San Bernardino	985	891	479	1,640
San Diego	2,165	1,949	1,058	2,770
San Francisco	1,139	1,065	211	461
San Joaquin	296	278	159	674
San Luis Obispo	175	155	161	252
San Mateo	754	663	337	792
Santa Barbara	310	281	167	312
Santa Clara	1,872	1,717	709	1,643
Santa Cruz	193	166	253	273
Shasta	109	96	91	306
Sierra	1	1	1	3
Siskiyou	26	24	17	38
Solano	270	244	140	643
Sonoma	386	350	276	827
Stanislaus	243	227	168	737
Sutter	62	53	23	113
Tehama	19	19	19	61
Trinity	5	5	1	8
Tulare	165	149	113	336
Tuolumne	46	43	27	75
Ventura	565	502	361	780
Yolo	108	101	71	212
Yuba	15	15	3	65
Out of State Residents	132	—	—	—
TOTAL	26,539	23,804	12,486	31,372

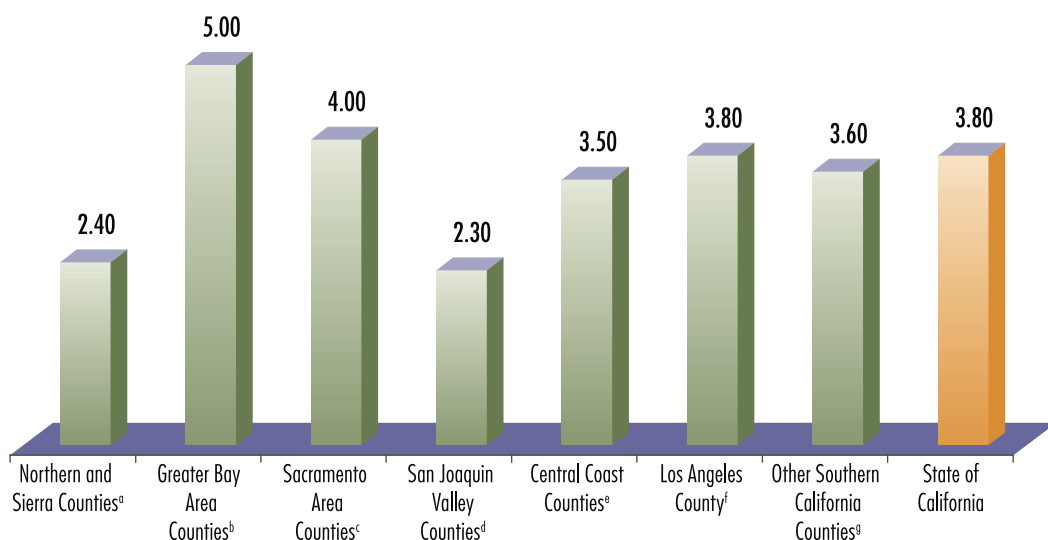
¹ California Dental Association, October 2002

² Estimated by UCLA Center for Health Policy Research, excludes ineligible specialties (oral and maxillofacial surgeons, oral and maxillofacial pathologists, oral and maxillofacial radiologists, and public health dentists) and dentists in the licensure board database who were assumed to be not practicing in the state because they were over age 85, lived out of state, had an expired or inactive license, were retired, deceased, or students.

³ California Dental Association, October 2002, information from California Dental Board—Registered Dental Assistants and Dental Hygienists included.

Overall, there were 3.8 full-time equivalent (FTE) general dentists in private practice per 5,000 population in California. One FTE is equal to one dentist working 32 or more hours per week (see Appendix B for a more detailed definition). Examining various regions of California (clusters of contiguous counties) revealed that this ratio was highest in the Greater San Francisco Bay Area (5.0), followed by the Sacramento region (4.0), Los Angeles County (3.8), other Southern California Counties (3.6), and the Central Coast region (3.5). The San Joaquin Valley region (2.3), and the Northern and Sierra Counties (2.4) had the lowest FTE dentist-to-population ratios (Exhibit 2).

Exhibit 2. Geographic Distribution of Full-Time Equivalent (FTE) Dentists per 5,000 Population by Region, General Dentists in Private Practice, California, 2003



^a Includes Butte, Shasta, Humboldt, Del Norte, Siskiyou, Lassen, Trinity, Modoc, Mendocino, Lake, Tehama, Glenn, Colusa, Sutter, Yuba, Nevada, Plumas, Sierra, Tuolumne, Calaveras, Amador, Inyo, Mariposa, Mono, and Alpine Counties

^b Includes Santa Clara, Alameda, Contra Costa, San Francisco, San Mateo, Sonoma, Solano, Marin, and Napa Counties

^c Includes Sacramento, Placer, Yolo, and El Dorado Counties

^d Includes Fresno, Kern, San Joaquin, Stanislaus, Tulare, Merced, Kings, and Madera Counties

^e Includes Ventura, Santa Barbara, Santa Cruz, San Luis Obispo, Monterey, and San Benito Counties

^f Includes Los Angeles County

^g Includes Orange, San Diego, San Bernardino, Riverside, and Imperial Counties

Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Demographic Characteristics of Dentists in California

Nearly all of the general dentists in California reported working in dentist-owned private practices (96%; Exhibit 3). A small percentage of general dentists (3%) primarily worked in practices owned by corporations. Seventy-two percent of general dentists in private practice reported that they were sole proprietors (Exhibit 3). The majority of dentists surveyed (88%) reported working in only one private practice location. Forty-four percent of dentists reported that their practice was incorporated. Most dentists (90%) only provided general care and were general practitioners (Exhibit 3). Another 5% of dentists were specialists, but also reported providing general dental services. The remaining 5% of dentists were specialists in pediatric dentistry. For the purposes of this report, pediatric dentists and other specialists who reported they provided general care are included with general dentists.

The majority of general dentists in private practice were male (73%), non-Latino white (53%), between the ages of 30 to 59 (83%), graduated from dental school between six to 20 years ago (57%), spoke a second language (60%), and had staff that spoke a second language other than English (68%; Exhibit 3).

Exhibit 3. Characteristics of General Dentists in Private Practice, California, 2003

	Population Percent
Practice Ownership Status	
Dentist Owned Private Practice	96%
Corporate Owned Practice	3%
Other	1%
Respondents' Ownership Status	
Sole Proprietor	72%
A Partner	10%
A Non-Owner Employee	8%
An Independent Contractor	10%
Dentist Practices In Only One Location	88%
Practice Is Incorporated	44%
Specialty	
Generalist Dentist	90%
Specialist Dentist Who Provides General Care	5%
Pediatric Dentist	5%
Male	73%
Race/Ethnicity	
White	53%
Asian American/Pacific Islander	34%
Latino	6%
African American	1%
American Indian/Alaska Native	1%
Other	6%
Age	
Less Than 30 Years	3%
30-44 Years	40%
45-59 Years	43%
60 Years and Over	14%
Years Since Graduation	
Less Than 5 Years	11%
5-20 Years	57%
21-39 Years	30%
40 Years and Over	2%
Multilingual Capacity	
Dentist Speaks an Additional Language Other Than English	60%
Staff Speaks an Additional Language Other Than English	68%

Source: UCLA Center for Health Policy Research, California Dental Survey 2003



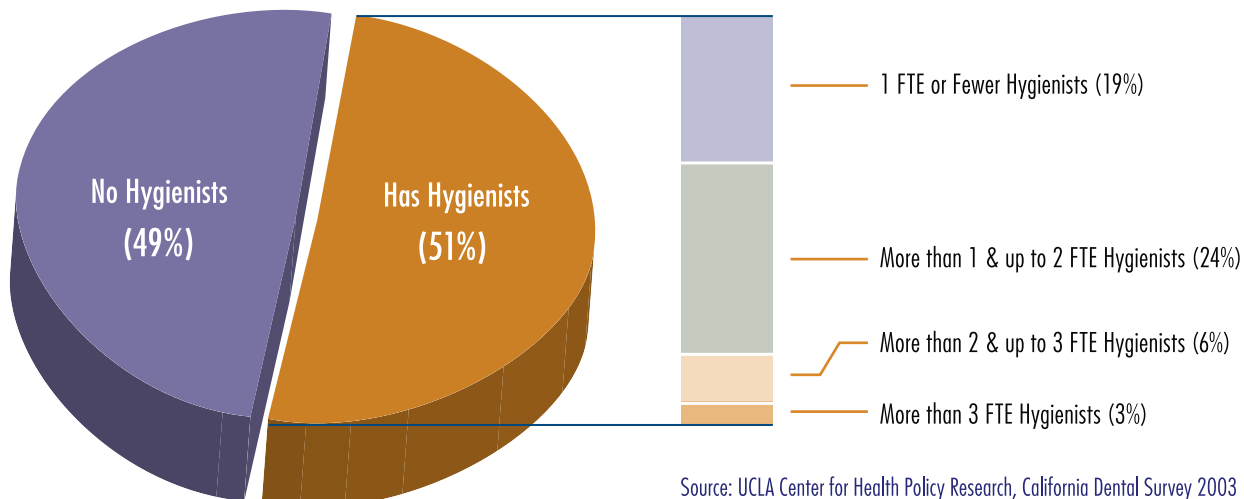
Current Profile of Dental Hygienists Working in the Private Practice of General Dentists

- Approximately one-half of general dentists in private practice in California employed hygienists.
- Statewide, for each full-time dentist employing a hygienist, there was the equivalent of 20 hygienist hours per week.
- Among general dentists in private practice who employed hygienists, more than two-thirds employed only part-time hygienists.
- Full-time hygienists more often received certain benefits than part-time hygienists, although hourly wages were similar.
- Most commonly offered benefits to hygienists were dental care, paid vacations, and bonuses.

Number of Full-Time Equivalent Hygienists

Approximately one-half of general dentists (51%) reported currently employing dental hygienists in their primary practices (Exhibit 4).

Exhibit 4. Number of Full-Time Equivalent (FTE) Hygienists in Private Practice of General Dentists, California, 2003



Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Note: Totals may not sum to 100% due to rounding error.

Specialist dentists providing general care less frequently employed hygienists (21%) than general dentists. The exclusion of specialist dentists from the analysis increased the percentage of general dentists who employed hygienists in their practice from 51% to 53%. Specialists providing general care are included with general dentists in this report.

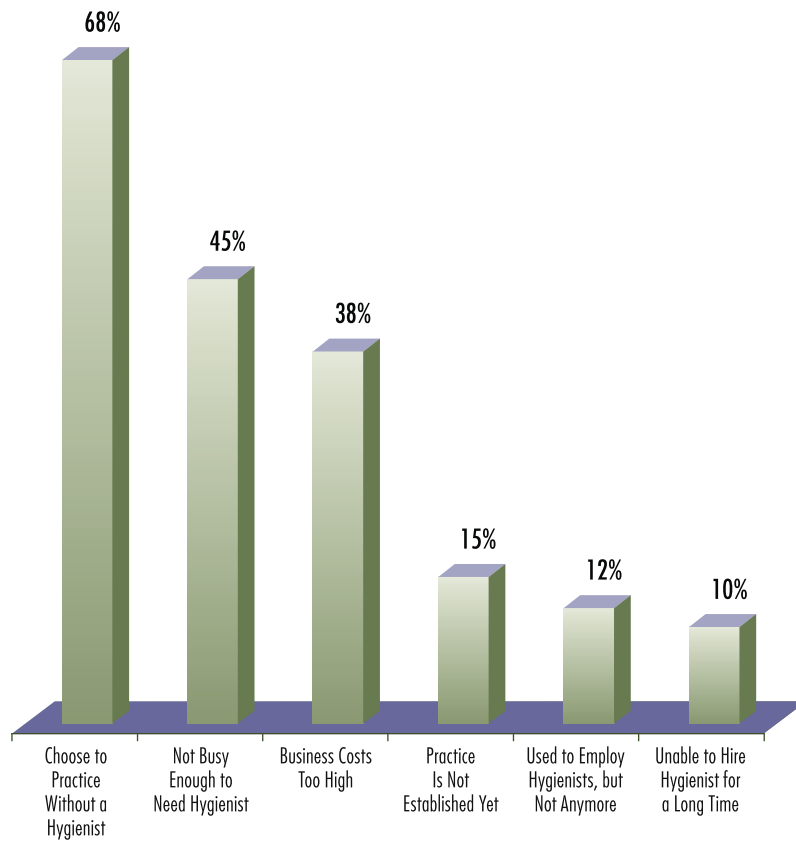
Examining all dentists providing general care, 19% reported they employed up to one full-time equivalent (FTE) hygienist in their practice; 24% reported more than one and up to two FTE hygienists; 6% had more than two and up to three FTE hygienists; and only 3% reported employing more than three FTE hygienists. One FTE is equal to one hygienist working more than 32 hours per week. Compared to California dentists, 68.7% of dentists nationally employed any dental hygienists.⁷

The characteristics of general dentists in private practice who did not employ dental hygienists differed from general dentists who did employ hygienists (data not displayed in Exhibits). Dentists who did not employ hygienists were more likely to be specialists providing general care, non-white, or female practitioners compared to those who employed hygienists. Similarly, those not employing hygienists more often had smaller practices as indicated by fewer dental assistants, front office staff, and operatories. Those not employing hygienists had a higher percentage of Denti-Cal patients, more often accepted sliding scale fee payments, and personally provided more preventive care and less operative care. Dentists not employing hygienists less often practiced in the San Francisco Bay Area and Southern California counties other than Los Angeles, and more often practiced in counties where the average ratio of hygienists to dentists was low.

⁷ American Dental Association: 2002 Survey of Dental Practice, Employment of Dental Practice Personnel.

The most frequent reasons cited by dentists who did not employ hygienists were preference of dentist to practice without a hygienist (68%), not busy enough (45%), high business costs of hiring hygienists (38%), among others (Exhibit 5).

Exhibit 5. Reasons for Not Employing Hygienists in Private Practice of General Dentists Who Do Not Employ Hygienists, California, 2003



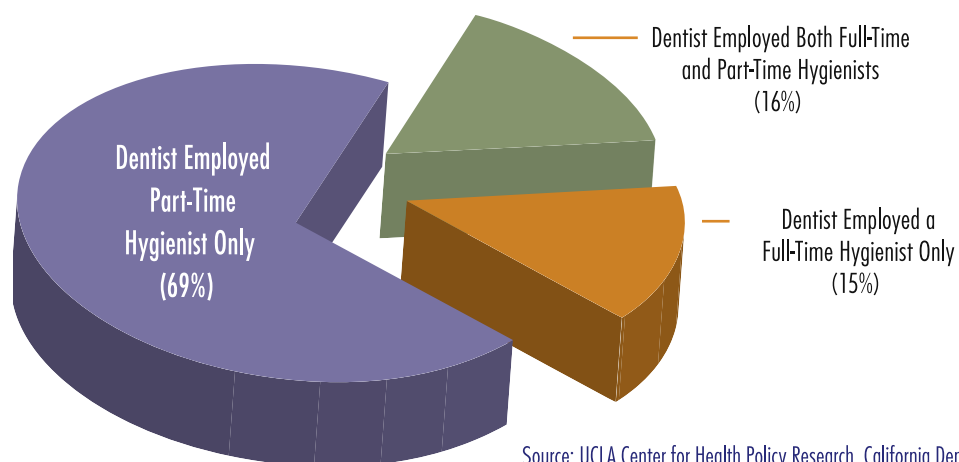
Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Note: Respondents selected more than one answer.

Work Status of Hygienists

Among general dentists who employed hygienists, the majority (69%) employed only part-time hygienists, 15% employed only full-time hygienists, and 16% employed both full- and part-time hygienists (Exhibit 6).

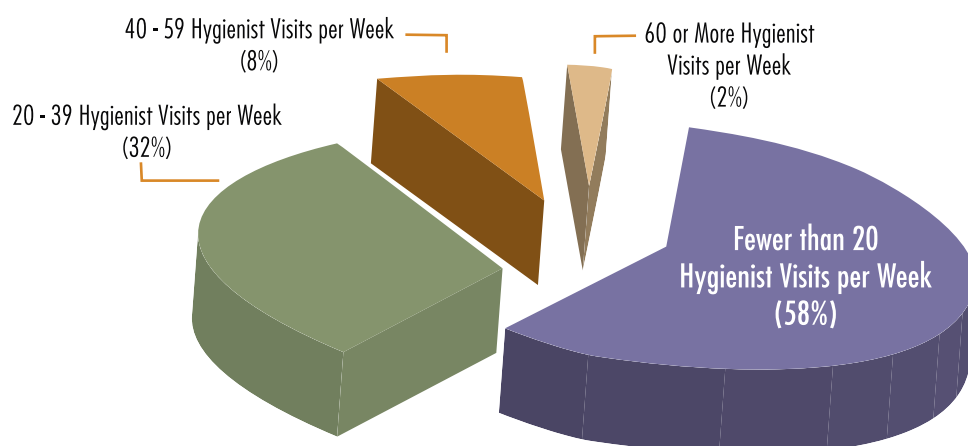
Exhibit 6. Full-Time and Part-Time Status of Hygienists in Private Practice of General Dentists, California, 2003



Source: UCLA Center for Health Policy Research, California Dental Survey 2003
Note: Totals may not sum to 100% due to rounding error.

Among dentists who employed hygienists, 58% reported fewer than 20 hygienist visits per week for all hygienists in their practices (Exhibit 7). One-third (32%) reported 20-39 hygienist visits per week, just 8% of dentists reported 40-59 hygienist visits per week, and 2% reported more than 60 hygienist visits. The overall number of hygienist visits per day was approximately nine per hygienist.

Exhibit 7. Number of Hygienist Visits per Week in Private Practice of General Dentists Who Employed Hygienists, California, 2003

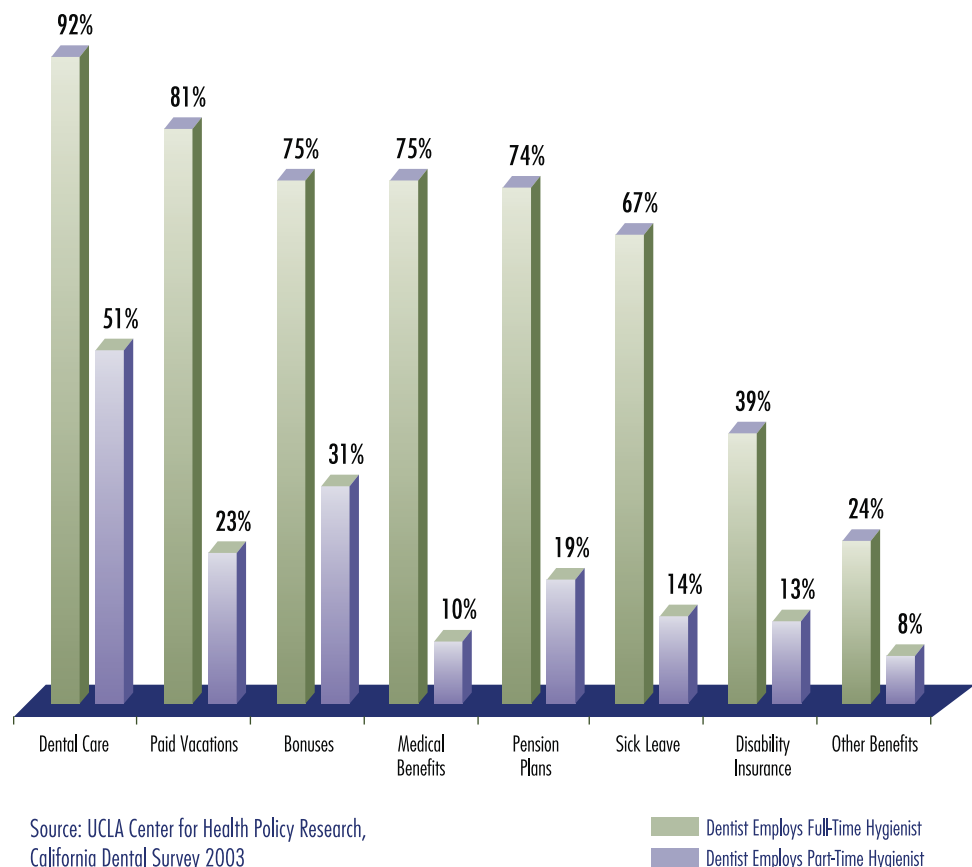


Source: UCLA Center for Health Policy Research, California Dental Survey 2003
Note: Totals may not sum to 100% due to rounding error.

Salary, Benefits, and Tenure of Hygienists

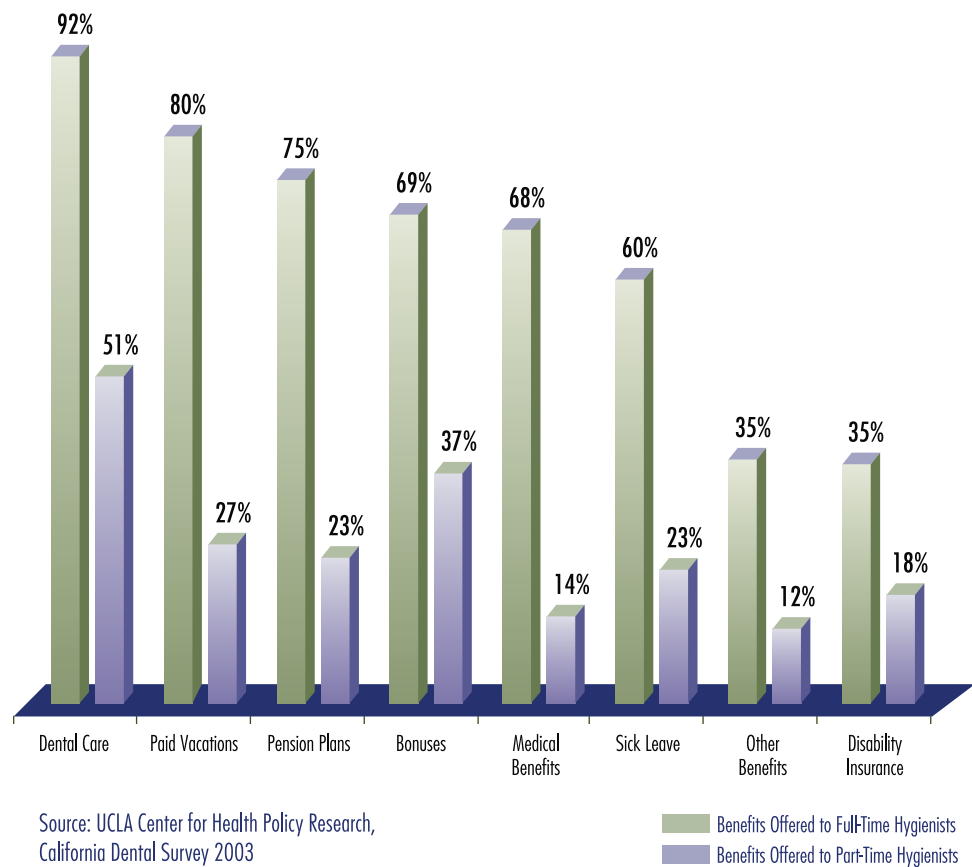
General dentists in private practice provided some benefits to their hygienists more frequently than other benefits (Exhibit 8). Among dentists who employed only full-time hygienists, dental care was the most frequently offered benefit to full-time hygienists (92%), followed by paid vacations (81%), bonuses (75%), medical benefits (75%), pension plans (74%) and sick leave (67%). Fewer dentists offered disability insurance (39%), or any other benefits (24%) to their full-time hygienist staff. In comparison, 51% of dentists who employed only part-time hygienists reported that they offered dental care, followed by bonuses (31%), paid vacations (23%), and pension plans (19%). Fewer dentists offered sick leave (14%), disability insurance (13%), or medical benefits (10%).

Exhibit 8. Hygienist Benefits Offered in Private Practice of General Dentists Who Employed Either Full-Time or Part-Time Hygienists, California, 2003



In private practices of dentists who employed both full-time and part-time hygienists, benefits were offered to full-time hygienists at statistically equivalent rates with dentists who employed only full-time or only part-time hygienists (Exhibit 9). The only observed difference was for sick leave for part-time hygienists. Dentists who employed both full- and part-time hygienists more often provided this benefit to their part-time hygienists than those who only employed part-time hygienists.

Exhibit 9. Hygienist Benefits Offered in Private Practice of General Dentists Who Employed Both Full-Time and Part-Time Hygienists, California, 2003

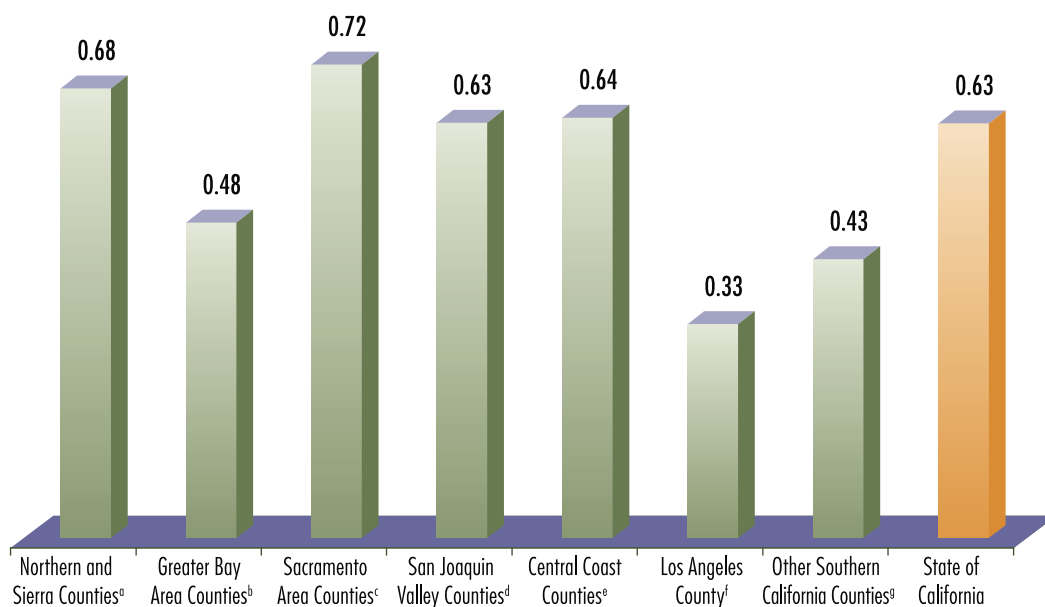


Examining salary and tenure of hygienists in general dentists' private practices revealed that the hourly salary of hygienists on average was \$42. No differences existed in this hourly rate by full-time and part-time hygienist status. The average tenure of hygienists working in private practices of general dentists was seven years.

Ratio of Full-Time Equivalent Hygienists to Full-Time Equivalent Dentists in California

The ratio of FTE dental hygienists to FTE dentists per practice was 0.63 (Exhibit 10). In other words, for every full-time dentist (32 or more hours per week) practicing in California, there were approximately 20 to 25 hygienist hours per week. This ratio varied across geographic regions in the state from 0.72 in the Sacramento area (about 23 to 29 hours per week per FTE dentist) to 0.33 in Los Angeles County (approximately 10 to 13 hours per week per FTE dentist).

Exhibit 10. Ratio of Full-Time Equivalent (FTE) Hygienists to FTE Dentists in Private Practice of General Dentists by Region, California, 2003



^a Includes Butte, Shasta, Humboldt, Del Norte, Siskiyou, Lassen, Trinity, Modoc, Mendocino, Lake, Tehama, Glenn, Colusa, Sutter, Yuba, Nevada, Plumas, Sierra, Tuolumne, Calaveras, Amador, Inyo, Mariposa, Mono and Alpine Counties

^b Includes Santa Clara, Alameda, Contra Costa, San Francisco, San Mateo, Sonoma, Solano, Marin and Napa Counties

^c Includes Sacramento, Placer, Yolo, and El Dorado Counties

^d Includes Fresno, Kern, San Joaquin, Stanislaus, Tulare, Merced, Kings and Madera Counties

^e Includes Ventura, Santa Barbara, Santa Cruz, San Luis Obispo, Monterey and San Benito Counties

^f Includes Los Angeles County

^g Includes Orange, San Diego, San Bernardino, Riverside and Imperial Counties

Source: UCLA Center for Health Policy Research, California Dental Survey 2003



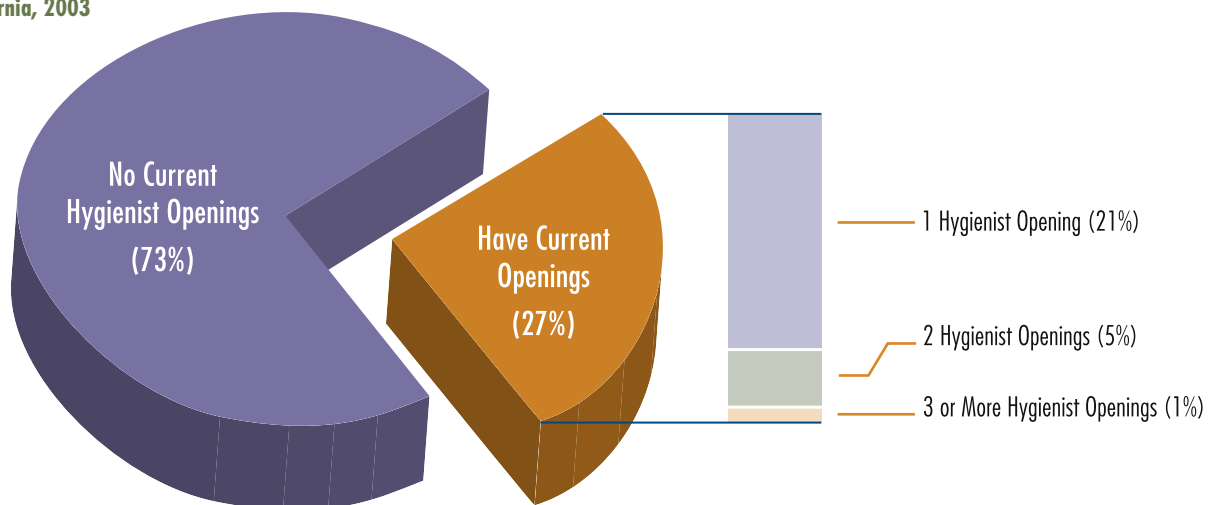
Delays in Hiring Hygienists in Private Practice of General Dentists in California

- Approximately one-half (46%) of general dentists in California who employed hygienists reported having a recent opening for a hygienist.
- The majority (78%) of dentists with current openings were hiring for part-time positions.
- Almost one-third of those hiring in the prior year were hiring for a new position, and 70% were hiring for an existing position.
- Dentists without recent hygienist openings reported longer tenure of and fewer benefits offered to the hygienists in their practice than dentists with openings.
- Approximately one-half of dentists with any hygienist openings experienced recent delays of longer than 1.5 months to hire hygienists. Overall, 11% of all general dentists in private practice in California experienced delays in hiring hygienists.
- Dentists who experienced recent delays were offering higher salaries to their existing hygienists than dentists with no delays. Also, dentists with delays offered a number of benefits more frequently to their existing full-time hygienists, but not to their part-time hygienists.
- Dentists who practiced in the Greater San Francisco Bay Area, Sacramento region, and Southern California counties, other than Los Angeles, more often reported taking longer than 1.5 months to hire hygienists.
- Differences in recent delays by geographic variation, salary, and gender of dentist existed independent of alternative explanations such as size of practice, ratio of hygienists to dentists in the county, number of dentist visits per week, practice ownership, and number of benefits offered.
- Almost all dentists who experienced delays in hiring hygienists also perceived a shortage of these personnel.
- Dentists with delays more often reported negative impacts of shortage of hygienist on their practice including longer patient waiting times and job stress compared to those not experiencing delays.

Hygienist Openings in Private Practice of General Dentists

Among general dentists who employed hygienists, 27% reported they currently have dental hygienist openings in their primary practice (Exhibit 11). Twenty-one percent reported one opening and 6% report two or more openings. Of dentists with current hygienist openings, 78% were hiring for part-time positions, 7% were hiring for full-time positions, and 15% were hiring for both positions.

Exhibit 11. Current Hygienist Openings in Private Practice of General Dentists Who Employed Hygienists, California, 2003

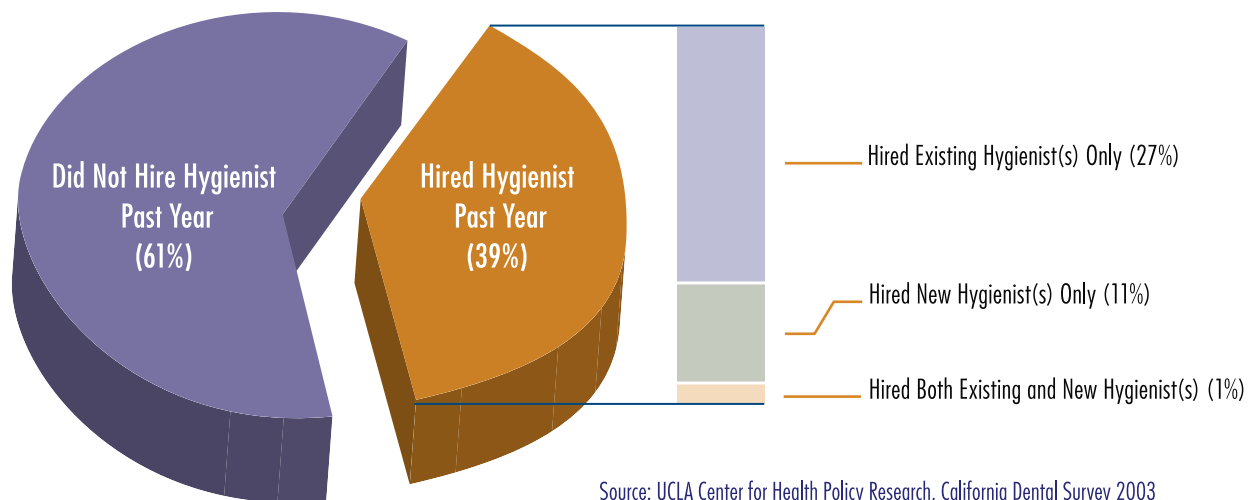


Source: UCLA Center for Health Policy Research, California Dental Survey 2003
Note: Totals may not sum to 100% due to rounding error.

In addition to current openings, general dentists who employed hygienists were asked whether they hired any hygienists in the past year. Thirty-nine percent reported hiring hygienists in the past year (Exhibit 12), which included 27% who reported hiring for an existing position, 11% who hired for a new position, and 1% who hired both. Thus, among those dentists who had openings in the past year, the majority (70%) hired for an existing position. Most dentists (63%) who hired for an existing hygienist position last year also had current openings for part-time hygienists. Another 27% who hired for new positions in the prior year also had current openings for part-time positions.

Overall, 46% of dentists who employed hygienists reported having recent openings (either current or in the past year) for dental hygienists.

Exhibit 12. Hygienists Hired in Past Year in Private Practice of General Dentists Who Employed Hygienists, California, 2003

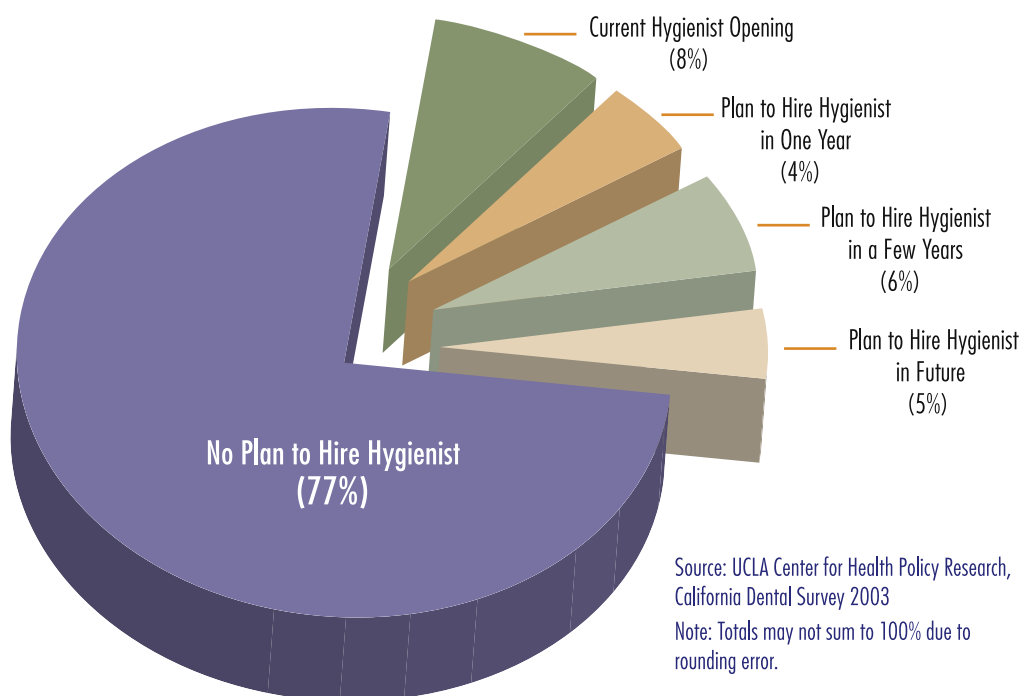


Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Note: Totals may not sum to 100% due to rounding error.

Among dentists who did not employ any hygienists in their practice, 8% had at least one open position. Another 4% intended to hire within a year, 6% intended to hire in a few years, 5% intended to hire at some unspecified time in the future. The majority (77%) did not intend to hire hygienists (Exhibit 13). Of those intending to hire a hygienist, 76% intended to hire a part-time hygienist, 20% intended to hire a full-time hygienist, and the remainder intended to hire a combination of full- and part-time hygienists.

Exhibit 13: Current Openings and Future Plans for Hiring Hygienists in Private Practice of General Dentists Who Did Not Employ Hygienists, California, 2003

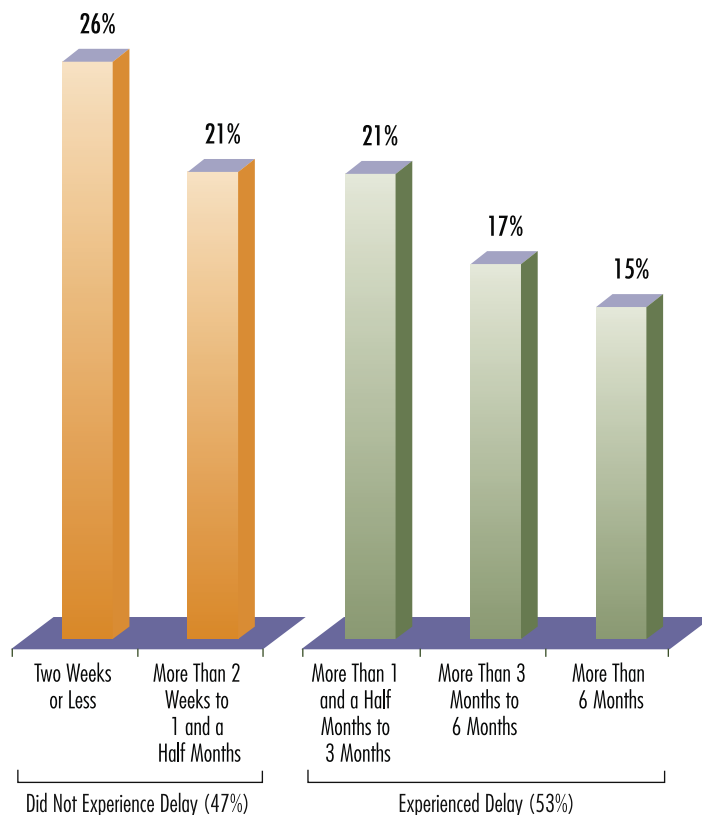


Delays in Hiring Hygienists: Time to Hire

The average length of time dentists had current hygienist openings and the time it took to hire a hygienist in the past were similar for both reported time periods. Forty-eight percent of dentists had the current hygienist positions open for 1.5 months or less. Similarly, 46% of dentists had hygienist positions in the past year that were open for the same length of time. A single measure of time to hire was created—using both current and past time to hire—to examine whether general dentists in private practice reported long delays in hiring dental hygienists.

Overall, 26% of dentists reported taking two weeks or less to hire a dental hygienist and 21% reported taking more than two weeks and up to 1.5 months (Exhibit 14). Another 21% reported more than 1.5 months and up to three months to hire. For the remainder, 17% reported more than three months and up to six months. Fifteen percent reported more than six months to hire a hygienist. Thus, slightly more than one-half of dentists (53%) took longer than 1.5 months to hire a hygienist. For the purposes of this analysis, these dentists were considered to experience recent delays in hiring or had realized a shortage of hygienists (see Appendix B for definition). This translates to 11% of all general dentists in private practice in California who experienced recent delays in hiring hygienists.

Exhibit 14. Reported Time to Hire Hygienists in Private Practice of General Dentists, California, 2003



Note: The totals may not sum to 100% due to rounding error.
 Source: UCLA Center for Health Policy Research, California Dental Survey 2003.

Salary, Benefit, and Tenure by Delays in Hiring Hygienists

Dentists who experienced recent delays in hiring hygienists (more than 1.5 months) differed from those who did not experience delays in salary and some benefits they offered to existing hygienists in their practices. Among dentists employing only full-time hygienists, those reporting delays more often offered dental, bonuses, pension, disability, and other miscellaneous benefits than those who did not report delays (Exhibit 15). The rates of offering medical insurance, vacation, and sick leave benefits were statistically the same. Among dentists employing only part-time hygienists, the offer rates for all benefits were similar between dentists reporting delays and those not reporting delays in hiring a hygienist. Among dentists who hired both full- and part-time hygienists, dentists experiencing delays more often offered vacation and sick leave and less often offered disability to their full-time hygienists. The same dentists offered benefits at similar rates to their part-time hygienists regardless of having experienced delays. The overall number of benefits offered to existing hygienists by dentists who experienced delays and to those who did not was constant at 4.1.

Dentists experiencing delays paid a slightly higher hourly salary (\$42.90) to their existing hygienists compared to those who did not experience delays (\$41.00; Exhibit 15). Dentists who experienced delays did not differ significantly from those who did not experience delays in the length of tenure of their existing hygienists (five years/three months vs. five years/eight months).

The same comparisons on benefits offered, salary, and tenure were conducted between dentists who reported recent openings—regardless of experienced delays—and those dentists who did not have any openings. Among dentists with openings, those who employed only full-time hygienists offered medical insurance, dental care, and vacations to their hygienists more often than those without openings. Those with openings who employed only part-time hygienists more often offered medical insurance and dental care, but less frequently offered sick leave than those without openings.

Among dentists who employed both full- and part-time hygienists, those with openings more frequently offered medical insurance, vacation, bonus, pension, and disability benefits to their full-time hygienists. The same dentists more often offered dental care and disability benefits to their part-time hygienists than dentists without openings. The salaries of hygienists in practices with and without openings were statistically the same, but the tenure of hygienists in practices without openings was more than eight years rather than five years/five months.

Exhibit 15: Rates of Offering Benefits, Salary Level, and Tenure of Existing Hygienist by Experienced Delays and Hygienist Openings Among General Dentists in Private Practice, California, 2003¹

	Had Hygienist Openings and Experienced No Delays	Had Hygienist Openings and Experienced Delays	All Dentists With Hygienist Openings	Dentists Without Hygienist Openings
Dentist Employed Full-Time Hygienists Only				
Medical insurance	79%	80%	80% ⁵	71%
Dental care	90% ²	98%	94% ⁶	90%
Vacation	83%	86%	85% ⁶	79%
Bonus	68% ³	80%	74%	76%
Pension	66% ⁴	76%	71%	76%
Sick leave	69%	69%	69%	65%
Disability	25% ²	56%	41%	37%
Other	12%	28%	19%	29%
Dentist Employed Part-Time Hygienists Only				
Medical insurance	11%	11%	11% ⁶	9%
Dental care	56%	52%	54% ⁷	48%
Vacation	22%	24%	23%	23%
Bonus	32%	32%	32%	31%
Pension	20%	19%	19%	19%
Sick leave	11%	13%	12% ⁶	15%
Disability	15%	13%	14%	13%
Other	7%	9%	8%	9%
Dentist Employed Full-Time and Part-Time Hygienists				
Benefits Offered to Full-Time Hygienists				
Medical insurance	77%	71%	74% ⁷	61%
Dental care	91%	93%	92%	93%
Vacation	79% ²	90%	85% ⁷	76%
Bonus	73%	75%	74% ⁵	65%
Pension	75%	80%	78% ⁶	72%
Sick leave	55% ²	69%	63%	58%
Disability	46% ⁴	36%	41% ⁷	30%
Other	26%	27%	27% ⁵	42%
Benefits Offered to Part-Time Hygienists				
Medical insurance	13%	17%	15%	13%
Dental care	54%	57%	56% ⁷	46%
Vacation	27%	23%	25%	29%
Bonus	41%	35%	38%	36%
Pension	22%	22%	22%	25%
Sick leave	23%	16%	19%	26%
Disability	24%	20%	22% ⁵	15%
Other	13%	11%	12%	12%
Total Number of Benefits Offered to Full and Part-Time Hygienists	4.1	4.1	4.1	3.9
Average Hygienist Salary Per Hour	\$41.00 ²	\$42.90	\$42.00	\$41.80
Average Hygienist Tenure in Years	5 years and 8 months	5 years and 3 months	5 years and 5 months	8 years and 1 month

¹ Delay is specified as more than 1.5 months to hire

² Significantly different from dentists with delays (p<0.001)

³ Significantly different from dentists with delays (p<0.01)

⁴ Significantly different from dentists with delays (p<0.05)

⁵ Significantly different from dentists without openings (p<0.01)

⁶ Significantly different from dentists without openings (p<0.05)

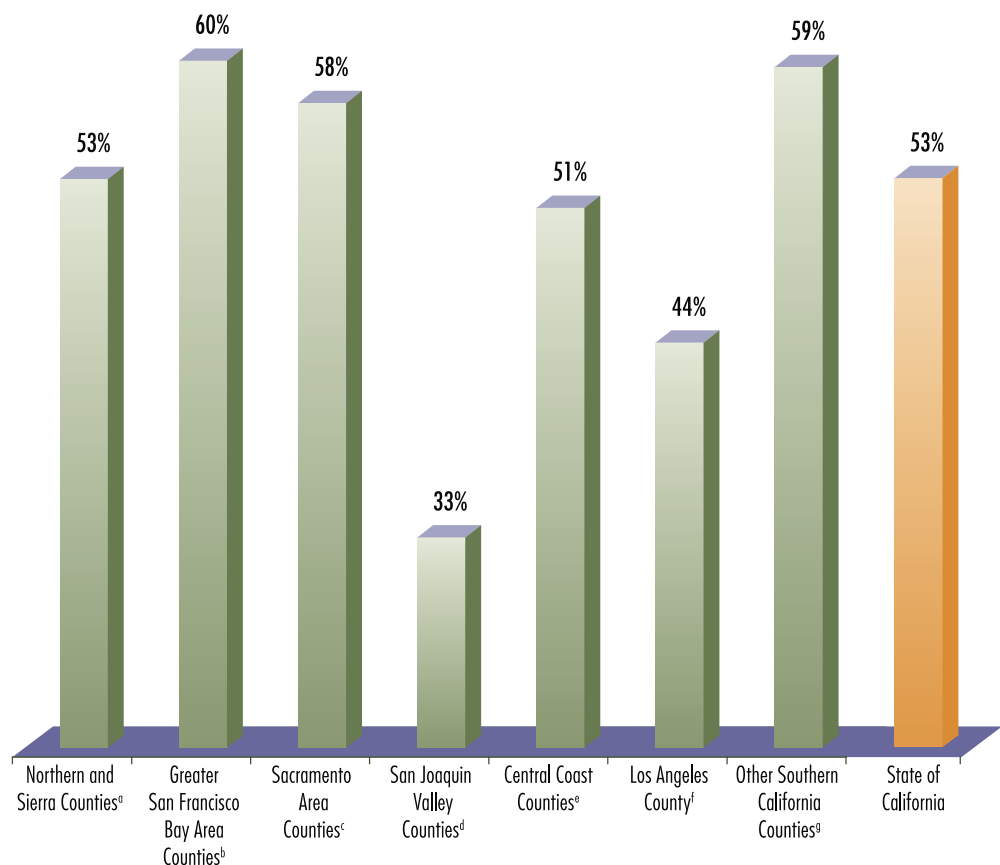
⁷ Significantly different from dentists without openings (p<0.001)

Source: UCLA Center for Health Policy Research California Dental Survey 2003

Private Practice Location of Dentists Who Experienced Recent Delays

Dentists in certain areas of the state more often reported delays or longer than 1.5 months to hire hygienists. These included the Greater San Francisco Bay Area (60%), the Sacramento region (58%), Southern California counties other than Los Angeles (59%), and the Central Coast (51%; Exhibit 16). Dentists practicing in the San Joaquin Valley region (33%) and Los Angeles County (44%) less frequently reported delays than dentists practicing in the Greater San Francisco Bay Area. San Joaquin Valley was also significantly lower than Los Angeles in experiencing delays.

Exhibit 16. Region of Private Practice of General Dentists Who Reported Delays in Hiring Hygienists, California, 2003



^a Includes Butte, Shasta, Humboldt, Del Norte, Siskiyou, Lassen, Trinity, Modoc, Mendocino, Lake, Tehama, Glenn, Colusa, Sutter, Yuba, Nevada, Plumas, Sierra, Tuolumne, Calaveras, Amador, Inyo, Mariposa, Mono and Alpine Counties

^b Includes Santa Clara, Alameda, Contra Costa, San Francisco, San Mateo, Sonoma, Solano, Marin and Napa Counties

^c Includes Sacramento, Placer, Yolo, and El Dorado Counties

^d Includes Fresno, Kern, San Joaquin, Stanislaus, Tulare, Merced, Kings and Madera Counties

^e Includes Ventura, Santa Barbara, Santa Cruz, San Luis Obispo, Monterey and San Benito Counties

^f Includes Los Angeles County

^g Includes Orange, San Diego, San Bernardino, Riverside and Imperial Counties

Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Other Characteristics by Delays in Hiring Hygienists

Dentists who experienced delays in hiring hygienists were compared on a number of factors with those who did not, including dentists' personal and business characteristics, as well as supply of hygienists in their county of practice. Characteristics such as full-time work status and workload of dentists did not differ statistically between those who reported more than 1.5 months to hire a hygienist and those who did not (Exhibit 17). Most measures of size of practice—such as the number of FTE dentists, hygienists, and dental assistants working in the practice, and the number of operatories—were not statistically different. Dentists who experienced delays in hiring hygienists were slightly younger (47 years vs. 50 years), more often female (23% vs. 13%), and had slightly more FTE front office staff (1.8 vs. 1.7) than those who did not experience delays.

An available measure of supply of hygienists was also examined to see if there were differences between time to hire and the available workforce supply measure. The average ratio of FTE hygienists to FTE dentists in their county of practice was lower for dentists who experienced delays (0.65) compared to those who did not experience delays (0.69). In other words, dentists experiencing delays practiced in counties where typically fewer hygienists worked in dental practices.

Exhibit 17: Characteristics of General Dentists in Private Practice by Delays in Hiring for a Recent Hygienist Opening, California, 2003¹

	No Experienced Delays	Experienced Delays
Average Age of Dentist (in years)	50 ²	47
Female Dentist	13% ³	23%
Full-Time Dentist	75%	81%
Hygienist Part-Time and Full-Time Work Status		
Practice Consists of Full-Time Hygienists Only	14%	13%
Practice Consists of Part-Time Hygienists Only	67%	70%
Practice Consists of Both Full and Part-Time Hygienists	18%	17%
Dentist Is Owner or Partner	87%	88%
How Busy Is Dentist at Work		
Overworked or Too Busy to Take Care of All Patients	25%	26%
Able to Take Care of All Patients Requesting a Visit	59%	58%
Not Busy or Needs More Work	16%	16%
Percentage of Time Dentist Is Spending in Patient Treatment	90%	89%
Total Number of Patient Visits per Week	36.8	37.3
Total Number of Hygienist Visits per Week	20.3	19.6
Size of Practice		
Number of FTE Dentists in Practice	1.4	1.4
Number of FTE Hygienists in Practice	1.4	1.3
Number of FTE Dental Assistants in Practice	2.5	2.6
Number of FTE Front Office Staff in Practice	1.7 ⁴	1.8
Number of Operatories in Practice	4.7	5.0
Supply of Hygienist in County of Practice		
Ratio of FTE Hygienists to FTE Dentist Employed in Private Dental Practices	0.69 ⁴	0.65

¹Delay is specified as more than 1.5 months time to hire.

²Significantly different from dentists with delays ($p < 0.01$)

³Significantly different from dentists with delays ($p < 0.001$)

⁴Significantly different from dentists with delays ($p < 0.05$)

Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Predictors of Realized Shortage (Time to Hire) of Hygienists

Multivariate analyses (see Appendix B for definition) were performed to identify which dentist, practice, or workforce supply characteristics determined recent delays in time to hire hygienists, independent of other factors. Dentist characteristics consisted of personal and work information, including age, gender, race/ethnicity, years since graduation, full-time work status, total number of patient visits per week, percentage of time spent treating patients, and dentist as owner/partner in practice. Practice characteristics consisted of information on size of practice, including number of operatories in practice, number of FTE dentists, number of FTE hygienists, number of FTE dental assistants, and number of FTE front office staff. Information on benefits, salary and tenure of existing hygienists in practice were also included. Supply characteristics included region of practice and the ratio of FTE hygienists to FTE dentists in the county of practice. Dentists' reporting of how busy they were in their practice was also included.

Results showed that female dentists were more likely to report recent delays of longer than 1.5 months in hiring hygienists compared to males, independent of all other factors. Similarly, dentists practicing in Northern California counties, including the Greater San Francisco Bay Area, the Sacramento region, the Central region, and those in Southern California counties were more likely than those in Los Angeles County to report longer than 1.5 months to hire hygienists. Dentists paying higher salaries to their existing hygienists were also more likely to report recent delays. The other predictors of time to hire did not have an independent impact on recent delays in hiring hygienists.

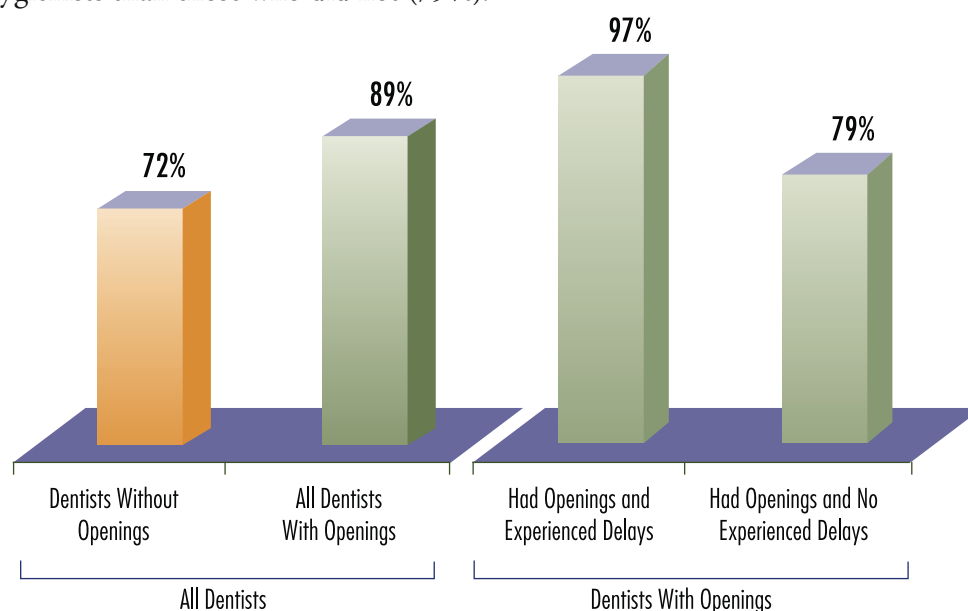
Examining the impact of number of full- or part-time hygienist openings on current delays revealed dentists with part-time openings were more likely than those with full-time openings to report delays in hiring hygienists currently.⁸

⁸ Only dentists with current hygienist opening provided information on the number of full- and part-time openings in their private practice. About half of dentists with recent (current or in the past year) openings had current openings.

Concordance of Perceived and Realized Shortage of Hygienists

The majority of general dentists who employed hygienists in California (80%) believed there was a shortage of these personnel in their area. There was concordance between this perceived shortage of hygienists and the realized shortage or time to hire (Exhibit 18). Dentists who had recent openings more often perceived a shortage of hygienists (89%) than those without openings (72%). Among dentists who had any openings, those who experienced delays (97%) more often perceived a shortage of hygienists than those who did not (79%).

Exhibit 18. Perception of Shortage of Hygienists by Hygienist Openings and Experienced Delays, General Dentists in Private Practice, California, 2003

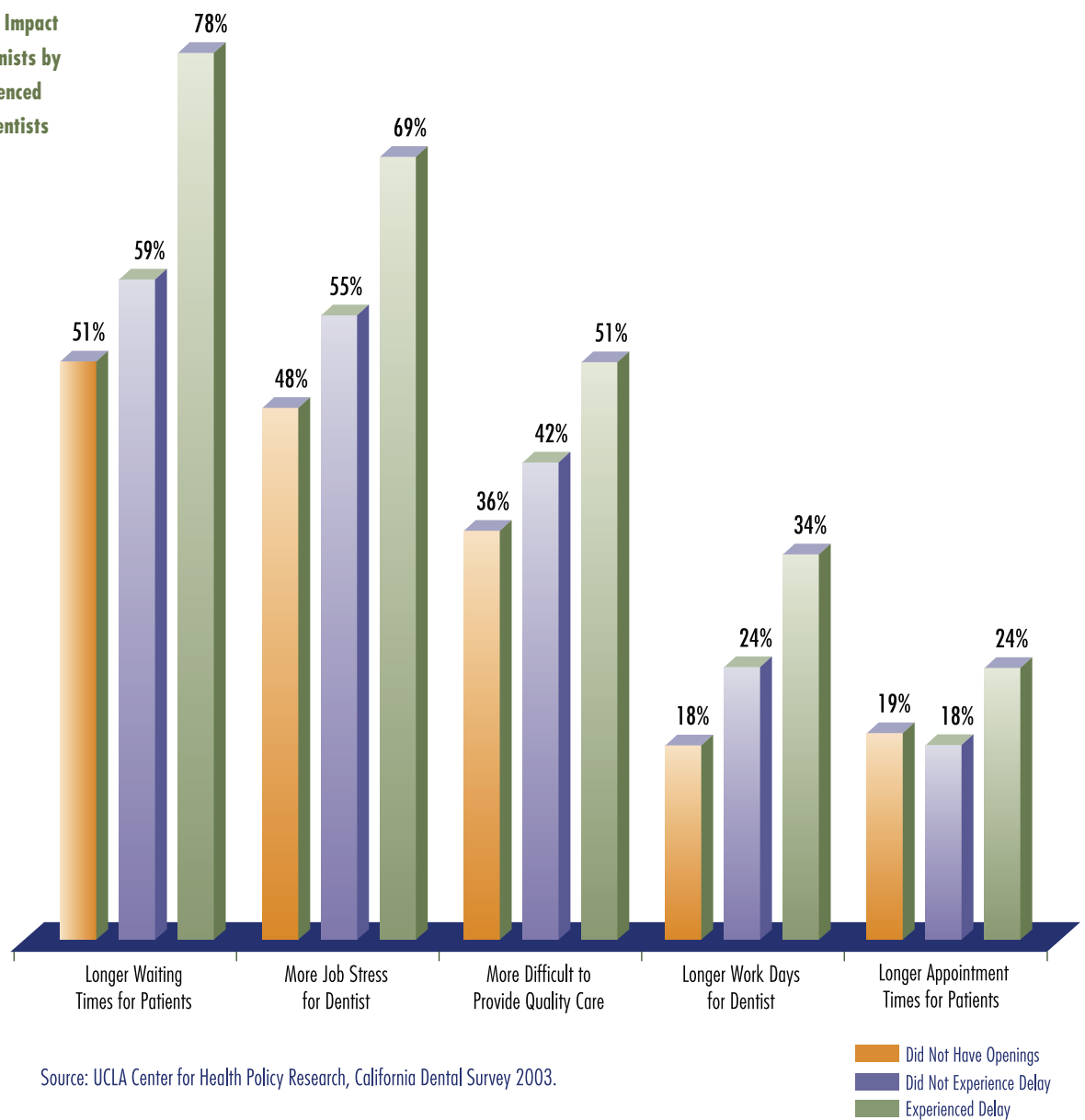


Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Dentists who perceived a shortage of dental hygienists reported that it affected their ability to provide dental care (Exhibit 19). Longer waiting times for patients, more job stress for the dentist, and more difficulty in providing quality care were most frequently cited by dentists who perceived a shortage. Fewer dentists reported it led to longer working days for dentists or longer appointment times for patients. Comparing the impact of shortage by delays revealed that dentists who experienced delays more often reported longer waiting times for patients (78% vs. 59%), more job stress (69% vs. 55%), and the other examined issues compared to dentists who did not experience delays. Similarly, dentists who experienced delays more often reported an impact of shortage on their practice compared to dentists who did not have openings for hygienists in their practice.

Among dentists who did not employ hygienists, only 26% perceived a shortage of hygienists. Among those who perceived a shortage, 55% reported this perception was based on their personal experience, 44% reported this perception was based on a friend or colleague's experience, and the remainder (1%) reported other sources.

Exhibit 19. Perceived Impact of Shortage of Hygienists by Openings and Experienced Delays on General Dentists in Private Practice, California, 2003





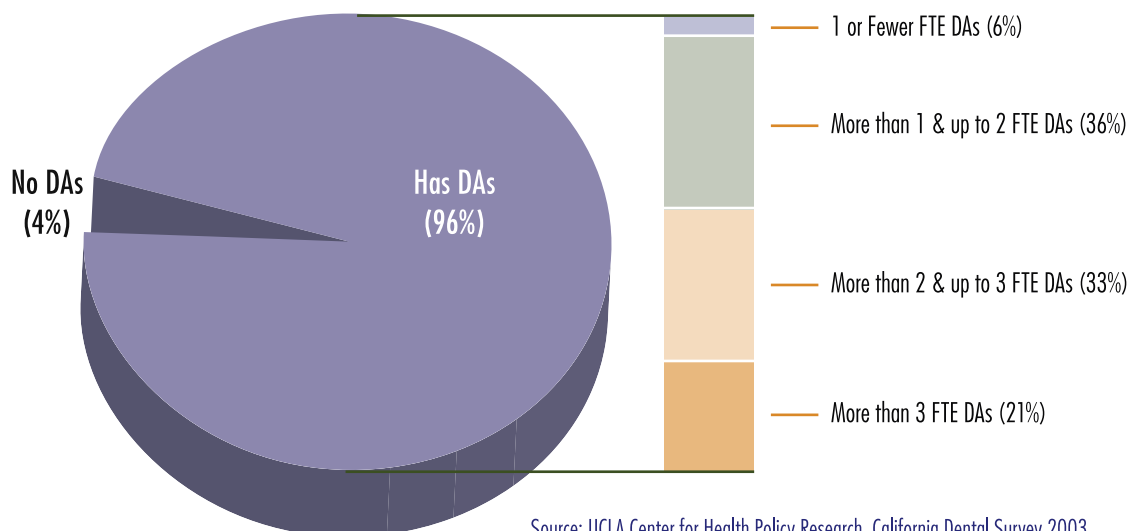
Current Profile of Dental Assistants Working in Private Practice of General Dentists

- Nearly all general dentists in private practice in California (96%) employed dental assistants, and more than one-half had more than two full-time equivalent dental assistants.
- General dentists in private practice more often employed registered dental assistants than non-registered assistants.
- Full-time dental assistants more often received certain benefits, such as medical and dental benefits, than part-time assistants.
- Registered dental assistants received higher salaries than non-registered assistants and had longer tenures with the practice.
- Most commonly offered benefits to dental assistants were dental care, vacations, and bonuses.

Number of Full-Time Equivalent Dental Assistants

Nearly all general dentists in private practice in California (96%) employed dental assistants (Exhibit 20), similar to the national rate of 94%.⁹ Six percent had one or fewer FTE dental assistants in their primary offices, 36% had more than one and up to two FTE dental assistants, and another 33% had more than two and up to three FTE dental assistants. One in five (21%) had more than three such personnel.

Exhibit 20. Number of Full-Time Equivalent (FTE) Dental Assistants (DA) in Private Practice of General Dentists, California, 2003

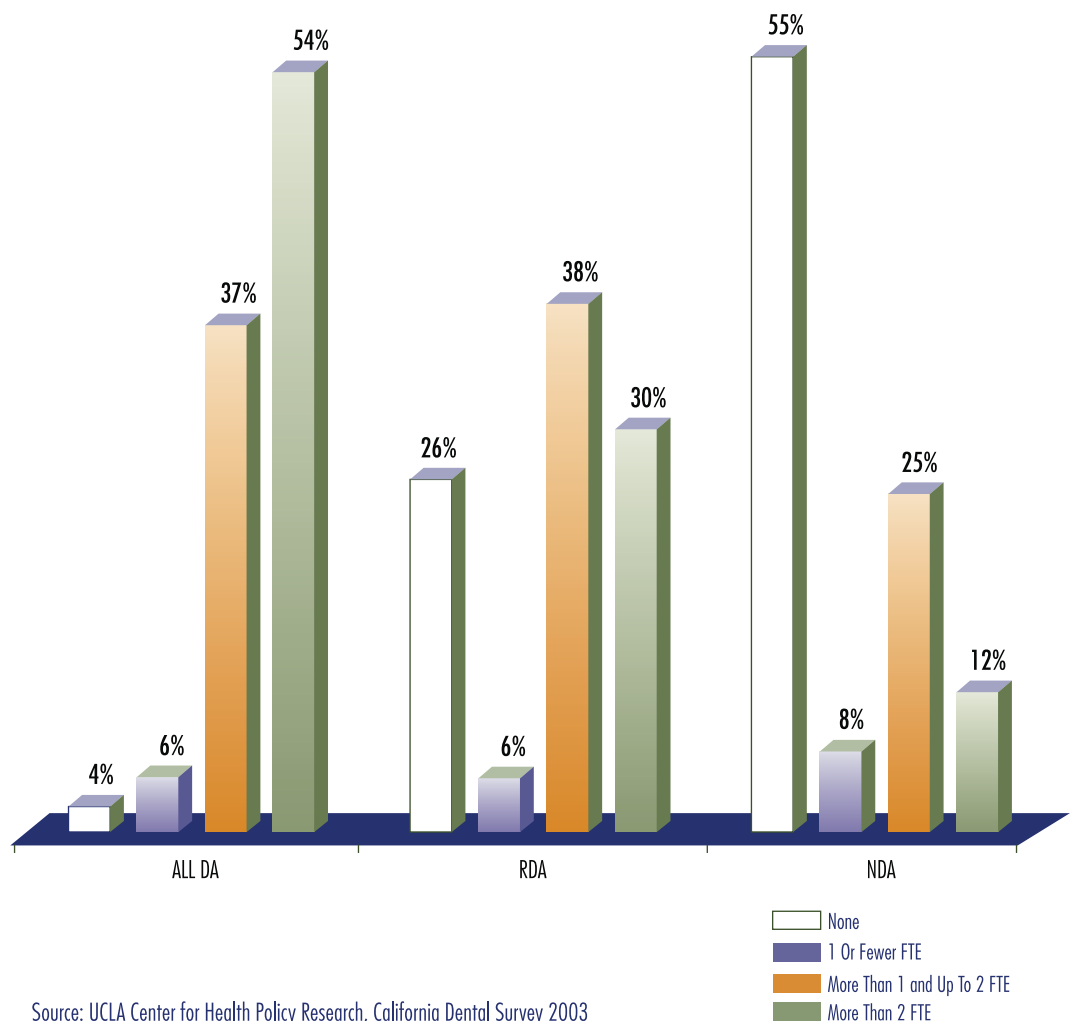


Source: UCLA Center for Health Policy Research, California Dental Survey 2003
Note: Totals may not sum to 100% due to rounding error.

⁹ American Dental Association: 2002 Survey of Dental Practice, Employment of Dental Practice Personnel

Separating the number of FTE dental assistants into registered dental assistants (RDA) and non-registered dental assistants (NDA) showed that dentists differed in employment of these personnel (Exhibit 21). Twenty-six percent of general dentists did not employ any RDAs in their primary private practices compared to 55% who did not employ any NDAs. Six percent had one or fewer FTE RDAs and 8% had one or fewer FTE NDAs. A greater number of dentists employed more than one and up to two FTE RDAs than NDAs (38% vs. 25%). Similarly, more dentists employed two or more RDAs than NDAs (30% vs. 12%).

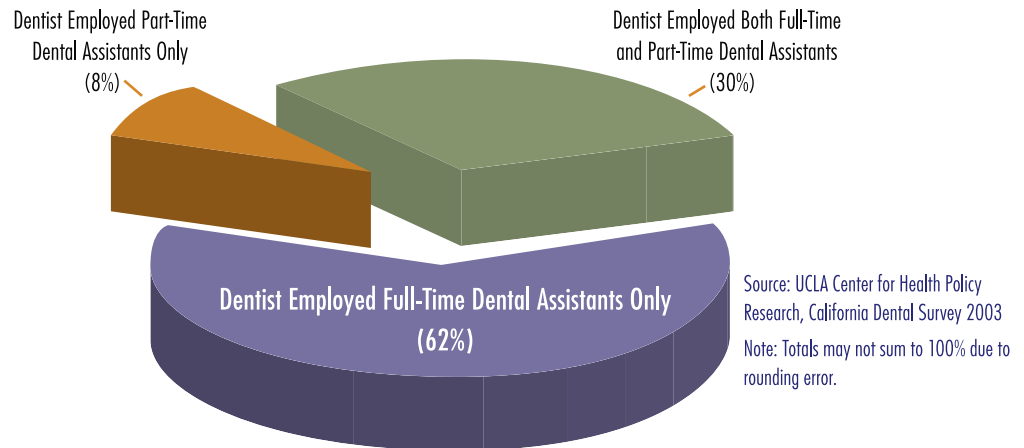
Exhibit 21. Number of Full-Time Equivalent (FTE) Registered Dental Assistants (RDA) and Non-Registered Dental Assistants (NDA) in Private Practice of General Dentists, California, 2003



Source: UCLA Center for Health Policy Research, California Dental Survey 2003

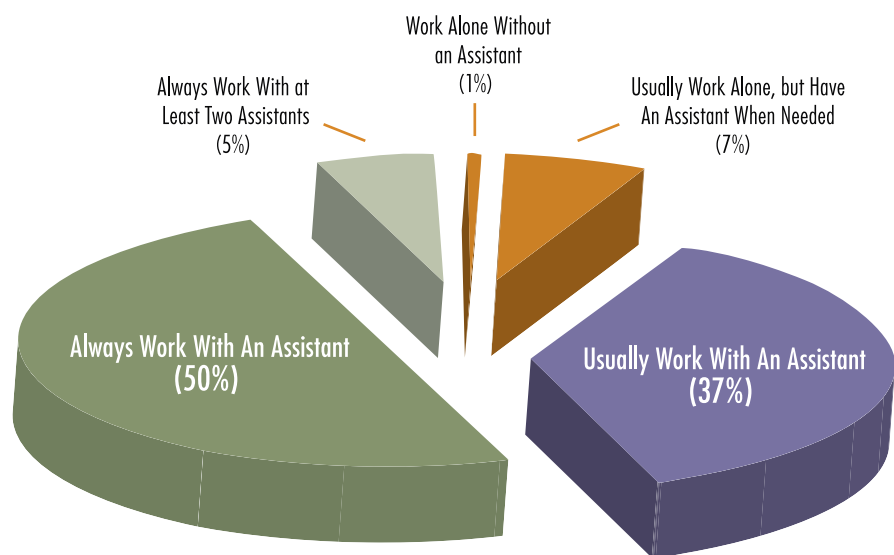
Overall, 62% of dentists employed only full-time dental assistants and 8% employed only part-time dental assistants. The other 30% employed both part-time and full-time dental assistants (Exhibit 22).

Exhibit 22. Full-Time or Part-Time Status of Dental Assistants in Private Practice of General Dentists Who Employed Dental Assistants, California, 2003



In response to a question on dentists' work patterns, 50% of general dentists in private practice who employ dental assistants reported always working with at least one dental assistant, 5% with at least two assistants, and 37% usually worked with an assistant (Exhibit 23). Few worked alone (1%)¹⁰ or usually worked alone but had an assistant when needed (7%).

Exhibit 23. Dentist Use of Dental Assistant When Providing Treatment in Private Practice of General Dentists, California, 2003

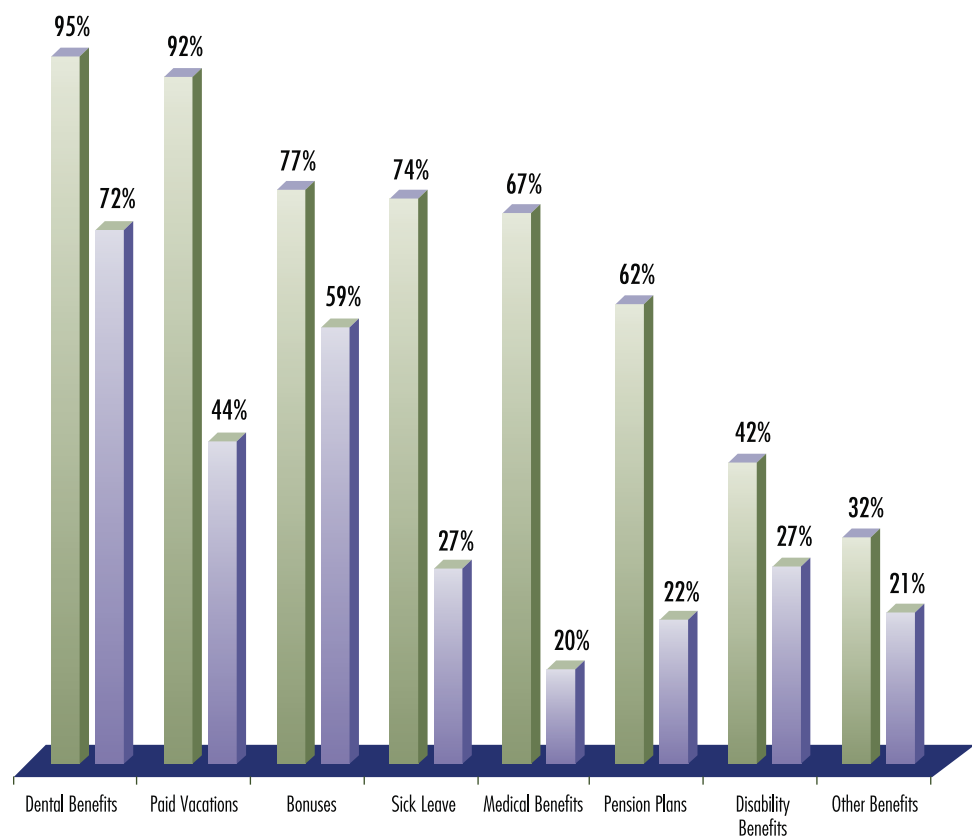


¹⁰ Dentists who employed DAs, yet did not work with one, did not have any other front office staff, or worked with other dentists who used DAs.

Benefits, Salary, and Tenure of Dental Assistants

The benefits offered to dental assistants in private practice of general dentists varied by type of benefit and full- or part-time status of the assistant. Among dentists who only employed full-time dental assistants, dental care was the most frequently offered benefit (95%), followed by paid vacations (92%), bonuses (77%), sick leave (74%), medical benefits (67%), and pension plans (62%) (Exhibit 24). Disability benefits were offered by about four in 10 dentists (42%). In comparison, among dentists who only employed part-time dental assistants, benefits were less frequently offered. Dental care was offered to 72% of part-time assistants, 44% were offered paid vacation, and more than half were provided bonuses (59%). One-quarter or fewer were offered sick leave (27%), disability benefits (27%), pension benefits (22%), other types of benefits (21%), and medical benefits (20%).

Exhibit 24. Dental Assistant (DA) Benefits Offered in Private Practice of General Dentists Who Employed Either Full-Time or Part-Time DAs, California, 2003

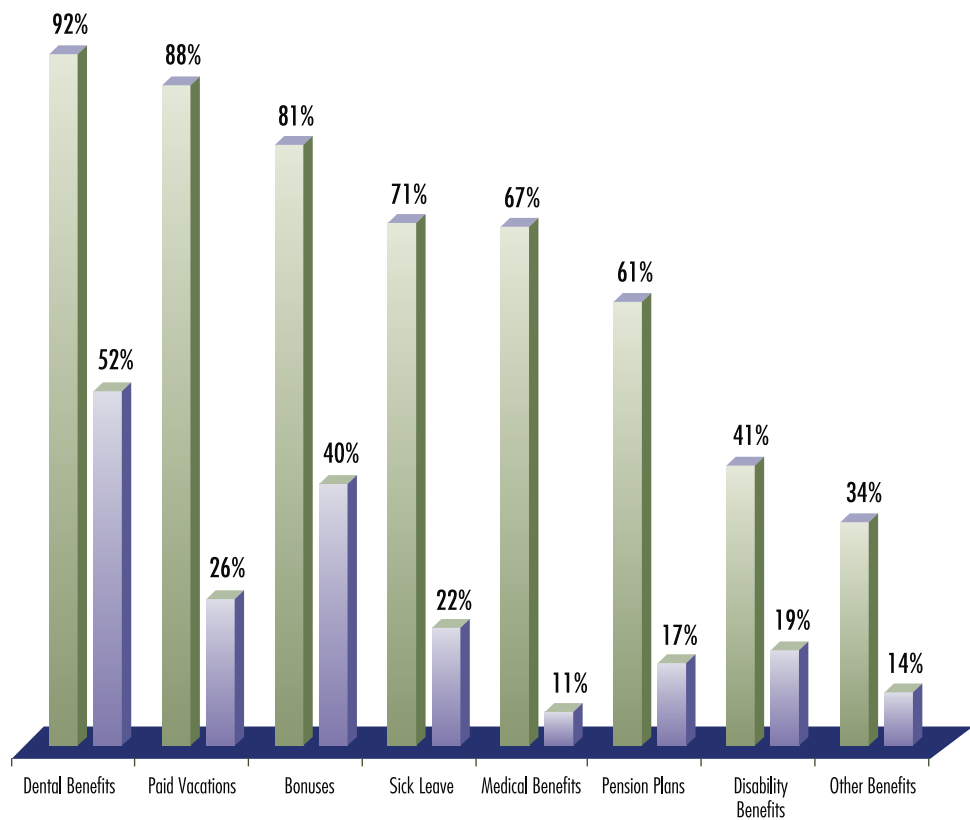


Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Legend:
■ Benefits Offered to Full-Time DA
■ Benefits Offered to Part-Time DA

Dentists who employed both full- and part-time assistants differed statistically from dentists who only employed full-time assistants in rates of offering some benefits. Those dentists who employed both full- and part-time assistants less often offered dental benefits (92% vs. 95%) and vacations (88% vs. 92%), and more often offered bonuses (81% vs. 77%) to their full-time assistants than dentists who only employed full-time assistants. Dentists who employed both full- and part-time dental assistants less often offered dental benefits, vacations, bonuses, medical benefits, and disability benefits to their part-time employees than dentists who only employed part-time assistants. The rates of offering of other benefits examined did not vary by full- or part-time employment.

Exhibit 25. Dental Assistant (DA) Benefits Offered in Private Practice of General Dentists Who Employed Both Full-Time and Part-Time DAs, California, 2003



Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Legend:
■ Benefits Offered to Full-Time DA
■ Benefits Offered to Part-Time DA

The average hourly salary of dental assistants was \$15.60. However, registered dental assistants received higher hourly wages (\$16.80) than non-registered assistants (\$12.70; Exhibit 26).

Exhibit 26. Average Hourly Salary of Dental Assistants in Private Practice of General Dentists, California, 2003



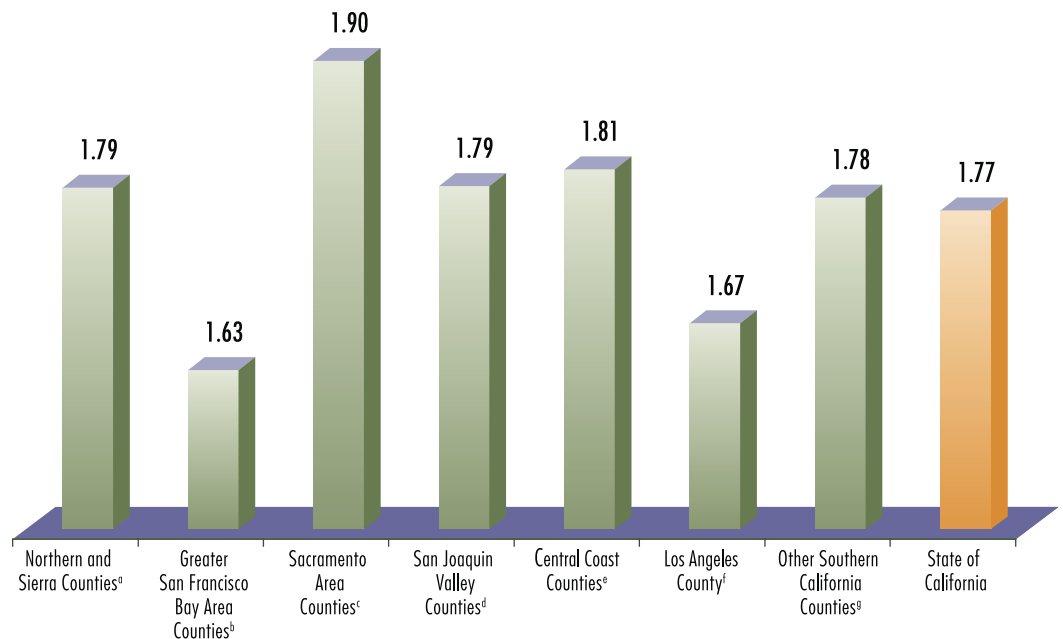
Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Dentists who employed dental assistants reported that their assistants worked in their primary practice for an average of five years. This tenure was longer for RDAs than for NDAs (five years/five months vs. three years/nine months).

Ratio of Full-Time Equivalent Dental Assistants to Full-Time Equivalent Dentists in California

In California, the ratio of FTE dental assistants per FTE general dentists in private practice was 1.77 (Exhibit 27). This number translates into approximately 60 to 76 dental assistant hours (1.77% of 32 to 40 hours) per full-time dentist. This ratio varied across counties, with the Sacramento area at 1.90 and the Greater San Francisco Bay Area at 1.63, or approximately 52 to 65 dental assistant hours (1.63% of 32 to 40 hours) per full-time dentist.

Exhibit 27. Ratio of Full-Time Equivalent (FTE) Dental Assistants to FTE Dentists in Private Practice of General Dentists, California, 2003



^a Includes Butte, Shasta, Humboldt, Del Norte, Siskiyou, Lassen, Trinity, Modoc, Mendocino, Lake, Tehama, Glenn, Colusa, Sutter, Yuba, Nevada, Plumas, Sierra, Tuolumne, Calaveras, Amador, Inyo, Mariposa, Mono and Alpine Counties

^b Includes Santa Clara, Alameda, Contra Costa, San Francisco, San Mateo, Sonoma, Solano, Marin and Napa Counties

^c Includes Sacramento, Placer, Yolo, and El Dorado Counties

^d Includes Fresno, Kern, San Joaquin, Stanislaus, Tulare, Merced, Kings and Madera Counties

^e Includes Ventura, Santa Barbara, Santa Cruz, San Luis Obispo, Monterey and San Benito Counties

^f Includes Los Angeles County

^g Includes Orange, San Diego, San Bernardino, Riverside and Imperial Counties

Source: UCLA Center for Health Policy Research, California Dental Survey 2003



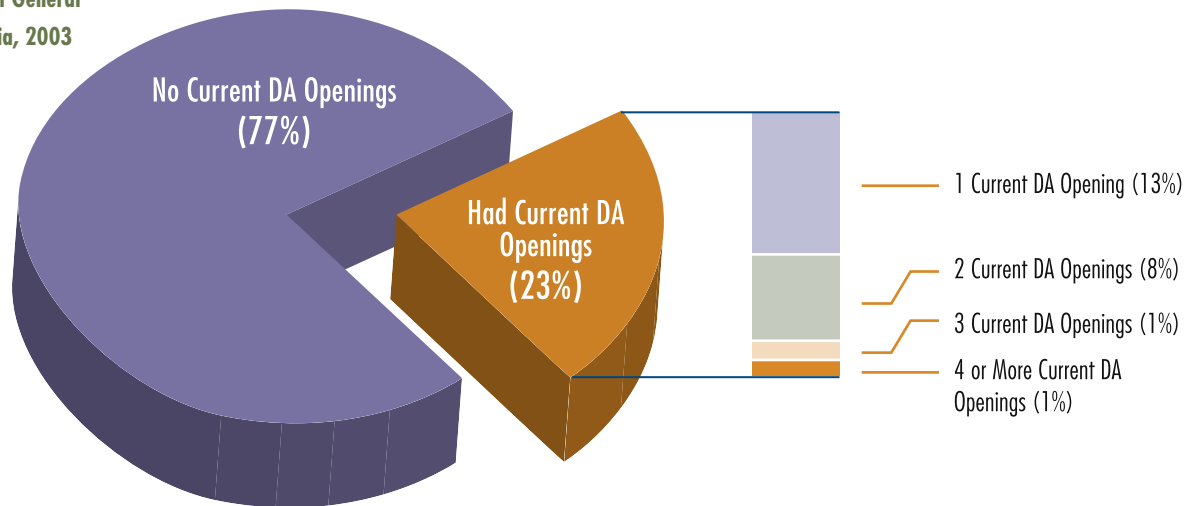
Delays in Hiring Dental Assistants in Private Practice of General Dentists in California

- Slightly more than one-half of dentists in California reported having a recent opening for dental assistants.
- Most new hires in the prior year were for existing positions, and twice as many were for RDA positions than for NDA positions.
- Two in five dentists anticipated hiring additional DAs in the following year.
- About two in five dentists with openings experienced recent delays of longer than one month to hire dental assistants. This is equivalent to 20% of all general dentists in private practice in California.
- Dentists who experienced delays were offering more medical insurance benefits to existing full-time dental assistants and less medical insurance benefits to existing part-time dental assistants in their practice than dentists without delays.
- Dentists who experienced recent delays in hiring dental assistants were least often in the San Joaquin Valley region of California.
- Differences in delay by specialist (vs. general) dentists remained independent of alternative explanations including size of practice, number of dentist visits per week, practice ownership, number of benefits offered, and salary of dental assistants.
- About eight in 10 dentists who experienced recent delays in hiring dental assistants perceived a shortage of these personnel.
- Dentists experiencing recent delays most often reported a negative impact on aspects of their practice such as longer patient waiting times and quality of patient care, compared to those who did not experience delays.

Dental Assistant Openings in Private Practice of General Dentists

Among general dentists who employed dental assistants, 23% reported they currently had at least one open dental assistant position in their primary practice (Exhibit 28). Thirteen percent reported one opening, and 10% had two or more openings.

Exhibit 28. Current Dental Assistant (DA) Openings in Private Practice of General Dentists, California, 2003

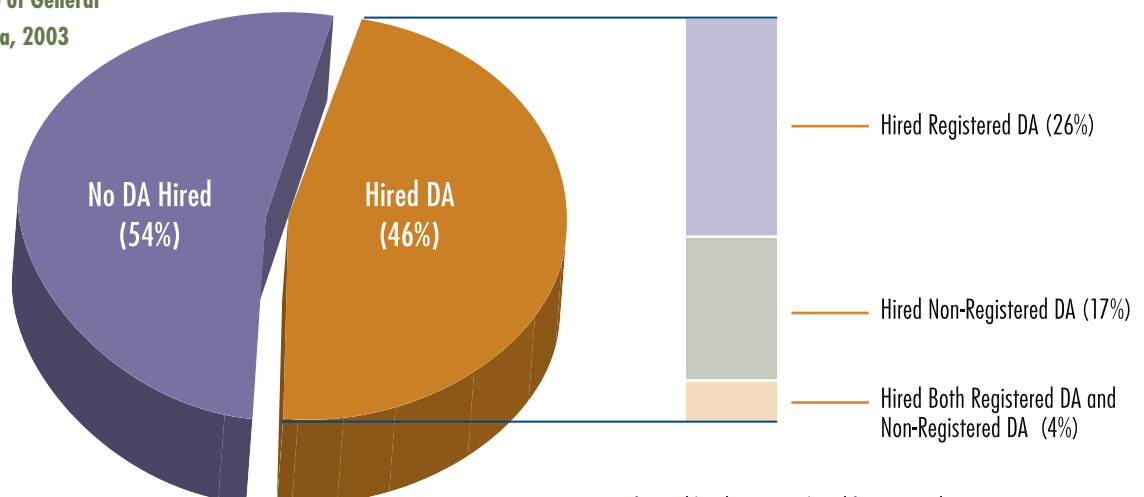


Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Note: Totals may not sum to 100% due to rounding error.

In addition to current openings, general dentists reported whether they hired any dental assistants in the past year in their primary office location. Forty-six percent of dentists had hired an assistant in the past year, which included 26% who hired registered assistants only, 17% who hired non-registered assistants only, and 4% who hired both types of assistants (Exhibit 29). Overall, 54% of dentists reported having recent (current or past year) dental assistant openings (data not displayed in Exhibits).

Exhibit 29. Dental Assistants (DA) Hired in the Past Year in Private Practice of General Dentists, California, 2003



Source: UCLA Center for Health Policy Research, California Dental Survey 2003

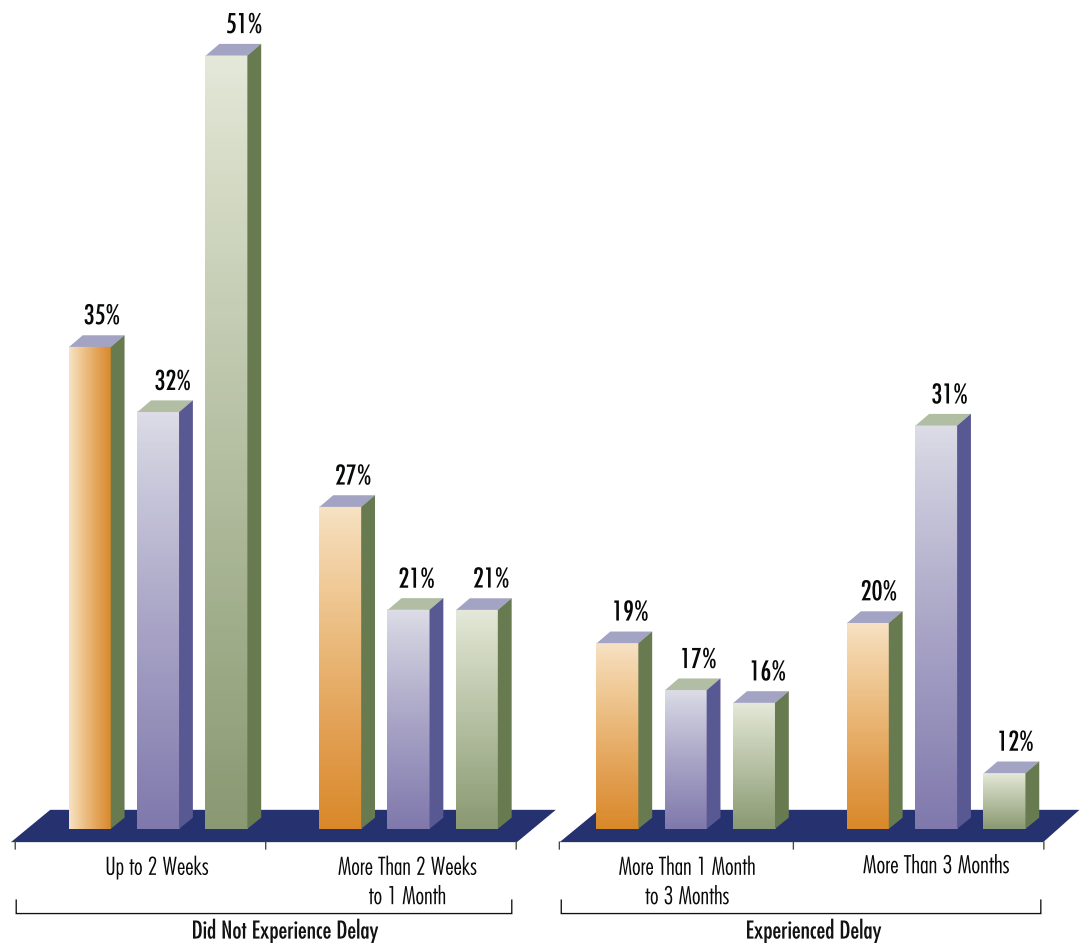
Note: Totals may not sum to 100% due to rounding error.

Delays in Hiring Dental Assistants: Time to Hire

A single measure of time to hire dental assistants was created using both current and past time to hire to examine whether general dentists in private practice reported recent delays in hiring such personnel.

Considering all dental assistant openings, 35% of dentists reported taking up to two weeks to hire, 27% reported more than two weeks and up to one month, 19% reported more than one month and up to three months, and 20% reported more than three months to hire dental assistants (Exhibit 30). One-half of dentists (51%) reported taking two weeks or less to hire non-registered assistants. In comparison, only 32% of dentists reported the same time to hire registered assistants, a significant difference between the two groups.

Exhibit 30. Time to Hire Registered Dental Assistants (RDA) and Non-Registered Dental Assistants (NDA) in Private Practice of General Dentists, California, 2003



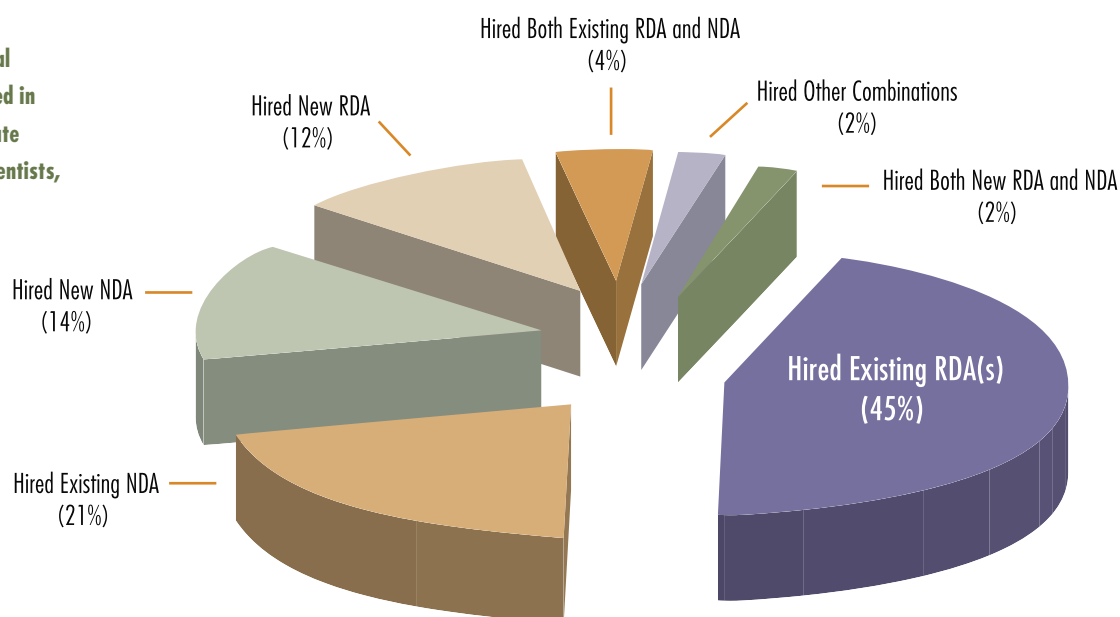
Source: UCLA Center for Health Policy Research, California Dental Survey 2003.

All DA RDA NDA

Overall, 38% of dentists with dental assistant openings reported delays (more than one month) in hiring a dental assistant, and the remainder reported no delays or one month or less to hire these personnel. Considering all general dentists in private practice in California, 20% reported experiencing delays in hiring dental assistants. In the following analysis, dentists who reported time to hire greater than one month were considered to experience delays in hiring or a realized shortage of dental assistants (see Appendix B for definition).

Among general dentists who hired a dental assistant during the past year, seven in 10 were hiring to replace an existing position. Nearly one-half (45%) hired for an existing RDA position and 21% hired for an existing NDA position (Exhibit 31). Among the remainder, 12% hired for a new RDA position and 14% hired for a new NDA. Among the remainder, 12% hired for a new RDA position and 14% hired for a new NDA.

Exhibit 31. Existing and New Registered Dental Assistants (RDA) and Non-Registered Dental Assistants (NDA) Hired in the Past Year in Private Practice of General Dentists, California, 2003

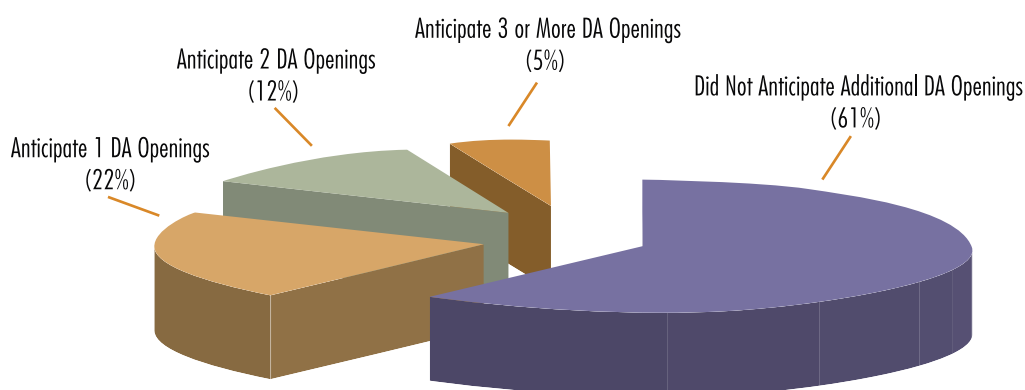


Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Note: Totals may not sum to 100% due to rounding error.

Among general dentists who employed dental assistants, 61% did not anticipate any additional openings for these personnel in the next year (Exhibit 32). Twenty-two percent expected to have one opening for a dental assistant, and another 12% expected to have two openings. When asked if the anticipated opening would be for full- or part-time dental assistants, 31% expected to have only a full-time opening, 35% expected to have only a part-time opening, and 35% expected to have both types of openings.

Exhibit 32. Anticipated Number of Dental Assistant (DA) Openings in the Next Year in Private Practice of General Dentists, California, 2003



Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Note: Totals may not sum to 100% due to rounding error.

Benefits, Salary, and Tenure by Delays in Hiring Dental Assistants

Dentists who experienced delays in hiring dental assistants differed from those who did not experience delays in rates of benefits offered to existing assistants in their practices. Among dentists employing full-time assistants, those experiencing delays more often offered medical insurance, sick leave, disability, and other miscellaneous benefits, but less often offered bonuses to the existing dental assistants in their practice (Exhibit 33). The rates of offering the other types of benefits were statistically the same. Among dentists employing part-time assistants, those who experienced delays had lower offer rates for medical insurance, dental care, vacation, pension, and a higher offer rate for other miscellaneous benefits compared to those who did not experience delays.

Among dentists who employed both full- and part-time dental assistants, those who experienced delays less often offered vacation, pension, sick leave, and disability benefits to their full-time assistants than those without an experience of delay. These dentists also offered lower rates of bonus, pension and sick leave to their part-time assistants if they experienced a delay.

Dentists experiencing delays paid similar hourly salaries to their existing dental assistants, RDA or NDA, compared to those who did not experience delays. The tenure in practice of existing dental assistants was also statistically the same by experienced delays.

Comparing dentists with openings for dental assistants and those without revealed that dentists with openings more often provided a number of benefits to their full-time dental assistants than those without openings. The hourly salaries offered by dentists with openings were lower than those without openings for both RDAs (\$16.30 vs. \$17.30) and NDAs (\$12.30 vs. \$12.90). Tenure of dental assistants was also shorter among dentists with openings than those without openings for RDAs (three years/11 months vs. six years/eight months) and NDAs (two years/11 months vs. four years/four months).

Exhibit 33. Rates of Offering Benefits, Salary Level, and Tenure of Full-Time and Part-Time Dental Assistants (DA) by Experienced Delays and DA Openings Among Private Practice of General Dentists, California, 2003¹

	Had Dental Assistant Openings and No Experienced Delays	Had Dental Assistant Openings and Experienced Delays	All Dentists With Dental Assistant Openings	Dentists Without Dental Assistant Openings
Dentist Employs Full-Time Dental Assistants Only				
Medical insurance	65% ²	72%	67%	68%
Dental care	95%	95%	95%	93%
Vacation	90%	91%	92% ⁵	90%
Bonus	78% ²	72%	78% ⁶	76%
Pension	59%	60%	65% ⁷	59%
Sick leave	69% ²	75%	76% ⁷	71%
Disability	40% ²	49%	41% ⁵	43%
Other	31% ²	42%	30% ⁶	34%
Dentist Employs Part-Time Dental Assistants Only				
Medical insurance	22% ³	14%	21%	19%
Dental care	74% ³	64%	74%	70%
Vacation	51% ²	36%	44%	44%
Bonus	56%	57%	61%	57%
Pension	24% ³	17%	24%	21%
Sick leave	31%	25%	27%	28%
Disability	30%	32%	24% ⁵	31%
Other	14% ²	43%	17% ⁶	26%
Dentist Employs Full-Time and Part-Time Dental Assistants				
Benefits Offered to Full-Time Dental Assistants				
Medical insurance	64%	65%	69% ⁷	64%
Dental care	92%	93%	92%	92%
Vacation	89% ⁴	85%	89%	88%
Bonus	81%	82%	81%	81%
Pension	63% ⁴	56%	63%	60%
Sick leave	73% ³	69%	71%	71%
Disability	43% ²	31%	44% ⁷	38%
Other	28% ⁴	39%	35%	33%
Benefits Offered to Part-Time Dental Assistants				
Medical insurance	9%	7%	14% ⁷	8%
Dental care	52%	50%	52%	52%
Vacation	20%	21%	31% ⁷	20%
Bonus	41% ²	33%	42% ⁵	38%
Pension	16% ⁴	12%	20% ⁷	14%
Sick leave	21% ⁴	16%	25% ⁷	19%
Disability	17%	15%	21% ⁷	16%
Other	11%	15%	14%	13%
Total Number of Benefits Offered to Full and Part-Time Dental Assistants	5.3	5.4	5.4 ⁶	4.9
Average Dental Assistant Salary per Hour (All Dental Assistants)	\$15.20	\$15.50	\$15.30 ⁶	\$15.80
Average Registered Dental Assistant Salary per Hour	\$16.00	\$16.60	\$16.30 ⁷	\$17.30
Average Non-registered Dental Assistant Salary per Hour	\$12.00	\$12.60	\$12.30 ⁵	\$12.90
Average Dental Assistant Tenure in Years (All Dental Assistants)	3 years 9 months	3 years 6 months	3 years 8 months ⁷	5 years 11 months
Average Registered Dental Assistant Tenure in Years	3 years 11 months	3 years 9 months	3 years 11 months ⁷	6 years 8 months
Average Non-Registered Dental Assistant Tenure in Years	2 years 11 months	2 years 10 months	2 years 11 months ⁷	4 years 4 months

¹ Delay is specified as more than 1 month to hire

² Significantly different from dentists with delays (p<0.001)

³ Significantly different from dentists with delays (p<0.05)

⁴ Significantly different from dentists with delays (p<0.01)

⁵ Significantly different from dentists without openings (p<0.01)

⁶ Significantly different from dentists without openings (p<0.05)

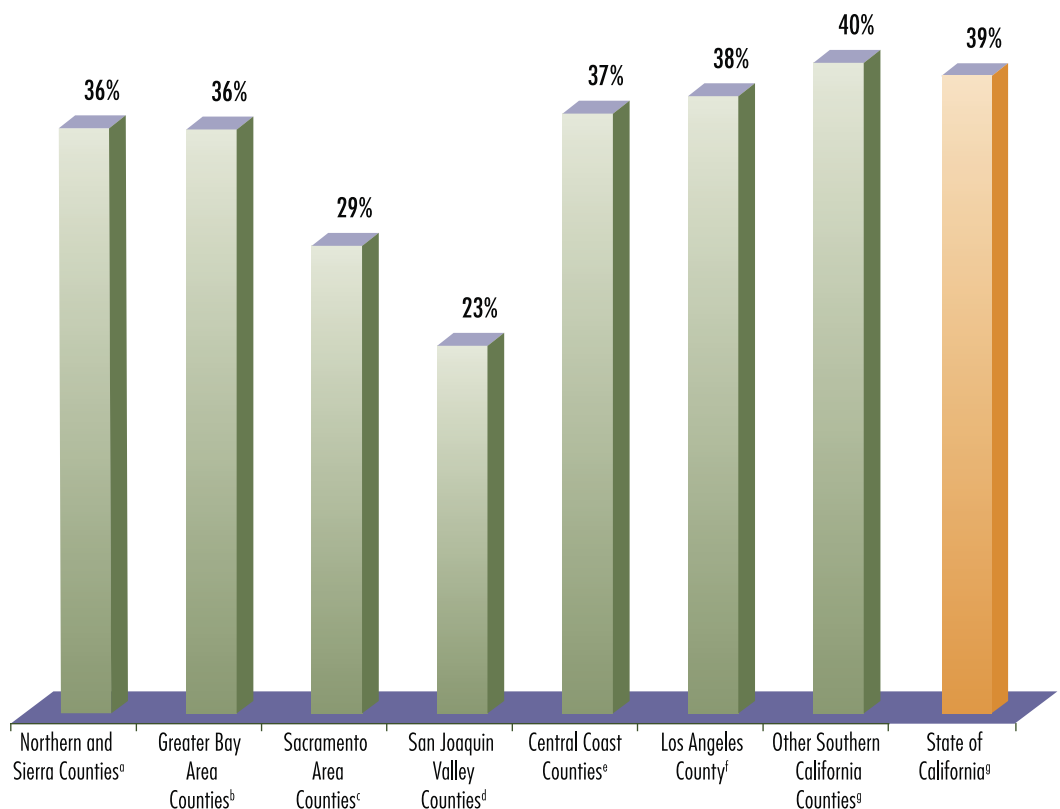
⁷ Significantly different from dentists without openings (p<0.001)

Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Private Practice Location of Dentists Who Experienced Delays

Dentists who practiced in the San Joaquin Valley region were the least likely to take longer than one month to hire dental assistants (23%).

Exhibit 34. Delays of More Than One Month to Hire Dental Assistants in Private Practice of General Dentists by Region, California, 2003



^a Includes Butte, Shasta, Humboldt, Del Norte, Siskiyou, Lassen, Trinity, Modoc, Mendocino, Lake, Tehama, Glenn, Colusa, Sutter, Yuba, Nevada, Plumas, Sierra, Tuolumne, Calaveras, Amador, Inyo, Mariposa, Mono and Alpine Counties

^b Includes Santa Clara, Alameda, Contra Costa, San Francisco, San Mateo, Sonoma, Solano, Marin and Napa Counties

^c Includes Sacramento, Placer, Yolo, and El Dorado Counties

^d Includes Fresno, Kern, San Joaquin, Stanislaus, Tulare, Merced, Kings and Madera Counties

^e Includes Ventura, Santa Barbara, Santa Cruz, San Luis Obispo, Monterey and San Benito Counties

^f Includes Los Angeles County

^g Includes Orange, San Diego, San Bernardino, Riverside and Imperial Counties

Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Other Characteristics by Delays in Hiring Dental Assistants

Dentists who experienced delays in hiring dental assistants were compared with those who did not on a number of other factors, including dentists' personal and business characteristics, as well as workforce supply of registered dental assistants in their county of practice. There were no statistically significant differences between these two groups of dentists, with three exceptions (Exhibit 35). Dentists who experienced delays in hiring dental assistants practiced in counties with a slightly lower average ratio of FTE assistants to FTE dentists (1.5) compared to those who did not experience delays (1.6). Explained more simply, dentists experiencing delays practiced in counties where typically fewer dental assistants worked in dental practices. In addition, dentists who experienced delays more often reported that they were not busy enough in their practice. Lastly, dentists who reported delays in hiring more often hired either NDAs only or hired both NDAs and RDAs in their practice.

Exhibit 35. Characteristics of General Dentists in Private Practice by Delays in Hiring Dental Assistants, California, 2003¹

	No Experienced Delays	Experienced Delays
Average Age of Dentist (in years)	46	46
Female Dentist	26%	26%
Full-Time Dentist	77%	77%
Registered and Non-Registered Status of Dental Assistants		
Registered Only	53% ²	46%
Non-Registered Only	10% ²	13%
Both Registered and Non-Registered	32% ²	36%
Dentist's Ownership of Practice		
Owner/Partner	83%	83%
Employee/Associate	17%	17%
How Busy Is Dentist at Work		
Overworked or Too Busy to Take Care of All Patients	25%	24%
Able to Take Care of All Patients Requesting a Visit	55%	53%
Not Busy or Needs More Work	20% ³	23%
Percentage of Time Dentist Is Spending in Patient Treatment		
Total number of Patient Visits per Week	36.0	35.0
Number of FTE Dentists in Practice	1.5	1.5
Number of FTE Hygienist in Practice	0.8	0.7
Number of FTE Dental Assistants in Practice (All Dental Assistants)	2.8	2.7
Number of FTE Registered Dental Assistants in Practice	1.8	1.7
Number of FTE Unregistered Dental Assistants in Practice	0.8	0.9
Number of FTE Front Office Staff in Practice	1.8	1.8
Number of Operatories	4.7	4.4
Ratio of FTE Hygienist to FTE Dentist Employed in Private Dental Practices		
	1.6 ²	1.5 ³

¹Delay is specified as more than 1 month time to hire

²Indicates value is significantly different from dentists with delays (p<0.001)

³Indicates value is significantly different from dentists with delays (p<0.05)

Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Predictors of Realized Shortage (Time to Hire) of Dental Assistants

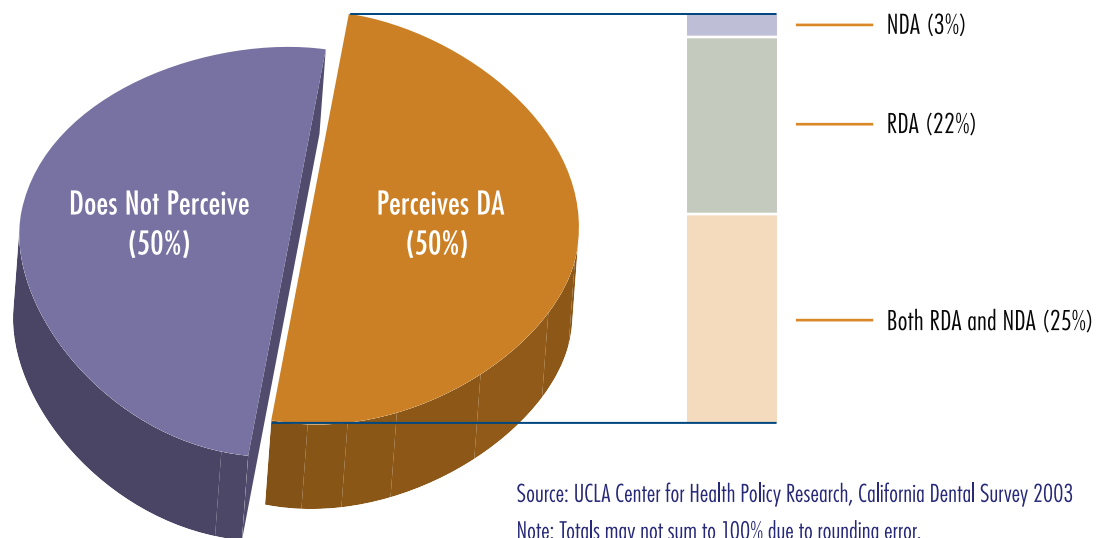
Multivariate analyses (see Appendix B for definition) were performed to identify which dentist, practice, or supply characteristics determined the reported delays in time to hire dental assistants. Dentist characteristics consisted of personal and work information, including age, gender, race/ethnicity, being a specialist, time since graduation, full-time work status, total number of patient visits per week, percentage of time spent treating patients, and dentist as owner/partner in practice. Practice characteristics consisted of information on size of practice, including number of operatories in practice, number of FTE dentists, number of FTE hygienists, number of FTE dental assistants, and number of FTE front office staff. Information on benefits, salary, and tenure of existing dental assistants in practice were also included. Workforce supply characteristics included region of practice and the ratio of FTE dental assistants to FTE dentists in the county of practice. Two additional factors were included in the analyses to measure dentists' perceptions and work patterns. These included dentists' reporting of how busy they were in their practice and the number of assistants they typically work with while providing care.

Results showed that specialists were significantly more likely to experience delays of more than one month in hiring dental assistants, but no other predictors were significant independent predictors of delays.

Concordance of Perceived and Realized Shortage of Dental Assistants

One-half of general dentists who employed dental assistants in California (50%) believed there was a shortage of these personnel in their area (Exhibit 36). This perception varied by type of assistant. Twenty-two percent believed there was a shortage of registered assistants, 3% believed there was a shortage of non-registered assistants, and 25% believed there was a shortage of both types of assistants.

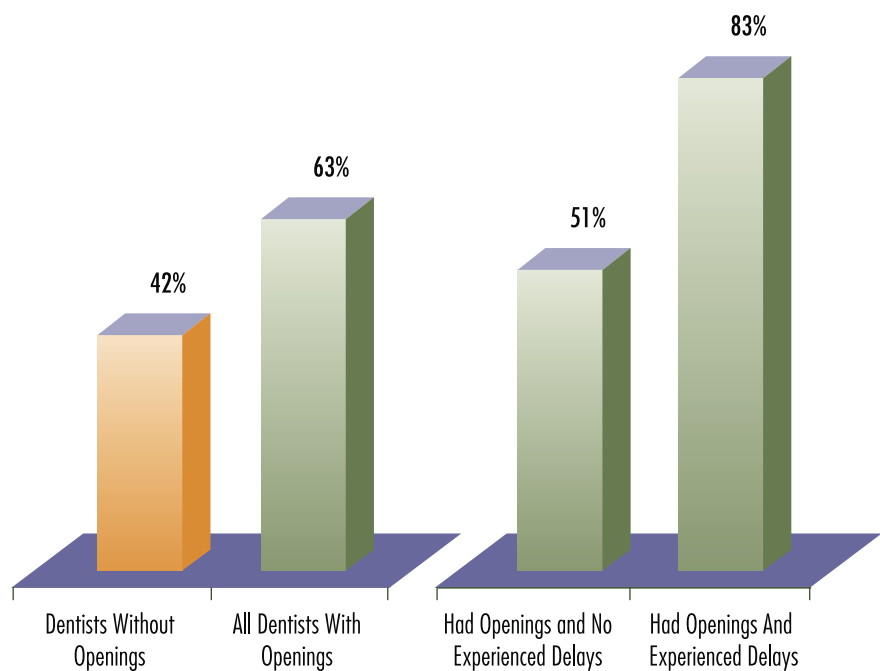
Exhibit 36. Perception of Shortage of Dental Assistants (DA), Registered Dental Assistants (RDA) and Non-Registered Dental Assistants (NDA) by General Dentists in Private Practice, California, 2003



Source: UCLA Center for Health Policy Research, California Dental Survey 2003
Note: Totals may not sum to 100% due to rounding error.

There was concordance between this perceived shortage of dental assistants and realized shortage, or time to hire. Among dentists who experienced delays of more than one month to hire dental assistants, 83% perceived a shortage compared to 51% of dentists who did not experience a delay (Exhibit 37). Dentists without any DA openings less frequently perceived a shortage of these personnel (42%) than those who had any openings (63%).

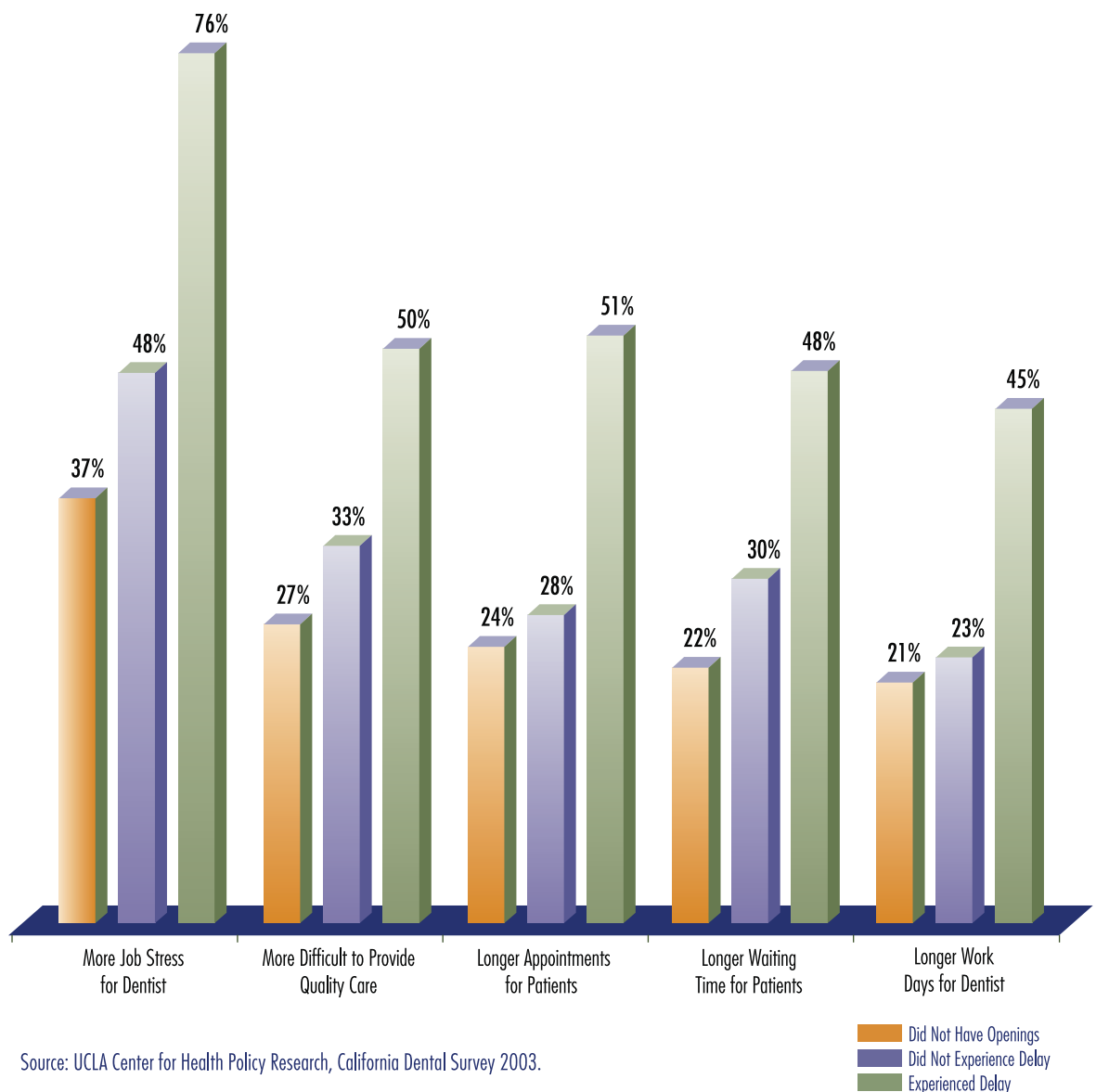
Exhibit 37. Perception of Shortage of Dental Assistants by Dental Assistant Openings and Experienced Delays, General Dentists in Private Practice, California, 2003



Source: UCLA Center for Health Policy Research, California Dental Survey 2003

Exhibit 38. Perceived Impact of Dental Assistant Shortage by Openings and Experienced Delays on General Dentists in Private Practice, California, 2003

Dentists who perceived a shortage of dental assistants reported an impact on their ability to provide dental care (Exhibit 38). Dentists who experienced delays more often reported job stress (76% vs. 48%), difficulty in providing quality care (50% vs. 33%), longer appointments for patients (51% vs. 28%), longer waiting times for patients (48% vs. 30%), and longer workdays for dentists (45% vs. 23%) than dentists who did not experience delays. Similarly, dentists who experienced delays more often reported these issues than dentists with no openings for dental assistants.



Source: UCLA Center for Health Policy Research, California Dental Survey 2003.

Conclusions

The data presented in this report provide a close examination of the characteristics of dental hygienists and dental assistants in private practice of general dentists in California. Specifically, this report examines whether dentists' perceptions of a shortage of dental hygienists and assistants are concordant with the experiences of the dentists.

Dental Hygienists

Data indicated that about half of California dentists employed dental hygienists—compared to 69% nationally. The demand for hygienists was relatively high in California: 46% of those who employed hygienists had recent openings for dental hygienists. Recent delays in hiring of hygienists (more than 1.5 months) were experienced by more than one-half of these dentists. More than one in 10 dentists with openings reported delays as long as six months or more, indicating a chronic difficulty in hiring hygienists for these dentists. Overall, an estimated 11% of all California general dentists in private practice experienced recent delays in hiring hygienists.

Examining the hiring patterns of dentists with openings revealed that almost two-thirds of dentists with openings in the past year were currently hiring for existing part-time positions. Another quarter were hiring for new part-time positions. These data seem to indicate that the demand for part-time hygienists among general dentists in private practice is greater than the demand for full-time hygienists.

Dentists with hygienist openings more frequently offered coveted medical benefits to their existing hygienists than those without openings, in most cases. This seemingly counter-intuitive finding may be due to a number of factors, such as offering medical benefits to facilitate hiring of hygienists and remaining competitive in the employment market. Further examination of this issue is needed to obtain a clear explanation for this finding.

Analysis of predictors of experienced delays, while controlling for factors such as benefits packages or the salary offered to existing hygienists, showed that geographic location of dentists' practices predicted realized hygienist shortage or recent delays independent of alternative explanations. This finding points to the possibility that supply of hygienists, or other unmeasured market, dentist, or practice characteristics may be responsible for delays in hiring hygienists. Analysis of predictors of delay, among dentists with current openings only, showed that dentists who were searching

for part-time hygienists might have experienced delays more often than dentists who were searching for full-time hygienists.

The perceptions of a shortage of hygienists among dentists who employ them were concordant with experienced delays in hiring hygienists, though many more dentists perceived this shortage without having experienced delays in their practice recently. Most dentists without openings also perceived a shortage of hygienists, reporting that their perceptions of a shortage of hygienists were based on factors other than their own experiences, such as peer networking.

This report found evidence that half of dentists with openings for hygienists experienced delays in hiring these personnel. Delays (realized shortage) were more common among dentists practicing in certain geographic areas of California. Further examination of the characteristics of these areas is necessary to identify whether these delays are related to supply or demand factors (beyond those examined in this report) and the appropriate solutions to alleviate delays in hiring.

The perception of a shortage of hygienists was more widespread than the data on realized shortage/delay supported. In other words, a high percentage of dentists who did not have recent openings for hygienists and those that did not experience delays also perceived a shortage of hygienists. It is likely that these perceptions were based on more distant past experiences. Dentists who had experienced delays in hiring hygienists two or more years ago may have continued to perceive such a shortage even if they had not experienced such delays recently.

Delays are one method of examining shortage, and other methods may provide additional information on whether there is a shortage of hygienists in California. For example, the perception of shortage may be based on perceived difficulties of hiring hygienists with particular characteristics such as part-time hygienists who can work specific hours, hygienists with special training, or hygienists with many years of experience. Similarly, hygienists' preferences for employment in dental practices with specific characteristics may play a role in the perception of shortage of hygienists by dentists. Hygienists may be looking for dental practices that provide specific benefits or specific hours to accommodate their work schedules. These alternative explanations for the perception of shortage were not examined in this report and could be examined in future studies.

Dental Assistants

Nearly all California general dentists in private practice employed dental assistants, and the majority of these assistants were registered. The registered dental assistants earned higher salaries and had longer tenures in the practice than non-registered assistants. The high rate of dental assistant (DA) employment was accompanied by high rate of demand for DAs: 54% of dentists had recent DA openings. The prior year's hiring patterns indicated most new hires were for existing registered dental assistant (RDA) positions. However, anticipated need for dental hygienists as reported by dentists indicated a possibility of expansion in the number of DAs in private practice of general dentists.

Dentists with openings typically offered more benefits more frequently to their full-time dental assistants than dentists without openings. The former group, however, paid lower hourly salaries to both registered and non-registered dental assistants and had a higher rate of turnover of these staff in their private practices.

Longer delays in hiring of dental assistants (over one month) were experienced by about four in 10 dentists with openings. Examining all California general dentists in private practice revealed an estimated 20% who experienced recent delays in hiring dental assistants.

No clear pattern emerged to explain the factors that determine delays in hiring dental assistants. However, dentists with dental assistant openings offered more benefits but lower salaries, and had higher turnover in their existing staff. It is likely that dentists who offer more benefits to their full-time assistants and lower pay may face more turnovers and subsequent openings for these personnel.

Delays in hiring dental assistants were least common in one geographic area (San Joaquin Valley), hinting at the possibility of other market differences unmeasured in these analyses. Dentists' perceptions of a shortage of dental assistants were stronger for registered than non-registered dental assistants. These perceptions were generally concordant with dentists' experiences. Still, some dentists who had not experienced delays or did not have openings for a DA position also perceived a shortage. Delays in hiring dental assistants were more likely to be experienced by specialists independent of all other explanatory factors examined in this report, indicating the possibility that these dentists may be searching for specific skills in such personnel.

In conclusion, the evidence suggested that some dentists experienced delays in hiring dental assistants, yet delays could not be attributed to examined measures of supply of dental assistants such as geographic location or the overall ratio of dental assistants to dentists in a given geographic area. However, delays in hiring dental assistants were more likely to be experienced by specialist dentists indicating the possibility that these dentists may have been seeking assistants with special training. Overall, the perceptions of shortage of dental assistants were more prevalent than dentists' experience of delays. This perception of shortage may be due to alternative explanations such as dentists seeking assistants with particular characteristics or dental assistants' requirement for certain work environments. Neither set of factors was included in this analysis.

Appendix A: Methods

Sample Selection

We surveyed active licensed dentists in private practice who were in general practice or selected specialties. To select the sample of dentists to survey, we obtained a list of all licensed dentists in the state of California from the California Dental Association (CDA). The CDA maintains a frequently updated membership list, which is supplemented with a list of non-members from the Dental Board of California. Of approximately 26,000 licensed dentists in California in 2003, 63% were CDA members. The list of CDA members was limited to those with active licenses. We excluded those who were faculty members, practicing out of state, retired, students in postgraduate programs, in the military, in public health practice, or not practicing due to various reasons. We also excluded dentists older than 85 years of age who had active licenses or were active members of CDA, but unlikely to provide significant amounts of dental services. Since CDA does not have information on active status of non-members, we verified status of each non-member license against the California Dental Board online query system.¹¹

Further, because we were interested primarily in dentists who provided general dentistry, we also excluded a number of specialists from our list including oral and maxillofacial surgeons, oral and maxillofacial pathologists, oral and maxillofacial radiologists, and public health dentists. CDA-member dentists identified their specialties in the CDA dataset. CDA provided specialty data on a small percentage of non-CDA members, based on information provided by these dentists to the CDA in various transactions. The screener questions in the survey included questions on the specialty of dentists that allowed us to exclude ineligible specialists from the respondents for the analysis. All such exclusions resulted in elimination of 4.7% of all dentists licensed to practice in California.

The final sample for the survey included 13,653 dentists. We sampled the universe of dentists residing or practicing in counties with fewer than 250 licensed dentists, which are predominantly rural or less densely populated counties. In counties with 250 or more licensed dentists, we selected a minimum of 250 and an additional 40% of the remaining dentists.

¹¹[http://www2.dca.ca.gov/pls/wllpub/wllqryna\\$lcev2.startup?p_qte_code=DDS&p_qte_pgm_code=3610](http://www2.dca.ca.gov/pls/wllpub/wllqryna$lcev2.startup?p_qte_code=DDS&p_qte_pgm_code=3610)

Survey Methodology

We mailed the survey to the selected sample dentists along with an introductory letter, which offered a choice of completing the survey on the Internet. Potential respondents were offered an incentive of a free five-hour continuing education course with an estimated commercial value of \$450. Two weeks after the initial survey was sent out, a reminder postcard was mailed to every dentist on the list. All non-respondents to the first wave received a second mailing of the questionnaire eight weeks after the first mailing.

Non-respondents to the second questionnaire mailing were followed up by phone after six weeks to encourage survey completion, either via mail or on the phone. Prior to telephone follow up, dentists with missing telephone numbers were matched against existing telephone directories and business databases (including households) by Telematch, a Database Marketing Division of Gannett Marketing Services Group (GMSG). Overall, 61% of non-respondents lacked a telephone number; and, of these, 25% remained unmatched through the Telematch. Non-respondents were contacted through the phone, with a minimum of six follow-up phone calls, to complete the survey. All dentists in counties with fewer than 250 dentists were contacted, and a total of 204 surveys were completed. In counties with more than 250 dentists per county, 109 surveys were completed during follow-up. An additional survey of a random sample of dentists who did not employ hygienists was conducted to identify the reasons for not employing hygienists.

The overall response rate for the survey was 51%. This rate was calculated as the ratio of the number of respondents to the estimated number of eligible dentists. The analysis of the characteristics of non-respondents with that of respondents did not show important differences by gender or age. More respondents than non-respondents were CDA members. The lower response rate of non-members may be reflective of ineligibility for participation in the survey due to unemployment, practice settings other than private, or additional training in graduate programs.

The data were weighted to the number of dentists in active private practice in California, estimated to be approximately 23,000. This number is arrived at by reducing the list of all licensed dentists in the state (about 26,000) through identification of dentists who have inactive licenses, out-of-state practice addresses, are students, full-time faculty, not working due to disability, or are older than 85. Surgeons, radiologists and public health dentists were excluded under the assumption that they are less likely to provide general care.

The information provided in this report is limited to dentists who self-identified as generalists, pediatric dentists, or other specialists who provide general dental care. The data is further limited to dentists who reported working in a private practice for any percentage of time and are not retired or unemployed. For dentists who practice in more than one private practice, the data reported is specific to the location with the largest volume of patients as identified by the dentist.

Appendix B: Definitions of Terms

Front Office Staff – Staff that performs front office duties in a dental practice (including activities such as billing, answering phone calls, scheduling appointments, and filing charts). Front office staff may also be involved in back office activities including chairside dental assistance, but are not included in estimates of dental assistants in this report.

Full-Time – Dentists, dental hygienists, registered dental assistants, and non-registered dental assistants working 32 hours per week or more are designated as full-time.

Full-Time Equivalent (FTE) – The FTE concept combines the number of hours worked with the number of personnel as follows. Based on the assumption that one FTE is equal to one person working 32 or more hours per week, an FTE would be calculated by adding all of the hours worked by a certain type of personnel divided by 32, and reporting the resulting number. For example, two dental assistants, each working 16 hours per week, would be equal to one FTE ($2 * 16 = 32$; $32/32 = 1$).

General Dentist – A California licensed dentist who practices any percentage of time in general dentistry. Pediatric specialist dentists are included in this

category because they primarily provide general dentistry for children.

Multivariate Analysis – A statistical technique to examine the relationship between two factors, independent of alternative explanatory factors that modify that relationship. For example, the relationship between benefits offered to hygienists and delays in hiring hygienists may be influenced by the location of the practice. In the multivariate model, the relationship between benefit and delays in hiring is examined independent of the impact of location of the practice.

Non-registered Dental Assistant (NDA) – A chairside dental assistant that is not registered or certified by the Dental Board of California, a state licensing agency.

Part-Time – Dentists, dental hygienists, registered dental assistants, and non-registered dental assistants working fewer than 32 hours per week are designated as part-time.

Perceived Shortage – Dentists who responded positively to the following questions on hygienists and dental assistants: In your opinion, is there a shortage of dental hygienists in your area? In your opinion, is there a shortage of chairside assistants in your area?

Primary Practice Location – For those dentists practicing in more than one location, it is the practice location with the largest volume of patients. Dentists were asked to report information about their primary practice location only.

Private Practice – A dental practice that is privately owned/operated by a dentist(s). Study criteria included only those dentists in private practice. Dentists working in publicly owned companies, corporations, universities, and local, state or federal governments were excluded from this report.

Realized Shortage – Calculated for dental hygienists as taking more than 1.5 months to hire. For dental assistants, realized shortage refers to more than one month to hire.

Recent Openings – refers to a combined estimate of current openings and openings in the past year for hygienist or dental assistants.

Registered Dental Assistant (RDA) – A chairside dental assistant that is registered or certified by the Dental Board of California, a state licensing agency.

Specialist Dentist – A California licensed dentist who only practices as a specialist (does not report providing any general care) in endodontics, orthodontics and dentofacial orthopedics, periodontics, prosthodontics, oral and maxillofacial surgery, oral and maxillofacial pathology, oral and maxillofacial radiology, or public health. The specialists who do not report providing any general care are excluded from this report.

Time to Hire – Calculated as the length of time (in months and weeks) that a dental hygienist or dental assistant position has been open (for dentists who are currently hiring) or the time it took to fill an open position in the past year (for dentists who hired last year). This time period is used to create the concept of realized shortage. The length of time for current openings is a conservative estimate since some positions would have remained open for some time after the completion of the survey by the dentists.

