Characteristics of Dentists Providing Dental Care to Publicly Insured Patients

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Abstract

Objective: *This study aims to identify the practice and patient care characteristics of dentists who provide care to publicly insured patients, beyond currently available existing information, which is typically limited to demographics of such dentists.* ***Methods:*** *A cross-section of dentists in private practices in California was surveyed, with a 46 percent average adjusted response rate. The sample included 3,180 generalists or specialists who provided general care in private practice. Characteristics of dentists who provided care to publicly insured patients were examined in descriptive analyses. The independent association of dentist characteristics with the provision of any care and the provision of care to a significant number of publicly insured patients were examined in logistic regression analyses.* ***Results:*** *Over 40 percent of dentists saw public patients. Regression analyses revealed that dentists who spent more time in periodontic and surgical care, saw more walk-in patients, had multilingual capacity, accepted reduced fees, had more minority patients, had fewer hygienists, or had multiple practice locations were more likely than those without such characteristics to provide care to publicly insured patients.* ***Conclusions:*** *Dentists who care for publicly insured patients appear to have practices that are different from those who do not, in terms of delivery of patient care and practice structure. Such differences have implications for the access to and quality of dental health care of publicly insured patients. The success of public programs and policies aimed at ensuring access to dental care depends on ability and willingness of dentists to accommodate public patients' needs.*

Key Words: dental care, publicly insured, dentist/practice characteristics.

Introduction

Public coverage of dental care, primarily through Medicaid and the State Children's Health Insurance Program (SCHIP), is a prominent policy solution to alleviating disparities in dental care for underserved populations. In California, SCHIP is both an expansion of the Medicaid program and a new program with a very similar benefit structure and a $5 co-pay for some services. Research shows that dental care use is lower for publicly insured than for privately insured patients, despite the poorer oral health status of the publicly insured (1-3). The differential level of use has been attributed to the limited access to Medicaid dental providers (1,4-6). Dental safety-net providers fill some of the gaps in the delivery of dental care to publicly insured patients, although their ability to provide care to all such patients is limited (7,8). Community health centers, a major provider of safety-net services in California, provided dental services to about 264,000 individuals in 2004, many of whom were not publicly insured (9); but the majority of dental care is delivered by dentists in private practice (10).

Private dentists' participation rates in Medicaid are 38 percent nationally but vary considerably by state (5,11,12) and appear to be as high as 45 percent in California (based on the authors' analysis of California's administrative Medicaid data) (13). Dentists report Medicaid's parsimonious payment policies, perceived program restrictions, untimely payment, bureaucracy, and missed appointments as barriers to participation in such public programs (4,5,14-16). Similarly, patients report difficulties in finding dentists who treat them and long waiting times, as well as difficulties getting time off from work, transportation, and other factors (6,17). Most policy options are considered in the absence of data on practice characteristics of private practice dentists who care for publicly insured patients and no knowledge of how proposed policies may impact access to dental care.

Existing research indicates that dentists who are non-White, female, more recent graduates, solo practitioners, or trained in pediatric dentistry are more likely to participate in Medicaid (18). This study provides essential additional data on the business and patient care characteristics of participating dentists, which may further illuminate the factors that contribute to or inhibit access to care.

Existing data indicate a high prevalence of minority and limited English proficient (74 and 53 percent, respectively) among the publicly insured (2003 California Health Interview Survey, http://www.chis.ucla.edu/main/default.asp

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– 2/2/06). Similarly, publicly insured patients are found to have poor oral health status, higher need for more resource intensive care, and higher use of practices with settings similar to the safety-net providers of oral care (10,15,19-21). We hypothesized that the practice profile of participating dentists is concordant with the patients' characteristics and utilization patterns and geared toward the care of these patients.

Specifically, participating dentists and those with a significant volume of care (active) dentists are anticipated to provide less diagnostic and preventive care as opposed to operative and surgical services. Bilingual and multilingual dentists and staff are expected to provide in-language care to limited-English proficient populations more often. Participating and active dentists are expected to accept reduced fees, have a lower percentage of White patients in their practice, and to accept more walk-in patients. The latter practice is expected to accommodate patient needs and compensate for the higher percentage of missed appointments by publicly insured patients. Participating dentists are expected to have a higher capacity for (more staff, more operatories, and multiple locations) and a higher volume of patient care (shorter appointment times, longer wait times, and more time spent in patient treatment) and report working full-time and being busy or overworked. Participating and active dentists are also anticipated to pay lower wages to hygienist and dental assistant personnel as a result of potentially lower practice income.

We tested our hypotheses by examining whether differences existed in these characteristics between participating and nonparticipating dentists. We further tested these hypotheses by examining the same characteristics among active and participating dentists with a small volume of publicly insured patients. These analyses will allow the examination of factors that may encourage public program participation among dentists or facilitate active participation.

Methods

Sample and Data. The data for this study came from the California Dentist Survey, a representative statewide survey of general dentists in private practice in 2003 conducted by the authors. About 14,000 dentists were randomly selected from a list of 24,000 dentists with active licenses maintained by the California Dental Association (CDA) and were mailed the survey. Those practicing or residing (when practice address was unavailable) in counties with fewer than 250 licensed dentists were oversampled. In the remaining counties, a minimum of 250 and an additional 40 percent of the remaining dentists were selected. The minimum sample size of 250 was chosen to detect significant differences at the 0.05 probability level. Two waves of the 15-minute survey were mailed, followed by a reminder postcard and a telephone follow-up. Dentists had a choice of completing the survey on the Web and were offered a free 5-hour continuing education course by CDA. Only dentists providing care in the private practice setting were eligible for the survey. In addition, retired, faculty, students, radiologists, pathologists, public health dentists, and surgeons were not eligible for participation because they were not expected to provide a significant amount of direct or primary patient care. During the follow-up phone calls, ineligibles were further identified among the nonrespondents, and this information was used in the calculation of response rate. The adjusted average response rate of 46 percent (31 percent unadjusted) was calculated, discounting ineligible and unlocated dentists using the follow-up and screener data (22). This response rate was within range of the 2004 similarly large national survey of dental practice by the American Dental Association (ADA), but lower than some state-level surveys with smaller sampling frames and shorter questionnaires (5,13,23). Professional surveys with a large sampling frame and extensive questionnaires such as that used for this study are often in the 40 to 50 percent range (24).

The analysis of the available characteristics of the nonrespondents with that of the respondents did not show significant differences by gender or age. More respondents than nonrespondents were CDA members. The lower response rate of nonmembers may reflect ineligibility for participation in the survey because of unemployment, nonprivate practice settings, or participation in graduate programs. The final sample of general dentists in private practice and specialists who provided general care was 3,180.

The survey instruments were based on ADA surveys of dental practice and workforce and included many similar questions. Dentists practicing in more than one dentist-owned private practice reported on the location they identified as having the largest volume of patients. Specialists who reported providing general care and pediatric dentists were included in the sample. Human subject approval was obtained for the survey and subsequent analyses at the University of California, Los Angeles.

Dependent Variable. Dentists reported on the percentage of their patients in an average week who were covered by a public assistance program, such as Denti-Cal. Those who reported 0 percent were categorized as not participating. The examination of the volume of publicly insured patients as a continuous variable was not possible because of the asymmetric and nonnormal distribution of responses. Attempts at transforming this variable into a symmetrical distribution were unsuccessful. Thus, participating dentists were further divided into those who had 5 percent or less in an average week versus those who reported more than 5 percent. This characterization was based on other studies and consultation with practicing dentists to determine what percentage (or number of patients) in a practice indicates an active and significant level of participation. Dentists with a significant volume of publicly insured patients, approximately 100 or more such patients per year, were

considered active participants (versus nonactive) (4,6).

Independent Variable. Independent variables included the type of oral health services provided as indicated by percentage of time in a typical week spent by the dentist in diagnostic, preventive, restorative, operative, periodontics, and surgical activities. Concordance with publicly insured demographics were measured by whether the dentists accepted reduced fees from lower-income patients, the percentage of patients in practice who were White, the average number of walk-in patients per week, and whether the dentists or the staff were bilingual, multilingual, or monolingual English speakers.

Dentists' capacity for providing a high volume of care was measured by the number of various staff, number of operatories, length of an average appointment in minutes, number of days an existing patient has to wait for an appointment on the average, average time per week spent on patient care as opposed to administrative work, and number of practice locations. Dentists' level of work was measured as full-time status as well as self-reported volume of work in terms of busy or overworked, not overworked and providing care to all who request it, and not busy enough. The size of the staff was measured by the number of full-time equivalent (FTE) dentists, hygienists, dental assistants, and front-office staff in the practice. FTE status was calculated by adding the total number of hours worked per week for each type of personnel and dividing it by 32, the estimated full-time status for an average dentist.

Dentists' personal and practice characteristics (including gender, race/ethnicity, being a generalist versus having a specialty area, years since graduation, foreign graduate status, practice ownership status, and geographic region of the primary office) were also included in the analyses. Foreign graduates were distinguished using CDA administrative data and identified as dentists who received their original degree elsewhere and did not receive additional training in a US school. Practice ownership is included as a proxy for how established a dentist is and is categorized as associate or contracted versus owner or partner status. The region of practice represented the supply of providers and market and population differences in the various regions of California. The average hourly salaries of hygienists and dental assistants were controlled for and considered a proxy for the economic status of the practice.

Analyses Methods. Whether or not dentists had any publicly insured patients in their practice was compared by conducting descriptive analyses with chi-square tests for categorical variables and *t*-tests for continuous variables and using a minimum probability value of 0.05 to measure the significance of observed differences. Separate logistic regression models were used to identify which characteristics were predictors of participation (treating any such patients) and active participation (treating 5 percent or more) among dentists.

All continuous variable coefficients were measured in increments of five or 10 units, as single increments in logistic models are often too small to be meaningful. Confidence intervals are presented to indicate the estimated range of values around the effect. Five independent variables with missing values of 10 to 19 percent were imputed using the "multiple imputation" procedure in STATA SE version 9.1 (StataCorp, College Station, TX) (25). All analyses were weighted to account for the oversampling of dentists in areas with fewer licensed dentists.

Results

Forty-two percent of dentists reported having publicly insured patients in their practice. Of these dentists, 75 percent actively participated in the care of publicly insured patients, leading to an overall active participation rate of 30 percent (participation rates not shown in tables). Active dentists reported that on average, 33 percent of their 2002 receipts were payments from public insurance sources such as Medicaid (Denti-Cal in California), in contrast to 4 percent for nonactive dentists (receipt data not shown). Participating dentists spent a little more time in diagnostic, preventive, periodontic, and surgical services and less time in operative care, more often had multilingual capacity and accepted reduced fees, had more walk-in patients, and had more minority patients in their practices as compared with nonparticipating dentists (Table 1). Participating dentists had slightly shorter appointments per patient, spent less time in patient treatment, had more than one office location, worked in larger practices with more staff, more often worked full-time, and were more often busy or overworked than nonparticipating dentists. Participating dentists were also in practice for an average of 2 years less, were more often contractors or associate dentists or foreign graduates, practiced in Los Angeles and other Southern California counties, and paid lower wages to hygienist and dental assistant staff compared with those without such patients.

A similar pattern was observed when comparing active (more than 5 percent publicly insured patients) and nonactive (5 percent or fewer publicly insured patients) dentists, but with some notable exceptions. Active and nonactive dentists did not differ significantly in work status, how busy they were, time spent in diagnostic and preventive care, or time spent on patient treatment per week.

We tested our hypotheses – that the patient care, demographics, and volume of practice profile of participating dentists are different from not participating dentists – in the first logistic regression (Table 2). Concordant with the hypotheses, dentists who delivered more resource intensive care (operative, periodontic, oral and maxillofacial surgery) were more likely to participate than dentists delivering less such care. Similarly, dentists who had bilingual or multilingual capacity accepted

Table 1
Characteristics of Dentists in Private Practice Providing General Care by Presence of Publicly Insured Patients in Practice, California, 2003

	Total	Does not have publicly insured patients	Has publicly insured patients	Has 5% or less publicly insured patients	Has more than 5% publicly insured patients
Sample size	3,180	1,899	1,281	377	904
Patient care					
Percent time spent in diagnostic care	14%	13%	15%***	14%	15%
	0.2%	*0.2%*	*0.3%*	*0.7%*	*0.4%*
Percent time spent in preventive care	15%	14%	16%*	15%	16%
	0.2%	*0.3%*	*0.3%*	*0.7%*	*0.4%*
Percent time spent in operative care	30%	32%	28%***	29%	27%**
	0.3%	*0.4%*	*0.4%*	*0.8%*	*0.5%*
Percent time spent in periodontic care	5%	4%	7%***	5%	7%***
	0.1%	*0.1%*	*0.2%*	*0.3%*	*0.2%*
Percent time spent in oral/maxillofacial surgery	4%	3%	5%***	4%	5%***
	0.1%	*0.1%*	*0.1%*	*0.2%*	*0.2%*
Practice characteristics and size					
Language capacity in practice					
Dentist and staff are monolingual English speakers	22%	30%	10%***	21%	7%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Dentist or staff are bilingual	24%	31%	14%***	23%	12%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Dentist or staff are multilingual	54%	39%	75%***	57%	82%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Accepts sliding scale fees	51%	39%	68%***	49%	76%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Percentage of patients who are White	53%	64%	37%***	57%	31%***
	0.5%	*0.6%*	*0.8%*	*1.4%*	*0.9%*
Number of walk-in visits per week	5	4	7***	5	8***
	0.1	*0.1*	*0.2*	*0.2*	*0.3*
Number of full-time equivalent (FTE) dentists	1.4	1.4	1.5**	1.4	1.5
	0.01	*0.02*	*0.02*	*0.04*	*0.03*
Number of FTE hygienists	0.7	0.9	0.3***	0.7	0.2***
	0.02	*0.02*	*0.02*	*0.04*	*0.02*
Number of FTE dental assistants	2.4	2.2	2.7***	2.3	2.8**
	0.04	*0.1*	*0.1*	*0.1*	*0.1*
Number of FTE front-office staff	1.6	1.6	1.7**	1.6	1.7
	2.0%	*2.0%*	*3.0%*	*5.0%*	*4.0%*
Number of operatories	5	5	5	4	5
	0.1	*0.1*	*0.1*	*0.1*	*0.1*
Has more than one office location	12%	8%	18%***	7%	21%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Average number of minutes per appointment	47	50	44***	46	43***
	0.2	*0.3*	*0.4*	*0.7*	*0.5*
Percent time spent in patient treatment per week	89%	90%	87%***	89%	87%
	0.3%	*0.3%*	*0.5%*	*0.7%*	*0.6%*
Number of wait days for an existing patient appointment	7	7	6	7	6
	0.2	*0.2*	*0.2*	*0.4*	*0.3*
Works full-time	74%	73%	76%*	78%	76%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
How busy at work					
Busy or overworked	24%	21%	29%***	29%	29%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Not overworked and provides care to all who request it	54%	57%	49%***	50%	49%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Not busy enough	22%	22%	22%	21%	22%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Table 1 *Continued*

	Total	Does not have publicly insured patients	Has publicly insured patients	Has 5% or less publicly insured patients	Has more than 5% publicly insured patients
Dentists' personal and business characteristics					
Female	26%	23%	32%***	19%	36%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Race and ethnicity					
White	55%	66%	40%***	61%	33%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
African-American/Alaskan	1%	1%	1%	0%	1%
Native/American Indian†	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Latino	6%	5%	9%***	4%	11%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Asian-American/Pacific Islander	35%	25%	48%***	32%	53%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Unknown race	2%	2%	1%*	2%	1%*
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Generalist (versus pediatric and other specialist practicing general dentistry)	91%	93%	88%***	91%	87%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Years since dental school graduation	20	21	19	22	18
	0.2	*0.25*	*0.32*	*0.56*	*0.37*
Foreign graduate	17%	6%	32%***	14%	38%***
	0.7%	*0.5%*	*1.3%*	*1.8%*	*1.6%*
Solo practitioner	72%	76%	67%***	81%	63%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Associate or contracted employee (versus owner or partner)	17%	14%	21%***	8%	26%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Region of practice					
Northern California counties	3%	3%	3%	5%	2%**
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Greater San Francisco Bay Area counties	26%	32%	18%***	23%	17%**
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Sacramento	6%	7%	5%**	6%	4%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
San Joaquin Valley	6%	6%	7%	8%	7%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Central	6%	7%	5%	8%	4%**
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Los Angeles County	27%	22%	35%***	24%	39%***
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Other Southern California counties	25%	24%	27%*	26%	27%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Average salary for dental hygienist and assistants in dollars	29	39	19***	31	12***
	0.5	*0.6*	*0.6*	*1.3*	*0.5*

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

† About 0.6% reported being American Indian or Alaska Native and are included with this group.

Differences in proportions are measured with chi-square tests and differences in numbers are measured with t-tests and are expressed as * in the table.

Dentists with any publicly covered patients are compared to those with none.

Dentists with 5% or less publicly covered patients are compared to those with more than 5%.

Standard errors of the estimates are provided in italics.

reduced fees, had more walk-in patients, or had fewer White patients were more likely to participate than those who were monolingual English speakers, did not accept reduced fees, had fewer walk-in patients, or had more White patients. The hypothesis that participating dentists have larger and busier practices was not supported with one exception. Dentists with shorter appointment times were more likely to participate than those with longer appointments. The odds ratios for number of dental assistants, office staff, and multiple locations were positive and relatively large but not significant. Also, dentists with fewer hygienists were more likely to participate than those with more hygienists. Among personal and business

Table 2
Odds Ratios and 95% Confidence Intervals (CI) of Having Publicly Insured Patients in Private Practice of Dentists Providing General Care, California, 2003

	Odds ratios	95% CI
Effective sample size = 2,725		
Patient care		
Percent time spent in diagnostic care (5% increments)	1.03	0.98–1.09
Percent time spent in preventive care (5% increments)	1.00	0.96–1.05
Percent time spent in operative care (5% increments)	1.05**	1.01–1.09
Percent time spent in periodontic care (5% increments)	1.22***	1.12–1.34
Percent time spent in oral/maxillofacial surgery (5% increments)	1.40***	1.23–1.59
Practice characteristics and size		
Language capacity in practice		
Dentist and staff are monolingual English speakers		
Dentist or staff are bilingual	0.88	0.65–1.19
Dentist or staff are multilingual	1.76***	1.32–2.36
Accepts sliding scale fees	1.58***	1.27–1.96
Percentage of patients who are White (5% increments)	0.90***	0.88–0.93
Number of walk-in visits per week	1.05***	1.03–1.08
Number of full-time equivalent (FTE) dentists	0.97	0.81–1.17
Number of FTE hygienists	0.57***	0.47–0.69
Number of FTE dental assistants	1.05	0.98–1.12
Number of FTE front-office staff	1.07	0.93–1.24
Number of operatories	0.99	0.95–1.04
Has more than one office location	1.39	1.00–1.94
Average number of minutes per appointment (5-minute increments)	0.92***	0.87–0.96
Percent time spent in patient treatment per week (5% increments)	0.97	0.94–1.00
Number of wait days for an existing patient appointment	1.00	0.98–1.01
Works full-time	0.91	0.72–1.17
How busy at work		
Busy or overworked	1.27	0.92–1.77
Not overworked and provides care to all who request it	0.92	0.71–1.19
Not busy enough (reference group)		
Dentists' personal and business characteristics		
Female	0.92	0.71–1.20
Race and ethnicity		
White (reference group)		
African-American/American Indian/Alaska Native	0.75	0.23–2.45
Latino	1.01	0.66–1.56
Asian-American/Pacific Islander	1.05	0.81–1.36
Generalist (versus pediatric and other specialist practicing general dentistry)	0.90	0.63–1.30
Years since dental school graduation (5-year increments)	1.00	0.95–1.05
Foreign graduate	1.98***	1.43–2.76
Solo practitioner	0.77	0.53–1.12
Associate or contracted employee (versus owner or partner)	0.62*	0.41–0.95
Region of practice		
Northern California counties	2.65***	1.52–4.64
Greater San Francisco Bay Area counties	0.54***	0.40–0.71
Sacramento	1.01	0.64–1.60
San Joaquin Valley	1.91***	1.26–2.90
Central	1.55	1.01–2.39
Los Angeles County (reference group)	1.40	1.06–1.86
Other Southern California counties	0.97*	0.81–1.17
Average salary for dental hygienist and assistants (in $10 increments)	0.91***	0.86–0.96

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

characteristics, foreign graduates, and dentists who practiced in some regions of the state were more likely to be participating than those in other regions but associate or contractor dentists were less likely. Also, dentists paying lower wages to hygienists and dental assistants were more likely than those paying higher wages to participate.

Examining the predictors of active participation in the second logistic regression model (Table 3), similar patterns were found, but with differences in significance of some

Table 3
Odds Ratios and 95% Confidence Intervals (CI) of Having More than 5% Publicly Insured Patients in Private Practice of Dentists Who Have Any Publicly Insured Patients, California, 2003

	Odds ratios	95% CI
Effective sample size = 1,063		
Patient care		
Percent time spent in diagnostic care (5% increments)	0.99	0.90–1.08
Percent time spent in preventive care (5% increments)	1.03	0.95–1.12
Percent time spent in operative care (5% increments)	1.06	0.99–1.14
Percent time spent in periodontic care (5% increments)	1.32**	1.11–1.56
Percent time spent in oral/maxillofacial surgery (5% increments)	1.34**	1.08–1.66
Practice characteristics and size		
Language capacity in practice		
Dentist and staff are monolingual English speakers		
Dentist or staff are bilingual	1.21	0.65–2.24
Dentist or staff are multilingual	1.18	0.66–2.08
Accepts sliding scale fees	1.89***	1.31–2.74
Percentage of patients who are White (5% increments)	0.87***	0.83–0.91
Number of walk-in visits per week	1.10***	1.05–1.16
Number of FTE dentists	0.58***	0.42–0.80
Number of FTE hygienists	0.70	0.47–1.04
Number of FTE dental assistants	1.07	0.96–1.20
Number of FTE front-office staff	0.94	0.73–1.20
Number of operatories	1.01	0.93–1.10
Has more than one office location	2.50**	1.37–4.57
Average number of minutes per appointment (5-minute increments)	0.95	0.88–1.02
Percent time spent in patient treatment per week (5% increments)	0.95	0.89–1.01
Number of wait days for an existing patient appointment	1.00	0.97–1.02
Works full-time	0.71	0.45–1.12
How busy at work		
Busy or overworked	0.98	0.55–1.74
Not overworked and provides care to all who request it	1.21	0.76–1.93
Not busy enough (reference group)		
Dentists' personal and business characteristics		
Female	1.19	0.76–1.87
Race and ethnicity		
White (reference group)		
Latino	2.33*	1.06–5.11
Asian-American/Pacific Islander	0.75	0.48–1.19
Generalist (versus pediatric and other specialist practicing general dentistry)	0.44*	0.23–0.84
Years since dental school graduation	0.95	0.87–1.04
Foreign graduate	1.49	0.91–2.42
Solo practitioner	0.73	0.39–1.37
Associate or contracted employee (versus owner or partner)	1.75	0.80–3.86
Region of practice		
Northern California counties	2.10	0.79–5.60
Greater San Francisco Bay Area counties	0.73	0.43–1.22
Sacramento	1.35	0.59–3.11
San Joaquin Valley	1.77	0.86–3.67
Central	1.20	0.55–2.64
Los Angeles County (reference group)		
Other Southern California counties	0.96	0.60–1.53
Average salary for dental hygienist and assistants (in $10 increments)	0.84	0.74–0.95

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

variables: delivery of operative care, length of appointment, bilingual capacity, foreign graduates, associates or contractors, and region were no longer significant. However, having multiple office locations and being Latino led to a higher likelihood of being active participants than dentists without such characteristics. Contrary to expectations, as the number of dentists in the practice increased the likelihood of active participation decreased and the probability of active participation decreased for generalist dentists.

Discussion

Limitations. The cross-sectional nature of these data prevents drawing firm causal inferences about predictors of dentists' public insurance participation. Nevertheless, the findings indicate significant and independent associations between dentist characteristics and participation in public dental insurance programs that help inform the debate on approaches to alleviating disparities in access to dental care of publicly insured patients. Even though California population characteristics, dentist characteristics, and public program coverage and reimbursement levels differ from the rest of the United States, the observed trends in this study are likely to apply elsewhere when similarities exist.

The data on dentist's practices such as percentage of time spent in different activities or characteristics of patients are likely to be subject to self-reported error, inherent in survey-based research. However, these data were remarkably similar to those reported by the ADA from large 2004 and 2000 national surveys of dental practice, and reflect positively on the validity of the data.

Furthermore, the dependent variable did not distinguish the type of public insurance. However, this limitation is not likely to significantly impact the validity of the findings, as the differences are primarily in the slightly higher-income levels of the SCHIP enrollees and the presence of a co-payment. The small proportion of SCHIP enrollees versus Medicaid enrollees in California indicates that the findings are more readily applicable to the latter group.

Summary and Conclusions

The results indicate that the majority of dentists in California did not have publicly insured patients in their practice or were not active participants, although California rates are higher than in many other states (11). As hypothesized, participating dentists had practices that were generally geared toward the care of publicly insured patients as reflected in the delivery of the types of patient care consistent with poorer oral health and accommodations to the needs of these patients. However, the evidence supporting the hypothesis of higher-volume practices among participating dentists was not strong and not consistent between the two models of any participation and active participation. The inverse relationship of the number of hygienists with dentist participation is likely a consequence of the dentists' decisions to hire fewer such personnel, given the more pressing oral care needs of their patient population. However, the inverse relationship of the number of dentists in practice and the positive relationship of multiple locations in the active participation model may indicate a setting somewhat similar to safety-net clinics.

We found that gender, race and ethnicity, specialty, years since graduation, solo practice, or practice ownership of dentists were associated with dentists' participation, but none were significant predictors in the presence of other examined factors. This is most likely because characteristics such as years in practice or gender are proxies for other measured factors such as full-time status and how busy a dentist is at work. The uneven likelihood of providing care to public patients by geographic region of practice is consistent with other research findings (4,26) and is likely a proxy for population density of the region, supply of providers, or other market factors such as regional wages. Furthermore, the significance of the region of practice for participation and the lack of an effect for the extent of (active) participation indicates that other factors supersede the effect of region on active participation.

The lower probability of generalists in the active participation model is likely a reflection of the higher participation level of pediatric dentists, the dominant group in the category of specialists in this data who are more likely to participate in both Medicaid and SCHIP, and confirms existing research (18). The higher probability of being Latino among active dentists is likely a reflection of either a conscious choice by these dentists to be an active provider or an indication of the higher demand for these dentists by the high numbers of Latino publicly insured patients in California. In either case, this higher likelihood seems to confirm assumptions that training a more diverse dental workforce can play a role in improving access to care for publicly insured patients, and further research into this link is warranted. In addition, the higher likelihood of participation of foreign graduates may be a proxy for employment opportunities or practice preferences of these dentists. At face value, this higher probability indicates a potential benefit of licensing these dentists.

These data raise important questions regarding the impact of provider practice characteristics on oral health status of publicly insured patients that should be investigated in future research. For example, what are the impacts of shorter appointment times and fewer hygienists? Do they reflect differences in quality of care? Are the apparent lack of effects for factors such as time spent in patient treatment (versus administrative work), waiting time of an existing patient for an appointment, and busyness of dentists truly reflective of lack of such barriers in access to dental care?

The larger policy question is whether the 30 percent active participation rate by private dentists is sufficient in answering the demand for dental care, and does it allow room for further alleviating the disparities in care. While the concentration of publicly insured patients in specific practices has its advantages, more evidence is needed to examine whether access will improve over time and whether more subtle forms of disparities remain unobserved.

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