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# The Rise and Fall of the Latino Dentist Supply in California: Implications for Dental Education

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# The Rise and Fall of the Latino Dentist Supply in California: Implications for Dental Education

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*Abstract:* The purpose of this study was to determine the number of Latino dentists in California, identify the schools and countries where they were educated, and compare Latino dentist demographics with that of the state's new demographics. From the 2000 California Department of Consumer Affairs list of 25,273 dentists, we identified Latino U.S. dental graduates (USDGs) by "heavily Hispanic" surnames and Latino international dental graduates (IDGs) by country and school of graduation. From the 2000 U.S. census Public Use Microdata Sample (PUMS), we described Latino dentist characteristics such as Spanish language capacity and practice location. The number of Latino dentists acquiring licenses to practice in California has fallen dramatically, by nearly 80 percent, between 1983 and 2000. This decline is not merely an affirmative action issue; it results in an issue of access. Latino dentists are far more likely to speak Spanish and be located in a heavily Latino area than non-Latino dentists. Currently, although the supply of Latino dentists is dwindling, the Latino population is growing rapidly. In California and out-of-state schools, first-year matriculation of Latino USDG must increase. Further, non-Latino dentists should be prepared and given incentives to learn Spanish and locate practices in areas of need. The reintroduction of IDG Latino dentists needs to be seriously considered.

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*Key words:* dentists, dental education, Latino, dentist supply, language, practice location, California

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In 2005, nearly one out of three Californians (32.4 percent) was Latino. (According to the 2000 U.S. census, Hispanics or Latinos who identify with the terms "Spanish," "Hispanic," or "Latino" are those who classify themselves in one of the specific Spanish, Hispanic, or Latino categories listed on the questionnaire ["Mexican," "Puerto Rican," or "Cuban"] as well as those who indicate that they are "other Spanish/Hispanic/Latino.") As a harbinger for the future, a recently released analysis of the 2001 birth certificates<sup>1</sup> showed that over half of all births in the state during the third and fourth quarters were to Latina mothers; when these babies become adults, over half the adults in the state will be Latino. Demographic changes of a similar magnitude are also being seen in Texas and New Mexico and will be seen, with some local variations, in the rest of the country in the early part of the twenty-first century.

In 1996, the American Dental Education Association (ADEA) revised its bylaws to include core values. Core value 5 states: "Expanding the Diversity of Dental Education. The Association values diversity and believes that those who populate dental education—students, faculty, staff, administrators, and patients—should reflect the diversity of our society."<sup>2</sup>

Dentists have traveled through an educational pipeline<sup>3</sup> beginning in elementary school and culminating in dental school. Different ethnic groups have different experiences with this educational pipeline. This research project was undertaken to see how demographic dynamics within the profession of dentistry in California compare with that state's new demographics. The effects of the ethnic composition of the state's dentist supply on some aspect of the quality of care will then be analyzed, along with some suggestions for dental education.

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## Methods

The primary data source for this analysis is the California Department of Consumer Affairs (CDCA) listing of dentists licensed to practice in the state for the year 2000. The license provides information primarily about a dentist's educational preparation. The CDCA listing provides information such as name, license type, address, original issue date, and graduating school name and year. The major limitation of this data source is that, while this list captures every dentist licensed, it does not provide information on a particular dentist's race or ethnicity. Data on individual Latino dentists are nearly nonexistent, as a dentist's race/ethnicity is not indicated in any public data source. The Los Angeles-based Latin American Dental Association (LADA) has a membership list, but its self-selected listing is incomplete, as membership is strictly voluntary. Thus, no organization known to us provides individual identification of Latino dentists. Up until now, individual identification of Latino dentists has not been made. To create a roster of Latino dentists in California, the list of licensed dentists provided by the CDCA was supplemented by data from the 2000 U.S. census.

Data on language were taken from the 2000 U.S. census Public Use Microdata Samples (PUMS), which provide detailed information on the occupation and language abilities of individuals.

This study identified Latino dentists by applying a Latino-characteristic algorithm, developed by the Center for the Study of Latino Health and Culture (CESLAC) at the University of California, Los Angeles, to the CDCA listing of 25,273 dentists licensed in 2000. This algorithm uses surrogate measures of ethnicity: country of graduation and possession of a Spanish surname.

Experience from researching other Latino health professionals<sup>4</sup> led us to suspect that we would identify a relatively large number of Latino dentists trained in schools of dentistry outside the United States. Our first step in identifying Latino dentists was to distinguish between graduates of U.S. schools and those of schools in Latin America, which are defined as being located in the Spanish-speaking countries in the western hemisphere. To be consistent with the Latin American Dental Association's membership, we included schools in Brazil and Spain. Graduates of these schools were considered to be Latino. Graduates of dental schools in the Philippines were excluded, as these graduates generally do not

speak Spanish. From the CDCA listing, we identified 470 international dental graduates from Latin American schools of dentistry.

Until the 1980 census, Latinos were identified in large data sets by use of the "Spanish surname" method. The Bureau of the Census has developed a list of 12,215 surnames that are "heavily Hispanic,"<sup>5</sup> which have been shown to correlate very closely with Latino ethnicity. This list was applied to the CDCA listing of graduates of schools of dentistry in the United States, which resulted in the identification of 691 U.S.-educated Latinos with "heavily Hispanic" surnames. The Spanish surname criterion was not applied to graduates of Latin American dental schools.

The major limitation of using the CDCA listing of licensed dentists is that an active license does not necessarily represent dentists in active practice since an unknown number of older dentists like to keep their licenses active even though they are not in full-time practice. In addition, younger dentists may be involved in full-time teaching, research, or administration and hence not be in full-time active practice. We have no way of identifying those not in full-time practice; hence, we probably overestimate, to an unknown degree, the number of dentists actually available to the public seeking care.

The "Spanish surname" method of identifying Latino dentists by surrogate measures has both limitations and strengths. The two major limitations probably lead to a small undercount of Latino dentists. The first is that not all Latinos have Spanish surnames. Females, in particular, may have married non-Latinos and as a result may not bear a Spanish surname. The second is that a number of surnames are used by persons of more than one romance language-speaking country such as Italy, France, Portugal, and even Romania. The U.S. census considers these shared surnames to be "moderately Hispanic" or even "occasionally Hispanic." We excluded these "moderately" and "occasionally" Hispanic surnames from our analysis.

The strength of this method is that it is a rapid, low-cost method of identifying around 90 percent of Latino dentists.<sup>5</sup> Absent a survey of all 25,273 dentists, with at least a 93 percent response rate, which was not possible due to budget limitations, the Spanish surname surrogate method provides a good starting point, albeit with limitations that we consider to be acceptable because of the absence of any other research on this topic.

## Results

The composite methods allowed us a first-ever overview of the workforce of Latino dentists and the nature of their practices in the state of California in the year 2000.

### Current Supply

When we applied the Latino-identifying method described above to the CDCA list of 25,273 dentists licensed to practice in California, 1,161 met the criteria. For the remainder of this article, these 1,161 dentists will be considered the universe of Latino dentists in the state, while the remainder of the CDCA dentists will be our non-Latino dentist supply.

These Latino dentists comprised 4.6 percent of the total dentist supply in California in 2000. At the same time, California's nearly 11 million Latinos (10,966,556 as counted by the 2000 census) comprised almost one-third of the state's population (32.4 percent). While one out of every three Californians is Latino, only one out of every twenty California dentists is Latino. Clearly, Latinos are not represented in the state's supply of dentists in proportion to Latino representation in the state's population.

### Source of Latino Dentists

The 1,161 Latino dentists in the state have a markedly different profile in terms of their educational experience compared to non-Latino dentists. In the California non-Latino dentist supply, international dental graduates (IDGs) are rare; only 14.9 percent were graduates educated outside the United States.

The major sending countries were the Philippines, India, Taiwan, and Iran. See Table 1 for the top ten countries and their percentages of representation in the state's non-Latino dentist supply. By contrast, the California Latino dentist supply is heavily dependent upon IDGs. Close to half (40.5 percent) of Latino dentists were educated in Latin American countries. The top sending countries were Mexico, Brazil, and Colombia.

Over one-fourth (28.2 percent) of non-Latino dentists were educated in states outside of California. Illinois, Missouri, and Massachusetts were the primary sending states. Latino dentists, by contrast, were rarely educated out of state. Only 9.2 percent were educated in states such as Illinois, Wisconsin, or Nebraska. See Table 2 for the top ten states and their representations.

A handful of dental schools have provided the majority of Latino dentists. The school that has graduated the most Latino dentists licensed to practice in California was the University of California, San Francisco, followed by the University of Southern California and the University of California, Los Angeles. Of the top ten schools producing the majority of the Latino dentists, five were located in Latin America. Table 3 indicates the ten schools that have produced the highest number of Latino dentists with California licenses.

Compared to non-Latino dentists, Latino dentists are more likely to be educated out of the United States or in the state of California. Over two-thirds (67.2 percent) were graduates of just ten dental schools, five in the United States and five in Latin America.

**Table 1. Top 10 countries producing California's Latino and non-Latino international dental graduates, 2000**

	Latino Dentists Educated		Non-Latino Dentists Educated		
	No.	% of Total Latino D.D.S.	No.	% of Total Non-Latino D.D.S.	
Mexico	234	20.2%	Philippines	1,140	4.7%
Brazil	40	3.4%	India	224	0.9%
Colombia	31	2.7%	Taiwan	194	0.8%
Peru	27	2.3%	Iran	193	0.8%
Guatemala	24	2.1%	USSR (former)	164	0.7%
El Salvador	21	1.8%	Egypt	109	0.5%
Argentina	17	1.5%	S. Korea	93	0.4%
Nicaragua	10	0.9%	Vietnam	86	0.4%
Uruguay	9	0.8%	Romania	57	0.2%
Chile	8	0.7%	Canada	52	0.2%
All Others	49	4.2%	All Others	1,284	5.3%

**Table 2. Top 10 states producing California's Latino and non-Latino U.S. dental graduates, 2000**

	Latino Dentists Educated		Non-Latino Dentists Educated		
	No.	%	No.	%	
California	584	50.3%	California	13,729	56.9%
Illinois	20	1.7%	Illinois	1,202	5.0%
Wisconsin	13	1.1%	Missouri	605	2.5%
Nebraska	12	1.0%	Massachusetts	538	2.2%
Massachusetts	11	0.9%	District of Columbia	528	2.2%
Missouri	11	0.9%	Pennsylvania	511	2.1%
Texas	7	0.6%	Ohio	492	2.0%
District of Columbia	6	0.5%	New York	401	1.7%
New York	4	0.3%	Nebraska	383	1.6%
Ohio	4	0.3%	Wisconsin	290	1.2%
All Others	19	1.6%	All Others	1,837	7.6%

**Table 3. Top 10 dental schools for California Latino dentists, 2000**

UC San Francisco, CA	202
U Southern California, CA	131
UC Los Angeles, CA	128
U Guadalajara, Facultad, Mexico	73
U Pacific, CA	71
Loma Linda, CA	52
U Nacional Autonoma de Mexico	51
U Autonoma de Baja California, Tijuana, Mexico	29
U San Carlos de Guatemala	24
U Autonoma de Baja California, Tijuana, Mexico	19

## The Decline of the Latino Dentist Supply

Figure 1 shows the growth and shrinkage curves from 1943 to 1999 for each source of Latino dentists: California-educated, out-of-state-educated, and IDG. The year indicates the year of graduation from dental school, not the year that the dentist began to practice in California.

From 1943 to 1972, all the state's schools of dentistry combined managed to graduate an average of two to three Latino dentists each year who became licensed in California. As a result of affirmative action programs focusing on recruitment, admissions and retention commenced in the fall of 1969. As a consequence of these programs, when dental classes graduated four years later in 1973, the number of Latino graduates licensed in California more than tripled in one year. By the early 1980s, the state's schools were producing their greatest number of Latino graduates, reaching a high of thirty-four

graduates in 1983. After that high point, however, the number of Latino graduates who were subsequently licensed in the state has fallen steadily. Since 1991, the number has generally ranged between ten and twenty, with one anomalous spike of twenty-eight in 1993. Since the 1983 high, the number of Latino graduates of California schools subsequently licensed to practice in the state has declined by 59 percent.

Prior to 1973, due to the extremely small number of Latino dentistry graduates overall, out-of-state schools were an important factor in producing the supply of Latino dentists during that period. After that date, out-of-state schools became less important, as California schools ramped up their production. Only twice in the entire fifty-six-year period under analysis have out-of-state schools produced more than five graduates who ultimately entered dental practice in California. From the high point in 1991 (eight Latino graduates), the number of out-of-state graduates entering the pipeline to practice in California has fallen by 88 percent.

In the past, schools of dentistry in Mexico and Latin America have been an important source of Latino dentists. In the 1943 to 1985 period, these nations produced almost as many Latino graduates as the California schools. In fact, between 1979 and 1985, they produced more Latino dentists than the California schools, including forty-three Latino graduates from Mexico and Latin America in 1982 alone. Since then, however, the number of IDGs has fallen precipitously. Indeed, from its 1982 high to its 1999 low of zero (none) Latino graduates, the IDG element in the Latino dentist pipeline has fallen 100 percent.

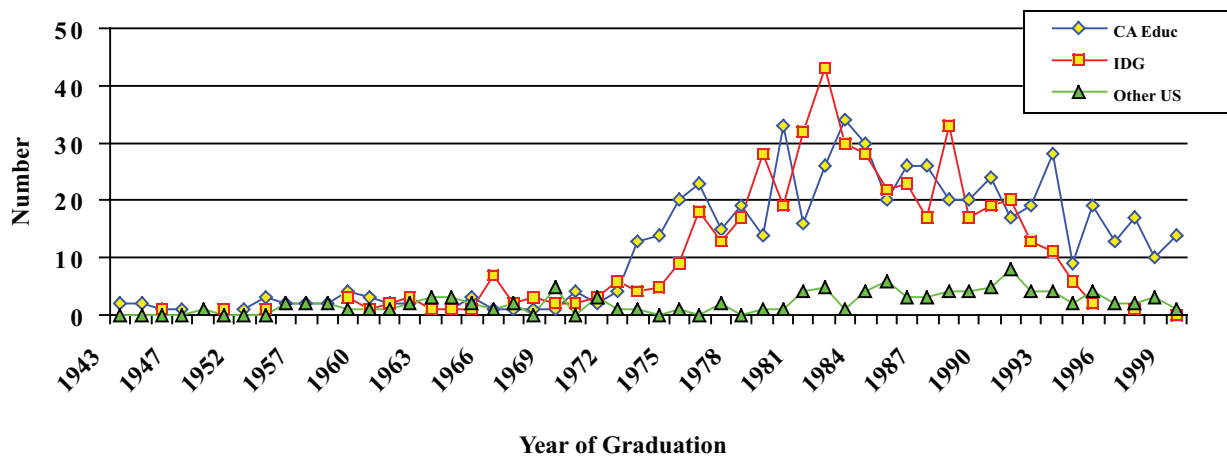


Figure 1. Sources of Latino dentists licensed to practice in California in 1999: California U.S. dental graduates, out-of-state U.S. dental graduates, and international dental graduates, 1943-1999

The sharp drop in Latino dentist graduates during the 1980-2000 period (-59 percent for California-educated, -88 percent for out of state, and -100 percent for the IDG graduates) contrasts sharply with the Latino population growth rate of 148 percent (from 4.4 million to 10.9 million) in California over that same period.

The non-Latino dentist supply into the California educational pipeline presents a different dynamic. The number of California-educated non-Latino graduates who chose to practice in the state has remained virtually steady since the early 1970s, around 400 per year. From the early 1960s to 1990, the number of out-of-state, non-Latino graduates remained fairly constant, at around 150 graduates per year. Since 1990, the number of out-of-state graduates has dropped by about one-third. The non-Latino IDG element, while not as important to the overall non-Latino dentist supply, also has fallen off since 1985, virtually to zero.

## Latino Dentist Characteristics

The Spanish language has been spoken by significant portions of the population in California since 1769, in an unbroken linguistic presence lasting more than 230 years.<sup>6</sup> In the 2000 census, nearly 52 percent of Latino adults (age eighteen to sixty-four) spoke

English only or spoke Spanish and English at a level of proficiency “very well.” These Latinos most likely would not require Spanish-fluent dentists. However, nearly 48 percent of Latino adults have some difficulty speaking English, at levels of proficiency “not at all,” “not well,” or only “well.” These adults most likely would require Spanish-speaking dentists.

The California dental license does not provide information about a dentist’s language ability; however, a different data set provides this information: the 2000 U.S. census Public Use Microdata Samples (PUMS), which provide detailed data about the language profiles of both non-Latino and Latino dentists in the state. Analysis of this data source reveals that less than 2 percent of non-Latino dentists reported speaking Spanish (1.4 percent), while over two-thirds of Latino dentists spoke Spanish (69.5 percent).<sup>7</sup>

Another key element in the quality of care is geographic accessibility. The dental license provides information to evaluate the geographic accessibility of a dentist. Each dental license is sent to an address; this address may, or may not, be the office location. Absent any further information, however, we used the zip code of the license address as a proxy measure for practice location.

Using the 2000 PUMS data, all zip codes in Los Angeles County were grouped into three Latino-

**Table 4. Licensing addresses for dentists by Latino component of zip code, Los Angeles County, 2000**

	Latinos				Non-Latinos			
	USDG		IDG		USDG		IDG	
	No.	%	No.	%	No.	%	No.	%
Low Latino (0-19%)	68	37.0	37	21.5	2,625	53.9	512	30.0
Moderately Latino (20-39%)	44	23.9	35	20.3	1,246	25.6	499	29.3
Heavily Latino (40-99%)	72	39.1	100	58.1	1,003	20.6	694	40.7
Total	184	100.0	172	100.0	4,874	100.0	1,705	100.0

USDG=U.S. dental graduates; IDG=international dental graduates

related categories: low Latino (less than 20 percent Latino population), medium Latino (20-39 percent Latino population), and high Latino (40 percent+ Latino population). The license address was matched to these zip codes. This analysis showed that Latino dentists were more than twice as likely to have a license address in a high Latino zip code, compared to non-Latino U.S. dental graduates. See Table 4 for a detailed breakdown.

## Discussion

Dentists travel through an educational pipeline, starting in elementary school and continuing through dental school in the United States and in Latin America and, at times, postdoctoral education. If Latinos were proportionately represented at all levels of the pipeline, there might not be a problem in proportionate representation in the dental profession. However, Latinos are disproportionately underrepresented in the higher levels of the educational pipeline.

While Latino representation in the state's supply of dentists is disproportionately small compared to Latino representation in the state's overall population, this disproportion will most likely become even worse under current conditions. In brief, the pipeline supplying Latino dentists to the state has virtually dried up, while the Latino population is increasing.

The supply of Latino dentists in California is not simply an affirmative action issue; it is one of access to care. The supply of Latino dentists in California offers two important characteristics that directly affect the quality of care offered to Latino populations: the ability to speak Spanish and a marked tendency to practice in heavily Latino areas. As Latino dentists are far more likely to speak Spanish and to practice in a heavily Latino area, their underrepresentation in the supply of dentists makes it

more difficult for Spanish speakers living in heavily Latino areas to find a dentist who is linguistically and geographically accessible.

The ratio of population to dentists yields another way to appreciate this underrepresentation. In the non-Latino population, for every non-Latino dentist, there are 950 non-Latino persons. By stark contrast, in the Latino population, for every Latino dentist there are 9,446 Latino persons.

The underrepresentation of Latino dentists can be quantified. If Latinos had been proportionately represented in the dentist supply—that is, if there were one Latino dentist for every 950 Latinos—there should have been 11,544 Latino dentists licensed to practice in 2000. As we were able to identify only 1,161, this means that there was a Latino dentist shortage of 10,383 Latino dentists in California. In 1996, the U.S. Health Resources and Service Administration, Bureau of Health Professions, reported a national dentist-to-population ratio of 1:5,400 for Hispanics. This data indicates a shortage of more than 5,000 Latino dentists, which is still a significant shortfall and definitely problematic.

If the ADEA goal of Core Value 5 were to be achieved in California, so that the state's diversity, especially the large and still rapidly growing Latino portion, were reflected in those who populate dental education, then the quality of care available to nearly one-third of the state's residents would be greatly enhanced. This would be accomplished by an increased Spanish language ability in the provider supply and a greater geographic accessibility as more dentists would choose to practice in heavily Latino areas.

The Latino dentist shortage is critical and getting worse. While the Latino population is projected to grow rapidly, the number of Latino dentists entering the pipeline to practice in the state is shrinking. Steps need to be taken immediately, for the short term and the long term.



*Increase supply of Latino USDGs.* The first step is to increase the number of Latino USDGs. As most of these historically have come from California schools, the emphasis needs to be on them. It appears that, at one point, the state's schools were able to increase dramatically the number of Latino dental students. From 1970 to 1980, Latino graduates entering the pipeline grew eightfold, from four to thirty-three. Clearly, dental schools have the capacity to increase Latino enrollments. The pool from which dental students may be recruited and selected has grown enormously. Between 1990 and 2000, not only did the Latino population grow by 42.7 percent (from 7.7 million to 10 million), but the pool of educated Latinos grew even more rapidly. The number of high school graduates grew by 62.4 percent, and the number of Latinos with graduate and/or professional degrees grew by 60.9 percent.<sup>7</sup> With a growing population of highly educated Latinos, it would seem logical to expect to see a concomitant increase in Latino dental students.

Instead, the dramatic drop in Latino graduates entering the pipeline indicates that dental school efforts and activities are badly out of synch with the state's population changes. A review of the recruitment and admissions procedures employed in the 1970s and 1980s could provide valuable insight about how to increase the number of Latino enrollments quickly.

*Increase cultural competence of non-Latino dentists.* The Latino dentist shortage is so large—10,383 for the year 2000—that even dramatic increases in Latino enrollments will not be sufficient to make up the shortfall. A parallel effort will have to be made to increase the cultural competency of non-Latino dentists, so as to create greater access to services for Latino patients. Latino providers in closely related fields have shared the opinion that cultural competency is a learned set of skills and attitudes, potentially available to anyone who invests the time to master them. A recent book, *Healing Latinos: Fantasia y Realidad*,<sup>8</sup> was written by a variety of Latino providers (although unfortunately, no Latino dentists participated) to share with their non-Latino colleagues how they go about providing culturally competent care to their Latino patients.

Cultural competency is also seen in structural issues, such as location of practice and acceptance of Medi-Cal. These can be addressed by programs of incentives and rewards to induce more dentists to locate in heavily Latino areas and work with the insurance profile encountered there.

*Increase supply of Latino IDGs.* An immediate, albeit controversial, short-term solution was recently proposed by the California state legislature: the chair of the powerful Latino Caucus in the State Assembly (Marco Firebaugh) introduced a bill, AB 1045,<sup>9</sup> to fast-track the immigration of a limited number of dentists and physicians educated in Mexico to practice in extreme shortage areas in rural California. Approved by the governor of California on September 30, 2002, the law has created the Licensed Physicians and Dentists from Mexico Pilot Program. The law allows thirty licensed dentists from Mexico to practice dentistry in California for a period not to exceed three years. Dentists from Mexico eligible to participate in this program need, among other requirements, to be graduates of the National Autonomous University of Mexico School of Faculty Dentistry and to complete an orientation program taught by an instructor affiliated with a California dental school. The law authorizes a three-year nonrenewable dental permit for participating dentists and would prohibit these licenses from being used as the standard for issuing a license to practice dentistry in the state on a permanent basis. The 2003-04 budget crisis in California stopped implementation of the law, but it remains on the books. If organized dental groups do not provide options for the legislature, it would not be surprising if more such measures were introduced.

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## Conclusion

The Latino dentist shortage is critical and getting worse, affecting the Latino population's ability to find linguistically and geographically accessible dentists. If dental education does not step forward to offer a solution, it is probable that lawmakers will provide one of their own. We strongly urge those interested in dental education to initiate short-term and long-term solutions to this serious problem, so as to create a win-win situation.

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