

# **Distribution of Medicaid Dental Services in California**

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## **Executive Summary**

In California, approximately 4.5 million Medicaid beneficiaries are eligible for dental services, yet fewer than half (44%) utilize these services on an annual basis. While several factors may contribute to this low use of dental services, a major deterrent is finding a dentist who will accept Medicaid. Using Medical Service Study Areas (MSSAs) as the definition of a community, this report provides a picture of private practice dentists' participation in Medicaid across California. Of the 487 MSSAs in California, 108 have no active Medicaid dentists (MCDs). Half of the MSSAs in California have less than one MCD per 1,000 Medicaid beneficiaries.

While low supply of dentists serving the Medicaid population is ubiquitous to California, the problem is greater in rural communities. This report determined that low supplies of MCDs in rural communities are largely a factor of overall shortages in dental workforce supply. Policies that seek to expand dental services to Medicaid beneficiaries in rural communities must address the overall shortage of dental care providers in these areas.

In urban areas, dental workforce supply does not dictate Medicaid participation; in fact, participation appears to be inversely correlated with overall workforce supply. Across urban areas, however, primary care dentists actively seeing Medicaid beneficiaries are concentrated within those communities that are most in need of services. These patterns mimic physician participation in the Medicaid program; increasing workforce supply and competition causes providers to specialize in either the private or public market. These findings suggest that in urban areas targeting those dentists most likely to serve this community might increase the number of dentists serving Medicaid beneficiaries. In doing so, it may be necessary to look beyond the private practice, and find solutions within the larger dental safety net.

There is no significant association between active MCDs and the presence of a dental clinic in a community. This implies that dental clinics are not consistently serving as a safety net in communities where there are no or low levels of private dentists serving the Medicaid population. However, the presence of medical clinics in these areas suggests that these clinics may provide a starting point for expanding the dental safety net in underserved Medicaid communities.

*“I’d like to tell the children of the world—quit eatin’ so much candy. I have 3 rotten teeth, and they’re bad—had to have one of them pulled. I can’t chew my food like I should. Eat natural food, because we must whip Mr. Tooth Decay.”*

*--Muhammad Ali*

In 1974 Muhammad Ali articulated a problem that is only now rising to the top of the nation’s health care agenda. Despite a century of improvements in the delivery and utilization of dental care, dental caries (cavities) is the most prevalent chronic childhood disease (Milgrom 1998). Over 50 percent of children have dental caries in their primary teeth by the first grade, and over 80 percent of adolescents have dental caries by age seventeen (National Maternal and Child Oral Health Resource Center 1999). Nationally, low-income children, as well as low-income adults, are the most at-risk for dental diseases, in part due to a lack of access to dental care services. Despite Federal requirements that states provide dental services to children under the Medicaid program, a 1996 report by the U.S. Department of Health and Human Services’ Office of Inspector General found that only one in five enrolled children receives preventive dental services (Office of Inspector General 1996). In California, approximately 4.5 million Medicaid beneficiaries are eligible for dental services,<sup>1</sup> yet fewer than half (44%) utilize these services on an annual basis (Personal communication, Robert Isman).

While several factors contribute to the low use of dental services among Medicaid beneficiaries, the major deterrent is finding a dentist to treat them (GAO 2000; Mayer 2000). In *Clark v. Kizer* (1990), a California court found that fewer than 40% of private practice dentists in California treated Medicaid patients, falling below the national standard of 50% cited in the HCFA Medicaid Manual (Institute 1999). Often, Medicaid beneficiaries live in communities where dental providers are generally in short supply, but many others live in areas where dental care for the rest of the population is readily available. Studies document low payment rates,

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<sup>1</sup> For more information on the Medicaid dental benefit in California, see **Appendix I**

administrative requirements, and patient issues such as frequently missed appointments as the primary reasons why dentists do not treat Medicaid patients (Office of Inspector General 1996; GAO 2000; USDHHS 2000). It is important to determine the cause of low service utilization among private dentists when making efforts to increase access to dental care for the Medicaid population in California.

The Center for California Health Workforce Studies (CCHWS) recently released a report on the distribution of primary care dentists in California. This study showed that many communities in California have an insufficient number of dentists to meet the demands of the population (Mertz 2000). In some areas of California, the low numbers of dentists available to treat the Medicaid population may be a result of low numbers of dentists in the community overall. In other parts of California, however, there are sufficient numbers of dentists to meet the demands of the community. Here, low Medicaid participation among dentists is due to other factors, such as perceived financial constraints or attitudinal barriers of the provider.

This report builds on the work of the CCHWS to look specifically at the current state of Medicaid beneficiaries' dental supply in California. Considering the pool of private dentists in California, this report seeks to answer the following questions:

- 1. To what extent is the supply of dentists treating the Medicaid population a result of the number of dentists overall?**
- 2. Are community characteristics predictive of primary care dentists' participation in the Medicaid program?**
- 3. In areas with low supply of private Medicaid dentists, are clinics serving as a safety net and caring for those individuals who might otherwise fall through the cracks?**

This last question goes beyond the scope of private dentists. Nationally, 90% of all dentists provide care in private practices (Ingargiola 2000), thus magnifying the importance of private dentists' participation in the Medicaid program. Nevertheless, for Medicaid beneficiaries

without access to a private dentist, dental clinics are invaluable. The extent to which these clinics compensate for deficiencies in private dentist participation may be telling.

Through answering these questions, we hope to provide a better picture of the supply of Medicaid dentists within California's communities.

### ***Definition of Community***

This analysis examines the levels of primary care dentists actively seeing Medicaid beneficiaries by Medical Service Study Areas (MSSAs). An MSSA is a rational service area used by state agencies such as the Office of Statewide Health Planning and Development (OSHPD) for the administration of various programs, notably for federal Health Professional Shortage Area (HPSA) designations. These areas are aggregates of census tracts. They are designated by the California Health Manpower Policy Commission (CHMPC), and are considered rational service areas for health professions analysis and programs. In 1998 there were 487 MSSAs in the state. MSSAs were originally created for state programs focusing on primary care physicians. They take into account natural rational service boundaries such as rivers and lakes, and demographic boundaries such as population, income, and neighborhoods.

### ***Methodology***

The primary data used in this analysis is Denti-Cal paid claims data provided by Delta Dental Plan of California. These data provided information on dentists' Medicaid claims and the number of Medicaid beneficiaries receiving services. The California Department of Health Services, Medical Care Statistics Section, provided data on total numbers of Medicaid beneficiaries. The study considers all private practice primary care dentists (general and pediatric dentists) who submitted any Medicaid claims in 1998. The universe of primary care dentists submitting paid claims was separated into two categories; those dentists seeing 100 or

more Medicaid beneficiaries per year were considered “active” Medicaid dentists while those were seeing fewer than 100 Medicaid beneficiaries were considered “non-active” primary care dentists. Because we are interested in identifying those primary care dentists actively participating in the Medicaid program, unless otherwise noted, these were the dentists considered in our analysis. For a detailed explanation of the data and methods see **Appendix II**.

The primary measure used is the *ratio of primary care Medicaid Dentists (MCD) per 1,000 Medicaid beneficiaries*. The MCD to beneficiary ratio is similar to the measure used in the CCHWS study to assess workforce shortage areas (number of primary care dentists per 5,000 members of the population). Appropriate numbers of primary care dentists (PCDs) for the whole population are set at the federal level through the Public Health Service Act. While this ratio has been criticized as an insufficient measure for accurately capturing the workforce needs of a community, it remains significant in the policy arena as a measure for allocating Federal funds to underserved communities (Goodman and Weyant 1990). No equivalent measure exists for assessing the workforce levels necessary to meet the needs of Medicaid beneficiaries. However, the MCD to beneficiary ratio provides a gauge to compare the supply of Medicaid dentists across California. This analysis assumes that certain communities are meeting the dental workforce demands of their beneficiary population better than others. But “better” does not mean “sufficient;” an MSSA with a “high” MCD to beneficiary ratio relative to other MSSAs is not necessarily meeting the dental care needs of their Medicaid population.

The other measure used in this analysis is the *overall provider propensity for seeing Medicaid beneficiaries*. This is a measure of primary care dentists seeing Medicaid beneficiaries as a proportion of the total number of primary care dentists in the community. There is a significant body of literature in the medical field that measures relative provider participation in

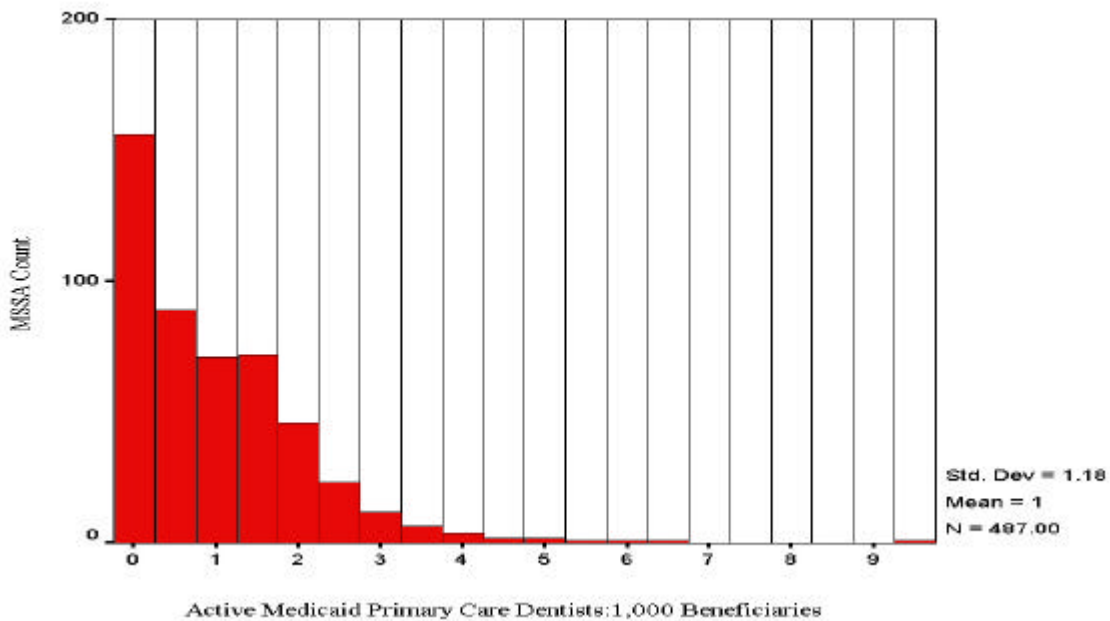


Medicaid relative to overall workforce supply. In these studies, provider participation rates offer insight into the communities receiving care, as well as the types of policies that may be effective or ineffective in increasing access to services.

### ***Medicaid Dentist Supply in California***

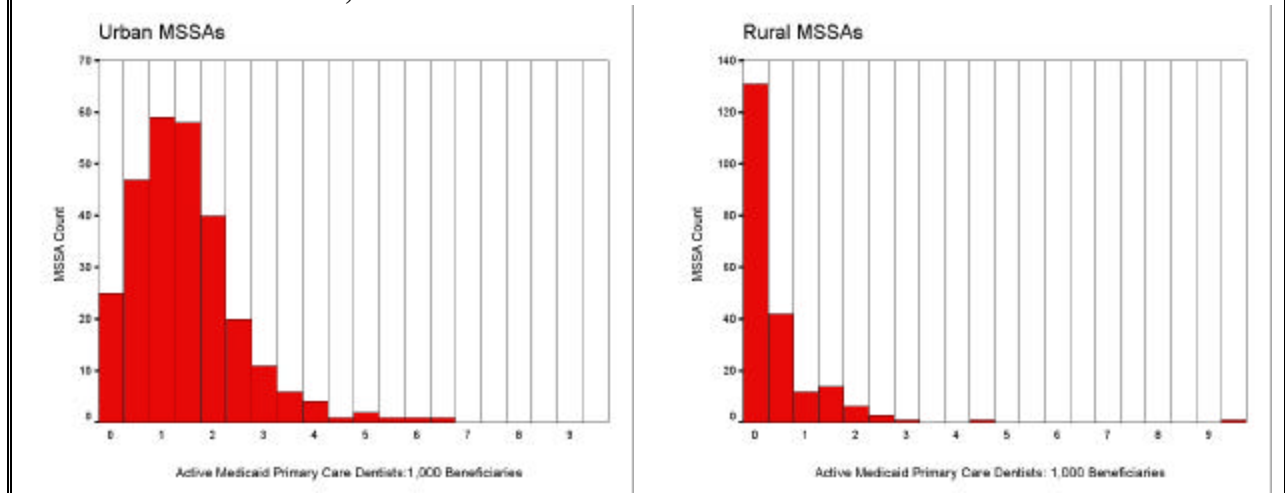
Of the 487 MSSAs in California, 108 have no active Medicaid dentists. Half of the MSSAs in California have fewer than one MCD per 1,000 Medicaid beneficiaries. Considering that, for the majority of dentists actively treating Medicaid beneficiaries, the Medicaid population makes up only a fraction of their total practice, this number is particularly low.

**Figure 1: Active Medicaid Primary Care Dentists per 1,000 Beneficiaries, all MSSAs, California, 1998**



Across California, supply levels seem evenly distributed; with the exception of a few outliers, the range of MCD per 1,000 beneficiaries lies between zero and seven. There appears, however, to be a significant difference in levels of supply across rural and urban MSSAs.<sup>2</sup>


**Figure 2: Active Medicaid Primary Care Dentists per 1,000 Medicaid Beneficiaries Urban & Rural MSSAs, California 1998**



While MCD to beneficiary ratios appear normally distributed for urban MSSAs, workforce supply for rural MSSAs seems disproportionately concentrated within the lower supply levels. The mean MCD to beneficiary ratio for urban MSSAs is 1.7 dentists per 1,000 beneficiaries. The ratio is much smaller in rural MSSAs—only 0.6 MCDs per 1,000 beneficiaries.

Observing supply levels by quartiles (where the first quartile contains those ratios reflecting the lowest levels of supply, and the fourth quartile contains those ratios reflecting the highest levels of supply), this difference becomes even more apparent. Only 25% percent of urban MSSAs fall within the bottom half of supply status, while 82% of rural MSSAs fall within the bottom half of supply status.

<sup>2</sup> An MSSA is rural if: 1) the population density is 250 persons per square mile or less, 2) the area does not contain a significant portion of an incorporated city with a total population of greater than 50,000 (the definition of “significant portion” is being developed), or 3) the MSSA meets the population density requirement but contains a significant portion of a city over 50,000. In such cases, the California Health Manpower Commission (CHMPC) can override based on their judgment and designate rural. (There are seven of these special designations.)

		<b>Urban</b>	<b>Rural</b>	<b>Total</b>
Highest supply 	<b>Fourth quartile</b> (% within quartile)	103 (84.4%)	19 (15.6%)	122 (100.0%)
	<b>Third quartile</b> (% within quartile)	103 (84.4%)	19 (15.6%)	122 (100.0%)
	<b>Second quartile</b> (% within quartile)	60 (49.2%)	62 (50.8%)	122 (100.0%)
Lowest supply	<b>First quartile</b> (% within quartile)	10 (8.3%)	111 (91.7%)	121 (100.0%)
	<b>Total</b> (% within total)	276 (56.7%)	211 (43.3%)	487 (100.0%)

Looking at supply levels overall, we see that over 84% of all MSSAs with the highest MCD to Medicaid beneficiary ratios are urban, and over 90% of all MSSAs with the lowest ratios are rural.

These differences in distribution of supply between urban and rural MSSAs may be attributable to a number of overarching differences between these two communities. The previous CCHWS study reflected similar disparities between urban and rural MSSAs; 31.3% of rural MSSAs compared with 11.2% of urban MSSAs have primary care dentist (PCD) to population ratios that would qualify them as communities with a “shortage” of dentists (Mertz 2000). For this reason, it is prudent to evaluate whether the supply of Medicaid dentists in a community is simply a reflection of overall workforce levels in the community.

**Question 1:** *To what extent is the supply of dentists treating the Medicaid population a function of the number of dentists in the population overall?*

If workforce policies are to be most effectively targeted, it is important to determine to what extent the number of dentists treating Medicaid beneficiaries is dependent on the number of dentists in a community overall. A Spearman (rank) correlation reveals that, across MSSAs, there is a significant association between the PCD to population ratio and the MCD to beneficiary ratio; those communities with greater numbers of primary care dentists available to

treat the community tend to have greater numbers of dentists participating in the Medicaid program.

			<b>Primary Care Dentists per 5,000 pop.</b>
Spearman's rho	<b>Active Primary Care Medicaid Dentists per 1,000 Medicaid Beneficiaries</b>	Correlation Coefficient	.549**
		N	487

\*\*Correlations significant at the 1% level (2-tailed)

Across California, the supply of primary care dentists treating Medicaid beneficiaries appears to be a function of the overall supply of dentists in a community. Given that rural communities generally have fewer dentists than urban areas, and that the average number of active primary care Medicaid dentists per 1,000 Medicaid beneficiaries is lower in rural communities than urban areas, we sought to determine the extent to which the association between overall dentist supply and Medicaid dentist supply was consistent within urban and rural communities.

For the purpose of this examination, we divided the MSSAs into three equal categories—*low*, *medium* and *high*—based on the rank of their PCD to population ratios. To establish an association between PCD levels and MCD levels in urban and rural communities, we looked at where MSSAs with the lowest MCD to beneficiary ratios fell across these three categories.<sup>3</sup>

<sup>3</sup> Because half of the rural MSSAs in California have no active primary care Medicaid dentists (dentists who see 100+ Medicaid beneficiaries per year), we examined those communities with the lowest supply of primary care Medicaid dentists per 1,000 beneficiaries, regardless of the dentists' activity status. This provides a better sense of relative supply distribution across rural MSSAs.

**Table 3: Association Between Overall Primary Care Dentist Supply and Levels of Primary Care Medicaid Dentists, Urban/Rural, California, 1998**

Primary Care Dentist Supply <sup>†</sup>	Total number of MSSAs	Number of MSSAs with Low Supply <sup>††</sup> of Medicaid Dentists (Percent)	
		Urban — Active Dentists*	Rural — ALL Dentists
<b>Low</b>	<b>162</b>	<b>34 (49.3%)</b>	<b>76 (73.1%)</b>
<b>Medium</b>	<b>163</b>	<b>20 (29.0%)</b>	<b>21 (20.2%)</b>
<b>High</b>	<b>162</b>	<b>15 (21.7%)</b>	<b>7 (6.7%)</b>
<b>Total</b>	<b>487</b>	<b>69 (100.0%)</b>	<b>104 (100.0%)</b>

<sup>†</sup> Primary Care Dentist Levels are measured as the number of primary care dentists (PCDs) per 5,000 members of the population.. *Low* = 0 to 1.56 PCDs; 5,000 members (n = 162); *Medium* = 1.56 to 3.05 PCDs per 5,000 members (n = 163); *High* = 3.05 to 18.66 PCDs per 5,000 members (n = 162)

<sup>††</sup> MSSAs with Low Supply are those whose ratio of Medicaid dentists per 1,000 Medicaid beneficiaries falls within the lowest quartile of total values. Urban and rural MSSAs were divided into quartiles separately.

\* Active dentists are those dentists seeing 100+ Medicaid beneficiaries per year.

As expected, in both urban and rural areas, low MCD to beneficiary ratios appear to be more prevalent in MSSAs with low PCD to population ratios. Yet, overall dentist supply appears to be more of a limiting factor in rural communities than in urban. Nearly three-quarters (73.1%) of rural MSSAs with low numbers of Medicaid dentists are in areas with generally low workforce levels. This suggests that the number of dentists available to treat Medicaid beneficiaries in rural communities is largely a function of the number of dentists in the community overall. In contrast, fewer than half (49.3%) of the urban MSSAs with low Medicaid dentist supply are in areas with low levels of primary care dentists. In urban areas it is likely that factors external to the number of dentists in the workforce significantly affect the number of dentists serving the Medicaid population.

Comparing the overall provider propensity for seeing Medicaid beneficiaries (as measured by the percentage of primary care dentists in a community actively treating Medicaid beneficiaries) to PCD ratios reveals further differences between the supply of primary care Medicaid dentists in rural and urban communities. Spearman rank correlation reveals that provider propensity and PCD supply are positively associated in rural MSSAs ( $r = 0.219$ ;  $p =$

.01). This association follows the pattern found in the two previous measures; in rural areas the number of dentists participating in Medicaid is closely tied to the number of dentists in the community overall.

<b>Table 4: Correlation between provider propensity to participate in Medicaid* and the ratio of Primary Care Dentists per 5,000 members of the Population, California 1998</b>			
Spearman rho			<b>Primary Care Dentists: 5,000 pop.</b>
<b>Percentage of total PCDs that are active Medicaid dentists</b>	<b>Urban</b>	Correlation Coefficient	-0.611**
		N	276
	<b>Rural</b>	Correlation Coefficient	0.219**
		N	211

\* As measured by the percentage of primary care dentists in a community actively treating Medicaid beneficiaries

\*\*Correlations significant at the 1% level (2-tailed)

In urban areas, the opposite is true; provider propensity and PCD shortage levels are negatively associated in urban MSSAs ( $r = -0.611$ ;  $p = .01$ ). As the number of primary care dentists in an urban area increases, the percentage of overall dentists actively seeing Medicaid beneficiaries decreases. While this relationship may seem counterintuitive, it is consistent with multiple studies on physician participation in the Medicaid program (Perloff 1986; Fossett 1989). These studies have found that the supply of physicians in an area is inversely associated with the extent of participation in the Medicaid program. In their 1989 study, Fossett and Peterson conclude that both demography (location of Medicaid patients) and practice economics (factors such as the cost of running a practice and Medicaid reimbursement levels) create strong incentives for physicians in competitive urban areas to take either very few Medicaid patients or a great many, while imposing considerable costs on physicians who attempt to operate between these two extremes (Fossett 1989). If this reasoning followed for PCDs in urban areas, one would expect to see dentists participating in the Medicaid program positioned within communities where they might best access high volumes of Medicaid beneficiaries. Further analysis is necessary to determine the extent to which this is the case.

Two points can be drawn from this analysis: 1) In rural areas, overall dentist supply is a significant limiting factor in the number of MCDs available to treat the Medicaid population and 2) in urban areas, overall workforce supply does not seem to be as great a determinant of MCD levels. In fact, the supply of PCDs in an urban area is inversely associated with the number of dentists participating in the Medicaid program. These findings suggest that in rural areas, policies that target overall workforce supply may be necessary to address the need for more dentists to treat the Medicaid population. In urban areas where overall workforce supply is not the primary factor dictating the number of dentists treating Medicaid beneficiaries, further investigation into effective strategies for increasing participation are necessary.

***Question 2: Are community characteristics predictive of primary care dentists' participation in the Medicaid program?***

The characteristics of a community help paint a picture of dental service provision in California. Pearson's bivariate correlations reveal a number of significant associations between community characteristics and provider propensity to participate in the Medicaid program (as measured by percent of total primary care dentists that are actively accepting Medicaid beneficiaries). As would be expected, providers are more likely to participate in the Medicaid program if they practice in areas with a greater number of Medicaid beneficiaries. This relationship is statistically significant ( $p = 0.01$ ) in both urban and rural communities, although the association between provider participation and the number of individuals in Medicaid is stronger in urban communities.

In fact, there are a number of strong relationships between provider participation and community characteristics across urban MSSAs. Urban primary care dentists' participation in Medicaid is positively correlated ( $p = 0.01$ ) with the percent of the community that is low-

income. Participation is also positively correlated ( $p = 0.01$ ) with the percent of the community that is African-American, Hispanic, Native American, and under 18 years of age. Conversely, participation is negatively correlated ( $p = 0.01$ ) with the percent of the community that is Caucasian. These findings suggest that across urban areas, primary care dentists actively seeing Medicaid beneficiaries are concentrated within those communities that are most in need of services. This supports the hypothesis presented in the previous section: that increased workforce supply and competition causes providers to specialize in either the private or public market. Medicaid participation among dentists in “at-risk” communities is higher, whereas participation in higher income, primarily Caucasian areas is lower.

	<b>Communities</b>	
	<b>Urban</b> ( <i>n</i> = 276)	<b>Rural</b> ( <i>n</i> = 211)
<b>Percent Medicaid Beneficiary</b>	0.680**	0.297**
<b>Percent African-American</b>	0.425**	0.032
<b>Percent Hispanic</b>	0.537**	0.203**
<b>Percent Asian</b>	-0.025	0.261**
<b>Percent Native American</b>	0.228**	-0.127
<b>Percent Caucasian</b>	-0.304**	0.002
<b>Percent Under 18 years</b>	0.549**	0.208**
<b>Percent 65 years and over</b>	-0.306**	-0.016
<b>Percent Low-income</b>	0.492**	-0.140*

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

Data shown are Pearson correlation coefficients for variables listed and provider propensity to participate in Medicaid (percent of total primary care dentists actively accepting Medicaid beneficiaries)

In rural areas, these patterns are not as prevalent. There is a positive correlation ( $p = 0.01$ ) between provider participation and the percent of the population that is Hispanic, Asian, and under 18 years of age. However, there is a negative correlation ( $p = 0.05$ ) between provider participation and income; providers are less likely to participate in areas with a greater number of low-income individuals. This supports the finding of the previous section. Overall workforce



supply is lower in rural areas with a higher number of low-income residents (Mertz 2000). The negative association between low income residents and provider participation bolsters the previous conclusion that provider participation decreases when overall workforce supply decreases.

Thus, differences in community characteristics support the differences in primary care dentist participation already seen between urban and rural communities. In rural areas, overall workforce supply appears to be the greatest limiting factor in the supply of MCDs. In urban areas, there is an inverse relationship between overall workforce supply and participation, but patterns across communities show that active Medicaid dentists are concentrated in those areas where beneficiaries are most likely to seek care. Studies on physician participation in Medicaid suggest that these behavior patterns limit the effectiveness of strategies such as fee increases when trying to increase participation in the Medicaid program (Fossett 1989). Rather than creating policies addressing the workforce as a whole, in urban areas, the number of dentists serving Medicaid beneficiaries might be increased by targeting those dentists most likely to serve this community. In doing so, it may be necessary to look beyond the private practice, and find solutions within the larger dental safety net.

***Question 3: In areas with low supply of private Medicaid dentists, are clinics serving as a safety net?***

While our evaluation only considers private primary care Medicaid dentists, the public dental clinic may serve as a vital source of care for many beneficiaries. There are over eight hundred

clinics in California providing a host of services to California’s underserved populations.<sup>4</sup> Of these clinics, approximately 200 provide dental services.

When evaluating the level of care available to Medicaid beneficiaries it is important to consider the presence of a dental clinic; the level of available care may be underestimated if a clinic is present to compensate for the lack of private dentists accepting Medicaid beneficiaries. Yet, our analysis found no significant association between low levels of active MCDs and the presence of a dental clinic in a community, implying that dental clinics are not consistently serving as a safety net in communities where there are no or low levels of private dentists serving the Medicaid population. However, where clinics are present, particularly if there are multiple providers available at the clinic, utilization has increased for Medicaid beneficiaries (Personal Communication, Robert Isman).

**Table 6: Average (Mean) Number of Dental Clinics in Urban and Rural MSSAs by Medicaid Dentist Supply Levels, California, 1998**

	<b>Medicaid Dentist Supply</b> <sup>†</sup>	<b>N</b>	<b>Average (mean) number of dental clinics</b>
<b>Urban</b>	Low	138	0.51
	High	138	0.57
<b>Rural</b>	Low	106	0.35
	High	105	0.41

<sup>†</sup> Medicaid dentist supply is measured by the number of active Medicaid dentists per 1,000 Medicaid beneficiaries. “Low” and “High” was determined by dividing total ratios for urban and rural MSSAs at the median.

Our analysis did reveal, however, that over half of both urban and rural communities with low MCD to beneficiary ratios do have medical clinics (60.1% of urban, 50.8% of rural). These medical clinics might be expanded to provide dental services to the Medicaid beneficiaries.

<sup>4</sup> Services include general medical, perinatal, public health/preventive services, mental health, drug rehabilitation, abortions, disease specific treatment centers and dental clinics. Our estimate is that just over 600 of these clinics provide general medical and/or dental services.

**Table 7: Medical and Dental Clinics in MSSAs with Low Supply <sup>†</sup> of Primary Care Medicaid Dentists, Urban/Rural, California 1998**

	Number of MSSAs	Number of MSSAs with <b>NO</b> Dental Clinics (Percent)	Number of MSSAs with Medical Clinics <sup>††</sup> (Percent)	Number of MSSAs with Medical Clinics but currently without a Dental Clinic (Percent)
Urban – Active Dentists*	69	44 (63.8%)	42 (60.1%)	<b>17(24.6%)</b>
Rural – ALL Dentists	104	81 (77.9%)	58 (55.8%)	<b>35 (33.7%)</b>
<sup>†</sup> MSSAs with Low Supply are those whose ratio of Medicaid dentists per 1,000 Medicaid beneficiaries falls within the lowest quartile of total values. Urban and rural MSSAs were divided into quartiles separately. <sup>††</sup> Medical clinics include all clinics providing primary medical services, preventive services and/or dental services * Active dentists are those dentists seeing 100+ Medicaid beneficiaries per year.				

Many states, including California, have had limited results from policies which aim to increase access to dental services for Medicaid beneficiaries by targeting private dentists (Center for Policy Alternatives 1999; Ingargiola 2000). While strategies for increasing participation among private dentists should be advanced, expanding the safety net may be a more viable option. In one study, after providing increased Medicaid financing in conjunction with an increased number of community health centers in five low-income neighborhoods, dental care utilization increased from 33 to 80 percent. The study concluded that, because Medicaid dental insurance by itself has been ineffective in boosting utilization among the poor, the supply of public clinics was an important determinant of the increased utilization (Grembowski 1989). Dental services to the Medicaid population could be increased by expanding currently existing medical clinics.

### **Limitations of Analysis**

Many of the limitations encountered in conducting this analysis are derived from the collection of the original data. One example, discussed in detail in **Appendix II**, is the “double counting” of Medicaid beneficiary users in the Denti-Cal paid claims data provided by Delta

Dental which prevented using these data to quantify the volume of utilization at the community level.


Further, limitations exist in the ability of available data to truly quantify the needs of Medicaid beneficiaries in California. Even when private primary care dentists participate in the Medicaid program, in many communities families have reported difficulty getting timely dental appointments for their children, sometimes waiting up to eight weeks to be seen (Aved 1996). While more dentists serving these communities may, in theory, reduce problems like long-wait times, they still do not measure other factors that influence the ease in which patients obtain care or the quality of care received once access is achieved.

Since 1998, Delta Dental and the California Department of Health Services have implemented a number of programs to begin to address the low participation of private dentists as well as the low utilization among Medicaid beneficiaries. It is too early to determine if these programs will have a significant long-term impact on improving access to dental care services for the Medicaid population in California. However, it is possible that these programs have increased the level of private dentists' participation in Medicaid over the last two years.

### **Water Fluoridation**

When evaluating access to dental care for the Medicaid population, it is also important to consider the population's access to good oral health. Water fluoridation is the most cost-effective means of preventing and decreasing the severity of dental caries. The benefits of fluoridation include reduced frequency and severity of tooth decay, decreased need for tooth extractions and fillings, and reduced pain and suffering associated with tooth decay (Prevention 2000). California has required the fluoridation of drinking water for communities with more than 10,000 service connections (approximately 25,000 population) since 1996. Yet, the law

provides no funds for construction of new systems or their operation. In 1998, only 69 of the 487 MSSAs in California were fully or partially fluoridated.<sup>5</sup> There is a clear pattern across supply status levels; those MSSAs with higher MCD per beneficiary ratios are more likely to have fluoridated water than MSSAs with lower MCD ratios.

		Fluoridation Status		
		Water Fluoridation	No Fluoridation	Total
Highest supply  Lowest supply	<b>Fourth quartile</b>	26	96	122
	<b>Third quartile</b>	22	100	122
	<b>Second quartile</b>	15	107	122
	<b>First quartile</b>	6	115	121
	<b>Total</b>	69	418	487

The fact that water fluoridation is more common in urban, wealthier communities is a likely explanation for this pattern; we have already established the relationship between higher incomes and urban status with MCD supply status. Yet, it is important to emphasize the fact that, across California, those individuals who might benefit the most from fluoridated water are also the least likely to receive it.

**Conclusion**

While low supply of dentists serving the Medicaid population is ubiquitous to California, the problem is greater in rural communities where low supplies of MCDs are largely a factor of overall shortages in dental workforce supply. Policies that seek to expand dental services to Medicaid beneficiaries in rural communities must address the overall shortage of dental care providers in these areas.

In urban areas, dental workforce supply does not dictate Medicaid participation; in fact, participation appears to be inversely correlated with overall workforce supply. Across urban areas, however, primary care dentists actively seeing Medicaid beneficiaries are concentrated

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<sup>5</sup> In 2000 the City of Sacramento and parts of Los Angeles County went “on-line.” This increases the number of

within those communities that are most in need of services. These patterns mimic physician participation in the Medicaid program; increasing workforce supply and competition causes providers to specialize in either the private or public market. These findings suggest that in urban areas the number of dentists serving Medicaid beneficiaries might be increased by targeting those dentists most likely to serve this community. In doing so, it may be necessary to look beyond the private practice, and find solutions within the larger dental safety net.

There is no significant association between active MCDs and the presence of a dental clinic in a community. This implies that dental clinics are not consistently serving as a safety net in communities where there are no or low levels of private dentists serving the Medicaid population. However, the presence of medical clinics in these areas suggest that these clinics may provide a starting point for expanding the dental safety net in underserved Medicaid communities. Our study documents the need for overall workforce enhancement in rural areas where access to dental care for Medicaid beneficiaries is the lowest. It also shows that in urban areas with strong workforce competition, incentives such as fee enhancements may not be effective in increasing participation in the Medicaid program. In both scenarios, expanding the dental safety net may be the most viable short-term solution for increasing access to dental care for Medicaid beneficiaries.

Finally, policymakers must consider the impact of water fluoridation when looking at Medicaid beneficiaries' access to good oral health. Water fluoridation is the most cost-effective means of preventing and decreasing the severity of dental caries, yet across California, those individuals who might benefit the most from fluoridated water are also the least likely to receive it.

## **Appendix I: Dental Services Under Medicaid** (Institute 1999)

The Medicaid program, established as Title XIX of the Social Security Amendments of 1965, was designed to provide health care for all indigent and medically indigent persons, with funding shared between federal and state governments. Federal law requires all states to provide dental services to eligible children under age 21 as part of the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) service. In California, EPSDT services are administered under the Child Health and Disability Prevention program (CHDP) with the exception of the treatment component, which is provided under Medicaid. Provision of adult dental services in the Medicaid program is optional. Over 90% of Medicaid beneficiaries in California—adults and children—are eligible for a range of dental health services. Medi-Cal, California's Medicaid program, administers these programs through the California Department of Health Services' Office of Medi-Cal Dental Services (OMDC).

Medi-Cal currently covers a comprehensive package of dental benefits for both children and adults. Covered services include diagnostic and preventive services such as examinations and prophylaxis (cleaning), restorative services such as fillings, and oral surgery services. Some services, such as crowns, dentures and root canals require prior authorization and some services such as dental sealants, fluoride applications and limited orthodontic care are covered only for children under age 21.

Medi-Cal provides fee-for-service dental care (Denti-Cal) through a contract with Delta Dental Plan of California (Delta Dental). A small amount of dental care (approximately 7%) is provided through managed care plans. Medi-Cal's dental services are funded through the same federal-state match formula as are other Medi-Cal services. The Federal Matching Assistance Percentage for FY 1998-99 was 51.55%. On average, dental services represent less than 4% of total Medi-Cal expenditures annually.

## **Appendix II: Methodology**

Data for this analysis were derived from six sources. The American Dental Association supplied information on the number of active dentists in California. MapInfo Data provided by R.L. Polk supplied current demographic information by MSSA for the year 1998. MSSA data were provided by the Office of Statewide Health Planning and Development (OSHPD).<sup>6</sup>

### ***Denti-Cal Paid Claims Data***

1998 Denti-Cal paid claims data were supplied by Delta Dental. These data were used to measure the number of dentists and the number of Medicaid beneficiaries receiving services in each MSSA. The data contained an address for each Rendering Provider number (Rendering Provider numbers are unique by dentist), which were used to pinpoint each dentist to a MSSA (for a small number of dentists with an incomplete or unidentifiable practice address, we used their zip code). A few dentists had practices outside of California and therefore were dropped from the pool.

There is no information available on the number of hours each dentist works, nor is there information on what percentage of the dentist's total practice their Medicaid patients constitute. This limited any analysis on the number of Full Time Equivalent (FTE) dentists treating Medicaid patients because there was no way to evaluate how much of each dentist's practice was devoted to Medicaid patients.

Interviews with representatives from Delta Dental and the California Department of Health Services led to the decision to only include those dentists seeing 100 or more Medicaid patients per year. This decision was supported by other studies and policies, which use the 100 cut-off in their analyses (GAO 2000; Ingargiola 2000). Dentists seeing fewer than 100 Medicaid patients

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<sup>6</sup> For more information on this data see Mertz, E., et al (2000). Geographic Distribution of Dentists in California. San Francisco, Center for California Health Workforce Studies: 19.



should not be considered “active” Medicaid dentists. Some dentists take on a few Medicaid beneficiaries as a “service” (because a previously private pay patient goes on Medicaid, because the child of a private pay patient qualifies for Medicaid, etc.). Of the 17,534 non-unique Rendering Provider numbers, only 6,367 were “active” Medicaid dentists to be included in the evaluation.

Of the 6,367 Medicaid dentists, over 1,000 have multiple practices. This analysis counted each practice of each dentist, if the practices were in different MSSAs. This was based on the reasoning that by being located in multiple MSSAs, the individual dentist is increasing access to dental care for Medicaid beneficiaries. As a result, a total of 7,501 practices are included in the analysis.

The accuracy of the data may be compromised by a duplicate count of Medicaid beneficiaries per Rendering Provider number (and hence one dentist). According to Delta Dental, some dental procedures (e.g., prophylaxis, x-rays, sealants, etc.) do not require the provider to enter a Rendering Provider number (the number which identifies the dental practice). Those procedures are “rolled up” into the Billing Provider number for the same office in terms of dentist counts. So all of the Rendering Provider dentists that worked for that dentist have had those patients counted against the Billing Provider, and not the Rendering Provider. This will have the effect of counting the beneficiary as a patient of both the Rendering and the Billing Provider, i.e., they will be counted twice. If a claim comes in with no lines needing a Rendering Provider number, the whole claim will be assigned to the Billing Provider. (Personal Communication, Robert Isman) This results in an overcount of users because they may have multiple procedures done at the same visit by the same provider, but be counted against both the rendering provider and the billing provider (if the latter is a different dentist than the rendering provider). It would also be

an overcount of dentists, because it would count billing providers for some services provided by rendering providers, even though the billing provider did not actually see the patient (Personal Communication, Robert Isman). As a result, these data will be considered unreliable for counts of beneficiaries per provider. However, there is no reason to think this error is not randomly distributed across the state, so we can use these data to look at general patterns of supply.

### ***Medi-Cal Beneficiaries Data***

Information on the number of Medicaid beneficiaries in California (those individuals enrolled in Medi-Cal during 1998) was obtained from the California Department of Health Services Medical Care Statistics Section.<sup>7</sup> The data provided numbers of beneficiaries by zip code, county, ethnicity and primary language.

Of the nearly 5 million total Medicaid beneficiaries, 14,340 were not assigned to a zip code, and therefore were dropped from the pool. Approximately ten thousand individuals were assigned to zip codes outside of California, and were also dropped from the pool.

In order to assign beneficiaries to MSSAs, a crosswalk file was developed to match zip codes to each MSSA. To do this, we created a weight for each zip code, based on the population density of that zip code, relative to the MSSA (or, the percent of the population of that zip code which falls within the MSSA). The final result was an assignment of beneficiaries to MSSAs that was accurate within 98% confidence.

### ***California Clinic Data***

OSHPD's Annual Utilization Report of Primary Care Clinics provided information on the dental services offered by community clinics. The universe of OSHPD clinics include psychiatric, family planning, and other clinics that do not provide primary care services. The

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<sup>7</sup> Medical Care Statistics Section Contact: Jim Klein [jklein@dhs.ca.gov](mailto:jklein@dhs.ca.gov)

Primary Care Research Center at UCSF/San Francisco General Hospital provided a list of OSHPD Clinics that offer primary care to all ages. This list was matched against the original OSHPD data. The remaining clinics were analyzed, and dropped back into the eligible sample if they either a) provided dental services to any age group and/or b) provided primary medical services to any age group. This final list was then geocoded and assigned to an MSSA.

In addition to those California clinics that are OSHPD certified, there are public clinics (the majority of which are county run) that are not required to be licensed through OSHPD. A list of these clinics was obtained from the Primary Care Research Center at UCSF/San Francisco General Hospital. Each clinic was contacted for address corrections and to determine whether they provide dental services. This final list was then geocoded, assigned to an MSSA, and combined with the OSHPD Clinic Data.

<b>Data Type</b>	<b>Data Source</b>	<b>N (total in California)</b>
Number of Medicaid beneficiaries in California	California Department of Health Services -- Medical Care Statistics Section	<b>4,974,098</b> (before cleaning/MSSA conversion); <b>4,893,427</b> (after)
Number of Medicaid beneficiaries receiving dental services in California	Delta Dental Paid Claims Data	<b>3,706,132</b> (an over-count, not yet corrected)
Number of Dentists treating Medicaid beneficiaries in California	Delta Dental Paid Claims Data	<b>17,534</b> (rendering ID); <b>12,663</b> (individual dentists); <b>7,501</b> (number of “active” dentists)
Number of OSHPD Clinics in California (with dental)	OSHPD: Annual Utilization Report of Primary Care Clinics	<b>143</b> (after cleaning)
Number of OSHPD Clinics in California (total)	OSHPD: Annual Utilization Report of Primary Care Clinics	<b>675</b> (before removing psych, abortion, etc.); <b>435</b> (after cleaning)
Number of public clinics in California (with dental)	List provided by the Primary Care Research Center at UCSF/SF General Hospital – Clinics called for Dental Data	<b>61</b>
Number of public clinics in California (total)	List provided by the Primary Care Research Center at UCSF/SF General Hospital – Clinics called for Dental Data	<b>189</b>
Number of active primary care and pediatric dentists in California	California Dental Association, CCHWS study analysis	<b>19,114</b> (weighted)
Demographics data	RJ Polk Demographics Data provided through MapInfo	

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