



**A NEW VISION FOR CALIFORNIA'S HEALTHCARE SYSTEM:
Integrated Care with Aligned Financial Incentives**

**Appendix XII. Assessing California's Healthcare
Spending (Brief)**

APRIL 2013

<http://berkeleyhealthcareforum.berkeley.edu>





Appendix XII. Assessing California's Healthcare Spending

Summary

The Berkeley Forum report, “A New Vision for California’s Healthcare System: Integrated Care with Aligned Financial Incentives,” describes historical and projected healthcare expenditures in the state. This brief seeks to understand the factors that contribute to our level of healthcare spending by looking more closely at California’s healthcare utilization, unit costs and prices.

In 2009, California ranked ninth lowest among U.S. states in personal healthcare expenditures per capita, at \$6,238 versus the U.S. average of \$6,891.¹ The main driver of California’s lower per capita spending is the relatively low healthcare utilization in the state relative to the rest of the United States. Factors contributing to the state’s lower utilization include a relatively large percent of uninsured,^{2,3} a younger population as well as larger Asian and Latino populations.⁴ In addition, California has a long history of HMOs with risk-based payments and integrated care, which further contributes to the state’s lower-than-average healthcare utilization.

In contrast to its lower relative utilization, California has high unit costs compared to the rest of the country. There are several reasons for this. First, because the California system emphasizes the use of lower-cost settings whenever possible, those patients actually admitted to full-service hospitals are likely to have more acute conditions that are more expensive to treat. Second, California is in general expensive; the state’s cost of living is 20% to 30% higher than the national average. Another important element of California’s high unit cost is the relatively low supply and high wages associated with the state’s non-physician workforce. Finally, California hospital costs are likely higher because of regulations unique to the state, such as robust seismic building codes and mandatory minimum nurse-to-patient staffing ratios.

Healthcare costs are the major determinant of California’s health insurance premiums. However, over the past decade, employer-sponsored insurance (ESI) premiums in the state have grown significantly faster – at 1.6 times the annual rate, on average – than overall healthcare expenditures.⁵ The increase in commercial premiums is the result not only of the underlying cost of providing healthcare, but also other factors, notably the cost-shifting that results from uninsured patients and low Medi-Cal reimbursement as well as the presence of large provider groups with strong negotiating leverage. California has some of the most generous insurance mandates in the country along with a higher

¹ Centers for Medicare & Medicaid Services (2009) and Cuckler, et al. (2011). CMS releases state-level data on personal healthcare expenditures, rather than total healthcare expenditures (which also include the net cost of private health insurance, government healthcare administration costs, government public health activities and healthcare investments). As a point of comparison, at the national level in 2009, personal healthcare expenditures per capita were \$6,891, or 84% of the \$8,163 in total healthcare expenditures per capita.

² California Healthline (2012).

³ Hadley, et al. (2008).

⁴ U.S. Census Bureau (2012a).

⁵ See Appendix III: “California Cost Curve, Healthcare Expenditures and Premiums Projections (Methodology)” for more detail.



penetration of HMOs, which tend to have lower cost-sharing. These two factors likely result in richer benefit packages, but higher commercial premiums.

Selected factors that affect utilization

Overall, California has significantly lower utilization than other states. For example, in 2010, California's unadjusted rates of hospital admissions and inpatient days were 79% and 74%, respectively, those of the rest of the country.⁶ There are numerous factors that explain such utilization trends, including a high uninsured rate, the state's unique demographics and the impact of managed care and the delegated model.

High Uninsured Rate

According to the U.S. Census Bureau, California had the ninth-highest uninsured rate in the country in 2010.⁷ A recent study showed that one in five non-elderly Californians were uninsured in 2009, greatly reducing their ability to access care.⁸ Approximately two in five uninsured California children, and half of uninsured adults, reported not seeing a healthcare provider in the prior year, about four times the rates of their counterparts with employer-based insurance.⁹ Uninsured Californians, on average, utilize fewer healthcare services, with lower rates of regular or frequent physician or emergency room visits than the state's publicly or privately insured populations. California's uninsured also have lower rates of hospital overnights than the state's publicly insured populations.¹⁰ One study estimates that even including uncompensated care costs, the healthcare spending of an uninsured person in the United States is only 43% that of a privately-insured person.¹¹

Demographics

California has a younger population: Only 21.3% of Californians versus 24% of the entire U.S. population are over 55.¹² This contributes to California's lower rates of healthcare spending and utilization. The state also has more than twice the percent of Asians and Latinos or Hispanics, at 13.6% and 38.1%, compared to the country as a whole, at 5.0% and 16.7%, respectively.¹³ Asian and Hispanic populations generally have lower utilization rates for healthcare services, including routine care, emergency room visits and mental health care.¹⁴ We analyzed the Medical Expenditure Panel Survey – Household Component (MEPS-HC) for California between 2005 and 2009, and found similar results (See Table 1) even after controlling for socioeconomic, demographic and health status factors. Specifically, California Latinos and Asians had 78% and 61% the rate of physician visits, respectively, and Asians only had 43% the rate of emergency room visits, as the state's Caucasians.

⁶ Berkeley Forum analysis using Kaiser Family Foundation (2010).

⁷ California Healthline (2012).

⁸ Lavarreda, et al. (2012).

⁹ UCLA Center for Health Policy Research (2009).

¹⁰ Berkeley Forum analysis of the California Health Interview Survey (ibid.).

¹¹ Hadley, et al. (2008). Compares full-year uninsured to full-year privately insured.

¹² U.S. Census Bureau (2009).

¹³ Ibid.

¹⁴ Agency for Healthcare Research and Quality (2011).



Table 1: Healthcare utilization in California – incidence rate ratio of various races/ethnicities versus Caucasians, 2005-2009 ¹⁵

	Latino	Asian	Black
Number of inpatient discharges	0.991	0.760	1.132
Number of emergency room visits	0.944	0.433*	1.155
Number of inpatient days	1.186	0.815	1.632
Number of office-based physician visits	0.781*	0.611*	0.704*

Notes: All models controlled for gender, age, income, insurance status, number of key medical conditions and body mass index. An asterisk indicates a statistically significant difference ($p < 0.05$) between the race/ethnicity as compared to Caucasians. The models are based on negative binomial regressions and the reported statistic is an incidence rate ratio.

Source: Berkeley Forum analysis using MEPS-Household Component, 2005-2009.

Managed care and the delegated model

A major contributor to California's low utilization rates is the uniquely high adoption of managed care in the state. To account for demographic and health differences between California and the rest of the United States, we used the 2005-2009 MEPS-HC to compare utilization between California and the rest of the country, controlling for gender, age, race/ethnicity, income, insurance status, number of key medical conditions and body mass index. Table 2 shows that California's adjusted utilization is still significantly lower. Specifically, Californians' rate of inpatient discharges and inpatient days were only 76% and 83%, respectively, of the rest of the country. This provides evidence that California's healthcare system characteristics, including greater use of risk-based payments and integrated care compared to other parts of the country, may contribute to its lower utilization.

Our findings are consistent with earlier research, such as a 1996 study showing that areas of California with the highest HMO penetration were able to reduce hospital utilization over a 10-year period by 44%, compared to just 29% for the areas with the lowest HMO penetration.¹⁶ Similarly, a 1995 study showed that capitated California medical groups demonstrated lower hospital admissions and lengths of stay for non-Medicare patients, with such groups reporting average annual hospital days of 134 per thousand HMO enrollees, compared to an average U.S. rate of 297 per thousand.¹⁷

¹⁵ All analyses involving the Medical Expenditure Panel Survey in this memorandum were conducted while Christopher Whaley was a Special Sworn Status researcher of the U.S. Census Bureau at the Center for Economic Studies. Research results and conclusions expressed are those of authors and do not necessarily reflect the views of the Census Bureau. These results have been screened to insure that no confidential data are revealed.

¹⁶ Robinson (1996).

¹⁷ Ibid.



Table 2: Healthcare Utilization in California vs. Rest of the United States, 2005-2009

Healthcare Service	Incidence Rate Ratio: California vs. Rest of the U.S	Standard Error
Number of inpatient discharges	0.76***	0.04
Number of inpatient days	0.83*	0.07
Number of emergency room visits	0.78***	0.03
Number office-based physician visits	0.91***	0.02

Notes: Results are based on negative-binomial regression models, which control for gender, age, race/ethnicity, income, insurance status, number of key medical conditions and body mass index. The sample size for each model was 155,776. Asterisks indicate the significance level of the incidence rate ratio as compared to one: *p<0.05 and ***p<0.001.

Source: Berkeley Forum analysis using MEPS-Household Component, 2005-2009.

Selected factors that affect unit costs

At about \$903,000, the total annual expense per bed in a California hospital in 2010 was significantly higher than the \$711,000 figure for the rest of the country.¹⁸ What's more, adjusted hospital expenses per inpatient day were 34% higher in California (\$2,566 vs. \$1,910).¹⁹ These higher expenses are not correlated with supply or occupancy, as California also has the fourth lowest number of hospital beds per capita²⁰ and a 71% hospital occupancy rate, which is slightly higher than the U.S. average of 66%.²¹ The higher expenses are consistent with a care system focused on maintaining patients in lower cost settings. Patient admissions, when they occur, are likely to be more intense and thus more expensive. Several other factors we will explore, including the state's cost of living, its workforce mix and its regulatory framework, may also contribute to higher unit costs.

Cost of living

A major factor contributing to higher unit costs in California is the higher cost of living in the state, which leads to greater input costs for healthcare. According to an analysis by the Missouri Economic Research and Information Center using survey data from U.S. urban areas, California in 2012 had the seventh highest cost of living of the 50 states and the District of Columbia.²² This analysis estimates that California's average cost of living is 26% higher than the U.S. average. California's housing index, at 76% above the national average, is the largest contributor to this discrepancy. The Berkeley Forum constructed a similar cost of living index from 2010 data, and found that California is about 34% more

¹⁸ Berkeley Forum analysis of American Hospital Association database, American Hospital Association (2011). Statistically significant at a 95% confidence interval.

¹⁹ Kaiser Family Foundation (2012). The adjustment is described by KFF as: "Adjusted expenses per inpatient day include expenses incurred for both inpatient and outpatient care; inpatient days are adjusted higher to reflect an estimate of the volume of outpatient services."

²⁰ Ibid.

²¹ Centers for Disease Control and Prevention (2010).

²² Missouri Economic Research & Information Center (2012).



expensive than the U.S. average.²³ Our further analysis of intra-state cost of living suggests that Northern California is almost 10% more expensive than Southern California.

Workforce mix

California generally has a lower proportion of its workforce employed in the major healthcare occupations than other states – with particularly low proportions of non-physician providers.²⁴ Even with over half a million nurses, the state ranks 50th in terms of the ratio of registered nurses (RNs) to population (Table 3). As might be expected, this low supply of RNs is correlated with California's nearly top ranking for average RN wages, which are more than \$20,000 above the U.S. average, unadjusted for cost of living. Several periods of acute nursing shortages, compounded by the state's historical need to recruit nurses from outside California because of inadequate nursing school capacity, have contributed to higher nurse wages.²⁵ Also affecting wages is that fact that California has experienced increasing nurse unionization; one-half of the state's hospitals report unionized RNs in 2006 versus only one-third in 1996.²⁶ One study estimates that unionization adds approximately 8% to wages.²⁷

Similarly, California's relatively low supply of physician assistants, nurse practitioners and pharmacists leads to high relative wages for these professions, unadjusted for cost of living.²⁸ In contrast, primary care and specialist physician supply as well as overall wages in California are relatively similar to the national average.²⁹ California workforce projections for 2018 indicate that the state will continue to have low supplies of RNs relative to current U.S. averages.³⁰

²³ Cost of Living Index from the Council for Community and Economic Research, U.S. Census Bureau (2010), and population data from U.S. Census Bureau (2012b).

²⁴ For more background on workforce supply, see Scheffler (2008).

²⁵ Spetz (2004).

²⁶ Spetz, et al. (2012).

²⁷ Ash, et al. (2011).

²⁸ Non-California NP salary info was not available.

²⁹ U.S. Bureau of Labor Statistics (2011).

³⁰ Berkeley Forum analysis using California Occupational Employment Projections 2008-2018; Office of Statewide Health Planning and Development (2012).



Table 3: Supply and Annual Salary of Workforce Cadres in California vs. the Rest of the United States, 2010-2011

Variable	Pharmacists	Registered Nurses	Nurse Practitioners	Physician Assistants	Primary Care Physicians (1)	Surgeons	Anesthesiologists
Number per 100,000 population							
California	22	664	45	22	70	13	13
Non-California	28	903	60	28	63	14	10
California rank (2)	35	50	42	35	22	33	9
Number of states in sample (3)	50	51	51	50	42	50	40
Annual Wage (\$2012)			0				
California	\$96,998	\$92,830	\$92,963	\$96,998	\$187,127	\$221,040	\$226,802
Non-California	\$90,650	\$68,361	N/AV	\$90,650	\$186,716	\$232,359	\$237,125
California rank (2)	13	1	N/AV	13	24	30	24
Number of states in sample (3)	51	51	N/AV	51	41	35	34

Notes: N/AV: not available. The U.S. Bureau of Labor Statistics collects data on employees. "Employees" are all part-time and full-time workers who are paid a wage or salary. Paid owners of incorporated firms are included. The survey does not cover the self-employed, owners and partners in unincorporated firms, household workers or unpaid family workers. (1) Primary care physicians included family/general practitioners, pediatricians, internists, gynecologists/obstetricians. (2) Ranking is in descending order relative to wages. (3) Number of states is out of 51, including the 50 states plus the District of Columbia.

Sources: Nurse practitioner supply in 2011 - Pearson (2012); nurse practitioner wage in 2010 - Spetz et al. (2011); and physician assistant and primary care physician supply and wages in 2011 - U.S. Bureau of Labor Statistics (2011).

The higher wages for non-MDs correspond with significantly greater payroll expenses per bed for California hospitals (\$369,000) versus the rest of the U.S. (\$292,000).³¹ Since wages and employee benefits account for about 55% of operating expenses in California hospitals,³² the above-average compensation for healthcare workers in California hospitals is a significant contributing factor to the high unit cost of hospitalization.

Regulations

The state's regulatory requirements are another cost driver, particularly for hospitals. For example, following the 1994 Northridge earthquake, the California legislature passed new seismic safety standard requirements for state hospitals. A 2007 RAND study estimates that construction costs for seismic upgrade mandates in California could run between \$45 billion and \$110 billion in 2006 dollars (potentially double this amount including financing costs) and could add up to 50% to the cost of an adjusted inpatient day.³³ The RAND study also noted, however, that part of the cost may come from hospitals re-building facilities that are 35% – 60% larger, even though they accommodate the same patient capacity. This decision may stem from a desire to accommodate preferences for private rooms as well as provide greater space for surgery, maternal care and imaging devices.

In 2004, California became the first state to implement minimum nurse-to-patient staffing ratios in hospitals. Legislators took the step in the face of evidence that higher nurse-to-patient ratios can reduce

³¹ Berkeley Forum analysis of American Hospital Association (2011) database. Statistically significant at 95% confidence interval..

³² Office of Statewide Health Planning and Development (2010).

³³ California HealthCare Foundation (2007).



infection rates and “failure to rescue” incidents.³⁴ Initial data since implementation, however, has not yet specifically linked California’s staffing ratios to improved quality.³⁵ But these mandatory ratios may have impacted costs, as one study estimates a 16% increase in average nursing hours per patient day after the 2004 requirement,³⁶ while another study indicated that the ratios led to nurse wage increases in California approximately 12% above those in other states.³⁷

Selected factors that affect commercial health insurance premiums

While not affecting the underlying cost of providing healthcare, California’s commercial health insurance premiums are also affected by factors such as cost-shifting from low Medicaid reimbursement and the uninsured, the presence of insurer and provider groups with strong negotiating leverage, and more generous insurance mandates.

Cost-shifting

Studies suggest that providers shift costs from publicly-insured or uninsured patients to the commercially insured population. One 2006 study by Harbage and Nichols found that on account of cost-shifting, private insurance is 10% more expensive, resulting in families facing an average \$1,186 in additional annual premiums.³⁸ Several other studies confirm these findings, including a 2006 study on cost shifting in California hospitals that found that on average, 40% of Medicaid reductions in payment are shifted to commercial insurers.³⁹ While there is evidence both for and against the continued presence of cost-shifting, many observers are concerned that cost-shifting may increase after the implementation of the Affordable Care Act because of the growth expected to occur in the Medi-Cal population.

Increasing Consolidation

Since the rise of managed care in the 1970s, California has experienced market consolidation among health plans, provider groups and hospitals. The five largest health plans in California now account for about 75% of total premium revenues.⁴⁰ A national study of health plan consolidation concluded that consolidation, combined with other factors in the health insurance market such as barriers to entry, has been associated with increased premiums and profitability.⁴¹

Since the early 1990s, many California hospitals have merged into large hospital systems that negotiate with health plans collectively rather than individually. A Forum analysis of American Hospital Association data shows that California hospitals are significantly larger and more likely to be part of a multi-hospital

³⁴ Needleman, et al. (2002).

³⁵ California HealthCare Foundation (2009).

³⁶ Ibid.

³⁷ Mark, et al. (2009).

³⁸ Harbage, et al. (2006).

³⁹ Zwanziger, et al. (2006).

⁴⁰ California HealthCare Foundation (2011).

⁴¹ Robinson (2004).



system than hospitals in the rest of the United States (See Table A1 in “Additional Charts / Figures”). A similar trend is occurring with physicians. There were 35 organizations (mostly Independent Practice Associations) in California with greater than 500 physicians in 2004, but this figure grew to 65 in 2012 (See Figure A1 in “Additional Charts / Figures”).⁴²

After many years of downward movement in California hospital prices, prices increased at an average annual rate of 10.6% between 1999 and 2005.⁴³ One study of U.S. hospital mergers and acquisitions in the past two decades suggests that consolidation drives up prices.⁴⁴ Diminished competition may allow hospitals to charge higher prices, since they face a lower risk of being excluded from the insurers’ contractual networks. A recent study showed that facilities in non-competitive local markets charged higher prices and were more profitable than similar hospitals in competitive local markets.⁴⁵ Consolidation of individual physician practices can also lead to higher prices, as larger physician groups with added bargaining power can negotiate for higher capitation rates. Increasing capitation rates, leading to higher HMO commercial premiums, may be one of the reasons commercial HMO enrollment has declined in recent years.

On the other hand, there can be efficiencies to be gained through economies of scale in hospital operations. A study of the increasing formation of health systems in California identified such benefits as the potential for rationalized service delivery, improved information systems and better ability to effectively coordinate care for patients.⁴⁶ The benefits of larger integrated systems, along with some of the challenges of provider consolidation, are discussed in detail in the Berkeley Forum Report, “A New Vision for California’s Healthcare System: Integrated Care with Aligned Financial Incentives.”

Broader insurance mandates

One analysis found the average state had 29 benefits mandates versus California’s 52.⁴⁷ Since 2003, the independent California Health Benefits Review Program (CHBRP) has been required to assess the cost impact of all proposed benefit mandates. However, many of California’s benefit mandates were implemented in the 1990s, and thus no estimate of their total cost burden exists. The Congressional Budget Office has estimated that benefit mandates increase health insurance premiums by approximately 2%-3%,⁴⁸ which may be somewhat higher in California due to the state’s larger number of mandates. Although mandates cover health services that represent up to 20% of the cost of coverage, many of these services are regularly covered by insurance plans even in the absence of a mandate. Furthermore, state mandates also do not apply to the self-funded plans that cover about one-third of Californians.

⁴² Cattaneo & Stroud Inc. (2012).

⁴³ Antwi, et al. (2009).

⁴⁴ Ibid.

⁴⁵ Robinson (2011).

⁴⁶ Cuellar, et al. (2003).

⁴⁷ Laugesen, et al. (2006).

⁴⁸ Congressional Budget Office (2008).



In a separate issue, California also has a higher regulatory administrative burden for many health plans because of the existence of two regulatory bodies for health insurance: the Department of Managed Health Care and the California Department of Insurance.

Conclusion

The preceding discussion provides context on healthcare expenditures in California. However, there are several limitations to the assessment. First, this brief does not represent a comprehensive list of all factors affecting spending. Furthermore, while factors mentioned above partially explain the current level of healthcare spending in California, in fact, it is medical technology, or new or broader applications of treatments, that is principally responsible for the continuous growth in healthcare expenditures, both nationally and in California. Several studies have concluded that nearly half of all such growth can be tied to medical technology.⁴⁹ For example, one study estimated that medical technology accounted for 27%-48% of the growth in healthcare spending per capita from 1960-2007.⁵⁰ Other key factors included income growth (29%-43%) and higher medical prices (5%-19%). Changes in coverage expansion and benefit design, administrative costs and population aging also affected growth, albeit less so than the other factors. Some of these elements are inter-related; for example, higher incomes coupled with more expansive insurance coverage helps to fuel medical technology growth.

A second limitation of this brief is that while we believe that all the factors discussed here have some role in affecting healthcare expenditures in the state, we do not attempt to isolate the impact of each factor quantitatively or even relative to the other factors. Much more investigation, and the availability of new data, would be needed to do so. A final limitation is that we do not attempt to provide a cost-benefit analysis or discuss the tradeoffs of some of the above factors, such as workforce supply and compensation or specific healthcare regulations.

In 2009, California ranked ninth lowest among U.S. states in personal healthcare expenditures per capita, at \$6,238 versus the U.S. average of \$6,891. Overall, we see that California has lower than the U.S. average for healthcare utilization, most likely due a high numbers of uninsured, the state's age and ethnic composition and high HMO penetration, among other factors. In contrast, California has higher unit costs than the U.S. average, likely due to such factors as the higher overall cost of living in the state, relatively low supply and high wages of non-physician providers, and several unique regulations affecting the healthcare system. Finally, other factors such as cost-shifting from the uninsured and public to private payers, increasing market consolidation and richer benefit packages are also likely to affect Californian's health insurance premium rates.

⁴⁹ Cutler (1995); Newhouse (1992); Smith, et al. (2000).

⁵⁰ Smith, et al. (2009).



Acknowledgements

We are very grateful for the comments we received on this memorandum from the national reviewers of the main Berkeley Forum Report, “A New Vision for California’s Healthcare System: Integrated Care with Aligned Financial Incentives,” including: Timothy T. Brown, Department of Health Policy and Management, School of Public Health, University of California, Berkeley; William H. Dow, Department of Health Policy and Management, School of Public Health, University of California, Berkeley; Deborah A. Freund, Claremont Graduate University; Elizabeth McGlynn, Kaiser Permanente Center for Effectiveness and Safety Research; Cathy Schoen, The Commonwealth Fund; Tom Williams, Integrated Healthcare Association (IHA). These individuals do not necessarily endorse the contents of this memorandum.



Additional Charts / Figures

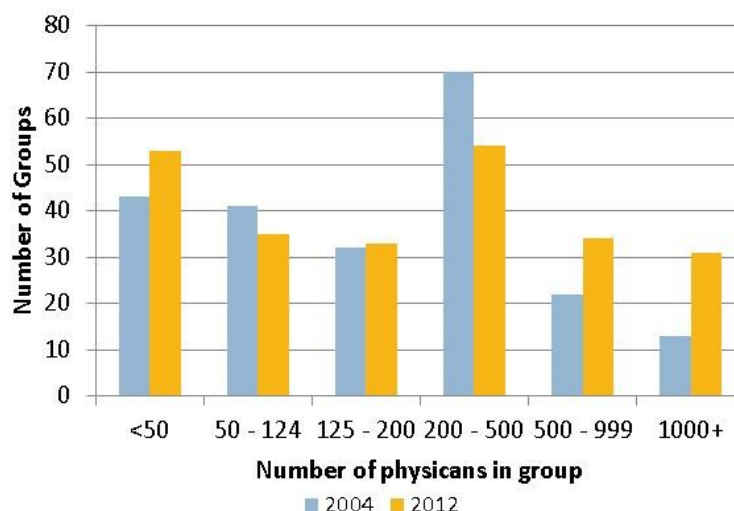
Table A1: Organizational and Payment Characteristics of California vs. Rest of U.S. Hospitals, 2011

	California	Rest of the U.S.
Hospital is a member of health system	65%	57%
Average number of hospital beds / hospital	205	150
Average number of ICU beds / hospital	22.7	17.8
Total admissions / bed per year	43	34
Contracts directly w/employers on a shared-risk / capitated basis	7.3%	2.7%
Percent of hospital net patient revenue paid on a capitated basis	2.9%	0.6%
Percent of hospital net patient revenue paid on a shared risk basis	4.8%	0.6%

Notes: Analysis was conducted at the individual hospital level with the following sample sizes: California (422) and Rest of the U.S. (5,912). All reported statistics are unadjusted means or proportions. The California results are statistically different than the Rest of the U.S. Results are all significant at ($p < 0.05$)

Source: Berkeley Forum analysis using American Hospital Association (2011) database.

Figure A1: Distribution by Practice Size of HMO-Accepting Physician Practices in California (2004, 2012)



Notes: Only includes groups with six or more PCPs and at least one HMO contract, including Medi-Cal, Medicare and commercial.

Source: Berkeley Forum analysis using Cattaneo & Stroud Inc. (2012).



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