

# UTILIZATION IN CHILDREN'S HEALTH INITIATIVES IN CALIFORNIA: RESULTS FROM 2005, 2006, AND 2007

Submitted to

First 5 California 

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## **INTRODUCTION**

Health care reform has become a top priority for policy makers and the public during the current economic downturn. However, due to renewed support on the federal level, including the reauthorization of the Children's Health Insurance Program (CHIPRA), state and local efforts continue with the hope that policies to expand coverage to all uninsured children will be implemented this year. As recent research attests, reforms to increase health care coverage are essential to assuring that children have access to the full complement of appropriate health care services including a quality medical home<sup>1</sup>. In strong support of this, the Children's Health Initiatives (CHIs) continue to provide much needed coverage to children throughout California counties, primarily through the Healthy Kids product. Some CHIs were established as early as 2001 and began enrolling children into Healthy Kids while other CHIs started enrollment in 2007. As of December, 2007, Healthy Kids programs were in operation in 26 of California's most populous counties and collectively were providing coverage to over 82,000 children.

Presented here are the results for 2005, 2006, and 2007 from the statewide evaluation comparing utilization and quality outcomes between Healthy Kids and the more established Medi-Cal and Healthy Families Programs. Additionally, this report provides feedback to the CHIs regarding their relative performance on access, utilization, and quality of care through an analysis of performance improvement and achievement scores across counties. Overall, results show that health plans serving Healthy Kids are demonstrating gains in performance scores over time.

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<sup>1</sup> Stevens GD, Seid M, Pickering TA, Tsai KY. National Disparities in the Quality of a Medical Home for Children. *Matern Child Health J*, 2009. Epub ahead of print.

**Table 1.** Healthy Kids Enrollees in Twenty-Two Counties as of December 31, 2007

County	CHI / Health Plan abbreviation	Enrollment Start Date (Quarter/Year)	Total Enrolled Children
Alameda	AAH	Q4, 2005	1,053
Colusa	CESY	Q3, 2006	50
El Dorado	CESY	Q3, 2006	130
Fresno	KFT	Q1, 2006	1,449
Kern	KFT	Q1, 2005	1,107
Los Angeles	LAC	Q3, 2003	34,750
Napa	PHP	Q4, 2005	760
Riverside	IEHP	Q3, 2002	6,174
Sacramento	CESY	Q3, 2006	1,062
San Bernardino	IEHP	Q3, 2003	3,055
San Francisco	SFHP	Q1, 2002	3,750
San Joaquin	HPSJ	Q4, 2003	2,461
San Luis Obispo	CENC	Q3, 2005	570
San Mateo	HPSM	Q1, 2003	6,505
Santa Barbara	CENC	Q4, 2005	1,232
Santa Clara	SCFHP	Q1, 2001	11,461
Santa Cruz	CCAH	Q3, 2004	1,692
Solano	PHP	Q4, 2005	1,046
Sonoma	PHP	Q3, 2005	862
Tulare	KFT	Q2, 2006	673
Yolo	PHP	Q1, 2006	311
Yuba	CESY	Q3, 2006	132
<b>TOTAL</b>	--	--	<b>80,285</b>

## METHODS

CHIs were asked to provide data on nine indicators for three programs: Healthy Kids, Medi-Cal and Healthy Families. This enabled researchers to develop tables for each county or health plan (some plans represent more than one county) that compares Healthy Kids with Medi-Cal and Healthy Families HEDIS measures in that county (Appendix A: Tables A1-A13). The

nine required indicators selected for inclusion in the 2007 year-end report (Table 2), emulated measures from the Health Employer Data and Information Set (HEDIS®).<sup>ii</sup>

CHIs with active enrollment in 2007, the data reporting year, were asked to report access, utilization and quality indicators. Most of the indicators specified a continuous enrollment eligibility requirement ranging from six months to two years enrollment before a particular date or event. Depending on start dates and the pace of member enrollment, CHIs may not have met eligibility requirements for all of the measures and were asked to explain this with respect to criteria outlined in the data tables. Of the 26 CHI counties in California, 22 met the criteria for at least one of the indicators in 2007 (Table 1). The other counties were excluded because they did not meet the continuous enrollment criteria.

For this year's report, researchers obtained electronic dental utilization data directly from Delta Dental of California's Community Partnership Programs, L.A. Care and SafeGuard Dental, and the Inland Empire Health Plan. Electronic utilization data were then imported and analyzed for these CHIs using SAS 9.1.2 to calculate rates. A more detailed description of data collection and indicator selection is explained in depth in Appendix B.

**Table 2.** Evaluation Indicators

<b>UTILIZATION INDICATORS</b>	<b>Eligible Population</b>	<b>Measurement</b>
WELL-CHILD VISIT IN PAST YEAR: CHILDREN AGES 3-6 YEARS	Children 3-6 years of age as of December 31, 2007, enrolled as of December 31, 2007, who have been enrolled in the health plan for 1 year with no more than a 45 day gap.	Follow the HEDIS 2007 hybrid specification* for <i>Well Child Visits in the Third, Fourth, Fifth, and Sixth Years of Life</i> .
WELL-BABY VISITS IN FIRST 15 MONTHS OF LIFE	Children 15 months of age as of December 31, 2007, enrolled on the day they turn 15 months old*, and who have been enrolled in the health plan from age 31 days through 15 months of age with no more than a 45 day gap.	Follow the HEDIS 2007 hybrid specification for <i>Well Child Visits in the First 15 Months of Life</i> . *but report only two categories: all (6+ visits) and none (0)

<sup>ii</sup> HEDIS is a registered trademark of the National Committee for Quality Assurance (NCQA). HEDIS measures used by Medi-Cal Managed Care are audited by certified NCQA auditors. There was no audit for this Healthy Kids evaluation.

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	*day turning 15 months old is equal to 1 <sup>st</sup> birthday plus 90 days	
WELL-ADOLESCENT VISIT IN PAST YEAR: ADOLESCENTS AGES 12-21 YEARS	Adolescents 12-21 years of age as of December 31, 2007, enrolled as of December 31, 2007, who have been enrolled in the health plan for 1 year with no more than a 45 day gap.	Follow the HEDIS 2007 hybrid specification for <i>Adolescent Well-Care Visits</i> .
EMERGENCY DEPARTMENT VISITS PER MEMBER MONTH: AGES 0-19 YEARS	Children <1, 1-9, 10-19 years of age as of December 31, 2007, enrolled as of December 31, 2007, who have been enrolled in the health plan for 1 year with no more than a 45 day gap.	Follow the HEDIS 2007 Medicaid specification for Ambulatory Care (AMB) -- <i>Emergency department visits per member month</i> .
HOSPITAL DAYS AND DISCHARGES	Children 1-9, 10-19 years of age as of December 31, 2007, enrolled as of December 31, 2007.	Follow the HEDIS 2007 Medicaid specification for <i>Inpatient Utilization-General Hospital/Acute Care: Total Inpatient Acute Care</i> .

<b>ACCESS INDICATORS</b>	<b>Eligible Population</b>	<b>Measurement</b>
PRIMARY CARE PHYSICIAN VISIT	Children 1-6 years of age as of December 31, 2007, enrolled as of December 31, 2007, who have been enrolled in the health plan for 1 year with no more than a 45 day gap, and children 7-19 years of age as of December 31, 2007, enrolled on December 31, 2007, who have been enrolled in the health plan for 2 years with no more than a 45 day gap in each year of enrollment.	Follow the HEDIS 2007 administrative specification for <i>Children and Adolescents' Access to Primary Care Practitioners</i> .
DENTAL VISIT IN PAST YEAR: CHILDREN AGES 2-18 YEARS	Children 2-18 years of age as of December 31, 2007, enrolled as of December 31, 2007, who have been enrolled in the dental health plan for 1 year with no more than a 45 day gap	Follow the HEDIS 2007 administrative specification for <i>Annual Dental Visit</i> .

<b>QUALITY INDICATORS</b>	<b>Eligible Population</b>	<b>Measurement</b>
IMMUNIZATIONS, COMBINATION 2	Children 2 years of age as of December 31, 2007, enrolled as of December 31, 2007, who have been enrolled in the health plan for 1 year prior to second birthday with no more than a 45 day gap in that period.	Follow the HEDIS 2007 hybrid specification for <i>Childhood Immunization Status, Combination 2</i> .
ASTHMA MEDICATION: CHILDREN AGES 5-17 YEARS	Children 5-9 and 10-17 years of age as of December 31, 2007, enrolled in the health plan as of December 31, 2007.	Follow the HEDIS 2007 hybrid specification for <i>Use of Appropriate Medications for People with Asthma</i> .

To provide comparisons, the available Healthy Kids indicator results from 2005 through 2007 are charted alongside bars representing the averages for all reporting CHI counties for all three programs: Healthy Kids, Medi-Cal, and Healthy Families. In addition, comparison lines are drawn on each chart for least one of the following three benchmarks: 1) 2007 averages for Medicaid nationally<sup>iii</sup>, 2) 2007 averages for Medi-Cal statewide<sup>iv</sup>, 3) 2007 averages for Healthy Families statewide<sup>v</sup>, depending upon availability of benchmark data.

To further compare achievement levels by county, a Top Performance analysis was conducted, adapted from the Healthy Families Quality Improvement Project, created by the Managed Risk Medical Insurance Board (MRMIB)<sup>vi</sup>. The Quality Measurement Scores used here were adjusted to include five HEDIS® measures, for childhood immunizations, well-child visits, well-adolescent visits, access to primary care providers, and dental visits, whereas the MRMIB methodology includes only the first four measures listed. Another key difference is this report calculates separately improvement and performance for counties that reported data for the full three years (2005-2007) and those who reported two years (2006-2007). Complete details on the analytical and statistical methods used to compare plans and programs are provided in Appendix C of this report.

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<sup>iii</sup> National Committee for Quality Assurance. Medicaid HEDIS 2007 Means, Percentiles, and Ratios. <http://www.ncqa.org/tabid/494/Default.aspx> (Accessed March 6, 2009)

<sup>iv</sup> Delmarva Foundation. Report of the 2007 Performance Measures for Medi-Cal Managed Care Members. Sacramento, CA: California Department of Health Services, Medi-Cal Managed Care External Quality Review Organization; July 2008. [http://www.dhcs.ca.gov/dataandstats/reports/Documents/MMCD\\_Qual\\_Rpts/HEDIS\\_Reports/HEDIS%202007.pdf](http://www.dhcs.ca.gov/dataandstats/reports/Documents/MMCD_Qual_Rpts/HEDIS_Reports/HEDIS%202007.pdf) (Accessed March 6, 2009)

<sup>v</sup> Healthy Families. 2007 Healthy Families Program HEDIS Report. California Managed Risk Medical Insurance Board Benefits and Quality Monitoring Division; November 2008. [http://www.mrmib.ca.gov/MRMIB/Agenda\\_Minutes\\_111908/Agenda\\_Item\\_6.h\\_2007\\_HEDIS\\_Report.11.19.08.pdf](http://www.mrmib.ca.gov/MRMIB/Agenda_Minutes_111908/Agenda_Item_6.h_2007_HEDIS_Report.11.19.08.pdf) (Accessed March 6, 2009)

<sup>vi</sup> Healthy Families Data Insights. Quality Performance Improvement Project – 2006. [http://www.mrmib.ca.gov/MRMIB/HFP/QIP\\_2006.pdf](http://www.mrmib.ca.gov/MRMIB/HFP/QIP_2006.pdf) (Accessed March 6, 2009)

## **RESULTS**

All CHIs that had Healthy Kids programs in operation for the entire 2007 reporting year provided data for this analysis. Thirteen reports were submitted representing 22 CHIs. Inland Empire Health Plan (IEHP) provided one report that combined the data for both the San Bernardino and Riverside CHIs. Partnership Health Plan (PHP), serving Napa, Solano, Sonoma, and Yolo similarly provided one report that combined the data for the four counties. Central Coast Alliance for Health (CCAH) submitted one report for Santa Cruz, with its reported Medi-Cal and Healthy Families data incorporating Monterey, even though Monterey does not have a Healthy Kids program. Although Santa Barbara and San Luis Obispo submitted separate reports for Healthy Kids, their Medi-Cal and Healthy Families data were combined for submission by CenCal (CENC). HealthNet submitted two reports, with each report providing aggregated results for several counties. The first HealthNet report provides data for Kern, Fresno, and Tulare counties (KFT), whereas the 2006 report from HealthNet included Kern County only. The second HealthNet report provides data for Colusa, El Dorado, Sacramento, and Yuba counties (CESY).

### *Organization of Results*

- **Section 1:** Results by Indicator, including charts for each of the required indicators comparing Healthy Kids results for the twenty-two CHIs (reporting tables for each individual CHI are provided in Appendix A), along with the available benchmarks. All 2005, 2006, and 2007 data are included to illustrate changes in performance over the three years.
- **Section 2:** Results by Highest Performing CHIs, reported separately for CHIs reporting three versus two years of data. Recognition of the three Most Improved CHIs, demonstrating the greatest gains in performance from 2005 through 2007 is also provided. Also included in this section is an aggregated comparison of the Healthy Kids data with Medi-Cal and Healthy Families using a mean for all CHIs that reported 2007 data weighted by Healthy Kids enrollment size.
- **Section 3:** Discussion & Recommendations.

**Results by Indicator: Comparison of Healthy Kids, Medi-Cal, and Healthy Families**

Table 3 presents results by indicator for all of the CHIs combined that reported data for Healthy Kids in 2005, 2006 and/or 2007. For each indicator, a weighted average of the results was computed for all of CHIs that were operational for that entire year. Weighting was based on Healthy Kids enrollment size in the given year.

Table 4 presents summary statistics of the performance of the 22 CHIs that were operational in 2007, for Healthy Kids, Medi-Cal and Healthy Families. These statistics represent weighted averages and are derived from the twenty-two CHIs although not all CHIs provided data for all indicators or for all programs.

**Table 3.** Comparison County Healthy Kids Averages from 2005, 2006, and 2007\*

	2007 Healthy Kids		2006 Healthy Kids		2005 Healthy Kids <sup>a</sup>	
	rate*	# CHIs	rate*	# CHIs	rate*	# CHIs
1. well-child visit in past year: children ages 3-6 years	71.39%	12 (h: 7)	57.27%	10 (h: 6)	57.90%	6 (h: 3)
2. well-adolescent visit in past year: adolescents ages 12-21 years	39.25%	12 (h: 8)	34.50%	10 (h: 7)	26.38%	6 (h: 3)
3. emergency department visits/1000 MM:						
age <1 year	46.44	12	53.10	10	NC	NC
ages 1-9 years	13.30	12	12.66	11	NC	NC
ages 10-19 years	9.25	12	9.55	11	NC	NC
4. primary care physician visit						
ages 12-24 mo	89.75%	3	84.26%	5	69.31%	3
ages 25 mo-6 yrs	81.52%	11	74.78%	10	66.85%	7
ages 7-11 years	76.11%	10	77.41%	7	68.17%	6
ages 12-19 years	71.76%	11	70.94%	7	77.51%	5
5. dental visit in past year: children						
ages 2-3 years	19.97%	9	55.30%	11	49.49%	4
ages 4-6 years	55.39%	13	62.00%	11	71.80%	5
ages 7-10 years	65.18%	13	65.20%	11	74.19%	5
ages 11-14 years	56.78%	13	65.30%	11	63.08%	5
ages 15-18 years	60.31%	13	67.40%	11	58.56%	5
6. immunizations combination 2	68.07%	5 (h: 4)	61.51%	5 (h: 4)	60.56%	3 (h: 1)
7. well-baby visits in first 15 months of life						
0 visits	NC		NC			
6+ visits	NC		NC			
8a. hospital days (per member/year)						
ages 1-9 years	1.91	12				
ages 10-19 years	2.37	12				
8b. hospital discharges (per member/year)						
ages 1-9 years	0.65	12				
ages 10-19 years	0.71	12				

\*Only CHIs that reported >30 beneficiaries in their eligible population were included in this analysis

<sup>a</sup> Updated weighted averages are provided for Healthy Families due to more accurate eligibility data available

NC = Not Calculated because insufficient eligibility or data was not reported

h = hybrid method used

**Table 4.** Comparison of Health Care Coverage Programs in CHI Counties for 2007\*

	2007 Healthy Kids		2007 Medi-Cal		2007 Healthy Families	
	rate*	# CHIs	rate	# CHIs	rate	# CHIs
1. well-child visit in past year: children ages 3-6 years	71.24%	13 (h: 7)	76.09%	12 (h: 11)	74.53%	11 (h: 8)
2. well-adolescent visit in past year: adolescents ages 12-21 years	39.30%	13 (h: 8)	38.16%	12 (h:11)	45.16%	11 (h: 10)
3. emergency department visits/1000 MM:						
age <1 year	46.44	12	75.53	10	48.32	9
ages 1-9 years	13.30	12	35.28	10	21.24	9
ages 10-19 years	9.25	12	24.29	10	13.66	9
4. primary care physician visit						
ages 12-24 mo	89.75%	3	94.58%	11	96.15%	11
ages 25 mo-6 yrs	81.51%	12	87.18%	11	88.75%	11
ages 7-11 years	76.24%	11	82.91%	11	86.86%	11
ages 12-19 years	71.97%	12	79.15%	11	83.28%	11
5. dental visit in past year: children						
ages 2-3 years	19.97%	9	NC		NC	
ages 4-6 years	55.39%	13	NC		NC	
ages 7-10 years	65.18%	13	NC		NC	
ages 11-14 years	56.78%	13	NC		NC	
ages 15-18 years	60.31%	13	NC		NC	
6. immunizations combination 2	68.07%	5 (h: 4)	81.72%	10 (h: 10)	86.7%	9 (h: 8)
7. well-baby visits in first 15 months of life						
0 visits	NC		12.15%	8	9.04%	7
6+ visits	NC		55.36%	11	52.65%	6
8a. hospital days (per member/year)						
ages 1-9 years	1.91	12	4.26	10	2.97	9
ages 10-19 years	2.37	12	7.72	10	3.22	9
8b. hospital discharges (per member/year)						
ages 1-9 years	0.65	12	1.61	10	1.14	9
ages 10-19 years	0.71	12	2.79	10	1.20	9

\*Only CHIs that reported ≥30 beneficiaries in their eligible population were included in this analysis

NC = Not Calculated because insufficient eligibility or data was not reported

MM = Member Months

h = hybrid method used for some of the CHI counties reporting data

*Results by Indicator*

Figures 1 through Figure 6d below show results for all health plans that reported data between 2005 and 2007, on the measures requested for the respective reporting year. The counties are listed according to how data were reported by the health plans—as either individual counties, or in aggregate with other counties.

**1. Well-Child and Well-Adolescent Visits**

***Well-Child Visits (ages 3-6 years).*** Five CHIs reported rates for 2007 Well-child visits at or above the averages for Medi-Cal (74.3%) and Healthy Families (73.0%) in the same counties: Santa Cruz (81.6%), San Mateo (76.0%), San Joaquin (80.8%), San Francisco (78.7%), and Inland Empire (75.7%) (shown in Figure 1a). Those same plans as well as three others (Santa Clara, Partnership Health Plan, Los Angeles) also improved their rates from previous years. Twelve of 13 CHIs reported rates above the 2007 national Medicaid rate of 55.6%, including two plans reporting data for the first time this year for Alameda (60.0%) and Kern/Fresno/Tulare (59.1%) counties. On average, Healthy Kids performance for this measure was slightly lower than averages for the other programs in the same counties, Medi-Cal (76.1%) and Healthy Families (74.5%) (see Table 4). However, average Healthy Kids performance has improved from 2005 to 2007 (57.9% to 71.4%), indicating increased utilization of preventive services for children between the ages of 3 and 6 years old (see Table 3).

***Well-Adolescent Visits (ages 12-21 years).*** The weighted averages for Healthy Kids Well-Adolescent Visits have improved from 2005 to 2007, increasing from 26.4% to 39.3% (Table 3). This indicates increased utilization of preventive visits for adolescents ages 12-21 years in Healthy Kids programs. When compared to program averages in the same counties, Healthy Kids performed better than Medi-Cal (38.2%) but not as well as Healthy Families (45.2%) (Table 4). Eight health plans reported rates above the 2007 state rate for Medi-Cal (36.9%): Alameda (43.0%), Riverside/San Bernardino (43.2%), San Francisco (41.8%), San Joaquin (46.2%), San Mateo (47.7%), Santa Barbara (41.7%), Santa Clara (41.0%), and Santa Cruz (55.7%). Other plans achieved Well-Adolescent Visit rates close to the state Medi-Cal average (Kern/Fresno/Tulare 34.5%, Los Angeles 36.0%, Partnership Health Plan 35.2%) while

Colusa/El Dorado/ Sacramento/Yuba at 26.0% and San Luis Obispo at 20.8% were lower than the state Medi-Cal average.

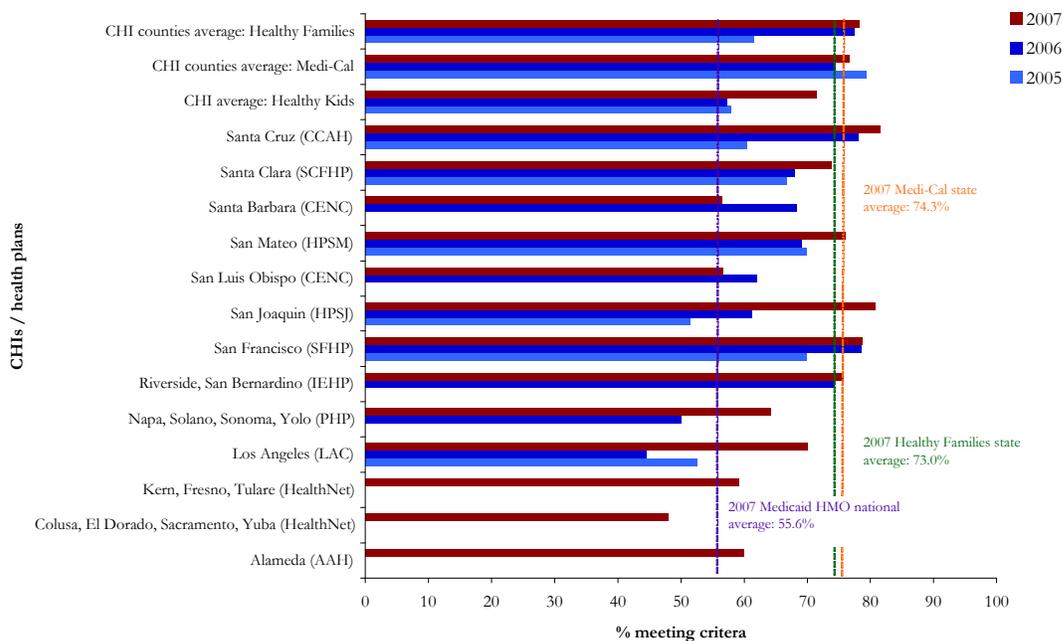


Figure 1a. Healthy Kids, Well-Child Visits, by County: Ages 3-6 years

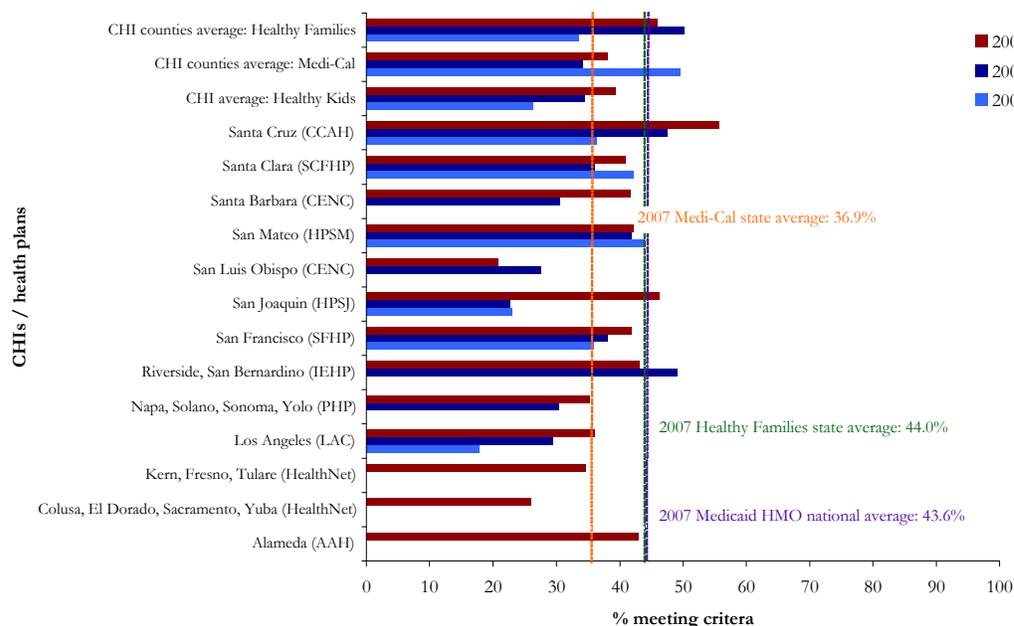


Figure 1b. Healthy Kids, Well-Adolescent Visit, by County: Ages 12-21 years

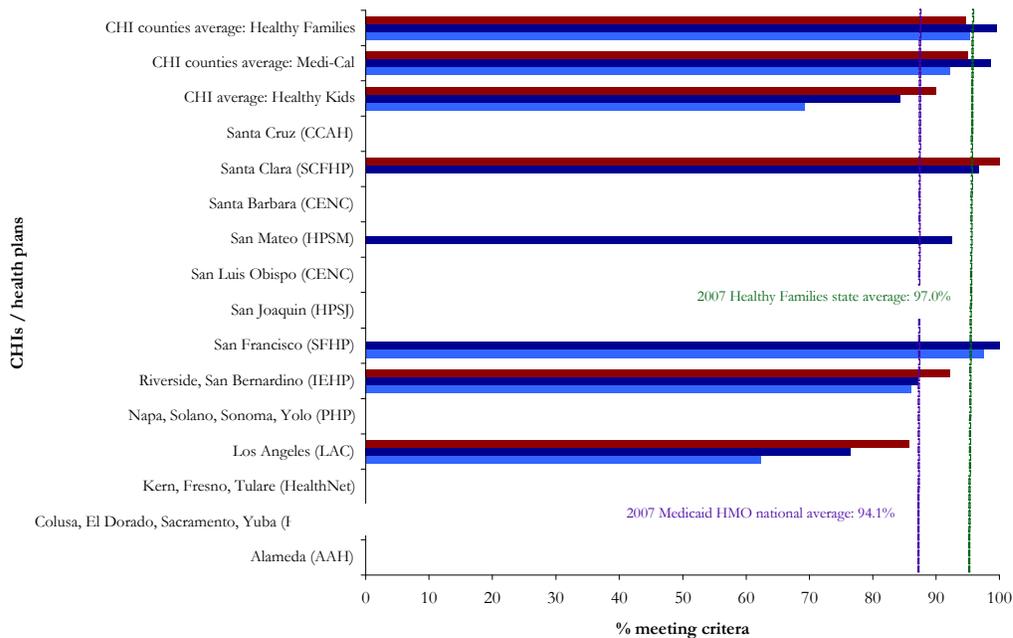
## **2. Primary care Visits**

***Ages 12-24 months.*** Of the three counties that reported this measure for Healthy Kids in 2007, only Santa Clara County (100%) exceeded the 2007 Healthy Families average (97.0%) for Primary Care visits for children 12-24 months old. Santa Clara and the Inland Empire (92.2%) exceeded the national Medicaid average of 94.1%. Los Angeles (85.7%) did not exceed benchmarks, but did show improvement over the three years evaluated. On average, Healthy Kids performed better over time, from 69.3% in 2005 to 90.0% in 2007, but did not match 2007 Medi-Cal (94.6%) and Healthy Families (96.2%) rates in the same counties. The other counties did not have comparison data for 2007 because of insufficient eligibility in the age group for rate calculation.

***Ages 25 months-6 years.*** Of the twelve plans that reported primary care visits for Healthy Kids members ages 2-6 years old in 2007, three exceeded the Healthy Families average of 89.0%: Partnership (90.0%), San Francisco (91.6%), and Santa Cruz (90.1%). Two other plans exceeded the national Medicaid rate of 84.9%, San Mateo (88.1%) and Santa Clara (86.2%). One plan was not able to report data (for Colusa/El Dorado/Sacramento/Yuba). Seven plans did not meet state and national rates, ranging from 75.8% in Los Angeles to 84.7% in the Inland Empire. While there was overall improvement in Healthy Kids on this primary care measure from 2005 to 2007 (66.9% to 81.5%), both the Medi-Cal (87.2%) and Healthy Families (88.8%) rates in the same counties were slightly higher for 2007.

***Ages 7 to 11 years.*** Among school-aged Healthy Kids enrollees, (ages 7-11 years), 76.2% visited their primary care provider compared to 82.9% of Medi-Cal and 86.9% of Healthy Families enrollees in the same counties. This represents an improvement from 2005 where 68.2% of Healthy Kids enrollees in this age group visited the primary care provider. Four plans exceeded both the state Healthy Families (89.0%) and national Medicaid (85.9%) rates for 2007 including San Francisco (92.2%), San Mateo (91.0%), Santa Barbara (94.4%), and Santa Cruz (91.7%). Six other plans performed close to or below the Medicaid benchmark ranging including Los Angeles at 64.2% and Alameda at 85.0%. Two counties did not report data due to insufficient eligibility for this age group.

**Ages 12 to 19 years.** On average, 72.0% of Healthy Kids enrollees, ages 12-19 years old visited their primary care provider in 2007 compared to 79.2% of Medi-Cal and 83.3% of Healthy Families members in the same counties. One plan did not report data due to insufficient eligibility of this adolescent age group. Six plans reported rates that exceeded the 2007 Healthy Families (86.0%) and national Medicaid (83.2%) rates: Alameda (88.0%), Kern/Fresno/Tulare (87.5%), San Francisco (87.6%), San Mateo (86.8%), Santa Barbara (88.6%), and Santa Cruz (88.6%). The six other plans ranged from 58.7% in Los Angeles to 79.8% in the Inland Empire.



**Figure 2a.** Healthy Kids, Primary Care Visit, by County: Ages 12-24 months

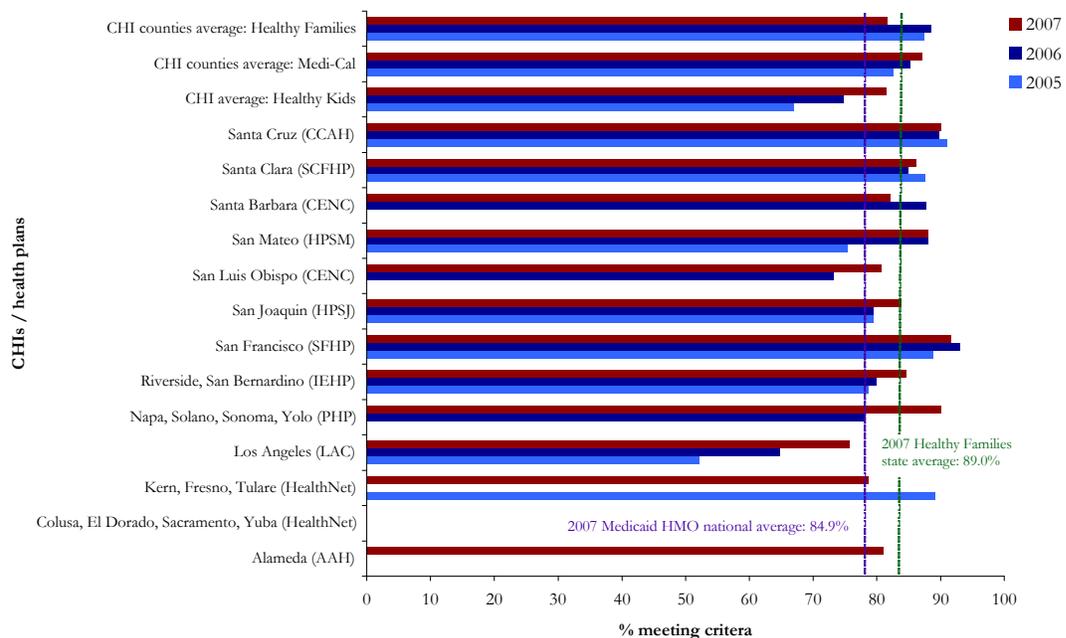


Figure 2b. Healthy Kids, Primary Care Visit, by County: Ages 25 months-6 years

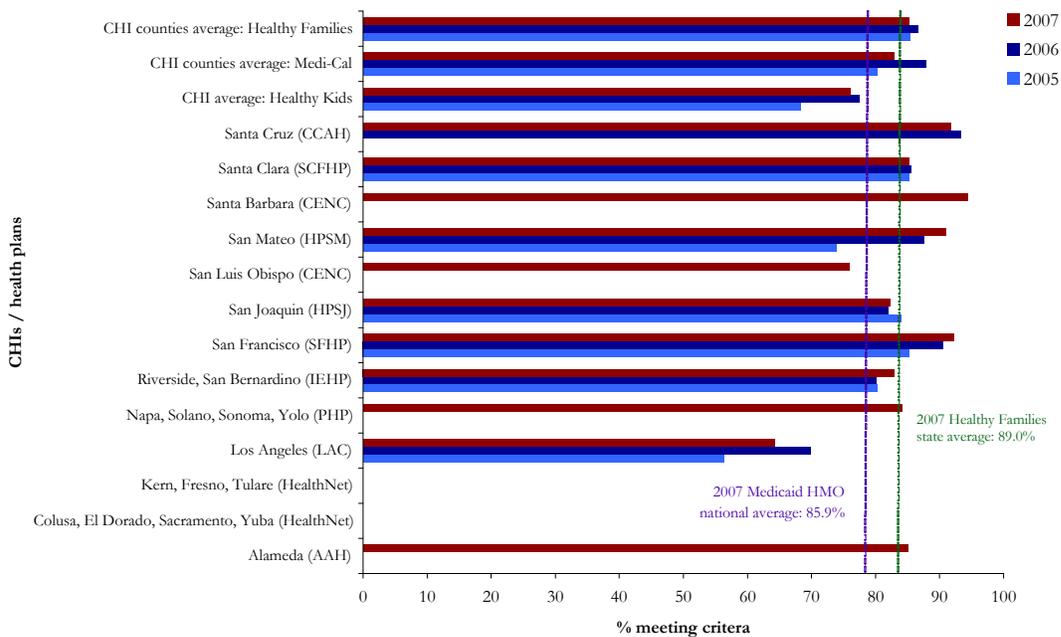


Figure 2c. Healthy Kids, Primary Care Visit, by County: Ages 7-11 years

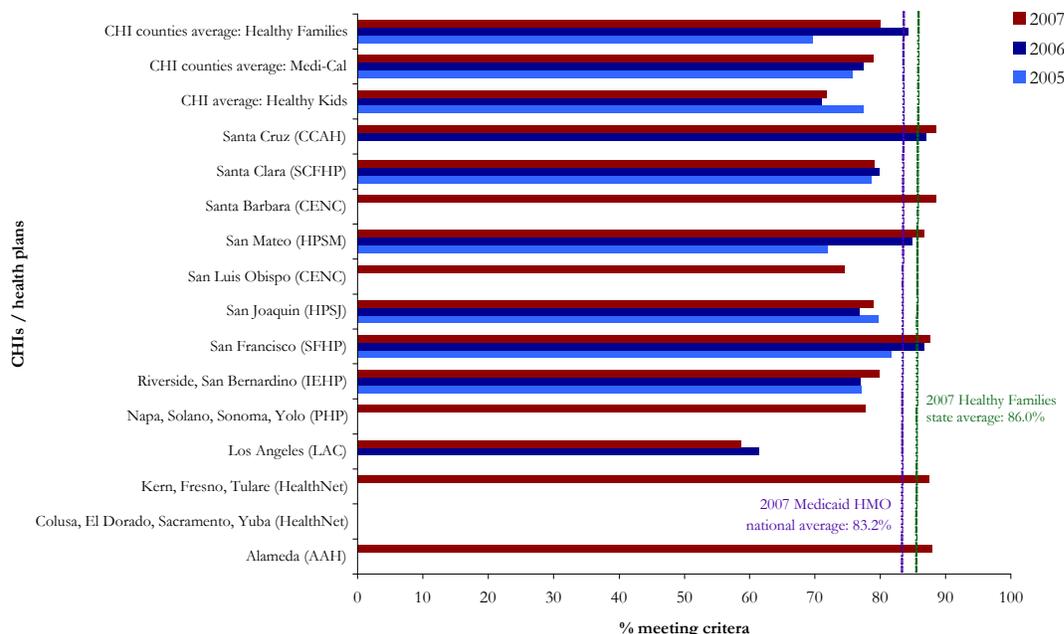
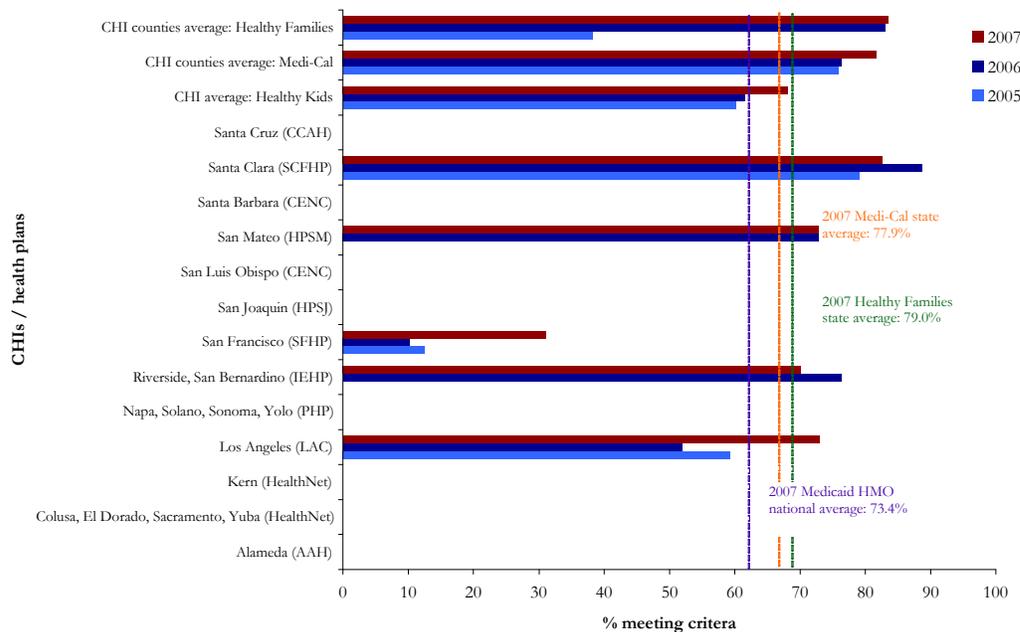


Figure 2d. Healthy Kids, Primary Care Visit, by County: Ages 12-19 years

### 3. Immunizations, Combination 2.

Among the five CHIs reporting, 68.1% (weighted average) of members received their combination 2 vaccinations although this was lower than Medi-Cal (81.7%) and Healthy Families (86.7%) for the same CHI counties. Santa Clara at 82.6% exceeded other benchmarks including Medi-Cal at 77.9% and Healthy Families at 79.0%. The other counties that performed lower than the benchmarks ranged from 31.0% in San Francisco to 74.2% in San Mateo.

Although its rates were lowest for all three years, San Francisco reported administrative rates for all three years, and was the only county to report the administrative versus hybrid rate in 2007. Administrative rates are expected to under-report actual immunizations received compared to more accurate hybrid measures. Los Angeles (72.9%) was able to report hybrid rates for all years and showed considerable improvement in 2007 from the previous two years. However, the absolute rates between Los Angeles and San Francisco are not comparable because of the different methods used in reporting.



**Figure 3.** Healthy Kids, Immunizations, Combination 2, by County

#### 4. Dental Visits.

**Ages 2-3 years.** On average, 20.0% of the children ages 2-3 in Healthy Kids, received a dental visit. Two out of nine plans reporting this measure (Los Angeles at 58.7% and Santa Cruz at 57.4%) exceeded the Medicaid benchmark of 46.3%. Medi-Cal and Healthy Families comparison data are not available for these counties. Among the counties reporting 2007 data, San Joaquin and Santa Clara improved over the previous year's levels while Kern, Los Angeles, Partnership, Inland Empire, and San Mateo declined; San Francisco's performed better than its 2006 rate only. Overall, average dental visits in this youngest age category declined from 2005 (49.5%) and 2006 (55.3%) levels.

**Ages 4-6 years.** Dental visits decreased for children ages 4-6 over time from 71.8% in 2005, (weighted average) to 62.0% in 2006, and 55.4% in 2007. Despite the overall decline, 11 of 13 plans reporting data for 2007 exceeded the Medicaid threshold of 50.0% with one of those plans (Colusa/El Dorado/ Sacramento/Yuba) reporting data for the first time this year. Five plans improved in their dental visits for 4-6 year olds from previous years including San Joaquin and

San Luis Obispo each posting a 10% increase; individual plan performance ranged from 36.3% in the Inland Empire to 79.1% in San Mateo.

***Ages 7-10 Years.*** Similar results were reported for school-age children ages 7-10 with a declining average across the counties from 74.2% in 2005, to 65.2% in 2006, to 65.2% in 2007. However 12 of the 13 reporting counties exceeded the 51.9% Medicaid benchmark, with four plans improving dental visits for 7-10 year olds over the previous reporting years (Los Angeles, Partnership, San Luis Obispo, and Santa Clara). Inland Empire counties showed the steepest decline from previous reporting years, falling below the Medicaid benchmark for the first time. Dental visits in 7-10 year old was the highest compared to all other age groups.

***Ages 11 to 14 Years.*** Similar to the two younger age groups, the weighted average for 11-14 year olds declined over time from 63.1% in 2005 to 56.8% in 2007. Among the CHIs, percentages receiving dental visits ranged from a low of 34.7% in the Inland Empire to 72.2% in Santa Clara. Yet in 12 of the 13 plans, the percentage of children receiving dental care exceeded the Medicaid benchmark of 46.6%. Among counties reporting previous years data, only San Luis Obispo and Santa Clara improved while the Inland Empire declined the most, again falling under the Medicaid benchmark for the first time.

***Ages 15-18 Years.*** On average, the percentage of adolescents receiving dental visits in 2007 (60.3%) declined from 2006 (67.4%), but increased from 2005 (58.6%). Considerable variation was reported in the percentage of adolescents receiving dental visits ranging from a low of 30.0% in the Inland Empire to 63.8% in Santa Clara. Eleven counties exceeded the Medicaid benchmark of 39.6% while two were below. Among counties reporting 2005 and 2006 data, five improved rates in 2007.

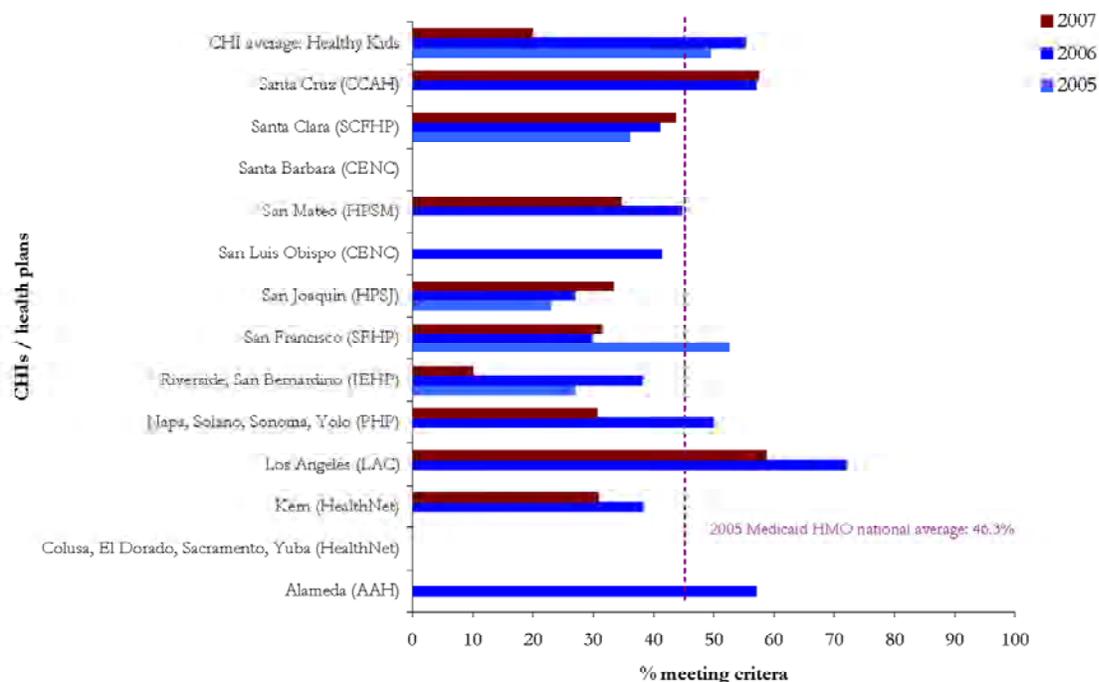


Figure 4a. Healthy Kids, Dental Visit in the Past Year, by County: Ages 2-3 years

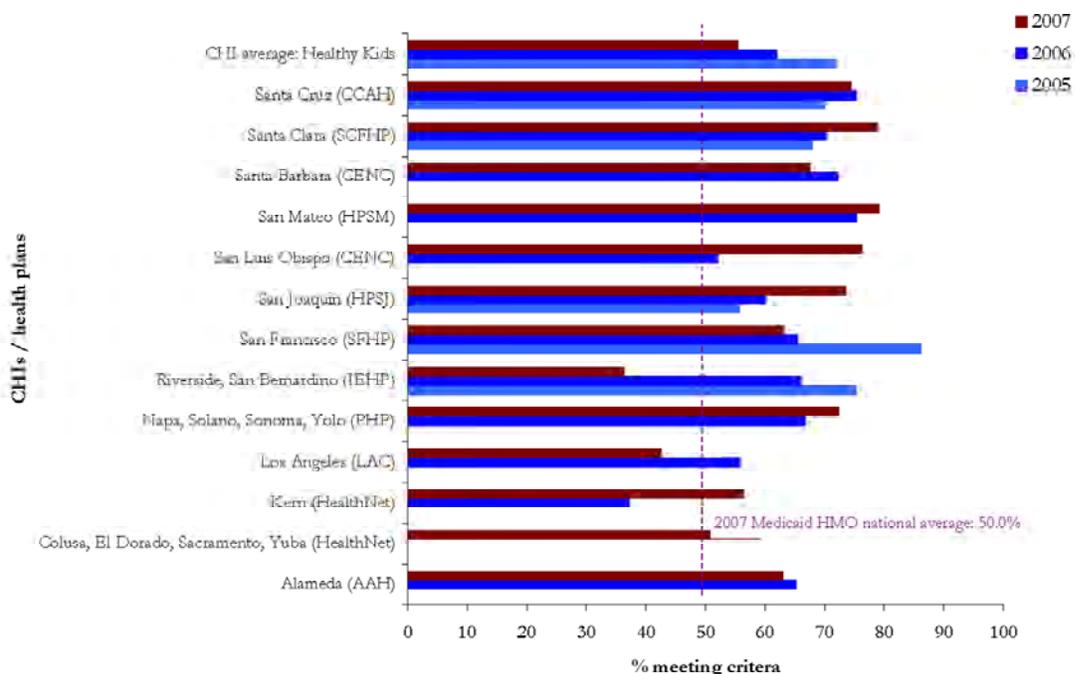


Figure 4b. Healthy Kids, Dental Visit in the Past Year, by County: Ages 4-6 years

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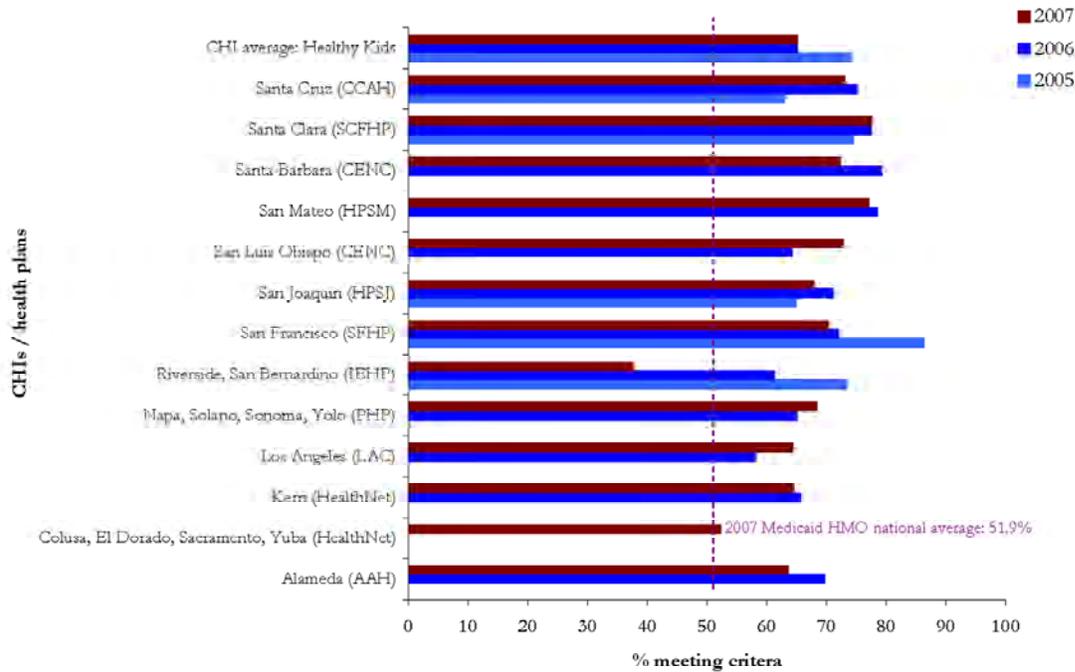


Figure 4c. Healthy Kids, Dental Visit in the Past Year, by County: Ages 7-10 years

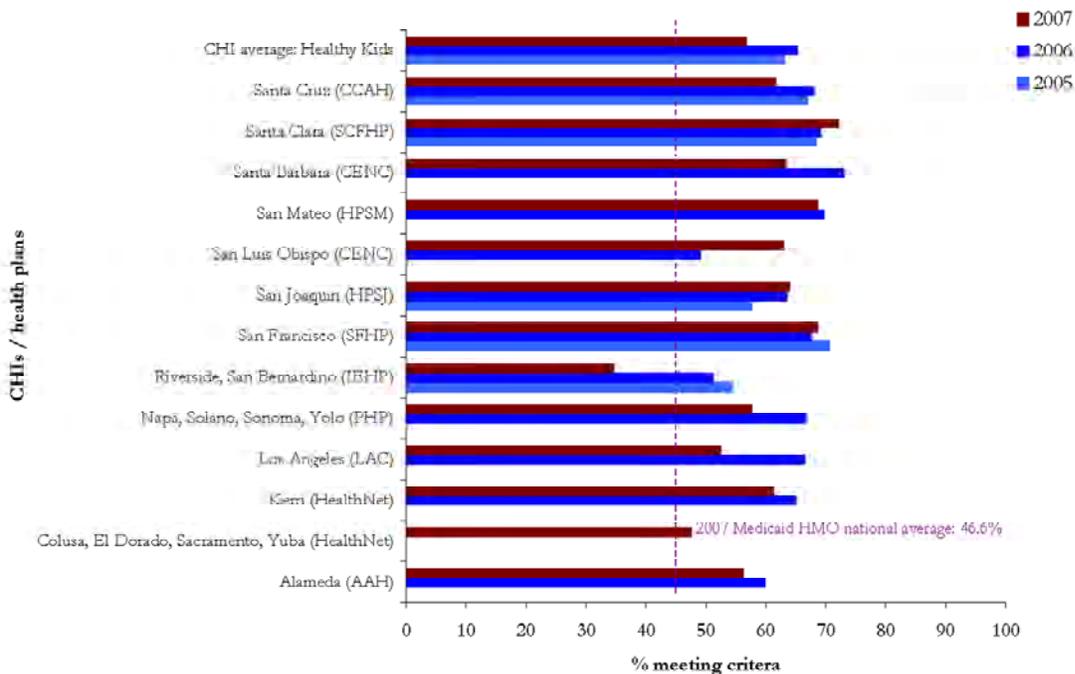
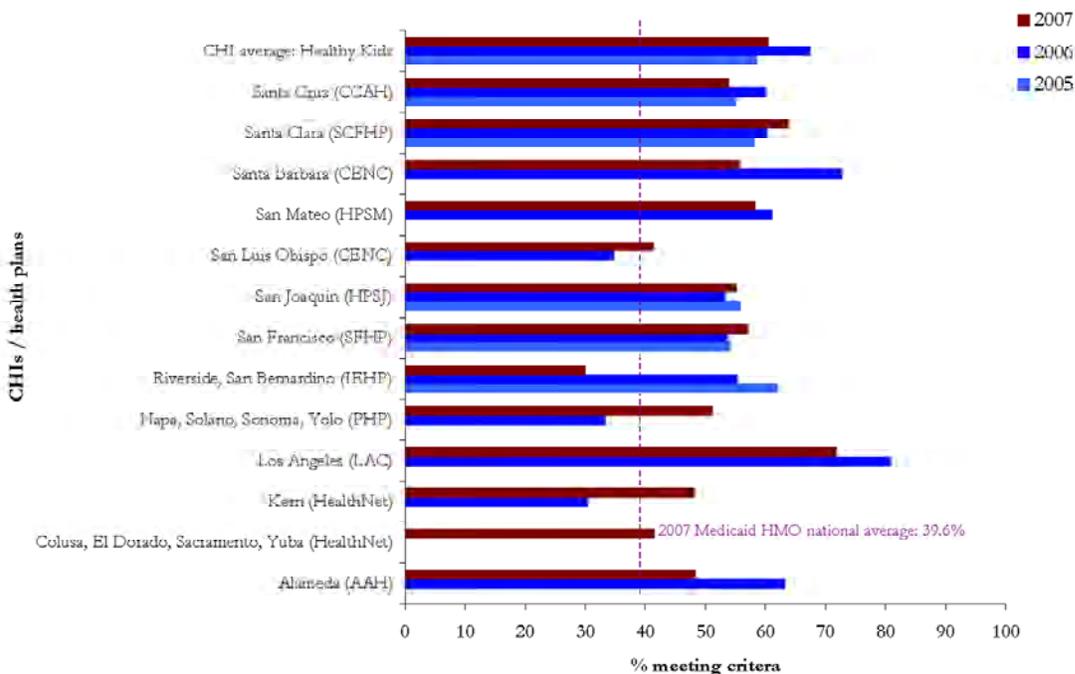


Figure 4d. Healthy Kids, Dental Visit in the Past Year, by County: Ages 11-14 years



**Figure 4e.** Healthy Kids, Dental Visit in the Past Year, by County: Ages 15-18 years

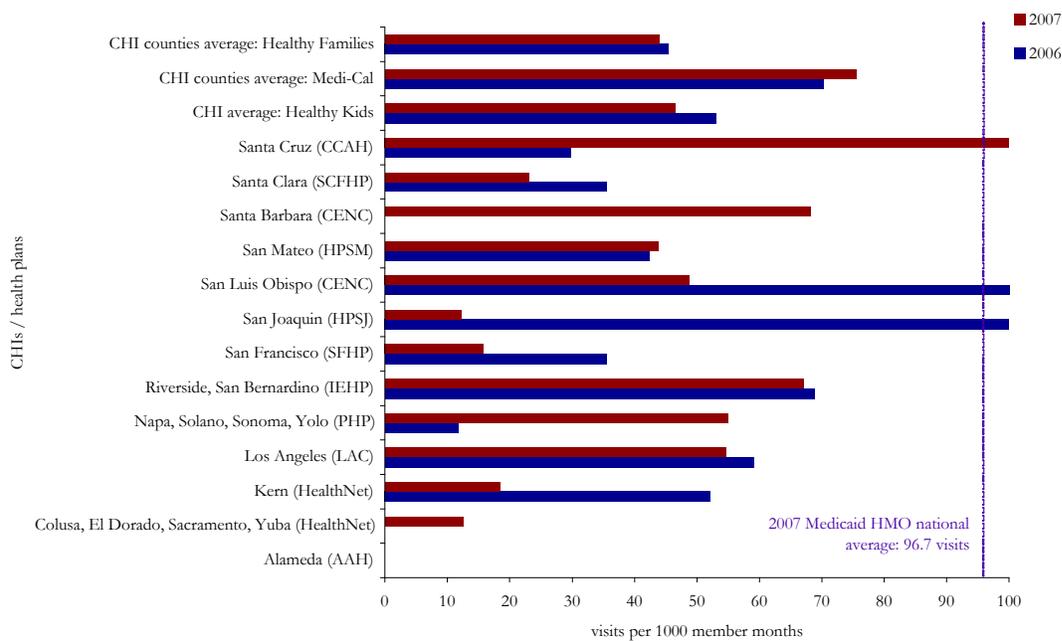
### 5. Emergency Department Visits

This indicator measures the rate of emergency department visits. These are ED visits that did not result in hospitalization. Healthy Kids members are compared to Medi-Cal and Healthy Families members in the same counties. We report visits per 1000 member months (MM). While we note differences across programs, we also note considerable differences in ED use among the CHIs.

**Infants < 1 year.** For infants (ages 0-1) in the Healthy Kids program, rates range from a low of 12.2 in San Joaquin to 100 visits per 1000 MM in Santa Cruz. Similarly, ED rates per 1000 MM for infants (ages 0-1) in Medi-Cal are highest for Santa Cruz at 103, but lowest in San Francisco at 18.9. The San Francisco Medi-Cal rate for infants was also the lowest among CHIs in 2006. The range for Healthy Families shows a high of 76.9 in San Mateo and a low of 14.8 in San Francisco. While it is apparent that ED rates in 2006 were extremely high for Kern, San Francisco, San Joaquin, and San Luis Obispo, those rates have stabilized in 2007.

**Children 1-9 years.** For children ages 1- 9, in Healthy Kids, ED rates per 1000 MM range from a low of 7.8 in Kern/Fresno/Tulare to over 21 in the Inland Empire. By comparison, rates range in Medi-Cal from a low of 23.9 in San Francisco to nearly 55 in Santa Cruz. For Healthy Families, Santa Cruz had the highest rate of 28.9 ED visits per 1000 MM, and San Francisco, the lowest rate of 11.0. For San Joaquin Healthy Kids members the rate reported in 2007 was much lower than in 2006.

**Adolescents 10-19 years.** For Healthy Kids, ED use rates per 1000 MM range from a low of 4.6 in San Francisco to 14.9 in the Inland Empire. By comparison, rates in Medi-Cal range from a low of 12.9 in San Francisco to a high 50.9 in San Joaquin. And for Healthy Families, San Francisco reported the lowest rate of 5.0 visits per 1000 MM compared to 18.1 in Santa Cruz. Again, we observe more stability in the ED rate for San Joaquin Healthy Kids members in 2007 compared to the previous year.



**Figure 5a.** 2006-2007 HEDIS Emergency Department Visits: Ages <1 year

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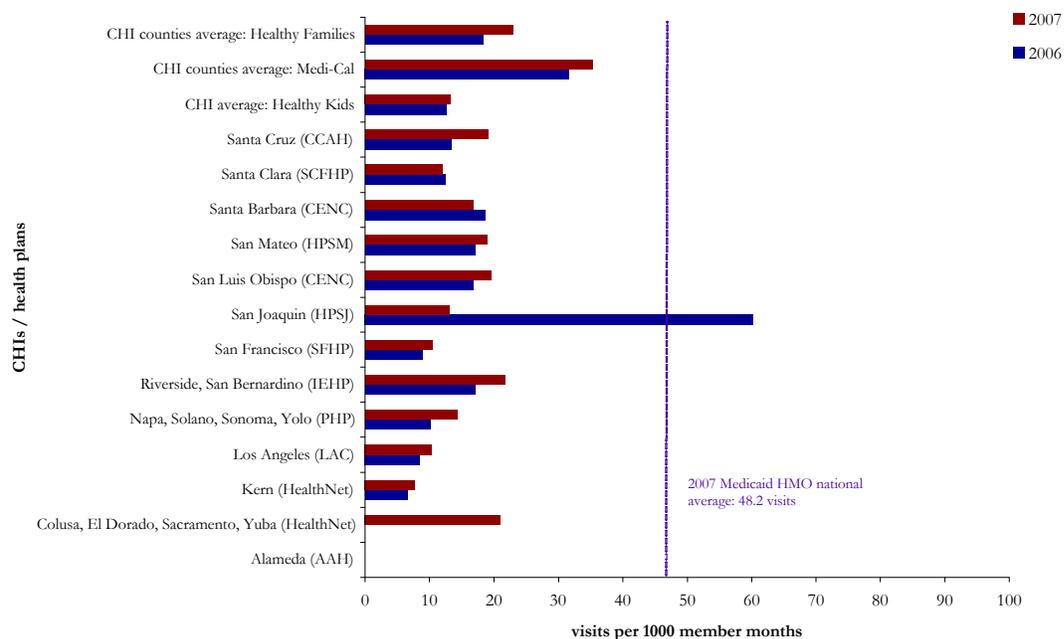


Figure 5b. 2006-2007 HEDIS Emergency Department Visits: Ages 1-9 year

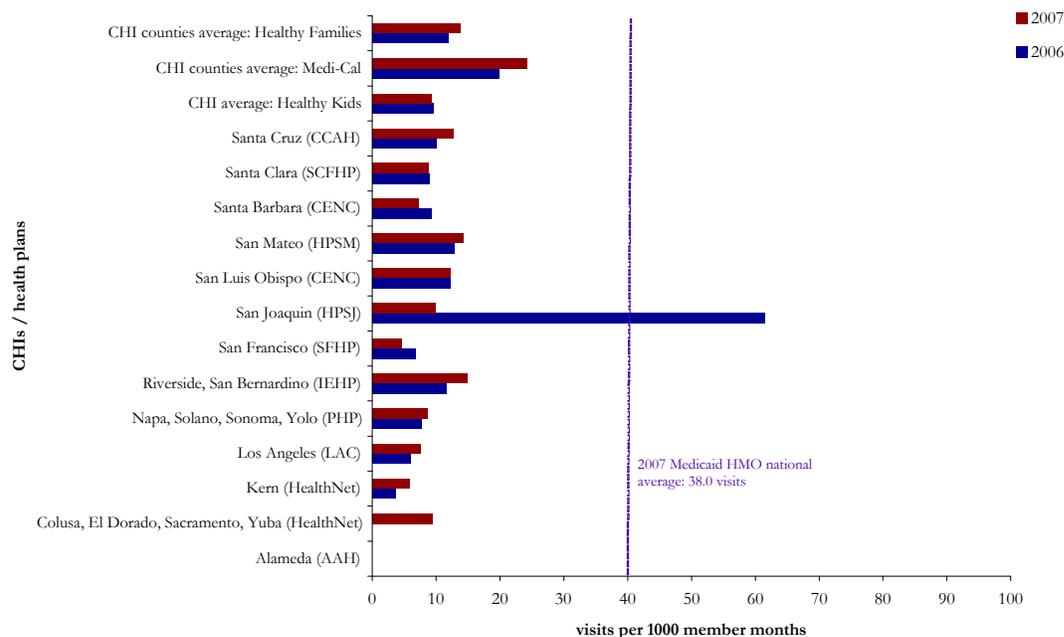


Figure 5c. 2006-2007 HEDIS Emergency Department Visits: Ages 10-19 year

**Weighted rates per 1000 MM by program.** Table 5 shows Emergency Department (ED) use rates per member months among Healthy Kids programs, Medi-Cal and Healthy Families for children ages 0-19 years. For infants under age 1 year, the 2007 weighted average of ED visits

per 1000 member months (MM), is 46.4 in Healthy Kids, considerably lower than 75.5 per 1000 MM for Medi-Cal enrollees and slightly higher than the 43.9 for Healthy Families. For older children (ages 1-9) ER use dropped for all payer groups, but declined the most for Healthy Kids (13.3 visits per 1000 MM), more than half of the rate for Medi-Cal and considerably lower than Healthy Families. Rates dropped further for adolescents (ages 10-19 years) – declining to 9.3 for Healthy Kids, 24.3 and 13.8 per 1000 MM for Medi-Cal and Healthy Families respectively.

In comparison to 2006, two counties reported decreased ED use rates in all age groups for Healthy Kids: San Joaquin and Santa Clara. Two counties experienced the opposite trend and reported ED use rates that increased from 2006 to 2007: San Mateo and Santa Cruz. The same pattern of increase was evident for Medi-Cal and Healthy Families members in both San Mateo and Santa Cruz, indicating a pattern not exclusive to Healthy Kids members.

**Table 5. 2006-2007 Emergency Department Visits in Past Year, by County and Program**

	Age Group	2007 Healthy Kids		2007 Medi-Cal		2007 Healthy Families		2006 Healthy Kids	
		visits/ 1000MM	MM	visits/ 1000MM	MM	visits/ 1000MM	MM	visits/ 1000MM	MM
Colusa, El Dorado,	<1 yr	12.50	80	NR	NR	NR	NR	NR	NR
Sacramento, Yuba (HealthNet)	1-9 yrs	21.04	5,990	NR	NR	NR	NR	NR	NR
	10-19 yrs	9.49	6,324	NR	NR	NR	NR	NR	NR
Kern, Fresno,	<1 yr	18.52	108	NR	NR	NR	NR	52.08^	96
Tulare (KFT)	1-9 yrs	7.79	12,704	NR	NR	NR	NR	6.59^	8,194
	10-19 yrs	5.85	9,737	NR	NR	NR	NR	3.73^	5,096
Los Angeles (LAC)	<1 yr	54.64	732	71.27	417,553	40.12	324	59.10#	863
	1-9 yrs	10.37	189,764	32.37	3,411,415	23.62	18,969	8.50#	221,194
	10-19 yrs	7.61	256,789	19.71	2,668,162	13.62	17,553	6.02#	278,019
Napa, Solano,	<1 yr	54.95	91	61.55	46,141	NR	NR	11.76	85
Sonoma, Yolo (PHP)	1-9 yrs	14.28	13,794	31.34	268,783	NR	NR	10.14	8,187
	10-19 yrs	8.58	11,299	26.12	221,325	NR	NR	7.73	6,340
Riverside & San Bernardino (IEHP)	<1 yr	67.13	864	91.10	186,366	55.92	4,381	68.86	944
	1-9 yrs	21.77	67,421	40.14	1,264,487	23.55	270,476	17.04	74,570
	10-19 yrs	14.85	40,819	29.21	907,331	15.95	269,715	11.63	50,890
San Francisco (SFHP)	<1 yr	15.87	315	18.87	16,213	14.83	472	35.48	310
	1-9 yrs	10.46	17,394	23.86	118,601	10.97	28,171	8.93	19,258
	10-19 yrs	4.57	35,693	12.89	92,078	4.96	42,303	6.83	35,160
San Joaquin (HPSJ)	<1 yr	12.20	82	88.20	32,200	55.12	1016	100.00	60
	1-9 yrs	13.08	14,302	38.81	242,777	20.20	52,722	60.23	2,474
	10-19 yrs	9.87	16,109	50.89	98,482	12.36	55,599	61.58	1,900
San Luis Obispo (CENC)	<1 yr	48.78	41	*	*	*	*	106.38	47
	1-9 yrs	19.59	4,134	*	*	*	*	16.84	3,741
	10-19 yrs	12.26	2,854	*	*	*	*	12.17	2,712
San Mateo (HPSM)	<1 yr	43.82	251	88.57	26,251	76.92	286	42.31	260
	1-9 yrs	18.97	27,941	42.88	149,675	24.33	21,617	17.13	28,844
	10-19 yrs	14.34	47,987	27.94	91,601	14.52	18,456	12.82	44,628
Santa Barbara (CENC)	<1 yr	68.18	44	74.84	40,083	36.46	905	0.00	7
	1-9 yrs	16.83	5,584	39.41	199,632	19.19	12,611	18.63	2,684
	10-19 yrs	7.28	4,260	30.59	127,014	12.45	11,566	9.31	2,041
Santa Clara (SCFHP)	<1 yr	23.09	693	64.04	57,659	32.78	1,678	35.42	734
	1-9 yrs	11.95	59,223	34.27	348,402	17.32	89,101	12.43	66,614
	10-19 yrs	8.89	90,530	23.03	214,332	10.69	74,562	8.99	92,199
Santa Cruz (CCAH)	<1 yr	100.00	80	102.97	68,126	51.08	372	29.70	101
	1-9 yrs	19.14	9,666	54.48	304,959	28.94	18,661	13.45	9,888
	10-19 yrs	12.72	12,976	37.64	185,167	18.11	13,752	10.06	12,824
		2007 Healthy Kids		2007 Medi-Cal		2007 Healthy Families		2006 Healthy Kids	
	Age Group	visits/ 1000MM	MM	visits/ 1000MM	MM	visits/ 1000MM	MM	visits/ 1000MM	MM
CHI Average (weighted)	<1 yr	46.44 (12)	40,572	75.53 (9)	10,687,104	43.92 (8)	113,208	53.10 (10)	42,084
	1-9 yrs	13.30 (12)	5,135,004	35.28 (9)	75,704,772	22.99 (8)	6,147,936	12.66 (11)	5,347,776
	10-19 yrs	9.25 (12)	6,424,524	24.29 (9)	55,265,904	13.84 (8)	6,042,072	9.55 (11)	6,381,708
		2007 Nat'l Medicaid		2007 Nat'l Commercial				2006 Nat'l Medicaid	
Comparison	Age Group	visits/ 1000MM	MM	visits/ 1000MM	MM	visits/ 1000MM	MM	visits/ 1000MM	MM
	<1 yr	96.70	NR	361.80	NR			94.90	NR
	1-9 yrs	48.20	NR	217.50	NR			47.60	NR
	10-19 yrs	38.00	NR	193.90	NR			37.10	NR

NR means Not Reported because of data reporting format or the Healthy Kids program was not active for the full reporting year.

\*Medi-Cal and Healthy Families numbers for San Luis Obispo were combined with Santa Barbara

#Data was incomplete at the time of reporting

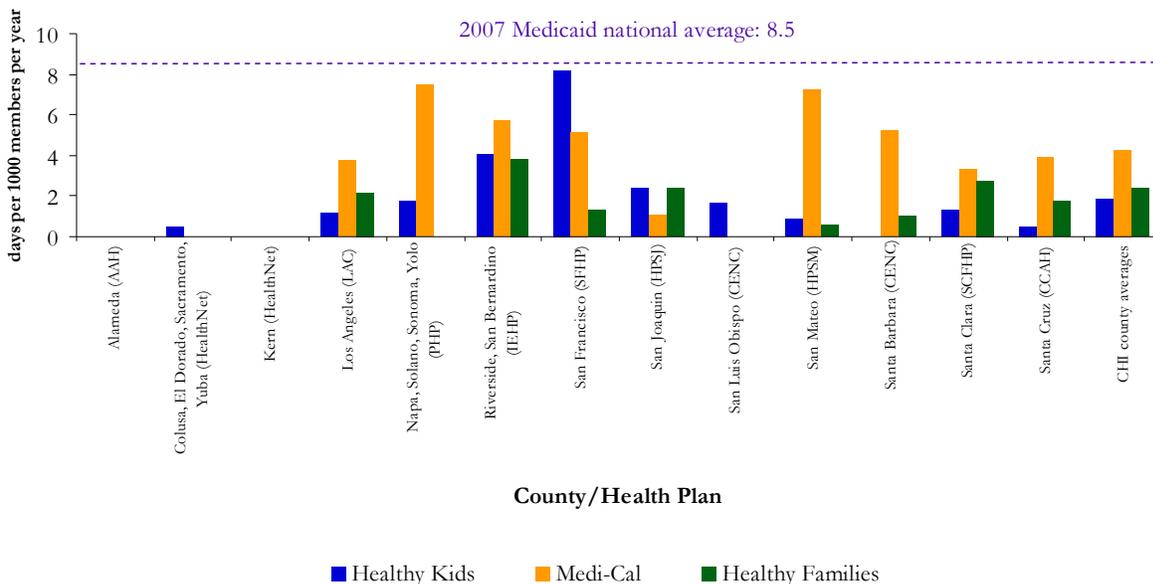
^Kern Fresno & Tulare were included in the 2007 calculation. Only Kern County was included in the 2006 rate calculation

## **6. Hospital Stays and Discharges**

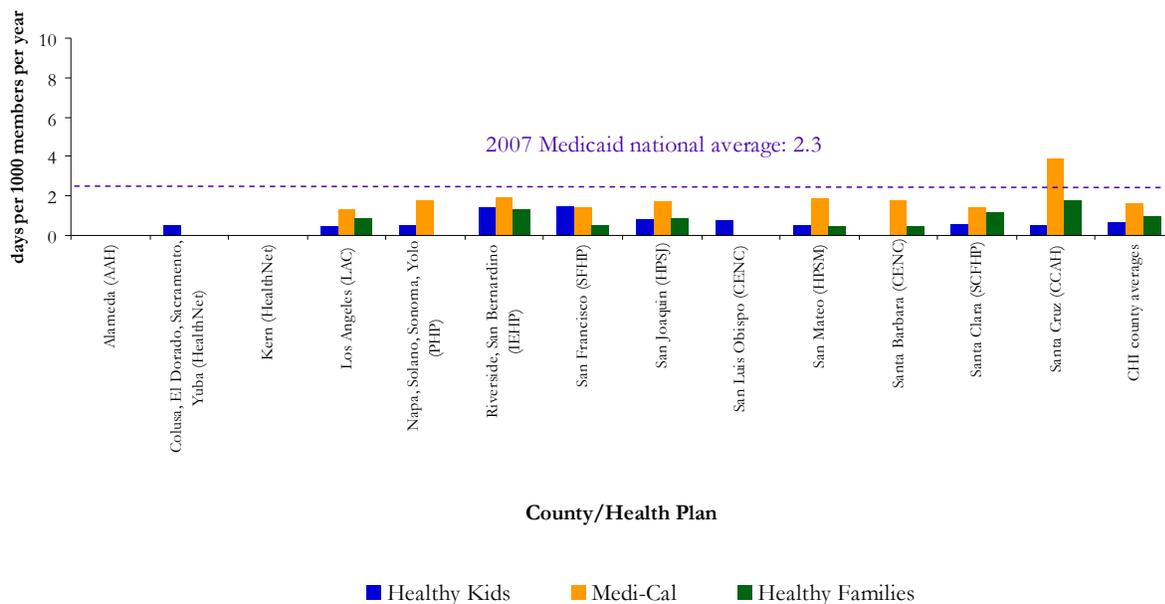
These measures were added this year because they provide an estimate of the level of acute care needed by Healthy Kids members, in comparison to Medi-Cal and Healthy Families members. Hospital stays are measured through the average length of stay in the hospital per 1000 member months (MM). This measure of total inpatient utilization estimates the degree to which health plan members receive inpatient hospital services for any reason (i.e., medicine, surgical, maternity), and excludes non-acute care, mental health and chemical dependency, as well as newborn care.

***Hospital Days: Ages 1-9 years.*** Figure 6a charts the average number of days that 1-9 year olds spent in the hospital, by county and by program. Overall, the number of days spent in the hospital for Healthy Kids members, 1.91 days per 1000 MM, was far lower than the 4.26 days for Medi-Cal and still below the 2.4 days for Healthy Families members in the same counties. All CHIs remained below the national Medicaid benchmark of 8.5 days per 1000 MM. Rates in San Francisco (8.16) and San Joaquin (2.38) far exceeded rates for Medi-Cal indicating that some Healthy Kids members needed longer stays due to their acute conditions. The range of Healthy Kids hospital days for the rest of the CHI counties was from a low of 0.50 in Colusa/El Dorado/Sacramento/Yuba to a high of 4.06 in the Inland Empire.

***Hospital Discharges: Ages 1-9 years.*** Figure 6b charts the average number of hospital discharges for 1-9 year olds, by county and by program. When looking at the average rates by program, the overall pattern of discharges follows a similar one for hospital days: lowest for Healthy Kids at 0.65 discharges per 1000 MM and highest for Medi-Cal at 1.61. However, when discharges are interpreted together with average number of days in the hospital, we see individual county profiles emerge. For instance, in San Francisco more of the younger Healthy Kids members, compared to Medi-Cal, were hospitalized for longer periods of time although there were not disproportionately more children being hospitalized overall, indicated by the more discharge rates. A similar picture emerges for San Joaquin, and for the Inland Empire.



**Figure 6a.** 2007 Hospital Days in the Past Year: Ages 1-9 years

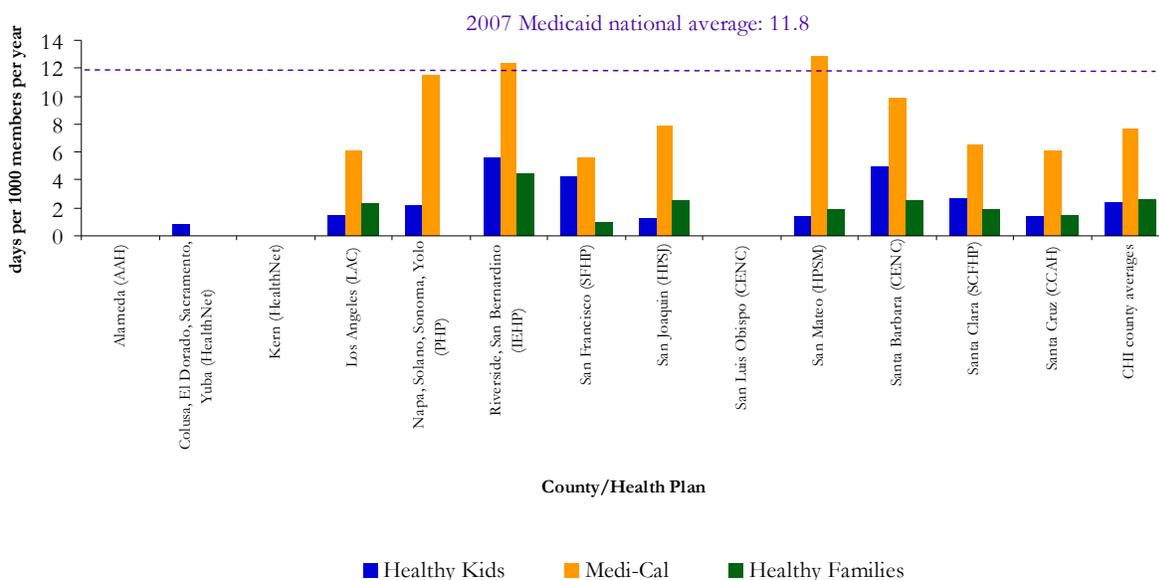


**Figure 6b.** 2007 Hospital Discharges in the Past Year: Ages 1-9 years

**Hospital Days: Ages 10-19 years.** Figure 6c charts the average number of hospital days for 10-19 year olds. In general, a similar pattern to the younger age group is observed when looking at the CHI averages. Overall, the average length of stay for Healthy Kids members was 2.37 days

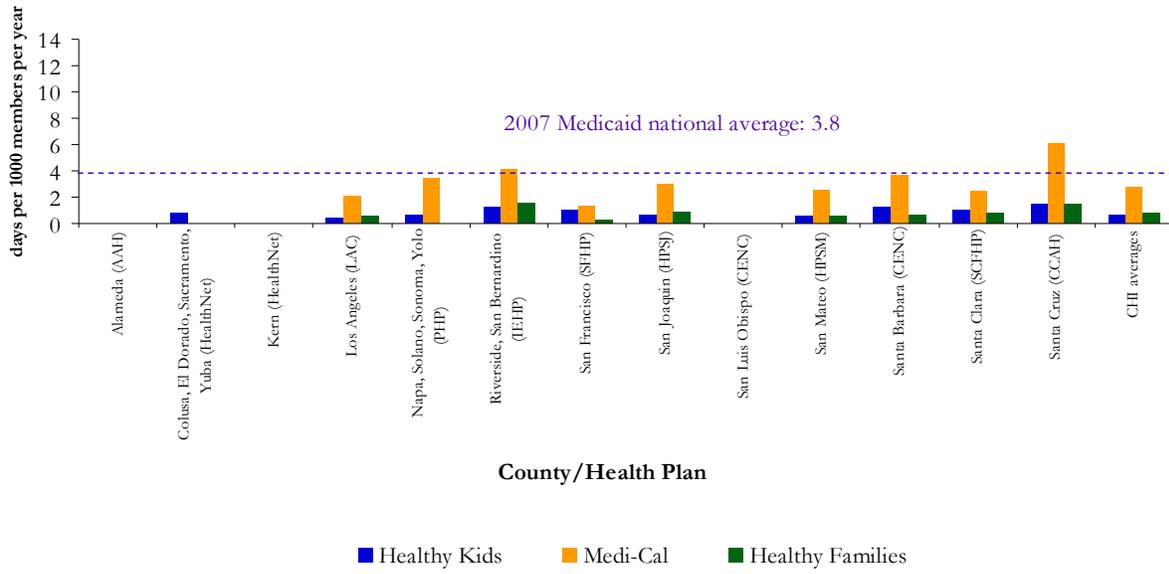
per 1000 MM, which was lower than both the Medi-Cal rate of 7.72 and Healthy Families rate of 2.59. All nine counties that were able to report this measure for both programs had rates that were much lower in Healthy Kids than for Medi-Cal, ranging from a low of 0.79 days per 1000 MM in Colusa/El Dorado/ Sacramento/Yuba to a high of 4.93 in Santa Barbara. Four counties had rates for Healthy Kids that exceeded Healthy Families (Inland Empire, San Francisco, Santa Barbara, and Santa Clara) yet all Healthy Kids rates remained far below the national Medicaid benchmark of 11.8 days per 1000 MM.

**Hospital Discharges: Ages 10-19 years.** Figure 6d charts the average number of hospital discharges for 10-19 year olds. Again, all Healthy Kids rates were far below the Medicaid benchmark of 3.8 discharges per 1000 MM. The average Healthy Kids discharge rate of 0.71 was lower than both the Medi-Cal rate of 2.79 and Healthy Families rate of 0.83 in the same counties. The range of Healthy Kids discharges varied from a low of 0.48 in Los Angeles to a high of 1.39 in Santa Cruz.



**Figure 6c.** 2007 Hospital Days in the Past Year: Ages 10-19 years

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**Figure 6d.** 2007 Hospital Discharges in the Past Year: Ages 10-19 years

### **Results for Selected Measures Comparing Healthy Kids to Medi-Cal**

When several HEDIS measures are interpreted together, they can provide a better overall picture of the accessibility and utilization of care in individual CHIs. For instance, we compared PCP use, ED visits, hospital days and hospital discharges in Healthy Kids to the average rate reported for Medi-Cal in the same CHI counties. Table 6 provides the outcome of these comparisons, where data was available. Slightly more than half the CHIs (6 of 11) had lower rates of PCP visits than the Medi-Cal average. However, all the rates of ED visits for Healthy Kids were lower than in Medi-Cal except for one county (San Francisco). In general, all Healthy Kids members were hospitalized less than those enrolled in Medi-Cal as well.

These results indicate the Healthy Kids members may be using health care services at a relatively lower rate than Medi-Cal members. Only in San Francisco were there higher rates of PCP visits and higher rates of ED visits. In the four other CHIs, where there were higher rates of PCP visits in Healthy Kids versus Medi-Cal, there were also lower rates of ED and hospital use (Napa/Solano/Sonoma/Yolo, San Mateo, Santa Barbara, and Santa Cruz).

**Table 6.** Comparisons of Select Access and Hospital Use Measures for Healthy Kids 2007

	Primary Care (PCP) Visits	Emergency Department (ED) Visits	Hospital Days	Hospital Discharges	Summary
Colusa, El Dorado, Sacramento, Yuba	NR	▼	▼	▼	
Kern, Fresno, Tulare	▼	▼	▼	▼	
Los Angeles	▼	▼	▼	▼	
Napa, Solano, Sonoma, Yolo	▲	▼	▼	▼	✓
Riverside, San Bernardino	▼	▼	▼	▼	
San Francisco	▲	▲	▼	▼	!
San Joaquin	▼	▼	▼	▼	
San Luis Obispo	▼	▼	▼	▼	
San Mateo	▲	▼	▼	▼	✓
Santa Barbara	▲	▼	▼	▼	✓
Santa Clara	▼	▼	▼	▼	
Santa Cruz	▲	▼	▼	▼	✓

- ▲ Proportion or rate is greater than the average Medi-Cal rate for the all CHI counties
- ▼ Proportion or rate is less than the average Medi-Cal rate for all CHI counties
- ▼▲ Green arrows indicate a favorable direction of performance for the county, compared to Medi-Cal
- ▼▲ Red arrows indicate an unfavorable direction of performance for the county, compared to Medi-Cal
- NR No reportable data
- ✓ Greater proportion of PCP visits, and fewer ED visits and hospitalizations, compared to Medi-Cal
- ! Greater proportion of PCP visits, but more ED visits, compared to Medi-Cal

## **Results of Performance and Achievement Over Two Years: 2006 to 2007**

### *Trend analysis across two years of data*

Ten programs reported Healthy Kids data that was included in the two-year HEDIS trend analysis, shown in Table 7. (More detailed results of a trend and proportional analyses are provided in Appendix D, Table D1.) The overall findings when these counties were included were similar to the 3-year analysis: there was a statewide increase in Immunizations, combination 2 ( $P=0.006$ ), Well-child visits ( $P<0.0001$ ), and Well-adolescent visits ( $P<0.0001$ ); no statistical change in primary care visits ( $P=0.37$ ); and a decrease in dental visits ( $P<0.0001$ ).

Again, most of the access to care measures showed improvement. One notable exception was the Inland Empire, where there was a decrease in Well-child visits from 2006 to 2007 (49% to 43%,  $P=0.0001$ ). San Joaquin performed best in these two measures. This program made large improvements, with a two-year change in well-child visits from 61% to 81% ( $P<0.0001$ ), and Well-adolescent visits from 23% to 46% ( $P<0.0001$ ). Los Angeles had the largest Well-child improvement, from 45% in 2006 to 70% in 2007. Santa Cruz had a high proportion of visits for these two measures: Well-child visits were 78% in 2006 and 82% in 2007 ( $P=0.37$ ), and Well-adolescent visits increased from 47% to 56% ( $P=0.003$ ). Although not showing a statistically-significant decrease, there were low performance scores for San Luis Obispo. This is in line with the generally low HEDIS rates in the county: Well-child visits dropped from 62% in 2006 to 57% in 2007 ( $P=0.41$ ) and Well-adolescent visits declined from 28% to 21% ( $P=0.16$ ). Santa Barbara did not have any HEDIS measures that showed statistically significant improvement, but this may have been a result of small sample size in this county.

Each program generally had a large proportion of members with primary care visits, with a few counties reporting an increase from 2006 to 2007. Partnership Health Plan reported the

largest increase in primary care visits from 75% in 2006 to 85% in 2007 (P=0.04). Other counties had between 70% and 90% primary care visits. The one exception was Los Angeles, which reported a slight decrease from 65% to 64% (P=0.003).

Dental visits did not fare as well as the other measures. San Luis Obispo reported the largest increase—from 51% to 62% (P=0.001)—followed by Santa Clara (68% to 71%, P<0.0001). Data from the Inland Empire shows a decrease from 58% in 2006 to 33% in 2007 (P<0.0001). Other plans that had a decrease in dental visits were Santa Cruz (69% to 65%, P=0.02) and Los Angeles (66% to 65%, P<0.0001).

**Table 7.** CHI Performance Scores from 2006 to 2007, by Plan and Measurement Type

Rank	Well-Child Visits		Well-Adolescent Visits		Primary Care Visits		Dental Visits		Immunizations	
	Plan	Score	Plan	Score	Plan	Score	Plan	Score	Plan	Score
1	HPSJ	132	HPSJ	76	PHP	125	SLO	84	LAC	117
2	LAC	115	CCAH	73	HPSM	102	SCFHP	80	SCFHP	76
3	CCAH	100	HPSM	58	IEHP	102	HPSJ	69	HPSM	73
4	HPSM	99	SB	58	SLO	100	SFHP	67	IEHP	62
5	SCFHP	93	SCFHP	49	SFHP	99	HPSM	65	SFHP	54
6	PHP	92	SFHP	48	HPSJ	91	PHP	64	CCAH	ND
7	IEHP	84	LAC	46	CCAH	88	CCAH	59	HPSJ	ND
8	SFHP	79	PHP	42	SB	84	SB	50	PHP	ND
9	SLO	49	IEHP	31	SCFHP	83	LAC	38	SB	ND
10	SB	38	SLO	-4	LAC	62	IEHP	1	SLO	ND

ND: Data not reported for this HEDIS measure.

Method for Calculation

Performance score takes into account the addition of two sub-scores:

- Achievement Component - HEDIS score in 2007
- Improvement Component - Percent improvement toward a HEDIS score of 100, from 2006 to 2007.

$$\text{Performance Score} = ([2007 \text{ Score}] + ([2007 \text{ Score}] - [2006 \text{ Score}] / (100 - [2006 \text{ Score}])))$$

No county performed consistently well across all measures. Table 8 summarizes the performance scores by plan and indicator. San Joaquin performed well in the access to care measures, and Partnership Health Plan performed well in primary care visits. Despite having a low proportion of Well-child and Well-adolescent visits, San Luis Obispo improved their

proportion of dental visits. Similarly, Los Angeles reported a decrease in primary care visits from 2006 to 2007, but had the best performance with regard to Immunizations.

**Table 8.** CHI Performance and Improvement from 2006 to 2007, by Plan and Indicator

	Well-Child Visits	Well-Adolescent Visits	Primary Care Visits	Dental Visits	Immunizations
CCAH	○	▲	○	▽	ND
HPSJ	▲	▲	○	○	ND
HPSM	△	△	△	○	○
IEHP	○	▽	△	▼	○
LAC	△	△	▼	▽	▲
PHP	△	○	▲	○	ND
SBRHA	●	○	○	○	ND
SCFHP	△	△	○	▲	○
SFHP	○	△	○	○	△
SLO	●	●	○	▲	ND

ND Data not reported for this HEDIS measure.

▼ Performance score is >1 standard deviation below mean ("low performance"), AND a decrease in HEDIS score from 2006 to 2007.

▽ Decrease in HEDIS score from 2006 to 2007.

● Performance score is >1 standard deviation below mean ("low performance"), but no statistical change in HEDIS score from 2006 to 2007.

○ No statistical change in HEDIS score from 2006 to 2007.

△ Increase in HEDIS score from 2006 to 2007.

▲ Performance score is >1 standard deviation above mean ("high performance"), AND an increase in HEDIS score from 2006 to 2007.

- No data provided for this county's HEDIS measure.

## **Results for Healthy Kids Performance and Achievement Over Three Years: 2005-2007**

### *Comparison of programs across three years of data*

The performance of the Healthy Kids program was mixed across all measures, in comparison to Medi-Cal and Healthy Families. Table 9 shows the seven CHIs that reported measures for all three years, 2005 through 2007. (More detailed results of a trend and proportional analyses are provided in Appendix D, Table D2.) Across all seven CHIs, Healthy Kids performed better than the other two programs with regard to the two access to care measures. Healthy Kids had a larger increase ( $P<0.0001$ ) in Well-child visits ( $OR=1.41$ ,  $P<0.05$ ) when compared to Medi-Cal ( $OR=1.09$ ,  $P<0.05$ ) and Healthy Families ( $OR=1.01$ ,  $P>0.05$ ). The same trend was observed in Well-adolescent visits ( $P<0.0001$ ) for Healthy Kids ( $OR=1.34$ ,  $P<0.05$ ) compared to Medi-Cal ( $OR=0.94$ ,  $P<0.05$ ) and Healthy Families ( $OR=1.00$ ,  $P>0.05$ ). However, there was no three-year change in the proportion of primary care visits for Healthy Families ( $OR=0.99$ ,  $P>0.05$ ) compared to an increase in Medi-Cal ( $OR=1.15$ ,  $P<0.05$ ) and Healthy Families ( $OR=1.08$ ,  $P<0.05$ ). Sufficient data on dental visits for Healthy Families and Medi-Cal was not available for comparison purposes. Immunizations increased for all programs, but there was a larger increase ( $P<0.0001$ ) for Healthy Families ( $OR=1.40$ ,  $P<0.05$ ) compared to Healthy Kids ( $OR=1.28$ ,  $P<0.05$ ) and Medi-Cal ( $OR=1.14$ ,  $P<0.05$ ).

### *Trend analysis across three years of data*

Seven CHIs were included in the three-year HEDIS trend analysis (shown in Table 9). Generally, overall measures of health care performance increased from 2005 to 2007. Of the five measures studied, three showed statistically-significant increases: Well-child visits (58% to 73%,  $P<0.0001$ ), Well-adolescent visits (26% to 39%,  $P<0.0001$ ), and Immunizations (59% to

70%,  $P=0.0008$ ). Dental visits showed an overall decrease in performance (65% to 57%,  $P<0.0001$ ), although this may have been due to the lack of data for Los Angeles in 2005, and the especially low rate of dental visits (55%) for Los Angeles in 2007.<sup>vii</sup>

Performance rankings for the access to care measures were generally similar. San Joaquin and Santa Cruz performed best in these two measures of all counties studied, with the Inland Empire and Santa Clara plans making less of an improvement. The Inland Empire was the only plan to show a decrease in access to care, as Well-adolescent visits decreased from 49% in 2006 to 43% in 2007 ( $P=0.0001$ ). Santa Clara showed no statistical change in Well-adolescent visits from 2005 to 2007 ( $P=0.34$ ), but went from a 42% to a 41% encounter rate. San Joaquin had an especially high performance score for Well-child visits, improving from 52% in 2005 to 81% in 2007 ( $P<0.0001$ ); the Central Coast showed a similar trend, improving from 61% to 82% ( $P=0.0001$ ).

Many CHIs reported an increase in the proportion of primary care visits between 2005 and 2007. CHIs receiving low performance scores for this measure were those that either did not make large improvements (San Joaquin, Santa Clara, and Santa Cruz; 80% to 81%, 82% to 83%, and 91% to 89% from 2005 to 2007, respectively;  $P>0.05$ ) or Los Angeles, which made an improvement from 53% to 64% ( $P<0.0001$ ). The highest HEDIS rates were seen when studying this measure as all counties but Los Angeles had 2007 scores above 80%. San Francisco improved primary care visits from 85% to 90% over the three-year period ( $P<0.0001$ ), and San Mateo improved from 73% to 88% ( $P<0.0001$ ).

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<sup>vii</sup> Note: Dental numbers for Los Angeles may need adjustment, pending verification from the health and dental plan on some discrepancies in the data.

**Table 9.** CHI Performance Scores from 2005 to 2007, by Plan and Measurement Type

Rank	Well-Child Visits		Well-Adolescent Visits		Primary Care Visits		Dental Visits		Immunizations	
	Plan	Score	Plan	Score	Plan	Score	Plan	Score	Plan	Score
1	HPSJ	141	CCAH	87	HPSM	144	SCHFP	86	LA	106
2	CCAH	136	HPSJ	76	SFHP	123	HPSJ	78	SCHFP	102
3	SFHP	109	LAC	58	IEHP	102	CCAH	70	HPSM	73
4	LAC	106	HPSM	55	SCHFP	89	HPSM*	65	IEHP	62
5	HPSM	96	SFHP	51	LAC	87	SFHP	52	SFHP	52
6	SCHFP	95	SCHFP	39	CCAH	87	LAC*	38	CCAH	ND
7	IEHP*	84	IEHP*	31	HPSJ	86	IEHP	-15	HPSJ	ND

\* [2005 Score] is replaced by [2006 Score] when there is no data for 2005.

ND: Data not reported for this HEDIS measure.

Method for Calculation

Performance score takes into account the addition of two sub-scores:

- Achievement Component - HEDIS score in 2007
- Improvement Component - Percent improvement toward a HEDIS score of 100, from 2005 to 2007.

$$\text{Performance Score} = ([2007 \text{ Score}] + ([2007 \text{ Score}] - [2005 \text{ Score}])(100 - [2005 \text{ Score}]))$$

As shown in Table 10, there did not seem to be any clear pattern with respect to performance scores across counties. The table summarizes performance scores by plan and indicator. Counties that performed well with access to care did not necessarily have good performance for utilization or dental visits. Only the Inland Empire decreased in HEDIS measures for more than one category. High performers included San Joaquin and Santa Cruz (large improvements in Well-child and Well-adolescent visits), San Mateo (large improvement toward a high proportion of primary care visits), Santa Clara (increase in dental visits), and Los Angeles (increase in Immunizations).

**Table 10.** CHI Performance and Improvement from 2005 to 2007, by Plan and Measurement Type

	Well-Child Visits	Well-Adolescent Visits	Primary Care Visits	Dental Visits	Immunizations
CCAH	▲	▲	○	○	ND
IEHP	●	▼	△	▼	○
LAC	△	△	△	▽	▲
SCFHP	△	○	○	△	○
SFHP	△	△	△	▽	△
HPSJ	▲	▲	○	△	ND
HPSM	△	△	▲	○	○

ND Data not reported for this HEDIS measure.

▼ Performance score is >1 standard deviation below mean ("low performance"), AND a decrease in HEDIS score from 2005 to 2007.

▽ Decrease in HEDIS score from 2005 to 2007.

● Performance score is >1 standard deviation below mean ("low performance"), but no statistical change in HEDIS score from 2005 to 2007.

○ No statistical change in HEDIS score from 2005 to 2007.

△ Increase in HEDIS score from 2005 to 2007.

▲ Performance score is >1 standard deviation above mean ("high performance"), AND an increase in HEDIS score from 2005 to 2007.

- No data provided for this county's HEDIS measure.

## **DISCUSSION**

In the midst of health care reform discussions at local, state, and federal levels, CHIs throughout California are demonstrating how counties are able to provide access to much needed health care services and assure quality of care for children. The expansion of Healthy Kids programs since 2001 demonstrates the ability of local coalitions to reduce the number of uninsured children through local health reform.<sup>viii</sup> The success of these local initiatives is important as California continues to struggle with rising unemployment and thus, the declines in employer-based coverage for individuals and their families<sup>ix</sup>. Given that Healthy Kids, as a locally based program, may not be able to sustain sufficient funding in the long-term, policy-makers may want to consider expanding other public programs to retain coverage for these vulnerable children. Data from this report suggest this is possible since comparing Healthy Kids to Medi-Cal and Healthy Families, the Healthy Kids members use primary care services at a similar or lower rate, and are lower users of expensive emergent and inpatient services.

CHIs illustrate the importance of health insurance for improving not only children's use of preventive services (i.e., Well-child and Well-adolescent visits), but also lowering their need for overall health care services. This report shows that Healthy Kids enrollees are visiting EDs much less than those enrolled in other public programs. At the same time, Healthy Kids enrollees are being hospitalized less frequently and for shorter periods of time than Medi-Cal or Healthy Families beneficiaries. Further, recent evidence has found that the CHIs are helping to reduce the total number of unnecessary hospitalizations for children of lower-income families,

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<sup>viii</sup> Stevens GD, Rice K, Cousineau MR. Children's Health Initiatives in California: the experiences of local coalitions pursuing universal coverage for children. *American Journal of Public Health*, 2007;97(4):738-43.

<sup>ix</sup> Stevens GD, Rice K, Cousineau MR. Challenges Facing the Children's Health Initiatives in a Down Economy, January 2009. Center for Community Health Studies, Keck School of Medicine, University of Southern California. Prepared for The California Endowment and First 5 California.

by up to 6,324 visits in all CHI counties combined. This translates into a savings of \$6.7 million over the six years of the analysis.<sup>x</sup> With the economic outlook, particularly for health care costs in California and the US as a whole, valuable programs that improve preventive services for children and avert use of more costly hospital services should be maintained. This savings does not account for the unmeasured economic costs to families when a child becomes ill.

For dental services, the utilization in 2007 for Healthy Kids declined from the previous two years, most considerably among the youngest children below age three. Some qualitative data suggests that dental services may be one reason that children enroll in Healthy Kids initially. Therefore, after acute dental conditions are cared for, there may be less need for dental services the longer children are enrolled in Healthy Kids. However, the need for dental care varies greatly by county, and by type of dental service (i.e., preventive, endodontic, surgical). A more detailed analysis of dental services for Healthy Kids 2007 will aim to provide a more comprehensive picture in each county, and will be released this year as an update to the dental utilization analysis conducted in 2006.<sup>xi</sup>

Among the ten plans reporting utilization data for at least two years of the evaluation (2006 and 2007), five plans showed improvement for Well-Child visits, six showed improvement for Well-Adolescent visits, three for primary care visits, and two for dental visits and immunizations. Overall performance scores over the two years show that the five counties with the highest scores were San Joaquin, Partnership Health Plan, Santa Cruz, San Mateo, and Santa Clara.

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<sup>x</sup> Cousineau MR, Stevens GD, Pickering TA. Preventable hospitalizations among children in California counties after child health insurance expansion initiatives. *Medical Care*, 2008;46(2):142-7.

<sup>xi</sup> Phipps K, Diringer J, Arpawong TE, Feifer C, Cousineau MR, Stevens GD. Dental Utilization in California's Children's Health Initiatives' Healthy Kids Programs, April 2008. Center for Community Health Studies, Keck School of Medicine, University of Southern California. Prepared for The California Endowment and First 5 California.

Among the seven plans reporting utilization data for all three years of the evaluation (2005-2007), six plans showed improvement for Well-Child visits while five counties showed improvement for Well-Adolescent visits. Four plans showed an increase in primary care visits, with San Mateo making the most strides, while two performed better on dental visits, most notably Santa Clara and San Joaquin. Two plans also performed better on Immunizations, particularly Los Angeles. Based on overall performance scores across the three years, the three counties/plans that showed the most improvement in performance compared to their first year's rates were San Joaquin, Santa Cruz, San Mateo, Santa Clara, and Los Angeles. An integrated analysis, based on both quality and case study data, may help to explain why some counties appear to outperform others. The analysis may also help decipher the degree to which improvements are the result of improved data collection versus actual differences in the delivery of services. The report highlighting exceptional CHI performance is anticipated for completion in May, 2009.

One measure not included in the assessment for improved performance was ED use because the measure was not collected in the same format for all three years of the evaluation. In this evaluation, we would be concerned to find a county with higher than average ED use and lower than average primary care and well child visit rates. None of the counties revealed such a pattern. San Francisco had the highest relative ED rates compared to benchmarks, but also had above average access to primary care services and lower rates of average hospital days and discharges.

It has been suggested that some children receive vaccinations through other means prior to enrolling in Healthy Kids, such as the Children's Health and Disability Prevention gateway (CHDP), or even while enrolled in Healthy Kids through school programs or local clinics. Others

may have been immunized in other countries. Therefore, without the existence of a documentation system across programs, HEDIS rates for Healthy Kids may be lower than the actual number of children receiving the vaccinations.

There are some limitations of this report. We are unable to account for differences in population demographics, hospital contracts, provider resources, and environments across counties and programs that may also influence utilization. Reliance on HEDIS measures improves the ability of health plans to participate in evaluation, however the eligibility requirements of these measures limits the applicability of these findings only to children who have continuous coverage in the plan. Additional gaps in the completeness and accuracy of data reporting across counties may lead to reported rates that misrepresent the actual performance.

We also urge some caution in interpreting differences reported here. Small variations are expected in data collected at different points in time, so slight increases or decreases in rates should not be interpreted as improvements or declines. The larger changes (for better or worse) could represent changes in care delivery or changes in data collection or data quality. Finally, the analysis does not decipher whether differences in performance can be attributed to length of time the program has been in operation, the size of the CHI, provider capacity, or incentive or quality improvement programs.

## **RECOMMENDATIONS**

In order to assess the future outcome of health insurance expansion programs on children in California, our recommendation is to continue monitoring the role of CHIs in providing accessibility to services and utilization of care for this vulnerable population. Long-term sustainability for these CHIs is in question, and the potential impact to the state on loss of health care coverage for these children may be substantial. In addition, the CHIs often serve as enrollment facilitators for children into Medi-Cal and Healthy Families; thus, we recommend continued monitoring of the quality and HEDIS measures for these programs in the same counties as well.

While this study examines measures of health care utilization and quality of care in Healthy Kids programs, there is limited information on the health impacts of these programs. As part of the larger Healthy Kids evaluation that is being conducted by the Center for Community Health Studies, a statewide survey of Healthy Kids members, launched in July 2008 will help to assess the impacts of insurance coverage on health care experiences and changes in health status and health related quality of life. Pairing the results of this report on utilization with more outcomes focused data from the survey will provide a more complete understanding of the strengths and limitations of Healthy Kids programs as a strategy to improving the health of children. A report on the results from the survey is forthcoming, in June 2009.

**UTILIZATION IN CHILDREN'S HEALTH INITIATIVES IN CALIFORNIA:  
Results From 2005, 2006, and 2007**

**APPENDICES**

**APPENDIX A**

**INDIVIDUAL CHI RESULTS: Healthy Kids, Medi-Cal, and Healthy Families Data** **A2**

**APPENDIX B**

**METHODS FOR DATA COLLECTION** **A16**

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## **Appendix A**

### **INDIVIDUAL CHI RESULTS: Healthy Kids, Medi-Cal, and Healthy Families Data**

1. Alameda (Alameda Alliance for Health)
2. Colusa, El Dorado, Sacramento, Yuba (HealthNet)
3. Kern, Fresno, Tulare (HealthNet)
4. Los Angeles (L.A. Care)
5. Napa, Solano, Sonoma, Yolo (Partnership Health Plan)
6. Riverside and San Bernardino (Inland Empire Health Plan)
7. San Francisco (San Francisco Health Plan)
8. San Joaquin (Health Plan of San Joaquin)
9. San Luis Obispo (CenCal)
10. San Mateo (Health Plan of San Mateo)
11. Santa Barbara (CenCal)
12. Santa Clara (Santa Clara Family Health Plan)
13. Santa Cruz (Central Coast Alliance for Health)

**Table A1. 2007 County Report for Alameda (Alameda Alliance for Health)**

	Healthy Kids		Medi-Cal		Healthy Families	
	rate	# eligible	rate	# eligible	rate	# eligible
1. well-child visit in past year: children ages 3-6 years	a: 60.0%	94	a: 64.0%	8,697	a: 79.0%	1,149
2. well-adolescent visit in past year: adolescents ages 12-21 years	a: 43.0%	418	a: 41.0%	14,684	a: 61.0%	2,603
3. emergency department visits/1000 MM:						
age <1 year	NR	NR	NR	NR	NR	NR
ages 1-9 years	NR	NR	NR	NR	NR	NR
ages 10-19 years	NR	NR	NR	NR	NR	NR
4. primary care physician visit						
ages 12-24 mos	IE	3	84.00%	1,872	100.00%	36
ages 25 mos-6 yrs	81.00%	102	87.00%	11,025	97.00%	1,302
ages 7-11 yrs	85.00%	129	83.00%	6,834	98.00%	1,559
ages 12-19 yrs	88	192	83.00%	10,884	95.00%	2,166
5. dental visit in past year: children						
ages 2-3 years	IE	22	NR	NR	NR	NR
ages 4-6 years	63.00%	81	NR	NR	NR	NR
ages 7-10 years	63.70%	251	NR	NR	NR	NR
ages 11-14 years	56.20%	276	NR	NR	NR	NR
ages 15-18 years	48.30%	205	NR	NR	NR	NR
6. immunizations combination 2	IE	4	NR	NR	NR	NR
7. well-baby visits in first 15 months of life						
0 visits	IE	4	85.00%	2,210	83.00%	48
6+ visits	IE		3.00%		8.00%	
8a. hospital days (per member/year)						
ages 1-9 years	NR	NR	NR	NR	NR	NR
ages 10-19 years	NR	NR	NR	NR	NR	NR
8b. hospital discharges (per member/year)						
ages 1-9 years	NR		NR		NR	
ages 10-19 years	NR		NR		NR	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible < 30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

**Table A2.** 2007 County Report for Colusa, El Dorado, Sacramento, and Yuba (HealthNet)

	Healthy Kids		Medi-Cal		Healthy Families	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	47.98%	321	NR	NR	NR	NR
2. well-adolescent visit in past year: adolescents ages 12-21 years	26.01%	419*	NR	NR	NR	NR
3. emergency department visits/1000 MM:						
age <1 year	12.50	80	NR	NR	NR	NR
ages 1-9 years	21.04	5,990	NR	NR	NR	NR
ages 10-19 years	9.49	6,324	NR	NR	NR	NR
4. primary care physician visit						
ages 12-24 mos	NR	NR	NR	NR	NR	NR
ages 25 mos-6 yrs	NR	NR	NR	NR	NR	NR
ages 7-11 yrs	NR	NR	NR	NR	NR	NR
ages 12-19 yrs	NR	NR	NR	NR	NR	NR
5. dental visit in past year: children						
ages 2-3 years	IE	29	NR	NR	NR	NR
ages 4-6 years	59.10%	110	NR	NR	NR	NR
ages 7-10 years	62.80%	188	NR	NR	NR	NR
ages 11-14 years	57.30%	171	NR	NR	NR	NR
ages 15-18 years	51.10%	88	NR	NR	NR	NR
6. immunizations combination 2	NR	NR	NR	NR	NR	NR
7. well-baby visits in first 15 months of life		IE		NR		NR
0 visits	IE		NR		NR	
6+ visits	IE		NR		NR	
8a. hospital days (per member/year)						
ages 1-9 years	0.83	5,990	NR	NR	NR	NR
ages 10-19 years	2.06	6,324	NR	NR	NR	NR
8b. hospital discharges (per member/year)						
ages 1-9 years	0.5		NR		NR	
ages 10-19 years	0.79		NR		NR	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

**Table A3. 2007 County Report for Kern, Fresno, Tulare (HealthNet)**

	Healthy Kids		Medi-Cal		Healthy Families	
	rate	# eligible	rate	# eligible	rate	# eligible
1. well-child visit in past year: children ages 3-6 years	a: 59.05%	525	h: 71.97%	8,238	h: 70.03%	14,868
2. well-adolescent visit in past year: adolescents ages 12-21 years	a: 34.54%	718*	h: 28.77%	12,383	h: 37.23%	28,421
3. emergency department visits/1000 MM:						
age <1 year	18.52	108	NR	NR	NR	NR
ages 1-9 years	7.79	12,704	NR	NR	NR	NR
ages 10-19 years	5.85	9,737	NR	NR	NR	NR
4. primary care physician visit						
ages 12-24 mos	IE	8	NR	NR	94.79%	1,094
ages 25 mos-6 yrs	78.57%	560	NR	NR	86.86%	16,952
ages 7-11 yrs	IE	27	NR	NR	85.21%	16,584
ages 12-19 yrs	87.50%	56	NR	NR	81.14%	20,778
5. dental visit in past year: children						
ages 2-3 years	30.91%	165	NR	NR	NR	NR
ages 4-6 years	56.41%	702	NR	NR	NR	NR
ages 7-10 years	64.53%	623	NR	NR	NR	NR
ages 11-14 years	61.25%	529	NR	NR	NR	NR
ages 15-18 years	48.17%	409	NR	NR	NR	NR
6. immunizations combination 2	IE	4	a: 68.58%	871**	NR	NR
7. well-baby visits in first 15 months of life		0		343		
0 visits	IE		IE		NR	
6+ visits	IE		h: 29.51%		NR	
8a. hospital days (per member/year)						
ages 1-9 years	0.79	12,704	NR	NR	NR	NR
ages 10-19 years	0.72	9,735	NR	NR	NR	NR
8b. hospital discharges (per member/year)						
ages 1-9 years	0.47		NR		NR	
ages 10-19 years	0.41		NR		NR	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible < 30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

a = administrative rate was reported

**Table A4. 2007 County Report for Los Angeles (L.A. Care)**

	Healthy Kids*		Medi-Cal*		Healthy Families*	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	h: 70.07%	5,294	h: 78.45%	105,588	h: 78.10%	420
2. well-adolescent visit in past year: adolescents ages 12-21 years	h: 36.01	15,132*	h: 37.05%	155,182	h: 42.34%	716*
3. emergency department visits/1000 MM:						
age <1 year	54.64	732	71.27	417,553	40.12	324
ages 1-9 years	10.37	189,764	32.37	3,411,415	23.62	18,969
ages 10-19 years	7.61	256,789	19.71	2,668,162	13.62	17,553
4. primary care physician visit						
ages 12-24 mos	85.71%	84	94.37%	31,104	93.18%	44
ages 25 mos-6 yrs	75.76%	5,557	87.97%	132,510	75.31%	486
ages 7-11 yrs	64.24%	9,807	84.89%	94,536	83.33%	162
ages 12-19 yrs	58.70%	13,802	80.11%	124,755	76.57%	175
5. dental visit in past year: children						
ages 2-3 years	58.70%	1,738	NR	NR	NR	NR
ages 4-6 years	42.56%	5,352	NR	NR	NR	NR
ages 7-10 years	64.39%	8,919	NR	NR	NR	NR
ages 11-14 years	52.45%	9,395	NR	NR	NR	NR
ages 15-18 years	71.77%	5,635	NR	NR	NR	NR
6. immunizations combination 2	h: 72.94%	171	h: 84.99%	29,764	IE	27
7. well-baby visits in first 15 months of life		12		8,519		5
0 visits	IE		h: 1.45%		IE	
6+ visits	IE		h: 54.11%		IE	
8a. hospital days (per member/year)						
ages 1-9 years	1.16	189,764	3.77	3,411,415	2.16	18,969
ages 10-19 years	1.45	256,789	6.07	2,668,162	2.28	17,553
8b. hospital discharges (per member/year)						
ages 1-9 years	0.43		1.33		0.90	
ages 10-19 years	0.48		2.14		0.57	

\* 19-21 year olds excluded from calculation

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

**Table A5.** 2007 County Report for Napa, Solano, Sonoma, and Yolo Counties (Partnership Health Plan)

	Healthy Kids		Medi-Cal		Healthy Families <sup>¥</sup>	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	h: 64.20%	408	h: 70.0%	6787*	NR	NR
2. well-adolescent visit in past year: adolescents ages 12-21 years	h: 35.20%	576**	h: 37.70%	11,025*	NR	NR
3. emergency department visits/1000 MM:						
age <1 year	54.95	91	61.55	46,141	NR	NR
ages 1-9 years	14.28	13,794	31.34	268,783	NR	NR
ages 10-19 years	8.58	11,299	26.12	221,325	NR	NR
4. primary care physician visit						
ages 12-24 mos	IE	13	95.30%	2,882*	NR	NR
ages 25 mos-6 yrs	90.00%	439	84.10%	9,669*	NR	NR
ages 7-11 yrs	84.20%	139	77.80%	5,666*	NR	NR
ages 12-19 yrs	77.70%	148	75.20%	8,283*	NR	NR
5. dental visit in past year: children						
ages 2-3 years	30.60%	108	NR	NR	NR	NR
ages 4-6 years	72.30%	408	NR	NR	NR	NR
ages 7-10 years	68.50%	685	NR	NR	NR	NR
ages 11-14 years	57.70%	563	NR	NR	NR	NR
ages 15-18 years	51.20%	412	NR	NR	NR	NR
6. immunizations combination 2	IE	17	h: 80.0%	1921*	NR	NR
7. well-baby visits in first 15 months of life		5		1,820*		
0 visits	IE		h: 1.90%		NR	NR
6+ visits	IE		h: 69.50%		NR	NR
8a. hospital days (per member/year)						
ages 1-9 years	1.74	13,794	7.44	268,783*	NR	NR
ages 10-19 years	2.21	11,299	11.55	221,325*	NR	NR
8b. hospital discharges (per member/year)						
ages 1-9 years	0.51		1.80		NR	NR
ages 10-19 years	0.62		3.45		NR	NR

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible < 30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

**Table A6.** 2007 County Report for Riverside & San Bernardino (Inland Empire Health Plan)

	Healthy Kids		Medi-Cal		Healthy Families	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	h: 75.69	2,269	h: 73.84	32,664	h: 78.47%	6,947
2. well-adolescent visit in past year: adolescents ages 12-21 years	h: 43.19%	2,195	h: 38.43%	45,727	h: 49.65%	13,158
3. emergency department visits/1000 MM:						
age <1 year	67.13	864	85.73	186,366	55.92	4,381
ages 1-9 years	21.77	67,421	40.14	1,264,487	23.55	270,476
ages 10-19 years	14.85	40,819	29.21	907,331	15.95	269,715
4. primary care physician visit						
ages 12-24 mos	92.22%	90	96.96%	11,083	98.29%	644
ages 25 mos-6 yrs	84.68%	2,447	87.92%	41,211	91.58%	8,135
ages 7-11 yrs	82.95%	1,924	80.65%	24,193	87.52%	7,011
ages 12-19 yrs	79.84%	1,979	77.76%	32,477	84.48%	9,393
5. dental visit in past year: children						
ages 2-3 years	10.00%	551	NR	NR	NR	NR
ages 4-6 years	36.29%	1,962	NR	NR	NR	NR
ages 7-10 years	37.60%	1,758	NR	NR	NR	NR
ages 11-14 years	34.65%	1,567	NR	NR	NR	NR
ages 15-18 years	30.00%	1,090	NR	NR	NR	NR
6. immunizations combination 2	h: 70.14%	144	h: 68.98%	9,062	h: 85.88%	740
7. well-baby visits in first 15 months of life		22		3,364		196
0 visits	IE		h: 93.00%		h: 0.00%	
6+ visits	IE		h: 58.10%		h: 54.64%	
8a. hospital days (per member/year)						
ages 1-9 years	4.06	67,421	5.72	1,264,487	3.83	270,476
ages 10-19 years	5.59	40,819	12.37	907,331	4.43	269,715
8b. hospital discharges (per member/year)						
ages 1-9 years	1.44		1.93		1.33	
ages 10-19 years	1.25		4.06		1.60	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

**Table A7. 2007 County Report for San Francisco (San Francisco Health Plan)**

	Healthy Kids		Medi-Cal		Healthy Families	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	a: 78.73%	395	h: 81.25%	3,633	h: 87.96%	813
2. well-adolescent visit in past year: adolescents ages 12-21 years	a: 41.84%	2,763	h: 52.78%	5,203	h: 74.31%	2,407
3. emergency department visits/1000 MM:						
age <1 year	190.48	315	18.87	16,213	177.97	472
ages 1-9 years	125.56	182	23.87	118,601	131.62	28,171
ages 10-19 years	54.80	163	12.89	92,078	59.57	42,303
4. primary care physician visit						
ages 12-24 mos	92.00%	25	91.55%	1,136	98.39%	62
ages 25 mos-6 yrs	91.57%	439	86.23%	4,620	95.02%	963
ages 7-11 yrs	92.23%	656	81.70%	2,683	95.31%	1,236
ages 12-19 yrs	87.64%	1327	77.61%	3,800	93.98%	2,078
5. dental visit in past year: children						
ages 2-3 years	31.40%	121	NR	NR	NR	NR
ages 4-6 years	63.10%	340	NR	NR	NR	NR
ages 7-10 years	70.40%	773	NR	NR	NR	NR
ages 11-14 years	68.60%	885	NR	NR	NR	NR
ages 15-18 years	57.10%	785	NR	NR	NR	NR
6. immunizations combination 2	a: 30.95%	42	h: 92.36%	1,107	h: 94.55%	110
7. well-baby visits in first 15 months of life		16		325		20
0 visits	IE		h: 31.00%		IE	
6+ visits	IE		h: 75.38%		IE	
8a. hospital days (per member/year)						
ages 1-9 years	8.16	17,394	5.14	118,601	1.28	28,171
ages 10-19 years	4.23	35,693	5.61	92,078	0.90	42,303
8b. hospital discharges (per member/year)						
ages 1-9 years	1.49		1.42		0.53	
ages 10-19 years	0.98		1.34		0.26	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

a = administrative rate was reported

**Table A8. 2007 County Report for San Joaquin (Health Plan of San Joaquin)**

	Healthy Kids		Medi-Cal		Healthy Families	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	h: 80.83%	339	h: 82.00%	7,277	h: 81.51%	1,248
2. well-adolescent visit in past year: adolescents ages 12-21 years	h: 46.23%	781*	h: 44.77%	12,501	h: 58.39%	2,684*
3. emergency department visits/1000 MM:						
age <1 year	12.20	82	88.20	32,200	55.12	1,016
ages 1-9 years	13.08	14,302	38.81	242,777	20.20	52,722
ages 10-19 years	9.87	16,109	24.85	98,482	12.36	55,599
4. primary care physician visit						
ages 12-24 mos	83.33%	6	92.60%	2,446	87.64%	89
ages 25 mos-6 yrs	83.89%	354	79.25%	9,288	79.93%	1,440
ages 7-11 yrs	82.34%	521	72.59%	6,041	76.94%	1,535
ages 12-19 yrs	78.91%	555	72.83%	9,629	77.60%	2,138
5. dental visit in past year: children						
ages 2-3 years	33.30%	75	NR	NR	NR	NR
ages 4-6 years	73.50%	294	NR	NR	NR	NR
ages 7-10 years	67.90%	598	NR	NR	NR	NR
ages 11-14 years	64.00%	602	NR	NR	NR	NR
ages 15-18 years	55.20%	359	NR	NR	NR	NR
6. immunizations combination 2	IE	13	h: 78.1%	2,200	h: 91.30%	115
7. well-baby visits in first 15 months of life		2		765		48
0 visits	IE		h: 0.97%		h: 0.00%	
6+ visits	IE		h: 67.64%		h: 75.00%	
8a. hospital days (per member/year)						
ages 1-9 years	2.38	14,302	4.07	242,777	2.37	52,722
ages 10-19 years	1.24	16,109	7.83	201,679	2.52	55,599
8b. hospital discharges (per member/year)						
ages 1-9 years	0.84		1.69		0.89	
ages 10-19 years	0.62		2.99		0.94	

\* 19-21 year olds excluded from calculation

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

**Table A9. 2007 County Report for San Luis Obispo (CenCal)**

	Healthy Kids		Medi-Cal**		Healthy Families**	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	a: 56.59%	129	h: 71.69%	5,972	a: 78.06%	360
2. well-adolescent visit in past year: adolescents ages 12-21 years	a: 20.78%*	154	h: 35.88%	6,973	a: 50.00%	632
3. emergency department visits/1000 MM:						
age <1 year	48.78	41	74.84	40,083	36.46	905
ages 1-9 years	19.59	4,134	39.41	199,632	19.19	12611
ages 10-19 years	12.26	2,854	30.59	127014	12.45	11566
4. primary care physician visit						
ages 12-24 mos	IE	2	97.67%	2,494	93.15%	73
ages 25 mos-6 yrs	80.74%	135	88.75%	7,751	94.80%	442
ages 7-11 yrs	75.97%	154	83.04%	4,246	94.21%	380
ages 12-19 yrs	74.48%	145	79.29%	5,143	88.93%	524
5. dental visit in past year: children						
ages 2-3 years	IE	25	NR	NR	NR	NR
ages 4-6 years	76.30%	114	NR	NR	NR	NR
ages 7-10 years	72.80%	151	NR	NR	NR	NR
ages 11-14 years	63.00%	108	NR	NR	NR	NR
ages 15-18 years	41.30%	80	NR	NR	NR	NR
6. immunizations combination 2	IE	4	h: 88.76%	2056	h: 86.67%	60
7. well-baby visits in first 15 months of life		0		2,037		42
0 visits	IE		h: 0.99%		h: 4.76%	
6+ visits	IE		h: 63.86%		h: 66.67%	
8a. hospital days (per member/year)						
ages 1-9 years	1.69	4,134	5.24	199,632	1.03	12,611
ages 10-19 years	0.00	2,854	9.84	127,014	2.51	11,566
8b. hospital discharges (per member/year)						
ages 1-9 years	0.73		1.79		0.48	
ages 10-19 years	0.00		3.65		0.69	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

a = administrative rate was reported

**Table A10. 2007 County Report for San Mateo (Health Plan of San Mateo)**

	Healthy Kids		Medi-Cal		Healthy Families	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	h:75.99%	593	h: 71.43%	4,174	h: 78.98%	586
2. well-adolescent visit in past year: adolescents ages 12-21 years	h: 47.69%	2,383	h: 34.79%	4,666	h: 51.58%	871
3. emergency department visits/1000 MM:						
age <1 year	43.82	251	88.57	26,251	76.92	286
ages 1-9 years	18.97	27,941	42.88	149,675	24.33	21617
ages 10-19 years	14.34	47,987	27.94	91601	14.52	18456
4. primary care physician visit						
ages 12-24 mos	96.55%	29	96.20%	1,843	100.00%	100
ages 25 mos-6 yrs	88.14%	641	83.34%	5,323	93.39%	93.39
ages 7-11 yrs	91.01%	1135	77.94%	2,402	91.47%	91.47
ages 12-19 yrs	86.75%	1,713	72.43%	3,069	86.60%	86.6
5. dental visit in past year: children						
ages 2-3 years	34.60%	136	NR	NR	NR	NR
ages 4-6 years	79.10%	517	NR	NR	NR	NR
ages 7-10 years	77.20%	1,248	NR	NR	NR	NR
ages 11-14 years	68.70%	1,422	NR	NR	NR	NR
ages 15-18 years	58.30%	1,338	NR	NR	NR	NR
6. immunizations combination 2	h: 74.19%	31	h: 78.65%	1235	h: 77.94%	68
7. well-baby visits in first 15 months of life		9		958		11
0 visits	IE		h: 1.47%		IE	
6+ visits	IE		h: 58.44%		IE	
8a. hospital days (per member/year)						
ages 1-9 years	0.86	27,941	7.26	149,675	0.60	21,617
ages 10-19 years	1.40	47,987	12.82	91,601	1.90	18,456
8b. hospital discharges (per member/year)						
ages 1-9 years	0.54		1.86		0.46	
ages 10-19 years	0.58		2.61		0.60	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

**Table A11. 2007 County Report for San Barbara (CenCal)**

	Healthy Kids		Medi-Cal		Healthy Families	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	a: 56.46%	147	h: 71.43%	4,174	h: 78.98%	586
2. well-adolescent visit in past year: adolescents ages 12-21 years	a: 41.67%	132	h: 35.88%	6,973	a: 50.00%	632
3. emergency department visits/1000 MM:						
age <1 year	68.18	44	74.84	40,083	36.46	905
ages 1-9 years	16.83	5,584	39.41	199,632	19.19	12611
ages 10-19 years	7.28	4,260	30.59	127014	12.45	11566
4. primary care physician visit						
ages 12-24 mos	IE	3	97.67%	2,494	93.15%	73
ages 25 mos-6 yrs	82.24%	152	88.75%	7,751	94.80%	442
ages 7-11 yrs	94.38%	89	83.04%	4,246	94.21%	380
ages 12-19 yrs	88.61%	79	79.29%	5,143	88.93%	524
5. dental visit in past year: children						
ages 2-3 years	IE	18	NR	NR	NR	NR
ages 4-6 years	67.50%	126	NR	NR	NR	NR
ages 7-10 years	72.30%	137	NR	NR	NR	NR
ages 11-14 years	63.30%	120	NR	NR	NR	NR
ages 15-18 years	55.60%	63	NR	NR	NR	NR
6. immunizations combination 2	IE	3	h: 88.76%	2,056	h: 86.67%	60
7. well-baby visits in first 15 months of life		0		2,037		42
0 visits	IE		h: 0.99%		h: 4.76%	
6+ visits	IE		h: 63.86%		h: 66.67%	
8a. hospital days (per member/year)						
ages 1-9 years	0.00	5,584	5.24	199,632	1.03	12,611
ages 10-19 years	4.93	4,260	9.84	127,014	2.51	11,566
8b. hospital discharges (per member/year)						
ages 1-9 years	0.00		1.79		0.48	
ages 10-19 years	1.17		3.65		0.69	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

a = administrative rate was reported

**Table A12. 2007 County Report for Santa Clara (Santa Clara Family Health Plan)**

	Healthy Kids		Medi-Cal		Healthy Families	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	h: 73.84%	1,437	h: 73.15%	10,668	h: 75.23%	2,475
2. well-adolescent visit in past year: adolescents ages 12-21 years	h: 40.97%	5,199*	h: 39.35%	11,956	h: 49.07%	3,697*
3. emergency department visits/1000 MM:						
age <1 year	23.09	693	64.04	57,659	32.78	1,678
ages 1-9 years	11.95	59,223	34.27	348,402	17.32	89,101
ages 10-19 years	8.89	90,530	23.03	216,332	10.69	74,562
4. primary care physician visit						
ages 12-24 mos	100.00%	60	96.52%	3,737	100.00%	212
ages 25 mos-6 yrs	86.19%	2,470	83.59%	13,563	89.77%	2,855
ages 7-11 yrs	85.18%	2,895	80.28%	6,997	88.77%	2,530
ages 12-19 yrs	79.18%	4,496	77.67%	8,625	83.40%	2,783
5. dental visit in past year: children						
ages 2-3 years	43.60%	367	NR	NR	NR	NR
ages 4-6 years	78.80%	1,246	NR	NR	NR	NR
ages 7-10 years	77.70%	2,743	NR	NR	NR	NR
ages 11-14 years	72.20%	3,182	NR	NR	NR	NR
ages 15-18 years	63.80%	2,828	NR	NR	NR	NR
6. immunizations combination 2	h: 82.56%	86	h: 83.56%	3,300	h: 84.96%	246
7. well-baby visits in first 15 months of life		10		1,462		95
0 visits	IE		h: 0.69%		h: 0.00%	
6+ visits	IE		h: 59.03%		h: 56.84%	
8a. hospital days (per member/year)						
ages 1-9 years	1.32	59,138	3.33	358,396	2.72	77,625
ages 10-19 years	2.74	98,332	6.54	217,743	1.91	75,923
8b. hospital discharges (per member/year)						
ages 1-9 years	0.63		1.43		1.17	
ages 10-19 years	0.98		2.39		0.82	

\* 19-21 year olds excluded from calculation

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

**Table A13. 2007 County Report for Santa Cruz (Central Coast Alliance for Health)**

	Healthy Kids		Medi-Cal*		Healthy Families*	
	Rate	# eligible	Rate	# eligible	Rate	# eligible
1. well-child visit in past year: children ages 3-6 years	h: 81.6%	207	h: 78.1%	9,124	h: 76.64%	442
2. well-adolescent visit in past year: adolescents ages 12-21 years	h: 55.72	699	h: 47.20%	10,279	h: 54.99%	693
3. emergency department visits/1000 MM:						
age <1 year	100.00	80	102.97	68,126	19.00	372
ages 1-9 years	19.14	9,666	54.48	304,959	540.00	18,661
ages 10-19 years	12.72	12,976	37.64	185,167	249.00	13,752
4. primary care physician visit						
ages 12-24 mos	IE	7	98.24%	4,033	100.00%	71
ages 25 mos-6 yrs	90.05%	221	90.06%	12,209	92.27%	673
ages 7-11 yrs	91.71%	362	86.36%	6,033	91.65%	443
ages 12-19 yrs	88.58%	473	82.51%	7,429	90.57%	488
5. dental visit in past year: children						
ages 2-3 years	57.40%	47	NR	NR	NR	NR
ages 4-6 years	74.40%	195	NR	NR	NR	NR
ages 7-10 years	73.10%	439	NR	NR	NR	NR
ages 11-14 years	61.70%	447	NR	NR	NR	NR
ages 15-18 years	53.90%	384	NR	NR	NR	NR
6. immunizations combination 2	IE	12	h:84.18%	3,084	h: 87.32%	71
7. well-baby visits in first 15 months of life		2		3,463		31
0 visits	IE		h: 0.49%		h: 0.00%	
6+ visits	IE		h: 77.86%		h: 87.10%	
8a. hospital days (per member/year)						
ages 1-9 years	0.52	9,666	3.89	304,959	1.77	18,661
ages 10-19 years	1.39	12,976	6.15	185,167	1.45	13,752
8b. hospital discharges (per member/year)						
ages 1-9 years	0.31		1.48		0.70	
ages 10-19 years	0.62		2.58		0.58	

NR = Not Reported

IE = Insufficient Eligibility (Rate not calculated if # eligible<30)

h = If # eligible > 411, the hybrid rate was reported, calculated on a sample of the eligible population

## Appendix B

### METHODS FOR DATA COLLECTION

The selection of indicators used to assess utilization, access and quality was based on a balance of three aims: (1) to address priorities identified by the California Endowment and First 5 California, (2) to allow for comparisons between the Healthy Kids program and others, specifically Medi-Cal and Healthy Families, and (3) to increase the response rate by maximizing the CHI programs' collective ability to report individual indicators.

#### Selection of Quality Indicators for the Study

An initial list of 25 indicators was compiled through investigating the literature and resources for performance evaluation, including the indicators used for Medi-Cal and Healthy Families evaluations.<sup>i</sup> The proposed list was discussed with funding agencies and children's health experts, and was further refined. As encouraged by performance measure experts, we aimed for population-based process measures instead of medical outcomes because the latter are prone to reliability, validity, and bias problems.<sup>ii,iii</sup> One drawback to using process measures is they still need calibration to determine what a percent change in measure means in terms of percent change in outcome. Process measures are also influenced by patient compliance, reimbursement, and access and typically should not be used when there is high likelihood of these confounders. The Healthy Kids reports will have to be interpreted in light of these limitations. The set of potential indicators included several indicators from the Health Employer Data and Information Set (HEDIS®).<sup>iv</sup>

CHIs were asked to provide input and information on the feasibility of reporting these potential indicators.

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<sup>i</sup> Forum for Health Care Quality Measurement & Reporting, Advisory Council on Health Care Quality, American Medical Association's Physician Performance Measurement Set, Centers for Medicare & Medicaid Services' Doctor's Office Quality Project, National Committee on Quality Assurance (HEDIS and other), Agency for Healthcare Research and Quality (child health toolboxes, national quality measures clearinghouse, pediatric prevention quality indicators), Child Health and Disability Prevention Program, Asthma Quality Improvement Projects in California, National Developmental Screening Projects, and the Medicaid literature.

<sup>ii</sup> McAuliffe WE. Measuring the quality of medical care: process versus outcome. *Health & Society*. 1979;57(1).

<sup>iii</sup> Eddy DD. Performance Measurement: Problems and Solutions. *Health Aff*. July/August 1998;July/August:7-25.

<sup>iv</sup> HEDIS is a registered trademark of the National Committee for Quality Assurance (NCQA). HEDIS measures used by Medi-Cal Managed Care are audited by certified NCQA auditors. There was no audit for this Healthy Kids evaluation.

Semi-structured interviews were completed by telephone with the health plan partners of twenty-two CHIs during May 2006. The purpose was to understand and then streamline data collection practices for health plans that service Healthy Kids, with particular emphasis on gaining a better understanding of indicators that reflect children's health care utilization, access and quality. The interviews explored the ability of the health plans to report a variety of indicators for the Healthy Kids enrollees. The interviews also investigated the plans' ability to report comparison information for Medi-Cal and Healthy Families. Information from the interviews was summarized and then reviewed by both the interviewers and respondents for accuracy (72% of respondents provided feedback). Whenever possible, additional respondents from the county were contacted to fill gaps of knowledge. The feasibility results were taken back to the funding agencies and a subset of indicators was selected for CHI reports.

### **Data Collection**

For each indicator, there was a preferred method for reporting. For HEDIS measures, the preferred method was the hybrid specification if one exists. The report form allowed plans to report HEDIS measures using the administrative method if it was not feasible to use the hybrid specifications (most plans had completed data collection earlier in the year and would not have been able to add chart reviews if these had not already been done). Plans could also elect to report an indicator with other variations in specification (e.g., different age group cut-offs) if this was the only way they could report.

## **Appendix C**

### **METHODS FOR STATISTICAL ANALYSES**

#### *Proportion and Trend Testing*

Rates and proportions of program-wide access and utilization measures were reported using either the administrative or hybrid methods. Plan and year-specific proportions, as well as their 95% confidence intervals, were computed for Healthy Kids data to determine if there was a trend in proportions or rates over time. These analyses were performed for all counties having three-years of data (2005 to 2007), and again for all counties having two-years of data (2006-2007). Data was not available for all HEDIS measures, in all counties, generally due to insufficient eligibility, or less than 30 children for which data was available; thus rates were not calculated for those measures.

Logistic regression was used to determine if there was any effect of time on a change in Healthy Kids measures. Models were fit with year as the independent variable and HEDIS proportion as the outcome, for each county and overall. This was done separately for the three-year analysis and two-year analysis. In some cases, counties with three-year information were missing 2005 data for a particular HEDIS measure, and the regression was performed for only years 2006 and 2007.

To compare the yearly trends among programs, data from all programs (Healthy Kids, MediCal, Healthy Families) were pooled. Logistic regression was again performed, but with consideration of an interaction between year and program. A likelihood ratio test was performed to determine if the odds ratio for the effect of year varied by each program.

#### *Performance Scores*

In order to summarize the achievements of each county, a performance score was used that took recent HEDIS achievement and improvement into account. This method is similar to the one used by the Healthy Families Quality Performance Improvement Project, but with the improvement component modified to consider the *percent* improvement toward a HEDIS score of 100. Given the 2005 HEDIS score ( $S_{2005}$ ) and 2007 HEDIS score ( $S_{2007}$ ), the performance score for a particular HEDIS measure was calculated as

$$S_{2007} + (S_{2007}-S_{2005})/(100-S_{2005})$$

when there was an increase in that measure from 2005 to 2007. For a decrease in a HEDIS measure from 2005 to 2007, the performance score was:

$$S_{2007} + (S_{2007}-S_{2005})/(S_{2005})$$

When 2005 data was not available in the three-year analysis, 2006 data was substituted. This process was repeated for the two-year data, substituting 2006 HEDIS scores for the 2005 HEDIS scores in all calculations.

Performance scores were ranked by county for each HEDIS measure. Within each HEDIS measure, counties with a score either greater or less than one standard deviation of the mean were designated either "high performance" or "low performance." In addition, it was noted which counties had a statistically significant improvement or decrease in performance over the study period.

## **Appendix D**

### **SUPPLEMENTAL TABLES FOR STATISTICAL ANALYSES**

**Table D1: Comparisons of Healthy Kids Performance, Over Two Years (2006-2007), by County**

	<u>1. Well-Child Visits</u>			<u>2. Well-Adolescent Visits</u>			<u>4. Primary Care Visits</u>			<u>5. Dental Visits</u>			<u>6. Immunizations</u>		
	Prop.	95% CI	P-trend	Prop.	95% CI	P-trend	Prop.	95% CI	P-trend	Prop.	95% CI	P-trend	Prop.	95% CI	P-trend
<b>CCAH</b>															
2006	0.78	(0.72, 0.84)	0.37	0.47	(0.43, 0.51)	0.003	0.90	(0.87, 0.92)	0.92	0.69	(0.66, 0.71)	0.02	-	-	-
2007	0.82	(0.76, 0.87)		0.56	(0.52, 0.59)		0.89	(0.88, 0.91)		0.65	(0.62, 0.67)		-	-	
<b>HPSJ</b>															
2006	0.61	(0.56, 0.67)	<0.0001	0.23	(0.19, 0.26)	<0.0001	0.79	(0.77, 0.81)	0.11	0.62	(0.60, 0.65)	0.40	-	-	-
2007	0.81	(0.77, 0.85)		0.46	(0.43, 0.50)		0.81	(0.79, 0.83)		0.64	(0.62, 0.66)		-	-	
<b>HPSM</b>															
2006	0.69	(0.65, 0.73)	0.01	0.42	(0.40, 0.44)	0.0001	0.86	(0.85, 0.88)	0.01	0.70	(0.68, 0.71)	0.13	0.75	(0.61, 0.89)	0.94
2007	0.76	(0.73, 0.79)		0.48	(0.46, 0.50)		0.88	(0.87, 0.90)		0.68	(0.67, 0.69)		0.74	(0.59, 0.90)	
<b>IEHP</b>															
2006	0.74	(0.72, 0.76)	0.29	0.49	(0.47, 0.51)	0.0001	0.79	(0.78, 0.80)	<0.0001	0.58	(0.57, 0.59)	<0.0001	0.76	(0.68, 0.85)	0.29
2007	0.76	(0.74, 0.77)		0.43	(0.41, 0.45)		0.83	(0.82, 0.84)		0.33	(0.32, 0.34)		0.70	(0.63, 0.78)	
<b>LAC</b>															
2006	0.45	(0.43, 0.46)	<0.0001	0.29	(0.29, 0.30)	<0.0001	0.65	(0.65, 0.66)	0.003	0.66	(0.66, 0.67)	<0.0001	0.52	(0.45, 0.58)	<0.0001
2007	0.70	(0.69, 0.71)		0.36	(0.35, 0.37)		0.64	(0.63, 0.64)		0.55	(0.55, 0.56)		0.73	(0.66, 0.80)	
<b>PHP</b>															
2006	0.50	(0.39, 0.61)	0.02	0.30	(0.23, 0.38)	0.25	0.75	(0.66, 0.85)	0.04	0.60	(0.48, 0.73)	0.89	-	-	-
2007	0.64	(0.60, 0.69)		0.35	(0.31, 0.39)		0.85	(0.82, 0.87)		0.61	(0.59, 0.63)		-	-	
<b>SBRHA</b>															
2006	0.68	(0.54, 0.83)	0.17	0.31	(0.18, 0.44)	0.17	0.88	(0.78, 0.98)	0.80	0.74	(0.65, 0.83)	0.06	-	-	-
2007	0.56	(0.48, 0.65)		0.42	(0.33, 0.50)		0.86	(0.83, 0.90)		0.64	(0.59, 0.68)		-	-	
<b>SCFHP</b>															
2006	0.68	(0.66, 0.70)	0.0004	0.36	(0.35, 0.37)	<0.0001	0.83	(0.82, 0.84)	0.55	0.68	(0.67, 0.69)	<0.0001	0.89	(0.82, 0.95)	0.24
2007	0.74	(0.72, 0.76)		0.41	(0.40, 0.42)		0.83	(0.82, 0.84)		0.71	(0.70, 0.72)		0.83	(0.74, 0.91)	
<b>SFHP</b>															
2006	0.79	(0.75, 0.82)	0.95	0.38	(0.36, 0.40)	0.004	0.89	(0.88, 0.90)	0.65	0.63	(0.61, 0.65)	0.64	0.10	(0.01, 0.19)	0.02
2007	0.79	(0.75, 0.83)		0.42	(0.40, 0.44)		0.90	(0.88, 0.91)		0.64	(0.62, 0.66)		0.31	(0.17, 0.45)	
<b>SLO</b>															
2006	0.62	(0.52, 0.72)	0.41	0.28	(0.21, 0.34)	0.16	0.70	(0.62, 0.78)	0.16	0.51	(0.46, 0.56)	0.001	-	-	-
2007	0.57	(0.48, 0.65)		0.21	(0.14, 0.27)		0.77	(0.73, 0.81)		0.62	(0.58, 0.67)		-	-	
<b>Overall</b>															
2006	0.58	(0.57, 0.59)	<0.0001	0.34	(0.34, 0.35)	<0.0001	0.74	(0.73, 0.74)	0.37	0.65	(0.65, 0.66)	<0.0001	0.62	(0.58, 0.66)	0.006
2007	0.72	(0.71, 0.73)		0.40	(0.39, 0.40)		0.74	(0.73, 0.74)		0.58	(0.57, 0.58)		0.70	(0.66, 0.74)	

**Table D2: Comparisons of Healthy Kids Performance, Over Three Years (2005-2007), by County**

	1. Well-Child Visits			2. Well-Adolescent Visits			4. Primary Care Visits			5. Dental Visits			6. Immunizations		
	Prop.	95% CI	P-trend	Prop.	95% CI	P-trend	Prop.	95% CI	P-trend	Prop.	95% CI	P-trend	Prop.	95% CI	P-trend
<b>CCAH</b>															
2005	0.61	(0.53, 0.68)	0.0001	0.36	(0.31, 0.42)	0.0001	0.91	(0.87, 0.95)	0.62	0.63	(0.60, 0.67)	0.94	-	-	-
2006	0.78	(0.72, 0.84)		0.47	(0.43, 0.51)		0.90	(0.87, 0.92)		0.69	(0.66, 0.71)		-	-	-
2007	0.82	(0.76, 0.87)		0.56	(0.52, 0.59)		0.89	(0.88, 0.91)		0.65	(0.62, 0.67)		-	-	
<b>IE</b>															
2005	-	-	0.29	-	-	0.0001	0.79	(0.78, 0.80)	<0.001	0.64	(0.63, 0.65)	<0.001	-	-	0.29
2006	0.74	(0.72, 0.76)		0.49	(0.47, 0.51)		0.79	(0.78, 0.80)		0.58	(0.57, 0.59)		0.76	(0.68, 0.85)	
2007	0.76	(0.74, 0.77)		0.43	(0.41, 0.45)		0.83	(0.82, 0.84)		0.33	(0.32, 0.34)		0.70	(0.63, 0.78)	
<b>LA</b>															
2005	0.53	(0.51, 0.54)	<0.001	0.18	(0.17, 0.18)	<0.001	0.53	(0.51, 0.54)	<0.001	-	-	<0.001	0.60	(0.52, 0.67)	0.01
2006	0.45	(0.43, 0.46)		0.29	(0.29, 0.30)		0.65	(0.65, 0.66)		0.66	(0.66, 0.67)		0.52	(0.45, 0.58)	
2007	0.70	(0.69, 0.71)		0.36	(0.35, 0.37)		0.64	(0.63, 0.64)		0.55	(0.55, 0.56)		0.73	(0.66, 0.80)	
<b>SF</b>															
2005	0.70	(0.66, 0.74)	0.002	0.36	(0.34, 0.38)	<0.001	0.85	(0.83, 0.86)	<0.001	0.73	(0.70, 0.75)	<0.001	0.13	(0.04, 0.21)	0.02
2006	0.79	(0.75, 0.82)		0.38	(0.36, 0.40)		0.89	(0.88, 0.90)		0.63	(0.61, 0.65)		0.10	(0.01, 0.19)	
2007	0.79	(0.75, 0.83)		0.42	(0.40, 0.44)		0.90	(0.88, 0.91)		0.64	(0.62, 0.66)		0.31	(0.17, 0.45)	
<b>SJ</b>															
2005	0.52	(0.45, 0.58)	<0.001	0.23	(0.19, 0.27)	<0.001	0.80	(0.77, 0.83)	0.28	0.58	(0.55, 0.60)	0.0007	-	-	-
2006	0.61	(0.56, 0.67)		0.23	(0.19, 0.26)		0.79	(0.77, 0.81)		0.62	(0.60, 0.65)		-	-	
2007	0.81	(0.77, 0.85)		0.46	(0.43, 0.50)		0.81	(0.79, 0.83)		0.64	(0.62, 0.66)		-	-	
<b>SM</b>															
2005	0.70	(0.65, 0.75)	0.02	0.44	(0.39, 0.48)	0.001	0.73	(0.71, 0.75)	<0.001	-	-	0.13	-	-	0.94
2006	0.69	(0.65, 0.73)		0.42	(0.40, 0.44)		0.86	(0.85, 0.88)		0.70	(0.68, 0.71)		0.75	(0.61, 0.89)	
2007	0.76	(0.73, 0.79)		0.48	(0.46, 0.50)		0.88	(0.87, 0.90)		0.68	(0.67, 0.69)		0.74	(0.59, 0.90)	
<b>SCFHP</b>															
2005	0.67	(0.65, 0.69)	<0.001	0.42	(0.41, 0.44)	0.34	0.82	(0.82, 0.83)	0.45	0.66	(0.65, 0.67)	<0.001	0.79	(0.72, 0.86)	0.40
2006	0.68	(0.66, 0.70)		0.36	(0.35, 0.37)		0.83	(0.82, 0.84)		0.68	(0.67, 0.69)		0.89	(0.82, 0.95)	
2007	0.74	(0.72, 0.76)		0.41	(0.40, 0.42)		0.83	(0.82, 0.84)		0.71	(0.70, 0.72)		0.83	(0.74, 0.91)	
<b>Overall</b>															
2005	0.58	(0.57, 0.59)	<0.001	0.26	(0.26, 0.27)	<0.001	0.73	(0.73, 0.74)	0.10	0.65	(0.65, 0.66)	<0.001	0.59	(0.54, 0.64)	0.0008
2006	0.57	(0.56, 0.58)		0.34	(0.33, 0.34)		0.74	(0.73, 0.74)		0.65	(0.65, 0.66)		0.62	(0.58, 0.66)	
2007	0.73	(0.72, 0.74)		0.39	(0.39, 0.40)		0.73	(0.73, 0.73)		0.57	(0.57, 0.58)		0.70	(0.66, 0.74)	