Benchmarking California Health Care Quality and Cost Performance

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ABSTRACT

Across California—and the nation—health care quality and cost vary dramatically. While some variation reflects differences in patient populations, other variation is unexplained and may signal missed opportunities for patients to receive the right care at the right time as efficiently as possible. Benchmarking and tracking performance on key quality and cost measures is critical to reducing unwarranted cost and quality variation and achieving high-quality, affordable, patient-centered care for all Californians. A new online tool—the *California Regional Health Care Cost & Quality Atlas*—developed by the Integrated Healthcare Association (IHA), in partnership with the California Health Care Foundation and the California Health and Human Services Agency, illuminates the wide geographic variation in clinical quality, costs, and hospital utilization across the state.

And, a new IHA analysis of Atlas data for 14.5 million of the 19.4 million Californians enrolled in commercial health insurance products—health maintenance organizations (HMOs) and preferred provider organizations (PPOs)—confirms earlier research documenting wide geographic and insurance product variation on quality measures while shining new light on regional and product cost variation. From a regional perspective, Northern California shows the strongest performance on clinical quality for commercially insured enrollees but at relatively high cost; Southern California performs solidly on quality at much lower cost; and Central California shows weaker performance on quality with mixed cost performance. Comparing commercial HMOs to commercial PPOs, HMOs frequently outperform PPOs on both clinical quality and cost measures across the state's 19 geographic regions, reflecting underlying differences between product types, including the use of integrated care delivery systems in HMO provider networks.

Benchmarking and tracking regional performance on key quality and cost measures is critical to monitoring the state's progress toward the goal of high-value care for all Californians. Along with a clearer picture of population-level health care quality and costs across the state, the Regional Cost & Quality Atlas *at costatlas.iha.org identifies so-called hot spots for targeted performance improvement.*

TRACKING PERFORMANCE BY GEOGRAPHIC REGION AND INSURANCE TYPE

Most health care cost and quality transparency initiatives typically focus on individual health plan and provider performance to target quality improvement and guide consumer decisions. The Atlas takes a different approach by tracking performance by geographic region and insurance product type to provide a clearer picture of population-level health care quality and costs (see page 8 for more information about the Atlas).

This Issue Brief examines Atlas data for 14.5 million Californians enrolled in commercial insurance products—both HMOs and PPOs collectively, and each product type individually—across geographic regions. Brief summaries of Medicare and Medi-Cal results also are available on pages 12 and 9, respectively. Future analysis will include more extensive review of both Medicare and Medi-Cal performance.

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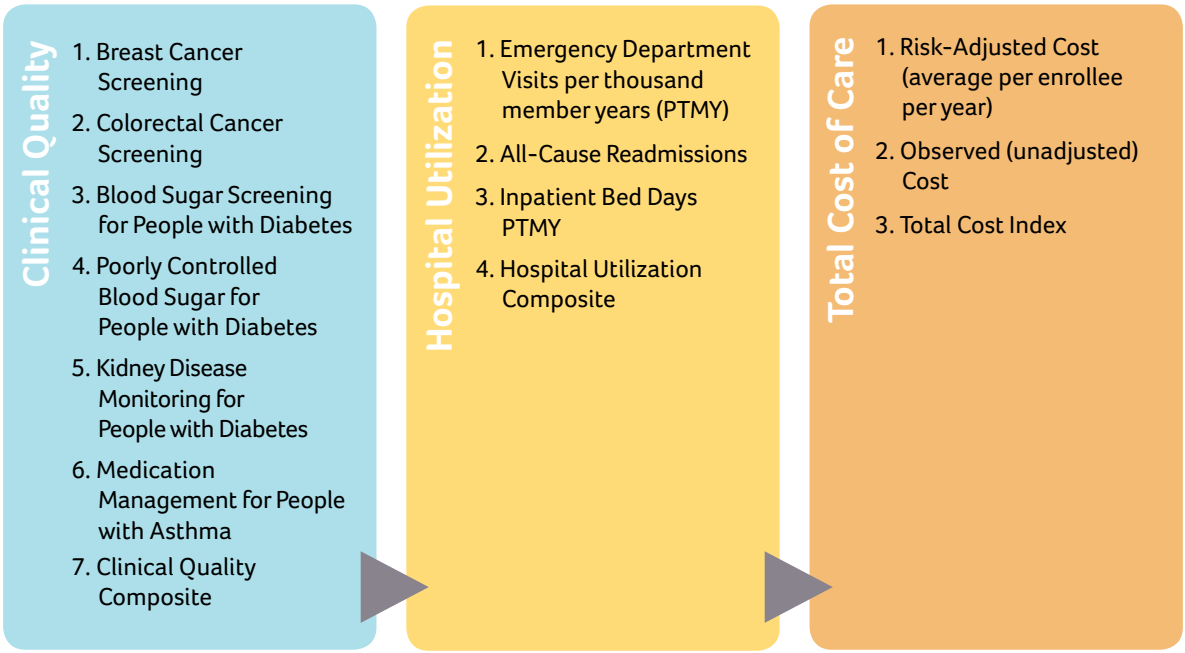
Key findings from an analysis of 2013 Atlas data for commercial enrollment include:

- **Northern California shows strongest quality performance.** Northern California outperforms Central and Southern California on clinical quality measures, with Central California falling below the statewide average on key clinical measures for the priority health conditions of cancer, diabetes, and asthma. Clinical quality scores vary significantly from region to region for some measures. For example, 32.7 percent of commercial enrollees with diabetes in Alameda County (Region 6) have blood sugar that is poorly controlled, compared to 75.4 percent in the Eastern Region (Region 13).
- **Average risk-adjusted total cost of care for commercial enrollees is lower in Southern California than in Northern.** With one exception, all Northern California regions have higher annual per-enrollee costs than the statewide commercial average of $4,300, while all Southern California regions fall below the statewide average; Central California regions show mixed results on cost. Geographic variation in cost of care is dramatic—a difference of $1,800 in the average annual per-enrollee total cost of care between the most costly and least costly regions—respectively, San Francisco County (4) at $5,400 and Kern County (14) at $3,600.
- **Commercial HMO products generally outperform commercial PPO products on both clinical quality measures and risk-adjusted cost.** Commercial HMOs, which typically rely on integrated care delivery networks, outperform commercial PPOs on five of six clinical quality measures while consistently providing less costly care, on average—$4,245 per enrollee per year for commercial HMOs vs. $4,455 for commercial PPOs, or a difference of $210 per enrollee annually.
- **Hospital utilization varies considerably, but no significant regional patterns emerge from the data.** Variation in hospital utilization does not appear to drive cost differences among regions or commercial product types.

Atlas Measures and Regions

The Atlas tracks six clinical quality measures for cancer, diabetes, and asthma, along with a composite measure combining the individual measures; three hospital utilization measures, along with a composite utilization measure; and average annual per-enrollee total cost of care (see Exhibit 1, Data Sources, and Technical Appendix for more detailed information about the data, measures, participating health plans, and regions). Health plans contributing data selected these measures as important and representative of overall performance.

Exhibit 1: California Regional Health Care Cost & Quality Atlas Measures



The Atlas divides California into 19 distinct regions following boundaries defined by Covered California, the state's health insurance exchange. Across the 19 regions, the Atlas contains data on approximately 14.5 million of the 19.4 million Californians enrolled in commercial HMOs and PPOs (see Exhibit 2).

Exhibit 2: California Regional Health Care Cost & Quality Atlas Commercial Insurance Enrollment, by Product Type, 2013

Product Type	Atlas Enrollment	Total California Enrollment	% of Commercially Insured Californians in Atlas
Commercial HMO	10,139,764	10,612,776	96%
Commercial PPO	4,340,218	8,793,070	49%
Total Commercial	14,479,982	19,405,846	75%

Sources: California commercial insurance enrollment gathered from the California Health Care Foundation (http://www.chcf.org/) and the Department of Managed Health Care (https://www.dmhc.ca.gov/).

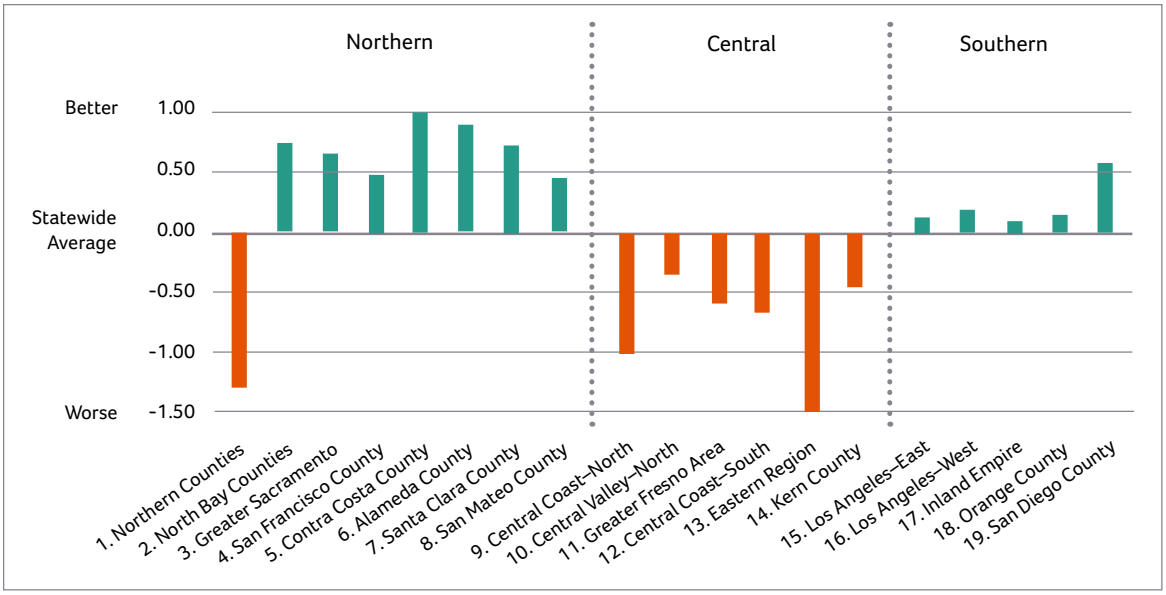
REGIONAL QUALITY AND COST PERFORMANCE VARIES

Across California commercial enrollment—combining HMO and PPO—wide geographic variation exists on clinical quality, cost, and hospital utilization measures. When comparing performance across the 19 regions, distinct patterns emerge for Northern, Southern, and Central California. All Northern California regions perform comparably with the exception of the Northern Counties (Region 1, north of the Bay Area to the Oregon border). Likewise, all Southern California regions perform similarly, and all Central regions perform comparably with the exception of Kern County (Region 14) (see the Technical Appendix for regional boundaries, associated counties, and enrollment per region).

Quality Highest in Northern California, Solid in Southern, and Weak in Central. Overall, Northern California outperforms Central and Southern California on clinical quality measures. Along with providing regional performance on individual quality measures, the Atlas combines performance on the six clinical quality measures into a clinical quality composite that places the statewide average commercial performance at zero and assigns each region a positive score if performance is better than the statewide average and a negative score if performance is worse than the statewide average.

As shown in Exhibit 3, the lowest performing region based on the clinical quality composite is the Eastern Region (13), comprised of Mono, Inyo, and Imperial counties in Central California, while the highest performing region is Contra Costa County (5) in Northern California. Overall, with the exception of the Northern Counties region (1), Northern California shows the strongest clinical quality performance. In Southern California, San Diego County (19) is the highest performing region and outperforms two Northern California regions—San Mateo County (8) and San Francisco County (4).

Exhibit 3: Regional Clinical Quality Composite for Commercially Insured Californians, 2013



Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.

Performance on individual clinical quality measures also varies widely across regions, indicating substantial opportunities to improve care for many patients. For example, as shown in Exhibit 4, the region with the highest clinical performance, Alameda County (6), meets breast cancer screening clinical guidelines for 83.9 percent of women aged 50 to 74 as opposed to only 69.4 percent of women in the Northern Counties (1). If all commercially enrolled California women represented by the Atlas data were screened at the same rate as those in Alameda County, almost 50,000 more women statewide would have received mammograms in 2013.

Overall, the highest performing regions on each clinical quality measure, with the exception of medication management for people with asthma, are in Northern California, with North Bay Counties (2), Contra Costa County (5), and Alameda County (6) leading in quality.

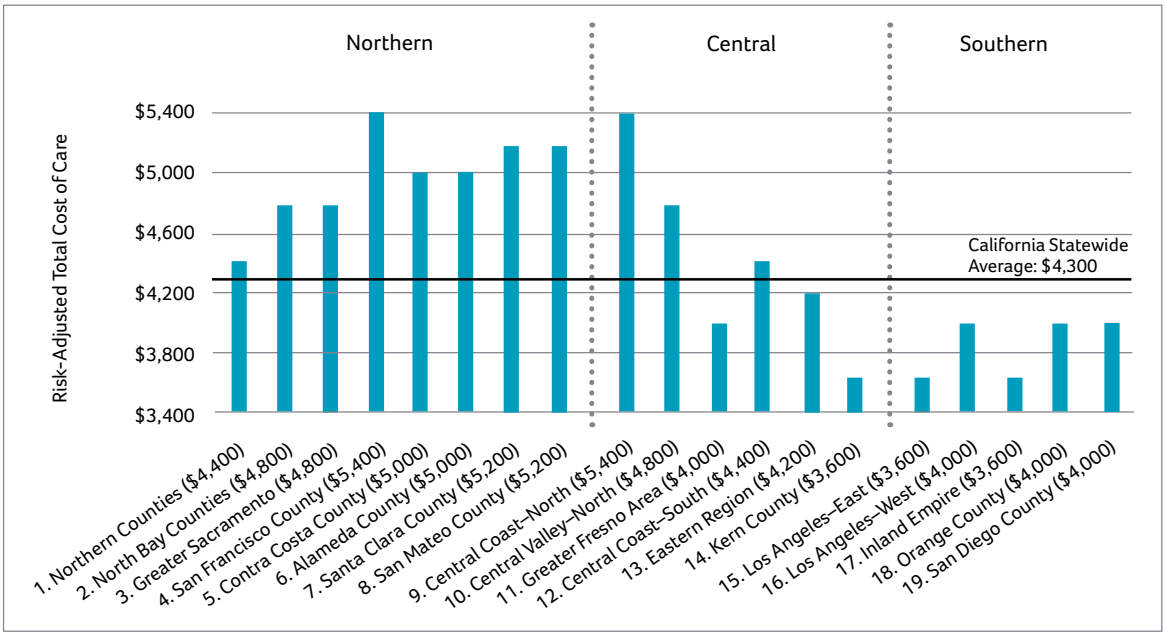
Commercial Risk-Adjusted Total Cost of Care Highest in Northern, Mixed in Central, and Lowest in Southern California. Average commercial total cost of care also varies considerably across the state, with Southern California regions consistently demonstrating lower costs. The statewide average annual per-enrollee total cost of care for commercially insured Californians is $4,300. All Northern California regions have higher costs than the statewide average, all Southern regions have lower costs than the state average, and Central California regions have mixed costs (see Exhibit 5). The most costly region is San Francisco County (4) in Northern California at $5,400 per enrollee per year on average, while the least costly region is Kern County (14) in Central California at $3,600, for a difference of $1,800 per enrollee annually.

Exhibit 4: Regional Clinical Quality Performance Rates for Commercially Insured Californians, by Measure, 2013

Area	Region	Breast Cancer Screening %	Colorectal Cancer Screening %	Blood Sugar Screening for People with Diabetes %	*Poorly Controlled Blood Sugar Screening for People with Diabetes %	Kidney Disease Monitoring for People with Diabetes %	Medication Management for People with Asthma %
	1. Northern Counties	69.4	50.0	79.7	74.2	68.6	48.5
Northern California	2. North Bay Counties	83.9	70.0	92.1	33.8	88.6	40.3
Northern California	3. Greater Sacramento	82.3	67.2	90.0	38.5	87.1	42.9
Northern California	4. San Francisco County	81.0	69.1	89.2	37.7	86.0	41.7
Northern California	5. Contra Costa County	83.7	71.1	90.8	33.2	88.6	43.1
Northern California	6. Alameda County	83.9	71.0	91.8	32.8	88.8	40.7
Northern California	7. Santa Clara County	82.5	66.9	91.6	36.2	87.2	42.8
Northern California	8. San Mateo County	83.2	68.4	89.6	36.9	87.3	38.5
Central California	9. Central Coast-North	72.4	51.1	81.7	69.0	75.6	45.1
Central California	10. Central Valley-North	78.5	61.3	86.2	50.1	82.9	40.8
Central California	11. Greater Fresno Area	76.1	61.0	85.8	52.2	79.6	40.9
Central California	12. Central Coast-South	75.9	56.1	85.3	58.1	78.0	43.7
Central California	13. Eastern Region	70.6	45.8	79.2	75.4	74.0	44.9
Central California	14. Kern County	74.2	57.1	86.9	56.4	81.7	44.9
Southern California	15. Los Angeles-East	78.4	61.6	89.2	37.6	86.8	40.8
Southern California	16. Los Angeles-West	79.7	62.0	89.3	39.1	85.7	41.5
Southern California	17. Inland Empire	80.3	62.6	88.8	35.4	86.6	38.6
Southern California	18. Orange County	79.1	62.2	89.1	39.7	84.2	41.4
Southern California	19. San Diego County	81.8	66.0	91.2	38.7	88.3	41.1
	Statewide	80.0	63.7	89.0	40.6	85.4	41.6

Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.
Note: The top three regional performers for each measure are highlighted in **green** and the bottom three performers are highlighted in **red**.
*Lower is better.

Exhibit 5: Regional Average Annual Per-Enrollee Total Cost of Care for Commercially Insured Californians, 2013



Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.
Note: All cost values are risk adjusted and rounded to the nearest $200.

Hospital Utilization All Over the Map

While there is dramatic variation in hospital utilization for emergency department (ED) visits, all-cause readmissions, and inpatient bed days across the 19 regions (see Exhibit 6), there is no clear geographic pattern. Wide variation characterizes all three measures included in the Atlas. For example, the lowest ED visit rate is 114 per thousand member years (PTMY) in Central Coast-North (9), while the highest rate is 256 visits PTMY in the Eastern Region (13)—a spread of more than double the lowest rate.

Bringing Together Commercial Quality and Cost Performance

As shown in Exhibit 7, in Southern California (Regions 15-19), commercial enrollees receive relatively high-quality care at a lower cost (top left quadrant), while those in Northern California (Regions 2-8) receive higher-quality care but at a much higher cost (top right quadrant). Northern Counties (1) is the only region that does not track other Northern California regions, landing in the lower-quality, higher-cost quadrant. In Central California (Regions 9-14),

DATA SOURCES

This Issue Brief is based on data from the California Regional Health Care Cost & Quality Atlas for 14.5 million commercially insured Californians enrolled in HMOs and PPOs in 2013. Commercial HMO and commercial PPO Atlas data were provided by participating health plans. Clinical quality results were calculated by plans directly, while hospital utilization rates and total cost of care were calculated by Truven Health Analytics, an IBM Company, using claims/encounter, eligibility, and cost data provided by the plans.

The six clinical quality and three hospital utilization measures are standard measures from the Healthcare Effectiveness Data and Information Set (HEDIS). The total cost of care measure represents average annual payments to providers to care for each enrollee and includes payments by insurance and enrollees for all covered professional, pharmacy, hospital, and ancillary care. The total cost of care measure is risk adjusted to account for differences in enrollee age, gender, and health status but not differences in geographic input costs.

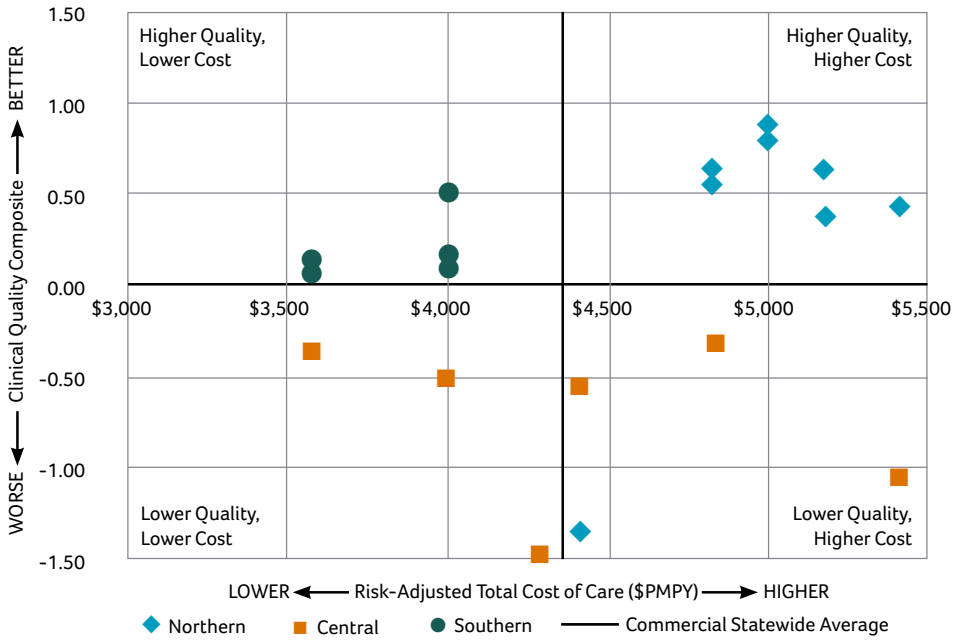
With the exception of total cost of care, which was risk adjusted, the results presented are descriptive—without adjustments for factors such as population socioeconomic characteristics, disease severity, or availability of medical services across geographic regions. While such adjustments may be of interest, the scope of this Issue Brief is simply to present observed rates of quality and hospital utilization on key measures (see the Technical Appendix for more detailed information about the data, measures, participating health plans, and regions).

Exhibit 6: Hospital Utilization Ranges for Commercially Insured Californians, 2013

Utilization Measure	Minimum Region Rate	Statewide Average Rate	Maximum Region Rate
Emergency Department Visits (PTMY)	114	141	256
All-Cause Readmissions (% of admissions)	6.6	8.1	8.4
Inpatient Bed Days (PTMY)	109	133	157

Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.
Note: PTMY = per thousand member years.

Exhibit 7: Bringing Together California Commercial Quality-Cost Performance, by Region, 2013



Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.
Notes: All cost values are risk adjusted and rounded to the nearest $200. PMPY = per member per year.

commercial enrollees generally receive lower-quality care with significant cost variation across geographic regions.

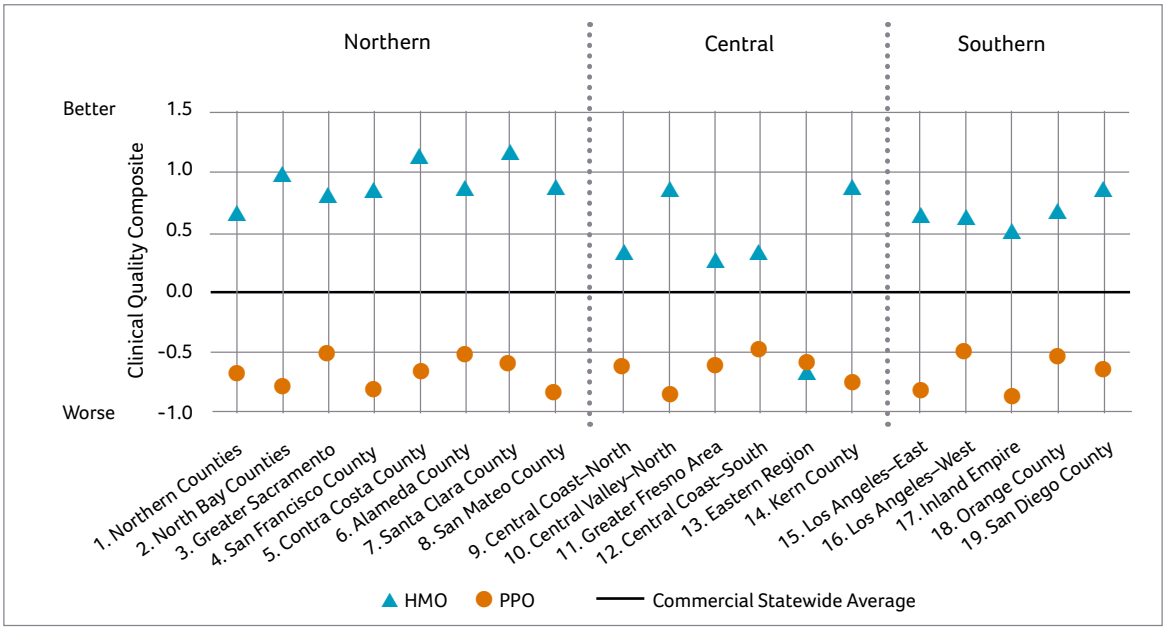
QUALITY AND COST PERFORMANCE: COMMERCIAL HMO VS. COMMERCIAL PPO

When examining performance by commercial product type—HMO vs. PPO—clinical quality and cost results vary widely across California. However, commercial HMOs almost uniformly far outperform commercial PPOs on clinical quality across the state's 19 geographic regions and demonstrate lower total cost of care in two-thirds of the regions.

HMO Clinical Quality Superior to PPO. HMOs on average perform notably better on clinical quality—based on the clinical quality composite—than PPOs in all but one region, Eastern Region (13) (see Exhibit 8). This is especially noteworthy as California outperforms the nation as a whole on clinical quality, based on comparison of the individual clinical quality measures in the Atlas to the corresponding national averages reported by the National Committee for Quality Assurance (NCQA).

At the national level, clinical quality results follow similar patterns, with commercial HMOs outperforming commercial PPOs on every clinical quality measure except medication management for people with asthma. As shown in Exhibit 9, the quality differential between commercial product types in California is larger than the national differential. California commercial HMOs perform better than their national counterparts on every

Exhibit 8: California Regional Clinical Quality Composite for HMO and PPO, 2013



Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.

Exhibit 9: Comparison of California and National Commercial HMO and PPO Quality Performance on Select Measures, 2013

Measure Name	Commercial HMO		Commercial PPO	
	California (%)	National (%)	California (%)	National (%)
Breast Cancer Screening	84.5	73.7	69.7	69.5
Colorectal Cancer Screening	71.1	62.9	47.5	56.5
Blood Sugar Screening for People with Diabetes	91.6	89.6	80.7	87.3
Poorly Controlled Blood Sugar for People with Diabetes (lower is better)	29.7	30.7	75.5	37.6
Kidney Disease Monitoring for People with Diabetes	90.1	83.8	70.7	78.8
Medication Management for People with Asthma	40.1	46.8	44.1	49.6

Sources: For national data, NCQA Quality Compass, 2014 (reflects performance in 2013); and for California data, California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.

clinical quality measure except medication management for people with asthma, while California commercial PPO performance lags national PPO performance on five of the six measures and is about the same for the breast cancer screening measure.

One would expect California's Atlas rates to lag national performance somewhat, simply because the national rates rely on patient chart reviews to capture more complete data, which should result in higher scores than scores based on the administrative-only claims and encounter data used in the Atlas. Therefore, the California PPO clinical quality rates compared to national rates are not particularly surprising, while the better California HMO rates indicate performance strong enough to overcome the disadvantage of using only administrative data.

ABOUT THE CALIFORNIA REGIONAL HEALTH CARE COST & QUALITY ATLAS

A collaboration of the Integrated Healthcare Association (IHA), the California Health Care Foundation (CHCF), and the California Health and Human Services (CHHS) Agency, the California Regional Health Care Cost & Quality Atlas uses 2013 data to track clinical quality measures for the priority health conditions of cancer, diabetes, and asthma; hospital utilization measures; and average annual per-enrollee total cost of care across 19 California geographic regions. For continuity and ease of comparison, the regions follow boundaries defined by Covered California, the state's health insurance exchange.

The Atlas includes information about 24 million Californians, nearly two-thirds of the state's total population, and spans health coverage provided by commercial insurance products—both HMO and PPO—Medicare Advantage, traditional Medicare fee for service (FFS) (see page 12 for a brief description of the Atlas Medicare results), Medi-Cal managed care, and Medi-Cal FFS (see page 9 for a brief description of the Atlas Medi-Cal results).

Atlas data represent care delivered during 2013, before full implementation of the Affordable Care Act (ACA)—including the expansion of Medi-Cal and launch of Covered California. Including total cost of care for all insurance product types except Medicare FFS, the Atlas captures $95.5 billion in spending on health care in California in 2013.

Building on a previous IHA-CHCF collaboration to highlight geographic variation in quality and resource use known as HEDIS by Geography, the Atlas adds data on the average annual per-enrollee total cost of care for people covered by public and private health insurance. As such, the Atlas was an avenue for CHHS to test the feasibility of a voluntary effort to create a state and regional cost and quality reporting system.

Along with giving purchasers, providers, payers, policymakers, and the public a clearer picture of population-level health care quality and costs across the state, the Atlas identifies so-called hot spots for targeted performance improvement and establishes regional benchmarks to track performance improvement over time.

Coming Soon: Cost & Quality Atlas 2.0

With continued CHCF support, IHA in 2017 will update the Atlas with 2015 data, highlighting changes from the 2013 baseline data following implementation in 2014 of ACA coverage expansions. The second edition will contain several enhancements, including more quality, utilization, and cost measures and a greater share of the state's population.

Atlas Edition 1 (available online)	Atlas Edition 2 (coming in 2017)
2013 data	2015 data
6 clinical measures + composite score	10-15 clinical measures + composite score
3 hospital utilization measures + composite	10-15+ hospital utilization measures + composite
2 cost measures + index	9 cost measures + index
24 million Californians	30 million Californians

Commercial HMO Costs Generally Lower than PPO. Average commercial HMO total cost of care is less than commercial PPO in 12 of 18 regions, as shown in Exhibit 10. The statewide average total cost for commercial HMOs is $4,245 per enrollee per year, compared to $4,455 for commercial PPOs, for a difference of $210 per enrollee per year. Of note, total cost of care includes both enrollee cost-sharing—for example, deductibles and coinsurance—as well as insurance payments to providers, so differences in benefit design among commercial products do not explain the cost variation. The relatively narrow difference in the statewide average masks significant variation across both geographic regions and product types. The least costly HMO region, Kern County (14), is $1,800 per enrollee per year less than the most costly HMO region, Santa Clara County (7). The least costly PPO region, Los Angeles-East (15), is $2,400 less than the costliest PPO region, which is San Francisco County (4).

Exhibit 10: California Commercial HMO and PPO Average Annual Per-Enrollee Total Cost of Care, by Region, 2013

Region	HMO Cost	PPO Cost	HMO Compared to PPO
1. Northern Counties	$4,800	$4,400	$400
2. North Bay Counties	$4,800	$5,000	-$200
3. Greater Sacramento	$4,800	$5,400	-$600
4. San Francisco County	$5,200	$6,000	-$800
5. Contra Costa County	$5,000*	$5,200	-$200
6. Alameda County	$5,000*	$5,400	-$400
7. Santa Clara County	$5,200	$5,400	-$200
8. San Mateo County	$4,800	$6,000	-$1,200
9. Central Coast-North	$5,000	$5,600	-$600
10. Central Valley-North	$5,000*	$4,600	$400
11. Greater Fresno Area	$4,400	$3,800	$600
12. Central Coast-South	$4,800	$4,200	$600
14. Kern County	$3,400	$3,800*	-$400
15. Los Angeles-East	$3,600	$3,600	$0
16. Los Angeles-West	$3,800	$4,200	-$400
17. Inland Empire	$3,600	$3,800	-$200
18. Orange County	$4,000	$4,000	$0
19. San Diego County	$4,000	$4,600	-$600

Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.

Notes: The top three regional performers for each product are highlighted in **green** and the bottom three performers are highlighted in **red**. Region 13, Eastern Counties, is excluded because of insufficient data. All cost values are risk adjusted and, except the statewide values, are rounded to the nearest $200.

* The rankings are based on underlying risk-adjusted cost data that are more precise than the values in the table, which are rounded to the nearest $200.

As shown in Exhibit 11, the magnitude of difference between HMO and PPO average annual per-enrollee total cost of care within a region varies considerably. The largest cost gap between HMO and PPO is $1,200 per enrollee in San Mateo County (8), with PPO being significantly costlier than HMO. Two regions, Los Angeles-East (15) and Orange County (18), have about the same total cost of care for both HMO and PPO.

Given that measurement of total cost of care is an emerging practice, with California among the leaders nationally in expanding measurement, there are no established national benchmarks. However, using its MarketScan database, a Truven Health Analytics study of commercial PPO enrollees in national employer-sponsored plans found that the average total cost of care (not risk adjusted) for 2013 was $4,578, compared to the California commercial average total cost of care of $4,300.

Readmissions and Inpatient Days Similar for HMO and PPO; HMO ED Use Higher

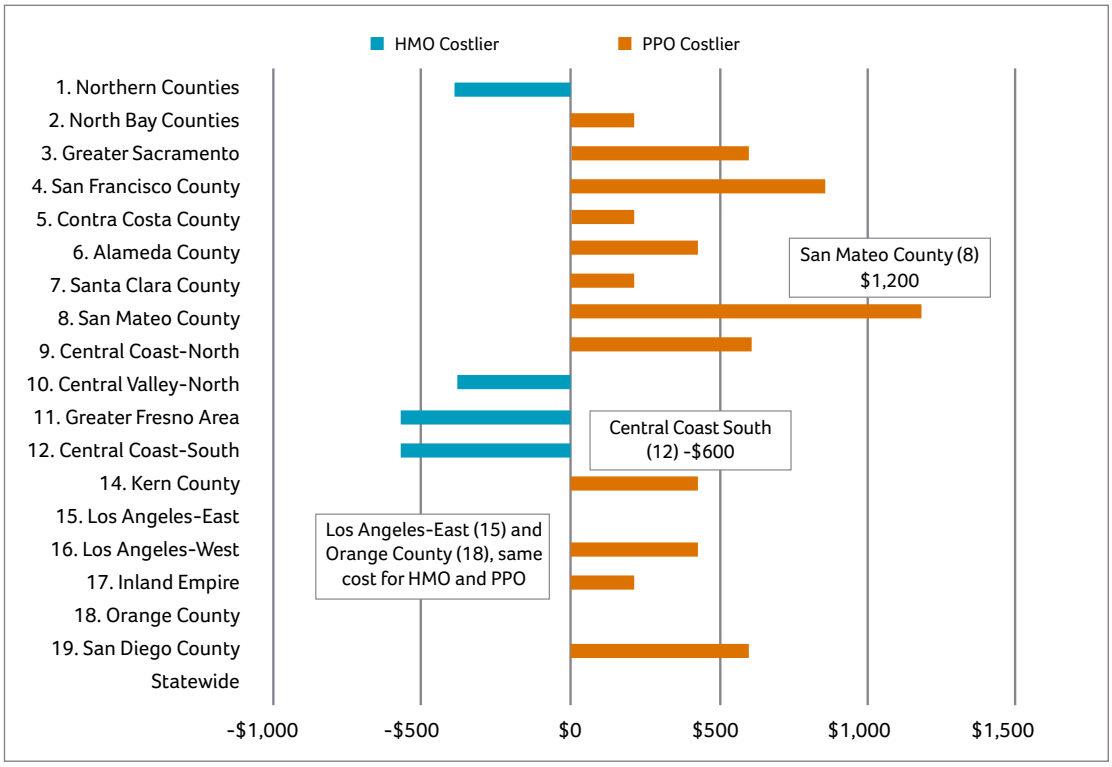
Average commercial HMO and PPO utilization rates statewide are similar for all-cause readmissions and inpatient bed days. As shown in Exhibit 12, the readmission rate is just over 8 percent for both commercial HMOs and PPOs, and inpatient bed days are different by only 3 per thousand member years. However, commercial HMOs have higher emergency department utilization than commercial PPOs, averaging 52 more ED visits annually per thousand member years. Both HMOs and PPOs in California substantially outperform their national counterparts on all three measures, according to NCQA national utilization rates, especially for ED visits and inpatient bed days.

A SNAPSHOT OF MEDI-CAL RESULTS

Atlas data from 2013 for Medi-Cal managed care enrollees show wide variation in quality across geographic regions. For example, Orange County (Region 18) had the highest breast cancer screening rate at 66.4 percent—about 50 percent higher than the lowest performing region, Greater Fresno Area (11), at 44.2 percent. The performance spread was even greater for colorectal cancer screening: San Mateo (8) had the highest rate at 35.2 percent, twice that of Los Angeles-West (16) at 18.3 percent. Comparing Medi-Cal managed care to Medi-Cal FFS, breast and colorectal cancer screening rates across regions are higher, on average, in managed care than in FFS. Specifically, 50.7 percent of eligible enrollees in Medi-Cal managed care received breast cancer screening compared to 44.8 percent in FFS. Similarly, 23.6 percent of Medi-Cal managed care enrollees received colorectal cancer screening compared to 21.3 percent in Medi-Cal FFS.

The 2013 data reflect Medi-Cal enrollment prior to the program's substantial expansion in January 2014. Future Atlas updates will allow for comparisons against this baseline data.

Exhibit 11: California Commercial HMO and PPO Average Annual Per-Enrollee Total Cost of Care Differences by Region, 2013



Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.
Notes: Region 13, Eastern Counties, is excluded because of insufficient data. All cost values are risk adjusted and rounded to the nearest $200.

Exhibit 12: Comparison of California and National Commercial HMO and PPO Hospital Utilization Rates, 2013

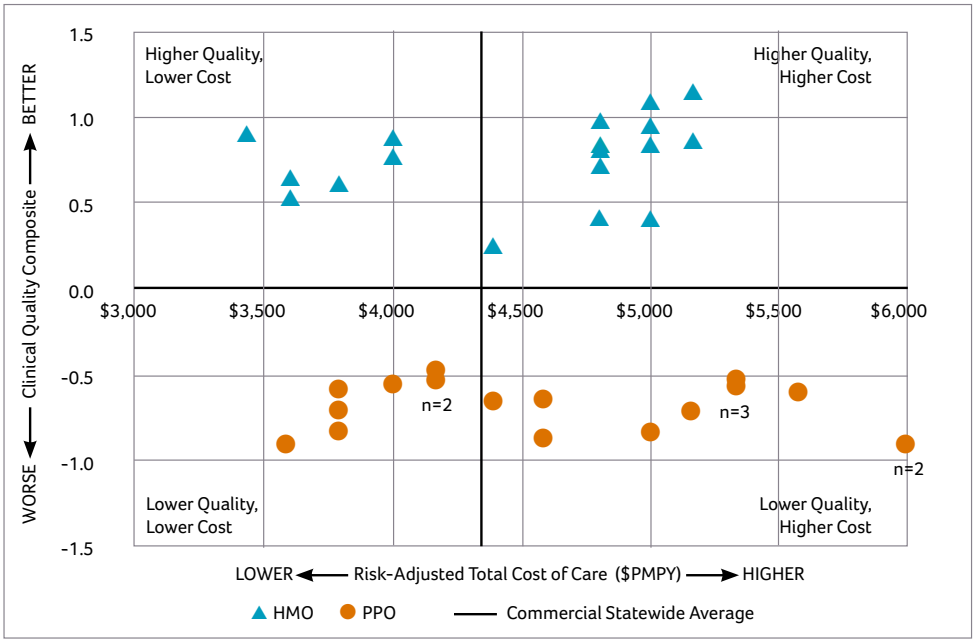
Measure Name	Commercial HMO		Commercial PPO	
	California	National	California	National
Emergency Department Visits (PTMY)	159	192	107	179
All-Cause Readmissions (% of admissions)	8.1	8.4	8.1	8.4
Inpatient Bed Days (PTMY)	134	180	131	170

Sources: For national data, NCQA Quality Compass, 2014 (reflects performance in 2013); and for California data, California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.
Note: PTMY = per thousand member years.

Only HMOs in Higher-Quality, Lower-Cost Quadrant

In Exhibit 13, each circle represents a region's PPO products and each triangle represents a region's HMO products. Placing these in quadrants, based on the statewide commercial averages for clinical quality (vertical axis) and for total cost of care (horizontal axis), reveals a clear pattern: Only HMOs fall into the higher-quality, lower-cost quadrant (top left), while only PPOs fall into the lower-quality, higher-cost quadrant (bottom right), again noting that total cost of care includes both enrollee cost-sharing amounts and insurance payments to providers. All HMO regions are above the statewide average for clinical quality, while all PPO regions fall below the statewide average for clinical quality. Cost performance is more variable: 12 of the 18 HMO regions are above the statewide cost average, placing them in the higher-quality, higher-cost quadrant.

Exhibit 13: Linking California Commercial HMO and PPO Quality and Cost Performance, 2013



Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data. Notes: Region 13, Eastern Counties, is excluded because of insufficient data. When data points overlap on the chart, the number of regions represented is labeled as "n=". All cost values are risk adjusted and rounded to the nearest $200.PMPY = per member per year.

IMPLICATIONS

An analysis of data from the California Regional Health Care Cost & Quality Atlas highlights wide geographic and product type variation in the quality and cost of care provided to commercially insured people across the state. Such sizable performance differences indicate that there are significant and pressing opportunities to improve both the quality and cost of care for many Californians. For example:

- If care for all commercially insured Californians represented by the Atlas were provided at the same quality as top-performing regions, nearly 200,000 more people would have been screened for colorectal cancer and 50,000 more women would have been screened for breast cancer in 2013.
- If care across the state for all commercially insured Californians represented by the Atlas were provided at the same cost as observed in San Diego—a relatively high-quality, low-cost region—overall cost of care would decrease by an estimated $4.4 billion annually, or about 10 percent of the $44 billion total cost of care for the commercially enrolled people represented in the Atlas in 2013.

Many factors contribute to the performance of regions, including socioeconomic characteristics of the population (e.g. income, education level) and health care infrastructure (e.g. availability of medical services). And, the characteristics of high-performing regions may differ from low-performing regions in ways that make it challenging to replicate performance. At the same time, all Californians deserve high-quality, affordable health care, and high-performing regions may have lessons to share that can raise performance across the state.

HMO and PPO Performance Differences. In addition to regional variation, the Atlas data reveal important differences in the performance of commercial HMOs and PPOs across the state. On quality, commercial HMOs outperform PPOs on five of six clinical quality measures and have a lower statewide average total cost of care. When combining regional ratings for clinical quality and total cost of care by commercial product type, for a total of 36 observations (18 regions each for PPO and HMO), only six fall into the higher-quality, lower-cost quadrant—all are HMO regions (see Exhibit 13.) Eleven observations fall into the lower-quality, higher-cost quadrant—all are PPO regions. These striking findings raise questions about the drivers of performance differences between HMO and PPO products across the state.

Integrated Delivery Networks. Considering the clinical quality results, one leading explanation for the higher performance among HMO products is their use of and reliance on integrated care delivery networks, which typically feature more sophisticated infrastructure, such as data systems, and more robust care coordination processes. Such

A SNAPSHOT OF MEDICARE RESULTS

Across California, the quality and cost of care varies widely for seniors enrolled in Medicare Advantage, according to 2013 Atlas data. For example, in North Bay Counties (Region 2), about nine in 10 women (90.6%) received appropriate screening for breast cancer, compared to seven in 10 (70.2%) in the Eastern Region (13). Similarly, the average annual per-enrollee total cost of care varies for Medicare Advantage enrollees, ranging from a high of $14,500 a year in Los Angeles-East (15) to $11,500 in San Diego County (19). Hospital utilization is also highly variable, with Kern County (14) using 451 inpatient bed days per thousand member years, and Central Valley-North (10) using 991 inpatient bed days. No clear geographic patterns are evident for clinical quality, cost, or hospital utilization.

Results for seniors enrolled in traditional Medicare fee for service (FFS) use a slightly different methodology than results for Medicare Advantage, so are not directly comparable. Nonetheless, the difference in hospital utilization is so striking that it is worth noting. The FFS statewide averages for emergency department visits, all-cause readmissions, and inpatient bed days are all between 50 percent and 75 percent higher than the statewide averages for Medicare Advantage (567 vs. 373 emergency department visits per thousand member years, 18.4 percent vs. 11.2 percent readmissions, and 1,363 vs. 789 bed days per thousand member years). The statewide averages for total cost of care are much closer, with Medicare FFS at $13,111 and Medicare Advantage at $12,783 per enrollee annually. This suggests that pricing may be influencing total cost of care more than utilization.

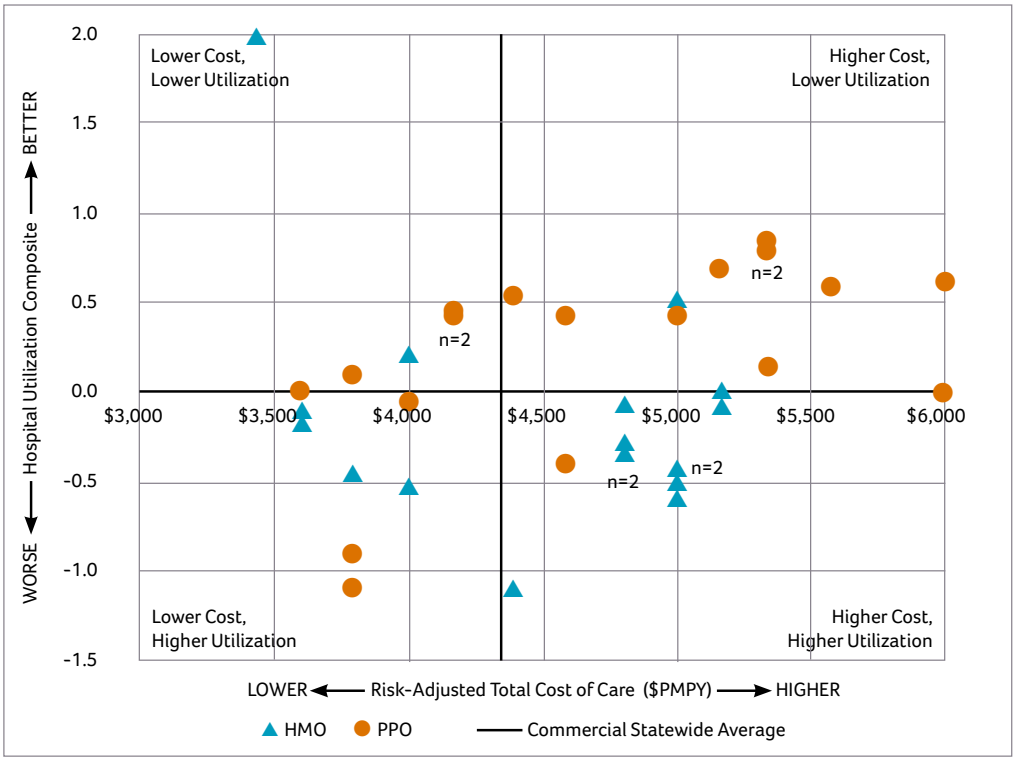
networks generally accept capitation—fixed per-member, per-month payments—so they are accountable for, and generally rewarded for, the health of a defined patient population. This organizational model is, in fact, wholly consistent with the overall goal of the Centers for Medicare & Medicaid Services to drive more care and payments through so-called alternative payment models (APMs), as noted in the *APM Framework White Paper* released in January 2016 by the Health Care Payment Learning & Action Network. The goal of reducing unwarranted variation could be advanced by learning more about what factors drive performance differentiation and characteristics of top performers.

Examining Utilization and Price. Turning to differences in total cost of care, the data show that in 12 of the 18 regions, HMO products have lower average total cost of care than PPO products. One explanation might be utilization; more tightly managed care in HMO products could be contributing to lower total cost of care. Yet, inpatient bed days and readmission rates are similar for HMOs and PPOs. And, far from explaining lower costs in HMOs, emergency department visit rates are actually higher for HMOs. Exhibit 14 provides a visual representation of the relationship between hospital utilization, based on a composite score representing all three utilization measures, and total cost of care. Overall, after removing one outlier region (Kern County, Region 14), the data show a moderate negative correlation ($r^2 = -0.48$, $p = 0.003$) between hospital utilization and cost—that is, lower utilization is associated with higher costs. Given that cost is a function of price and utilization, the results point toward unit price driving cost and not utilization, but it should be noted that limited utilization measures were used for this specific analysis.

Kaiser Permanente Effect? A question likely to be asked is the degree to which Kaiser Permanente's significant market share could be driving the results observed in the Atlas data. Kaiser Permanente is a large integrated delivery system that accounts for more than half of the commercial HMO enrollment in California. Comparisons of HMO and PPO performance excluding Kaiser Permanente show that the general trends still hold, but differences diminish. When Kaiser Permanente is removed, the overall clinical quality performance difference between HMO and PPO is reduced by about half; there is little impact on hospital utilization; and the overall performance difference between HMO and PPO on risk-adjusted total cost of care narrows substantially—but HMO still outperforms PPO.

Declining HMO Enrollment. In spite of better than average quality and cost performance, commercial HMO coverage—outside of Kaiser—has declined in recent years. If HMOs provide better "value," why is enrollment declining? One explanation may be employers' efforts to reduce premiums. Compared to HMOs, PPO benefit design tends to feature higher enrollee cost-sharing, such as deductibles and coinsurance, which reduces premiums; accordingly, PPO products often are less costly for employers. From a value perspective, however—taking into account both quality and total cost of care—HMOs appear to produce superior results. Those purchasing or arranging coverage, such

Exhibit 14: Linking Hospital Utilization and Total Cost of Care for Commercially Insured Californians, by Product Type, 2013



Source: California Regional Health Care Cost & Quality Atlas, commercial HMO and PPO 2013 data.
Notes: Region 13, Eastern Counties, is excluded because of insufficient data. When data points overlap on the chart, the number of regions represented is labeled as "n=". All cost values are risk adjusted and rounded to the nearest $200.
PMPY = per member per year.

as large employers, may want to consider these findings and recalculate their quality-cost value equation.

Increasing Transparency. The inaugural release of the California Regional Health Care Cost & Quality Atlas represents a major step forward for transparency. The Atlas brings together data on clinical quality, hospital utilization, and total cost of care from across the state and provides a first-ever opportunity to assess geographic and insurance product type variation in a way that allows for apples-to-apples comparisons. The Atlas also highlights the need for information sources using multi-payer and multi-provider data to support more regular performance improvement activities for plans, providers, and health care systems. Ideally, this information should be timelier, actionable, and include both claims and electronic health record data.

While this analysis focused on data from commercial—HMO and PPO—enrollment, the Atlas also includes Medicare and Medi-Cal data, and future analyses will focus on these insurance types and populations. Indeed, much more can be done with the data, which are downloadable from the Atlas website—costatlas.iha.org. When the Atlas is updated with 2015 data, it will include additional data sources and measures, enhancing the ability to generate insights that enable better health care performance across the state.

Acknowledgments

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TECHNICAL APPENDIX

IHA Issue Brief No. 21

Benchmarking California Health Care Quality and Cost Performance

This Issue Brief is based on data from the California Regional Health Care Cost & Quality Atlas for 14.5 million commercially insured Californians enrolled in HMOs and PPOs in 2013. Measures include clinical quality, hospital utilization, and total cost of care. The full enrollee population that meets the measurement criteria is included in the measurement; there is no sampling.

CLINICAL QUALITY MEASURES

Six key clinical quality measures for the priority health conditions of cancer, diabetes, and asthma are standard measures from the Healthcare Effectiveness Data and Information Set (HEDIS) and are defined as follows:

- **Breast Cancer Screening:** Percentage of female enrollees 50 to 74 years old who had one or more mammogram to screen for breast cancer during 2012 or 2013.
- **Colorectal Cancer Screening:** Percentage of enrollees 50 to 75 years old who had one or more screening for colorectal cancer—including fecal occult blood tests, flexible sigmoidoscopies, and colonoscopies.
- **Blood Sugar Screening for People with Diabetes:** Percentage of enrollees 18 to 75 years old with either Type 1 or Type 2 diabetes who had an HbA1c test performed in 2013.
- **Poorly Controlled Blood Sugar for People with Diabetes:** Percentage of enrollees 18 to 75 years old with either Type 1 or Type 2 diabetes whose most recent HbA1c level during 2013 was above 9 percent or was missing (Note: lower rates of poor control indicate better care).
- **Kidney Disease Monitoring for People with Diabetes:** Percentage of enrollees 18 to 75 years old with either Type 1 or Type 2 diabetes who had nephropathy screening or evidence of nephropathy during 2013.
- **Medication Management for People with Asthma:** Percentage of enrollees with persistent asthma who remained on an asthma controller medication for at least 75 percent of their treatment period in 2013.
- **Clinical Quality Composite:** A composite combining performance on all six clinical measures. Performance on each individual measure is converted to a Z-score, where 0 = average performance for a particular insurance type (i.e., for commercial, for Medicare, or for Medi-Cal), >0 = better than average, and <0 = worse than average performance. The Z-scores are then averaged to determine the composite score.

HOSPITAL UTILIZATION MEASURES

Three hospital utilization measures are standard measures from HEDIS and are defined as follows:

- **Emergency Department Visits:** Number of ED visits during 2013 which did not result in an inpatient admission, on a per thousand member years (PTMY) basis. No risk adjustment is applied.
- **All-Cause Readmissions:** Percentage of acute inpatient hospital says during 2013 that were followed by an acute readmission within 30 days for any diagnosis. Ages 18-64 included for commercial population; ages 18 and over included for Medicare Advantage and Medi-Cal populations. Unlike HEDIS, no risk adjustment is applied.
- **Inpatient Bed Days:** Total number of days enrollees were hospitalized for acute inpatient care during 2013, on a PTMY basis. No risk adjustment is applied.
- **Hospital Utilization Composite:** A composite combining performance on all three hospital utilization measures. Performance on each individual measure is converted to a Z-score, where 0 = average performance for a particular insurance type (i.e., for commercial, for Medicare, or for Medi-Cal), >0 = better than average, and <0 = worse than average performance. The Z-scores are then averaged to determine the composite score.

TOTAL COST OF CARE MEASURES

The total cost of care measures are defined as follows:

- **Risk-Adjusted Total Cost of Care:** The average risk-adjusted costs of providing care per enrollee per year, including payments by insurance and by enrollees for all covered professional, pharmacy, hospital, and ancillary care. Payments for mental health/chemical dependency, chiropractic, acupuncture, vision and dental are excluded. Risk adjustment accounts for differences in age, gender, and health status across populations. No adjustments were made for differences in geographic input costs.

- **Measurement varies slightly across insurance types:** Commercial costs are rounded to the nearest $200. Medicare results are rounded to the nearest $500, which represents about the same percent of total costs as the rounding for commercial. Medi-Cal total cost of care includes mental health and chemical dependency costs and uses a different risk-adjustment methodology based on pharmacy data. See the Atlas at http://costatlas.iha.org for more details.
- **Total Cost of Care Index:** An index that shows relative performance on total cost. Risk-adjusted total cost of care is converted to a Z-score, where 0 = average performance for a particular insurance type (i.e., for commercial, for Medicare, or for Medi-Cal), >0 = better than average, and <0 = worse than average performance.

DATA SOURCES

Ten health plans participated in the Atlas, contributing 2013 commercial HMO, commercial PPO, and/or Medicare Advantage data, as applicable. Clinical quality results were calculated by plans directly, while hospital utilization rates and total cost of care were calculated by Truven Health Analytics, an IBM Company, using health plan claims/encounter, eligibility, and cost data. For Medicare FFS, county-level results were obtained from public use files published by the Centers for Medicare & Medicaid Services and aggregated to the 19 regions. Medi-Cal results for all types of measures for both managed care and fee for service were calculated by the California Department of Health Care Services.

Participating Health Plans

Aetna
Anthem Blue Cross
Blue Shield of California
Cigna
Health Net
Kaiser Permanente
SCAN Health Plan
Sharp Health Plan
UnitedHealthcare
Western Health Advantage

POPULATIONS AND GEOGRAPHIC REGIONS

The Atlas includes data for about 14.5 million of the 19.4 million Californians enrolled in commercial health insurance products. The Atlas also covers 1.6 million Californians enrolled in Medicare Advantage, as well as 8.3 million Californians enrolled in Medi-Cal.

The Atlas maps data according to the 19 regions used by Covered California, the state's health insurance exchange, which groups counties as follows:

Area	Region	Counties	Region Population	Commercial Atlas Enrollment
Northern California	1. Northern Counties	Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Tuolumne, Yuba	1,328,056	228,825
	2. North Bay Counties	Marin, Napa, Solano, Sonoma	1,280,190	564,547
	3. Greater Sacramento	El Dorado, Placer, Sacramento, Yolo	2,142,566	952,558
	4. San Francisco County	San Francisco	807,758	372,417
	5. Contra Costa County	Contra Costa	1,047,659	515,326
	6. Alameda County	Alameda	1,514,494	725,211
	7. Santa Clara County	Santa Clara	1,791,109	821,689
	8. San Mateo County	San Mateo	715,718	352,547
Central California	9. Central Coast-North	Monterey, San Benito, Santa Cruz	732,537	171,460
	10. Central Valley-North	Mariposa, Merced, San Joaquin, Stanislaus, Tulare	1,907,913	476,113
	11. Greater Fresno Area	Fresno, Kings, Madera	1,223,984	269,560
	12. Central Coast-South	San Luis Obispo, Santa Barbara, Ventura	1,514,204	566,882
	13. Eastern Region	Imperial, Inyo, Mono	206,508	28,514
	14. Kern County	Kern	836,691	183,588
Southern California	15. Los Angeles-East	Los Angeles (partial)	4,056,806	1,739,713
	16. Los Angeles-West	Los Angeles (partial)	5,774,325	2,208,536
	17. Inland Empire	Riverside, San Bernardino	4,201,182	1,618,241
	18. Orange County	Orange	3,018,544	1,388,875
	19. San Diego County	San Diego	3,082,661	1,295,381
	Statewide		37,182,903	14,479,982

Sources: Counties mapped to regions based on Covered California regional boundaries: http://www.coveredca.com/. Region population gathered from U.S. Census data at the zip code level and then rolled up to regions: http://factfinder.census.gov/faces/nav/jsf/pages/download_center.xhtml. Commercial Atlas enrollment gathered from eligibility files provided by participating health plans.