CALIFORNIA HEALTHCARE FOUNDATION

Narrow Networks: Does Limited Choice of Hospitals Affect Quality in Covered California?

The individual health insurance market in California is seeing a trend toward products offering limited provider networks. Such networks are often more limited than those found in large group insurance products. There has been growth in both *narrow networks* (which include 30%-70% of hospitals in a region) and *ultra-narrow networks* (less than 30% of hospitals).[1]

The trend is not limited to California. Narrow and ultra-narrow hospital networks comprise more than 70% of all health exchange networks across the US. While limited networks are associated with lower premiums, thus far it is unclear whether the providers offered in these narrow network products are equivalent to the broader or potentially more expensive insurance products.

To assess whether and how growth in narrow networks affects consumers, the California HealthCare Foundation (CHCF) funded an analysis of the provider networks within Covered California during its inaugural year. Facilitated by Cynosure Health Solutions, a work group of experts in measurement science, public reporting, consumer advocacy, and health policy was convened (see Acknowledgments).

Their charge was to assess alternative approaches for measuring variation in network quality performance and determining whether there was a relationship between quality performance and other network attributes such as cost or geographic location. The research was originally conceived to address physician groups as well as hospitals included in plan-products, but physician groups were excluded from the analysis due to a number of issues related to the availability of accurate data.

Research Methodology and Data

Covered California is divided into 19 regions, as depicted in Figure 1. The researchers obtained information regarding the specific health plans available in each region, the different products that they offered (e.g., HMO, PPO, EPO[2]), and the hospitals contracted with each plan-product.

Hospital quality data were provided by the California Hospital Assessment and Reporting Task Force (CHART) and were publicly available at the time of the first open enrollment (fourth quarter of 2013). In

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the CHART data set there are 59 unique measures for 346 hospitals across seven domains. CHART data are aggregated from a number of sources including CMS, OSHPD, CDPH, and the California Maternal Data Center.[3] Premium cost data were gathered from public documents available in 2014 produced by Covered California for the second open enrollment period.

Figure 1. Covered California Pricing Regions

- **1** Northern counties
- **2** North Bay counties
- **3** Greater Sacramento
- **4** San Francisco County
- **5** Contra Costa County
- **6** Alameda County
- **7** Santa Clara County
- **8** San Mateo County
- **9** Central Coast
- **10** Central Valley
- **11** Central Valley
- **12** Central Coast
- **13** Eastern Region
- **14** Central Valley
- **15** Los Angeles (partial)
- **16** Los Angeles (partial)
- **17** Inland Empire
- **18** Orange County
- **19** San Diego County

Hospital-Level Network Structure

To obtain a rough measure of network structure, each region was analyzed as to the ratio of actual hospital contracts to potential contracts (see Table 1). Complicating the picture was the fact that Kaiser Permanente (KP) is a health plan that has exclusive relationships with its owned hospitals and physician network.

After removing KP from the analysis of network structure, it was found that health plans contracted with 3%-100% of potential hospitals in any region. On average, 63% of potential hospitals of all sizes were actually contracted throughout the state.

The researchers also examined the contract structure at the level of the region. Region 18 (Orange County) had the most limited average network structure, with 46% of potential hospitals contracted. Regions 13 and 14 (rural Inyo/Mono counties and Kern County) were the most comprehensive, with 85% of potential hospitals contracted. In general, the regions with more population density had a narrower network structure, probably due to the fact that more hospital options exist in populous areas.

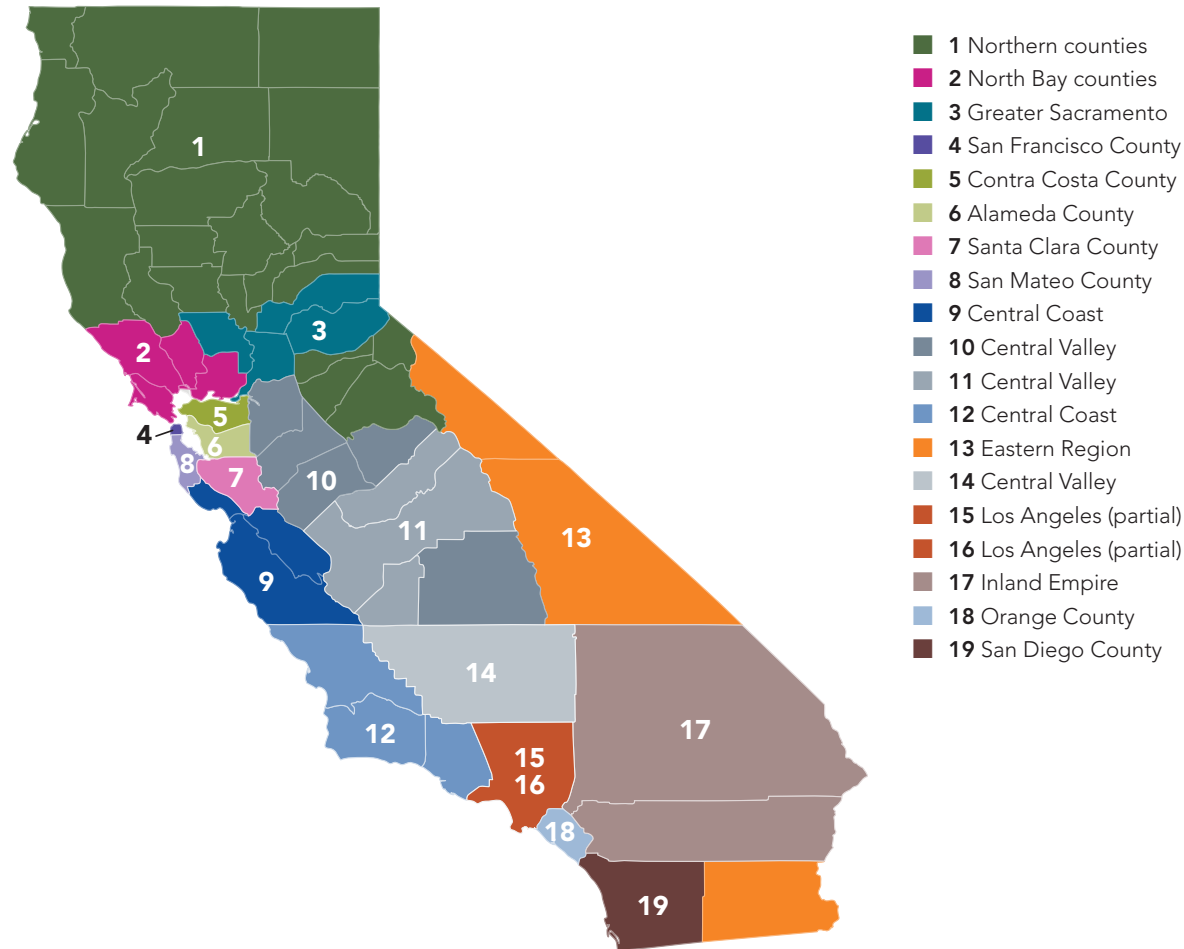## In general, the regions with more population density had a narrower network structure.

Table 1. Average Percentage of Hospitals Per Plan, by Region*

	AVERAGE	MOST COMPREHENSIVE	← AVERAGE PERCENTAGE OF HOSPITALS PER PLAN →				LEAST COMPREHENSIVE
1	57%	Anthem 91%	Blue Shield 75%	HealthNet 71%	Western Health Advantage 3%		
2	56%	Blue Shield 66%	HealthNet 65%	Anthem 59%	Western Health Advantage 53%	Kaiser 24%	Contra Costa 6%
3	56%	HealthNet 81%	Blue Shield 65%	Anthem 50%	Western Health Advantage 38%	Kaiser 19%	
4	68%	Blue Shield 83%	Chinese Community Health Plan 80%	HealthNet 80%	Anthem 30%	Contra Costa 10%	Kaiser 10%
5	51%	Blue Shield 56%	Contra Costa 56%	HealthNet 56%	Kaiser 33%	Anthem 22%	
6	52%	HealthNet 64%	Blue Shield 62%	Anthem 36%	Kaiser 27%	Contra Costa 18%	
7	68%	Anthem 80%	Blue Shield 80%	HealthNet 50%	Valley Health Plan 40%	Kaiser 20%	
8	52%	Blue Shield 67%	Anthem 43%	HealthNet 57%	Chinese Community Health Plan 29%	Kaiser 29%	
9	79%	Anthem 88%	HealthNet 88%	Blue Shield 72%			
10	75%	HealthNet 89%	Anthem 72%	Blue Shield 67%	Kaiser 17%		
11	77%	HealthNet 85%	Blue Shield 79%	Anthem 69%	Kaiser 8%		
12	75%	Anthem 94%	HealthNet 94%	Blue Shield 65%			
13	85%	Anthem 100%	Blue Shield 83%	HealthNet 75%			
14	85%	HealthNet 100%	Anthem 91%	Blue Shield 73%			
15	60%	Anthem (EPO) 72%	Blue Shield 72%	HealthNet 69%	L.A. Care 34%	Kaiser 6%	Molina 6%
16	50%	Blue Shield 60%	HealthNet 60%	Anthem 47%	L.A. Care 40%	Kaiser 12%	Molina 9%
17	65%	Anthem 73%	Blue Shield 73%	HealthNet 70%	Kaiser 22%	Molina 13%	
18	46%	HealthNet 74%	Anthem 46%	Blue Shield 38%	Kaiser 8%	L.A. Care 4%	
19	50%	HealthNet 67%	Blue Shield 63%	Anthem 56%	Sharp 33%	Kaiser 11%	Molina 6%

*Kaiser hospitals and health plan are excluded from this analysis.

Hospital-Level Composites

To determine network quality performance scores, the work groups suggested evaluating two different approaches:

➤ The policy-weighted composite is based on consumer perception of importance, representing clinical effectiveness, harm/patient safety, and patient experience.

➤ The reliability-weighted composite is based on the contribution of each measure to discriminating performance among the hospitals versus random measurement error.

Approach 1: Policy-Weighted Composite.

Weighting factors were assigned based on previous reports of the strength of consumer preference for each type of measure. Process measures, such as timing of antibiotics, were given a lower value. Patient safety measures and outcome measures, such as mortality, which previous studies have shown to be of greater interest to consumers, were given higher weight values. Table 2 shows the categories; specific definitions can be found in the Appendix.

Table 2. Measure Categories and Weights

MEASURE CATEGORY	FINAL POLICY WEIGHT
Process	1
Patient Experience	5
Less Severe Safety/ Intermediate Outcome	7
Severe Safety	10
Outcome	10

In general, the policy-weighted scores clustered between 75 and 90 (mean 83.6, standard deviation 3.9) reflecting a fairly narrow range of performance.

Approach 2: Reliability-Weighted Composite.

The work group chose more objective weights for this analysis. Using a well-accepted method, they weighted data to emphasize discrimination among hospitals and also take into consideration measurement error ("noise"). Only 48 measures were used, six fewer than the policy-weighted analysis. Eleven measures were excluded because of methodological considerations.

In general, scores clustered between 77 and 92 (mean 83.6, standard deviation 5.6), also reflecting a fairly narrow range of performance

A correlation analysis conducted to compare the two composite results for each hospital showed them to be highly correlated (r=0.821, p=0.0001), and only

19 hospitals moved more than two quartiles in an already narrow band of performance.

The work group concluded that both composite methods reflected highly similar performance.

Plan-Product Level Network Scores

Network plan-product level composites were computed using the reliability-weighted hospital composite. Both raw (unweighted) and total-discharges-weighted composites were calculated for every plan-product in every region. All of the SHOP plan-products[4] were removed from the analysis due to concerns that the small enrollment in a market might have had a disproportionately large impact.

The results describe a tightly bunched level of performance among the plan-products (see Figure 2), with only a few outliers.[5]

Figure 2. Plan-Product Hospital Network Distribution

RELIABILITY-WEIGHTED COMPOSITE SCORE

RANKING BY RELIABILITY-WEIGHTED COMPOSITE (1 IS HIGHEST, 104 IS LOWEST)
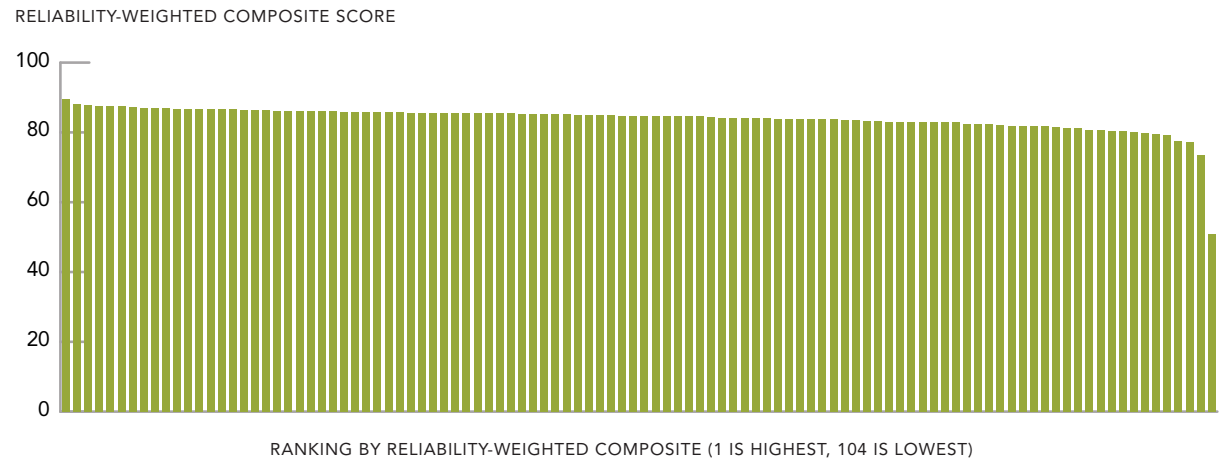
The analysis found little variation between the weighted and unweighted versions of the reliability-based composite at this level and a high degree of correlation (r=0.966) between the composite scores.

In the end, the method for calculating a hospital composite or a plan-product network composite played little to no role in discriminating performance.

Additional Findings

The research produced some additional information, including the following:

Network narrowness is not a factor in performance. The number of hospitals per network-plan ranged from 1 to 32, with an average of 10 hospitals per network-plan or 64% of potential hospital contracts statewide. While network narrowness has been linked to lower premiums, the research found no relationship between the number of hospitals in a network and the composite quality performance score. However, the lowest-performing plan-products had very few hospitals (1 to 3), suggesting that extreme narrowness may be problematic.

Cost and quality are moderately correlated (r=0.499). A 1.0 increase in score is associated with a $50/month increase in premium. Approximately 25% of the variation in the quality score is explained by premium cost. (The analysis did not include other potential drivers of premiums.) There were a handful of plan-product outliers that did not fit this pattern and had higher premiums but a slightly lower level of performance.

Variation between regions is significant. The top-performing regions were significantly better than the lowest-performing regions. San Francisco consumers had better-performing networks than Orange or Kern counties as seen in Figure 3. The researchers were not able to determine whether variation *within* a region was statistically significant.

Figure 3. Regional Plan-Network Performance

Region	Score
San Francisco County (A)	87.0
San Mateo County (B)	86.5
North Bay Counties (C)	86.5
Santa Clara County (D)	85.8
San Diego County (E)	85.7
Sacramento Valley (F)	85.4
Alameda County (G)	85.2
Central Coast (H)	84.7
Monterey Coast (I)	84.7
Contra Costa County (J)	84.5
San Joaquin Valley (K)	83.8
Central San Joaquin (L)	83.7
Los Angeles County-B (M)	82.4
Los Angeles County-A (N)	82.3
Inland Empire (O)	82.2
Northern Counties (P)	81.7
Eastern Counties (Q)	80.6
Orange County (R)	79.9
Kern County (S)	78.9

Important Implications

The analysis suggests that except for the most extreme cases of small-network structure (excluding Kaiser Permanente), hospital narrow networks perform comparably. This means consumers can choose different plan-products with high confidence that they will receive generally equivalent hospital care. However this applies only at the aggregate level; for any individual condition or situation a hospital may perform better or worse than another.

Consumers can choose different plan-products with high confidence that they will receive generally equivalent hospital care.

In general, limited hospital network structure was not seen to influence quality performance, so whether a network is "adequate" should be driven by access and not performance considerations.

From the consumer's viewpoint, while premium cost is perceived to be positively related to quality performance, the modest improvement is not meaningful.

The few outlier plan-products had extremely narrow networks (only 1-3 hospitals). A modest broadening would likely put their performance in line with other plan-products.

The research findings point to other questions to explore, including regional differences in network performance. It is important, for example, for consumers in Kern and Orange counties to be able to expect hospital network performance that is equal to that of other California regions.

About the Author

Bruce Spurlock, MD, is President and CEO of Cynosure Health Solutions. He led the technical work group assembled for this research.

Acknowledgments

About the Foundation

The California HealthCare Foundation (CHCF) is leading the way to better health care for all Californians, particularly those whose needs are not well served by the status quo. We work to ensure that people have access to the care they need, when they need it, at a price they can afford.

CHCF informs policymakers and industry leaders, invests in ideas and innovations, and connects with changemakers to create a more responsive, patient-centered health care system.

For more information, visit www.chcf.org.

Endnotes

1. McKinsey definitions (2013).

2. EPO stands for exclusive provider organization, a plan that provides no out-of-network benefits.

3. CMS = Centers for Medicare & Medicaid Services; OSHPD = California's Office of Statewide Planning and Development; CDPH = California Department of Public Health.

4. SHOP stands for Small Business Health Options Program, a marketplace for businesses with 50 or fewer full-time-equivalent employees.

5. Mean 84.0, standard deviation 4.3, interquartile range 4.0.

Appendix. Explanation of Policy-Based Weights and Categories, by Domain

DOMAIN / MEASURE DESCRIPTION	POLICY CATEGORY*	POLICY-BASED WEIGHT
Heart Conditions	Process	1
▶ Aspirin prescribed at discharge		
▶ Statins prescribed at discharge		
▶ Anti-clotting therapy given in less than 30 minutes		
▶ Percutaneous coronary intervention (PCI) done within 90 minutes		
▶ Internal mammary artery usage rate		
▶ Severity of heart failure evaluated		
▶ Clear instructions given prior to discharge		
▶ ACE inhibitors or angiotensin receptor blockers (ARBs) given		
Lung Conditions	Process	1
▶ Initial antibiotic consistent with current recommendations		
Patient Safety	Process	1
▶ Appropriate timing of antibiotic		
▶ Use of appropriate antibiotic		
▶ Appropriate discontinuation of antibiotic		
▶ Urinary catheter removal		
▶ Blood-clot prevention		
▶ Beta-blocker therapy continued		
Patient Experience	Experience	5
▶ Hospital rating		
▶ Would recommend hospital		
▶ Information and education		
▶ Nurses communicated well		
▶ Doctors communicated well		
▶ Received help as soon as they wanted		
▶ Pain well controlled		
▶ Staff explained medication		
▶ Patient room and bathroom clean		
▶ Quiet at night		

DOMAIN / MEASURE DESCRIPTION	POLICY CATEGORY*	POLICY-BASED WEIGHT
Emergency Care	Immediate Outcome (IO) or Less Severe Safety	7
▶ Average time in ED before being admitted		
▶ Average time in ED before being sent home		
▶ Average time in ED before being seen		
▶ Percentage of patients who left ED without being seen		
Mother and Baby	Immediate Outcome (IO) or Less Severe Safety	7
▶ NTSV C-section rate		
▶ Breastfeeding rate		
▶ Episiotomy rate		
▶ VBAC rate		
▶ VBAC routinely available		
Patient Safety	Immediate Outcome (IO) or Less Severe Safety	7
▶ Unplanned surgical wound reopening		
▶ Accidental lung puncture		
Heart Conditions	Severe Safety or Outcome	10
▶ Heart attack death rate		
▶ Heart attack potentially preventable readmissions		
▶ Heart bypass surgery death rate		
▶ Postoperative stroke rate		
▶ Heart failure death rate		
▶ Heart failure potentially preventable readmissions		
Lung Conditions	Severe Safety or Outcome	10
▶ Pneumonia death rate		
▶ Pneumonia potentially preventable readmissions		

Explanation of Policy-Based Weights and Categories, by Domain, *continued*

DOMAIN / MEASURE DESCRIPTION	POLICY CATEGORY*	POLICY-BASED WEIGHT
Other Conditions	Severe Safety or Outcome	10
Mortality rates of:		
▶ Abdominal aortic aneurysm repair		
▶ Esophageal resection		
▶ Pancreatic resection		
▶ PTCA		
▶ Acute stroke		
▶ Craniotomy		
▶ Hip fracture		
Gastrointestinal – hemorrhage rate		
Patient Safety	Severe Safety or Outcome	10
▶ Death after serious treatable complication		

*There are 54 quality measures. Each of them is categorized into one of the following policy-relevant categories: Process, Experience, Immediate Outcome (IO) or Less Severe Safety, Severe Safety or Outcome. Each category (and thereby each included measure) is assigned a policy-based weight.