An Analysis of California's Informal Provider Networks

AUTHORS

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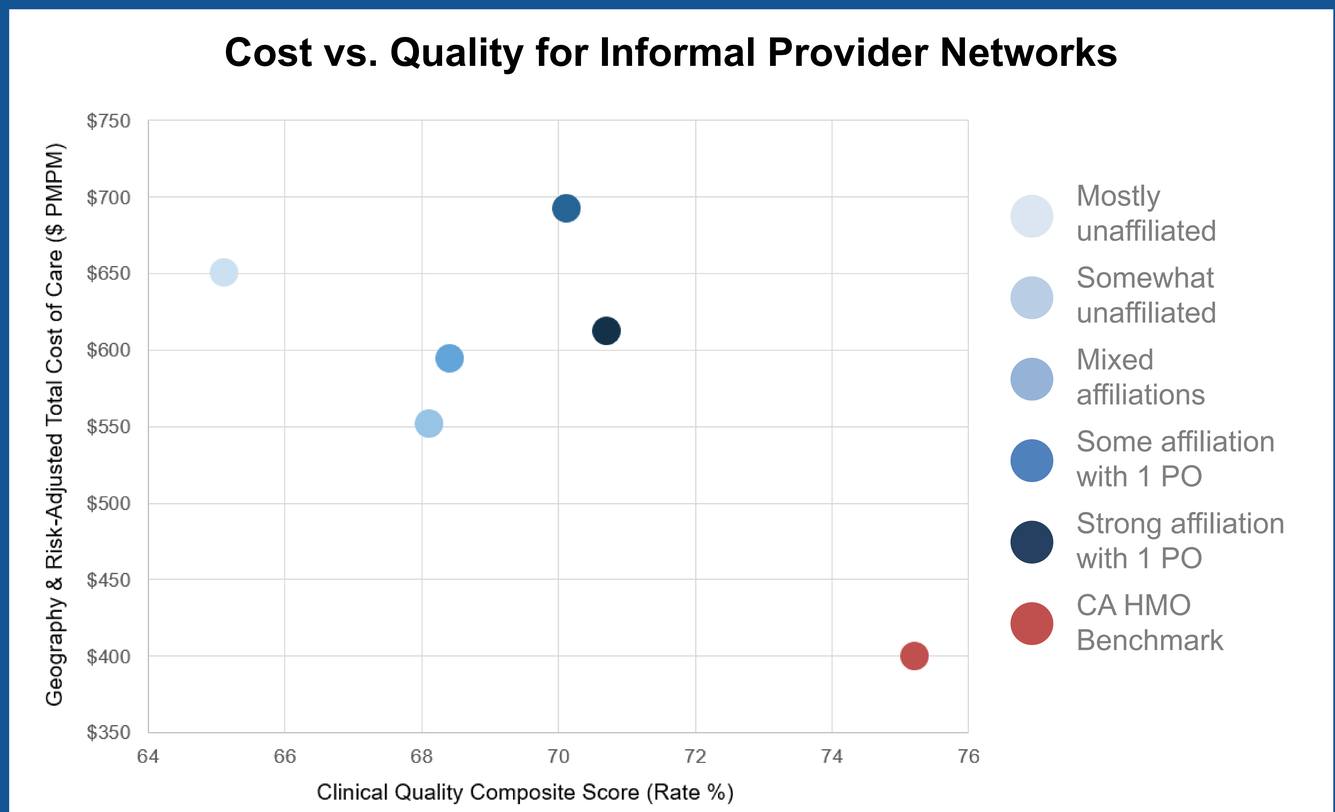
INTRO

More than 200 million medical and pharmacy claims from 2016–2018 for commercial preferred provider organization (PPO) members and Medicare Fee-for-Service beneficiaries in California were examined to identify informal networks of providers and understand their performance across a range of quality, cost, and utilization measures in comparison to formal capitated provider organizations (POs).

METHODS

1. More than 50,000 providers were assigned to one of 29 Core-Based Statistical Areas (CBSAs; U.S. Census, 2018).
2. Providers sharing at least 8 patients were examined as dyads.
3. The Louvain function in the R igraph package was used to cluster providers into networks within each CBSA, building from dyad to network.
4. Patients were attributed to a single network based on plurality of visits, with highest cost as a tie-breaker.
5. A series of 26 quality, cost, and utilization, measures were calculated for commercial PPO members attributed to each network.
6. Networks were assigned to 1 of 5 affiliation levels (please see the table to the right) based on the degree to which providers in the network were affiliated with a single provider organization.
7. The 26 quality, cost, and utilization measures were then calculated again for each of the 5 affiliation levels and compared to statewide health maintenance organization (HMO) benchmarks from IHA.

Capitated provider organizations demonstrated a **higher value** than informal provider networks – **better clinical performance at a lower total cost.**



Affiliation Level of Informal PPO Networks	Number of Networks	Total Network Membership
Mostly unaffiliated	26	263,478
Somewhat unaffiliated	69	4,507,264
Mixed affiliations	37	1,257,532
Some affiliation with 1 PO	15	350,014
Strong affiliation with 1 PO	15	478,274

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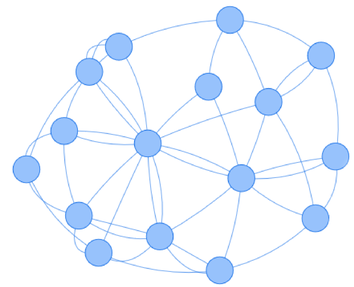
RESULTS

1. The analysis identified 687 informal PPO networks, ranging in size from 2 to more than 3,600 providers.
2. Study results were further refined to those networks with at least 10 primary care providers, resulting in a total of 162 networks for the analysis.
3. Identified networks ranged in size from 8 to roughly 407,000 patients.
4. Networks that were more strongly affiliated with a single provider organization produced higher clinical quality results at a medium cost (see bubble chart to left).
5. In comparison, formal capitated HMO provider organizations consistently provided higher quality of care at a lower cost.

Example of R igraph Package Network



DISCUSSION

Formal capitated provider organizations demonstrated better value – that is, higher quality at a lower cost – than informal networks on measures of clinical quality, cost, and utilization. We continue to enhance these results in collaboration with IHA, with additional results expected in Fall 2021.