HEALTH CARE COMPETITIVE IMPACT STATEMENT REGARDING THE PROPOSED ACQUISITION OF QUEEN OF THE VALLEY MEDICAL CENTER BY NORTHBAY

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I. Qualifications

(1) I am a Partner in the Antitrust Practice at Bates White Economic Consulting, a professional services firm that conducts economic and statistical analyses in a variety of industries and forums. I specialize in performing economic and statistical analyses of competition, market definition, and market power in antitrust cases, with a particular emphasis on the healthcare industry. Before joining Bates White, I was a Staff Economist at the Economic Analysis Group in the Antitrust Division of the US Department of Justice (DOJ). Prior to joining the DOJ, I was on the faculty at Northwestern University's Kellogg School of Management and, before that, at the Department of Economics at the University of Illinois at Urbana-Champaign.

(2) I have a PhD in Economics from Northwestern University and a BA in Economics from the University of Texas at Austin. I have taught courses to all levels of students, including a PhD course in industrial organization, undergraduate and graduate courses in microeconomics, and MBA courses on strategy and organizations (the theory of incentives within firms and the interaction of those incentives with the competitive strategies of firms), competition and strategy in technology markets, and healthcare markets.

(3) I have published articles on competition issues in the healthcare industry in scholarly journals, including *Antitrust Bulletin*, *RAND Journal of Economics*, *Journal of Health Economics*, and *Health Affairs*. I have also been an invited panelist on topics involving healthcare and competition in a variety of forums, including events sponsored by the American Bar Association, the American Health Lawyers Association, the National Congress on Health Insurance Reform, the Institute of Medicine, and the National Bureau of Economic Research.

(4) Since joining Bates White, I have served as an expert on market power and competition for the Department of Justice, the Federal Trade Commission (FTC), state agencies, and private entities in the healthcare industry, including both providers and insurers. For example, the FTC retained me to provide expert analysis in *Federal Trade Commission v. U.S. Anesthesia Partners, Inc.* I also testified on behalf of defendants in *In re Thomas Jefferson University and Albert Einstein Healthcare Network* as the FTC sought to enjoin their proposed merger. I have also provided testimony on vertical consolidation before the US Senate Subcommittee on Antitrust, Competition Policy, and Consumer Rights. Since 2012, Global Competition Review has selected me for inclusion in its annual International Who's Who of Competition Economists. Since 2021, I have been named to the Lexology Index (formerly *Who's Who Legal*) list of leading competition economists and I was recognized in 2026 as a Global Elite Thought Leader.

(5) A copy of my curriculum vitae is attached as Appendix A.

II. Summary of conclusions

(6) NorthBay Health (NorthBay), with two hospital campuses in Solano County, is seeking to acquire Queen of the Valley Medical Center (QVMC), located in Napa County, from Providence Health. As detailed in the body of this report, I have conducted an economic analysis in order to reach a conclusion on whether the transaction presents a material risk of lessening competition and/or giving the combined system additional bargaining leverage to obtain higher prices in negotiations with area health insurers.

(7) My central conclusions are as follows.

1. QVMC and NorthBay are not close horizontal competitors, because they primarily draw patients from distinct geographic areas.
    A. QVMC draws most of its patients, 77%, from Napa County. NorthBay draws most of its patients, 95%, from Solano County.
    B. Each party has a significant share of commercial discharges in its home county but a low share in the counterparty county.
        i. In Napa County, 57% of commercially insured residents select QVMC for inpatient care but 2% select NorthBay.
        ii. In Solano County, 29% of commercially insured residents select NorthBay for inpatient care but 2% select QVMC.
    C. Diversion ratios—a widely-used empirical measure of head-to-head competition between two sellers—between QVMC and NorthBay are well below the levels at which antitrust agencies challenge mergers in court.
2. NorthBay's acquisition of QVMC could plausibly increase the combined system's bargaining leverage in negotiations with commercial health insurers because many of those insurers' end-customers, such as employers and unions, have significant membership in both merging hospitals' respective counties. In the economic literature, these types of customers are referred to as "common customers," and this type of transaction is referred to as a "cross-market" merger. Not all cross-market mergers create a risk of increased bargaining leverage, but some can. The economic literature identifies several conditions that increase the risk of post-transaction price increases.
    A. Proximity. QVMC and NorthBay compete in different geographic markets, but those markets are not so distant as to make cross-market linkages through common customers implausible or minimal. One prominent study provides evidence of post-merger price increases, on average, from cross-market mergers involving hospitals between 30- and 90-minutes apart.

QVMC and NorthBay are about 30–45 minutes apart, depending on the direction of travel and time of day.

B. Importance to payers' provider networks. QVMC and NorthBay are important hospitals in their respective geographic markets.

C. Common customers. Enrollment data produced by commercial insurers show that a substantial proportion of commercially insured individuals in Napa and Solano counties work for firms (or have coverage through unions) that are common customers.

3. I have evaluated the conditions set forth in prior conditional approvals of non-profit health facilities transactions by the California Attorney General. Based on that review and economic principles of cost-benefit analysis, I identify several types of conditions that would plausibly reduce the risk of potential cross-market induced price increases without significantly impeding the merged system's ability to make investments or to compete.

A. Unbundling requirement. Should a commercial payer request, the merged system may be required to negotiate contract terms and pricing separately for QVMC and NorthBay.

B. Price increase cap. NorthBay may be restricted from increasing QVMC prices to commercial plans by more than a specified benchmark.

C. Prohibition on anti-tiering or anti-steering clauses. The merged system may be prohibited from including contract clauses that require commercial insurers to include all the system's facilities and providers in a preferred tier or at the lowest cost-sharing rate.

(8) I explain these conclusions and provide additional detail in the body of this report.

III. Factual background

(9) In this section, I review the parties and the proposed transaction, including their stated rationale and the request for proposal (RFP) process that led to the transaction. I also review the provider landscape in the areas surrounding the parties' locations, including with respect to general acute care (GAC) services, outpatient and physician services, and payers. I then review available data on the prices for inpatient GAC services each system charges to commercial payers.

III.A. The parties and the proposed transaction

III.A.1. Geography and services

(10) NorthBay owns and operates two GAC hospitals in Solano County: NorthBay Health Medical Center (NorthBay MC), which has 154 licensed beds and is located in Fairfield, and NorthBay Health VacaValley Hospital (VacaValley), which has 50 licensed beds and is located in Vacaville. NorthBay also has nearly 40 outpatient locations in the area, including primary care offices, urgent care centers, and specialty clinics.[1] These are mostly located near NorthBay's hospital campuses, but several are in other locations in Solano, Napa, and Yolo counties.

(11) NorthBay offers a Level II Trauma Center, a Primary Stroke Center, a Cardiac Catheterization Lab, a Level III NICU, a STEMI Receiving Center, a Cancer Center, labor and delivery, and an array of other services across its two campuses.[2] NorthBay MC and VacaValley's discharges have, taken together, an average diagnosis related group (DRG) weight of 1.75, in line with the average DRG weight across all hospitals in Solano and Napa counties.[3]

(12) QVMC, located in Napa County, has 198 licensed beds and is owned by Providence, a hospital system with locations in California, Oregon, Montana, Washington, and Alaska.[4] Providence has 51 hospitals across these states, 6 of which are in northern California.[5] The proposed transaction only

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1 "About NorthBay Health Medical Center," NorthBay Health, https://www.northbay.org/about/northbay-medical-center.html; "About NorthBay Health VacaValley Hospital," NorthBay Health, https://www.northbay.org/about/northbay-vacavalley-hospital.html; "Location Directory," NorthBay Health, https://www.northbay.org/patients-visitors/location-directions-directory.html.

2 "About NorthBay Health Medical Center," NorthBay Health, https://www.northbay.org/about/northbay-medical-center.html; "Neonatal Intensive Care Unit," NorthBay Health, https://www.northbay.org/services/womens-services/neonatal-intensive-care/index.html; "Heidi Y Campini Cancer Center," NorthBay Health, https://www.northbay.org/en/services/cancer-center/.

3 DRG case weights are published by CMS, which uses them to scale payments relative to the base payment rate that CMS releases each year. Under this system, most inpatient discharges are paid on the basis of the DRG assigned to the patient according to the following formula: *Payment* = $*Base rate* × *DRG case weight*. Thus, a higher case weight implies inpatient services that are, on average, more costly for hospitals to provide.

4 Providence also has an affiliation with Covenant Health in Texas and New Mexico.

5 "About Us," Providence, https://www.providence.org/about; "Caring with Compassion in Northern California,"

involves QVMC and Providence's clinics in Napa County, not Providence's other hospitals or clinics. The nearest other Providence hospitals are Petaluma Valley Hospital, about a 40- to 45-minute drive west of QVMC, and Providence Santa Rosa, about 1 hour west of QVMC. Inpatient discharge data show that a small percentage of Napa County residents travel to these hospitals.

(13) QVMC offers a range of services on its campus, including cancer care, a Level III Trauma Center, and cardiology.[6] QVMC is the only hospital in Napa County with labor and delivery services.[7] It also provides outpatient services in four locations that include two multi-specialty clinics, one cardiology clinic, and one urgent care center. The multi-specialty clinics offer primary care, cancer care, gastroenterology, neurology, OB/GYN, and urology services.[8] All QVMC locations are in Napa County. QVMC's discharges have an average DRG weight of 1.67, which is slightly lower than the average for area hospitals.

(14) NorthBay MC and VacaValley together draw almost 95% of their patients from Solano County. More than 90% of QVMC's patients come from Napa, Sonoma, and Solano counties, with 77% from Napa and 6% from Solano. The locations of these three hospitals (as well as the other GAC hospitals in Solano and Napa counties) are shown in Figure 1.

Providence, https://www.providence.org/about/northern-california.

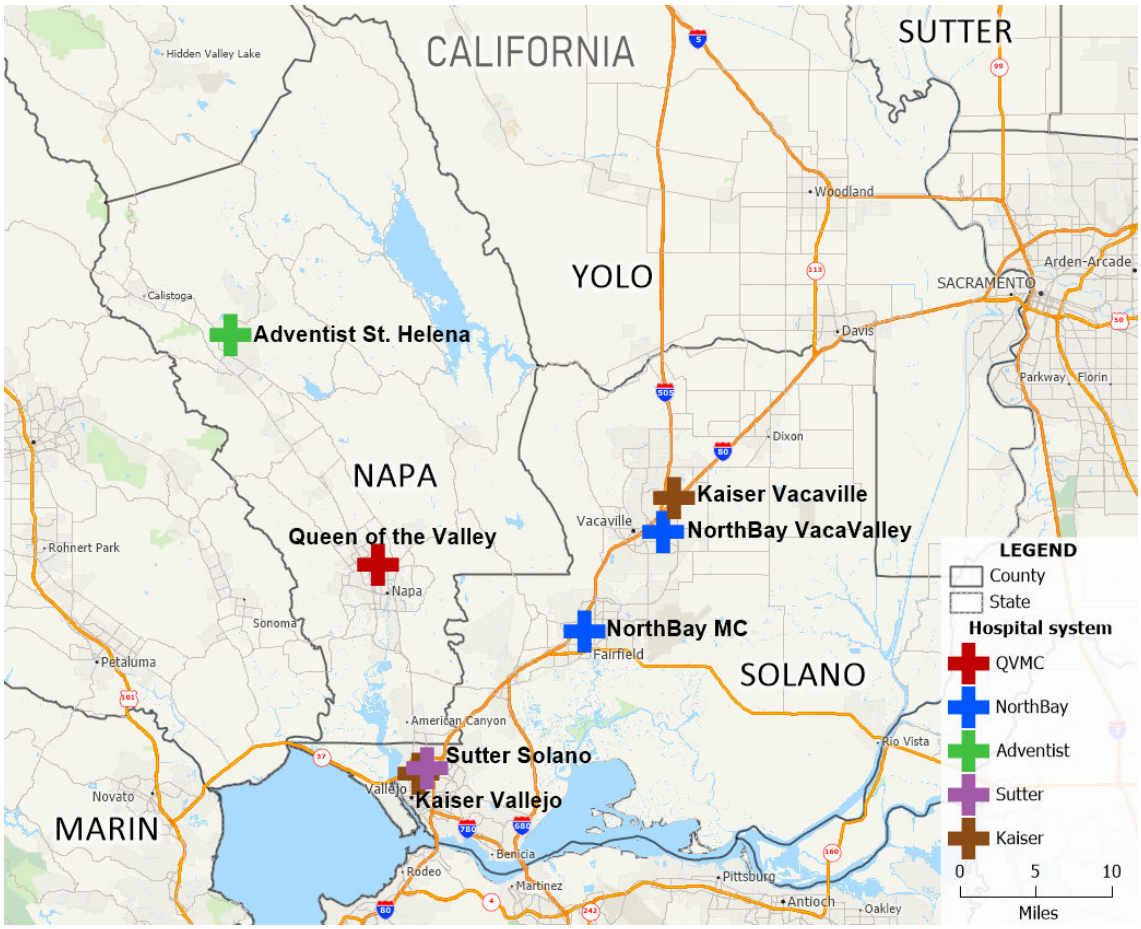
6 "About Us," Providence, https://www.providence.org/locations/norcal/queen-of-the-valley/about-us.

7 Adventist St. Helena, the only other hospital in Napa County, closed its labor and delivery services in 2020 due to low volume. Adventist Health, "Adventist Health St. Helena Announces Closure of Its Family Birth Unit," news release, December 11, 2019, https://www.adventisthealth.org/news/adventist-health-st-helena-announces-closure-of-/.

Sutter Solano Medical Center, which is in Solano County but near the Napa County border, also closed its labor and delivery services in 2021. Abhishek Dosi, CEO, Sutter Solano Medical Center, email message to Dana Forney, State of California Department of Public Health (February 9, 2021).

8 Asset Purchase Agreement, Exhibit A, April 7, 2026; "Find a Location," Providence, https://www.providence.org/locations?postal=94558&latlng=38.363%2c-122.247&page=1.

Figure 1. Hospital landscape in Napa and Solano counties



Source: AHA data, 2024.

III.A.2. Stated rationale for the transaction

(15) Through this transaction, Providence will transfer ownership of QVMC, along with all its Napa-based clinics, to NorthBay for a purchase price of approximately $450 million, subject to adjustments per the Asset Purchase Agreement.[9] NorthBay has committed to maintaining charity care and certain community programs at QVMC, as well as retaining employees for a minimum of 12 months following the transaction's closing.[10] [redacted]

[9] Asset Purchase Agreement, § 1.6, April 7, 2026.

[10] Asset Purchase Agreement, §§ 9.8, 5.1, April 7, 2026.

[redacted]

(16) [redacted]

(17) [redacted]

III.A.3. The RFP process

(18) [redacted]

(19) [redacted]

[redacted]

I have not identified a document that provides detail on the specific ways in which NorthBay intends to realize these improvements. Accordingly, I do not opine on whether any such benefits are likely to materialize.

[redacted]

III.A.4. Western Health Advantage

(20) NorthBay and CommonSpirit Health (formerly Dignity Health) co-own Western Health Advantage (WHA), a health plan serving residents of 10 northern California counties. WHA offers individual, family, and group plans, but recently stopped offering Medicare Advantage (MA) plans.[17] It does not offer managed Medicaid (Medi-Cal) plans.

III.A.5. Hospital performance trends

(21) In this section, I present payer mix, volume, occupancy, and financial trends at the party hospitals.[18]

III.A.5.a. Payer mix

(22) Commercially insured patients, which typically pay higher rates to hospitals than government payers, account for 15% of QVMC's and 11% of NorthBay's 2024 discharges. In comparison, as Figure 2 shows, 26% of all hospitalized residents of Napa and Solano counties (including those discharged from a Kaiser hospital) in 2024 were commercially insured. If patients discharged from a Kaiser hospital are excluded, the percentage of discharges of commercially insured Napa and Solano residents falls to 18% (the difference between 26% and 18% is the result of Kaiser having a disproportionately high share of commercially insured discharges in this area). Either way, QVMC and NorthBay have a low percentage of commercially insured patients relative to the population in Napa and Solano counties and northern California overall.

(23) Medicare accounts for 49% and 44% of QVMC's and NorthBay's discharges, which are both close to the percentage among all Napa and Solano residents discharged from non-Kaiser hospitals (44%). Medi-Cal makes up 31% of QVMC's discharges, in line with the average for the two counties. Medi-Cal accounts for 39% of NorthBay's discharges, which is higher than the corresponding statistic, 31%, among all Napa and Solano residents discharged from non-Kaiser hospitals.

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[17] "About WHA," Western Health Advantage; "Medicare," Western Health Advantage, https://www.westernhealth.com/medicare/.

[18] I analyze trends jointly for NorthBay MC and VacaValley because they are not distinguished in the Health Care Access and Information (HCAI) data that I use for many analyses in this report. I do not analyze the parties' quality.

Non-Kaiser hospitals, including the parties, have some discharges of patients covered by a Kaiser health plan. Unless otherwise indicated, in the current section of this report, I include all enrollees at all hospitals. Thus, for example, Kaiser enrollees treated at QVMC and NorthBay are included in the calculations of payer mix, volume, occupancy, etc. (I exclude Kaiser enrollees at non-Kaiser hospitals from the share and concentration analysis in section IV.)

Figure 2. Insurance coverage types among residents of (1) northern California and (2) Napa and Solano counties, including and excluding discharges from Kaiser hospitals

Payer category	All hospitals		Excluding Kaiser hospitals	
	Northern CA	Napa & Solano	Northern CA	Napa & Solano
Commercial	26.7%	26.2%	22.4%	18.0%
Medicare	41.9%	44.2%	41.1%	44.2%
Medi-Cal	27.0%	24.6%	31.3%	31.1%
Other	4.4%	5.0%	5.2%	6.7%

Source: HCAI PDD, 2024.
Notes: Excludes specialty and non-GAC hospitals. Limited to GAC procedures. "Northern California" consists of all counties north of and including Monterey, Kings, Tulare, and Inyo.

(24) Figure 3 summarizes the distribution of payer mix across non-Kaiser hospitals in northern California (i.e., counties including and north of Monterey, Kings, Tulare, and Inyo). For the median such hospital, 16.7% of patients are commercially insured; NorthBay, at 11%, is among the bottom quarter of hospitals on this dimension. QVMC, at 15%, is among the bottom half of hospitals. Within Napa and Solano counties, Adventist St. Helena has a higher commercial mix (19%) than either party and Sutter Solano Medical Center's commercial mix is similar to NorthBay's.

(25) With respect to Medi-Cal, which generally pays lower rates than either Medicare or commercial insurance, 31% of QVMC's and 39% of NorthBay's discharges are patients covered by Medi-Cal. In comparison, as Figure 3 also shows, the median share of Medi-Cal discharges for non-Kaiser hospitals in northern California is 26%. Referring to Figure 2, 31% of Napa and Solano discharged patients are covered by Medi-Cal when Kaiser hospitals are excluded (and 25% when Kaiser is included).

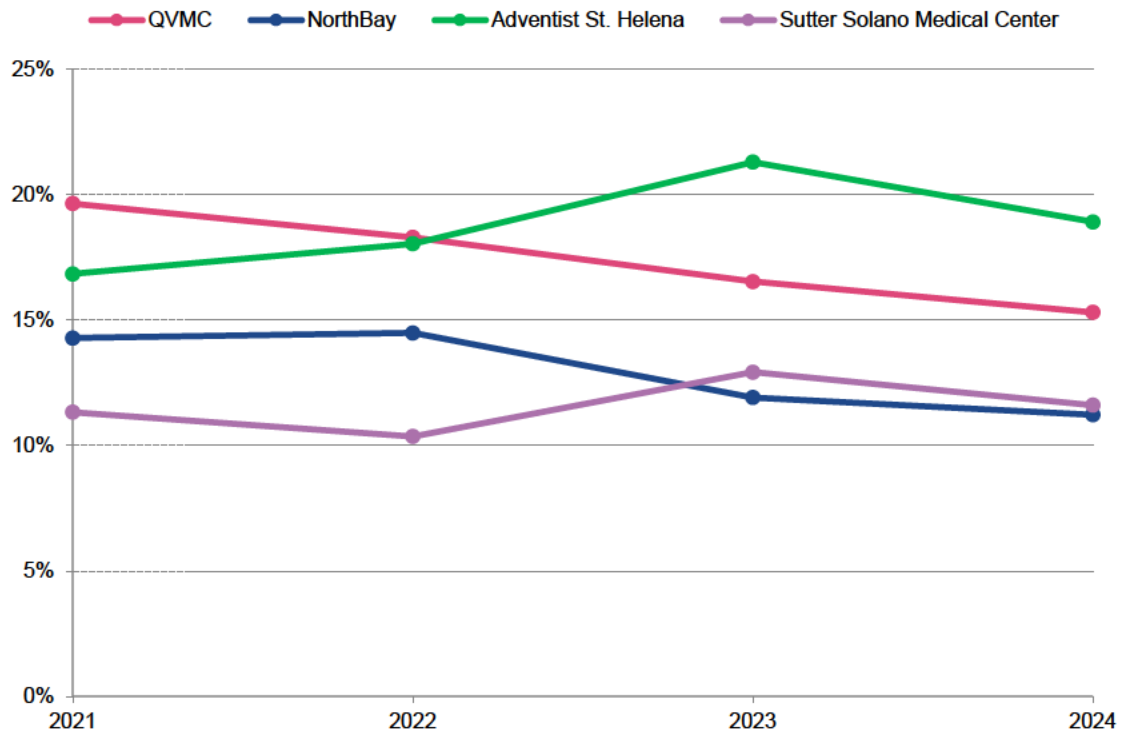
Figure 3. Payer composition of discharges at non-Kaiser hospitals in northern California

Category	10th percentile	25th percentile	Median	75th percentile	90th percentile
Commercial	7.8%	11.7%	16.7%	26.6%	33.6%
Medicare	28.7%	37.0%	46.0%	56.7%	68.8%
Medi-Cal	10.8%	18.4%	26.0%	37.8%	49.0%

Source: HCAI PDD, 2024.
Notes: Excludes specialty, non-GAC, and Kaiser hospitals. Limited to GAC procedures. "Northern California" consists of all counties north of and including Monterey, Kings, Tulare, and Inyo.

(26) Finally, Figure 4 shows trends in commercial discharge percentages for hospitals in Napa and Solano counties. Both systems have seen declines in their percentages of commercially insured discharges since 2021, with QVMC falling from nearly 20% to 15% and NorthBay from roughly 14% to 11%. Neither Adventist St. Helena nor Sutter Solano Medical Center had a comparable decline.

Figure 4. Commercial discharge trends for non-Kaiser hospitals in Napa and Solano counties

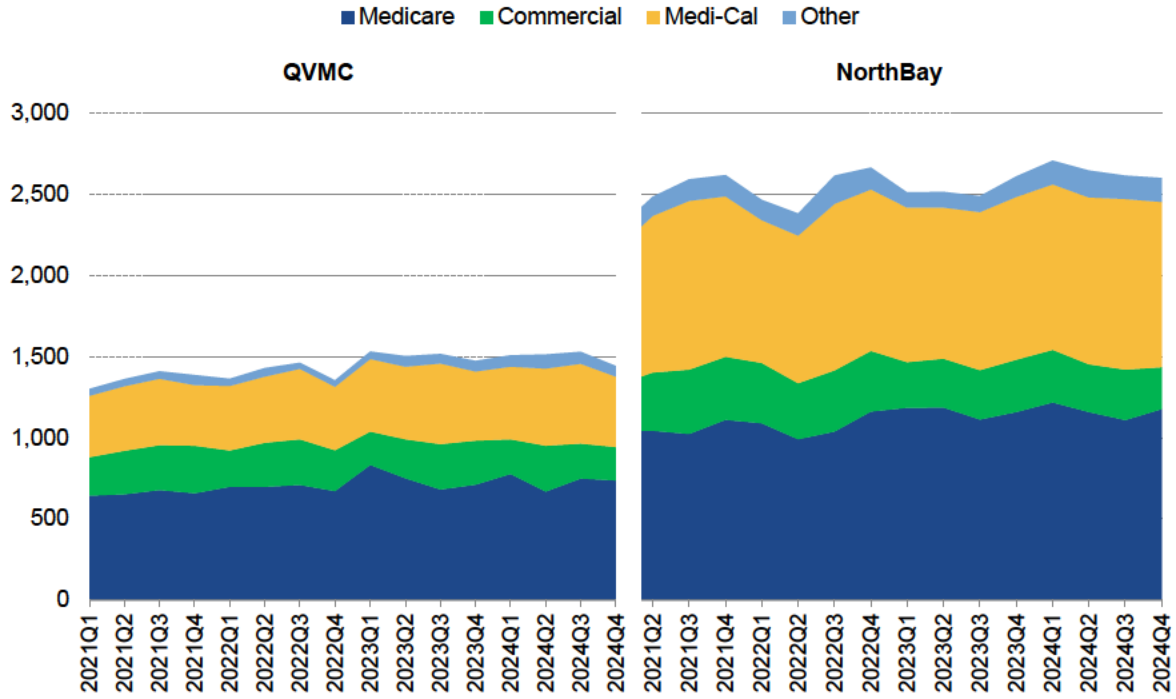


Source: HCAI PDD.

III.A.5.b. Volume

(27) Figure 5 illustrates the parties' quarterly inpatient (IP) volume by payer type since 2021 and provides context for the decrease in their commercial patient mix. For NorthBay, commercial volume declined by 17% from 2021 to 2024, even as its overall volume increased modestly due to a 7% increase in Medi-Cal volume and a 10% increase in Medicare volume. The trend for QVMC is similar, with commercial volume falling by 14% while Medi-Cal and Medicare volume increased by 18% and 11%.

Figure 5. Quarterly inpatient volume by payer type



Source: HCAI PDD.

III.A.5.c. Occupancy

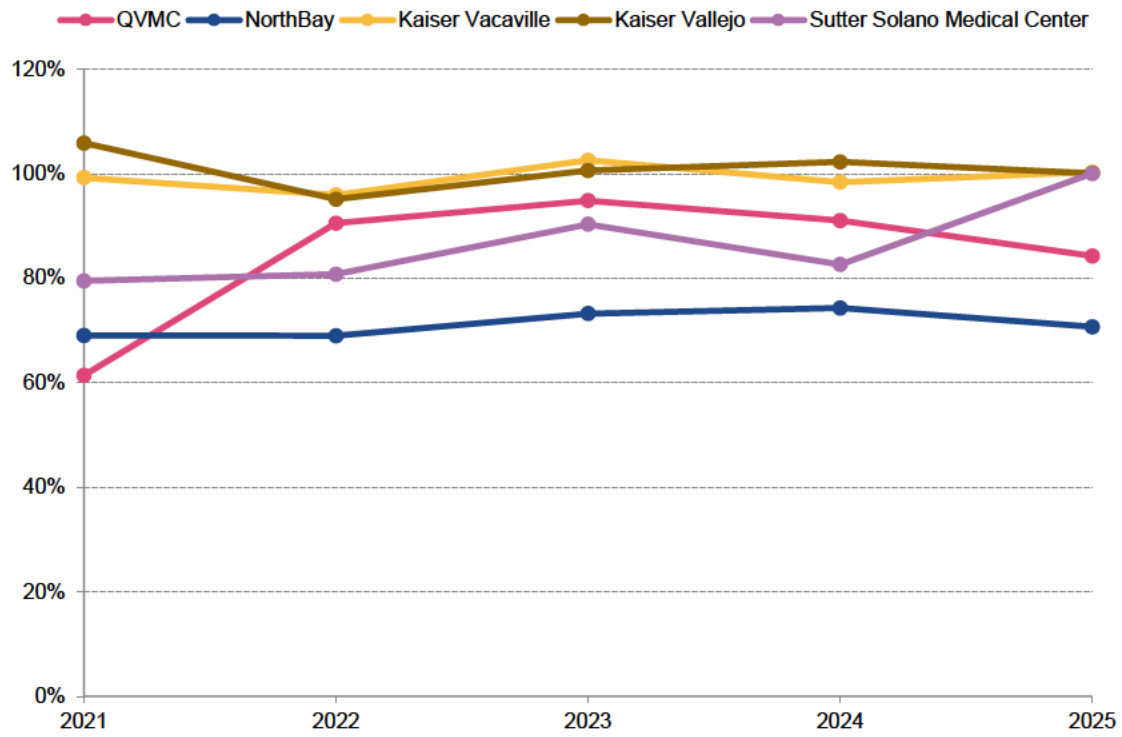
(28) Using HCAI hospital financial reports, Figure 6 presents occupancy rates for party and non-party hospitals in Napa and Solano counties, based on staffed beds, for the period 2021 through 2025.[19] In 2025, QVMC averaged 84% occupancy and NorthBay averaged 71% based on their staffed bed counts, indicating some degree of available capacity for both. Since 2023, QVMC's occupancy has declined and NorthBay's has been roughly flat. In contrast, as of 2025, the two Kaiser hospitals in Solano County as well as Sutter Solano Medical Center appear to be at capacity.[20]

[19] California Health and Human Services Agency, "Hospital Quarterly Financial & Utilization Report," https://data.chhs.ca.gov/dataset/hospital-quarterly-financial-utilization-report-sum-of-four-quarters. This dataset includes hospital-level utilization (occupancy, length of stay, patient days) and financial (revenue, operating expenses, net income) metrics. Reported occupancy rates are computed as total inpatient days ÷ (staffed beds × 365).

[20] All three hospitals are at about 50% capacity based on their licensed bed counts.

It is challenging for a hospital to average 100% capacity utilization over the course of a year, as that would typically mean that the hospital sometimes has more patients than staffed beds.

Figure 6. Occupancy rate trends for hospitals in Napa and Solano counties



Source: HCAI hospital quarterly financial & utilization reports.

III.A.5.d. Financials

(29) HCAI publishes annual financial reports for each California hospital. While there is some variation in QVMC and NorthBay's reported financial performance across various sources, the HCAI annual financial reports indicate that both QVMC and NorthBay had negative operating margins in some years between 2021 and 2025.[21] Nearby hospitals in Napa and Solano counties have also posted negative margins in some years across the same time period.

(30) [redacted]

[21] "Financial & Utilization Reports," California Department of Health Care Access and Information, https://reports.siera.hcai.ca.gov/.

[redacted]

III.B. Inpatient general acute care services landscape in Napa, Solano, and the surrounding counties

(31) Beyond the parties, the other hospitals located in Napa and Solano counties are Sutter Solano Medical Center, Adventist St. Helena, and, for enrollees in Kaiser insurance plans, Kaiser's Vacaville and Vallejo hospitals. In this section, I describe the Kaiser and non-Kaiser systems with hospitals in the area including and around Napa and Solano counties. I start with Kaiser because, as a vertically integrated health insurer, physician services provider, and hospital operator, it is not a direct competitor to non-Kaiser hospitals such as QVMC and NorthBay.

III.B.1. Kaiser Permanente

(32) Kaiser Permanente is a vertically integrated health system with a large presence in California, including two hospitals in Solano County (143-bed Kaiser Vallejo and 78-bed Kaiser Vacaville), but no hospital in Napa County.[23] Kaiser operates a largely closed network in California under which (1) with some exceptions, only enrollees in its health plan can visit Kaiser's providers and (2) Kaiser health plan enrollees, also with some exceptions, can only receive care from Kaiser providers. This means that enrollees in traditional health plans offered by insurers such as Elevance (formerly Anthem), Blue Shield of California (BSC), and United largely cannot select Kaiser hospitals in lieu of non-Kaiser hospitals such as QVMC, NorthBay, and Sutter Solano Medical Center.

(33) In certain circumstances, such as when Kaiser does not have a hospital in an area, Kaiser may contract with non-Kaiser hospitals to provide in-network services to Kaiser health plan enrollees. QVMC has a broad contract that allows Kaiser enrollees to visit its inpatient and outpatient facilities for a range of services. NorthBay's contract with Kaiser is limited to emergency visits and radiation therapy services.[24] Between 2021 and 2024, Kaiser enrollees accounted for 7% of QVMC's and 8% of NorthBay's commercial discharges, with about 75% and 52% of discharges for QVMC and NorthBay being for emergency services such as heart attacks, strokes, and severe infections.[25] Overall, however, the majority, about 95%, of commercially-insured Kaiser enrollees from Napa and Solano counties select a Kaiser hospital.

(34) Kaiser health plans account for the majority of discharges of commercially insured patients who reside in Napa and Solano counties. As shown in Figure 7, in most Napa and Solano zip codes, particularly the more populous ones, half or more of commercially insured patient discharges are

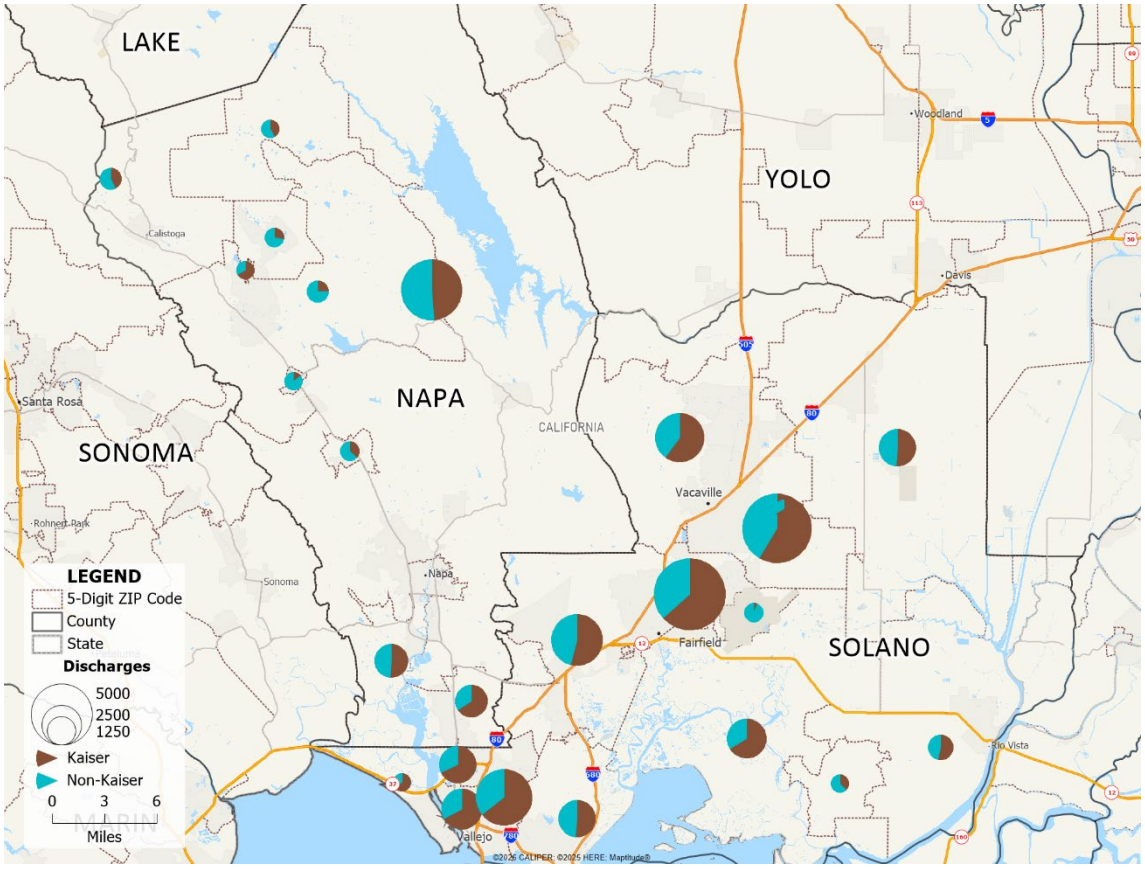
[23] Staffed bed counts are sourced from 2024 HCAI financial and utilization reports.

[24] This may reflect Kaiser having a hospital located closer to NorthBay's two hospitals: QVMC is a 25–45 minute drive from Kaiser's Vallejo Medical Center whereas NorthBay's two hospitals are less than 25 minutes and less than 15 minutes from Kaiser's Vacaville Medical Center.

[25] Kaiser enrollees make up about 3.6% of Adventist St. Helena's and 0.9% of Sutter Solano Medical Center's commercial discharges over 2021–2024.

covered by Kaiser. Overall, in the two counties, Kaiser health plans cover 58% of commercially insured discharges and other insurers account for 42%.

Figure 7. Kaiser and non-Kaiser health plan commercial discharges



Source: HCAI PDD.
Note: The Kaiser slice in each pie (brown) represents the share of Kaiser health plan enrollees and the non-Kaiser slice (blue) represents the share of enrollees in non-Kaiser health plans in each zip code; Kaiser enrollees discharged from a non-Kaiser hospital are assigned to Kaiser and likewise for non-Kaiser enrollees discharged from Kaiser hospitals.

III.B.2. Non-Kaiser hospitals

(35) In addition to the parties, Adventist Health owns 62-bed Adventist St. Helena Hospital in Napa County and Sutter owns 63-bed Sutter Solano Medical Center in Solano County. Both systems have additional hospitals in surrounding counties, as do CommonSpirit Health (formerly Dignity Health), John Muir Health, Tenet Healthcare, and the University of California (*see* Figure 42 in Appendix C for a full listing of these hospitals and the surrounding counties they are located in). The five closest non-Kaiser hospitals for each of QVMC and NorthBay MC are listed in Figure 8 (excluding hospitals with fewer than 50 beds). These and other surrounding hospitals are mapped in Figure 9.

(36) Based on Google Maps (using a Wednesday, 3:00 p.m. departure), the drive time between QVMC and NorthBay MC ranges between about 26 to 55 minutes. For QVMC, Adventist St. Helena and Sonoma Valley Hospital are shorter drives than NorthBay MC; Sutter Solano Medical Center is also a shorter drive with typical traffic but has a greater maximum expected drive time. For NorthBay MC, Sutter Solano Medical Center is a shorter drive than QVMC; Contra Costa Regional Medical Center, Sutter Davis Hospital, and John Muir Medical Center's Concord Campus are comparable drives.[26] Kaiser's Vacaville and Vallejo hospitals are also shorter drives from NorthBay MC than is QVMC.

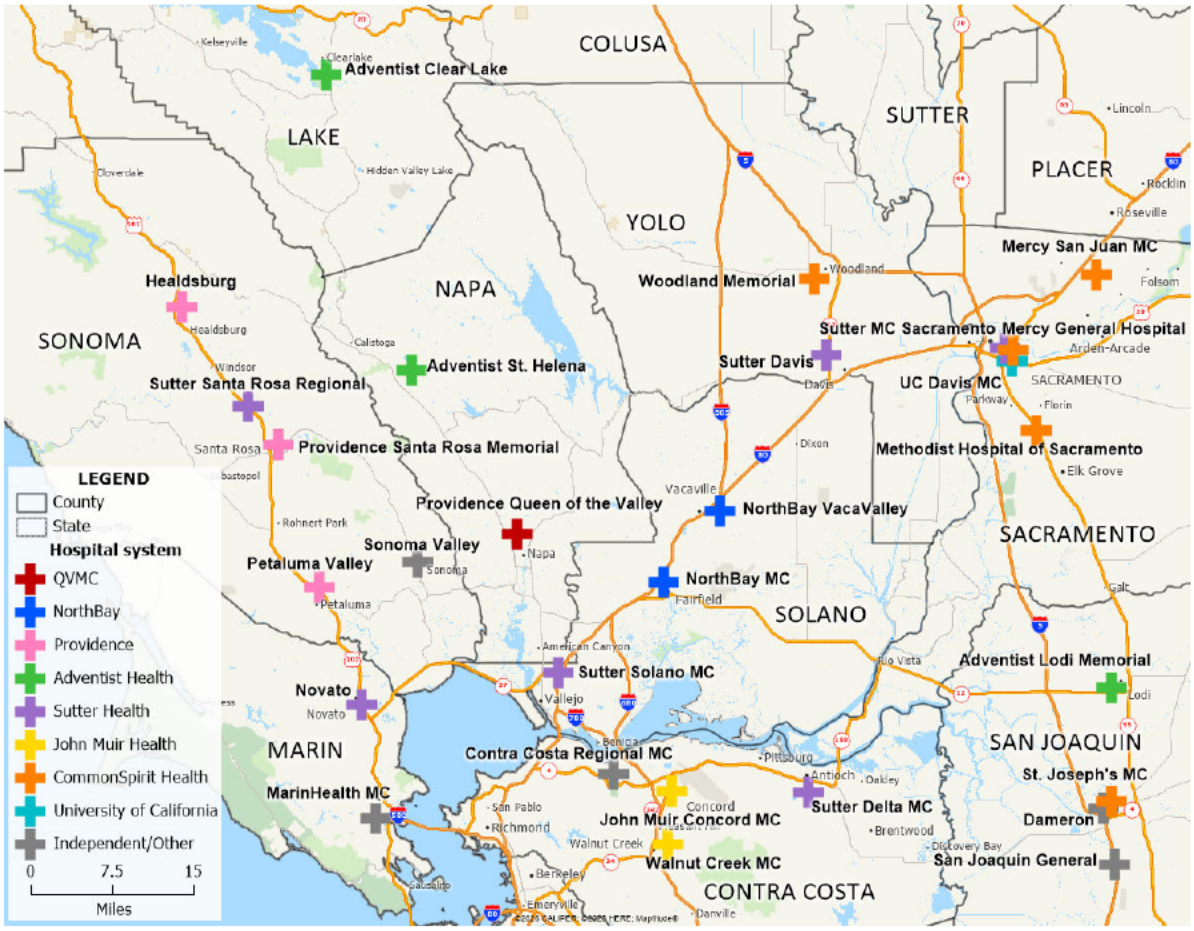
Figure 8. The five closest non-Kaiser hospitals for QVMC and NorthBay

Party hospital	Drive time range	County	System	Hospital	Staffed beds	% Occup.	% Comm.
QVMC	26–35	Napa	Adventist Health	Adventist Health St. Helena	62	90%	19%
	26–45	Sonoma	Independent/Other	Sonoma Valley Hospital	40	86%	8%
	40–55	Solano	NorthBay	NorthBay Medical Center	154	74%	11%
	30–70	Solano	Sutter Health	Sutter Solano Medical Center	63	83%	12%
	40–65	Marin	Sutter Health	Novato Community Hospital	20	88%	14%
NorthBay MC	20–35	Solano	Sutter Health	Sutter Solano Medical Center	63	83%	12%
	28–40	Contra Costa	Independent/Other	Contra Costa Regional MC	109	106%	3%
	26–45	Napa	Providence	QVMC	70	91%	15%
	30–45	Yolo	Sutter Health	Sutter Davis Hospital	41	97%	31%
	30–50	Contra Costa	John Muir Health	Concord Campus	175	91%	13%

Sources: AHA data; HCAI PDD; HCAI hospital quarterly financial & utilization report, 2024; system websites; Google Maps (Wednesday, 3:00 p.m. departure).
Notes: Upper end drive time ranges are generally lower with a 10:00 a.m. departure time. Google Maps can return slightly different drive time ranges across queries even when the departure date and time are consistently specified. Because NorthBay hospitals report under a common license, data are aggregated for its two hospitals (drive times are to NorthBay MC, its larger campus). Bed counts are staffed beds based on HCAI financial reports for all systems except NorthBay (HCAI data indicate 183 staffed beds for NorthBay but NorthBay's website indicates 204 staffed beds). Hospitals are sorted based on the midpoints of drive time ranges. Sonoma Valley Hospital has a clinical affiliation and management services agreement with UCSF. Sonoma Valley Hospital, "UCSF Health," https://www.sonomavalleyhospital.org/ucsf/.

[26] Contra Costa Regional Medical Center is a public hospital with about 3% of its patients covered by commercial insurance, making it a potentially poor substitute for other area hospitals from the perspective of commercial payers. (The share and diversion calculations in section IV are based on commercially insured patients and so weight this hospital accordingly.)

Figure 9. Non-Kaiser hospitals in Napa, Solano, and surrounding counties



Source: AHA data, 2024.
Note: Limited to non-Kaiser GAC hospitals in Napa, Solano, Sonoma, Lake, Yolo, Sacramento, San Joaquin, Contra Costa, and Marin counties.

(37) Figure 10 summarizes the inpatient services offered by the four non-Kaiser hospitals in Napa and Solano counties. With two exceptions, these hospitals mostly offer overlapping inpatient services. The exceptions are that QVMC and NorthBay MC are the only two hospitals that offer labor and delivery services and the only two that maintain trauma centers.[27] The parties became the only non-Kaiser providers of labor and delivery services in the two counties following maternity ward closures by Adventist St. Helena and Sutter Solano Medical Center in 2020 and 2021. Both systems cited declining volumes in their announcements of the closure.[28]

[27] California Emergency Medical Services Authority, "Designated Trauma Centers," April 15, 2021; AHA data, 2024.

[28] Adventist Health, "Adventist Health St. Helena Announces Closure of Its Family Birth Unit," news release, December 11, 2019, https://www.adventisthealth.org/news/adventist-health-st-helena-announces-closure-of-/ ("Due to declining volume in births in the Upper Napa Valley, Adventist St. Helena announced today it plans to close its Family Birth Unit"); [redacted]

Figure 10. Inpatient GAC services offered at non-Kaiser hospitals in Napa and Solano counties

MDC	MDC description	QVMC	NorthBay	Adventist St. Helena	Sutter Solano Medical Center
1	Nervous system	Yes	Yes	Yes	Yes
3	Ear, nose, throat	Yes	Yes	No	Yes
4	Respiratory system	Yes	Yes	Yes	Yes
5	Circulatory system	Yes	Yes	Yes	Yes
6	Digestive system	Yes	Yes	Yes	Yes
7	Hepatobiliary system and pancreas	Yes	Yes	Yes	Yes
8	Musculoskeletal and connective tissue	Yes	Yes	Yes	Yes
9	Skin, subcutaneous tissue and breast	Yes	Yes	Yes	Yes
10	Endocrine, nutritional, and metabolic system	Yes	Yes	Yes	Yes
11	Kidney and urinary tract	Yes	Yes	Yes	Yes
14	Pregnancy, childbirth, and puerperium	Yes	Yes	No	No
15	Newborn and other neonates (perinatal period)	Yes	Yes	No	No
16	Blood, blood forming organs, immunological disorders	Yes	Yes	Yes	Yes
17	Myeloproliferative DDs (poorly differentiated neoplasms)	Yes	Yes	Yes	Yes
18	Infections and parasitic DDs (systemic or unspec. sites)	Yes	Yes	Yes	Yes
21	Injuries, poison and toxic effect of drugs	Yes	Yes	Yes	Yes
23	Factors influencing health status	Yes	Yes	Yes	Yes
24	Multiple significant trauma	Yes	Yes	No	No

Source: HCAI PDD, 2024.
Notes: A hospital is labeled as offering a given MDC if it has at least 5 discharges associated with that MDC in 2024. Excludes the five lowest-volume DRGs across the four Napa and Solano hospitals as of 2024.

III.C. Outpatient services landscape

III.C.1. ASCs

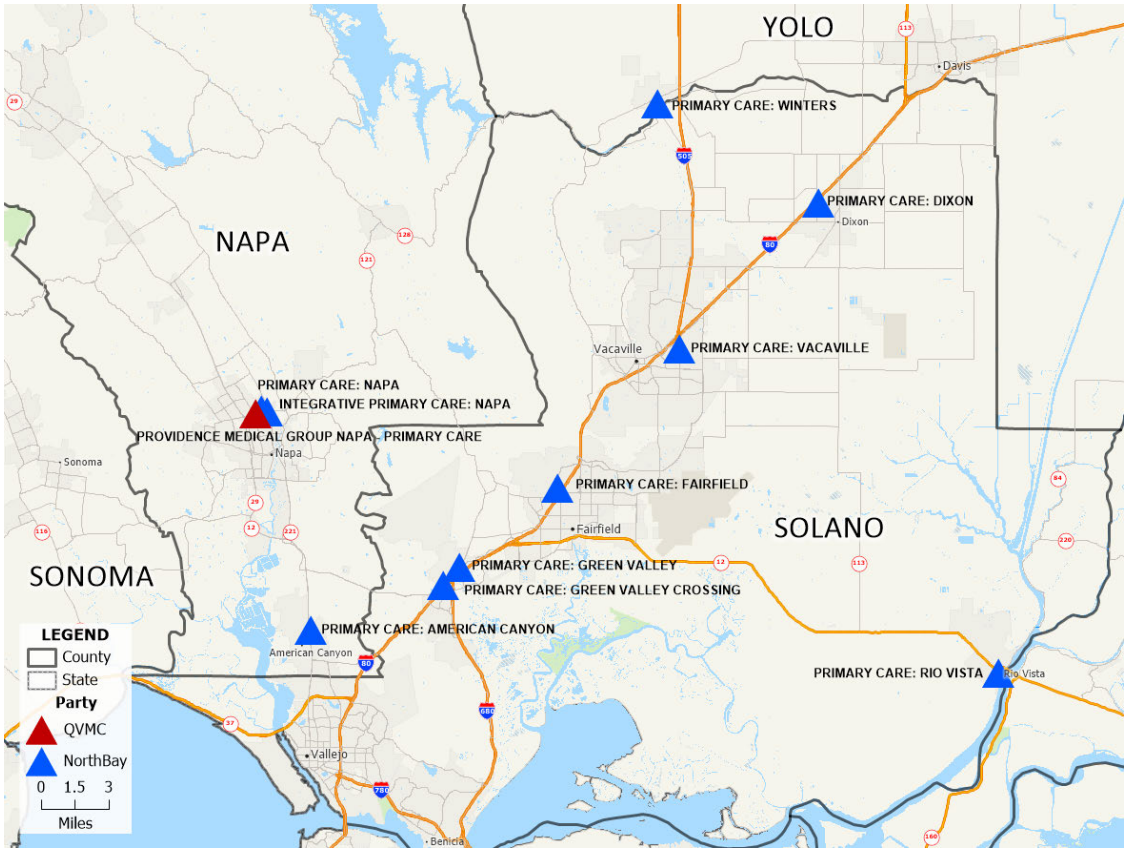
(38) All three of the parties' hospital campuses offer inpatient and outpatient surgeries, but neither party owns a free-standing ambulatory surgery center (ASC).

III.C.2. Physician clinics

(39) Figure 11 shows all party primary care physician (PCP) clinic locations. QVMC has one PCP clinic, which is part of a multispecialty clinic sited on its hospital campus; QVMC has no outlying clinics. NorthBay has multiple PCP clinics, many of which include urgent care centers, located across Solano, Napa, and Yolo counties. In Napa County, NorthBay has one clinic in American Canyon and one on QVMC's hospital campus. However, as discussed below, these two NorthBay clinics are small.

(40) QVMC and NorthBay also operate specialty clinics that offer services including cardiology, gastroenterology, neurology, OB/GYN, rehabilitation, urology, and breast centers. QVMC's specialty clinics are all on its hospital campus; NorthBay's specialty clinics are generally near one of its hospitals or PCP clinic locations.

Figure 11. QVMC and NorthBay PCP clinic locations



Source: Providence and NorthBay websites.
Note: Includes NorthBay's Integrative Primary Care location in Napa, which is scheduled to open soon.

(41) As Figure 11 shows, both parties have clinics in Napa County but only NorthBay has clinics in Solano County. Finally, as referenced above, Figure 12 shows that NorthBay's locations in Napa County have, in total, 5 PCP and 5 specialist physicians. (These counts include NorthBay's recently opened Integrative Primary Care location in Napa.[29])

[29] "Northbay Health celebrates opening of Napa offices," *Napa Valley Register*, October 6, 2026, https://napavalleyregister.com/business/new-northbay-health-site-brings-more-care-options-to-napa/article_7ea0aac1-0144-4371-9116-e0b4c73db61d.html.

Figure 12. NorthBay's physician clinics in Napa County

Clinic location	Drive time from QVMC	Specialty	# Doctors	# NPs and PAs
Napa	2	Cardiology	1	0
		Integrative Primary Care	2	0
		Orthopedics/Podiatry	2	0
		Primary Care	2	0
		Urology	1	0
American Canyon	20	Cardiology	1	2
		Primary Care	1	0
		Urgent Care	0	0

Sources: NorthBay Health website; Google Maps API.

III.D. Insurance landscape

(42) Kaiser is the largest insurer by enrollment in Napa and Solano counties for both MA and commercial plans.

(43) Figure 13 presents shares of individual non-special needs plan (non-SNP) MA enrollment in Napa and Solano counties.[30] In both counties, Kaiser's enrollment share has exceeded 75% for at least the last three years and, in 2026, reached 83% in Napa and 91% in Solano. The remaining MA enrollment is spread across several other insurers, such as United, Humana, Molina, and Imperial Health Plan of California. United appears to have exited Napa County as of 2026, but remains the second largest MA plan in Solano County. Imperial Health Plan is a recent entrant to both counties and is now the second-largest MA plan in Napa and fourth-largest in Solano.

(44) Kaiser is also the largest commercial insurer. Based on a report issued by the American Medical Association, Kaiser's share of commercial enrollment in Napa County is 62% and its share in Solano County is 67%.[31] Elevance is the second-largest commercial insurer in both counties, with enrollment shares of 17% in Napa and 13% in Solano.

[30] A special needs plan is designed for individuals with severe chronic conditions, who are institutionalized, or who are dual eligible for MA and Medicaid. Non-SNP plans, in contrast, are available to Medicare-eligible seniors generally. *See* "Special Needs Plans," Centers for Medicare & Medicaid Services, September 10, 2024, https://www.cms.gov/medicare/enrollment-renewal/special-needs-plans.

[31] José R. Guardado and Carol K. Kane, "Competition in health insurance," American Medical Association, December 16, 2025, https://www.ama-assn.org/system/files/competition-health-insurance-us-markets.pdf. These data only report enrollment shares for the top two commercial insurers in each metropolitan statistical area (MSA). The Napa MSA consists of only Napa County and the Vallejo MSA consists of only Solano County.

As discussed in section III.B.1 above, Kaiser accounts for 58% of discharges of commercially insured patients who reside in Napa and Solano counties.

(45) For Medi-Cal, two insurers, Partnership Health Plan (PHP) and Kaiser, account for roughly 90% of enrollment in Napa and Solano counties, with PHP having substantially greater enrollment than Kaiser.[32] *See* Figure 14.

Figure 13. Individual non-SNP Medicare Advantage enrollment in Napa and Solano counties

County	Insurer	2024		2025		2026	
		Enrollment	Share	Enrollment	Share	Enrollment	Share
Napa	Kaiser Foundation Health Plan	6,518	77.3%	6,703	76.8%	7,031	82.9%
	Imperial Health Plan of California	0	0.0%	36	0.4%	1,156	13.6%
	Humana	175	2.1%	321	3.7%	226	2.7%
	St. Joseph Home Care Network	20	0.2%	40	0.5%	67	0.8%
	Aetna	530	6.3%	960	11.0%	0	0.0%
	United	908	10.8%	506	5.8%	0	0.0%
	Elevance	167	2.0%	162	1.9%	0	0.0%
	Western Health Advantage	118	1.4%	0	0.0%	0	0.0%
Solano	Kaiser Foundation Health Plan	20,316	81.9%	21,598	84.0%	23,042	90.6%
	United	2,087	8.4%	1,279	5.0%	1,036	4.1%
	Molina Healthcare	43	0.2%	334	1.3%	747	2.9%
	Imperial Health Plan of California	32	0.1%	118	0.5%	609	2.4%
	Aetna	731	2.9%	1,435	5.6%	0	0.0%
	Elevance	636	2.6%	636	2.5%	0	0.0%
	Centene	512	2.1%	317	1.2%	0	0.0%
	Western Health Advantage	443	1.8%	0	0.0%	0	0.0%

Source: CMS Medicare Advantage enrollment, March 2024–2026.

[32] I understand that, under the terms of an agreement between the State of California and Kaiser, Kaiser agreed to increase its number of auto-assigned Medi-Cal enrollees, but that the number of such additional enrollees that Kaiser must accept is subject to a ceiling and that the ceiling for 2026 is zero. In addition, irrespective of the ceiling, Kaiser will enroll specified categories of Medi-Cal enrollees, including certain youth groups and those with a "family linkage" to Kaiser or who were members of Kaiser during the 12 months preceding their Medi-Cal eligibility. California Department of Health Care Services, Auto Assignment Incentive Program Technical Assistance Guide, https://www.dhcs.ca.gov/wp-content/uploads/2026/04/Auto-Assignment-Incentive-Program-Technical-Assistance-Guide-PY21-CY2026.pdf, 6.

Figure 14. Medi-Cal enrollment in Napa and Solano counties

County	Plan	2025		2026	
		Enrollment	Share	Enrollment	Share
Napa	Partnership Health Plan of California	26,891	72.9%	25,979	71.4%
	Kaiser	7,505	20.3%	8,184	22.5%
	Fee-for-Service	1,997	5.4%	1,555	4.3%
	Out of county plan	446	1.2%	560	1.5%
	Providence Pace	51	0.1%	88	0.2%
Solano	Partnership Health Plan of California	100,516	69.1%	94,887	67.5%
	Kaiser	36,866	25.3%	39,173	27.9%
	Fee-for-Service	8,058	5.5%	6,578	4.7%

Source: HCAI Medi-Cal certified eligibles data by month with demographics – "By Delivery System and Plan, Certified Eligibles," 2025–2026 (enrollment counts for "Out of county plan" and "Providence Pace" plans are suppressed for Solano County, likely on the basis of low enrollment counts).
Notes: Enrollment counts and shares are snapshots as of March of each year.

III.E. Evidence on NorthBay's pricing to commercial insurers

(46) Several payers have indicated in interviews with staff from the CA AGO that NorthBay's prices are high. Two described NorthBay's prices as above average compared to other hospitals in northern California and two described NorthBay's prices as significantly higher than other hospitals in the region.[33] Several expressed concerns about NorthBay increasing prices at QVMC post-transaction.

(47) In this section, I use two data sets to analyze NorthBay's commercial inpatient prices relative to comparator hospitals.[34] The first is HCAI's annual hospital financial reports and the second consists of hospital price transparency data.[35] Based on HCAI data, which provide an overall measure of commercial inpatient pricing across payers and services, NorthBay's commercial inpatient prices are close to the average among the comparator hospitals. However, the price transparency data show, for the subset of inpatient services with data sufficient for a comparison, that NorthBay rarely has lower inpatient prices, sometimes has comparable prices, and often has higher prices. This is consistent with

[redacted]

[34] To define comparator hospitals, I identify GAC hospitals that (i) are within a 2-hour drive radius of NorthBay MC; (ii) are not in the more densely populated counties of San Francisco, Alameda, San Mateo, or Santa Clara; and (iii) have 100 to 350 staffed beds in 2025. Although it has fewer than 100 staffed beds in 2025, I include QVMC for reference since it is part of the transaction. I drop several hospitals with incomplete inpatient price data.

[35] I focus on inpatient prices for two reasons. With respect to the analysis of HCAI data, the inpatient discharge data provide sufficient information to account for differences in patient acuity across hospitals for inpatient services (by using DRG case weights, as described below) when measuring average net revenue across hospitals. However, the available data are less well-suited to adjusting for differences in acuity for outpatient services. With respect to the CMS price transparency data, given that the inpatient data are not broadly populated across DRGs and hospitals, I have not attempted to use those data to compare outpatient prices for NorthBay and other hospitals. Outpatient services are an important component, generally half or more, of payments to hospitals by commercial insurers.

the conclusion that NorthBay generally has higher inpatient prices than other hospitals in northern California. [redacted]

III.E.1. Inpatient prices reported in HCAI financial disclosure reports

(48) HCAI releases an annual statewide dataset of hospital-level metrics that, by combining information on gross revenue, contractual adjustments by payer type, and volume for inpatient services provided to commercially insured patients, can be used to construct a measure of individual hospitals' average price to commercial payers. Incorporating HCAI inpatient discharge data allows for adjusting these prices for differences in case mix (i.e., patient acuity) across hospitals. Because HCAI data report contractual adjustments for all commercial payers collectively, these data allow for calculation of an overall inpatient price index across services for each hospital, but not for individual hospital-payer combinations.

(49) The commercial price index for hospital *h* is constructed as follows:[36]

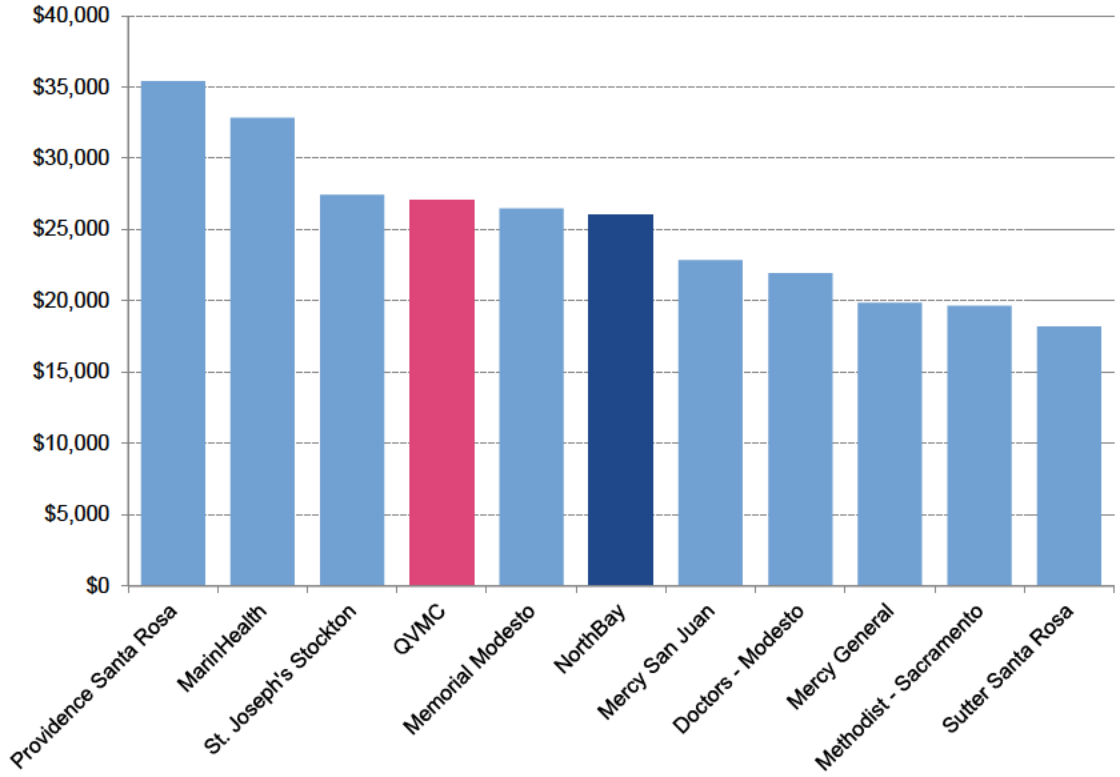
$$Price\ index_h = \frac{Total\ IP\ commercial\ revenue - IP\ commercial\ contract\ adjustments}{Commercial\ discharges \times case\ mix\ index}.$$

(50) Figure 15 presents the FY24–25 price index for NorthBay and its comparators. These hospitals' price indices range from roughly $18k (Sutter Santa Rosa) to $35k (Providence Santa Rosa), with NorthBay's price index of $26k falling near the middle of the distribution. QVMC's price index, at about $27k, is not materially higher than NorthBay's.

[36] The case mix index is an indicator of a hospital's average acuity per discharge and is calculated as *Sum of DRG case weights across 2024 commercial discharges ÷ Total 2024 commercial discharges*. This measures the average amount that each hospital charges on a per case weight unit basis rather than on a simple per discharge basis; in this way, the price measure is adjusted to account for differences in patient acuity across hospitals.

This follows the approach used in Dranove and Ludwick. *See* David Dranove and Richard Ludwick, "Competition and pricing by nonprofit hospitals: a reassessment of Lynk's analysis," *Journal of Health Economics* 18, no. 1 (January 1999): 87–98.

Figure 15. HCAI inpatient price indices for NorthBay and select northern California hospitals



Source: HCAI hospital financial reports, FY 2024–2025.
Note: This data source covers a single fiscal year, but fiscal year definitions vary by hospital.

III.E.2. Inpatient prices reported in CMS price transparency data

(51) Since 2021, CMS has required all hospitals to publish "clear, accessible pricing information online about the items and services they provide."[37] Among other information, hospitals must report the median allowed amount, as well as the 10th and 90th percentiles of allowed amounts, for each service the hospital provides and for each payer.[38]

(52) I use these price transparency data to analyze commercial inpatient prices for NorthBay and several comparator hospitals.[39] Although these data allow me to examine NorthBay's prices by DRG for

[37] "Hospital Price Transparency," Centers for Medicare & Medicaid Services, https://www.cms.gov/priorities/key-initiatives/hospital-price-transparency.

[38] "Hospital Price Transparency Frequently Asked Questions (FAQs)," Centers for Medicare & Medicaid Services, June 26, 2026, https://www.cms.gov/files/document/hospital-price-transparency-frequently-asked-questions.pdf, 10, 12. CMS further advises hospitals as follows: "The 'total allowed amount' should reflect the total amount the hospital was reimbursed for the item or service (or service package). The total allowed amount dollar figure used to encode the 10th, median, and 90th percentile allowed amounts should be derived from the gross charge minus contractual adjustments and consist of the portion billed to a payer for a particular plan and the portion, if any, billed to the patient."

[39] I analyze the same set of comparator hospitals used in the preceding HCAI price index calculation. However, reporting

specific payers, coverage in these datasets varies widely by hospital and payer.[40] In particular, I can only compare pricing for DRGs for which both NorthBay and at least several comparator hospitals report data. The practical implication is that sufficient data for a comparison are available for only a small number of higher volume DRGs that many hospitals offer—this reduces to DRGs related to labor and delivery, a digestive disorders DRG, and two DRGs related to sepsis.

(53) The DRGs included in the comparison based on price transparency data are summarized in Figure 16. In all, the included DRGs account for 28.6% of NorthBay's commercial discharges, with about two-thirds of those being related to labor and delivery.

Figure 16. NorthBay commercial DRGs included and excluded from price comparisons

Category	Sub-category	DRGs	NorthBay 2024 discharges	
			Count	%
Included DRGs	Labor & delivery	807: Vaginal delivery w/out CC/MCC	127	10.7%
		806: Vaginal delivery w/ CC/MCC	33	2.8%
		788: C-section w/out CC/MCC	44	3.7%
		787: C-section w/ CC/MCC	25	2.1%
	Digestive disorders	392: Digestive disorders w/out MCC	17	1.4%
	Sepsis	872: Septicemia/sepsis w/out MCC	28	2.4%
		871: Septicemia/sepsis w/ MCC	65	5.5%
Excluded DRGs		All other DRGs	847	71.4%

Source: HCAI PDD, 2024.

(54) Figure 17 through Figure 19 display DRG-specific prices for NorthBay's most common procedures across three payers: Elevance, BSC, and United. (Note that the vertical axes in these figures are scaled differently.)

- NorthBay's inpatient pricing for labor and delivery services, particularly C-sections, is generally on par with or above comparator hospitals' prices.
  - Elevance: high prices for C-sections and vaginal deliveries, but a low price for vaginal deliveries with complicating conditions.
  - BSC: much higher prices for C-sections, and upper-end prices for vaginal deliveries.
  - United: much higher prices for C-sections, but lower-end prices for vaginal deliveries.[41]

is sparser for these hospitals so the price transparency comparison ultimately includes fewer comparator hospitals.

[40] There is a populated Elevance median allowed amount for 66.8% of NorthBay's 2024 discharges in its price transparency data. The equivalent coverage statistics are 52.0% for BSC and 51.8% for United.

[41] In 2024, NorthBay performed 69 C-section deliveries (DRGs 787 and 788) and 160 vaginal deliveries (DRGs 806 and 807) of commercially insured newborns. Even with average or lower prices for vaginal deliveries, NorthBay is still

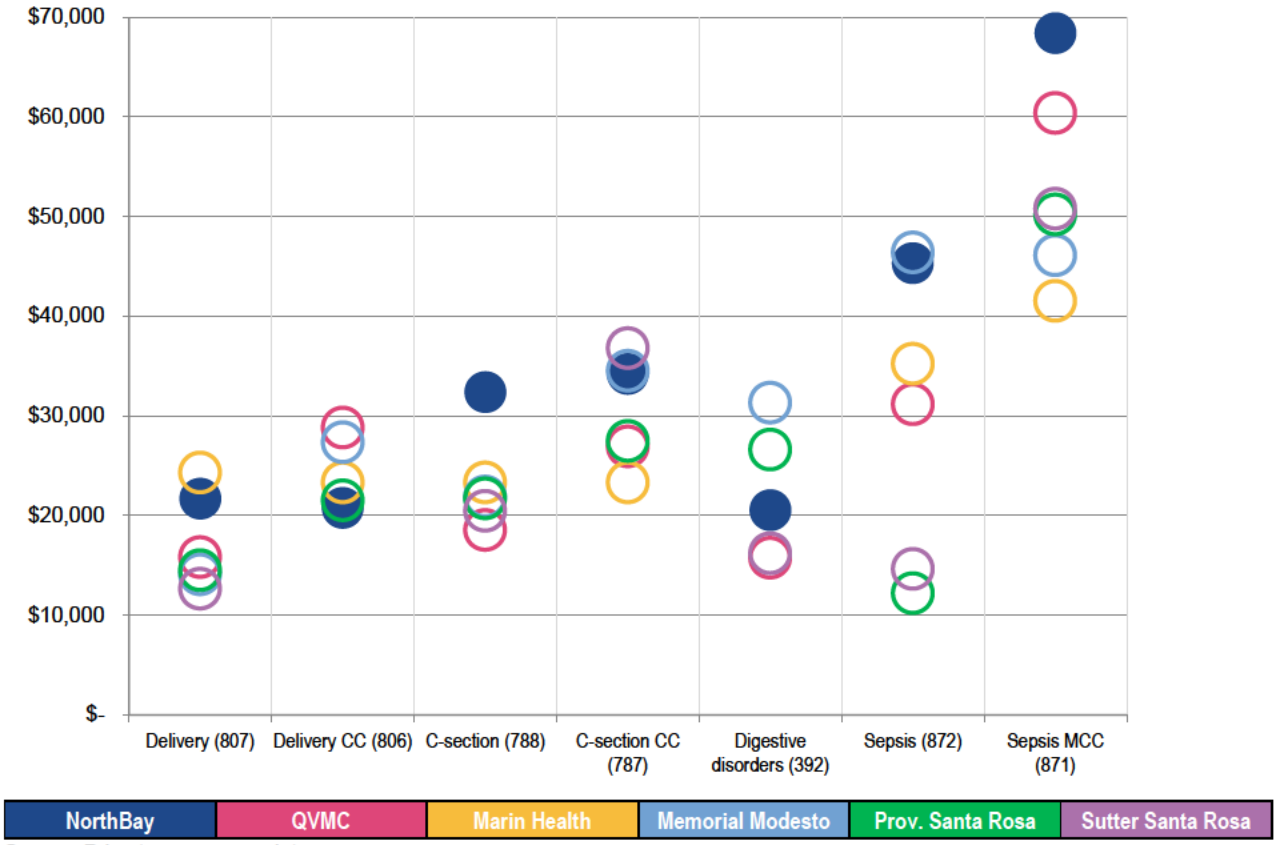
- NorthBay's higher C-section pricing is particularly large for BSC and United. For those same two payers, NorthBay's pricing is roughly on par with or below the comparator hospitals' prices for vaginal deliveries. NorthBay's high prices for labor and delivery may reflect the 2020 and 2021 exits of Adventist St. Helena and Sutter Solano Medical Center from this service line.
- For the other three services with comparable data, evidence on NorthBay's pricing varies.
  - Elevance: mid-range pricing for the digestive disorder DRG, but high prices for both sepsis DRGs.
  - BSC: high pricing for two DRGs (digestive disorder and sepsis), but mid-range pricing for the third (Sepsis w/ MCC).
  - United: high pricing for all three DRGs.

(55) The advantage of the price transparency data is that hospitals are required to report prices for specific services and payers. Assuming hospitals fulfill their reporting obligations, this provides more precise and accurate pricing information than drawing inferences from aggregated financial and volume data. The disadvantage is that data are inconsistently populated for most hospitals, whether because of incomplete compliance, low commercial volumes at hospitals in and around Napa and Solano counties, or other factors. Thus, the comparisons in this section are precise, but narrow. Overall, they show that, for the examined DRGs, NorthBay rarely has lower inpatient prices than comparison hospitals, sometimes has comparable prices, and often has higher prices. This is consistent with the conclusion that NorthBay generally has higher inpatient prices than other hospitals in northern California.[42]

high-priced for labor and delivery relative to comparators.

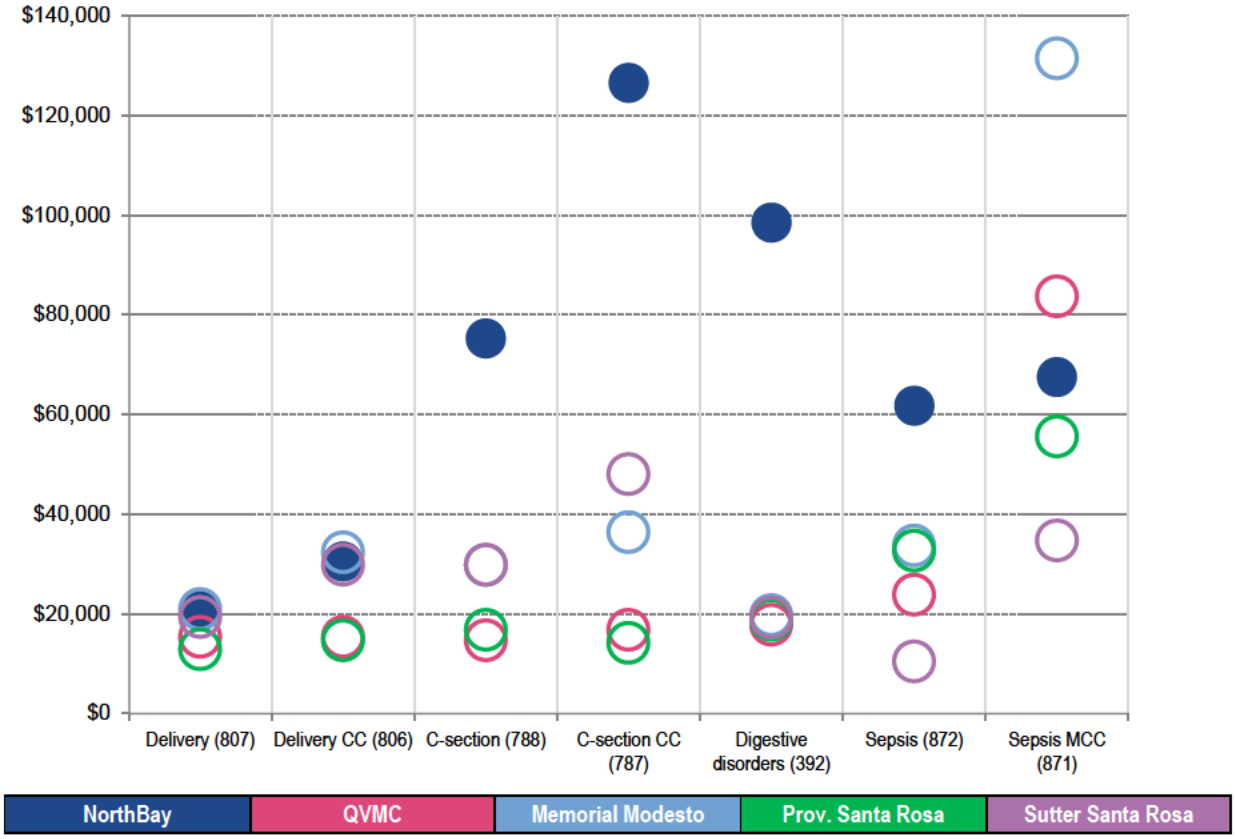
[42] HCAI data do not establish material differences between QVMC and NorthBay's prices in FY2024–2025. However, the price transparency data do provide evidence of higher Elevance, BSC, and United prices for NorthBay across high-volume DRGs with comparable data; [redacted]

Figure 17. NorthBay and comparator hospitals' prices for select DRGs, Elevance



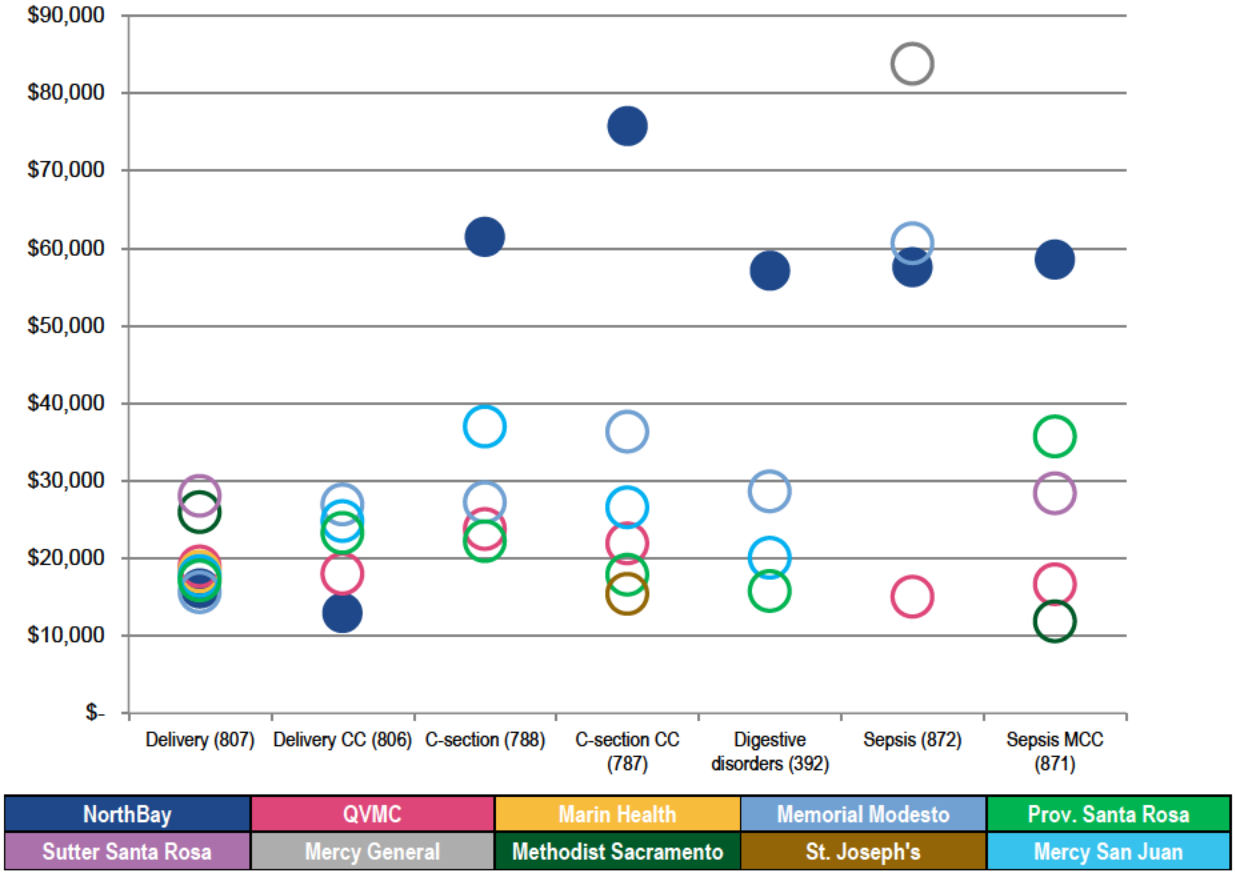
Source: Price transparency data.
Note: Includes NorthBay's highest-volume DRGs (those with 15+ discharges and 3+ comparator hospitals) with NorthBay allowed amounts for all three payers.

Figure 18. NorthBay and comparator hospitals' prices for select DRGs, BSC



Source: Price transparency data.
Note: Includes NorthBay's highest-volume DRGs (those with 15+ discharges and 3+ comparator hospitals) with NorthBay allowed amounts for all three payers.

Figure 19. NorthBay and comparator hospitals' prices for select DRGs, United



Source: Price transparency data.
Note: Includes NorthBay's highest-volume DRGs (those with 15+ discharges and 3+ comparator hospitals) with NorthBay allowed amounts for all three payers.

III.E.3. Other evidence on pricing

(56) As noted at the outset of this section, several payers stated during interviews that NorthBay's prices are high relative to other northern California hospitals. [redacted]

[redacted]

[redacted]

[redacted]

IV. Horizontal competitive effects

(57) In this section, I evaluate the extent of horizontal competition between QVMC and NorthBay. As shown above in Figure 10, the two systems offer generally similar services. However, this leaves open the question of whether they offer those services to similar patients such that the two hospitals are substitutes from the perspective of commercial insurers seeking to build attractive provider networks that they can market to employers and individuals. My main conclusions are based on evaluating the geographies served by the parties and inpatient discharge shares within those geographies, as well as "diversion ratios." (The diversion ratio from Hospital A to Hospital B is the percentage of Hospital A's patients who, if Hospital A were to become unavailable, would switch to Hospital B. As such, it is a direct measure of head-to-head competition between the two firms; calculating and interpreting diversion ratios also does not require defining relevant product or geographic markets.)

(58) I first present more detailed shares and concentration measures for commercial inpatient GAC services, with Kaiser excluded as a competitor. Fully including Kaiser will overstate its significance as a competitor to QVMC, NorthBay, and other non-Kaiser hospitals because non-Kaiser insurers generally cannot send their enrollees to Kaiser hospitals in the event that QVMC or NorthBay goes out-of-network. At the same time, fully excluding Kaiser may understate its competitive significance because, were QVMC or NorthBay to go out-of-network with a payer such as BSC or Aetna, some employers or enrollees may substitute to a Kaiser health plan and, consequently, substitute to a Kaiser hospital.[46] (Note, however, that non-Kaiser *insurers* cannot substitute Kaiser hospitals for non-Kaiser hospitals.) Accordingly, I also present results with Kaiser fully included as a competitor. In addition, I estimate diversions using a more flexible model that allows for patients to switch between non-Kaiser and Kaiser hospitals (which entails changing their insurer). One parameter estimate provides a direct measure of how readily patients will, or will not, make that switch.[47]

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[46] This could take the form of an employer switching to Kaiser insurance entirely. Alternatively, some employers—mostly larger ones—may offer a traditional health plan alongside a Kaiser health plan. In that case, some employees may shift from the traditional plan to the Kaiser plan even if the employer does not change its set of insurers on-offer.

[47] In merger cases, antitrust agencies and courts often rely on presumptions from market shares in defined relevant antitrust markets. A central economic tool for defining relevant markets is the SSNIP test. The test involves evaluating whether a hypothetical monopolist comprising all sellers within a candidate relevant market could profitably impose a "small but significant and non-transitory increase in price" (SSNIP). If the hypothetical monopolist could not profitably impose a SSNIP, then the market is too small because it excludes the alternative sellers that are sufficiently close competitors (i.e., substitutes) to render the SSNIP unprofitable. Conversely, if the hypothetical monopolist could profitably impose a SSNIP, then the excluded sellers are not sufficiently close substitutes, and the candidate market is an appropriate relevant antitrust market.

It is plausible that there is some meaningful substitution at the patient level from non-Kaiser to Kaiser hospitals in a given geography but that substitution to Kaiser hospitals would not be sufficient to render a SSNIP by all non-Kaiser hospitals (to non-Kaiser insurers) unprofitable. As noted in the 2023 Merger Guidelines, "There may be effective competition among a narrow group of products, and the loss of that competition may be harmful, making the narrow group a relevant market, even if competitive constraints from significant substitutes are outside the group." 2023 Merger Guidelines, § 4.3. (For a discussion of substitution and market definition in a somewhat analogous context—Original Medicare and Medicare Advantage plans—*see* Demonstrative Used in the Testimony of Aviv Nevo, Ph.D., US and

Ultimately, for the reasons explained in this section, I conclude that, although there is some competitive interaction between them, QVMC and NorthBay are not close horizontal competitors.[48]

IV.A. Inpatient GAC services

(59) In this section, I analyze head-to-head competition between QVMC and NorthBay and show that there is little horizontal overlap between them, meaning that, although they offer similar services, they provide those services to largely distinct sets of patients. QVMC mostly provides services to patients who reside in Napa County and NorthBay mostly provides services to patients who reside in Solano County.

(60) While I present commercial discharge shares in various geographies with Kaiser alternatively excluded and included from the analysis, my conclusion of limited horizontal overlap does not ultimately depend on this choice.

IV.A.1. PSAs and drive times

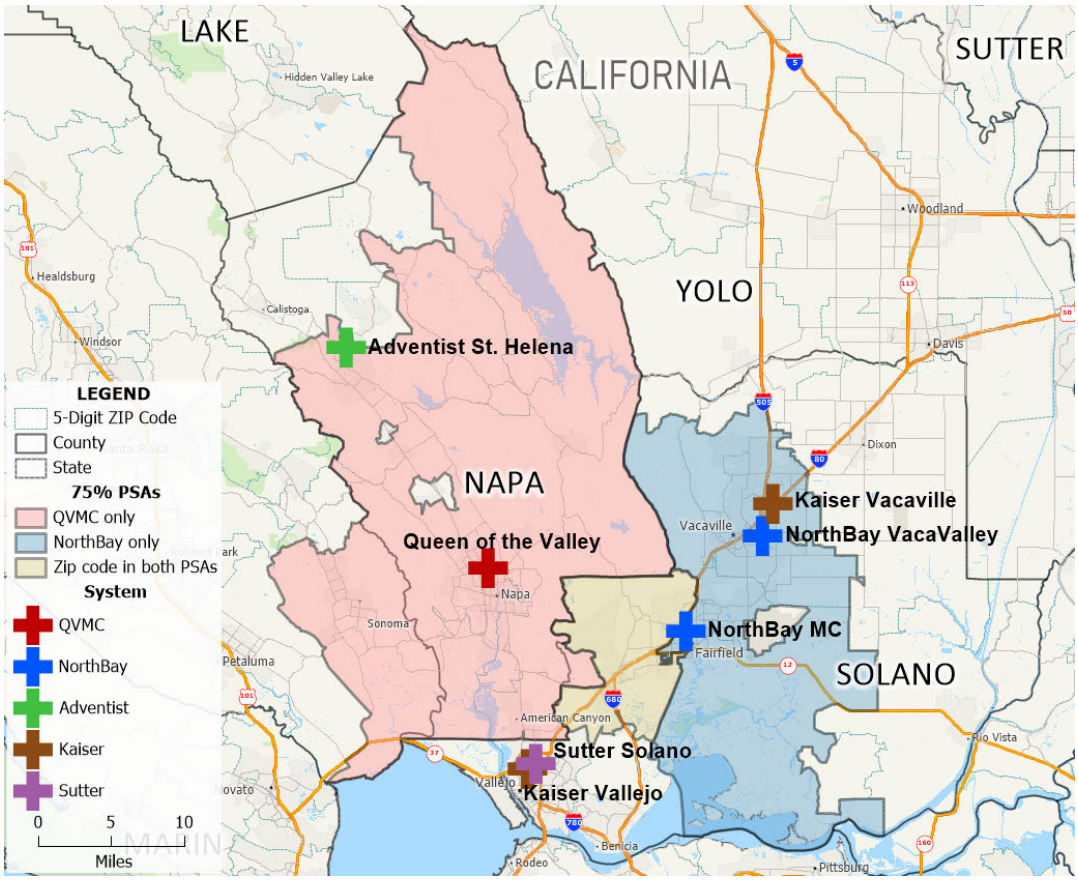
(61) Figure 20 shows the 75% commercial inpatient primary service areas (PSAs) for QVMC and NorthBay. (A hospital's inpatient 75% PSA is the smallest set of zip codes that accounts for 75% of its inpatient discharges.) The two PSAs are largely distinct, with QVMC's PSA consisting of various surrounding zip codes within Napa County and one zip code in Solano County. NorthBay's PSA consists entirely of zip codes in Solano County. The only overlap between the two PSAs is the single zip code that is in both QVMC's PSA and in Solano County. That zip code accounts for 2% of QVMC's 2024 commercial discharges and 13% of NorthBay's.

Plaintiff States v. Aetna Inc. and Humana Inc. (D. D.C. December 13, 2016), https://www.justice.gov/atr/page/file/918706/dl?inline).

Because my conclusions do not depend on the answer to this SSNIP test, I do not resolve this issue in this report.

[48] Evidence showing some degree of competitive interaction include results showing that diversion ratios between QVMC and NorthBay are positive (but below the levels associated with litigated hospital merger challenges); that one zip code is common to both systems' PSAs; and that two of the closer rival hospitals have exited labor and delivery such that QVMC and NorthBay are the only non-Kaiser hospitals in Napa and Solano counties offering that service.

Figure 20. QVMC and NorthBay's 75% commercial PSAs



Source: HCAI PDD, 2024.

(62) That the two PSAs are predominantly (QVMC) or fully (NorthBay) contained within the hospitals' respective counties likely reflects the locations of the hospitals and local traffic patterns. Figure 21 shows that, for each party hospital, several rival hospitals are either closer to or similarly distant as the counter-party hospital. For example, during regular traffic conditions, the drive from QVMC to Sutter Solano Medical Center is about the same as to NorthBay MC (morning: 24–45 minutes versus 26–45 minutes; afternoon: 30–70 minutes versus 40–55 minutes). Adventist St. Helena and Sonoma Valley are closer to QVMC than is NorthBay MC. For NorthBay, Contra Costa Regional Medical Center, Sutter Davis Hospital, and John Muir's Concord Campus location are all at about the same drive from NorthBay MC as QVMC. With increased traffic later in the day, drive times between the parties can reach 55 minutes, which may inhibit patient travel between Solano and Napa counties.

Figure 21. Drive time ranges to the five nearest non-Kaiser hospitals for QVMC and NorthBay

	From QVMC		From NorthBay MC	
	Destination hospital	Drive time range	Destination hospital	Drive time range
10:00 a.m. departure	Adventist Health St. Helena	30	Sutter Solano Medical Center	20–30
	Sonoma Valley Hospital	24–35	Contra Costa Regional Medical Center	28–40
	NorthBay Medical Center	26–45	QVMC	28–45
	Sutter Solano Medical Center	24–45	Sutter Davis Hospital	30–40
	Sutter Novato Community Hospital	40–55	John Muir Medical Center-Concord Campus	30–45
3:00 p.m. departure	Adventist Health St. Helena	26–35	Sutter Solano Medical Center	20–35
	Sonoma Valley Hospital	26–45	Contra Costa Regional Medical Center	28–40
	NorthBay Medical Center	40–55	QVMC	26–45
	Sutter Solano Medical Center	30–70	Sutter Davis Hospital	30–45
	Sutter Novato Community Hospital	40–65	John Muir Medical Center-Concord Campus	30–50

Source: Google Maps.
Note: Google Maps can return slightly different drive time ranges across queries even when the departure date and time are consistently specified.

IV.A.2. Inpatient commercial GAC discharge shares and concentration in evaluated geographies

(63) In this section, I first present commercial inpatient discharge share and concentration calculations that exclude Kaiser, which is not an alternative available to non-Kaiser insurers that contract with non-Kaiser hospitals in order to construct their provider networks.[49] On the one hand, this lack of substitutability provides a basis to conclude that the presence of Kaiser (both its hospitals and its presence as an insurer) may not be sufficient to prevent a SSNIP, typically 5% to 10%, to non-Kaiser insurers by a hypothetical monopolist of all non-Kaiser hospitals in the area. On the other hand, if all non-Kaiser hospitals increased prices by 5–10%, then the premiums for non-Kaiser health plans that feature those hospitals would also increase.[50] If that would lead customers of non-Kaiser plans to switch in sufficient numbers to Kaiser health plans (and, thus, Kaiser hospitals), then the SSNIP may

[49] Unless otherwise specified, I exclude Kaiser enrollees discharged from non-Kaiser hospitals from the analyses in this section. Such patients largely reflect one-off contracts between those hospitals and Kaiser's health plans in order to fill gaps in Kaiser's provider footprint (*see* section III.B.1). Figure 47 in Appendix C shows the share of Kaiser and non-Kaiser enrollees among the commercial discharges of non-Kaiser hospitals in Napa and Solano counties. Kaiser enrollees constitute 8% of NorthBay's, 7% of QVMC's, 4% of Adventist St. Helena's, and 1% of Sutter Solano Medical Center's commercial discharges.

[50] Health plan premiums are built-up from the costs that health plans pay for enrollees' covered healthcare services. Hospitals are a significant component of those costs, but not the entirety. As a consequence, a 5–10% increase in the price of inpatient hospital services would result in less than a 5–10% increase in premiums.

not be profitable.[51] In that case, the SSNIP test would indicate that Kaiser should be included in the relevant product market and the related market shares and concentration measures.

(64) In the case at hand, my conclusion that QVMC and NorthBay are not close horizontal competitors does not depend on whether Kaiser is appropriately excluded or included in the relevant product market. That is, even assuming Kaiser imposes no competitive constraint on non-Kaiser hospitals and excluding it entirely, the results I present in this section show limited horizontal overlap between the parties. (I present results including Kaiser in section IV.A.2.e.) Thus, I do not resolve the question of whether, in the Napa and Solano area, Kaiser is or is not appropriately included in the relevant product market.

(65) While computing discharge shares within a geography requires either fully including or fully excluding Kaiser, other methodologies for assessing hospital competition can allow the data to speak regarding the extent to which Kaiser hospitals do, or do not, impose a competitive constraint on non-Kaiser hospitals. Specifically, in section IV.A.3, I use a "nested logit" model to estimate diversion ratios between non-Kaiser hospitals—particularly, QVMC and NorthBay—in a framework that estimates the extent to which patients of a given non-Kaiser hospital would, if that hospital became unavailable, divert to a Kaiser hospital (crossing to the Kaiser "nest") versus to some other non-Kaiser hospital (remaining within the non-Kaiser "nest").[52]

(66) In the remainder of this section, I present the results that underlie my conclusion that competitive overlap between QVMC and NorthBay is limited (all results summarized below are with respect to commercial inpatient GAC discharges).

- QVMC draws most of its patients from Napa County while NorthBay draws most of its patients from Solano County.
- QVMC has a small share of discharges in Solano County, about 2%, while NorthBay has a small share of discharges in Napa County, also about 2%.
- There is little overlap (1 zip code) between the QVMC and NorthBay PSAs. In addition, QVMC has a small share, about 2%, in NorthBay's PSA, while NorthBay's share in QVMC's PSA is moderately higher, about 10%. However, most of NorthBay's share in QVMC's PSA is attributable to the one common zip code, which is in Solano County near the Napa-Solano border and accounts for about 2% of QVMC's discharges.
- The separation of QVMC ownership from the other Providence hospitals' ownership has a small deconcentrating effect in geographic areas centered around QVMC.

[51] In other words, the cross-price of elasticity of demand from non-Kaiser to Kaiser health plans might be sufficiently large that a SSNIP to non-Kaiser insurers would induce a material share of enrollees to switch to Kaiser plans and thereby to Kaiser hospitals.

[52] *See* Figure 39 in Appendix B for a depiction of the nested choice structure.

- In most zip codes in Napa and Solano counties, the transaction either decreases or leads to no change in concentration. In the subset of zip codes with moderate-to-high combined shares, the volume and share of discharges for one party or the other are low.
- No specific service lines have materially greater overlap between the parties. This includes labor and delivery, even though both Adventist St. Helena and Sutter Solano Medical Center have exited that service line.

IV.A.2.a. County-level shares of discharges

(67) Commercial discharge shares at the county level indicate that each party attracts few patients from the other party's county.[53] Figure 22 and Figure 23 show the following:

- QVMC has a 57% share of discharges in Napa County but a 2% share in Solano County.[54]
- NorthBay has a 29% share of discharges in Solano County but a 1.7% share in Napa County.
- In Napa County, the HHI will decrease slightly post-transaction.[55] This is because QVMC will no longer be jointly owned with the other Providence hospitals, and those hospitals' share in the county (2.6%) is greater than NorthBay's (1.7%).[56]
- In Solano County, the HHI will increase by 115 points, from 2,559 to 2,674. This is right at the concentration level at which a structural presumption of a reduction in competition may apply.[57]

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[53] I do not implement a SSNIP test to formally define relevant geographic markets. Instead, the analyses in this section show that, across the plausible relevant geographic markets that one might define in a full antitrust analysis, the resulting shares would likely not support a conclusion that QVMC and NorthBay are close competitors. Each has a low share in the other's primary service area and in the other's county, and diversions between the parties' hospitals are below 10%. Because I have not defined relevant geographic markets, the discharge shares presented in this section are not market shares in the formal antitrust sense. Instead, they present data on the observed hospital choices of patients who reside in different areas anchored around one party or the other.

[54] Shares of commercial discharges in Napa and Solano counties do not materially change if I restrict the analysis to DRGs offered by at least one of QVMC or NorthBay. (I define a DRG as offered at a hospital if the hospital has at least 5 all-payer discharges over the 2022–2024 period.)

[55] The HHI is defined as the sum of the squared market shares of the participants. For example, if there are four firms in a market with shares of 60%, 20%, 10%, and 10%, the HHI is computed as $60^2 + 20^2 + 10^2 + 10^2 = 4{,}200$.

[56] Post-transaction, the already low extent of patient travel from Napa County to Providence Santa Rosa in Sonoma County could decline if a significant reason for that travel is that QVMC is also part of the Providence Health system. On the other hand, Providence Health has some clinics in Sonoma County that are relatively close to the Napa County border and that will remain part of Providence post-transaction. If those clinics are the reason that a small percentage of commercially insured residents of Napa County receive inpatient care at Providence Santa Rosa, then that hospital's share among Napa County residents is more likely to stay at about 2.5%. [redacted]

[57] 2023 Merger Guidelines, § 2.1 ("Markets with an HHI greater than 1,800 are highly concentrated, and a change of more than 100 points is a significant increase. A merger that creates or further consolidates a highly concentrated market that involves an increase in the HHI of more than 100 points is presumed to substantially lessen competition or tend to create a monopoly. The Agencies also may examine the market share of the merged firm: a merger that creates a firm with a share over thirty percent is also presumed to substantially lessen competition or tend to create a monopoly if it also

However, this borderline result takes no account of Kaiser and is driven by a small percentage of Solano County residents, 2%, who select QVMC.[58] In addition, as I show below, diversion ratios (a measure of head-to-head competition) between the parties are below the levels at which antitrust agencies historically challenge hospital mergers and other transactions in court.

Figure 22. Shares of discharges of commercially insured Napa County residents, excluding Kaiser

System	Hospital	Discharges	Share
NorthBay	**NorthBay Medical Center**	**19**	**1.7%**
Providence	Providence Queen of the Valley Medical Center	632	57.2%
	Providence Santa Rosa Memorial Hospital-Montgomery	26	2.4%
	Providence - Other	2	0.2%
Providence Total		**660**	**59.8%**
Sutter	Sutter Solano Medical Center	34	3.1%
	California Pacific Medical Center - Van Ness Campus	27	2.4%
	Sutter Santa Rosa Regional Hospital	22	2.0%
	Sutter - Other	34	3.1%
Sutter Total		**117**	**10.6%**
Adventist	Adventist Health St. Helena	113	10.2%
	Adventist - Other	3	0.3%
Adventist Total		**116**	**10.5%**
University of California	UCSF Medical Center	76	6.9%
	University of California Davis Medical Center	19	1.7%
	University of California - Other	2	0.2%
University of California Total		**97**	**8.8%**
Other/Independent	Other/Independent	95	8.6%
Pre-HHI		**3,893**	
Post-HHI		**3,800**	
Change in HHI		**-93**	

Source: HCAI PDD, 2024.
Note: Excludes normal newborns, non-GAC discharges, and specialty and children's hospitals.

involves an increase in HHI of more than 100 points.").

However, the Merger Guidelines also note that this presumption is rebuttable: "This presumption of illegality can be rebutted or disproved. The higher the concentration metrics over these thresholds, the greater the risk to competition suggested by this market structure analysis and the stronger the evidence needed to rebut or disprove it."

58 The HHI increase is 115 points with Kaiser fully excluded but 22 points with Kaiser included. *See* Figure 44 in Appendix C. Thus, if Kaiser did not exist (it does), these shares would exceed the 100-point increase threshold by a small amount. If Kaiser were included as fully fungible with non-Kaiser hospitals (it is not), the HHI increase would be well below the 100-point increase threshold. The majority of the range between 22 and 115 falls below the threshold, meaning that if some credit is given to Kaiser as a competitive constraint, as supported by the nested logit results below, the result is akin to an HHI increase of less than 100 points. Similar considerations apply to other geographic areas. *See* section IV.A.3.

Figure 23. Shares of discharges of commercially insured Solano County residents, excluding Kaiser

System	Hospital	Discharges	Share
NorthBay	**NorthBay Medical Center**	**989**	**29.0%**
Providence	Providence Queen of the Valley Medical Center	68	2.0%
	Providence - Other	5	0.1%
Providence Total		**73**	**2.1%**
Sutter	Sutter Davis Hospital	459	13.5%
	Sutter Solano Medical Center	335	9.8%
	Sutter Medical Center, Sacramento	200	5.9%
	Alta Bates Summit Medical Center-Alta Bates Campus	78	2.3%
	Sutter Roseville Medical Center	58	1.7%
	California Pacific Medical Center - Van Ness Campus	49	1.4%
	Sutter Delta Medical Center	35	1.0%
	Sutter - Other	60	1.8%
Sutter Total		**1,274**	**37.4%**
University of California	UCSF Medical Center	247	7.2%
	University of California Davis Medical Center	172	5.0%
	University of California - Other	10	0.3%
University of California Total		**429**	**12.6%**
John Muir	John Muir Medical Center-Walnut Creek Campus	324	9.5%
	John Muir Medical Center-Concord Campus	98	2.9%
John Muir Total		**422**	**12.4%**
Other/Independent	Other/Independent	223	6.5%
Pre-HHI		**2,559**	
Post-HHI		**2,674**	
Change in HHI		**115**	

Source: HCAI PDD, 2024.
Note: Excludes normal newborns, non-GAC discharges, and specialty and children's hospitals.

IV.A.2.b. PSA shares of discharges

(68) Figure 24 and Figure 25 present commercial discharge shares in the 75% commercial PSAs for QVMC and NorthBay.

- QVMC PSA.
  - QVMC has a 39.9% share of commercial discharges in its PSA. The combined share of the hospitals that currently make up Providence is 43.5% (i.e., the two Providence hospitals that are not part of the transaction have a 3.6% discharge share).

- NorthBay has a 10.3% share of commercial discharges. Sutter's share is 15%, which is split among multiple hospitals; the University of California system has a share of 10.8%, also split among multiple hospitals; and John Muir and Adventist each have about a 5% share.
- The majority of NorthBay's share in QVMC's PSA is attributable to the one zip code (94534) within that PSA that is in Solano County rather than Napa County (*see* Figure 20). QVMC draws 16 commercially insured patients from that zip code, corresponding to 2% of QVMC's commercial discharges, while NorthBay draws 149. (I discuss the point that QVMC and NorthBay mostly draw their patients from distinct geographies in more detail in section IV.A.2.c.)
- The HHI increase is 536 points, from 2,419 to 2,955.[59] However, in the remainder of QVMC's PSA other than zip code 94534, NorthBay's share is 1.5% and the transaction results in an HHI *decrease* of 328 points (again, the result of uncoupling QVMC from the other Providence hospitals).[60]

- NorthBay PSA.
  - NorthBay has a 41.7% share of commercial discharges. Sutter's share is 32.7%, which is split across several hospitals (primarily, its Davis, Sacramento, and Solano hospitals); the University of California system has a share of 13.4% (also across several hospitals); and the John Muir system has a share of 5.6%.
  - QVMC's share in NorthBay's PSA is 1.7%.
  - The HHI increase is 140 points, from 3,023 to 3,162.[61]

[59] Taking this PSA as a valid relevant geographic market and assuming Kaiser is properly and fully excluded from the relevant product market, this degree of concentration increase would exceed the level at which a merger "is presumed to substantially lessen competition or tend to create a monopoly." 2023 Merger Guidelines, § 2.1. However, as I explain elsewhere, the bulk of the evidence indicates that QVMC and NorthBay are not close competitors.

[60] *See* footnote56. For commercial discharge shares in QVMC's PSA excluding zip code 94534, *see* Figure 45 in Appendix C. *See also*, footnote 58.

[61] Taking this PSA as a valid relevant geographic market and assuming Kaiser is properly and fully excluded from the relevant product market, this would slightly exceed the level at which a merger "is presumed to substantially lessen competition or tend to create a monopoly." 2023 Merger Guidelines, § 2.1. *But see* footnote 58.

Figure 24. Shares of discharges of commercially insured residents of QVMC's 75% PSA, excluding Kaiser

System	Hospital	Discharges	Share
NorthBay	**NorthBay Medical Center**	**168**	**10.3%**
Providence	Providence Queen of the Valley Medical Center	648	39.9%
	Providence Santa Rosa Memorial Hospital-Montgomery	56	3.4%
	Providence - Other	3	0.2%
Providence Total		**707**	**43.5%**
Sutter	Sutter Solano Medical Center	59	3.6%
	California Pacific Medical Center - Van Ness Campus	47	2.9%
	Sutter Davis Hospital	43	2.6%
	Sutter Medical Center, Sacramento	34	2.1%
	Sutter Santa Rosa Regional Hospital	25	1.5%
	Sutter - Other	35	2.2%
Sutter Total		**243**	**15.0%**
University of California	UCSF Medical Center	134	8.3%
	University of California Davis Medical Center	40	2.5%
	University of California - Other	2	0.1%
University of California Total		**176**	**10.8%**
John Muir	John Muir Medical Center-Walnut Creek Campus	69	4.2%
	John Muir - Other	7	0.4%
John Muir Total		**76**	**4.7%**
Adventist	Adventist Health St. Helena	70	4.3%
	Adventist - Other	5	0.3%
Adventist Total		**75**	**4.6%**
Other/Independent	MarinHealth Medical Center	79	4.9%
	Sonoma Valley Hospital	34	2.1%
	Other/Independent	66	4.1%
Other/Independent Total		**179**	**11.0%**
Pre-HHI		**2,419**	
Post-HHI		**2,955**	
Change in HHI		**536**	

Source: HCAI PDD, 2024.
Note: Excludes normal newborns, non-GAC discharges, and specialty and children's hospitals.

Figure 25. Shares of discharges of commercially insured residents of NorthBay's 75% PSA, excluding Kaiser

System	Hospital	Discharges	Share
NorthBay	**NorthBay Medical Center**	**844**	**41.7%**
Providence	Providence Queen of the Valley Medical Center	34	1.7%
	Providence - Other	2	0.1%
Providence Total		**36**	**1.8%**
Sutter	Sutter Davis Hospital	298	14.7%
	Sutter Medical Center, Sacramento	139	6.9%
	Sutter Solano Medical Center	109	5.4%
	Sutter Roseville Medical Center	36	1.8%
	California Pacific Medical Center - Van Ness Campus	30	1.5%
	Alta Bates Summit Medical Center-Alta Bates Campus	24	1.2%
	Sutter - Other	25	1.2%
Sutter Total		**661**	**32.7%**
University of California	UCSF Medical Center	136	6.7%
	University of California Davis Medical Center	129	6.4%
	University of California - Other	6	0.3%
University of California Total		**271**	**13.4%**
John Muir	John Muir Medical Center-Walnut Creek Campus	97	4.8%
	John Muir - Other	17	0.8%
John Muir Total		**114**	**5.6%**
Other/Independent	Other/Independent	98	4.8%
Pre-HHI		**3,023**	
Post-HHI		**3,162**	
Change in HHI		**140**	

Source: HCAI PDD, 2024.
Note: Excludes normal newborns, non-GAC discharges, and specialty and children's hospitals.

IV.A.2.c. Zip code level shares

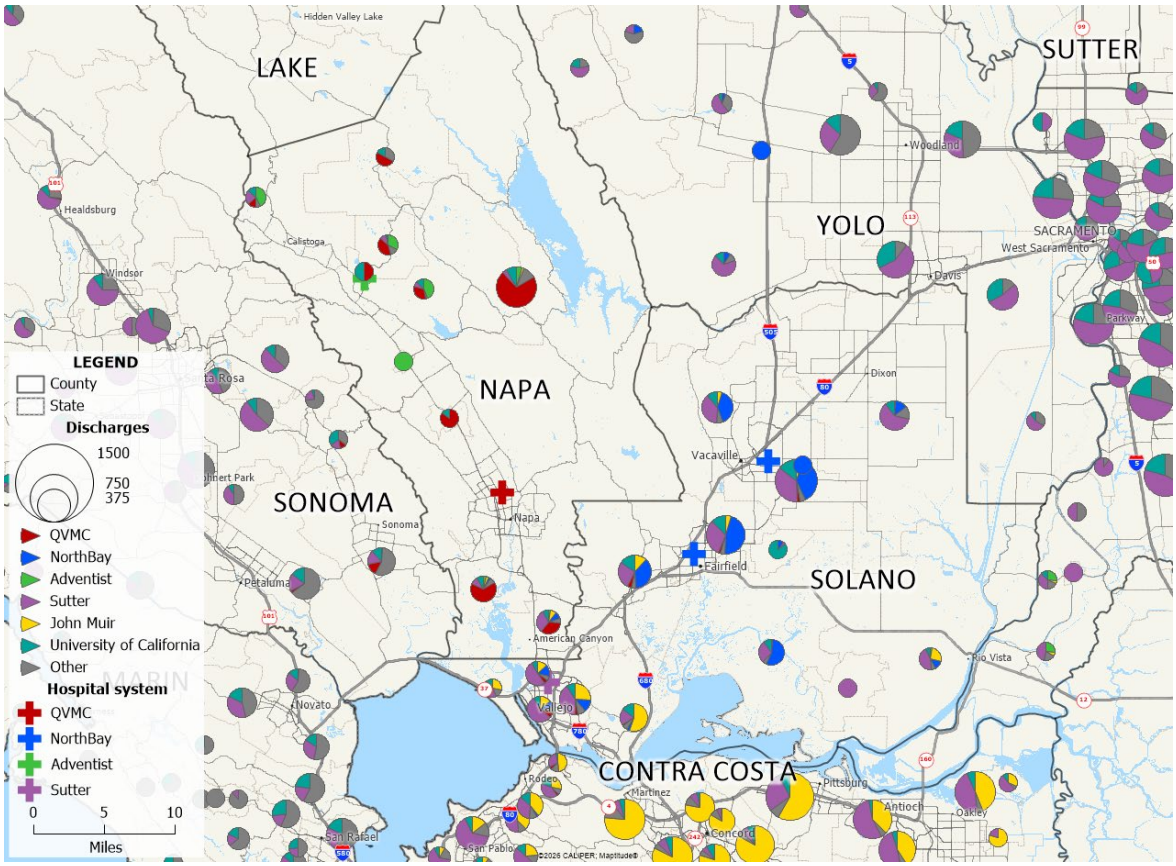
(69) The pie charts in Figure 26 illustrate zip code-level shares in Napa, Solano, and the surrounding counties. Each pie depicts discharge shares within a zip code for QVMC (red), NorthBay (blue), and other systems such as Adventist (green), John Muir (yellow), and Sutter (purple). As noted above, QVMC accounts for 2% of discharges of patients who reside in Solano County; in the map, this is reflected in the pie charts for Solano County zip codes mostly having either no red slice or a narrow one. Likewise, the pie charts for Napa County zip codes mostly show NorthBay with a low or zero share of discharges. These show that both systems largely draw patients from distinct geographies.

(70) However, the southernmost zip code in Napa County, near American Canyon (94503), is an exception. There, the shares are 34.6% for QVMC and 9.6% for NorthBay. Thus, the substantive zip

code-level overlap comes down to a single zip code with 54 QVMC and 15 NorthBay commercial discharges in 2024. (*See* Figure 27 for a map that is zoomed in to this area.)

(71) Figure 28 provides additional zip code-level detail.[62] In Napa County, 11 of 12 zip codes yield either a decrease or no change in concentration post-transaction. The remaining zip code is the aforementioned American Canyon zip code (94503). In Solano County overall, the HHI increases by more than 100 points in 5 of 16 zip codes. The Solano zip code with the greatest HHI increase, at 299 points, is 94534 (the sole zip code within QVMC's PSA that is in Solano County); QVMC draws 16 commercially insured patients from that zip code.

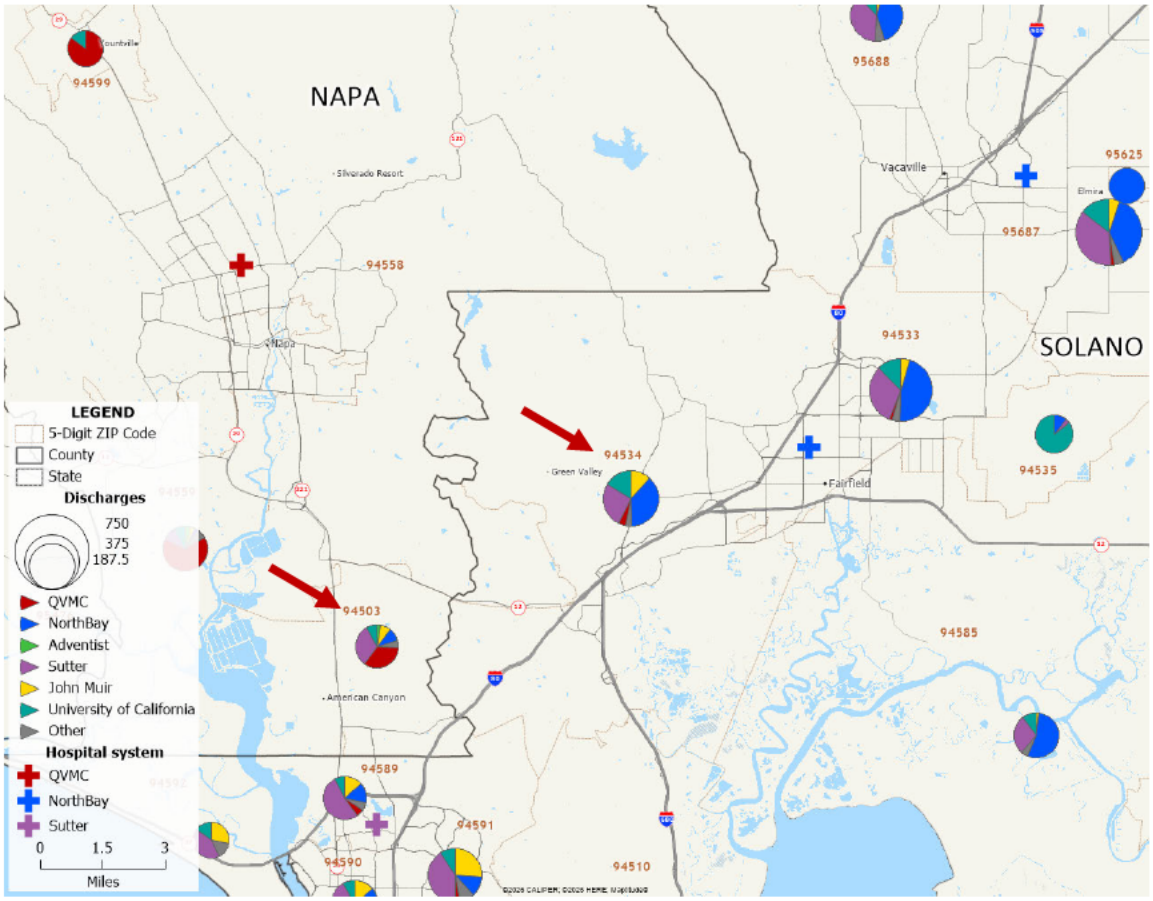
Figure 26. Shares of commercially insured discharges by patient zip code of residence, excluding Kaiser



Source: HCAI PDD, 2024.
Note: Excludes normal newborns and non-GAC procedures.

62 Individual zip codes are too small to constitute a relevant geographic market; the purpose of analyzing discharge shares and HHI measures at the zip code level is to evaluate the geographic contours of the areas from which the various hospitals do and do not draw patients.

Figure 27. Shares of commercially insured discharges by patient zip code of residence (94503 and 94534 zoom), excluding Kaiser



Source: HCAI PDD, 2024.
Note: Excludes normal newborns and non-GAC procedures.

Figure 28. Commercial discharges, shares, and HHI changes by zip code, excluding Kaiser

County	Zip code	Discharges	Delta HHI	Share	
				QVMC	NorthBay
Napa	94558	559	-433	71.2%	0.2%
	94559	176	-150	65.9%	1.7%
	94503	156	666	34.6%	9.6%
	94574	80	0	32.5%	0.0%
	94515	75	-107	13.3%	0.0%
	94508	37	-438	40.5%	0.0%
	94599	7	0	85.7%	0.0%
	94567	6	0	50.0%	0.0%
	94581	3	0	66.7%	0.0%
	94573	2	0	0.0%	0.0%
	94576	2	0	50.0%	0.0%
	94562	1	0	100.0%	0.0%
Solano	95687	608	124	1.6%	37.8%
	94533	519	124	1.3%	46.1%
	94534	398	299	4.0%	37.4%
	94591	343	63	2.6%	12.0%
	95688	322	25	0.3%	40.1%
	95620	283	0	0.0%	13.4%
	94510	255	9	1.6%	2.7%
	94590	207	103	6.3%	8.7%
	94585	177	0	0.0%	54.8%
	94589	152	159	5.3%	15.1%
	94571	97	0	0.0%	13.4%
	94535	27	0	0.0%	11.1%
	95696	13	0	0.0%	7.7%
	94592	7	0	0.0%	0.0%
	94512	1	0	0.0%	0.0%
	95625	1	0	0.0%	100.0%

Source: HCAI PDD, 2024.
Note: Excludes normal newborns and non-GAC procedures.

IV.A.2.d. Service line overlap

(72) Figure 29 presents commercial shares by major diagnostic category (MDC) in QVMC's 75% PSA for the top 10 MDCs by commercial discharge count. I focus on QVMC's PSA because, to the extent there is some competitive interaction between the parties, it is in the QVMC area. The combined share is greatest for labor and delivery, consistent with Adventist St. Helena and Sutter Solano Medical Center having exited that service line. As before, the majority of that overlap is due to the Solano County zip code (94534) that falls in QVMC's 75% PSA. In the rest of QVMC's PSA, NorthBay's shares in MDC 14 and MDC 15 are both 1.2%. At the other end, the parties' combined share is lower, about 28.6%, for MDC 8, corresponding to orthopedic services.

Figure 29. Commercial discharge shares by MDC in QVMC's 75% PSA, excluding Kaiser

MDC	MDC description	Discharges	QVMC	NorthBay	Other
14	Pregnancy, childbirth, and puerperium	411	57.2%	10.7%	32.1%
15	Newborn and other neonates (perinatal period)	211	52.6%	8.1%	39.3%
6	Digestive system	153	33.3%	12.4%	54.2%
5	Circulatory system	132	37.1%	9.1%	53.8%
18	Infections and parasitic DDs (systemic or unspecified sites)	128	36.7%	17.2%	46.1%
8	Musculoskeletal and connective tissue	98	15.3%	13.3%	71.4%
7	Hepatobiliary system and pancreas	88	34.1%	8.0%	58.0%
1	Nervous system	83	33.7%	6.0%	60.2%
10	Endocrine, nutritional, and metabolic system	68	35.3%	4.4%	60.3%
4	Respiratory system	54	29.6%	11.1%	59.3%
All other MDCs		198	21.2%	10.1%	68.7%

Source: HCAI PDD, 2024.
Notes: Excludes normal newborns, non-GAC discharges, and specialty and children's hospitals. Limited to the 10 MDCs with the greatest number of commercial discharges.

(73) As noted, QVMC and NorthBay are the only two non-Kaiser hospitals in Napa and Solano counties offering labor and delivery services. For Medi-Cal enrollees, labor and delivery is particularly localized: QVMC accounts for 1.8% of deliveries among non-Kaiser Medi-Cal enrollees who reside in Solano County and NorthBay accounts for 1.0% of deliveries among non-Kaiser Medi-Cal enrollees who reside in Napa County. At the same time, each hospital is particularly important to non-Kaiser Medi-Cal enrollees in its own county: QVMC accounts for 91% of deliveries among such enrollees who reside in Napa County and NorthBay accounts for 83% in Solano. (Both shares are well above the respective hospitals' overall shares in each county.)

IV.A.2.e. Commercial discharge shares and concentration including Kaiser hospitals and patients

(74) As Figure 30 shows, commercial discharge shares for QVMC and NorthBay are lower when Kaiser hospitals are included—this is because roughly half of area patients are discharged from a Kaiser hospital.[63] As a consequence of lower shares for the parties, the HHI increases are also smaller when Kaiser is included. (The transaction continues to have a deconcentrating effect in Napa County with Kaiser hospitals included but to a lesser extent, as Kaiser dilutes other Providence hospitals' shares by more than NorthBay's.)

Figure 30. Commercial discharge shares, excluding and including Kaiser

Geography	Excluding Kaiser					Including Kaiser				
	Shares			HHI		Shares			HHI	
	QVMC	NorthBay	Kaiser	Delta	Post	QVMC	NorthBay	Kaiser	Delta	Post
Napa County	57.2%	1.7%	n/a	-93	3,800	30.5%	0.9%	47.1%	-24	3,286
Solano County	2.0%	29.0%	n/a	115	2,674	0.9%	12.2%	58.1%	22	3,822
QVMC PSA	39.9%	10.3%	n/a	536	2,955	20.4%	5.2%	49.2%	137	3,182
NorthBay PSA	1.7%	41.7%	n/a	140	3,162	0.8%	17.8%	57.3%	29	3,841

Source: HCAI PDD, 2024.
Notes: Excludes normal newborns, non-GAC discharges, and specialty and children's hospitals. Kaiser enrollees discharged from non-Kaiser hospitals are included in the "Including Kaiser" shares but excluded from the "Excluding Kaiser" shares.

IV.A.3. Diversion ratios

(75) Diversion ratios are a direct measure of head-to-head competition between sellers and, as such, are commonly used to analyze competitive effects in merger cases. The diversion ratio from Hospital A to Hospital B is the percentage of Hospital A's patients who, if Hospital A were to become unavailable, would switch to Hospital B.[64] Higher diversion ratios between QVMC and NorthBay indicate greater closeness of substitution and thus greater competition between them, and vice-versa.

IV.A.3.a. Approaches to estimating diversions and accounting for Kaiser

(76) There are two standard methods used for computing diversion ratios in the context of hospitals: a parametric conditional logit model and a semiparametric approach. Over the last decade, the latter approach has been the more common.[65] However, neither approach is adapted to the specific context

[63] Because Kaiser has a high share of discharges when it is included, the level of the pre-transaction HHI can be higher when it is included (i.e., if Kaiser has a 50% share, then its inclusion alone contributes $50^2 = 2{,}500$ to the HHI).

[64] C. Conlon and J.H. Mortimer, "Empirical properties of diversion ratios," *RAND Journal of Economics* 52, no. 4 (2021): 693–726; 2023 Merger Guidelines, § 4.2.B.

[65] Results in Raval, Rosenbaum, and Wilson (2021) and Raval, Rosenbaum, and Wilson (2022) provide evidence that the semiparametric approach produces more reliable diversion estimates, though both approaches commonly yield similar estimates.

See Devesh Raval, Ted Rosenbaum, and Steven A. Tenn, "A Semiparametric Discrete Choice Model: An Application to

of a market in which a consumer's choice of health insurer largely determines the set of hospitals from which she can choose—that is, in most cases, (1) only Kaiser health plan enrollees can visit Kaiser hospitals and (2) Kaiser health plan enrollees do not receive services at non-Kaiser hospitals. Given this, while patients of a non-Kaiser hospital can switch to a Kaiser hospital, in order to do so they usually first would have to change to a Kaiser health plan.

(77) One way to account for Kaiser's closed network structure is to simply exclude Kaiser hospitals from patients' choice sets and estimate the conditional logit or semiparametric model as if Kaiser did not exist. But this assumes away any competitive interaction between Kaiser and non-Kaiser hospitals, even though Kaiser accounts for about 50% of commercially insured discharges in Napa and Solano counties. Another way to account for Kaiser is to treat its hospitals as fully fungible with non-Kaiser hospitals. But this ignores Kaiser's largely closed model as well as the likelihood that some enrollees in non-Kaiser plans may have some distaste for changing insurers or not prefer Kaiser's closed model of healthcare delivery. The nested logit model lies in between and allows for estimation of diversions between the parties without imposing a binary choice between fully excluding or fully including Kaiser hospitals as a possible option for patients.

(78) I use each of these approaches to estimate diversions between QVMC and NorthBay and reach a consistent conclusion: while there is some competitive interaction between the two systems, they are not close competitors with respect to inpatient GAC services. The highest diversion estimate from QVMC to NorthBay is 8.3% and the highest diversion estimate from NorthBay to QVMC is 5.2%. These are below the diversion ratios in hospital mergers, and mergers generally, that have been challenged in court on competitive grounds by antitrust agencies.

IV.A.3.b. Estimates of diversions between QVMC and NorthBay

(79) Estimated diversion ratios between QVMC and NorthBay from each of these approaches are summarized in Figure 31. As noted above, the maximum diversion ratio across all approaches is 8.3% from QVMC to NorthBay (per the nested logit). Estimated diversions are low in both directions, but diversions from NorthBay to QVMC (2% to 5%) are lower than diversions from QVMC to NorthBay (2% to 8%). The diversion ratio from QVMC to NorthBay estimated using the nested logit model, at 8.3%, is greater than from the other two models, whether the latter exclude or include Kaiser.[66] The

Hospital Mergers," *Economic Inquiry* 55, no. 4 (2017): 1919–1944; Devesh Raval, Ted Rosenbaum, and Nathan E. Wilson, "How Do Machine Learning Algorithms Perform in Predicting Hospital Choices? Evidence from Changing Environments," *Journal of Health Economics* 78 (2021); and Devesh Raval, Ted Rosenbaum, and Nathan E. Wilson, "Using Disaster-Induced Closures to Evaluate Discrete Choice Models of Hospital Demand," *RAND Journal of Economics* 53, no. 3 (2022): 561–589.

The semiparametric approach to estimating diversion ratios groups discharges into bins according to their characteristics. The probability of a patient in each bin choosing a hospital is assumed to be proportional to the share of that hospital within that bin. The binning variables in order of priority are patient county, patient zip code, patient age category, MDC, surgical flag, DRG weight quartile, MSDRG code, and gender.

[66] Intuition suggests that, by allowing for a partial inclusion of Kaiser, the nested logit would yield estimated diversions between the parties that are (1) greater than diversions estimated from a conditional logit model with Kaiser fully

estimated diversion ratio from NorthBay to QVMC from the nested logit, at 5.0%, is on par with the other two models when those are estimated with Kaiser excluded (5.2% and 4.7%).

(80) Focusing on the highest diversion, 8.3% from QVMC to NorthBay, it matches the diversion ratio that would result from the merger of any two firms in a market with 13 symmetric, equal-sized firms. Such a market would have an HHI of about 770 points and a merger of any two of those firms would increase that HHI by about 120 points, resulting in a post-merger HHI of 890 points.[67] This is well below the HHI level at which a market is presumed to be highly concentrated, or even concentrated.[68] It is also below the level of diversion at which antitrust agencies litigate to challenge a hospital merger (or mergers more generally); those cases generally involve a diversion ratio of at least 20% in one or both directions.

(81) One output of the nested logit model is an estimate of the "nesting parameter." The nesting parameter measures the degree to which patients substitute within nest (e.g., from non-Kaiser to other non-Kaiser), rather than across nests (e.g., from non-Kaiser to Kaiser). The parameter can take on values between 0 and 1, with an estimated value of 0 indicating full fungibility across nests and an estimated value approaching 1 indicating negligible substitution across nests. The estimated value of the nesting parameter of 0.68 is closer to 1 than to 0. This implies that patients of non-Kaiser hospitals, if their current hospital were not available, would be more likely to substitute to another non-Kaiser hospital

included but (2) lower than diversions estimated from a conditional logit model with Kaiser fully excluded. However, several factors make this intuition not hold in the case at hand. First, in the conditional logit model with Kaiser excluded, I drop the Kaiser enrollees who are discharged from non-Kaiser hospitals; the nested logit model includes those patients. More generally, the estimation sample is different when Kaiser enrollees are included. Second, as explained in Appendix B.1.c, I include explanatory variables in the nest-level selection equation, which means that the conditional logit model is not a restricted version or "special case" of the nested logit model—they are different models and there is no necessary *a priori* ranking of the magnitude of the diversion estimates they yield. (It is true that, within a model—whether conditional logit or semiparametric—including Kaiser will necessarily result in lower estimated diversions between any two non-Kaiser hospitals.)

67 With 13 symmetric sellers, each has a share of $1 \div 13 = 7.7\%$ and the diversion ratio between any two of them is $7.7\% \div (1 - 7.7\%) = 8.3\%$. The HHI equals $13 \times (7.7^2) = 771$. The HHI increase from a merger of firms with shares of s_1 and s_2 equals $2 \times s_1 \times s_2 = 2 \times 7.7 \times 7.7 = 119$.

By comparison, in a market with 6 symmetric sellers, the diversion ratio between any two of them equals 20%. A merger of two of these firms would increase the HHI from below 1,700 to above 2,200, which would exceed the thresholds at which a merger is (rebuttably) presumed to substantially lessen competition. As an example in which sellers are not symmetric, consider a market with 4 sellers with a 10% share and 3 sellers with a 20% share. A merger of a 10% share firm and a 20% share firm would increase the HHI from 1,600 to 2,000, also above the presumption threshold. Diversions would be 12.5% from the larger firm to the smaller and 22.0% from the smaller firm to the larger.

68 As shown in section III.A.5.c, some evidence suggests that Sutter Solano Medical Center, Kaiser Vallejo, and Kaiser Vacaville are capacity constrained. If so, QVMC and NorthBay patients may not be able to divert to these hospitals if either hospital were to become unavailable. To account for these constraints, I estimate versions of nested logit diversions that exclude Sutter Solano Medical Center, Kaiser Vallejo, and Kaiser Vacaville from the patients' choice sets. All else equal, this should raise diversions between QVMC and NorthBay because it limits the number of other nearby alternatives. Excluding these Kaiser hospitals and Sutter Solano Medical Center yields nested logit diversions of 9.2% and 5.9% (these remain below the levels at which antitrust agencies challenge mergers in court). *See* Figure 48 in Appendix C.

than to an otherwise similar Kaiser hospital. At the same time, the estimated nesting parameter is less than 1, which provides evidence of some degree of patient substitution to Kaiser.[69]

Figure 31. Estimated diversion ratios between QVMC and NorthBay

Approach	Variant	Diversions	
		From QVMC to NorthBay	From NorthBay to QVMC
Conditional logit	Excluding Kaiser	7.3%	5.2%
	Including Kaiser	6.4%	1.9%
Nested logit	Includes Kaiser, in distinct nest	8.3%	5.0%
Semiparametric	Excluding Kaiser	5.3%	4.7%
	Including Kaiser	1.9%	1.7%

Source: HCAI PDD, 2024.
Note: Limited to commercial discharges for patients living in Solano, Napa, and Sonoma counties.

IV.A.3.c. Sutter Solano Medical Center's exit from labor and delivery

(82) To further assess substitution to Kaiser from non-Kaiser hospitals, I use the natural experiment created by Sutter Solano Medical Center closing its birthing center in 2021. Sutter Solano Medical Center is located roughly midway and slightly south along the route between QVMC and NorthBay. If patients are willing to substitute from non-Kaiser hospitals to Kaiser, that should be evident in the form of increased births at Kaiser's two hospitals, Vallejo and Vacaville. Thus, the natural experiment allows me to assess the degree of substitution to Kaiser hospitals among patients who would otherwise have gone to Sutter Solano Medical Center.

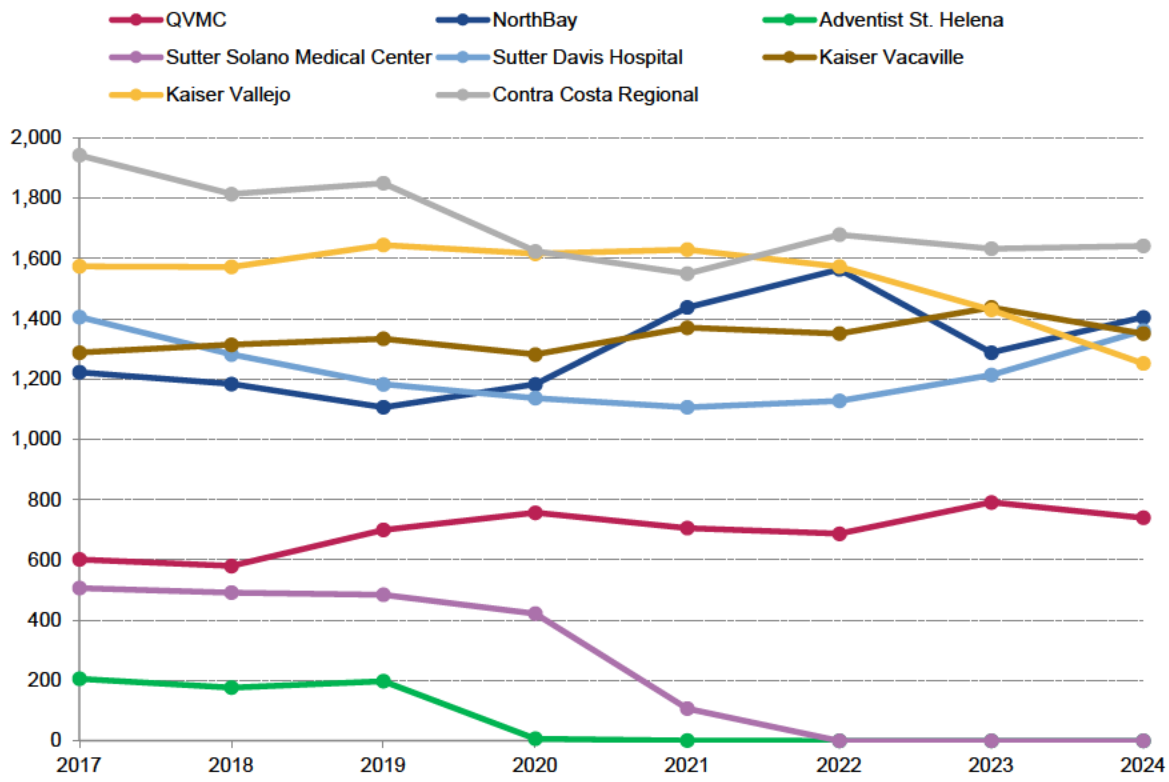
(83) Figure 32 shows the number of births by hospital before and after Sutter Solano Medical Center closed its birthing center. Sutter Solano Medical Center had 422 births in 2020, the year before its birthing center closure. Births at NorthBay increased by 381 between 2020 and 2022. Kaiser Vacaville showed a small increase between 2020 and 2022 (69 births), and Kaiser Vallejo showed a small decrease (43 births). QVMC births were relatively flat between 2020 and 2022, and Contra Costa Regional Medical Center showed a small increase (55 births).

(84) The overall pattern implies that the majority of what would have been Sutter Solano Medical Center births shifted to NorthBay, even though Kaiser Vallejo offers labor and delivery and is only about one mile from Sutter Solano Medical Center. This is consistent with the estimated nesting parameter of

[69] The distinction is that diversion from QVMC or NorthBay to Kaiser, as estimated using the nested logit model and the resulting 0.68 nesting parameter, is substantially lower than what Kaiser's shares of discharges in Napa and Solano counties would imply if Kaiser and non-Kaiser hospitals were fully fungible for patients. In that counterfactual scenario, diversions from QVMC to Kaiser would be on the order of 52–72% and diversions from NorthBay to Kaiser would be on the order of 68–70%. (Kaiser accounts for more than half of discharges of commercially insured residents of Napa and Solano counties. *See* Figure 30.) However, diversions to Kaiser from QVMC and NorthBay estimated based on the nested logit are substantially lower, slightly above 20%, for both hospitals.

0.68, which indicates that, while some patients will substitute to Kaiser, they do so to a significantly lesser extent than Kaiser's overall share of discharges would imply. (Recall that the nesting parameter is between 0 and 1, with an estimate closer to 1 indicating that consumers are less willing to substitute between nests.)

Figure 32. Labor and delivery discharges, 2017–2024



Source: HCAI hospital annual utilization report & pivot tables.
Notes: Includes all payer types. Labor and delivery discharges are identified using ICD-10-PCS (procedure code) 10. Using ICD-10-CM (diagnosis codes) complications of pregnancy; childbirth; and the puerperium (O00–O9A and Z30–Z37) show similar trends.

IV.B. Outpatient services

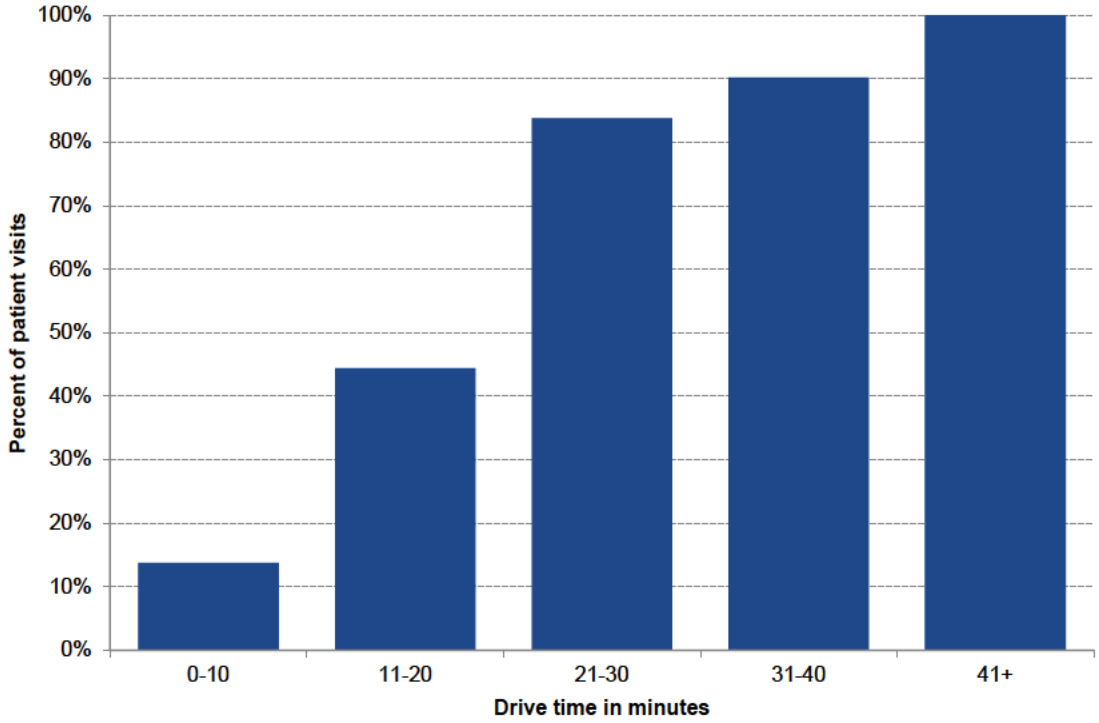
(85) In section III.C.2, I summarized the parties' outpatient clinic locations and specialties. Based on this description and the time patients typically travel for outpatient services, I conclude that competitive overlap between the parties with respect to outpatient services is also limited.

(86) Both QVMC and NorthBay have outpatient clinics in Napa County. NorthBay also has outpatient clinics in Solano and Yolo counties, but QVMC does not. Focusing on Napa County, both parties have locations offering primary care, cardiology, and urology on QVMC's hospital campus,

presenting the potential for overlap. However, NorthBay's clinics in Napa County (on QVMC's campus as well as the locations in American Canyon) have just one or two physicians practicing at each location, and some of those split time at another NorthBay clinic in Solano County. *See* section III.C for details.

(87) NorthBay also has gastroenterology and primary care clinics in Green Valley in Solano County near the Napa County border with more practicing physicians. However, these clinics are nearly 30 minutes away from QVMC's clinics for these specialties. Figure 33 shows that over 80% of patients who visit the parties' outpatient locations travel less than 30 minutes for surgical visits, which likely implies that the typical drive time for non-surgical outpatient visits is lower.[70]

Figure 33. Patient drive times for outpatient surgeries at QVMC and NorthBay



Sources: HCAI Ambulatory surgery data, 2021–2024; Google API.
Note: Party locations include QVMC, NorthBay MC, and the Surgery Center at VacaValley.

[70] I am only able to analyze patient travel times for outpatient surgical visits, since the HCAI outpatient data do not include physician visits.

V. Cross-market theory and analysis

(88) Several economic studies have found evidence of price increases following certain types of "cross-market" mergers and acquisitions, meaning combinations of hospitals that are too far apart to be viewed as direct substitutes by patients.[71] In this section, I explain the relevant research and hypothesized mechanisms by which mergers among hospitals that serve patients in distinct geographic markets—i.e., cross-market hospital mergers—can increase price. I then use evidence and insights from that research to evaluate whether the proposed transaction satisfies the conditions that may give rise to price increases following a cross-market merger. That analysis shows that the parties could gain additional bargaining leverage vis-à-vis commercial payers because many end-customers, such as employers and unions, have significant membership in both of the merging systems' respective counties.

(89) By way of background, the related economic literature concerning cross-market effects has identified three potential underlying mechanisms: common customers, change-in-control, and tying.[72]

- Common customers. Cross-market price effects may arise when geographically distant (too distant to be substitutes from the perspective of individual patients) merging hospitals share a sufficient volume of common customers, which are typically large employers with employees who live across the merging parties' respective geographies. Insofar as larger employers need a health plan that offers *most* of their workers a reasonably attractive network of local hospitals, hospitals in disparate areas can be substitutes from the perspective of health insurers that market their products to such larger employers.
- Change-in-control. Price increases could result from a cross-market merger if the acquiring system has superior bargaining skill and is able to deploy that skill on behalf of the target post-transaction.
- Tying. This refers to a scenario in which a hospital system possesses market power but is constrained from setting prices that would fully capture the rents its market power would

[71] Leemore Dafny, Kate Ho, and Robin Lee, "The Price Effects of Cross-Market Mergers: Theory and Evidence from the Hospital Industry," *RAND Journal of Economics* 50, no. 2 (2019): 286–325; Matthew S. Lewis and Kevin E. Pflum, "Hospital Systems and Bargaining Power: Evidence from Out-of-Network Market Acquisitions," *RAND Journal of Economics* 48, no. 3 (2017): 579–610; Daniel R. Arnold, Jaime S. King, Brent D. Fulton, Alexandra D. Montague, Katherine L. Gudiksen, Thomas L. Greaney, and Richard M. Scheffler, "New evidence on the impacts of cross-market hospital mergers on commercial prices and measures of quality," *Health Services Research* 60, no. 1 (2025): 1–10.

Research on this topic is ongoing, including a recent working paper by Dranove, Kim, and Vatter. David Dranove, Sungjin Kim, and Benjamin Vatter, "Mergers with Intermediation: The Price Effect of Distant Hospital Mergers" (SSRN Working Paper, September 11, 2026).

[72] *See* Gregory S. Vistnes and Yianis Sarafidis, "Cross-Market Hospital Mergers: A Holistic Approach," *Antitrust Law Journal* 79, no. 1 (2013); Keith Brand and Ted Rosenbaum, "A Review of the Economic Literature on Cross-Market Health Care Mergers," *Antitrust Law Journal* 82, no. 2 (2019): 533–550; Cory Capps, Leyla Karakas, and Tetyana Shvdyko, "Cross-Market Mergers: Theories of Harm and Limiting Principles," *Competition Policy International*, (2023); and Gregory Vistnes, "Cross-Market Hospital Mergers: Assessing Likely Harm and Implications for Government Action," *Antitrust Law Journal* 86, no. 1 (2024): 251–315.

otherwise allow.[73] A system constrained in this way could increase profits by acquiring a second system and contracting only on a systemwide, all-or-nothing basis.

(90) I focus my analysis on the common customers mechanism, primarily because that is a theory under which the hospitals are competitors (for payers and employers, though not for individual patients) and so a cross-market transaction has a theoretical potential to lessen competition. That said, the conditions that I describe in section VII, while motivated by the common customers analysis, would mitigate the risk of the other two mechanisms leading to price increases.

V.A. Cross-market mechanisms and theory

(91) When two hospitals compete within the same market for the same or a similar set of patients, the hospitals are substitutes from the perspectives of patients, meaning that patients view the hospitals as reasonable alternatives for inpatient care or other hospital services—that is what it means for two hospitals to be competitors in a market.[74] In turn, that makes them substitutes for payers: if one hospital refuses to contract with a given payer, that payer's best alternative hospitals are those that are closer substitutes in the eyes of the patients who are covered by that payer.

(92) In contrast, cross-market hospital mergers do not directly eliminate alternatives for patients, since the hospitals are, by definition, too distant from each other to be viewed as direct substitutes by any, or more than a small portion of, patients. But mechanisms other than patient substitution can still link the merging parties, and those linkages could allow a combined system to increase prices post-transaction.

[73] The source of the price constraint could be overt regulation or implicit, such as a desire to avoid negative publicity due to high prices.

A firm with market power has the ability to sustain pricing above competitive levels, generally as a result of facing few close competitors and a market position that is protected by entry barriers. QVMC and NorthBay both lack close-by similar hospitals, and the hospital industry generally has significant barriers to entry. A competitive price is one that allows a firm to earn "zero economic profits." This is an economic concept that does not mean that a firm earns zero profits in an accounting sense but rather that the firm earns a normal rate of return on its activities and investments. *See*, *e.g.*, David Besanko and Ronald R. Braeutigam, *Microeconomics*, 4th ed. (Hoboken: John Wiley & Sons, 2010), 333.

[74] This is often described as the two-stage model of hospital competition. In stage one, hospitals compete to be included in payers' provider networks; this is where hospital prices are determined. In stage two, in-network hospitals compete primarily on non-price dimensions for patients. Robert Town and Greg Vistnes, "Hospital Competition in HMO Networks," *Journal of Health Economics* 20, no. 5 (2001); Cory Capps, David Dranove, and Mark Satterthwaite, "Competition and Market Power in Option Demand Markets," *RAND Journal of Economics* 34, no. 4 (2003): 732−58; Cory Capps, Laura Kmitch, Zenon Zabinski, and Slava Zayats, "The Continuing Saga of Hospital Merger Enforcement," *Antitrust Law Journal* 82, no. 2 (2019): 441–496.

V.A.1. Change-in-control and tying

(93) Change in control. The change-in-control theory posits that the acquiring system may possess superior negotiating skill that it can transfer to an acquired hospital or system.[75] This mechanism does not require the existence of common customers; it is also not specific to cross-market mergers, since any target, whether nearby or distant, could benefit from more effective bargaining against payers. In contrast to the common customers mechanism, price increases attributable to a change-in-control are not the result of a lessening of competition. Applied to the QVMC transaction, although NorthBay does appear to have higher prices, I have identified no evidence indicating that NorthBay is a more sophisticated or skilled negotiator than Providence Health, the parent system of QVMC.

(94) Tying. Tying has long been recognized as a mechanism by which a firm may circumvent an explicit or implicit price cap.[76] Applied to hospitals, a system that is constrained from fully exercising its market power by setting high prices for its existing locations may be able to acquire additional locations with lower prices, sell the expanded set of locations on an all-or-nothing basis (i.e., tying), and increase prices at the acquired locations. For example, a price-constrained party to a cross-market hospital merger could require post-transaction that insurers contract with all of its hospitals instead of a subset and raise prices at the acquired hospital. As with the change-in-control mechanism, I have not identified non-market constraints on either party's prices or a basis for concern with respect to the tying mechanism.

V.A.2. Common customers

(95) Cross-market mergers may increase the combined system's bargaining leverage vis-à-vis payers when geographically distant (i.e., cross-market) merging hospitals share *common customers*, which are typically large employers with employees living and working across the merging parties' geographies. The marketability of a payer's health plan to large employers depends on it being able to offer at least a reasonably attractive set of in-network hospitals for most of those employers' workers and dependents. Thus, a cross-market merger that allows a hospital system to significantly reduce the quality of a payer's provider network in multiple geographies at once, potentially causing a payer to lose business with large employers, could give the newly combined system the bargaining leverage to demand higher rates.

(96) The underlying economic logic is that a health plan product with too many network "holes" would not be an attractive choice for an employer whose objective is to satisfy most of its employees

[75] Lewis and Pflum (2017) find evidence of a 17% price increase on average at target hospitals that were acquired by an out-of-market system. Matthew S. Lewis and Kevin E. Pflum, "Hospital Systems and Bargaining Power: Evidence from Out-of-Network Market Acquisitions," *RAND Journal of Economics* 48, no. 3 (2017): 579–610.

[76] Ward S. Bowman Jr., "Tying Arrangements and the Leveraging Problem," *Yale Law Journal,* 67, no. 19 (1957): 21–23.

(assuming the firm has employees in the geographies with potential "holes").[77] In this case, the increased cost to the payer (e.g., in terms of lost sales) of having hospital systems in two geographies out of network, compared to the sum of individual losses to the payer from lacking only one, would the merged entity's bargaining leverage and allow it to negotiate higher prices post-transaction.[78]

(97) Several studies have found evidence of price increases from cross-market mergers that can be attributed to the presence of common customers. The most widely cited is Dafny, Ho, and Lee (2019), which analyzes the price effects of hospital mergers across separate geographic markets and finds that mergers between hospitals that are 30–90 minutes apart but still within the same state lead to 7–10% price increases, on average.[79] The authors note that this range is where common customers are most likely to be present, and they attribute the lack of similar evidence of price increases for mergers between more distant hospitals to those parties likely sharing fewer common customers.

V.B. Common customers analysis

(98) The literature has identified several conditions that increase the likelihood of cross-market price increases attributable to the presence of common customers. My analysis indicates that the proposed transaction satisfies these conditions, as I show in this section.

- The drive times between QVMC and each of NorthBay's two hospitals fall within the 30–90 minute range for which the literature finds evidence of price effects on average.
- QVMC and NorthBay plausibly have meaningful degrees of market power in their respective geographic markets.
- The parties have a significant volume of significant common customers and common insurers.

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77 Vistnes and Sarafidis (2013). In addition, it is possible that a network without QVMC, or a network without NorthBay, would fail to satisfy network adequacy requirements in California. CHBRP, "Network Adequacy and Health Care Access Regulations in California," January 2024, https://www.chbrp.org/sites/default/files/2024-01/Network%20Adequacy_011824_FINAL_1.pdf, at Appendix A, Table 1 (showing that, for several types of health plans, meeting network adequacy standards requires that a "Network hospital with sufficient capacity must be available within 30 min / 15 miles of each covered person's residence or workplace."). Many zip codes within 30 minutes of QVMC are also within 30 minutes of NorthBay, but many are not. Thus, a network adequacy gap created by QVMC being out-of-network could not be closed simply by having NorthBay in-network—and likewise for NorthBay. (Beyond these observations, I do not opine on the legal requirements of network adequacy or the legal consequences for a payer of failing to have an adequate network in one or more areas.)

78 Increased bargaining leverage from a cross-market merger requires that the payer is harmed more by losing both systems jointly than the combined effect of losing each separately. This is equivalent to requiring that the marginal profit loss to a payer is increasing in the number of excluded hospitals and describes a concave profit function (with respect to the number of included hospitals). To illustrate, suppose that lacking System 1 in Market A would cause a payer to lose 8 group customers in that market while lacking System 2 in Market B would cause the payer to lose 4 group customers. If there are cross-market employers (i.e., common customers) that would not switch in response to a network hole in just one market but would do so if faced with holes in two markets, then the simultaneous loss of both systems would cause the payer to lose more than those 12 customers. That stronger threat is the source of increased bargaining leverage in this example.

79 *See* Dafny, Ho, and Lee (2019).

V.B.1. Drive times

(99) As I discussed in section IV.A.1, the drive time from QVMC to NorthBay MC can take up to 45 minutes and to VacaValley about 55 minutes. These drive times between the parties' hospitals fall within the aforementioned 30–90 minute range.

V.B.2. Market power

(100) As described above, an increase in bargaining leverage from a cross-market hospital merger requires that payers' losses from the joint exclusion of both systems' hospitals would exceed the sum of the losses from excluding each system individually. This can arise when offering an attractive health plan that is marketable to large employers requires both systems' hospitals. But if either system faces ample substitutes such that its absence from a payer's network would *not* significantly reduce the appeal of that network to customers in the system's area, then there would be no increase in the combined system's bargaining leverage post-transaction—that is, if one of the systems cannot create a network "hole," then a cross-market merger would not confer the ability to create network gaps in multiple markets.[80]

(101) In the following sub-sections, I present evidence—based on geography, discharge shares, payer interviews, and NorthBay's pricing—supporting the conclusion that both hospitals have sufficient market power (e.g., a high share in a well-defined market and/or a lack of reasonably proximate competitors offering comparable services) that their absence from a payer's network would create a meaningful reduction in the appeal of that network.

V.B.2.a. The parties' shares in their respective areas

(102) Neither QVMC nor NorthBay faces a nearby, comparable non-Kaiser hospital—the nearest such hospital for QVMC is 25 minutes or more away depending on traffic and the nearest for NorthBay MC is 20 minutes or more away. *See* Figure 21. The only hospital located within QVMC's PSA is 62-bed Adventist St. Helena, which is relatively small and at the northern edge of the PSA. *See* Figure 20. Reflecting the lack of nearby competitors, as shown in Figure 34, both systems have significant discharge shares among patients who reside in their respective areas, whether shares are measured in their respective counties or PSAs. In addition, these hospitals are the only non-Kaiser providers of

[80] There is some disagreement in the literature on whether market power is required in two or more linked markets or just one. For the tying and change-in-control mechanisms, market power in at least one market can be sufficient. However, the common customers mechanism requires (1) that the merged, cross-market system, by withdrawing from a payer's network would create a meaningful deterioration in the value of a payer's provider network in two or more markets affected by the merger and (2) that a sufficient number of common customers (i.e., the payer's actual and potential customers) have workers in two or more such areas. *See, e.g.,* Dafny, Ho, and Lee (2019), 291 ("If two merging parties serve customers who value the services of both, the existence of these 'common customers' creates linkages across the markets in which the parties operate. If the links are sufficiently strong (i.e., the insurer serves many common customers of the merging parties), a merger may be able to increase the bargaining leverage of the merging parties vis-à-vis the insurer that sells plans to the common customers.").

labor and delivery services in their respective counties (*see* section IV.A.3.c, describing the exits of Adventist St. Helena and Sutter Solano Medical Center from this service line).

Figure 34. QVMC and NorthBay shares of commercial discharges, excluding Kaiser

Party	Geography of patient residence		
	Napa County	Solano County	75% PSA
QVMC	57.2%	2.0%	39.9%
NorthBay	1.7%	29.2%	41.7%

Source: HCAI PDD, 2024. *See* Figure 22–Figure 25.

V.B.2.b. Payer interviews

(103) The CA AGO interviewed representatives from several health insurance companies that offer health plans in Napa and Solano counties, [redacted]. Several health plan representatives expressed concerns that are consistent with cross-market theories of harm, including a potential increase in QVMC and NorthBay's combined market power post-transaction.

(104) Although some health plan representatives identified possible alternatives to QVMC and NorthBay in the region (e.g., Sutter Solano Medical Center and Adventist St. Helena), several others identified NorthBay as an important provider in Solano County and/or noted that there are few viable hospital alternatives to QVMC. In addition, at least two health plan representatives expressed concerns that higher prices at NorthBay (relative to QVMC or to other hospitals in the region) may extend to QVMC post-transaction. More generally, representatives voiced concerns over the increased bargaining leverage of the combined systems, largely citing higher costs at NorthBay, the hospitals' geographic advantage, and NorthBay controlling, post-transaction, primary hospitals in two adjacent counties.

V.B.2.c. NorthBay prices

(105) In section III.E, I presented evidence on NorthBay's pricing. The results are somewhat mixed but overall consistent with payer interviews indicating that NorthBay's prices are high. While the HCAI hospital financial disclosure data show that NorthBay's price index for inpatient commercial services is roughly on par with a set of comparator hospitals, CMS hospital price transparency data show evidence of high prices for NorthBay across several payer-DRG combinations, including labor and delivery services. Further, [redacted]

V.B.3. Common customers

(106) I rely on membership data from three payers [redacted] to analyze the extent of common customers across QVMC and NorthBay.

V.B.3.a. Identifying common customers

(107) The three payers provided commercial membership counts at the employer and member county level, separately for each of Napa and Solano counties. Thus, for a given group insurance customer of one of the three health plans (i.e., an employer or union), I observe the number of members who reside in Solano County and the number who reside in Napa County.[81] I use these sources to construct a data set of employers and their membership counts across Napa and Solano counties.

(108) [redacted]

(109) [redacted] To focus on those customers with significant membership in both counties, I define common customers as employers that have at least 17 members in Napa and at least 34 members in Solano (these cutoffs correspond to 0.1% of total membership in each county). I exclude non-party health systems as common customers even if they satisfy the 0.1% threshold, since their members may be less reliant on the parties for hospital services. Based on these steps, I identify 42 common customers between Napa and Solano counties.[82]

[81] I also have access to the parties' billing data, which in principle could also be used to identify common customers. However, the employer fields in the billing data, particularly for QVMC, are not well-populated.

[redacted]

V.B.3.b. Common customer analyses

(110) There are multiple common customers across the two counties, such that increased bargaining leverage from the parties' cross-market combination is possible. For example, 8 out of Napa's 10 largest customers are common with Solano and all of Solano's 10 largest customers are common with Napa. Figure 35 illustrates the parties' 42 common customers and their membership counts in Napa (x-axis) and Solano (y-axis) counties. Each dot represents a common customer, and the size of the dot is proportional to the total membership of that customer across the two counties. [redacted] It is one of the larger common customers in terms of total membership in Napa and Solano counties, as indicated by the size of its dot. Dots located near one of the two axis indicate an employer (or union) with membership concentrated in one county and interior dots indicate an employer with more balanced membership across the two counties. (That the dots are mostly above the 45-degree line, corresponding to employers with more Solano members than Napa members, is largely a reflection of the greater population of Solano County.)

[redacted]



[redacted]

(111) Figure 36 and Figure 37 present each system's top 10 customers and whether they are common (excluding health systems). Of the ten largest customers in Napa County, 8 are also common customers. [redacted] These 8 customers account for 21.5% of Napa County membership among employers with members in Napa County. In the other direction, each of the top-10 customers in Solano County is also a common customer, and they together account for 23.3% of membership in Solano County. In addition, five common employers are among the 10 largest in each county.

(112) The 42 common customers together account for 32.5% of Napa County membership and 32.6% of Solano County membership for the three insurers.[83]

[redacted]

(113) Finally, I analyzed whether the parties' common customers offer their employees plans from multiple payers. If this were the norm, cross-market linkages could be weaker since employees in each

[83] Figure 49 in Appendix C lists the 42 common customers and the share of each county's membership they account for.

geography could select a health plan from a payer with a strong network in their home area, irrespective of the strength of that network in other areas. Only 3 of the 42 common customers appear in the membership files of more than one payer. (I do not have membership data with employer or employee residence detail for Kaiser, so I cannot evaluate the extent to which area employers may offer a non-Kaiser plan along with a Kaiser plan.)

VI. Other analyses

VI.A. Vertical evaluation of WHA

(114) In this section, I explain how the vertical combination of WHA, the insurer jointly owned by NorthBay and CommonSpirit Health, with QVMC might, in theory, lead to higher prices. I then explain that an important predicate for that theory of harm does not hold. Accordingly, I identify no substantive potential for price increases on account of vertical considerations.

(115) One line of economic research studies the competitive effects of vertical mergers between an upstream supplier and a downstream seller (e.g., a merger between a hospital system and an insurer or between a cable channel owner and a cable provider). Models within that literature, such as Rogerson (2020), examine the potential for competitive harm from such combinations.[84] For example, if a downstream insurer acquires an upstream hospital system, a potential concern could be that the insurer might withhold the acquired hospital system from rival insurers in an effort to dislodge their customers, who in turn might switch to the vertically integrated firm's insurance offering.

(116) In the current transaction, the potential concern is as follows. WHA is a downstream insurer and QVMC is an upstream provider. If QVMC were to terminate its contract with a downstream rival of WHA such as Cigna, some Cigna customers who value in-network access to QVMC could switch to a different insurer that has QVMC in-network including, potentially, WHA.[85] The combined WHA-QVMC could also use this as a threat in negotiations with other payers in an effort to negotiate more favorable pricing for QVMC. All else equal, the threat is more credible as *both* (1) the percentage of rival insurers' customers that would switch insurers in order to maintain access to QVMC is substantial and (2) WHA would likely capture a significant number of any customers that switch.

(117) However, WHA's enrollment shares in Napa and Solano counties are low for all insurance product types, which provides evidence that WHA would likely not capture a significant portion of any customers that would switch were QVMC no longer in their payer's provider network (i.e., the second condition identified above is unlikely to apply). In particular, WHA does not offer Medi-Cal plans and discontinued its MA offerings in 2025.[86] WHA is also not among the top two insurers offering commercial plans in the region; Kaiser and Elevance are.[87]

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[84] William Rogerson, "Modelling and Predicting the Competitive Effects of Vertical Mergers: The Bargaining Leverage Over Rivals Effect," *Canadian Journal of Economics* 53, no. 2 (2020): 407–436.

[85] This strategy has a potential cost to the vertically integrated system as well: among customers who stay with Cigna, substantially fewer would select QVMC when it is out-of-network. If few of the customers who leave Cigna switch to WHA, the result could be a net loss for the system.

[86] *See* "Medicare," Western Health Advantage, April 8, 2025, westernhealth.com/medicare. In 2024, WHA had a 1.4% share of individual non-SNP MA enrollment in Napa County and 1.8% in Solano County.

[87] José R. Guardado and Carol K. Kane, "Competition in health insurance," American Medical Association, December 16,

VI.B. Labor markets

(118) Firms that compete in output markets may also compete in input markets, such as labor markets. This raises the potential competitive concern that a merger could significantly reduce the set of employers available to workers. As I explain in this section, I identify no substantive basis for concern regarding reduced competition for hospital workers from the proposed transaction.

(119) If there were a basis for such concern, it would likely be based around healthcare workers such as nurses and other clinical employees, whose skills are industry-specific and who may have fewer options for employment outside a hospital or medical setting. This is in contrast to less specialized hospital workers, such as building services and clerical workers, who likely have employment options outside the healthcare industry.

(120) One recent study, Prager and Schmitt (2021), examines the labor market effects of hospital mergers and finds evidence that some hospital mergers resulted in slower wage growth. However, that result only holds for the most concentration-increasing mergers in their sample and only for skilled workers (nursing and pharmacy workers).[88] The proposed QVMC transaction is not in the category for which they find adverse wage effects. Moreover, while I evaluate concentration in output markets such as GAC inpatient services both excluding and including Kaiser hospitals, it is likely more appropriate to include Kaiser as a competitor for skilled healthcare workers.[89]

(121) Finally, I use hires and terminations data from the two systems to evaluate the extent to which nurses who depart one party are hired by the other party ("termination" includes departure for all reasons, voluntary and involuntary). I identify little competition for nurses between the two systems: [redacted]

2025, https://www.ama-assn.org/system/files/competition-health-insurance-us-markets.pdf. Based on these data, Kaiser and Elevance respectively have 62% and 17% commercial enrollment shares in the Napa MSA and 67% and 13% shares in the Vallejo MSA. The Napa MSA consists of only Napa County and the Vallejo MSA consists of only Solano County. The AMA data only report shares for the two largest commercial insurers in each MSA. Based on Kaiser's and Elevance's shares and the reported HHI, the highest share a third commercial insurer could have is 9% in Napa and 10% in Solano; given that Cigna, BSC, and United also have enrollees in the area, WHA's actual share of commercial enrollment is necessarily lower still.

88 Elena Prager and Matt Schmitt, "Employer Consolidation and Wages: Evidence from Hospitals," *American Economic Review* 111, no. 2 (2021): 397–427. They find evidence of 5-7% slower wage growth for nurse and pharmacy workers, but only in the subset of mergers that lead to top-quartile concentration increases in the output market.

89 As this shows, the set of included firms in a labor market need not align with the corresponding output markets. Similarly, the geographic breadth of a labor market and output market need not align; for example, hospital systems may draw workers from broader areas than they draw patients.

VI.C. Efficiencies

(122) I discussed in section III.A.2 that the parties identified four categories of potential benefits of the transaction: stemming outmigration, expanding NorthBay's outpatient services, growth in Napa County in terms of share of patients served, and performance improvements.[90] However, I have not identified or reviewed any systematic analysis by the parties showing how they would achieve these outcomes or achieve cost savings or improvements in quality more generally. I also did not identify any other merger-specific efficiencies during my review of the relevant party documents or data. Therefore, I do not have a sufficient basis on which to opine regarding whether the merger would result in verifiable, merger-specific efficiencies.

[redacted]

VII. Conditions

VII.A. Economic principles relevant to imposing conditions

(123) In general, mergers can have expected benefits and expected costs for society. On the expected benefits side, mergers may benefit consumers and overall economic surplus by facilitating cost savings or through increased innovation and investment from the combination of complementary assets. In the context of hospital systems, examples of the latter could include increased value-based contracting, expanding the breadth of services offered, or adding new clinical locations.

(124) [redacted]

[redacted]

94 Schmitt (2017) examines hospital acquisitions and finds evidence of modest cost reductions, 4 to 7 percent on average, at acquired hospitals. Matt Schmitt, "Do Hospital Mergers Reduce Costs?" *J Health Econ* 52 (2017): 74–94.

A significant body of other research finds evidence of price increases, on average, following mergers of closely competing hospitals, particularly when other competitors are few or absent. This indicates that, for these sorts of transactions, cost increases are likely either absent or insufficient to prevent price increases. *See*, *e.g.*, Zarek Brot, Zack Cooper, Stuart V. Craig, and Lev Klarnet, "Is There Too Little Antitrust Enforcement in the US Hospital Sector?" *American Economic Review: Insights* 6, no. 4 (2024): 526–42; Zack Cooper, Stuart V. Craig, Martin Gaynor, and John Van Reenen, "The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured," *Quarterly Journal of Economics* 134, no. 1 (2019): 51–107; Cory Capps and David Dranove, "Hospital Consolidation and Negotiated PPO Prices," *Health Affairs* 23, no. 2 (2004): 175–81.

Relatedly, Garmon (2017) studies a set of 28 hospital mergers and finds that 9 of the 28 resulted in statistically

(125) On the expected costs side, increased market power may lead to price increases, which would harm consumers. As discussed in Sections IV and V, this transaction presents minimal horizontal concerns but does satisfy the predicates of a cross-market theory of harm based on common customers, creating a plausible risk of post-transaction price increases.

(126) If regulation through the imposition of a set of conditions on merging firms can reduce expected social costs while maintaining expected social benefits, then consumers will likely benefit from the conditions. At the same time, crafting effective conditions in ways that restrain the affected entity without restraining innovation and investments (e.g., value-based care initiatives or expanding services) can be challenging. Thus, all else equal, markets and market forces work to the benefit of economies and consumers.[95] This insight calls for crafting regulations in ways targeted to the specific source of policy concern. This has several implications. First, conditions should only be used when a meaningful risk of social costs absent the conditions has been established. Second, conditions should be targeted to mitigating that specified risk. Third, conditions should not go beyond what is reasonably necessary to ameliorate the identified risk.

VII.B. Structure of the conditions and how they would address competitive concerns

(127) In this section, I identify categories of conditions and related economic principles for consideration by the California AGO. These are concepts and principles for consideration, not proposed legal provisions. Some aspects of conditions embed policy judgments about the weights put on different constituencies. For example, setting the duration of conditions involves a tradeoff between greater protections for consumers versus greater flexibility for the hospitals—economic principles can identify the tradeoff but the ultimate decision regarding weights across constituencies is a normative judgement for policymakers.

(128) The conditions outlined below would plausibly reduce the risk of the potential harms summarized above while preserving the combined entity's ability to make investments in QVMC and Napa County, as also summarized above.[96] In particular, they focus on reducing the scope for post-

significant price increases relative to a control group of comparator hospitals but that 6 resulted in statistically significant price decreases. As Garmon notes, those 6 mergers "highlight the fact that not all mergers of competing hospitals are anticompetitive, and some may lead to lower prices (or smaller price increases than normal) due to, for instance, cost savings resulting from the merger." Christopher Garmon, "The accuracy of hospital merger screening methods," *RAND Journal of Economics* 48, no. 4 (2017): 1068–1102 at 1086.

[95] In general, the ability of market participants to freely invest in pursuit of economic returns promotes economic growth, which is why market-based economies have outperformed other economic systems. *See* e.g., NobelPrize.org, "The prize in economic sciences 2025: From stagnation to sustained growth," Nobel Prize Outreach, 2025, https://www.nobelprize.org/prizes/economic-sciences/2025/popular-information/ (explaining the award of the 2025 Nobel Prize to Joel Mokyr for "having identified the prerequisites for sustained growth through technological progress" and to Philippe Aghion and Peter Howett for "the theory of sustained growth through creative destruction").

[96] The unbundling requirement and price cap conditions are analogs of Conditions 2 and 3 from the Cedars-

transaction price increases to commercial payers that could result from an increase in cross-market bargaining leverage rooted in common customers.

1. Unbundling requirement for commercial contracts. The AGO may elect to require that the combined system agree, should a payer so request, to negotiate the terms of network pricing and participation, and related contractual conditions separately for all services and providers of (1) the QVMC entity and its component assets, providers, and services and (2) NorthBay and its non-QVMC component assets, providers, and services.

   This would specify that QVMC's participation, pricing, or other contractual provisions cannot be conditioned on a payer's inclusion of NorthBay in its provider networks nor upon the pricing and other terms by which the payer includes NorthBay in its provider networks. (And likewise for NorthBay with respect to QVMC.)

   Examples of precluded contracting provisions, should a payer request unbundled contract negotiations include the following:

   A. The merged system cannot contract with commercial payers on an all-or-nothing basis; that is, the system cannot require a commercial payer to contract either with both QVMC and NorthBay or with neither.

   B. The merged system cannot penalize a commercial payer, through higher prices, additional fees, or other similar measures, for contracting with QVMC or NorthBay individually.

2. Price increase cap for commercial contracts. The AGO may restrict NorthBay from increasing QVMC prices to commercial plans by more than a specified benchmark, such as the moving average of the CPI for Hospital and Related Services over the three calendar years preceding contract negotiations.[97]

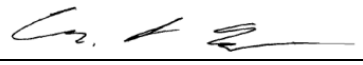
3. Prohibition on anti-tiering/anti-steering clauses. The AGO may also specify that the merged system cannot require a commercial payer, as a condition of contracting, to include all of the system's facilities and providers in a preferred status (no anti-tiering provisions) or at the lowest cost-sharing rate (no anti-steering provisions). This prohibition could also include a ban on actions that would impede the introduction of tiered-network, steering-based networks, or other value-based provider network and health plan benefit designs.

Sinai/Huntington Memorial transaction. *See* Joint Stipulation and Order, Huntington Hospital and Cedars-Sinai Health System v. California Department of Justice, Los Angeles County Superior Court, Case No. 21STCP00978, https://oag.ca.gov/system/files/media/nhft-huntington-ag-decision-071921.pdf, Exhibit A, at 2–3.

97 US Bureau of Labor Statistics, "Consumer Price Index for All Urban Consumers: Hospital and Related Services in U.S. City Average," Series CUSR0000SEMD, retrieved from FRED, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org/series/CUSR0000SEMD. A shorter moving average, such as one-year, is susceptible to short term variation that may create volatility in the price increase cap. A longer moving average may not reflect recent market conditions and impede the merging parties.

(129) The purpose of the unbundling requirement is to break, or at least significantly weaken, the linkage between the QVMC and NorthBay markets that could, through the existence of common customers, increase the merged system's bargaining leverage in negotiations with commercial payers that market their health plans to larger employers. Specifically, the unbundling requirement would allow payers to retain access to QVMC in the event of contract termination with NorthBay, or vice-versa—as is currently the case.

(130) Although the unbundling requirement provides a safeguard, it may not eliminate the possibility of the parties using their increased bargaining leverage to increase prices. The price increase cap on QVMC (i.e., the post-transaction prices that NorthBay negotiates for services provided by the legacy QVMC entity) offers additional protection for consumers. Anti-tiering and anti-steering provisions could allow a system to maintain high prices without sacrificing volume. That is, by allowing a system to be paid more for the provision of a given volume of services, these provisions could have the same ultimate effect as a price increase. A prohibition on these provisions reduces that risk.[98]



Cory Capps, PhD

November 6, 2026

Date

[98] Requiring an insurer to include all providers and facilities in a favorable tier or low cost-sharing rate, regardless of price, may deter insurers from offering narrow or budget-conscious health plans and increase prices (because including a high-price provider in a favorable tier would *increase* the volume that flows to that provider) and may deter rivals to the at-issue system from offering lower prices (because they would not gain volume or gain less volume by doing so, since the patient-facing out-of-pocket price would not be lower.). *See*, *e.g.*, US Department of Justice, "Justice Department Requires OhioHealth to Stop Using Anticompetitive Healthcare Contract Terms That Raise Costs for Ohio Patients," news release no. 26-663, June 16, 2023, https://www.justice.gov/opa/pr/justice-department-requires-ohiohealth-stop-using-anticompetitive-healthcare-contract-terms.

Appendix A. Curriculum Vitae of Cory S. Capps, PhD

A.1. Summary of experience

Cory Capps has 20 years of experience as an economist specializing in industrial organization, empirical methods, and antitrust, with a focus on the healthcare industry. He frequently advises and offers expert testimony on behalf of private firms and government agencies on market power and competition issues in the healthcare sector. He has also testified before the US Senate Antitrust Subcommittee on the competitive implications of vertical mergers in healthcare. Prior to joining Bates White, Dr. Capps was a Staff Economist at the Antitrust Division of the US Department of Justice (DOJ), where he concentrated on the analysis of competition in healthcare markets, including merger and civil non-merger investigations of health insurers and healthcare providers. Dr. Capps has been recognized by Lexology Index, formerly *Who's Who Legal*, as a leading competition economist since 2012, a Competition Thought Leader since 2021, and, as of 2026, a Global Elite Thought Leader.

In addition to Dr. Capps' broad healthcare experience, he has conducted economic analysis for investigations and cases involving a variety of industries such as airlines, software, semiconductors, cable TV and media, and online content providers. Dr. Capps has also provided economic consulting services to corporations on business and strategy issues.

Dr. Capps' academic career includes professorships at the University of Illinois at Urbana-Champaign and at Northwestern University's Kellogg School of Management. He has published widely in academic journals, including *RAND Journal of Economics*, *Journal of Economics and Management Strategy*, *Journal of Health Economics*, *Antitrust Bulletin*, and *Health Affairs*.

A.2. Education

- PhD, Economics, Northwestern University
- BA, Economics, University of Texas at Austin

A.3. Professional experience

- Partner, Bates White Economic Consulting, 2009–present

- Principal, Bates White Economic Consulting, 2007–2009
- Economist, Economic Analysis Group, Department of Justice, 2004–2007
- Associate Director, Center for Health Industry Management, Kellogg School of Management, Northwestern University, 2002–2004
- Research Assistant Professor, Department of Management and Strategy, Kellogg School of Management, Northwestern University, 2001–2004
- Visiting Economist, Economic Analysis Group, Department of Justice, 2001–2002
- Assistant Professor, Department of Economics, University of Illinois at Urbana-Champaign, 1999–2000

A.4. Selected experience

- Testifying expert on market definition, market power, and competitive effects on behalf of the FTC in *Federal Trade Commission v. U.S. Anesthesia Partners, Inc.*
- Retained as lead expert on behalf of Beaumont Health and Spectrum Health to analyze the potential competitive effects of their $13 billion integration. Analyses addressed concerns related to possible cross-market effects and vertical effects. Submitted white papers that showed the combination was unlikely to harm competition and presented findings to the Federal Trade Commission. Assisted with second request compliance. The FTC allowed the transaction to close.
- Retained on behalf of defendants in *In re Thomas Jefferson University and Albert Einstein Healthcare Network* as the Federal Trade Commission sought to enjoin their proposed merger. Evaluated market definition and competitive effects and analyzed the inpatient general acute care services market to evaluate the likely competitive effects of the merger, accounting for merger-specific efficiencies, cost savings, and other procompetitive effects. Authored expert report and testified at the preliminary injunction hearing. After a federal court rejected the FTC's request for a preliminary injunction and the Third Circuit declined to grant an emergency stay pending an appeal, the Commission dropped its appeal and allowed the merger to close.
- Retained on behalf of UnitedHealth Group’s health services subsidiary Optum to evaluate its proposed acquisition of Crystal Run Healthcare, a large practice of primary care providers in New York. Conducted cross-market evaluations and assisted the client in responding to the second request. The DOJ allowed the transaction to proceed.
- Retained by DOJ to evaluate the merger of Harvard Pilgrim Health Care and Tufts Health Plan. Evaluated competitive effects in markets for the sale of health insurance products in Massachusetts and New Hampshire. The parties agreed to divest Tufts’ commercial health

insurance entity in New Hampshire and Tufts Health Freedom Plan Inc. and merged their remaining operations.

- Expert advisor to the Massachusetts Health Policy Commission (HPC), an agency created in 2012 to increase value and access in the delivery of healthcare. Providing advice on methodological approaches and contributing to HPC market investigations and reports. Also providing economic analysis of competitive effects from select proposed healthcare provider transactions as part of HPC's Material Change Notices and Cost and Market Impact Reviews (MCN/CMIR).
- On behalf of the defendant and the intervenor in *21st Century Oncology v. State of Florida and Dr. Michael Katin* (US District Court for the Northern District of Florida), submitted expert reports regarding the economic literature on market concentration in the supply of physician services in geographic areas corresponding with or similar to counties. Plaintiffs had challenged a state law that disallows physician noncompete agreements where a single entity employs all physicians of a given specialty in any county in Florida. Opined that there is an economic basis for state policies, such as temporarily suspending non-compete enforceability, to prevent or ameliorate high concentration in physician services markets. The court allowed the law to stand and the case subsequently settled.
- On behalf of UnitedHealth's health services subsidiary Optum in its acquisition of DaVita Medical Group, assisted with presentations and submissions to the FTC and several state Attorney General offices addressing potential horizontal and vertical concerns arising from the proposed transaction. The investigation closed when the FTC approved the transaction after an 18-month review culminating in a divestiture in Southern Nevada but allowing the transaction to proceed in five other states. Separately, the Colorado Attorney General reached an agreement with short-term conduct remedies in Colorado Springs.
- Provided sworn testimony before the US Senate Subcommittee on Antitrust, Competition Policy, and Consumer Rights in June 12, 2019, hearing, "Your Doctor/Pharmacist/Insurer Will See You Now: Competitive Implications of Vertical Consolidation in the Healthcare Industry."
- Retained by the DOJ to evaluate the potential competitive effects of Sinclair Broadcast Group's proposed acquisition of Tribune Media. Analyzed potential competitive effects of the merger, which would have expanded Sinclair's reach to more than 70% of US homes. Tribune ultimately terminated the merger agreement.
- Retained on behalf of Emory Healthcare to analyze potential competitive effects of its proposed acquisition of DeKalb Medical Center. Presented analysis to the FTC and assisted Emory in its submission of letters discussing the limited competitive effects in the provision of inpatient hospital, physician, long-term care, and rehabilitation services. The FTC closed its investigation without issuing a second request.

- Retained on behalf of Wake Forest University Baptist Medical Center to assess likely competitive effects of its proposed acquisition of High Point Regional Health. Presented analyses to the FTC demonstrating that the transaction did not raise competitive concerns in the sale of inpatient hospital services and, separately, physician services. The FTC closed its investigation without issuing a second request.
- On behalf of a state Attorney General and Department of Health, evaluated the likely competitive effects of a proposed merger of two hospital systems, as well as potential cost savings and other potential benefits from the merger; provided guidance on regulatory approaches and potential conduct remedies.
- On behalf of Humana in connection with its proposed merger with Aetna, provided support with responses to the DOJ's second request, analyzed likely competitive effects and barriers to entry and exit in the sale of Medicare Advantage products, and analyzed likely competitive effects of the merger in markets for the sale of individual health insurance products on public exchanges.
- In *In re Seattle Children's Hospital*, provided expert testimony on the role of high value provider networks in containing health care costs and the value of competitive provider contracting.
- Provided expert analysis on behalf of the FTC in its proceedings seeking to block Cabell Huntington Hospital's acquisition of St. Mary's Medical Center in Huntington, WV. Analysis showed that the proposed acquisition would substantially lessen competition in general acute care inpatient hospital services and outpatient surgical services in the four-county area around Huntington and would likely result in higher costs and lower quality for patients. Also explained why certain proposed behavioral remedies would not offset the harms from lessened competition.
- On behalf of Highmark Inc., provided economic analysis of competitive effects and synergies in relation to Highmark's acquisition of Blue Cross of Northeastern Pennsylvania (BCNEPA).
- In *United States ex rel. Chris McGowan v. Kaiser Foundation Health Plan,* on behalf of Kaiser Foundation Health Plan (KFHP), provided expert analysis in connection with alleged False Claims Act violations concerning Medicare Advantage gain/loss bid margins. Authored expert report that identified logical and economic inconsistencies in plaintiff's allegations and that critically assessed and rebutted damages assertions made by plaintiff's expert.
- In *In re WellPoint, Inc. Out-of-Network "UCR" Rates Litigation*, led the team that supported the expert work of Dr. Eric M. Gaier on economic issues associated with class certification, including ascertainability of the putative classes, identification and measurement of economic harm, and reliability of class-wide damages methodologies on behalf of defendant WellPoint in connection with alleged underpayment of out-of-network benefits associated with alleged violations of Employee Retirement Income Security Act (ERISA), California Unfair Competition Law (UCL), breach of warranty, and breach of implied covenant of good faith obligations. The court denied plaintiffs' motion for class certification.

- Health Care Cost Institute (HCCI)/Robert Wood Johnson Foundation, member of the Technical Expert Panel for the Health Market Index (HMI) research project. The Robert Wood Johnson Foundation provided the HCCI with a planning grant to assess the feasibility of creating a measure of healthcare market performance—the HMI. Key components of the HMI are indices that measure medical productivity, provider competition, and prices for hospital and physician services.
- Provided detailed analysis on behalf of McKesson Corporation in connection with its $2.1 billion acquisition of PSS World Medical Inc. The analysis, which was presented to the FTC, showed that the proposed merger of the two medical and surgical supplies distributors was unlikely to lead to any anticompetitive effects. After McKesson pulled and re-filed its HSR, the FTC granted early termination of the waiting period and approved the merger without issuing a second request for additional information to the parties.
- In *Federal Trade Commission v. St. Luke's Health System, Ltd.*, led the team that supported the expert work of Professor David Dranove on behalf of the FTC and the State of Idaho. The agency, along with Idaho Attorney General and rival hospitals, challenged the acquisition of Saltzer Medical Group by St. Luke's Health System. Provided economic analysis support on issues of market definition, competitive effects, and efficiencies. Judge B. Lynn Winmill, of the US District Court in the District of Idaho, ordered St. Luke's to divest Saltzer Medical Group.
- In *Methodist Health Services Corp. v. OSF Healthcare System*, provided written and deposition testimony on behalf of Methodist addressing market definition, market power, and the competitive effects of alleged exclusionary conduct by OSF Healthcare.
- In *In re OSF Healthcare System, a corporation, and Rockford Health System*, retained as a testifying expert on behalf of the FTC to analyze the competitive effects of OSF Healthcare System's proposed acquisition of Rockford Health System in Rockford, Illinois. Provided written, deposition, and hearing testimony. After US District Judge Frederick Kapala found the FTC had demonstrated a likelihood of success on the merits and granted the FTC's request for a preliminary injunction, the parties abandoned the merger.
- In *In re Delta/AirTran Baggage Fee Antitrust Litigation*, provided support to testifying expert on common impact, predominance of common factors, and damages on behalf of AirTran in connection with an alleged conspiracy to reduce capacity in Atlanta and introduce a first-bag fee.
- In *In re Proposed Acquisition of Coventry Health Care of Missouri, Inc.; Healthcare USA of Missouri, L.L.C.; Cambridge Life Insurance Company and Coventry Health and Life Insurance Company by Aetna, Inc.*, Case No. 120920539C (2013), on behalf of the Missouri Department of Insurance, authored report and provided hearing testimony on the competitive effects of the proposed acquisition of Coventry by Aetna.

- Assisted Vermont-based Fletcher Allen Partners in securing clearance for its proposed affiliation with New York-based Community Providers, Inc. (CPI). Performed analyses that demonstrated a high degree of complementarity between FAP's and CPI's service offerings and footprints, as well as minimal head-to-head competition. The FTC permitted the waiting period to expire without further investigation.
- In *United States and State of Texas v. United Regional Health Care System*, retained as a testifying expert on behalf of DOJ to analyze the competitive effects of United Regional's exclusionary contracts with health insurers. DOJ reached a settlement with United Regional that prohibits the hospital from entering into contracts that improperly inhibit commercial health insurers from contracting with United Regional's competitors.
- In *Sheridan Healthcorp, Inc. v. AvMed Inc.*, authored expert reports and provided deposition testimony on issues of market definition, market power, and competitive effects on behalf of AvMed Health Plans, a Florida health insurer. The case settled before trial.
- On behalf of the Centers for Medicare and Medicaid Services (CMS), coauthored a report on strategic modifications to the long-term care insurance program proposed under the "CLASS Act." The report examined the competitive structure of the long-term care insurance industry and offered proposals to increase the likelihood that the CLASS option could maintain solvency while operating under a guaranteed issue mandate without medical underwriting.
- Member of the Economic Reference Group, Cooperation & Competition Panel, National Health Service, United Kingdom. Provided industry expertise and competition policy advice to the agency then charged with overseeing the application of antitrust and consumer protection laws to the healthcare sector in the United Kingdom.
- Retained by the Rhode Island Department of Health to analyze the competitive effects of the proposed merger of the two largest hospital systems in Rhode Island, Care New England and Lifespan. The parties ultimately abandoned the proposed merger.
- Provided economic consulting support to Delta Air Lines and Northwest Airlines in connection with the DOJ's investigation of their proposed merger. Evaluated antitrust risks, potential price effects, and developed a retrospective merger analysis for the airline industry. The merger consummated without divestitures.
- Coauthored a report on behalf of Alberta Health Services in Alberta, Canada, identifying structural changes that would improve the performance of its system for procuring certain healthcare services, such as cataract surgery.
- Advised the Netherlands Competition Authority (NMa) and the Netherlands Healthcare Authority (NZa) on competitive issues engendered by new legislation that partially deregulated pricing in the Dutch hospital sector.

- On behalf of a client in the financial data and software industry, analyzed bidding data and provided assistance to attorneys responding to agency requests in both the United States and Europe in connection with a transatlantic merger.

A.5. Papers and publications

- "A Conversation on the Draft Merger Guidelines" (with Leemore Dafny). ProMarket Merger Guidelines Symposium, *ProMarket*, August 10, 2023.
- "Cross-Market Mergers: Theories of Harm and Limiting Principles" (with Leyla Karakas and Tetyana Shvydko), *CPI Antitrust Chronicle* (May 2023).
- "Healthcare Antitrust Enforcement and Regulation by the States" (with Tetyana Shvydko and Zenon Zabinski), In *The Economics of US Healthcare: Competition, Innovation, Regulation, and Organizations*. Chicago: Stigler Center and Healthcare Initiative, 2023.
- "Stacking the Blocks: Vertical Integration and Antitrust in the Healthcare Industry" (with Nitin Dua, Tetyana Shvydko, and Zenon Zabinski), *CPI Antitrust Chronicle* (May 2021).
- "Antitrust Treatment of Nonprofits: Should Hospitals Receive Special Care?" (with Dennis Carlton and Guy David), *Economic Inquiry* 58, no. 3 (March 2020). Received 2020 Best Economic Inquiry Article Award.
- "Vertical Integration in Healthcare," written testimony submitted to the Senate Judiciary Committee Subcommittee on Antitrust, Competition Policy, and Consumer Rights, June 12, 2019, https://www.judiciary.senate.gov/imo/media/doc/Capps%20Testimony.pdf.
- "A Stronger Second Competitor? Analyzing the Competitive Effects of the Beth Israel Lahey Health Transaction" (with Kayuna Fukushima, Tetyana Shvydko, and Zenon Zabinski), *CPI Antitrust Chronicle*, May 2019.
- "The Continuing Saga of Hospital Merger Enforcement" (with Laura Kmitch, Zenon Zabinski, and Slava Zayats), *Antitrust Law Journal* 82, no 2 (2019).
- "The Effect of Hospital Acquisitions of Physician Practices on Prices and Spending" (with David Dranove and Christopher Ody), *Journal of Health Economics* 59 (2018): 139–52. Finalist, NIHCM 25th Annual Health Care Research and Journalism Awards—Research Award.
- "The Long, Slow Decline of Elzinga-Hogarty and What Comes After" (with David Dranove and Zenon Zabinski), *CPI Antitrust Chronicle* 1, no. 1 (Summer 2017).
- "Physician Practice Consolidation Driven by Small Acquisitions, So Antitrust Agencies Have Few Tools to Intervene" (with David Dranove and Christopher Ody), *Health Affairs* 36 (2017): 1556–63.

- "From Rockford to Joplin and Back Again: The Impact of Economics on Hospital Merger Enforcement," *Antitrust Bulletin* 59, no. 3 (2014): 443–78.
- "Healthcare Provider and Payer Markets" (with David Dranove), in *International Handbook of Antitrust Economics*, Roger Blair and Daniel Sokol, eds., chap. 4. New York: Oxford University Press, 2014.
- "The Economists' Supreme Court Amicus Brief in the Phoebe Putney Hospital Acquisition Case" (with David Dranove, Marty Gaynor, Robert Town, and others), Introduction by Robert Town, *Health Management, Policy and Innovation* 1, no.1 (2012): 60–71.
- "Strategic Analysis of HHS Entry into the Long-Term Care Insurance Market under the CLASS Plan" (with Leemore Dafny and David Dranove), White paper, *Centers for Medicare and Medicaid Services*, 2011.
- "Price Implications of Hospital Consolidation," *The Healthcare Imperative: Lowering Costs and Improving Outcomes*, Ch. 5, Institute of Medicine of the National Academies (2010): 177–187.
- "Buyer Power in Health Plan Mergers," *Journal of Competition Law and Economics* 6, no. 2 (2010): 375–91.
- "Hospital Closures and Economic Efficiency" (with David Dranove and Richard Lindrooth), *Journal of Health Economics* 29, no. 1 (2010): 87–109.
- "A Competitive Process for Procuring Health Services" (with Leemore Dafny and David Dranove), *University of Calgary SPP Research Papers: The Health Series* 2, no. 5 (2009).
- "Defining Hospital Markets for Antitrust Enforcement: New Approaches and Their Applicability to The Netherlands" (with Marco Varkevisser and Frederik T. Schut), *Health Economics*, Policy and Law 3, no. 1 (2008): 7–29.
- "Patient Admission Patterns and Acquisitions of 'Feeder' Hospitals" (with Sayaka Nakamura and David Dranove), *Journal of Economics and Management Strategy* 16, no. 4 (2007): 995–1030.
- "Hospital Consolidation and Negotiated PPO Prices" (with David Dranove), *Health Affairs* Mar./Apr. 2004, 175–181.
- "Competition and Market Power in Option Demand Markets" (with David Dranove and Mark Satterthwaite), *RAND Journal of Economics* 34, no. 4 (2003): 737–763.
- "Geographic Market Definition in Hospital Merger Cases" (with David Dranove, Shane Greenstein, and Mark Satterthwaite), Joint Statement before the *Federal Trade Commission and Department of Justice Hearings on Health Care and Competition Law and Policy* (Apr. 2004).
- "Antitrust Policy and Hospital Mergers: Recommendations for New Approaches" (with David Dranove, Shane Greenstein, and Mark Satterthwaite), *Antitrust Bulletin* (Winter 2002): 677–714.

- "The Silent Majority Fallacy of the Elzinga-Hogarty Criteria: An Application to Hospital Mergers" (with David Dranove, Shane Greenstein, and Mark Satterthwaite), NBER Working Paper No. 8216, Nov. 2002.

A.6. Presentations and Panels

- Brookings Institution, "Payer-Provider Vertical Integration: Trends, Tradeoffs, and Policy Options," Panelist, May 19, 2025
- ABA Antitrust Law Section Our Curious Amalgam podcast, "Is It All Connected? Exploring Cross-market Theories of Harm in Healthcare Mergers," Speaker, August 5, 2024
- American Health Law Association Annual Meeting, "The New Antitrust Agenda for Health Care Mergers," Panelist, June 26, 2024
- 24th Kellogg Business of Healthcare Conference, "Consolidation: The Future of Horizontal Consolidation among Health Care Systems," Panelist, January 27, 2024
- American Bar Association and NYSABA Antitrust Law Section Mergers Committee, "Healthcare Providers Beware! Guidance on M&A & Collaborations," Panelist, November 6, 2023
- 11th Annual Conference of the American Society of Health Economists, "The Impact of Hospital-Physician Integration on Referral Networks: Evidence from Oncologists," Discussant, Austin, TX, June 29, 2022
- Piecemeal: *Health Affairs* podcast, "Vertical Consolidation, Antitrust & Your Physician," February 23, 2022
- Health Management Academy, *Chief Legal Executive Forum*, Presentation and discussion of antitrust reviews of healthcare provider transactions, Rosslyn, VA, 2022
- Antitrust and Access to Care: Lessons from Market Consolidation and a Public Health Crisis symposium, DePaul College of Law, "Developments in Antitrust Law and Health Insurance Markets," Chicago, IL, March 10, 2022
- Stigler Center Healthcare Conference, "State Enforcement," Chicago, IL, October 21–22, 2021
- Kellogg Business of Healthcare Conference, "What's Next for Health Policy in the US?" Evanston, IL, February 2021 (virtual)
- George J. Stigler Center for the Study of the Economy and the State, University of Chicago, Workshop on the Economic Literature on the Industrial Organization of Health Care Markets, Chicago, IL, June 2020 (virtual)

- University of Pennsylvania Law Review, "The Post-Chicago Antitrust Revolution," Philadelphia, PA, October 2019
- Georgetown Law 2019 Global Antitrust Enforcement Symposium, "Merger Enforcement," Washington, DC, September 2019
- US Senate Subcommittee on Antitrust, Competition Policy, and Consumer Rights, "Your Doctor/Pharmacist/Insurer Will See You Now: Competitive Implications of Vertical Consolidation in the Healthcare Industry," Washington, DC, June 2019
- A Health Check on COPAs: Assessing the Impact of Certificates of Public Advantage in Healthcare Markets, Federal Trade Commission workshop, "Completed COPAs: Reviewing the Mission Health and Benefits Health COPAs," Washington, DC, June 2019
- Health Care and Pharmaceuticals Committee, ABA Section of Antitrust Law, "Yellow Light for MA Hospital Deal: Understanding the Beth Israel/Lahey Health Merger," Washington, DC, February 2019
- National Academy of Medicine, Leadership Consortium for a Value and Science-Driven Health System Members Meeting, "Consolidation in the Health Care Industry: Implications and Considerations for the Future," Washington, DC, September 2018
- State Center for State Enforcement of Antitrust and Consumer Protection Laws Health Care Antitrust Workshop, "Litigating with Limited Resources," Washington, DC, April 2018
- Tenth Annual Searle Center Conference on Antitrust Economics and Competition Policy, "The Proposed Aetna-Humana and Anthem-Cigna Transactions," Chicago, IL, September 2017
- Kellogg Health Enterprise Management Program, "The Anthem-Cigna and Aetna-Humana Mergers: A Post-Mortem," Chicago, IL, September 2017
- AAI Healthcare Roundtable, "Mergers of Healthcare Providers—Market Definition, Competitive Effects, and Efficiencies, "Washington, DC, February 2017
- Keynote Address, New Jersey Health Care Quality Institute's Winter All Council Conference, "The Urge to Merge—The Impact of Health System Mergers and Consolidation on Health Care Quality, Costs, and Access in NJ," West Trenton, NJ, November 2016
- ABA Antitrust Law Spring Meeting, "Healthcare Expansion: Good for Consumers?" Washington, DC, April 2016
- Manhattan Institute, "Race to the Top: How New York Can Better Encourage Value-Based Competition in Hospital Markets," New York, NY, March 2016
- Northwestern University School of Law's Global Competition Agency Economists Roundtable, "Empirical Methods in Antitrust," Washington, DC, February 2016

- Manhattan Institute, "Hospital Consolidation and Competition: The Role for States in a Complex and Rapidly Evolving Health Care Environment," New York, NY, December 2015
- AHIP National Health Policy Conference, "Healthcare Market Consolidation: The Future of Healthcare Pricing and Transparency," Washington, DC, March 2015
- DC Industrial Organization Conference, "Economics of Bargaining," Washington, DC, March 2015
- ABA Section of Antitrust Law, "Antitrust Healthcare: Confronting the New Merger Wave," Washington, DC, February 2015
- Excellus BlueCross BlueShield, "Healthcare Competition in an Era of Reform," Rochester, NY, October 2014
- AHLA Annual Meeting, "Payer Transactions and Consolidations," New York, NY, June 2014
- National Academy of Social Insurance, "Can Antitrust Policy Address Pricing Power in Health Care Markets?" Washington, DC, June 2014
- ABA Section of Antitrust Law, "Diagnosing Retrospective Studies in Hospital Merger Enforcement," Washington, DC, April 2014
- Kaiser Permanente Industrial Organization and Healthcare Workshop, Washington, DC, November 2013
- Catalyst for Payment Reform Market Power Summit, "Approaches to Monitoring Provider Consolidation and its Impact on Health Care Costs and Quality," Washington, DC, June 2013
- AHIP National Policy Forum, "Hospital Consolidation: The Good, the Bad and the Ugly," Washington, DC, March 2013
- Robert Wood Johnson Foundation Changes in Health Care Financing and Organization Initiative, "How Do Health Insurer Market Concentration and Bargaining Power with Hospitals Affect Health Insurance Premiums?" Washington, DC, November 2012
- Kellogg School of Management Business of Healthcare Conference, "Healthcare Consumerism and Accountability," Evanston, IL, November 2012
- Federal Trade Commission Microeconomics Conference, "Economics of Hospital Competition," Washington, DC, November 2012
- 10th Annual Southeastern Health Economics Study Group, Fairfax, VA, October 2012
- Catalyst for Payment Reform, "Expert Panel Discussion on Provider Market Power and Enhancing Competition," Washington, DC, June 2012
- ABA/AHLA Antitrust in Healthcare Conference, "New Economic Toolkit for Assessing Hospital Mergers," Washington, DC, May 2012

- American Health Lawyers Mid-Year Luncheon, "The Role of Economic Analysis in Healthcare Antitrust," Orlando, FL, February 2012
- The National Congress on Health Insurance Reform, "Antitrust—Making The Market Work," Washington, DC, January 2011
- America's Health Insurance Plans, "Accountable Care Organizations and Market Power Issues," Washington, DC, September 2010
- Cooperation and Competition Panel for National Health Service Taking the Temperature: Competition in Healthcare Conference, "Healthcare Antitrust in the United States," London, United Kingdom, September, 2010
- American Society of Health Economists, "Antitrust Treatment of Nonprofits: Should Hospitals Receive Special Care?" Ithaca, NY, June 2010
- Antitrust in Healthcare AHLA/ABA Conference, "Tying and Bundling in Healthcare Cases," Washington, DC, May 2010

A.7. Distinctions and honors

- Best *Economic Inquiry* Article Award 2020, for "Antitrust Treatment of Nonprofits: Should Hospitals Receive Special Care?" (with Dennis Carlton and Guy David), Economic Inquiry (March 2020)
- Finalist, NICHM Foundation Health Care Research Award, 2019
- Lexology Index (formerly *Who's Who Legal*) of Competition Economists, 2012–present
  - Thought Leader in Competition, 2021–present
  - Global Elite Thought Leader, 2026–present
- *Best Empirical Work by an EAG Staff Economist*, Department of Justice Economic Analysis Group, June 2005
- Dissertation Year Fellow, Northwestern University
- Phi Beta Kappa
- *Magna cum laude*, University of Texas at Austin

A.8. Courses taught

- Economics of Innovation and Technology

- Intermediate Microeconomics
- Industrial Organization (PhD)
- Competition and Strategy in Technology Markets (MBA)
- Strategy and Organizations (MBA)
- Healthcare Markets (MBA)

A.9. Professional associations

- American Economic Association
- American Society of Health Economists
- Industrial Organization Society
- American Health Lawyers Association

A.10. Referee

- *American Economic Review*
- *American Journal of Health Economics*
- *Econometrica*
- *Economic Inquiry*
- *Health Affairs*
- *Health Services Research*
- *International Journal of the Economics of Business*
- *Journal of Economics and Management Strategy*
- *Journal of Health Economics*
- *Journal of Industrial Economics*
- *Journal of Law and Economics*
- *RAND Journal of Economics*
- *Review of Industrial Organization*

Appendix B. Diversion ratio estimation

(131) As discussed in section IV.A.3, I use three methods to estimate diversion ratios between QVMC, NorthBay, and other hospitals: the semiparametric approach (with and without Kaiser included), conditional logit regression (with and without Kaiser included), and nested logit regression (provides a direct estimate of diversion to Kaiser). For the nested logit, I define a Kaiser hospital nest (the primary choice set for individuals covered by a Kaiser health plan) and a non-Kaiser hospital nest (the primary choice set for individuals covered by a non-Kaiser health plan).[99] One estimate from that model, the nesting parameter, estimates the extent to which non-Kaiser patients are more likely to substitute among hospitals within the non-Kaiser nest, rather than switching to a hospital in the Kaiser nest (and, in the process, switching to a Kaiser health plan). If the nesting parameter is 0, patients move without friction between the two nests. As the nesting parameter approaches 1, patients do not substitute across nests. For intermediate values of the nesting parameters, patients do substitute across nests, but only partially.

(132) The nesting parameter is estimated by relating whether patients choose the non-Kaiser nest to the expected value that patients receive from the set of hospitals in the non-Kaiser nest. For example, suppose a non-Kaiser hospital adds a new service line, which increases the expected value of the non-Kaiser nest. As the nesting parameter is closer to 1, that increase in expected value *would not* lead to Kaiser patients switching to the non-Kaiser nest, and all of the additional patients gained by the hospital with the new service line would come from non-Kaiser hospitals. If the nesting parameter equals 0, that hospital would gain additional patients proportionally from non-Kaiser *and* Kaiser hospitals. Intermediate values of the nesting parameter would correspond to less than proportional (but greater than 0) gains from Kaiser hospitals.

(133) In the remainder of this section, I provide technical details on the three methods I use to estimate diversion ratios and describe the estimation sample.

[99] I refer to these as "primary" choice sets because the discharge data show that some Kaiser health plan enrollees are discharged from non-Kaiser hospitals and, likewise, that some non-Kaiser enrollees are discharged from Kaiser hospitals.

B.1. Three approaches to estimating diversion ratios

B.1.a. Semiparametric estimation

(134) The semiparametric approach to estimating diversion ratios groups patient discharges into bins according to their characteristics.[100] The probability of choosing a hospital within each bin is assumed to be proportional to the share of the chosen hospital within each bin. Because of this assumption, estimates of choice probabilities are fully non-parametric. To translate choice probabilities into diversion ratios, error terms are assumed to follow the logit model, a parametric assumption (hence, the overall approach is "semiparametric").

(135) There are two main assumptions in the semiparametric approach. The first is the order of the binning variables based on their likely relative importance in determining patients' hospital choice. In order of likely importance, I use patient county, patient zip code, patient age category, MDC, surgical flag, DRG weight quartile, MSDRG code, and gender.[101] The second is the tuning parameter, which determines the minimum number of discharges within a bin.[102] Following Raval et al. (2017), I use a minimum bin size of 25. If a bin size is smaller than 25, the lowest priority binning variable is dropped, and the discharges are re-binned at the next highest level of aggregation. This process continues until each bin has at least 25 inpatient discharges.

(136) The semiparametric approach is relatively easy to implement and flexible in estimating patient choice probabilities. However, it can only be implemented with Kaiser hospitals either fully included or fully excluded. Without further refinement, the approach does not account for within-nest preferences (e.g., individual preferences for Kaiser vs. non-Kaiser hospitals).

(137) Diversion ratios are derived from the within-bin shares. The predicted probability that patient i belonging to bin b chooses hospital j equals the number of discharges in bin b that choose hospital j divided by the number of discharges in bin b:

$$s_{i(b)j} \equiv s_{j|b} = \frac{N_{jb}}{N_b}.$$

(138) The corresponding diversion ratio from hospital j to hospital h for that patient, $DR_{i(b),j\to h}$, is:

[100] Devesh Raval, Ted Rosenbaum, and Steven A. Tenn, "A Semiparametric Discrete Choice Model: An Application to Hospital Mergers," *Economic Inquiry* 55, no. 4 (2017): 1919–1944.

[101] Age categories include 0-17, 18-44, 45-64, and 65+.

[102] Raval, Rosenbaum, and Tenn (2017) ("A smaller value of [the tuning parameter] leads to a more flexible model with possibly many groups of small size, which will lead to large variance but low bias. A higher value of [the tuning parameter] leads to a coarser grouping, which will mean lower variance but higher bias.").

$$DR_{i(b),j\to h} = \frac{s_{i(b)h}}{1 - s_{i(b)j}}.$$

(139) This represents the estimated probability that a given patient who selected hospital *j* would divert to alternative hospital *h* if hospital *j* were not available. The overall diversion ratio from hospital *j* to hospital *h* is the average of patient level diversion ratios across discharges from hospital *j*:

$$DR_{j\to h} = \frac{1}{N_j}\sum_{i\in N_j} DR_{i(b),j\to h}.$$

B.1.b. Conditional logit regression

(140) Conditional logit regression is a parametric method to estimate choice probabilities and diversion ratios.[103] In this model, the combination of patient and hospital characteristics is assumed to determine the hospital that each patient selects, and the estimated parameters are those that best match the observed patient choices to the model-predicted patient choices. For example, a negative coefficient estimate on the "drive time from patient zip code to hospital location" explanatory variable measures the extent to which patients are less likely to select more distant hospitals.

(141) Figure 38 summarizes the explanatory variables, or covariates, that I include in the conditional logit and nested logit regressions. Only factors that vary across hospital alternatives for a patient can be included in the model. For example, a patient's demographic characteristic, such as gender or age bin, cannot be included in the model unless it is interacted with a variable that varies over hospital alternatives for that patient. Therefore, I include interactions of patient characteristics with travel time and interactions of patient characteristics with hospital fixed effects. Hospital fixed effects (i.e., a 0/1 indicator variable for each hospital) capture hospital-specific features that are not captured by the other variables in the model, such as overall hospital quality.

(142) It is not possible to model all hospital alternatives, particularly hospitals that are chosen infrequently by patients in the geography of interest. Therefore, I group hospitals with few discharges into a "Kaiser outside option" and "non-Kaiser outside option."

(143) Using the conditional logit model to estimate diversion ratios is analogous to using the semiparametric model, with the difference being that predicted probabilities (of each patient selecting each hospital option) are computed using the estimated regression coefficients rather than the within-bin choice probabilities. With those in hand, mapping predicted probabilities into individual and overall diversion ratios is the same.

[103] Devesh Raval, Ted Rosenbaum, and Steven A. Tenn, "A Semiparametric Discrete Choice Model: An Application to Hospital Mergers," *Economic Inquiry* 55, no. 4 (2017): 1919–1944.

Figure 38. Variables used in the conditional and nested logit regressions

Drive time and distance measures
Travel time (in minutes) from patient zip code centroid to exact hospital address
Whether the hospital alternative is within 30 minutes of the patient zip centroid
Whether the hospital alternative is outside the patient's county
Patient/discharge characteristics interacted with drive time
DRG weight associated with the discharge
Respiratory system (MDC = 4) discharge
Circulatory system (MDC = 5) discharge
Digestive system (MDC = 6) discharge
Musculoskeletal and connective tissue (MDC = 8) discharge
Surgery discharge
Pregnancy, childbirth, and puerperium (MDC = 14) discharge
Oncology discharge (ICD-10-CM = C00-C96)
Length of stay
Patient sex
Hospital characteristics
Hospital fixed effects
Patient county interacted with whether a hospital is included in the Kaiser outside option (models that include Kaiser)
Patient/discharge characteristics interacted with hospital fixed effects
DRG weight associated with the discharge
Respiratory system (MDC = 4) discharge
Circulatory system (MDC = 5) discharge
Musculoskeletal and connective tissue (MDC = 8) discharge
Surgery discharge
Pregnancy, childbirth, and puerperium (MDC = 14) discharge
Oncology discharge (ICD-10-CM = C00-C96)
Level 1 nested logit variables
Year-quarter indicator variables
Patient sex
Patient age group (child = 0–17, adult = 18–64, senior = 65+)

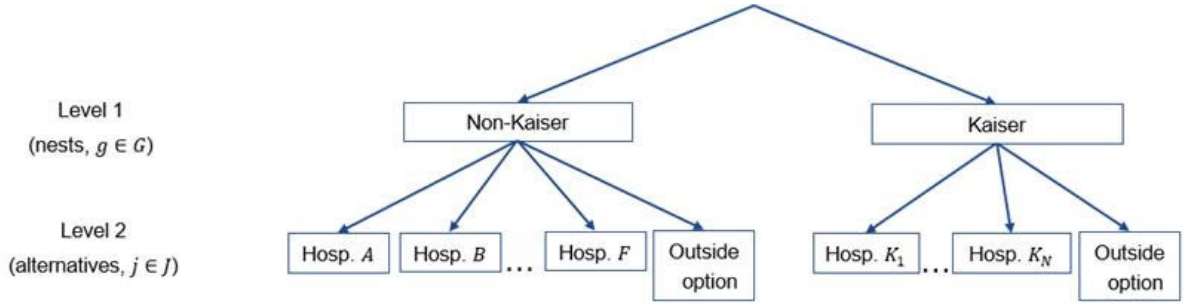
Notes: See https://www.aapc.com/codes/icd-10-codes-range/C00-D49/C00-C96/ for oncology related codes. Variables in blue sections are used in both conditional and nested logit regressions. The variables in the green section are only used in the nested logit regressions.

B.1.c. Nested logit regression

(144) Nested logit regression allows for estimation of the degree of substitution between Kaiser and non-Kaiser hospitals. Estimating the model requires imposing a choice structure by specifying the top-level nest. Here, the industry structure indicates that the more plausible top-level nest is the choice between (1) Kaiser hospitals (corresponding, generally, to a Kaiser health plan) and (2) non-Kaiser

hospitals (corresponding, generally, to a non-Kaiser health plan). Figure 39 demonstrates this structure.

Figure 39. Nested logit choice structure



(145) Similar to the conditional logit regression, a nested logit regression models a patient's selection of hospital as a function of patient characteristics, travel time to hospitals, hospital fixed effects, and interactions. *See* Figure 38. The difference is that the nested logit model allows for a patient level idiosyncratic nest preference that is common to all hospitals within a nest—this makes patients more likely, if required to change their hospital section, to divert to other same-nest hospitals as their current choice.[104]

(146) In the level 2 utility equation in Figure 39, I include the same set of explanatory variables as the conditional logit model defined in Figure 38. In a nested logit model, characteristics that do not vary within a discharge across hospital alternatives can be included in the level 1 utility equation. I include year-quarter flags, patient sex, and age group in the level 1 equation. In other words, nest choice (i.e., Kaiser vs non-Kaiser nests) can be correlated with these factors.[105]

(147) The diversion formulas from a nested logit model are more complicated because they incorporate three components: (1) patient switching to other within-nest hospitals, (2-a) patient switching across nests, and (2-b) among those who switch nests, patient switching to specific other-nest hospitals. The formulas also differ for diversion to a specific other same-nest hospital versus a specific other-nest hospital.[106]

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[104] In plainer terms, a "high correlation of preferences across choices within a nest" means that a consumer who is observed to choose an option inside a given nest is likely to place a higher-than-average value on other options *within that same nest*. Because of that higher-than-average value, such a consumer is more likely to substitute within-nest (e.g., from one non-Kaiser hospital to another). If the correlation of preferences is particularly high, then nearly all substitution will be within-nest. The estimated "nesting parameter" measures this correlation.

If the nesting parameter is 0, the model amounts to a conditional logit in which Kaiser hospitals have equal weight as non-Kaiser hospitals when calculating diversions between QVMC and NorthBay. A nesting parameter closer to 1 implies high within-nest correlation such that patients more commonly substitute within-nest.

[105] I use the *nlogit* command from Stata to estimate the nested logit model. StataCorp, *Stata 19 Choice Models Reference Manual* (College Station, TX: Stata Press, 2025).

[106] These formulas are presented in Christopher Conlon, Julie Holland Mortimer, and Paul Sarkis, "Estimating Preferences

B.2. Estimation sample and data processing

(148) The estimation sample for all three approaches includes 2024 HCAI inpatient discharges for patients who live in Solano, Napa, and Sonoma counties. These three counties cover 91% of QVMC and NorthBay discharges.

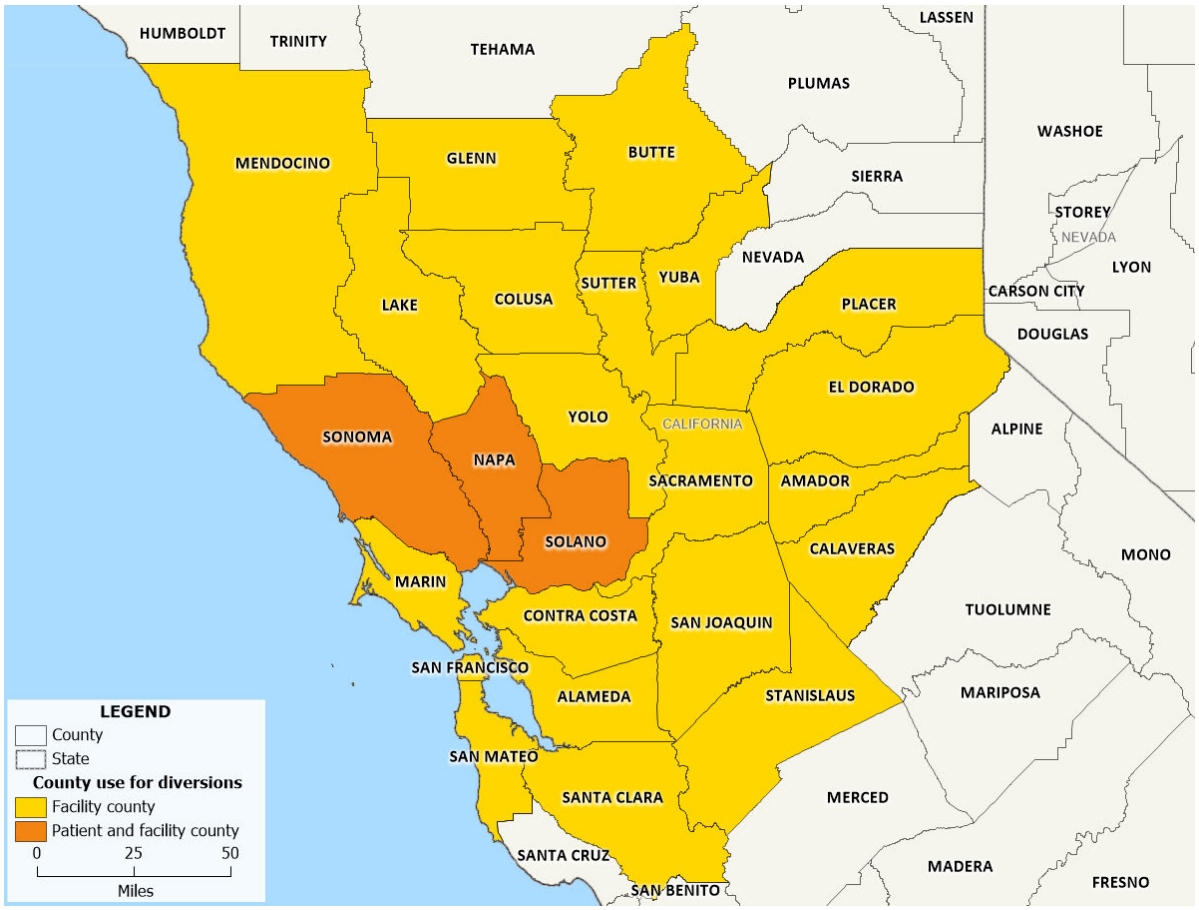
(149) Because a small number of patients are discharged from remote hospitals for presumably idiosyncratic reasons (e.g., due to travel or data errors), I only include discharges from hospitals that are located in a county that includes at least one zip code that is within 75 miles based on straight-line distance. This drops less than 1.0% of discharges for patients who live in Solano, Napa, and Sonoma counties. Figure 40 shows the set of included patient and hospital counties.

(150) Some outlying, smaller hospitals have too few discharges to model individually. I combine all hospitals that are located outside the focal counties and have fewer than 200 inpatient discharges from the focal counties into the "non-Kaiser outside option" and the "Kaiser outside option" groups.[107]

and Substitution Patterns from Second-Choice Data Alone," (Working Paper, 2026). *See also*, Kenneth E. Train, *Discrete Choice Methods with Simulation*, 2nd ed. (Cambridge University Press, 2009), https://eml.berkeley.edu/books/choice2.html; C. Conlon and J.H. Mortimer, "Empirical properties of diversion ratios," *RAND Journal of Economics* 52, no. 4 (2021): 693–726.

[107] The one exception is Adventist St. Helena, which I include because of its proximity to QVMC.

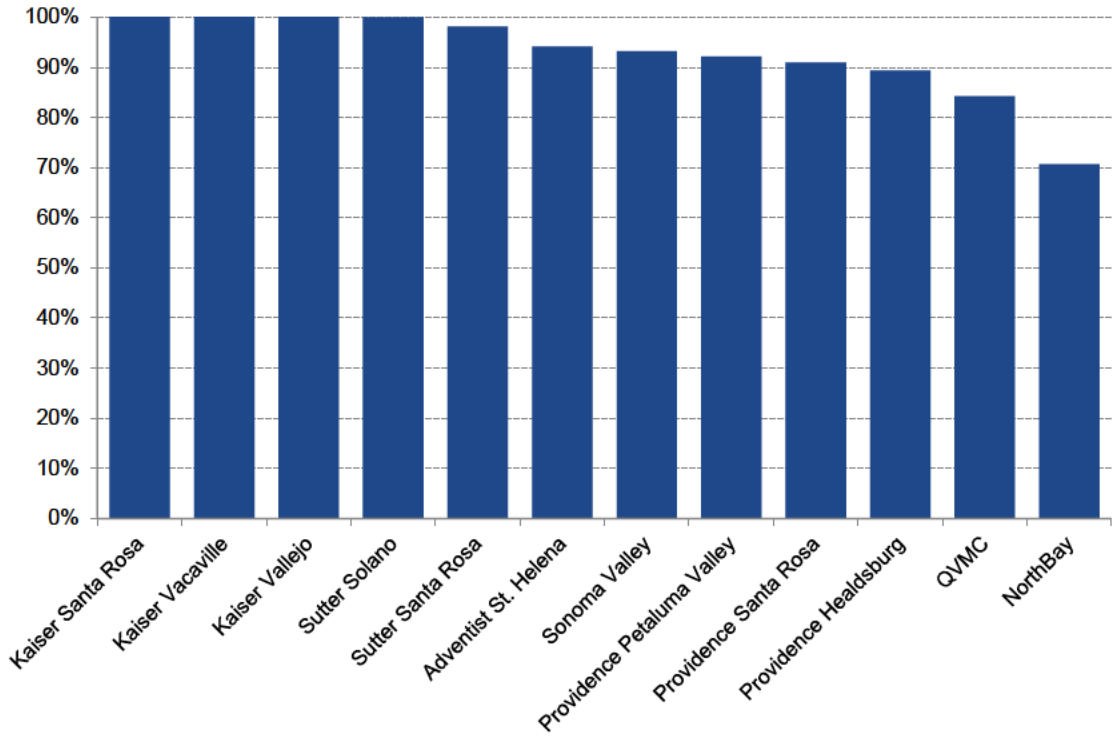
Figure 40. Patient and facility counties included in the diversion ratio estimation sample



Source: HCAI PDD, 2024.

Appendix C. Additional figures

Figure 41. Occupancy rates for hospitals in Napa, Solano, and Sonoma counties, based on staffed beds



Source: HCAI hospital quarterly financial and utilization reports, 2025.

Figure 42. Non-Kaiser GAC hospitals in Napa, Solano, and surrounding counties

System	Name	County	Hospital overview				Payer mix		
			Beds	Teach	% Cap.	Disch.	Medi-care	Medi-Cal	Comm.
NorthBay	NorthBay MC	Solano	154	No	74%	11,664	44%	39%	11%
	VacaValley Hospital	Solano	50						
QVMC	Queen of the Valley MC	Napa	70	No	91%	6,787	49%	31%	15%
Providence	Santa Rosa Mem. Hospital	Sonoma	170	No	94%	12,858	52%	29%	13%
	Petaluma Valley Hospital	Sonoma	24	No	86%	1,765	67%	21%	8%
	Healdsburg Hospital	Sonoma	28	No	85%	479	58%	31%	9%
Adventist	Lodi Memorial	San Joaquin	95	No	99%	8,390	46%	31%	18%
	St. Helena	Napa	62	No	90%	3,516	64%	13%	19%
	Clear Lake	Lake	15	No	106%	1,632	46%	19%	28%
CommonSpirit	St. Joseph's MC	San Joaquin	275	No	92%	21,644	45%	33%	20%
	Mercy San Juan MC	Sacramento	313	No	91%	21,623	48%	32%	16%
	Mercy General Hospital	Sacramento	205	No	93%	14,258	56%	24%	17%
	Methodist Hosp. of Sacram.	Sacramento	283	No	90%	11,109	40%	38%	19%
	Mercy Hospital of Folsom	Sacramento	76	No	97%	8,323	49%	17%	30%
	Woodland Memorial Hospital	Yolo	66	No	92%	4,773	46%	26%	25%
John Muir	Walnut Creek MC	Contra Costa	317	No	97%	22,335	47%	15%	34%
	Concord MC	Contra Costa	175	No	91%	11,369	61%	20%	13%
Sutter	Sutter MC, Sacramento	Sacramento	484	No	89%	36,990	35%	32%	27%
	Santa Rosa Regional Hospital	Sonoma	114	No	89%	10,174	43%	30%	22%
	Delta MC	Contra Costa	89	No	78%	6,722	45%	30%	21%
	Davis Hospital	Yolo	41	No	97%	5,837	33%	27%	31%
	Tracy Community Hospital	San Joaquin	39	No	87%	4,060	43%	20%	34%
	Sutter Solano MC	Solano	63	No	83%	3,781	54%	29%	12%
	Lakeside Hospital	Lake	22	No	89%	1,902	47%	36%	12%
	Novato Community Hospital	Marin	20	No	88%	1,895	70%	13%	14%
	Sutter Sug. Hosp. – N. Valley	Sutter	3	No	64%	273	59%	10%	24%
Tenet	San Ramon Regional MC	Contra Costa	42	No	97%	3,661	56%	6%	31%
	Doctors Hospital of Manteca	San Joaquin	31	No	115%	2,733	46%	9%	35%
U. of Calif.	UC Davis MC	Sacramento	660	Yes	95%	30,986	36%	36%	24%
Independent / Other	MarinHealth MC	Marin	235	No	58%	11,561	53%	23%	22%
	San Joaquin General Hospital	San Joaquin	147	No	92%	11,051	19%	64%	5%
	Contra Costa Regional MC	Contra Costa	109	No	106%	8,824	17%	78%	3%
	Dameron Hospital	San Joaquin	37	No	92%	2,800	48%	40%	9%
	Sonoma Valley Hospital	Sonoma	40	No	86%	811	76%	11%	8%

Sources: AHA data; HCAI PDD; HCAI hospital quarterly financial & utilization report, 2024; and system websites.
Notes: NorthBay hospitals are reported under one license in AHA and HCAI data, so data are aggregated for its two hospitals. Bed counts are staffed beds based on HCAI financial reports for all systems except NorthBay. Bed counts for NorthBay are licensed beds based on the NorthBay website (HCAI financial reports indicate a total staffed bed count of 183 for the two NorthBay hospitals, rather than 204). Discharges are based on HCAI inpatient discharge data. Capacity is calculated using the staffed bed count in HCAI financial reports according to the formula total inpatient days / (staffed beds * 365). Payer mix is calculated using HCAI inpatient discharge data.

Figure 43. Shares of discharges of commercial insured Napa County residents, including Kaiser

System	Hospital	Discharges	Share
NorthBay	**NorthBay Medical Center**	**20**	**0.9%**
Providence	Providence Queen of the Valley Medical Center	683	30.5%
	Providence Santa Rosa Memorial Hospital-Montgomery	27	1.2%
	Providence - Other	2	0.1%
Providence Total		**712**	**31.8%**
Kaiser	Kaiser Foundation Hospital & Rehab Center - Vallejo	648	28.9%
	Kaiser Foundation Hospital - Vacaville	125	5.6%
	Kaiser Foundation Hospital - Oakland/Richmond	80	3.6%
	Kaiser Foundation Hospital - Santa Rosa	75	3.3%
	Kaiser Foundation Hospital - Walnut Creek	40	1.8%
	Kaiser Foundation Hospitals - Other	87	3.9%
Kaiser Total		**1,055**	**47.1%**
Sutter	Sutter Solano Medical Center	34	1.5%
	California Pacific Medical Center - Van Ness Campus	29	1.3%
	Sutter - Other	58	2.6%
Sutter Total		**121**	**5.4%**
Adventist	Adventist Health St. Helena	115	5.1%
	Adventist - Other	3	0.1%
Adventist Total		**118**	**5.3%**
University of California	UCSF Medical Center	88	3.9%
	University of California - Other	24	1.1%
University of California Total		**112**	**5.0%**
Other/Independent	Other/Independent Total	104	4.6%
Pre-HHI		**3,310**	
Post-HHI		**3,286**	
Change in HHI		**-24**	

Source: HCAI PDD, 2024.
Notes: Includes Kaiser hospitals. Excludes normal newborns and non-GAC procedures.

Figure 44. Shares of discharges of commercially insured Solano County residents, including Kaiser

System	Hospital	Discharges	Share
NorthBay	**NorthBay Medical Center**	**1,063**	**12.2%**
Providence	Providence Queen of the Valley Medical Center	77	0.9%
	Providence - Other	8	0.1%
Providence Total		**85**	**1.0%**
Kaiser	Kaiser Foundation Hospital - Vacaville	2,314	26.7%
	Kaiser Foundation Hospital & Rehab Center - Vallejo	1,663	19.2%
	Kaiser Foundation Hospital - Oakland/Richmond	254	2.9%
	Kaiser Foundation Hospital - Walnut Creek	234	2.7%
	Kaiser Foundation Hospital - Roseville	144	1.7%
	Kaiser Foundation Hospital - San Francisco	97	1.1%
	Kaiser Foundation Hospitals - Other	335	3.9%
Kaiser Total		**5,041**	**58.1%**
Sutter	Sutter Davis Hospital	463	5.3%
	Sutter Solano Medical Center	336	3.9%
	Sutter Medical Center, Sacramento	202	2.3%
	Sutter - Other	286	3.3%
Sutter Total		**1,287**	**14.8%**
University of California	UCSF Medical Center	279	3.2%
	University of California Davis Medical Center	196	2.3%
	University of California - Other	13	0.1%
University of California Total		**488**	**5.6%**
John Muir	John Muir Medical Center-Walnut Creek Campus	336	3.9%
	John Muir Medical Center-Concord Campus	100	1.2%
John Muir Total		**436**	**5.0%**
Other/Independent	Other/Independent	282	3.2%
Pre-HHI		**3,800**	
Post-HHI		**3,822**	
Change in HHI		**22**	

Source: HCAI PDD, 2024.
Notes: Includes Kaiser hospitals. Excludes normal newborns and non-GAC procedures.

Figure 45. Shares of discharges of commercially insured residents of QVMC's 75% PSA excluding zip code 94534, excluding Kaiser

System	Hospital	Discharges	Share
NorthBay	**NorthBay Medical Center**	**19**	**1.5%**
Providence	Providence Queen of the Valley Medical Center	632	51.5%
	Providence Santa Rosa Memorial Hospital-Montgomery	55	4.5%
	Providence - Other	3	0.2%
Providence Total		**690**	**56.3%**
Sutter	California Pacific Medical Center - Van Ness Campus	39	3.2%
	Sutter Solano Medical Center	34	2.8%
	Sutter Santa Rosa Regional Hospital	25	2.0%
	Sutter - Other	39	3.2%
Sutter Total		**137**	**11.2%**
University of California	UCSF Medical Center	92	7.5%
	University of California Davis Medical Center	18	1.5%
	University of California - Other	2	0.2%
University of California Total		**112**	**9.1%**
Adventist	Adventist Health St. Helena	69	5.6%
	Adventist - Other	3	0.2%
Adventist Total		**72**	**5.9%**
Other/Independent	MarinHealth Medical Center	79	3.1%
	Sonoma Valley Hospital	34	1.4%
	Other/Independent	166	6.6%
Other/Independent Total		**279**	**11.1%**
Pre-HHI		**3,476**	
Post-HHI		**3,148**	
Change in HHI		**-328**	

Source: HCAI PDD, 2024.
Note: Shares exclude zip code 94534, which is in Solano County and accounts for 2% of QVMC's discharges, from QVMC's 75% PSA.

Figure 46. Shares of commercially insured discharges by service line in QVMC's 75% PSA, including Kaiser

MDC	MDC description	Disch.	Party shares			Kaiser	Other
			QVMC	NorthBay	Comb.		
14	Pregnancy, childbirth, and puerperium	994	24.0%	4.4%	28.5%	58.0%	13.5%
15	Newborn and other neonates (perinatal period)	498	22.9%	3.4%	26.3%	56.6%	17.1%
6	Digestive system	305	17.4%	6.2%	23.6%	48.2%	28.2%
18	Infections and parasitic DDs (systemic or unspecified sites)	287	17.4%	8.4%	25.8%	52.3%	22.0%
5	Circulatory system	257	24.9%	5.8%	30.7%	40.5%	28.8%
8	Musculoskeletal and connective tissue	177	9.0%	7.3%	16.4%	40.7%	42.9%
1	Nervous system	169	22.5%	4.1%	26.6%	41.4%	32.0%
7	Hepatobiliary system and pancreas	150	20.7%	4.7%	25.3%	39.3%	35.3%
4	Respiratory system	130	15.4%	5.4%	20.8%	49.2%	30.0%
10	Endocrine, nutritional, and metabolic system	105	25.7%	2.9%	28.6%	32.4%	39.0%

Source: HCAI PDD, 2024.
Notes: Includes all Kaiser enrollees. Excludes normal newborns, non-GAC discharges, specialty and children's hospitals. Restricted to top 10 MDCs.

Figure 47. Kaiser and non-Kaiser discharges at Napa and Solano hospitals, 2021-2024

Facility	% Kaiser enrollees	% non-Kaiser enrollees
NorthBay	8.2%	91.8%
QVMC	7.2%	92.8%
Adventist St. Helena	3.6%	96.4%
Sutter Solano Medical Center	0.9%	99.1%

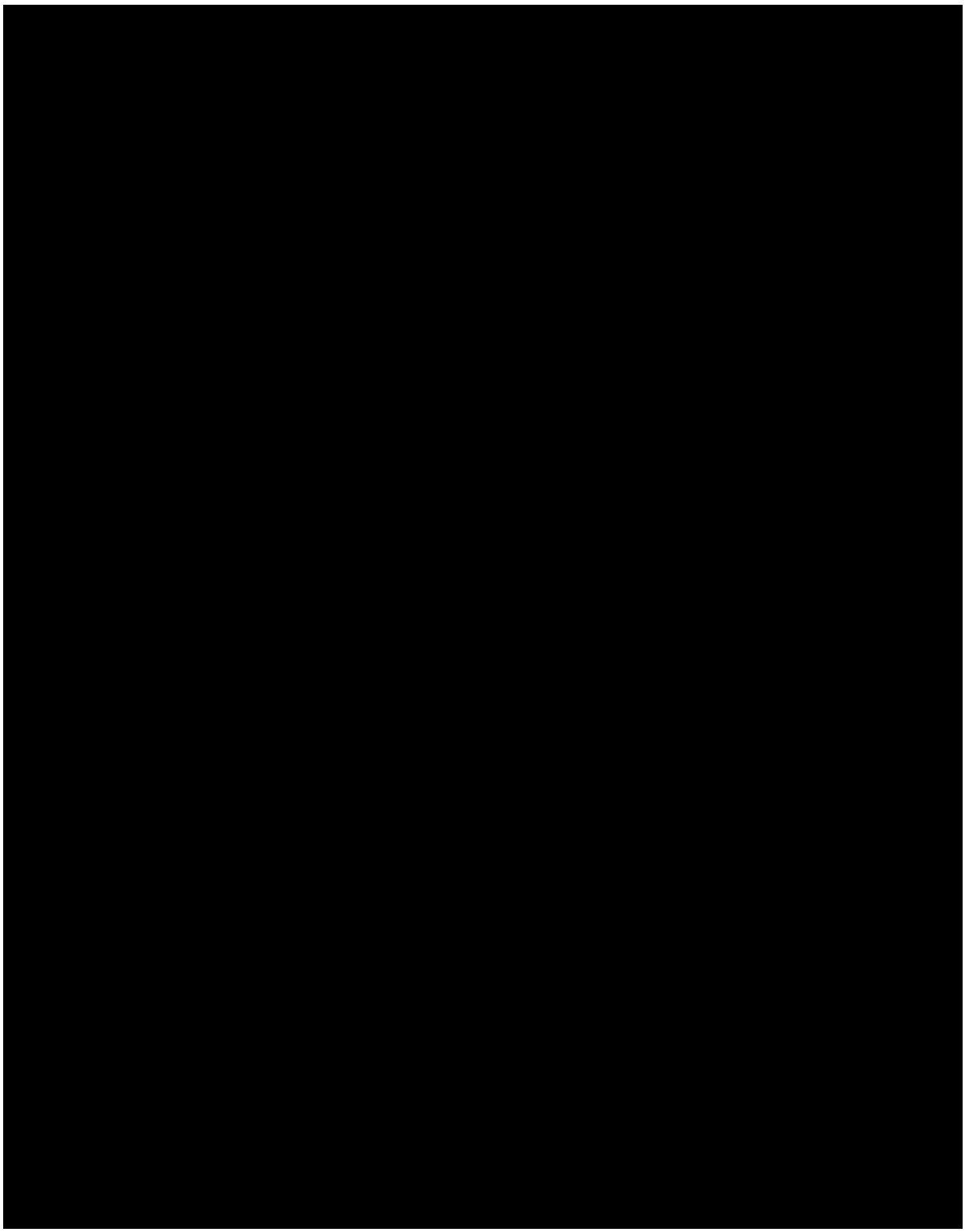
Source: HCAI PDD.
Notes: Limited to commercial discharges. Discharges missing payer information are grouped as non-Kaiser enrollees.

Figure 48. Nested logit diversions with capacity constraints

	Diversions from QVMC to		Diversions from NorthBay to		Nesting parameter
	North Bay	Kaiser hospitals	QVMC	Kaiser hospitals	
Baseline	8.3%	21.7%	5.0%	21.5%	0.68
Sutter Solano Medical Center capacity constrained	8.8%	22.0%	5.5%	22.0%	
Sutter Solano Medical Center, Kaiser Vallejo/Vacaville constrained	9.2%	19.3%	5.9%	17.1%	
Adults only	8.4%	18.0%	5.8%	17.7%	0.75

Source: HCAI PDD, 2024.
Notes: Limited to commercial discharges in Solano, Napa, and Sonoma counties, except where otherwise noted. The adults only sample is restricted to patients age 18–64.

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