Health Affairs Scholar, 2024, **2**(6), qxae056
https://doi.org/10.1093/haschl/qxae056
Advance access publication: June 24, 2024
Research Article

Health Affairs Scholar
EMERGING & GLOBAL HEALTH POLICY
OXFORD

Acquisitions of safety-net hospitals from 2016–2021: a case series

Christian Wood[1,*], Xinwei Chen[1], William Schpero[2,3], Paula Chatterjee[1,4]

[1]Department of Medicine, Division of General Internal Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104, United States
[2]Division of Health Policy and Economics, Department of Population Health Sciences, Weill Cornell Medical College, New York, NY 10075, United States
[3]Center for Health Equity, Cornell University, New York, NY 10075, United States
[4]Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, PA 19104, United States

*Corresponding author: Department of Medicine, Division of General Internal Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104, United States. Email: Cwood41@jh.edu

Abstract

Safety-net hospitals have recently become targets of acquisition by health systems with the stated purpose of improving their financial solvency and preserving access to safety-net services. Whether acquisition achieves these goals is unknown. In this descriptive case series, we sought to determine the factors that contribute to safety-net hospital acquisition, and identify whether safety-net services are preserved after acquisition. We examined 22 acquisitions of safety-net hospitals from 2016 to 2021 and described characteristics of the acquired safety-net hospitals, their acquiring systems, and the operational fate of acquired hospitals. Relative to other hospitals in the same Hospital Referral Region in the year prior to acquisition, acquired safety-net hospitals tended to be smaller and have lower occupancy rates. Acquiring systems were geographically concentrated, with only 6 of 20 systems operating in more than 1 state. Safety-net hospitals frequently offered typical safety-net services prior to acquisition. However, after acquisition, 2 of the 22 acquired safety-net hospitals lost safety-net services, 3 hospitals ceased inpatient services, and 1 hospital closed entirely. These findings suggest that acquisition of safety-net hospitals may be associated with trade-offs related to the provision of safety-net services for the communities that stand to benefit from them most.

Key words: safety-net hospitals; hospital acquisitions; safety net.

Introduction

Safety-net hospitals are a vital component of the US health system, acting as an important health care access point for low-income populations.[1] Despite their necessity, many safety-net hospitals face formidable financial challenges given their characteristic high proportions of uncompensated and undercompensated care.[2,3] In recent years, safety-net hospitals have become targets of acquisition by large health systems with the stated purpose of improving their financial solvency and preserving access to safety-net services.[4-6] Hospital mergers have generally been associated with significant increases in prices, with limited evidence for quality improvement.[7-9] However, the specific consequences of mergers and acquisitions among safety-net hospitals are not known.

Acquisitions of safety-net hospitals that serve an essential community purpose may be beneficial if the acquiring system can provide financial stability to prevent closures and maintain access to care for low-income populations.[10] If acquisitions result in increased investment, they could lead to an expansion of services for patients within the hospital's catchment area and potential improvements in quality.[11-13] Conversely, acquisitions may have a negative impact if the acquired safety-net hospitals are forced to cut back on essential safety-net services or close due to incompatibility with the acquiring system's goals or insurmountable financial strain.[10,13]

In this study, we describe a case series of safety-net hospital acquisitions from 2016–2021. We first describe characteristics of safety-net hospitals in the years leading up to their acquisition, with particular attention to their financial health and payer mix. We then characterize the systems that acquired these safety-net hospitals. Finally, we examine changes in the types of safety-net services provided by the acquired hospitals after acquisition. Understanding the fate of safety-net hospitals that have been acquired in recent years is essential to informing policies that seek to support systems that serve uninsured and low-income patients.[2]

Data and methods

Data sources and variables

We used public hospital–level data from the Centers for Medicare and Medicaid Services (CMS) Change in Hospital Ownership (CHOW) dataset for 2016–2021 to identify hospitals that had been acquired over the study period. The CHOW dataset is derived from the Provider Enrollment, Chain, and Ownership System and reflects all transactions when a Medicare-enrolled provider organization is purchased

Received: February 20, 2024; Revised: April 26, 2024; Accepted: May 21, 2024

by another organization; both the seller and buyer are required to report these transactions to CMS.[14] We also used data from the 2016–2021 American Hospital Association's (AHA's) Annual Survey to determine hospital size and services offered, including intensive care, trauma, burn care, neonatal intensive care, obstetrics, psychiatry, HIV/AIDS treatment, primary care, social work, case management, transportation, and regular community health screenings. We chose to focus on this subset of services because they have been either defined by the Medicaid and CHIP (Children's Health Insurance Program) Payment and Access Commission (MACPAC) as typical safety-net hospital services or are services designed to address social determinants of health.[15] We then obtained financial information for these hospitals, including net patient revenue, operating margin, total margin, uncompensated care as a share of operating expenses, Disproportionate Share Hospital (DSH) percentage, percentage of inpatient days attributed to patients insured by Medicaid, percentage of inpatient days attributed to patients insured by Medicare, and Medicare inpatient case-mix index using data reported to CMS' Healthcare Cost Report Information System. Each hospital was assigned to its Hospital Referral Region (HRR) using the Dartmouth Atlas of Health Care.[16] Data on health system characteristics, including system size and provision of safety-net care, were obtained through the 2016, 2018, and 2020 versions of the Agency for Healthcare Research and Quality's (AHRQ's) Compendium of US Health Systems ("Compendium").[17]

Defining safety-net hospital acquisitions

We limited our analysis to general, acute-care, short-term hospitals as defined in the AHA Annual Survey. We used a composite definition to define safety-net status on the basis of prior work indicating that there is no universal definition of safety-net hospitals and that different definitions capture distinct dimensions of safety-net service to communities.[12] Hospitals met safety-net status in our analysis if they were in the top quartile in the state in the year prior to acquisition for uncompensated care as a share of operating expenses, allowable DSH percentage (DSH index), or Medicaid share of inpatient days. Given the known heterogeneity across different definitions used to characterize safety-net hospitals,[3] we evaluated the extent to which there was overlap across these 3 component definitions. We used the most recent year within the 2-year time period preceding acquisition to define safety-net status. Among the 40 acquired hospitals in the sample described below, there were 12 hospitals for which the latest available pre-acquisition data were from 2 years prior to acquisition (Table S1).

The CHOW identifies 3 types of transactions: changes in ownership, in which an organization's Medicare Identification Number is transferred to the purchaser; acquisitions or mergers, in which the seller's Medicare Identification Number is dissolved; and consolidation, in which the combining entities form a new business organization with a new Medicare Identification Number. We limited our analysis to acquisitions or mergers. Hospitals that underwent other changes in ownership (such as consolidations) were not included, as these changes are generally reflective of changes in ownership groups or business structure (converting from a corporation to a limited liability company, for example) that most often would not impact day-to-day operations of the hospital. Throughout the study, hospitals were tracked using their Medicare Identification Number. Provider numbers changed for a subset of hospitals after acquisition, which was reflected in the CHOW dataset and independently verified using the American Hospital Directory's website. For this reason, we focused our analyses on hospital characteristics in the pre-acquisition period and limited post-acquisition analyses to those that were not reliant on distinguishing provider numbers between the acquired safety-net hospital and the acquiring hospital or system.

Analysis

Characteristics of acquired safety-net hospitals

We first describe the characteristics of acquired safety-net hospitals, including their size, ownership status, state, and year of acquisition. For continuous variables (number of beds, total admissions, bed occupancy, full-time employees, net revenue, total margin, operating margin, uncompensated care as a share of operating expenses, DSH percentage, Medicaid inpatient day share, Medicare inpatient day share, and case-mix index), we present raw mean values. In the Supplement (Table S4), we also present mean values for these variables among hospitals, inclusive of the acquired hospital, within the same HRR as the acquired safety-net hospital to compare them with other hospitals in the same market in the year prior to acquisition.

We also describe changes in financial measures among non–safety-net hospitals in the same HRRs as acquired safety-net hospitals. For a given HRR where a safety-net hospital was acquired, we calculated mean changes in financial characteristics among non–safety-net hospitals in that HRR for the 1 year before relative to after acquisition of the safety-net hospital. To benchmark these changes, we also present means and SDs in the terminal year of the study period (2021) among all non–safety-net hospitals in the same HRRs where safety-net hospitals were acquired. For HRRs where safety-net hospitals were acquired in 2021 (hospitals 17–22), we were unable to calculate changes as post-year data were not included in the study period. We also excluded HRRs with fewer than 3 non–safety-net hospitals, and winsorized financial measures at the 1st and 99th percentiles, given known outliers that can influence measures of central tendency.

Characteristics of acquiring hospital systems

We identified acquiring hospital systems also using the CHOW dataset and obtained information on system size, geographic penetration, services provided, and whether safety-net hospital care was provided through that system using data from the AHRQ Compendium of US Health Systems. We used 2016 Compendium data for systems that acquired hospitals in 2016 and 2017; 2018 Compendium data for systems that acquired hospitals in 2018 and 2019; and 2020 Compendium data for systems that acquired hospitals in 2020 or 2021.

The Compendium provides 2 variables that indicate whether a given system provides safety-net care. The first indicates whether a system contains a hospital that has a high DSH index, defined as those in the highest quintile across all hospitals nationally. Because our "high DSH" variable was defined relative to a hospital's HRR rather than relative to the nation as a whole, these 2 definitions are independent of one another. It was therefore possible to categorize a hospital as having a high DSH index without the Compendium categorizing that hospital's system as having a hospital with a high DSH index, or vice versa. The second Compendium variable categorized systems as having a

high uncompensated care burden if the ratio of uncompensated care to operating expenses across all hospitals within a given system was in the top quintile of all systems nationally. Given that our variable for uncompensated care was defined at the level of the hospital, this definition was also independent of the Compendium's system-level variable (ie, if we categorized a hospital as having a high uncompensated care burden, this did not mean that the system was necessarily flagged as providing high levels of uncompensated care).

Outcomes of safety-net hospital acquisition

Acquired safety-net hospitals may have experienced a variety of different trajectories after undergoing acquisition. On one hand, the financial and operational circumstances of a safety-net hospital may have improved after acquisition, such that the hospital was able to scale up its service capabilities. This may be particularly evident for safety-net hospital services that are typically considered to be essential for the care of low-income patients, but unprofitable for health care facilities. On the other hand, safety-net hospitals may have experienced greater hardship after acquisition, particularly if the incentives of the acquiring system did not align with those of the acquired hospital, or if the safety-net hospital was not able to prove its profitability to the acquiring system. In these situations, safety-net hospitals may have been more likely to downsize their services and potentially close.

To describe trends in services that a safety-net hospital offered before and after its acquisition, a panel dataset was generated that described whether a hospital offered specific services from 2016 to 2021. We focused on whether there was a loss of services after safety-net hospital acquisition, including inpatient medical care, trauma care, burn services, HIV/AIDS care, inpatient psychiatric services, neonatal intensive care, obstetrics and gynecology services, primary care, social work, case management, provision of transportation for medical services, and provision of community health screenings. Several of these services have been defined by MACPAC as safety-net services, while others were chosen on the basis of their focus on the structural determinants of health.

Finally, in the post-acquisition period, we determined an acquired safety-net hospital's operational status, which we defined as the hospital's ability to provide inpatient clinical services as of December 2022 (study endline). This was determined through information found on the American Hospital Directory, which was then cross-referenced with information on the website of each individual hospital.

This study did not involve the use of human subjects or patient health information and was therefore deemed exempt by an institutional review board. Statistical analysis was performed using Stata/BE, version 17.0 (StataCorp, College Station, TX).

Limitations

This study had several limitations. First, the small number of safety-net hospital acquisitions included in our study may limit its generalizability to other acquisition events. Second, due to changes in provider identification numbers following acquisitions, we were only able to ascertain whether certain hospital services were lost at the level of the hospital, rather than gained. In the Healthcare Cost Report Information System, the acquired hospital frequently adopted the Medicare provider identification number of the acquiring entity. While the AHA's Annual Survey included a unique identifier for hospitals that remained constant before and after acquisition, all the acquired hospitals had missing data in the survey following acquisition. This is likely because their reporting is subsumed by the acquiring entity in the post-acquisition period. For this reason, we were unable to reliably assess for changes in hospital finances, efficiency gains, or operational changes after acquisition due to inconsistencies related to whether an acquired hospital adopted a common identifier with the acquiring system or not.

Data from the AHA's Annual Survey on service provision were also limited by missing observations in the post-acquisition period for 13 of the observed hospitals. The rationale for describing losses in services (instead of potential gains) was again due to the frequent consolidation of provider numbers after acquisition. If a service dropped off after consolidation in the AHA survey data, we knew that neither hospital (acquired or acquiring) offered the service any longer and, thus, this was more likely to reflect a true loss. If a service was gained, however, we were unable to tell whether the acquired safety-net hospital truly gained the service or whether it was simply due to the consolidation of provider numbers and reflected services offered by acquiring entity.

Results

Characteristics of acquired hospitals

We identified 40 short-term, acute-care hospitals that were acquired from 2017–2021, of which 22 had safety-net status based on our composite definition. Among this sample, 5 hospitals met all 3 criteria used to define safety-net hospital, and in general, there was more overlap across safety-net hospitals identified based on Medicaid share and DSH index compared with safety-net hospitals identified using uncompensated care share (Table S2). Among the total sample, 15 hospitals were nonprofit, 5 were for-profit, and 2 were government-operated (Table 1). Although sample sizes were small, acquired safety-net hospitals defined solely based on uncompensated care shares ($n = 10$ hospitals) were nearly always nonprofit hospitals. In contrast, acquired safety-net hospitals defined by either Medicaid share ($n = 2$ hospitals) or DSH index ($n = 1$ hospital) or a combination of the 2 measures ($n = 8$ hospitals) included almost all of the for-profit hospitals in the sample. There were no safety-net hospital acquisitions in 2016.

Relative to other hospitals in the same HRR in the year prior to acquisition, acquired safety-net hospitals tended to be smaller and have lower occupancy rates (Table S3). Acquired safety-net hospitals provided higher levels of uncompensated care than other hospitals in the same HRRs, had higher DSH patient percentages, and served a higher percentage of Medicaid patients. Acquired safety-net hospitals had lower total margins relative to other hospitals in the same HRR in the year prior to acquisition (Table S3). Case-mix indices varied relative to other hospitals in the same HRR.

In general, the number of hospital admissions declined among nonacquired, non–safety-net hospitals in the same HRRs where safety-net hospital acquisitions took place. The majority of HRRs also demonstrated small increases in uncompensated care shares among nonacquired, non–safety-net hospitals (Table S4).

Characteristics of acquiring health systems

The 22 safety-net hospitals were acquired by 20 unique health systems; 2 systems (systems B and F; Table S5) acquired more

Table 1. Pre-acquisition characteristics of acquired safety-net hospitals.

Hospital	Year acquired	State	Ownership	Beds	Total admissions	Occupancy (%)	Full-time employees	Net revenue per bed ($ thousands)	Total margin (%)	Operating margin (%)	Uncompensated care (%)	DSH percentage (%)	Medicaid share (%)	Medicare share (%)	Case-mix index
1[a]	2017	Florida	Nonprofit	464	22 003	69.3	2140	873.9	4.3	4.2	6.6	48.9	16.9	51.8	1.8
2[a,b]	2018	Florida	For profit	201	4745	25.2	306	265.2	−9.5	−9.5	21.7	35.1	17.9	52.9	1.4
3[a,b,c]	2018	Ohio	For profit	373	21 573	22.3	578	178.9	−47.6	−47.6	13.8	33.9	27.0	56.7	1.7
4[c]	2018	Oklahoma	For profit	141	4671	26.8	504	728.6	−5.6	−5.6	10.0	29.6	23.1	47.1	1.9
5[b]	2018	Pennsylvania	Nonprofit	129	4973	59.9	572	619.3	13.4	13.3	8.9	16.5	10.7	75.5	1.4
6[b]	2019	California	Nonprofit	202	8334	33.2	957	727.0	−11.0	−11.1	13.9	46.5	30.8	46.1	1.8
7[b]	2019	California	Nonprofit	93	2816	43.7	310	525.8	−2.2	−2.2	15.8	40.4	31.7	47.7	1.4
8[b]	2019	California	Government	48	2854	68.8	348	1152.0	−13.9	−71.2	25.2	55.3	24.9	47.7	1.7
9[a,c]	2019	Indiana	Nonprofit	75	1593	23.1	362	498.7	−6.5	−6.5	4.1	39.6	29.0	30.8	1.1
10[b]	2019	Louisiana	Nonprofit	57	2608	47.5	389	1317.7	−2.3	−2.3	11.2	28.2	18.9	51.2	1.5
11[a,b,c]	2019	New York	Nonprofit	90	2659	49.8	307	433.2	−9.2	−15.3	15.1	68.8	62.2	21.0	1.2
12[a,b,c]	2019	New York	Nonprofit	20	1042	54.7	577	4127.5	−13.9	−20.5	8.9	74.3	61.7	27.4	1.2
13[a,c]	2019	South Carolina	For profit	160	5896	46.1	430	670.0	1.1	1.1	7.4	33.0	25.5	47.1	1.6
14[a,b,c]	2019	Texas	For profit	155	8626	57.5	524	1048.2	−4.6	−4.6	14.0	56.7	41.8	21.5	1.5
15[b]	2020	Maryland	Nonprofit	89	2453	61.6	112	179.8	−4.7	−5.8	4.7	17.9	11.5	73.3	0.9
16[b]	2020	South Carolina	Nonprofit	40	1182	53.7	81	286.5	−54.8	−54.9	22.3	30.7	16.3	49.8	0.9
17[c]	2021	Iowa	Nonprofit	50	971	18.0	385	1090.0	−1.9	−1.9	5.3	33.1	29.9	40.8	1.6
18[b]	2021	New York	Nonprofit	647	8628	72.5	1489	325.1	−7.4	−38.7	11.7	42.8	25.3	63.3	1.7
19[a,b,c]	2021	New York	Government	142	6140	48.5	951	1829.2	9.1	−2.0	34.6	91.3	59.1	27.5	1.3
20[b]	2021	Pennsylvania	Nonprofit	43	1448	29.2	223	915.9	−1.0	−2.4	7.9	19.5	8.5	77.9	1.2
21[a,b,c]	2021	Pennsylvania	Nonprofit	197	3947	58.3	579	370.4	−0.2	−0.2	10.9	71.8	51.2	26.6	1.5
22[b]	2021	Pennsylvania	Nonprofit	194	898	20.1	180	131.4	−14.7	−15.4	8.6	12.2	4.0	66.1	1.2

Abbreviation: DSH, Disproportionate Share Hospital.
Source: Authors' analysis of data from the Centers for Medicare and Medicaid Services' Hospital Change of Ownership File and the Healthcare Cost Report Information System. Values in this table reflect the reported values from the data sources in the year prior to the hospital's acquisition. Despite known outliers in the Healthcare Cost Report Information System, no winsorizing was performed to assure that reporting was accurate to the specific entity of interest. Total margin reflects net income divided by the sum of net patient revenue and other income. Operating margin reflects a narrower measure of profitability derived from patient revenue. Uncompensated care share reflects a denominator of hospital operating expenses. DSH percentage reflects the sum of Medicare Supplemental Security income days divided by total Medicare days + the number of Medicaid, non-Medicare days divided by total patient days. Medicare and Medicaid inpatient day shares reflect denominators of total inpatient days. Footnotes a–c indicate the definition of "safety-net" used to include the hospital in the sample.
[a]Hospitals in the top quartile in the state in the year prior to acquisition for allowable DSH percentage (DSH index).
[b]Hospitals in the top quartile in the state in the year prior to acquisition for uncompensated care as a share of operating expenses.
[c]Hospitals in the top quartile in the state in the year prior to acquisition for Medicaid share of inpatient days.

Table 2. Pre-acquisition characteristics of acquiring health systems.

System identifier	Acquired hospitals	Number of hospitals	Beds	Geographic spread	High uncompensated care burden	Presence of at least 1 high DSH hospital
A	1[a]	3	572	One state	No	Yes
B	2[a,b], 14[a,b,c]	183	36 873	Three or more states	Yes	Yes
C	3[a,b,c]	36	4077	Three or more states	No	Yes
D	4[c]	10	1119	One state	No	No
E	5[b]	7	1826	One state	No	Yes
F	6[b], 7[b]	1	393	One state	No	Yes
G	8[b]	3	265	One state	Yes	Yes
H	9[a,c]	1	163	One state	No	No
I	10[b]	10	1376	One state	No	Yes
J	11[a,b,c]	3	763	One state	No	Yes
K	12[a,b,c]	91	15 319	Three or more states	No	Yes
L	13[a,c]	4	574	One state	No	No
M	15[b]	3	319	Two states	No	No
N	16[b]	6	894	One state	Yes	Yes
O	17[c]	1	136	One state	No	No
P	18[b]	1	303	One state	No	Yes
Q	19[a,b,c]	12	3262	One state	Yes	Yes
R	20[b]	5	362	One state	No	No
S	21[a,b,c]	10	1401	Two states	No	Yes
T	22[b]	5	494	Two states	No	No

Abbreviation: DSH, Disproportionate Share Hospital.
Source: Authors' analysis of data from the Centers for Medicare and Medicaid Services' Hospital Change of Ownership File and the Agency of Healthcare Research and Quality (AHRQ) Compendium of Health Systems. Values in this table reflect the reported values from the data sources in the year prior to the system's acquiring of a safety-net hospital. 2016 Compendium data were used for systems that acquired hospitals in 2016 and 2017; 2018 Compendium data were used for systems that acquired hospitals in 2018 and 2019; and 2020 Compendium data were used for systems that acquired hospitals in 2020 or 2021. A system was classified as having a high uncompensated care burden if the ratio of uncompensated care to operating expenses across all hospitals within a given system was in the top quintile of all systems nationally Presence of at least one high DSH hospital reflects whether the system includes a hospital in the highest DSH quintile across all hospitals nationally. Footnotes a–c indicate the definition of "safety-net" used to include the hospital in the sample.
[a]Hospitals in the top quartile in the state in the year prior to acquisition for allowable DSH percentage (DSH index).
[b]Hospitals in the top quartile in the state in the year prior to acquisition for uncompensated care as a share of operating expenses.
[c]Hospitals in the top quartile in the state in the year prior to acquisition for Medicaid share of inpatient days.

than 1 safety-net hospital during the study period (Table 2). Acquiring systems tended to be geographically concentrated, with only 6 of 20 systems operating in more than 1 state, particularly in the case of acquired safety-net hospitals defined by uncompensated care share alone. Four out of the 20 systems were categorized as having high levels of systemwide uncompensated care burden, indicating that their ratio of total uncompensated care to total operating expenses was in the top quintile of all acute-care hospitals nationally. Thirteen out of 20 systems had at least 1 hospital with a high DSH patient percentage.

Changes in safety-net services offered by acquired hospitals

Data on safety-net service provision were available for 18 of the 22 acquired safety-net hospitals. Among those hospitals, the most commonly offered safety-net services prior to acquisition were social work (18 hospitals), community health screenings (18 hospitals), case management (16 hospitals), and intensive care (14 hospitals) (Table 3). Obstetrics care (7 hospitals) and psychiatric care (7 hospitals) were less commonly offered. Two hospitals lost safety-net services, including trauma care, primary care, and psychiatric care, in the post-acquisition period.

Of the 22 acquired safety-net hospitals, 18 continued to provide inpatient medical care by the study endline. Three acquired safety-net hospitals ceased their inpatient services, and 1 hospital closed completely. Nearly all hospitals that closed or ceased some form of inpatient services met all 3 component definitions used to identify safety-net hospitals—namely, that they were hospitals in the top quartile in the state in the year prior to acquisition for uncompensated care share, as well as in the top quartile in the state for both DSH percentage and Medicaid share.

Discussion

This study described 22 safety-net hospital acquisitions from 2016–2021 and identified characteristics of both the acquired safety-net hospitals and acquiring health systems. Acquired safety-net hospitals were found to be struggling financially, as evidenced by relatively low margins and high levels of uncompensated care prior to acquisition. Acquiring systems were typically small and geographically concentrated. After being acquired, a small group of safety-net hospitals no longer provided some safety-net services in the post-acquisition period, while others either downgraded their inpatient capabilities fully or closed within 3 years of acquisition.

Taken together, these findings suggest that financial insolvency may be an important preceding factor in acquisitions of safety-net hospitals. The financial precarity of safety-net hospitals has been a perennial challenge and is synonymous with their mission to serve high levels of uninsured or publicly insured individuals, which leads to lower overall reimbursement.[1] Policy pressures, including anticipated reductions in DSH payments and expiration of the COVID-19 Public Health Emergency, may have more focused consequences for safety-net hospitals and introduce even more financial

Table 3. Safety-net service provision prior to acquisition and hospital operational status after acquisition.

Hospital identifier	Services offered prior to acquisition	Hospital operational status
1[a]	Intensive care, trauma*, psychiatry, primary care*, social work, case management, community health screenings	Operates as an inpatient facility
2[a,b]	Not reported	Operates as an inpatient facility
3[a,b,c]	Not reported	Closed September 20, 2018
4[c]	Intensive care, neonatal ICU, obstetrics, primary care, social work, case management, community health screenings	Operates as an inpatient facility
5[b]	Intensive care, psychiatry, social work, case management, community health screenings	Operates as an inpatient facility
6[b]	Intensive care, neonatal ICU, obstetrics, primary care, social work, case management, community health screenings	Operates as an inpatient facility
7[b]	Intensive care, obstetrics, social work, case management, transportation, community health screenings	Operates as an inpatient facility
8[b]	Intensive care, social work, case management, community health screenings	Operates as an inpatient facility
9[a,c]	Not reported	Operates as an inpatient facility
10[b]	Intensive care, social work, case management, community health screenings	Operates as an inpatient facility
11[a,b,c]	Intensive care, psychiatry, social work, case management, transportation, community health screenings	Operates as an inpatient facility
12[a,b,c]	Social work, community health screenings	No longer provides inpatient Services.
13[a,c]	Intensive care, obstetrics, psychiatry, social work, case management, community health screenings	Operates as an inpatient facility
14[a,b,c]	Intensive care, trauma, neonatal ICU, obstetrics, social work, case management, community health screenings	This facility has ceased inpatient services and transitioned into a free-standing ER.
15[b]	Not reported	The facility ceased inpatient care post-merger and transitioned to a freestanding medical facility.
16[b]	Psychiatry*, primary care, social work, community health screenings	Operates as an inpatient facility
17[c]	Intensive care, trauma, obstetrics, primary care, social work, case management, transportation, community health screenings	Operates as an inpatient facility
18[b]	Intensive care, psychiatry, HIV/AIDS treatment, primary care, social work, case management, community health screenings	Operates as an inpatient facility
19[a,b,c]	Intensive care, trauma, obstetrics, psychiatry, HIV/AIDS treatment, primary care, social work, case management, community health screenings	Operates as an inpatient facility
20[b]	Psychiatry, primary care, social work, case management, community health screenings	Operates as an inpatient facility
21[a,b,c]	Intensive care, psychiatry, primary care, social work, case management, community health screenings	Operates as an inpatient facility
22[b]	Social work, case management, transportation, community health screenings	Operates as an inpatient facility

Abbreviations: DSH, Disproportionate Share Hospital; ER, emergency room; ICU, intensive care unit.
Source: Authors' analysis of data from CMS's Hospital Change of Ownership File, American Hospital Association's Annual Survey, and the American Hospital Directory. Asterisks indicate services no longer offered after the year of acquisition. Safety-net hospital service availability was not reliably reported in the American Hospital Association's Annual Survey for 4 hospitals in the sample. Asterisks indicate services no longer offered after the year of acquisition. This was determined by whether a hospital that previously reported providing a given service in years prior to acquisition either no longer reported providing the service or provided missing data for whether the service was available. Footnotes a–c indicate the definition of "safety-net" used to include the hospital in the sample.
[a]Hospitals in the top quartile in the state in the year prior to acquisition for uncompensated care as a share of operating expenses.
[b]Hospitals in the top quartile in the state in the year prior to acquisition for allowable DSH percentage (DSH index).
[c]Hospitals in the top quartile in the state in the year prior to acquisition for Medicaid share of inpatient days.

instability in coming years.[18] Safety-net hospitals have also not been immune to the labor shortages that many hospitals have faced since the beginning of the COVID-19 pandemic, although prior work suggests that some safety-net hospitals, such as government and rural hospitals, may have been partially protected from pandemic-related financial harms due to targeted support from the federal government.[19] Nonetheless, these challenges may have made acquisition an enticing strategy for safety-net hospitals that otherwise would have continued to struggle for viability.

While acquisition may be a strategy to ensure solvency, some safety-net hospitals may end up losing core safety-net functions after being acquired. Our results indicate that a small group of safety-net hospitals lost the ability to provide essential services, such as intensive care and obstetric care, with others closing altogether. Although these services were available elsewhere within the acquiring health system, it is unclear whether patients in the acquired hospitals' catchment areas would have easy access to them. This question of access is not trivial: data have shown that increasing distance from a hospital leads to changes in patients' ability to access services, which can worsen patient-level outcomes, such as mortality.[20-22] These consequences are of particular salience to low-income populations that disproportionately use safety-net services and already experience formidable barriers to care. Future investigations should consider (1) the degree to which patients are able to engage with essential safety-net services even when they are lost by an acquired hospital and (2) if there are changes in quality of care when a safety-net hospital is acquired.

Nonacquired, non–safety-net hospitals in the same HRRs demonstrated a few notable patterns. First, overall admissions declined in the majority of HRRs, consistent with national trends and declining admissions over time.[23,24] Second, uncompensated care shares frequently increased among non–safety-net, nonacquired hospitals. Prior work has shown that, when safety-net hospitals close, the non–safety-net hospitals in the market absorb the uncompensated care that the safety-net hospital historically provided.[25] Our results might

be consistent with this if acquired safety-net hospitals are being tasked with decreasing their uncompensated care levels after undergoing acquisition, although we are unable to evaluate this empirically due to data limitations.

There are several policy options that may support the financial circumstances of safety-net hospitals and preserve access to safety-net services. Prior work has elucidated opportunities to improve the targeting of safety-net subsidy programs to better reach the hospitals they were designed to support. California has begun to experiment with streamlining safety-net hospital funding across different sources to better target support. Recently, New York State established the Vital Access Provider Assurance Program[26] as a mechanism for financially distressed hospitals to access state funds. Given that safety-net hospitals also provide a variety of nonclinical safety-net services designed to address the social determinants of health, reimbursement could also be targeted to support these efforts. Some state Medicaid programs have begun experimenting with such approaches through Section 1115 waivers.[27]

Given national patterns in hospital consolidation and potential ongoing threats to safety-net hospital solvency, acquisitions are likely to continue in the future. Although we were unable to measure them in this study, there are multiple mechanisms by which safety-net hospital acquisition may have positive consequences. Acquisition may be associated with financial benefits for the acquired entity. Acquiring health systems may be able to offer access to a wider variety of services for patients served by safety-net hospitals. While there is little evidence to suggest that acquisitions are associated with improvements in quality of care,[9,28] acquisition may improve efficiency of care.[29,30] However, safety-net hospitals that operate under low margins may already be maximizing their efficiency prior to undergoing acquisition.[31]

Conclusion

In this national study, we describe a case series of safety-net hospital acquisitions from 2016–2021. While there is important heterogeneity across different definitions used to identify safety-net hospitals, in general, acquired safety-net hospitals demonstrated preexisting financial distress before being acquired. Acquiring health systems were typically small and geographically concentrated. A small group of acquired safety-net hospitals stopped providing certain safety-net services after undergoing acquisition, with others closing altogether. Further work is needed to elucidate the effects that these acquisitions have at the patient level, particularly as they relate to access to services and quality of care.

Supplementary material

Supplementary material is available at *Health Affairs Scholar* online.

Conflicts of interest

Please see ICMJE form(s) for author conflicts of interest. These have been provided as supplementary materials.

The authors have no other disclosures to report.

Notes

1. Sutton JP, Fingar KR. Characteristics of safety-net hospitals, 2014. 19. Accessed October 3, 2022. https://www.ncbi.nlm.nih.gov/books/NBK401306/
2. Tolbert J. Key facts about the uninsured population. KFF. Published November 6, 2020. Accessed October 3, 2022. https://www.kff.org/uninsured/issue-brief/key-facts-about-the-uninsured-population/
3. Popescu I, Fingar KR, Cutler E, Guo J, Jiang HJ. Comparison of 3 safety-net hospital definitions and association with hospital characteristics. *JAMA Netw Open*. 2019;2(8):e198577-e198577. https://doi.org/10.1001/jamanetworkopen.2019.8577
4. Kane NM, Singer SJ, Clark JR, Eeckloo K, Valentine M. Strained local and state government finances among current realities that threaten public hospitals' profitability. *Health Aff (Millwood)*. 2012;31(8):1680-1689. https://doi.org/10.1377/hlthaff.2011.1401
5. Fulton BD. Health care market concentration trends in the united states: evidence and policy responses. *Health Aff (Millwood)*. 2017;36(9):1530-1538. https://doi.org/10.1377/hlthaff.2017.0556
6. Schwartz K, Lopez E. What we know about provider consolidation. KFF; 2020. Accessed September 21, 2023. https://www.kff.org/health-costs/issue-brief/what-we-know-about-provider-consolidation/
7. Dafny L, Ho K, Lee RS. The price effects of cross-market mergers: theory and evidence from the hospital industry. *RAND J Econ*. 2019;50(2):286-325. https://doi.org/10.1111/1756-2171.12270
8. Cooper Z, Craig SV, Gaynor M, Van Reenen J. The price ain't right? Hospital prices and health spending on the privately insured. *Q J Econ*. 2019;134(1):51-107. https://doi.org/10.1093/qje/qjy020
9. Beaulieu ND, Dafny LS, Landon BE, Dalton JB, Kuye I, McWilliams JM. Changes in quality of care after hospital mergers and acquisitions. *N Engl J Med*. 2020;382(1):51-59. https://doi.org/10.1056/NEJMsa1901383
10. Noles MJ, Reiter KL, Boortz-Marx J, Pink G. Rural hospital mergers and acquisitions: which hospitals are being acquired and how are they performing afterward? *J Healthc Manag Am Coll Healthc Exec*. 2015;60(6):395-407.
11. Cutler DM, Scott Morton F. Hospitals, market share, and consolidation. *JAMA*. 2013;310(18):1964-1970. https://doi.org/10.1001/jama.2013.281675
12. Jiang HJ, Fingar KR, Liang L, Henke RM, Gibson TP. Quality of care before and after mergers and acquisitions of rural hospitals. *JAMA Netw Open*. 2021;4(9):e2124662. https://doi.org/10.1001/jamanetworkopen.2021.24662
13. O'Hanlon CE, Kranz AM, DeYoreo M, Mahmud A, Damberg CL, Timbie J. Access, quality, and financial performance of rural hospitals following health system affiliation. *Health Aff (Millwood)*. 2019;38(12):2095-2104. https://doi.org/10.1377/hlthaff.2019.00918
14. Centers for Medicare & Medicaid Services. Hospital change of ownership. Accessed September 21, 2023. https://data.cms.gov/provider-characteristics/hospitals-and-other-facilities/hospital-change-of-ownership
15. Medicaid and CHIP Payment Access Commission (MACPAC). Report to Congress on Medicaid and CHIP. March 2023. Accessed September 26, 2023. https://www.macpac.gov/wp-content/uploads/2023/03/MACPAC_March-2023-Report-WEB-Full-Booklet_508.pdf
16. Dartmouth Atlas Project. Research methods. Published 2021. Accessed September 1, 2021. https://www.dartmouthatlas.org/research-methods/
17. Agency for Healthcare Research and Quality. Compendium of U.S. health systems. Accessed September 26, 2023. https://www.ahrq.gov/chsp/data-resources/compendium.html
18. Neuhausen K, Davis AC, Needleman J, Brook RH, Zingmond D, Roby DH. Disproportionate-share hospital payment reductions may threaten the financial stability of safety-net hospitals. *Health Aff (Millwood)*. 2014;33(6):988-996. https://doi.org/10.1377/hlthaff.2013.1222
19. Wang Y, Bai G, Anderson G. COVID-19 and hospital financial viability in the US. *JAMA Health Forum*. 2022;3(5):e221018. https://doi.org/10.1001/jamahealthforum.2022.1018
20. Buchmueller TC, Jacobson M, Wold C. How far to the hospital? The effect of hospital closures on access to care. *J Health Econ*. 2006;25(4):740-761. https://doi.org/10.1016/j.jhealeco.2005.10.006

21. Ebinger JE, Lan R, Driver MP, et al. Disparities in geographic access to cardiac rehabilitation in Los Angeles County. *J Am Heart Assoc*. 2022;11(18):e026472. https://doi.org/10.1161/JAHA.121.026472
22. Hadley J, Cunningham P. Availability of safety net providers and access to care of uninsured persons. *Health Serv Res*. 2004;39(5):1527-1546. https://doi.org/10.1111/j.1475-6773.2004.00302.x
23. Medicaid and CHIP Payment Access Commission (MACPAC). Chapter 3: report to Congress: Medicare payment policy, March 2018—hospital inpatient and outpatient services. Accessed April 23, 2024. https://www.medpac.gov/wp-content/uploads/import_data/scrape_files/docs/default-source/reports/mar18_medpac_ch3_sec.pdf
24. Centers for Disease Control and Prevention. Hospitalization—health, United States. Published June 26, 2023. Accessed April 23, 2024. https://www.cdc.gov/nchs/hus/topics/hospitalization.htm
25. Garthwaite C, Gross T, Notowidigdo MJ. Hospitals as insurers of last resort. *Am Econ J Appl Econ*. 2018;10(1):1-39.
26. New York State Department of Health. Hospital Vital Access Provider Assurance Program (Hospital VAPAP). Accessed September 26, 2023. https://www.health.ny.gov/facilities/hospital/vapap/
27. Hinton E. Medicaid authorities and options to address social determinants of health (SDOH). KFF. Accessed September 26, 2023. https://www.kff.org/medicaid/issue-brief/medicaid-authorities-and-options-to-address-social-determinants-of-health-sdoh/
28. Mariani M, Sisti LG, Isonne C, et al. Impact of hospital mergers: a systematic review focusing on healthcare quality measures. *Eur J Public Health*. 2022;32(2):191-199. https://doi.org/10.1093/eurpub/ckac002
29. Gaynor M, Sacarny A, Sadun R, Syverson C, Venkatesh S. The anatomy of a hospital system merger: the patient did not respond well to treatment. *Rev Econ Stat*. 2023;29449:1-28. Published online November 2021. https://doi.org/10.3386/w29449
30. Lynk WJ. The creation of economic efficiencies in hospital mergers. *J Health Econ*. 1995;14(5):507-530. https://doi.org/10.1016/0167-6296(95)00019-4
31. Hadley J, Zuckerman S, Iezzoni LI. Financial pressure and competition: changes in hospital efficiency and cost-shifting behavior. *Med Care*. 1996;34(3):205-219.