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DATAWATCH

Consolidation Of Providers Into Health Systems Increased Substantially, 2016–18

Provider consolidation into vertically integrated health systems increased from 2016 to 2018. More than half of US physicians and 72 percent of hospitals were affiliated with one of 637 health systems in 2018. For-profit and church-operated systems had the largest increases in system size, driven in part by a large number of system mergers and acquisitions.

The consolidation of hospitals and physicians has been changing the landscape of health care delivery in the United States. Prior literature on consolidation has focused on hospital systems, vertical integration, and market concentration from the hospital or physician perspective.[1–3] Less attention has been devoted to provider consolidation from the system perspective and the diverse mix of vertically integrated health systems that vary by size, ownership type, and geographic scope.[4]

Building on prior work,[5] this study addressed several questions: How did the consolidation of providers into health systems change from 2016 to 2018? How did the number of systems and system size change? How did the landscape of health systems vary by ownership type in 2018?

Using national data, we found that the share of primary care physicians affiliated with vertically integrated health systems increased from 38 percent to 49 percent, or 11 percentage points, from 2016 to 2018 (exhibit 1). In 2018 more than half of all physicians and 72 percent of hospitals were affiliated with one of the 637 health systems identified in the Compendium of US Health Systems from the Agency for Healthcare Research and Quality (AHRQ).

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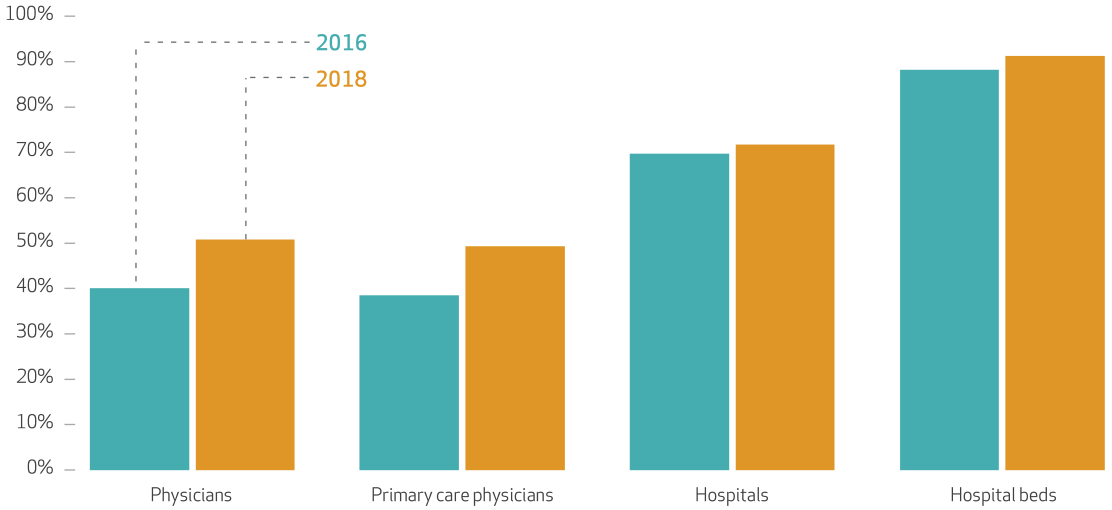
EXHIBIT 1

Percent of physicians, primary care physicians, hospitals, and hospital beds affiliated with vertically integrated health systems in the US, 2016 and 2018



SOURCE Authors' analysis of data for 2016 and 2018 from the Agency for Healthcare Research and Quality's Compendium of US Health Systems and from IQVIA OneKey. **NOTE** Hospitals and hospital beds refer to US nonfederal general acute care hospitals.

Study Data And Methods

Data on health systems and system hospitals came from the 2016 and 2018 versions of AHRQ's Compendium of US Health Systems. The compendium is a publicly available database with information on health systems operating in the United States, including system size, ownership type, and linkages to system hospitals.[6] We identified system-affiliated physicians, including primary care physicians, using extracts from the 2016 IMS Healthcare Organization Services and 2018 IQVIA OneKey databases.

We used the definition of a health system developed by an expert panel for AHRQ's compendium. For this study, a health system included at least one acute care hospital and at least one group of physicians who provided comprehensive care and were connected with each other and the hospital through common ownership or joint management. To qualify for inclusion in the sample, health systems were required to include at least one nonfederal general acute care hospital, fifty or more physicians, and ten or more primary care physicians.

We measured health systems' size by the numbers of physicians, primary care physicians, hospitals, and hospital beds. Health systems' ownership type was assigned based on the predominant type of control reported by system hospitals and weighted by hospital beds. Ownership types included nonprofit, defined as ownership by a nonprofit entity other than a church; public/government, defined as ownership by a state or local government; church, defined as ownership by a nonprofit church or religious entity; and for-profit/investor, defined as ownership by a proprietary entity. We assigned geographic scope based on the location of system hospitals, with *metro* defined as the system operating in one Metropolitan Statistical Area (MSA); *state* defined as the system operating in one state, including those that operated in more than one MSA or in nonmetropolitan areas; and *multistate* defined as the system operating in two or more states.

To estimate the change in health system size, we limited our analysis to the 556 health systems identified in both 2016 and 2018. We analyzed the median for each measure of size in 2016 and 2018 and calculated the percentage change in the median size. We identified system mergers and acquisitions through changes in the system hospitals' affiliation from 2016 to 2018. In our analysis we refer to a merger or acquisition as a deal, acquired systems as targets, and acquiring systems as acquirers.

Our study had several limitations. First, the study's definition excluded some health systems, such as physician organizations that did not have an ownership or joint management relationship with a hospital. Second, system affiliations rely in part on self-reported data and may contain errors due to misclassification or changes not reflected in the data sources. Finally, the sample requirement of having at least fifty physicians and ten primary care physicians excluded entities that didn't meet the definition of a system used in this analysis (such as smaller systems and those with informal relationships not captured in the data sources).

Study Results

CHANGES IN PROVIDER CONSOLIDATION The consolidation of physicians into vertically integrated health systems increased substantially from 2016 to 2018. The share of physicians affiliated with health systems increased by 11 percentage points, from 40 percent in 2016 to 51 percent in 2018 (exhibit 1). In 2018, 49 percent of primary care physicians were affiliated with systems—an increase from 38 percent in 2016.

The horizontal consolidation of hospitals into health systems grew modestly between 2016 and 2018. The share of hospitals affiliated with health systems increased by 2 percentage points, from 70 percent to 72 percent. In 2018, 91 percent of hospital beds were in system-affiliated hospitals—an increase from 88 percent in 2016.

CHANGES IN NUMBER OF HEALTH SYSTEMS The number of health systems in the US increased from 626 in 2016 to 637 in 2018 (exhibit 2). Of the 626 systems identified in 2016, 556 (89 percent) were operating in 2018 (exhibit 3). Changes in the sample were explained in part by system mergers and acquisitions, as well as by newly identified systems that met the study's definition. Of note, 32 systems qualified for inclusion in the sample because they had more physicians in 2018 than in 2016. We identified 637 health systems operating in 2018.

Nonprofit was the most common ownership type, accounting for 440 systems in both 2016 and 2018 (exhibit 2). The number of public/government systems increased from 108 to 127. Mergers and acquisitions affected the numbers of church-operated and for-profit systems. The number of church-operated systems decreased from 59 to 53, while the number of for-profit systems decreased from 19 to 17.

CHANGES IN HEALTH SYSTEM SIZE Health systems' size, based on the number of physicians, increased from 2016 to 2018. Among the 556 systems operating in both years, the median number of physicians increased by 29 percent, from 285 to 369 (exhibit 4). The largest percentage change was in the median number of primary care physicians, which increased by 32 percent,

from 106 to 140. Health systems' size based on the number of hospitals did not change over the two years, remaining at a median of two. Median hospital beds increased modestly, from 449 to 455 (1 percent).

Changes in system size varied by ownership type. For-profit systems had the largest changes in system size: The median number of physicians more than doubled, from 519 to 1,127, while the median number of hospitals increased by 156 percent, from 9 to 23. Among church-operated systems, the median number of primary care physicians increased by 49 percent, with no overall change in the median number of hospitals. Public systems had a 41 percent increase in the median number of primary care physicians but continued to have a low median number of hospitals.

CONSOLIDATION AMONG HEALTH SYSTEMS There was substantial consolidation among health systems from 2016 to 2018. We identified 50 deals related to mergers or acquisitions of systems by other systems: 2 mergers resulting in new systems and 48 acquisitions (online appendix exhibit A1).[7] In total, 52 target systems collectively consisting of 178 hospitals and 14,533 physicians merged with or were acquired by 41 acquirers (exhibit 5). Five systems were acquirers in two or more deals in this period (appendix exhibit A1).[7] Church-operated systems were active acquirers, with ten deals, as were for-profit systems, with seven deals (data not shown).

Targets and acquirers differed in size and scope. Most target systems were relatively small, with median numbers of 2 hospitals and 148 physicians (exhibit 5). Only 5 targets included more than 10 hospitals and 300 physicians (data not shown). Target systems were less likely than acquirers to include a major teaching hospital or safety-net hospital and more likely to operate in only one MSA. Acquirers were larger in size, broader in service scope, and more likely to operate in two or more states.

VARIATION BY OWNERSHIP TYPE The share of physicians and hospitals in systems varied by ownership type in 2018 (appendix exhibit A2).[7] Nonprofit systems accounted for 62 percent of system-affiliated physicians but only 50 percent of system hospital beds. Accounting for only 8 percent of systems, church-operated systems had the second-highest shares of system hospital beds (21 percent) and system-affiliated physicians (19 percent). For-profit systems accounted for a relatively high share of system hospital beds (16 percent) but had the lowest share of system-affiliated physicians (8 percent). Public systems had the smallest share of system hospital beds (11 percent).

EXHIBIT 2

US health systems, by ownership type, 2016 and 2018

	2016		2018	
	Number	Percent	Number	Percent
All	626	100	637	100
Ownership				
Nonprofit	440	70	440	69
Public/government	108	17	127	20
Church	59	9	53	8
For-profit/investor	19	3	17	3

SOURCE Authors' analysis of data for 2016 and 2018 from the Agency for Healthcare Research and Quality's Compendium of US Health Systems. **NOTES** "Nonprofit" means that the system is owned by a nonprofit entity other than a church. "Public/government" means that it is owned by a state or local government. "Church" means that it is owned by a nonprofit church or other religious entity. "For-profit/investor" means that it is owned by a proprietary entity.

Consistent with variations in system size, the geographic scope of health systems varied by ownership type in 2018. Nonprofit systems had a median of two hospitals (appendix exhibit A3),[7] and most operated within a single MSA or state (85 percent) (exhibit 6). For-profit and church-operated systems had more than twice the median numbers of hospital beds as nonprofit systems did (appendix exhibit A3)[7] and were more likely to operate in two or more states, compared to other ownership types (exhibit 6). Public systems had the lowest hospital count (median: 1) (appendix exhibit A3)[7] and were the most limited in geographic scope, with 74 percent operating in only one MSA (exhibit 6).

EXHIBIT 3

Changes in the sample of US health systems from 2016 to 2018

	2016	2018
Number of systems	626	637
Systems identified in both 2016 and 2018	556	556
Systems identified in 2016 but not 2018		
Targets of system mergers and acquisitions in 2016	52	—[a]
Reported as subsystem in 2018	13	—[a]
Not reported in 2018	3	—[a]
Did not meet physician threshold in 2018	1	—[a]
Did not meet primary care physician threshold in 2018	1	—[a]
Systems identified in 2018 but not 2016		
New system identified due to merger	—[a]	2
Reported as subsystem in 2016	—[a]	6
New systems reported in 2018 data	—[a]	22
Did not meet physician threshold in 2016	—[a]	29
Did not meet primary care physician threshold in 2016	—[a]	3
Did not have qualifying hospital in 2016	—[a]	1
Coding changed to having qualifying hospital in 2018 data	—[a]	18

SOURCE Authors' analysis of data for 2016 and 2018 from the Agency for Healthcare Research and Quality's Compendium of US Health Systems. **NOTES** The physician threshold is fifty or more. The primary care physician threshold is ten or more. [a]Not applicable.

EXHIBIT 4

Changes in health systems' size, by ownership type, 2016–18

	Ownership type				
	All (*N* = 556)	Nonprofit (*n* = 395)	Public/ government (*n* = 97)	Church (*n* = 49)	For-profit/ investor (*n* = 15)
PHYSICIANS					
Median number, 2016	285	264	287	622	519
Median number, 2018	369	341	384	820	1,127
Change (%)	29	29	34	32	117
PRIMARY CARE PHYSICIANS					
Median number, 2016	106	101	97	195	212
Median number, 2018	140	131	137	291	436
Change (%)	32	30	41	49	106
HOSPITALS					
Median number, 2016	2	2	2	6	9
Median number, 2018	2	2	1	6	23
Change (%)	0	0	–50	0	156
HOSPITAL BEDS					
Median number, 2016	449	415	446	1,241	1,642
Median number, 2018	455	428	451	1,299	3,158
Change (%)	1	3	1	5	92

SOURCE Authors' analysis of data for 2016 and 2018 from the Agency for Healthcare Research and Quality's Compendium of US Health Systems. **NOTE** Ownership types are explained in the notes to exhibit 2.

EXHIBIT 5

Mergers and acquisitions of US health systems, 2016–18

	Targets	Acquirers
Number of systems	52	41
Total physicians	14,533	117,638
Total PCPs	5,499	36,807
Total hospitals	178	839
Total hospital beds	28,685	151,114
Ownership type (%)		
Nonprofit	65	61
Church	17	20
Public/government	12	5
For-profit/investor	6	15
System size (median numbers)		
Physicians	148	1,700
Primary care physicians	52	487
Hospitals	2	8
Hospital beds	360	1,920
Service scope (% with at least one hospital)		
Major teaching hospital	17	80
Safety-net hospital	29	56
Geographic scope (%)		
Metro	69	37
State	13	24
Multistate	17	39

SOURCE Authors' analysis of data for 2016 and 2018 from the Agency for Healthcare Research and Quality's Compendium of US Health Systems. **NOTES** The exhibit shows the characteristics of targets and acquirers in 2016, before merger or acquisition. The targets include four systems in 2016 that merged into two new systems by 2018. Appendix exhibit A1 lists the fifty mergers and acquisitions (see note 7 in text). Ownership types are explained in the notes to exhibit 2. "Metro" means that the system operates in a single Metropolitan Statistical Area, "state" means that it operates in a single state, and "multistate" means that it operates in two or more states.

Discussion

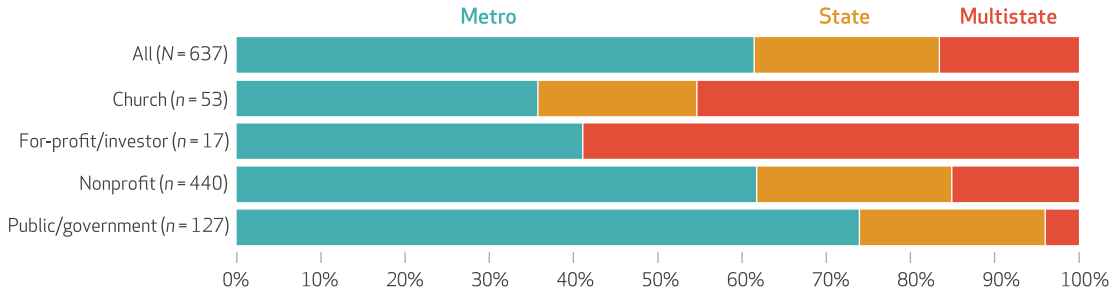
We found substantial consolidation of physicians and hospitals into vertically integrated health systems from 2016 to 2018. The share of physicians affiliated with health systems increased from 40 percent to 51 percent in just two years. In 2018 the majority of physicians were affiliated with one of the 637 health systems in the US. The shares of hospitals and hospital beds in systems increased slightly in 2018, to 72 percent and 91 percent, respectively.

Substantial consolidation among health systems as a result of mergers or acquisitions at the system level also occurred from 2016 to 2018. Most of the deals for health systems involved larger multistate systems acquiring smaller metro-based systems. This pattern of consolidation could complicate local and national efforts to regulate provider organizations to ensure that community needs are met.[8]

We also found substantial variation in system size and geographic scope by ownership type. We identified several hundred small nonprofit and public systems operating in a single metropolitan area or state. In contrast, there were smaller numbers of church-operated and for-profit systems, with much larger system size and broader scope. The increases in system size among for-profit systems was partially attributable to system mergers and acquisitions (for example, between LifePoint Health and RCCH HealthCare

EXHIBIT 6

Percent of health systems by geographic scope, overall and by ownership type, 2018



SOURCE Authors' analysis of data for 2018 from the Agency for Healthcare Research and Quality's Compendium of US Health Systems.
NOTES Geographic scopes are explained in the notes to exhibit 5. Ownership types are explained in the notes to exhibit 2.

Partners[9] and between Steward Healthcare and IASIS Healthcare).[10] The size and scope of the largest health systems may have implications for antitrust enforcement.[11]

Provider consolidation into integrated systems may lead to highly concentrated markets along both horizontal and vertical dimensions.[12] Future research should examine the drivers of consolidation and variation in performance by ownership type;[13,14] geographic variation in the extent of health system penetration across local health care markets; and the ramifications of increased consolidation on cost, access, and quality of care.[15] ■

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