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Trends in Hospital Network Participation and System Affiliation, 2007-2012

Xi Zhu, PhD; Fred Ullrich, BA; Keith J. Mueller, PhD, A. Clinton MacKinney, MD, MS; Thomas Vaughn, PhD, MHSA

Key Findings

- Hospital network participation from 2007 to 2012 increased in larger hospitals (more than 150 beds), non-government not-for-profit hospitals, and metropolitan hospitals. Network participation changed inconsistently in other types of hospitals.
- Hospital system affiliation has generally increased in hospitals of all sizes, non-government not-for-profit hospitals, hospitals in all census regions, CAHs, and both metropolitan and non-metropolitan hospitals. There are notably higher percentages of system affiliation among midsized and large hospitals, investor-owned hospitals, and metropolitan hospitals compared to their counterparts.

Definitions

- **Network:** "Network is a group of hospitals, physicians, other providers, insurers and/or community agencies that work together to coordinate and deliver a broad spectrum of services to their community. Network participation does not preclude system affiliation."[1]
- **System:** "System is defined by AHA as either a multihospital or a diversified single hospital system. A multihospital system is two or more hospitals owned, leased, sponsored, or contract managed by a central organization. Single, freestanding hospitals may be categorized as a system by bringing into membership three or more, and at least 25 percent, of their owned or leased non-hospital pre-acute or post-acute health care organizations. System affiliation does not preclude network participation."[1]

Introduction

The ongoing transformation of the health care delivery system from a fragmented, episode-focused, fee-for-service model to an integrated, patient-centered, pay-for-value model demands a number of capacities from providers, hospitals, and systems. These include, but are not limited to, capacities to (1) provide or arrange to provide a coordinated continuum of care to a patient population, (2) clinically and fiscally manage and be held accountable for the outcomes of the population served, and (3) implement organized processes for improving clinical quality and controlling care costs.[2,3] Small and independent hospitals may be challenged to develop these capacities due to lack of tertiary

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RUPRI Center for Rural Health Policy Analysis, University of Iowa College of Public Health, Department of Health Management and Policy, 145 Riverside Dr., Iowa City, IA 52242-2007, (319) 384-3830
http://www.public-health.uiowa.edu/rupri
E-mail: cph-rupri-inquiries@uiowa.edu

and specialty care, insufficient volume, and weak information technology and other infrastructures. Participating in a network and affiliating with a system represent two viable ways for hospitals to build and/or access these necessary capacities. This report tracks trends in network participation and system affiliation from 2007 to 2012 and examines whether the trends differ by type of hospital, region, and setting (i.e., metropolitan vs. non-metropolitan county).

Data

The American Hospital Association (AHA) annual survey data were used to track the trends in hospital network participation and system affiliation. The AHA obtained the original data for the system affiliation variable directly from the headquarters of hospital systems. Data for the network participation variable were obtained from hospitals' answers to the survey question, "Is the hospital a participant in a network?" The definitions used in this report are from the glossary that accompanies the AHA annual survey.

Using the same protocols employed by the AHA, the analysis was limited to registered community hospitals defined as "all non-federal, short-term general, and other special hospitals."[1] These include non-federal government (e.g., state, county, or city) hospitals, non-government not-for-profit hospitals, and investor-owned for-profit hospitals. Academic medical centers or other teaching hospitals were included if they were non-federal short-term hospitals. Excluded were hospitals "not accessible by the general public, such as prison hospitals or college infirmaries."[1] For this analysis, we included only general medical and surgical hospitals. Additional information on CAH status and hospital bed size was obtained from the Flex Monitoring Team.[4]

Hospitals were classified as metropolitan or non-metropolitan using the Urban Influence Code (UIC) classification of the county of their location, as developed by the USDA Economic Research Service.[5] Hospitals located in counties with a UIC larger than "2" were designated as non-metropolitan.

Key Trends

Table 1 shows the proportion of non-metropolitan and metropolitan hospitals from 2007 to 2012 that participated in networks or were members of systems. Note that across all years, information on network participation was unavailable for approximately 20 percent of the hospitals due to non-response to the AHA annual survey. Network participation trends reported in this document are based on available data.[6]

Metropolitan hospital participation in networks and systems consistently increased, with substantial growth in system affiliation from 64.3 percent to 70.2 percent (Table 1). Non-metropolitan hospital participation in networks remained stable at approximately 36 percent. Non-metropolitan hospital system affiliation increased during the period from 42.0 percent to 46.7 percent. A significantly higher proportion of metropolitan hospitals were system members compared to non-metropolitan hospitals, but the growth rate in system affiliation was roughly comparable between metropolitan and non-metropolitan hospitals (i.e., 9.2 percent and 11.2 percent, respectively).

Table 1. Community Hospital Network Participation and System Affiliation, 2007-2012

	Overal	Non-metropolitan					Metropolitan				
	Total	Total	Network Participant		System Member		Total	Network Participant		System Member	
2007	4,612	2,008	594	35.7%	828	42.0%	2,604	816	38.6%	1,607	64.3%
2008	4,592	2,007	589	35.7%	848	42.9%	2,585	831	39.4%	1,604	64.5%
2009	4,602	2,013	580	36.0%	865	43.7%	2,589	837	40.4%	1,632	65.7%
2010	4,560	1,995	574	36.4%	871	44.4%	2,565	858	41.3%	1,626	66.4%
2011	4,589	1,993	579	36.0%	898	45.8%	2,596	899	41.7%	1,682	68.2%
2012	4,520	1,984	578	36.4%	913	46.7%	2,536	862	42.2%	1,708	70.2%

Data Source: American Hospital Association Annual Survey, 2007-2012.

Table 2 compares CAHs with rural non-CAH small (i.e., <50 beds) hospitals regarding their network participation and system affiliation. Both CAHs and rural non-CAH small hospitals' network participation fluctuated within a small range, with CAHs having higher percentages of network participation. CAHs had a lower percentage of system affiliation than rural non-CAH small hospitals in 2007. But, this percentage increased steadily over time, and CAHs and rural non-CAH small hospitals had comparable percentages of system affiliation by 2012.

Table 2. CAH and Rural Non-CAH Small Hospital Network Participation and System Affiliation, 2007-2012

	Overal	Critical Access Hospitals					Rural Non-CAH Small (<50 beds)				
	Total	Total	Network Participant		System Member		Total	Network Participant		System Member	
2007	1,767	1,243	414	40.5%	460	37.7%	306	63	25.3%	118	41.4%
2008	1,769	1,246	412	40.6%	472	38.5%	309	62	25.1%	122	42.1%
2009	1,792	1,253	411	41.3%	486	39.4%	318	61	23.4%	123	41.3%
2010	1,787	1,279	418	41.3%	501	40.0%	288	63	26.5%	110	40.3%
2011	1,829	1,283	433	42.1%	525	41.7%	305	67	26.8%	120	41.4%
2012	1,831	1,279	425	41.9%	537	42.8%	307	69	28.0%	124	42.3%

Data Source: American Hospital Association Annual Survey, 2007-2012.

Table 3 shows the number (N) and the percentage (%) of hospitals participating in networks for all community hospitals that answered the AHA survey question regarding network participation. Notable differences and trends include the following:

- Hospitals with 16-25 beds and over 150 beds had noticeably higher percentages of network participation than hospitals in other size categories. The percentage of hospitals participating in networks fluctuated between 2007 and 2012 in all size categories except for hospitals with over 150 beds, which indicated a general increase in network participation.
- Non-government not-for-profit hospitals had higher percentages of network participation than government and investor-owned hospitals, and showed the only noticeable increase. Investor-owned hospitals had the lowest percentages of network participation.
- Overall, participation percentages among hospitals in the Midwest and Northeast census regions were higher than among hospitals in the South and West census regions. The percentages of network participation in all four census regions fluctuated over time.

We completed a separate analysis for all community hospitals, excluding those controlled by local governments; the same differences and trends emerged.

Table 3. Network Participation[1]: All Community, General Medical and Surgical Hospitals, 2007-2012

	2007		2008		2009		2010		2011		2012	
	N	%	N	%	N	%	N	%	N	%	N	%
Hospital size												
1-15 beds	53	32.9%	52	33.5%	48	29.8%	47	31.5%	49	31.6%	45	28.3%
16-25 beds	383	39.2%	379	39.0%	386	40.3%	391	40.2%	407	40.7%	406	41.2%
26-50 beds	98	30.3%	98	31.0%	92	29.1%	94	31.4%	98	31.0%	94	29.8%
51-150 beds	312	32.8%	319	34.2%	301	33.4%	286	32.9%	293	32.4%	287	34.2%
Over 150 beds	564	41.4%	572	41.4%	590	43.9%	614	44.9%	631	45.5%	608	45.6%
Control type[2]												
Gov't, non-fed	309	33.2%	293	32.3%	286	32.9%	270	32.0%	268	31.7%	256	31.6%
Investor-	128	24.4%	128	25.9%	137	26.4%	142	28.2%	143	26.0%	127	25.9%
Non-gov't, NFP	973	41.9%	999	42.4%	994	43.3%	1,020	44.2%	1,067	45.1%	1,057	45.3%
Contract												
No	1,222	37.3%	1,208	38.1%	1,241	38.7%	1,256	39.3%	1,292	39.3%	1,260	39.6%
Yes	182	37.2%	175	37.1%	172	36.8%	171	37.7%	178	38.8%	175	39.7%
Phys-grp-owned[3]												
No			1,397	38.4%	1,382	39.2%	1,402	40.0%	1,449	40.3%	1,415	40.4%
Yes			23	18.5%	35	22.9%	30	19.9%	29	17.7%	25	19.1%
Census region												
Midwest	520	44.4%	535	44.2%	543	47.9%	538	49.3%	547	47.0%	551	47.6%
Northeast	213	43.4%	209	43.9%	206	44.8%	217	45.4%	231	48.1%	221	47.2%
South	473	32.6%	460	32.2%	451	31.4%	463	31.6%	470	32.0%	465	33.2%
West	204	30.9%	216	33.6%	217	33.4%	214	34.3%	230	35.5%	203	33.6%

Data Source: American Hospital Association Annual Survey, 2007-2012; and, Flex Monitoring Team 2007-2013.

1. Information on network participation was unavailable for approximately 20 percent of all hospitals.

2. Government, non-federal includes state, county, city, city-county, and hospital district or authority; non-government not-for-profit includes church-operated, non-government-non-profit Catholic-controlled, and other; investor-owned (for-profit) includes investor-owned for profit, individual, partnership, and corporation

3. Based on AHA survey question, "Hospital owned in whole or in part by physicians or physician groups." Question not asked in 2007.

Table 4 shows system affiliation data for all community hospitals. Notable differences and trends include the following:

- Larger hospitals had higher percentages of system affiliation than smaller hospitals (ranging from 33.3 percent to 43.4 percent for hospitals with 25 or fewer beds, to 65.4 percent to 72.1 percent for hospitals with more than 150 beds). There were noticeable upward trends over time in percentages of system affiliation in all five hospital-size categories.
- Investor-owned for-profit hospitals had a significantly higher percentage of system affiliation (84.3 percent to 87.7 percent) than government (24.5 percent to 26.0 percent) and non-government not-for-profit (57.7 percent to 65.4 percent) hospitals. Government hospitals had the lowest percentage of system affiliation. The percentages of system affiliation for both investor-owned for-profit and government hospitals did not change markedly over time. However, the percentage for non-government not-for-profit hospitals increased between 2007 and 2012.
- Contract-managed hospitals had a significantly higher percentage of system affiliation (73.0 percent to 74.9 percent) than non-contract-managed hospitals (51.7 percent to 59.0 percent). Only non-contract-managed hospitals showed an upward trend in the percentage of system affiliation.
- Hospitals in the South and West census regions had higher percentages of system affiliation than hospitals in the Midwest and Northeast. There were general upward trends in system affiliation in all four regions between 2007 and 2012, and the gap between the South/West and Midwest/Northeast became noticeably smaller.

When we repeated the analysis after excluding hospitals controlled by local governments, the only change was in the pattern of system affiliation by hospital size. System affiliation peaked with hospitals having 26-50 beds, but did not drop back among the larger hospitals to the levels of those under 26 beds.

Table 4. System Affiliation: All Community, General Medical and Surgical Hospitals, 2007-2012

	2007		2008		2009		2010		2011		2012	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Hospital size												
1-15 beds	56	33.3%	60	35.5%	68	38.6%	71	41.0%	70	40.0%	73	41.7%
16-25 beds	442	38.3%	450	38.9%	460	39.3%	468	39.7%	499	41.9%	520	43.4%
26-50 beds	179	48.2%	179	48.1%	174	47.8%	167	48.3%	180	48.9%	186	49.7%
51-150 beds	701	60.2%	697	60.5%	711	62.0%	691	62.8%	713	65.0%	700	66.2%
Over 150 beds	1,057	65.4%	1,066	66.2%	1,084	67.5%	1,100	68.2%	1,118	69.9%	1,142	72.1%
Control type[1]												
Gov't, non-fed	280	25.8%	276	25.6%	279	26.0%	256	24.5%	254	24.8%	261	25.9%
Investor-	585	87.7%	572	85.8%	582	85.5%	568	84.3%	596	85.6%	599	86.7%
Non-gov't NFP	1,570	57.7%	1,604	59.1%	1,636	60.3%	1,673	62.1%	1,730	63.8%	1,761	65.4%
Contract												
No	1,682	51.7%	1,651	52.2%	1,745	53.7%	1,759	54.8%	1,844	57.0%	1,873	59.0%
Yes	349	73.9%	339	74.5%	334	74.9%	316	73.0%	315	73.1%	307	73.8%
Phys-grp-owned[2]												
No			2,057	54.7%	2,045	56.1%	2,043	56.9%	2,141	58.9%	2,166	60.4%
Yes			52	62.7%	64	62.1%	60	58.3%	65	64.4%	63	75.0%
Census region												
Midwest	697	52.1%	699	52.2%	713	53.1%	722	54.2%	738	55.4%	756	56.7%
Northeast	255	43.1%	252	43.4%	254	44.4%	268	47.3%	286	50.4%	296	53.2%
South	981	58.0%	994	58.7%	1,021	60.1%	1,002	59.95	1,044	62.0%	1,063	64.0%
West	502	59.1%	507	59.7%	509	59.8%	505	60.1%	512	60.4%	506	60.5%

Data Source: American Hospital Association Annual Survey, 2007-2012; and, Flex Monitoring Team 2007-2013.

1. Government, non-federal includes state, county, city, city-county, and hospital district or authority; non-government not-for-profit includes church-operated, non-government non-profit Catholic-controlled, and other; investor-owned (for-profit) includes investor-owned for profit, individual, partnership, and corporation.

2. Based on AHA survey question, "Hospital owned in whole or in part by physicians or physician groups." Question not asked in 2007.

Discussion

Larger (more than 150 beds), non-government not-for-profit, and metropolitan hospitals show noticeable increases in network participation from 2007 to 2012. Trends in network participation among other types of hospitals are inconsistent. Hospital system affiliation has generally increased in hospitals of all sizes, non-government not-for-profit hospitals, hospitals in all census regions, CAHs, and both metropolitan and non-metropolitan hospitals. While system affiliation is gaining momentum among all hospitals, the percentages of system affiliation are notably higher for midsized and large hospitals, investor-owned, and metropolitan hospitals, compared to their counterparts.

By definition, system affiliation represents a stronger and contractual form of integration, as participating hospitals are "owned, leased, sponsored, or contract managed by a central organization."[1] In comparison, networks can take on different forms of interorganizational relationship (e.g., alliance, agreement, or voluntary participation) to coordinate care. The observed higher increase in system affiliation among hospitals of all kinds may reflect systems expanding into broader markets, and/or local need for expertise in managing the hospitals. Both system and network participation could be attractive as opportunities to achieve economies of scale for both financial and care management purposes.

The current policy and payment environment increasingly demands value-based care delivery; that is, providing care with higher quality, better patient experience and outcome, and lower cost. Integration across levels of care and certain degrees of economies of scale are preconditions for delivering value-based care. For small and rural hospitals that currently lack the capacities to independently meet all these demands, some form of affiliation with other hospitals or systems may help them build and/or access the needed capacities to adapt to the environment. Based on this rationale, the trends revealed in this report convey a mixed picture regarding the current state of small and rural hospitals' participation in networks and systems. On one hand, small and rural hospitals are following the general trend of increasing participation, especially in system affiliation. On the other hand, there are still noticeable gaps between small, CAH, and rural hospitals and their counterparts in the percentages of network participation and system affiliation. Beyond the reported trends, it is unclear why the gaps exist. Moreover, it is unclear what forms of interorganizational affiliation affect, and how they affect, hospitals' and systems' ability to deliver value-based care. Future research should assess the impact of network participation and system affiliation on care quality, access, and cost at both the hospital and system levels to better inform policy development.

References and Endnotes

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4. Flex Monitoring Team CAH Location Data. http://www.flexmonitoring.org/data/.
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6. We examined data availability within hospital categories. Large (more than 150 beds), non-investor-owned, and non-West census region hospitals have higher percentages of network participation data available compared to other hospitals in their respective category. There was no significant difference in data availability among hospitals with different CAH, contract management, and physician group ownership statuses.