November 2015

Are Integrated Academic Health Systems Better?

A Study of Organizational Design and Performance

ECG MANAGEMENT CONSULTANTS

Table of Contents

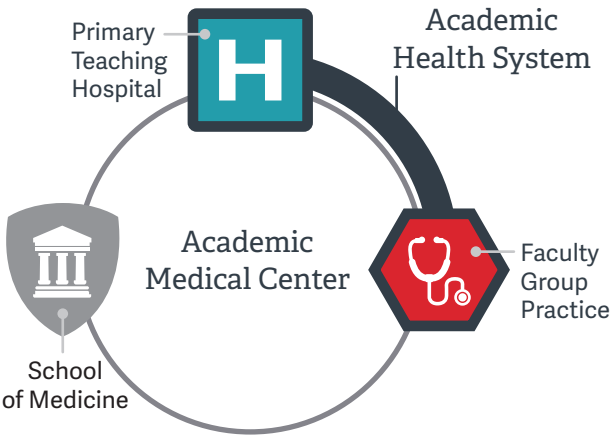
Executive Summary

EXECUTIVE SUMMARY

The Issue

Fairly or unfairly, the economic engine of an academic medical center (AMC) is its clinical enterprise, also known as the academic health system (AHS)—namely the combined assets of the teaching hospital, the clinical faculty, and the affiliated or owned nonacademic (or "community") physicians. On their own, the research and teaching programs are underfunded through their traditional revenue streams and need steady investment from the margin of the clinical enterprise. This critical source of investment from the AHS is at risk for organizations that are not strategically and organizationally well positioned. While the market was challenging enough before the Affordable Care Act (ACA), the headwinds have further intensified for AHSs, as they need to demonstrate they provide higher-quality care at an appropriate cost. This challenge exists for nonacademic providers as well, however AMCs are far more complex as they grapple with the Rubik's Cube of issues that emerge from a three-part mission (clinical care, teaching, and research) while balancing the dynamics of a three-component organizational structure (teaching hospital, medical school, and faculty group practice [FGP]). Further, AHSs have very little room for error since they face unique business disadvantages in the marketplace, including a less favorable payor mix and a traditionally higher overhead due to their academic mission.

Recent studies and literature, including from the Association of American Medical Colleges (AAMC)[1] and the Institute of Medicine (IOM),[2] reinforce the idea that the success of each AMC component entity is inextricably entwined with the others; therefore, the components need to find ways to increase collaboration as external market factors continue to present new challenges. Many AMCs are responding and have made or are planning to make significant changes to improve performance. For example, 31% of Association of Academic Health Center (AAHC) members are changing their governance structures or significant reporting relationships.[3] The market has seen major transactions at AMCs such as Vanderbilt or Northwestern in recent years, where the clinical assets are shifting to bring the hospitals closer together with the physician organizations. However, the majority of the AMCs that do not already have a highly integrated clinical enterprise appear hesitant about making major structural changes; many are unsure of the best approach and are unwilling to assume the risk without understanding the tangible benefits of more closely aligning the teaching hospital with the FGP. After all, what exactly does greater alignment or integration mean? If the AHS was fundamentally more integrated, would it result in a better margin and improve the quality of care? This study attempted to address these and other questions by examining the organizational architecture and functional behavior of AHSs and determining whether a correlation exists between their level of integration and their performance.



The Study

The ultimate goal of this study was to determine whether AMCs with more integrated AHSs outperform those that are considered less integrated, with a central focus on the clinical enterprise—the relationship between the adult primary teaching hospital and the FGP. The first step was to analyze the degree of integration demonstrated by 104 AHSs in the United States and categorize each as being more integrated or less integrated based

[1] T. Enders et al., "Advancing the Academic Health System for the Future," AAMC, March 2014.
[2] V. Dzau et al., "Essential Stewardship Priorities for Academic Health Systems," IOM, September 2014.
[3] *http://www.aahcdc.org/Perspectives/PerspectivesArchive/LP-Fall2014.aspx.*

on empirical data and institutional insight. The two groups were then compared based on five primary areas of organizational performance: reputation, quality of care, financial success, research funding, and resident program ranking (i.e., graduate medical education [GME]).

The Results

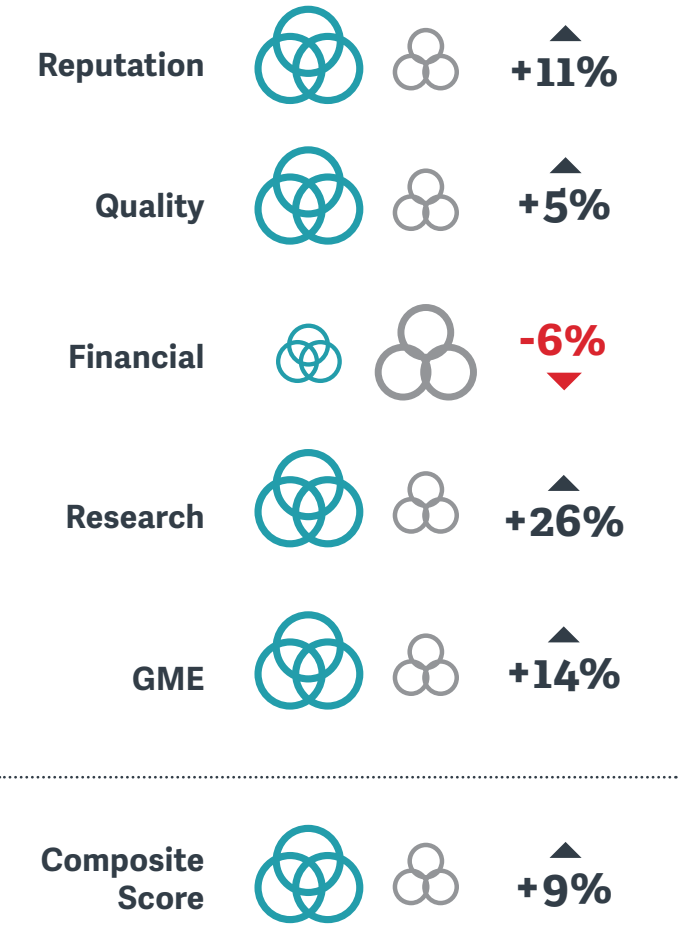
The results suggest that AMCs where the adult primary teaching hospital and FGP (i.e., the AHS) are more structurally and/or functionally integrated materially outperform those that are less integrated when measured in the aggregate. More integrated AHSs outperform in four of the five performance categories. Financial performance is the one measure where the reverse is true, and this study presents a possible explanation for this variation, including the disadvantaged payor mix of the more integrated AMCs.

Conclusions

The findings presented from this study substantiate the widely held belief that the more an AHS is strategically, financially, and otherwise aligned, the better the results for the whole AMC. Nonetheless, the full integration of a corporate structure (e.g., merger into a single-CEO structure for the teaching hospital and FGP) alone may not be the only pathway to integration nor is it a realistic option for some. In fact, functional integration has proven to be equally effective. Institutions that are not corporately integrated have demonstrated that with the reinforcement of a contemporary affiliation agreement (i.e., a bilateral commitment to perform and share financial risk), a high level of functional integration can be achieved through coordinated planning and execution in a number of areas, such as strategic planning and joint budgeting. On the other hand, full corporate integration through a merger or alternative means may be the best solution at some organizations in order to solidify relationships and ensure that their strategic and financial interests are completely aligned.

Most AMC leaders acknowledge, at the very least, their clinical enterprise should be more integrated to compete in today's market, but there is often a deficit of political will to pursue such an initiative among key stakeholders. However, the focus on performance must ultimately trump politics in order for an organization to thrive in today's healthcare environment; and, as this study indicates, AHSs that are more integrated perform at a higher level than those that are not. The opportunity cost of not taking steps to build a more integrated AHS will be high for the clinical enterprise, and will also have a direct adverse impact on the AMC as a whole (i.e., together with the university and medical school) as fewer resources will be available to reinvest in the academic mission.

Performance Relative to Level of Integration



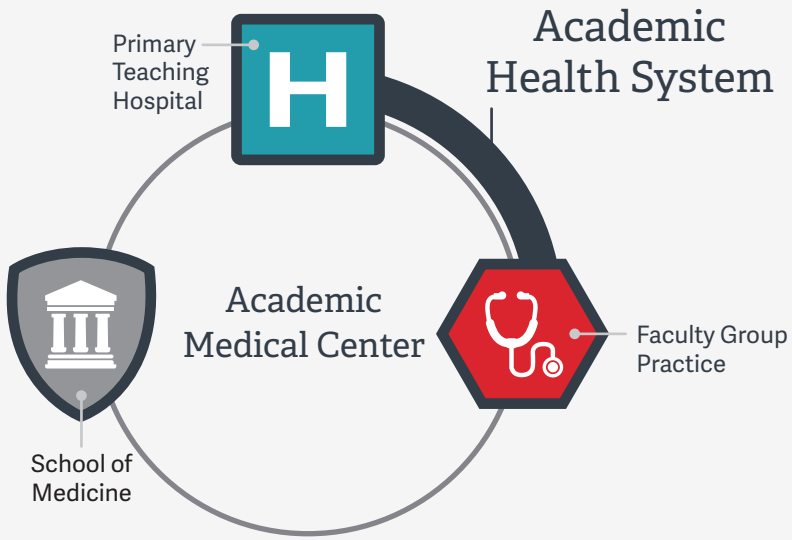
Introduction and Background

INTRODUCTION AND BACKGROUND

The words "alignment" and "integration" flood healthcare business articles and speeches focused on the relationship between hospitals and physicians, with a mixed understanding of their true meaning. Since the passage of the ACA, this topic has only grown in popularity. The market responded with rapid consolidation as hospitals and health systems scrambled to "roll up" community hospitals as well as primary care and specialty groups. Physicians employed by a health system or a system-owned practice increased from 52% in 2008 to 80% in 2014.[4] With respect to the AHS, teaching hospitals and clinical faculty might have been expected to lead this surge of integration, considering their natural interdependencies. Conversely, they are perhaps the slowest to integrate in recent years. Why? Perhaps AHSs are being more cautious than the nonacademic sector. Or, skepticism may exist regarding the suggested advantages of greater alignment. Further, the AMC-based cultural and/or political barriers could appear too significant to overcome in order to pursue the same bold changes as the nonacademic sector. As indicated in **Figure 2**, AMCs need a high-performing clinical enterprise to sustain their three-part missions and remain competitive in the marketplace. If in fact a more integrated AHS is proven to lead to higher performance, it will be a question of "how and when" rather than "if or should" for the institutions holding out today.

Every few years, a wave of literature from highly respected organizations and individuals calls for greater cooperation among the component entities of an AMC, with a primary focus on the relationship between the school of medicine (SOM) and the adult primary teaching hospital and overlapping issues with the affiliated physician organizations.[5,6,7,8] Yet little

Figure 1— AHS-AMC Relationship



[4] Medical Group Management Association (MGMA) Physician Compensation and Production Surveys: 2009 and 2015 Reports Based on 2008 and 2014 Data.

[5] M. Keroack et al., "Functional alignment, not structural integration, of medical schools and teaching hospitals is associated with high performance in academic health centers," *The American Journal of Surgery*, Vol. 202.2, 2011, pp. 119–126.

[6] A. Levine et al., "The relationship between the University of Pittsburgh School of Medicine and the University of Pittsburgh Medical Center—a profile in synergy," *Academic Medicine*, Vol. 83, 2008, pp. 816–826.

[7] D. Barrett, "The evolving organizational structure of academic health centers: the case for the University of Florida," *Academic Medicine*, Vol. 83, 2008, pp. 804–808.

[8] F. Sanfilippo et al., "Strong leadership and teamwork drive culture and performance change: Ohio State University Medical Center 2000–2006," *Academic Medicine*, Vol. 83, 2008, pp. 845–854.

research has been done on the relationship between the teaching hospital and FGP. While there are many articles suggesting tactics to bring hospitals and physician practices closer together, they do not address the specific issues attached to the unique obligations of a teaching hospital and the FGP, which can complicate more common alignment strategies.

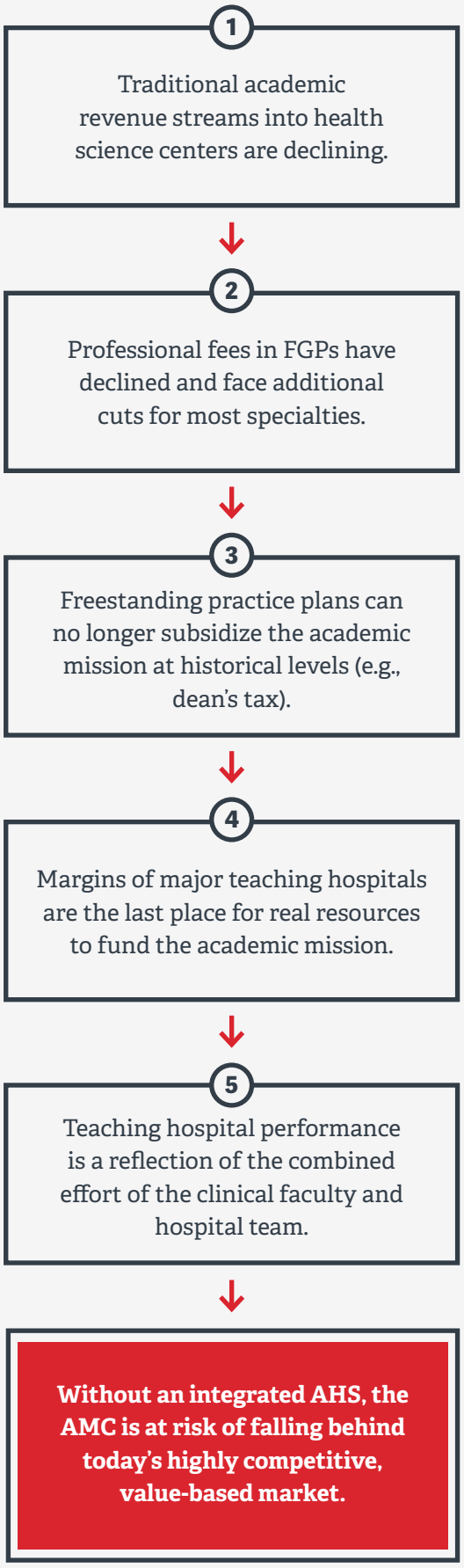
The central focus of this study is the relationship between the FGP and the adult primary teaching hospital and whether a higher degree of integration results in better performance. More specifically, the study examines the AHSs of 104 AMCs and consistently classifies their level of integration and then examines their performance across the following areas:

- The reputation of the adult primary teaching hospital
- The financial performance of the teaching hospital
- The quality of care at the teaching hospital
- The amount of research funding per faculty
- The strength of the GME programs

Much of the performance data included in this study focuses on the adult primary teaching hospital due to the sheer lack of measurable performance data for an FGP as a whole. With respect to research funding and GME program performance, it is attributed to the sponsoring institution.

The study draws from empirical data and institutional insight to present an unbiased discussion regarding the potential correlation between the organizational architecture and/or functional integration of an AHS and the level of its performance in the marketplace. This conversation is offered at a critical time, as AHSs must demonstrate quality at an acceptable cost in order to compete, and as the success of the AMC is directly linked to the AHS as the primary investor.

Figure 2 — Forces Driving the Need for Greater Clinical Integration



Methodology

METHODOLOGY

The approach and methodology of the study can be summarized in four major steps:

1. Define the Study Group — The study sought to include a nationally representative collection of well-established AHSs that include a large enough clinical faculty group to achieve a meaningful level of clinical integration with their affiliated teaching hospital. AMCs are defined by the presence of a SOM. As such, a listing of SOMs was used as the anchor point for establishing the study group, even though the study then focused the analysis on the relationship between hospitals and FGPs.

2. Define and Compare the Level of Integration — It was imperative to gain an in-depth understanding of the organizational design and function of each AHS using both publicly available and proprietary data coupled with qualitative insight gathered through a survey instrument and interviews. These data points were used to classify AHSs as being either more or less integrated, terms that are defined later in this section.

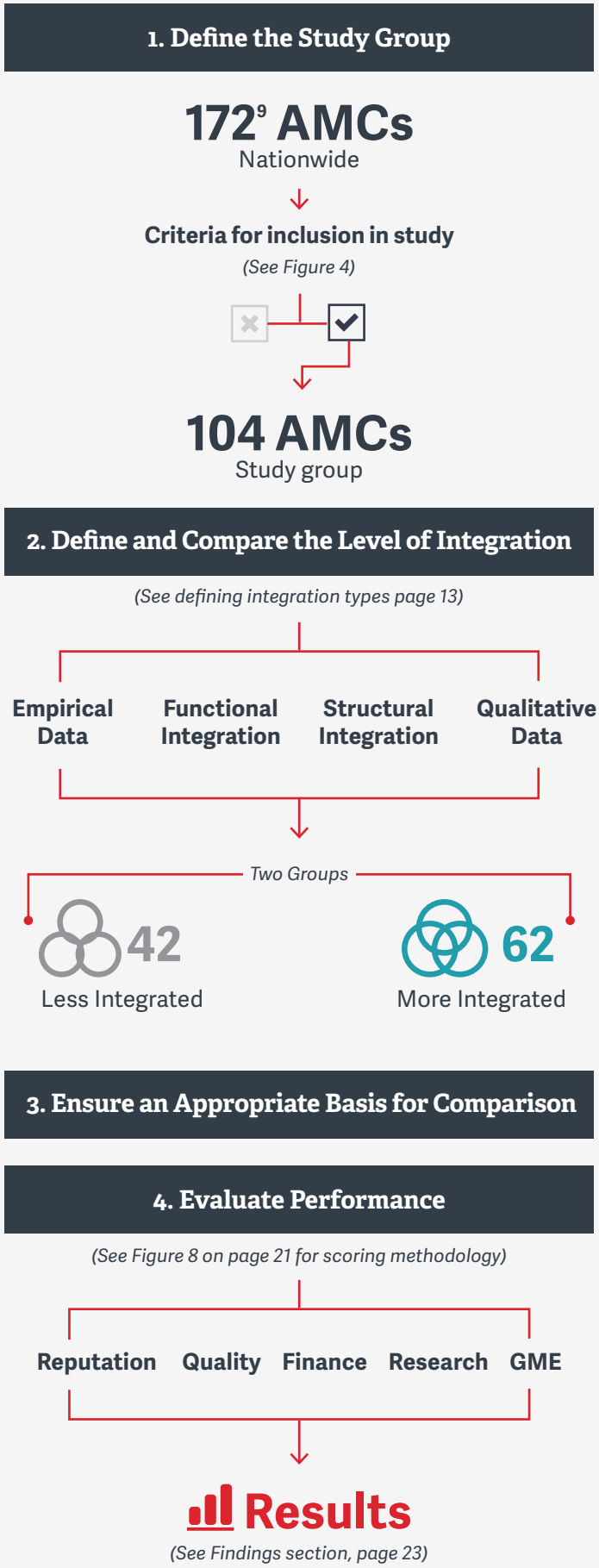
3. Ensure an Appropriate Basis for Comparison — Demographic information was reviewed in order to ensure the two integration groups were reasonably similar in terms of size and the level of teaching activity. Disparities in these characteristics would indicate another justification for relative performance.

4. Evaluate Performance — After carefully grouping each AHS, performance data was extracted for measures that may suggest the success of the AHSs across each of the three mission areas (i.e., clinical care, research, and teaching). In terms of clinical performance, this study focused on the adult primary teaching hospital because reliable FGP data is not consistently available.

These major phases are graphically depicted in **Figure 3**.

[9] This number uses an index of 170 allopathic and osteopathic medical schools in the U.S. and the primary hospital and FGP of each with the exception of Harvard Medical School that is affiliated with 3 major medical centers (MGH, BWH and BIDMC) for a total of 172 AMCs.

Figure 3 — Study Approach



1. Define the Study Group

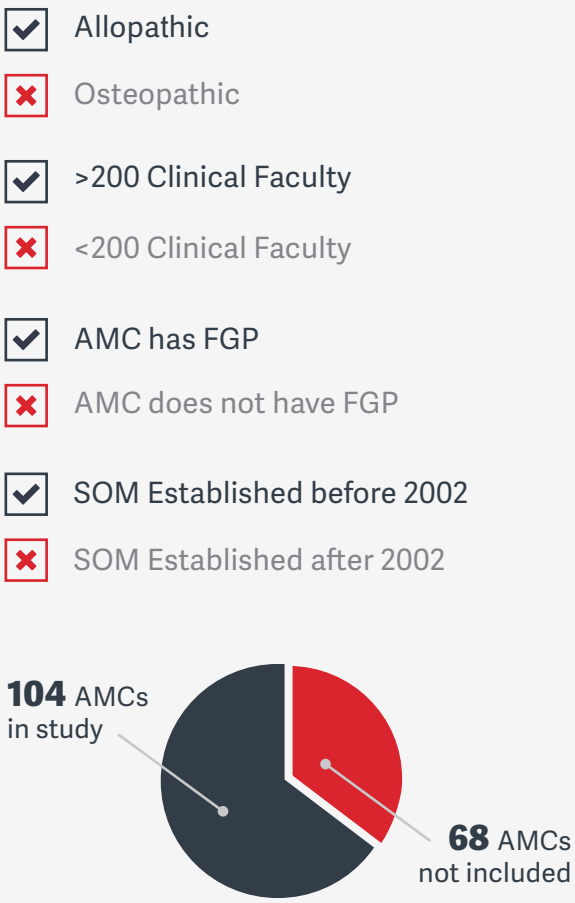
The study group includes 104 AMCs in the United States. SOMs were used as an initial index as an anchoring point to then identify the affiliated AHSs. As of October 1, 2015, there were 170 accredited medical schools in the United States, including 140 allopathic and 30 osteopathic medical schools.[10,11] The osteopathic medical schools were omitted for a variety of reasons, including the diversity of their clinical affiliations/partnerships and their unique training arrangements. The 140 allopathic medical schools accredited by the LCME, ranging from community-based models to large, multi-campus integrated institutions under a single CEO, were represented in the initial study group.

To further refine the study group and ensure an appropriate basis for comparison, three additional filters were applied. First, medical schools and affiliated entities established after 2002 were excluded, because of the number of years required to establish strong and sustainable clinical partnerships. Second, AHSs without a well-defined and designated FGP were excluded, as the study focuses on the relationship between an organized clinical faculty group and the adult primary teaching hospital. Finally, medical schools with fewer than 200 clinical faculty were excluded to ensure adequate scale and program mix for purposes of comparison. **Figure 4** illustrates the steps that brought the initial set of 170 medical schools to the final 104 AMCs used in the study.

Tables 3 and 4, available later in this report, detail the characteristics of these AHSs by size and key financial characteristics, respectively.

It is worth noting that many medical schools are affiliated with more than one teaching hospital. This study focused on each AMC's adult primary teaching hospital, as it is often the best representation of the AHS's overall strength and provides for consistent, measurable performance metrics. These hospitals typically have predominantly faculty physicians on staff, meaning the performance metrics are not distorted by community physicians who are not actively involved across all missions. The AAMC Organizational Characteristics Database (OCD) was initially used to identify the primary teaching hospitals associated with each SOM. This list was validated and augmented by an independent search of publicly available data (e.g., Medicare Cost Reports) to identify the number of residents at each affiliated teaching hospital.

Figure 4 — Conditions for Inclusion in the Study



[10] Liaison Committee on Medical Education (LCME) Medical School Directory, *http://www.lcme.org/directory.htm.*
[11] American Osteopathic Association, *http://www.osteopathic.org/inside-aoa/about/affiliates/Pages/osteopathic-medical-schools.aspx.*

One notable exception to the primary teaching hospital rule was the case of Harvard Medical School, which has more than double the clinical science faculty of the next-largest SOM.[12] In addition, it has affiliations with three major teaching hospitals, Brigham and Women's Hospital, Massachusetts General Hospital, and Beth Israel Deaconess Medical Center, which collectively account for approximately 2,200 beds and over 1,500 residents. Each hospital effectively represents a major, independent AHS and was treated as such.

2. Define and Compare the Level of Integration

Once a reasonable study group had been determined, the second critical step to this study was to develop a methodology to assess the level of integration between the primary teaching hospital and FGP of each AHS. The information below describes the study methodology.

Define Integration

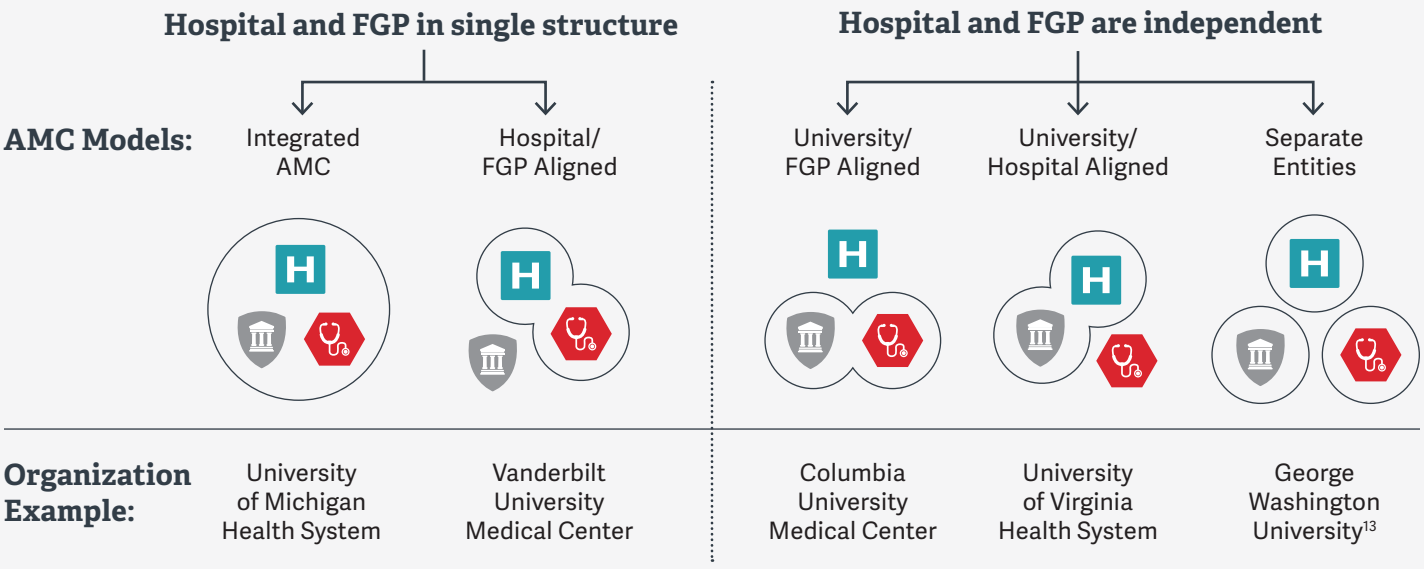
The degree of alignment or integration of the teaching hospital and FGP can be defined or perceived in a number of ways. This study aimed to focus on structural integration, suggested by the organization's architecture, and functional integration, which reflects behavior.

Structural Integration

Structural integration refers to the corporate, legal, and organizational structure of the AHS. In structurally integrated AHSs, the component entities have a direct vested interest in one another's success. For example, an FGP and teaching hospital may be part of the same corporate entity and issue a single set of financial statements (i.e., report collective financial performance).

AMCs can generally be classified into one of five basic structural models based on how the SOM, primary teaching hospital, and FGP are organized and relate to one another; all of these organizational models are well represented in the study. **Figure 5** shows these models, including how two of the five structurally align the FGP with the teaching hospital. This study is specifically focused on the orientation of the AHS and the relationship between the adult primary teaching hospital and the FGP.

Figure 5 — Five AMC Structural Models



[12] AAMC. Distribution of Full-Time U.S. Medical School Faculty by School and Department, 2014.

[13] This example represents three separate entities: The George Washington University School of Medicine & Health Sciences, The George Washington University Hospital, and The GW Medical Faculty Associates.

Although hospitals and FGPs may be bound together structurally, they may not necessarily be cooperating with one another on key tasks that drive the performance of the clinical enterprise.

Functional Integration

For the purposes of this study, functional integration indicates the degree to which the clinical entities of the AHS work together, regardless of their corporate/legal structure. For example, the FGP and teaching hospital may be separate corporate entities yet their executive teams work closely on a regular basis to coordinate operating budgets, pursue joint strategic priorities, and execute physician recruitment plans. It is possible for an AHS to achieve functional integration without being structurally integrated. A less structurally integrated AHS can become more integrated by putting the following functional elements in place to enhance coordination between the hospital and FGP:

Strategic Planning

A joint strategic plan or two closely related strategic plans are developed through a collaborative process that ensures the two entities are working toward the same goals.

Budgeting

Budgets are developed collaboratively to ensure that they are synchronized. One of the entities may be contractually obligated to obtain budget approval from the other entity.

Capital and Facilities Planning

Multiyear capital plans are developed collaboratively to ensure they are synchronized. A joint committee may be formed to evaluate major purchasing decisions.

Matrix Reporting

Matrix reporting lines into the AMC component entities for senior faculty/physician leadership that obligate key executives to concurrently represent and balance the interests of the academic and clinical enterprise (e.g., President, FGP/Executive Vice President of Clinical Affairs, health system).

Clinical Service Offerings

Decisions to add or grow clinical service offerings are made through a collaborative process.

Physician Recruitment

Recruitment of new physicians is done jointly by the FGP and primary teaching hospital in order for the physician mix to complement the long-term goals of the hospital.

Classify AHSs by Level of Integration

All of the 104 AHSs in the study were evaluated and assigned to one of two groups: more integrated or less integrated. Each AHS was evaluated based on the presence of the characteristics described in **Table 1**. These traits are not mutually exclusive, and an AHS may have multiple characteristics from this list. To account for this, the study classified the AHSs as being more or less integrated if they exhibited two or more items from either list. In the rare event that an AHS had traits consistent with both groups, the study relied on ECG's insight through deep industry knowledge and considered the strength of each measure in how the organization was grouped (e.g., university-owned AHSs were commonly grouped as more integrated because of their single point of ultimate accountability, despite having a school-based FGP).

Because of certain data limitations, the study did not include every data point for every AHS. However, the groupings were highly scrutinized and only incorporated into the study after multiple reviewers independently confirmed each AHS's characteristics. Additionally, rather than focusing on any single measure, the study assessed the structural and functional characteristics together to determine the level of integration.

Table 1 — Criteria to Determine Level of Integration

More Integrated Criteria

Characteristics	Description
System-Owned FGP	The FGP is a separate legal entity but is owned or controlled by the hospital/health system.
Direct Physician Employment	The FGP is a business unit/division within the hospital/health system, and/or the hospital directly employs faculty/physicians.
Senior Executive Reporting Relationships	Hospital and FGP leadership report to the same individual, and/or a hospital leader has an executive role in the FGP or vice versa.
University Owned	The university owns both the hospital and the FGP, which is a separate legal entity, or the university owns the hospital, and the SOM employs the faculty of the FGP (a division of the SOM).
Virtual Health System/ Parent Health System	There is a virtual health system (often consistent with reporting relationships), or there is a parent health system over both entities.

Less Integrated Criteria

Characteristics	Description
School-Based FGP	The FGP is a division of the SOM with no corporate ties to the hospital, and/or the FGP is separately incorporated, but the university/SOM is the controlling entity.
Department-Based FGP	Regardless of its disposition and ownership structure, the FGP has limited authority and otherwise represents or supports a department-centric organization of clinical faculty.
Separate FGP and Hospital	The FGP is a separate legal entity, and regardless of its alignment with the SOM, it has no formal organizational/corporate relationship with the adult primary teaching hospital.

"It is possible for an academic health system to achieve functional integration without being structurally integrated."

In order to categorize AHSs as more or less integrated, the study did not draw a distinction between structural or functional integration; instead, an AHS could be considered integrated through either structural or functional integration. **Figure 6** depicts an AHS that is more clinically integrated, while **Figure 7** shows a less clinically integrated AHS. More integrated AHSs are defined by their structural traits (e.g., integrated governance structure, reporting relationships, membership in the same corporate entity) or by their functional traits (e.g., collaboration on strategic and financial planning). Note that these graphics are being used to demonstrate an example of each group and do not include every potential trait of structural or functional integration.

Figure 6 depicts a structurally and functionally integrated AHS. On the structural side, the hospital and FGP are part of a single corporate entity, and a single CEO presides over both. Functionally, they collaborate in areas such as budgeting and strategic planning. They work together on these processes but do not necessarily need to report their finances jointly.

A less integrated AHS, shown in **Figure 7**, has independent structures and processes for the hospital and FGP.

Figure 6 — More Integrated

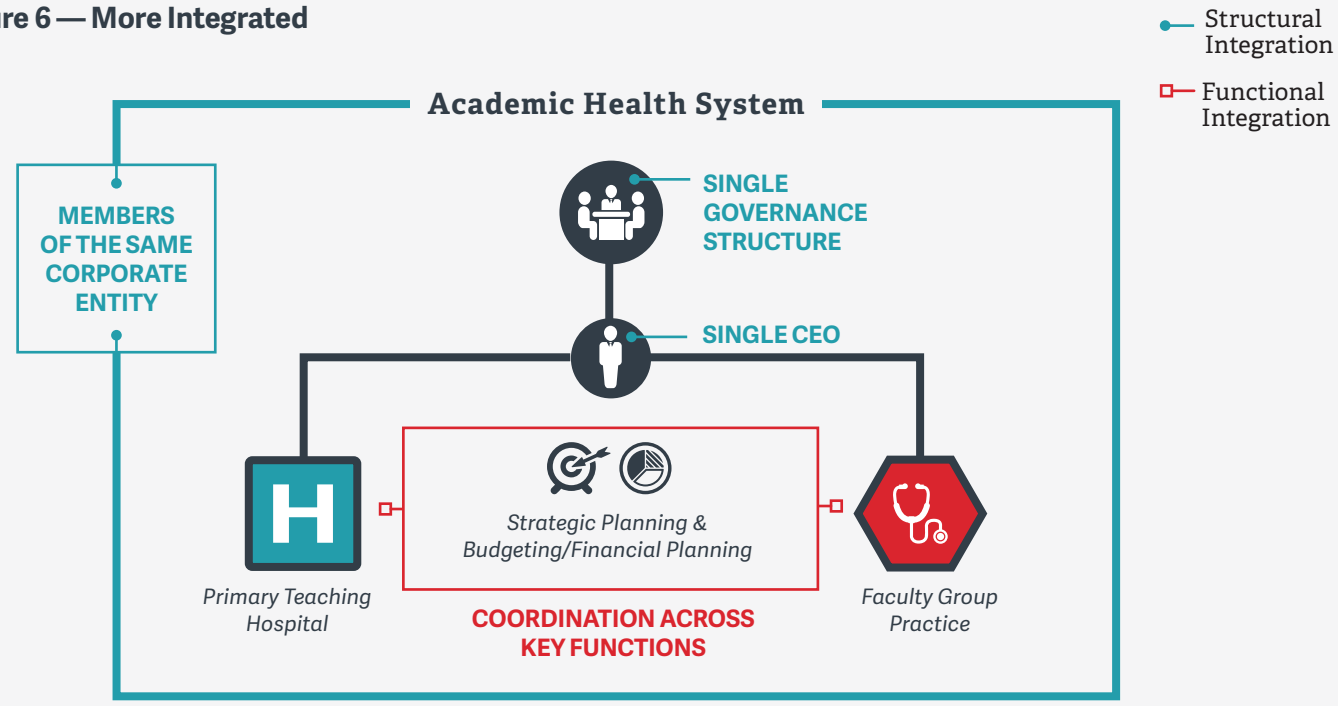
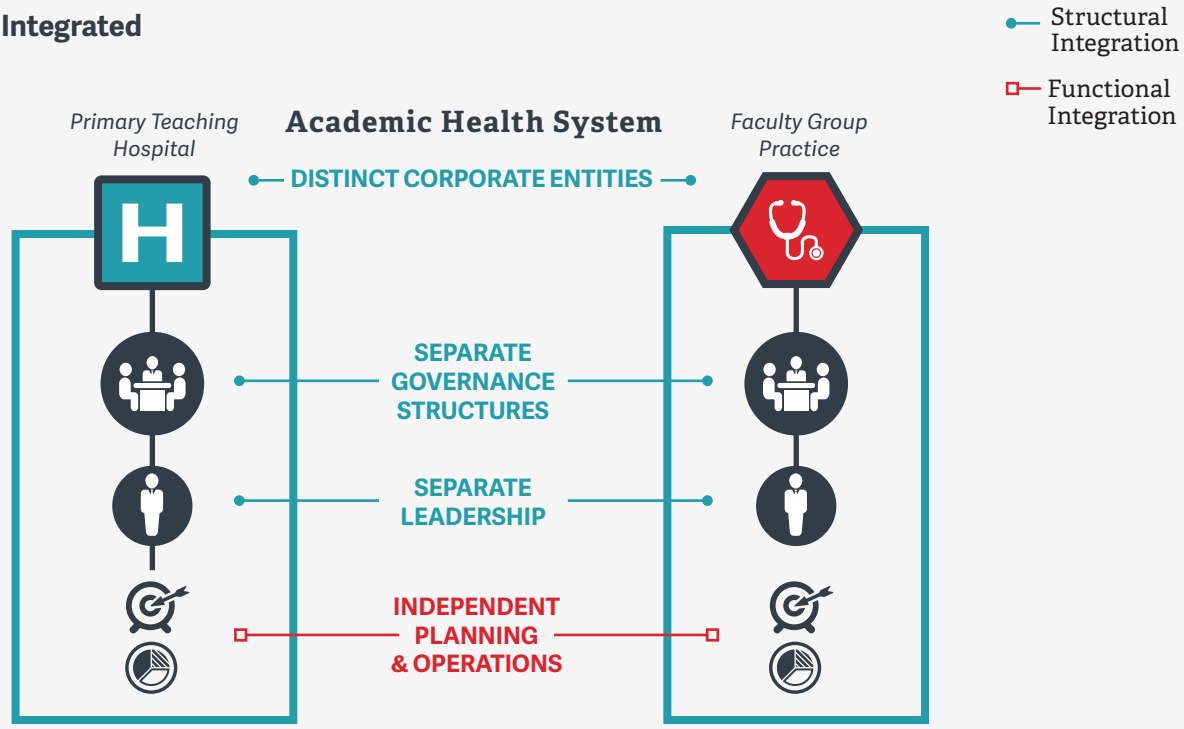


Figure 7 — Less Integrated



Data Sources to Review Integration

The data sources used in this study and the key metrics/criteria that were reviewed are identified in **Table 2**. Information provided by these sources helped develop a comprehensive understanding of each AHS, including its legal structure, reporting relationships, and financial and strategic planning processes.

Table 2 — Data Sources for Assessing Level of Integration

Data Source	Key Metric/Criteria
Annual Reports[14]	Joint strategic planning Financial performance
Financial Statements	Means of reporting (i.e., joint versus separate) Financial performance
Organizational Charts	Reporting relationships
FGP Bylaws	Governance structure Ownership and control
AAMC OCD Database	FGP organizational structure FGP legal structure FGP organizational location
Academic Articles, White Papers, and News Articles	Case studies profiling specific AHSs Discussions on an AHS's position and history
ECG Experience	Organizational structure Reporting relationships Planning Level of integration
ECG Proprietary Survey on Functional Integration	Budgeting Capital planning Physician leadership Physician recruitment Clinical service offerings Strategic planning

When appropriate, the study augmented publicly available information with data from a survey administered on functional integration, as well as insight gathered from AMC leaders through ECG's network. The survey conducted was similar to one developed by the University HealthSystem Consortium (UHC) in its study of integration between medical schools and teaching hospitals and was customized to apply more closely to the clinical enterprise.[15] The survey was distributed to both primary teaching hospitals and FGPs and sought to explore the level of functional collaboration between the hospital and FGP on the following functions: budgeting, capital planning, physician leadership, physician recruitment, clinical service offerings, and strategic planning.

[14] While annual reports do not necessarily provide insight into day-to-day planning, they did at times demonstrate that the parties had developed and executed on a joint strategic planning process at least at a program level.

[15] M. Keroack et al., "Functional alignment, not structural integration, of medical schools and teaching hospitals is associated with high performance in academic health centers," *The American Journal of Surgery,* Vol. 202.2, 2011, pp. 119–126.

3. Ensure an Appropriate Basis for Comparison

Overall, the study included approximately 75% of the AHSs with allopathic SOMs in the country, making it one of the most comprehensive studies of AHS integration to date. Although the more integrated group was larger than the less integrated group (62 versus 42), the two groups were fairly similar in certain characteristics, as detailed below.

Table 3 — Adult Primary Teaching Hospital Profile: Median Size of Two Groups[16]

Level of AHS Integration	Count	Median Beds	Median Clinical Faculty	Median Total Faculty	Median Resident-to-Bed Ratio
More Integrated	62	576	984	1,146	0.75
Less Integrated	42	618	840	987	0.64
Overall Median	104	577	896	1,052	0.70

Table 3 shows the median characteristics of the two groups in terms of AHS size. The more integrated group has a slightly smaller median bed size than the less integrated group. However, based on clinical faculty, total faculty, and the resident-to-bed ratio, the more integrated group has a greater level of academic intensity.

The key financial statistics of the primary teaching hospital were also compared for the two groups, as shown in **Table 4**. The groups are fairly similar in terms of net patient revenue, rate of government payors, and case mix. However, the higher rate of Medicaid payors for the more integrated group leaves it vulnerable to a wider range of financial performance due to state-specific payment schedules.

Overall, based on these characteristics, there is a reasonable basis for comparison of performance based on level of integration.

Table 4 — Adult Primary Teaching Hospital Profile: Median Financial Characteristics[17]

Level of AHS Integration	Count	Median Net Patient Revenue	Median Medicaid Percentage of Total Days	Median Medicare Percentage of Total Days	Median Case Mix Index
More Integrated	62	$928 Million	19%	27%	1.89
Less Integrated	42	$824 Million	13%	30%	1.89
Overall Median	104	$886 Million	18%	29%	1.89

[16,17] The study included all available performance data for each measure, but due to certain data limitations some measures were not available for every AHS in the study.

4. Evaluate Performance

The central focus of this study was to measure the impact of integration on the clinical, financial, and educational performance of the AMC. To accomplish this goal, the study focused on five major categories:

- The reputation of the hospital's clinical programs
- The quality of care at the hospital
- The financial performance of the hospital
- The amount of research funding per faculty awarded to the hospital and/or SOM
- The strength of the GME programs

Hospital performance was the primary point of focus, because FGP data is not consistently available. In aggregate, the study analyzed dozens of reputable metrics but ultimately narrowed the list down to 12 characteristics that provide a comprehensive picture of AMC performance. These measures are described in detail in the APPENDIX.

Individual AMCs were scored on each measure. The scores were then aggregated based on integration group. Measures within each category were blended according to their importance in the overall category (e.g., the HCAHPS score represented 50% of the quality ranking).

Lastly, performance category scores were blended to achieve an overall performance score, as shown in **Figure 8**.

Once the data was compiled, the study ranked the AMCs relative to one another for each of the performance metrics. The study then calculated average scores for both study groups and all performance metrics, which allowed for an accurate comparison of the performance of the more integrated group to the less integrated one.

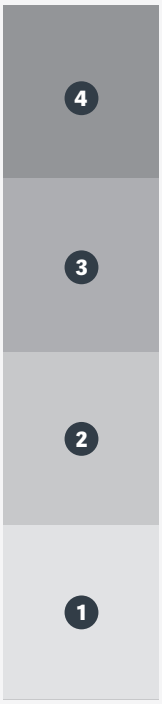
"This study included approximately 75% of the academic health systems with allopathic schools of medicine in the country, making it one of the most comprehensive studies of academic health system integration to date."

Figure 8 — Scoring Methodology

Select performance metrics

	Weight
Reputation	
U.S. News & World Report Rankings	100%
Quality	
HCAHPS Score	50%
CMS Value Adjustment	30%
CMS Readmission Adjustment	20%
Finance	
Operating Margin	33%
Adjusted Cost Per Discharge	33%
Current Ratio	33%
Research	
NIH/Faculty	100%
GME	
Doximity Ranking — Internal Medicine	50%
Doximity Ranking — Surgery	50%

Score AMCs on each metric



Top Quartile
4 Point

Second Quartile
3 Point

Third Quartile
2 Points

Bottom Quartile
1 Point

Determine aggregate score for each integration group

More Integrated
(62 AMCs)

Less Integrated
(42 AMCs)

Calculate composite score for each category

	Weight
Reputation	20%
Quality	20%
Finance	20%
Research	20%
GME	20%

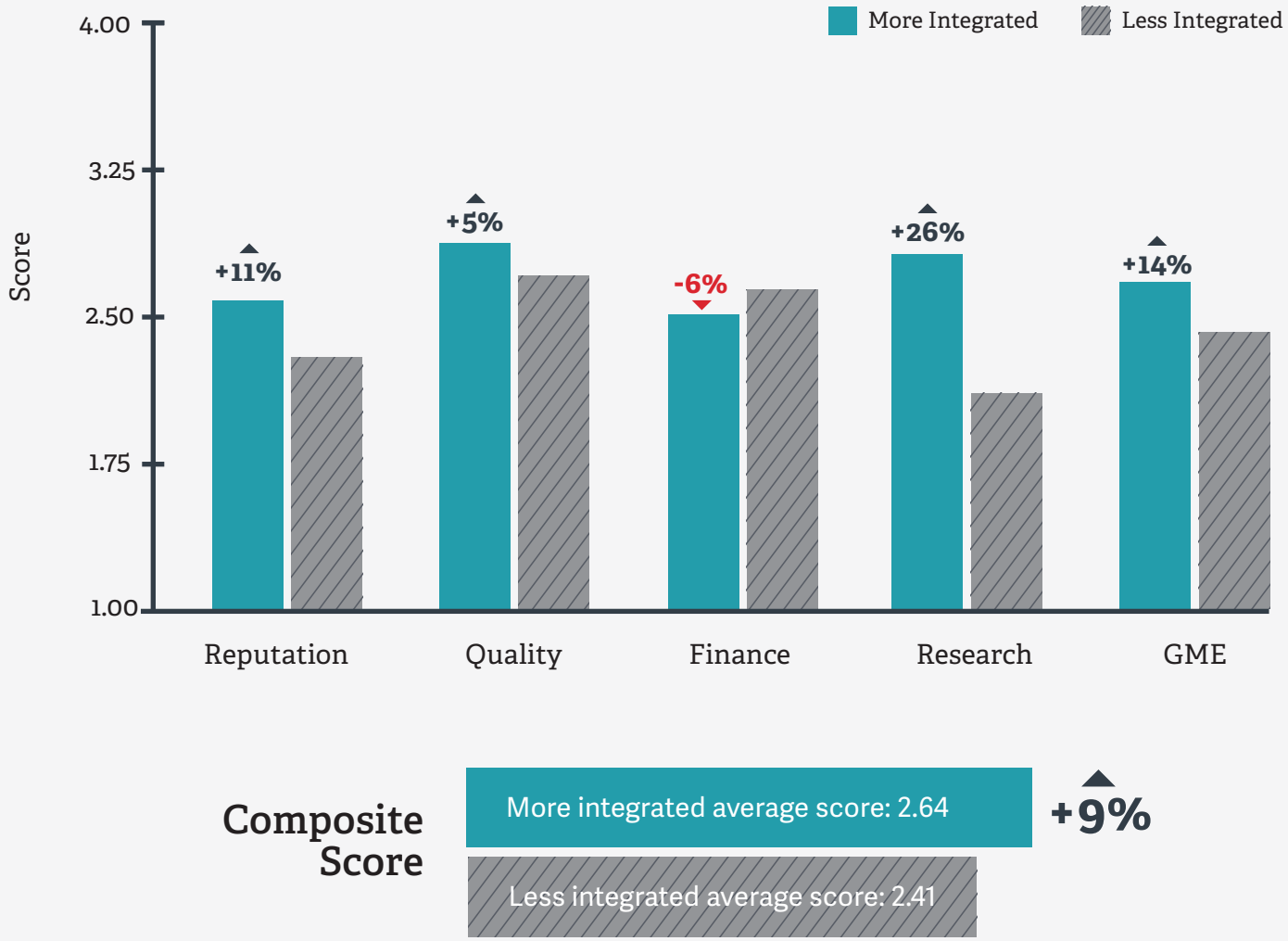
Findings

FINDINGS

When the two groups were compared, the more integrated group exhibited higher performance across four of the five performance categories: reputation, quality, research, and GME. However, the more integrated group fared worse in financial performance. Based on the overall composite score, which took into account all performance metrics, the more integrated group performed approximately 9% better (with an average score of 2.64 compared to 2.41) than the less integrated group.

Relying on the five-point scoring system described in the methodology section of this study, **Figure 9** provides a snapshot of how each group performed. We further explore each of these measures in the subsections that follow.

Figure 9 — Performance Relative to Level of Integration



The individual performance metrics (e.g., HCAHPS score, CMS value-based adjustment) were directionally consistent with their respective categories (e.g., quality); however, there were different degrees in the magnitude of performance variation between the performance metrics in each group. For example, the HCAHPS score may have been 15% higher in the more integrated group, while the CMS value-based adjustment was only 5% higher, resulting in a 10% higher overall quality category score.

Reputation

Measuring the overall reputation of an AMC from a single source is not possible for many reasons, including the fact that most AMCs encompass multiple entities and all are judged for three missions. For the purposes of this study, the annual *U.S. News & World Report* specialty rankings by hospitals was used as a proxy for the reputation of the adult primary teaching hospital (which in turn can be a reflection of the clinical faculty and medical school) in the eyes of patients and future physician recruits. This ranking significantly relies on reputation in its methodology, giving it 27.5% of the overall weighting.[18] While some AMC and hospital leaders share mixed opinions regarding the rankings methodology, the vast majority of hospitals spend marketing dollars to promote their high rankings to the public, who often associate it with overall quality and/or service.

The more integrated group performed well above the less integrated group based on two different metrics: the average number of awards and the percentage with four or more specialties ranking in the top 50, as shown in **Table 5**.

The more integrated group outperformed the less integrated group in both of the measures used in the reputation category. One could conclude that this outcome is the product of certain teaching hospitals and FGPs that have partnered effectively to become completely aligned strategically and financially on specific, high-priority specialties or service lines. These hospitals and FGPs are in agreement regarding the direction of resources in order to grow the programs and recruit and retain high-caliber faculty. The program is perceived to be strong by peers and, as a result, receives national recognition in the rankings. The concept of integration between the hospital and FGP is not unlike the concept of successful service lines. When a number of departments are able to set aside their own interests and channel their focus on the performance of a multidisciplinary program, the service line yields a better product.

Table 5 — Results: Reputation[19]

U.S. News & World Report Rankings

Level of AHS Integration	Count	Average Number of Awards	Percentage With Four or More Specialties in Top 50
More Integrated	62	4.39	45%
Less Integrated	42	3.43	36%
Overall	104	4.00	41%

Quality

Studies and surveys have shown that consumers generally associate AMCs with high-quality care because of the presence of research and GME. This long-standing perception does not always translate to high clinical quality scores and outcomes for AHSs. The federal government, commercial payors, and the general public have in recent years put pressure on hospitals and physician practices to measure and report clinical quality, safety, and service. With technology advances in electronic medical records

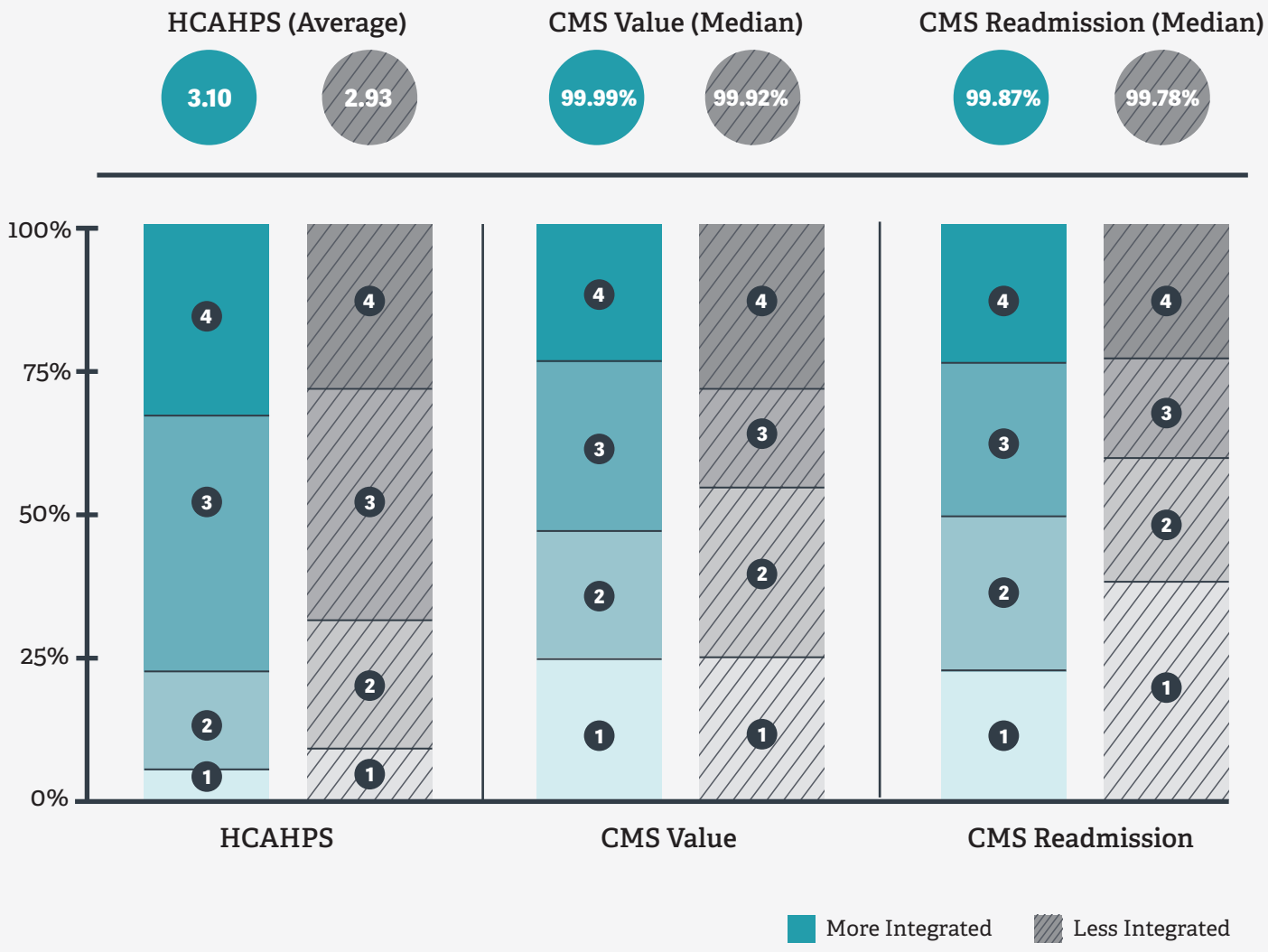
[18] RTI International. Methodology: *U.S. News & World Report* Best Hospitals 2014-15. July 14, 2014.

[19] The study included all available performance data for each measure, but due to certain data limitations some measures were not available for every AHS in the study.

and supplemental business intelligence programs, quality data reporting has become more enhanced and accessible to patients. Hospitals and physician practices will need to compete on quality (and cost) to drive business forward. AMCs will be challenged, as they typically treat more complex cases and carry a higher overhead because of their teaching mission. Regardless, AHSs will need to organize their infrastructure and personnel to focus on quality outcomes.

This study examined HCAHPS summary star ratings, the CMS value-based purchasing adjustment factor, and the CMS readmission adjustment for the more and less integrated groups. The more integrated group scored better across all of the measures, as shown in **Figure 10**. Similar to the rationale of the reputation category's outcome, it is understandable that when teaching hospitals are tightly aligned with their FGP, an opportunity exists to more consistently achieve a higher quality of care. The inverse also seems logical: the less coordinated and more distant the two parties are, there is less of a collective focus on quality across the care setting and, instead, more inconsistency. For example, a more unified governance and leadership structure over

Figure 10 — Group Performance Across Quality Measures[20,21]



[20] Reflects the distribution of scores (1 to 4) within each quartile by integration group. A score of 4 indicates the highest-performing AMCs.

[21] The study included all available performance data for each measure, but due to certain data limitations some measures were not available for every AHS in the study.

both the teaching hospital and FGP allows a single set of care delivery and safety-related policies, procedures, and guidelines to be developed and enforced, which ensures high-quality care is consistently delivered across the health system.

It is worth noting that although the differences between the two groups for CMS measures are merely fractions of percentage points, they are meaningful when taking into consideration the fact that the adjustment applies to the Medicare PFS payment, which exceeds several hundred million dollars for many of the teaching hospitals in this study. Additionally, the rate is scheduled to increase as a factor of hospital financial success. In 2015, the CMS value-based purchasing adjustment factor rises to 1.5% and the CMS readmission payment adjustment factor rises to 3.0%.[22]

Financial Performance

Despite the fact that the vast majority of AMCs in the country are nonprofits and there is hesitancy to discuss financial performance because of their mission, the saying "no margin, no mission" is particularly true in today's dynamic market. Unless the clinical enterprise of the AMC, the AHS, is keenly focused on maximizing revenue and managing costs, resources will not be available to be reinvested in the academic mission and AMCs will fall behind in the market. How an AHS is organized and how decisions are made can have a direct impact on optimizing financial performance.

Coincidentally, in this study, the less integrated group outperformed the more integrated group as measured by operating margin and cost per discharge, as shown in **Table 6**. This category is the only one in the study where the less integrated group performed better than the more integrated group.

Table 6 — Results: Finance[23]

Level of AHS Integration	Count	Hospital Median Operating Margin	Hospital Median Adjusted Cost Per Discharge	Median Current Ratio
More Integrated	62	3.78%	$9,680	1.87
Less Integrated	42	5.62%	$8,636	1.72
Overall	104	4.01%	$9,280	1.81

Upon further reflection of the results and closer examination of the profiles of the institutions included in the study, there are a series of likely explanations for this outcome. First, as discussed earlier in this report, the more integrated AHSs have a weaker payor mix and treat more complex (and costly) cases. These factors can contribute to a higher cost per discharge and lower margins. However, this interpretation would seem to be counterbalanced or canceled out by the ability of a more integrated AHS to be highly coordinated in fiscal management and perhaps more cost-efficient across the hospital and physician enterprise.

[22] *http://www.modernhealthcare.com/article/20141231/NEWS/312319977.*

[23] The study included all available performance data for each measure, but due to certain data limitations some measures were not available for every AHS in the study.

The stronger and more likely explanation for the study's result in this category is the level of annual investment flowing from the AHS to the academic enterprise (either through transfers for a fully integrated AMC or through affiliation agreement payments for those that are corporately separate). The gross margin of the more integrated AHSs could be higher than that of the less integrated, but it is disguised by the level of investment to the AMC (e.g., a contractual commitment to provide annual mission support to the medical school); this added expense would reduce an AHS's reported net margin. This interpretation is also supported by the higher level of research demonstrated by more integrated AHSs. There are many examples of this situation across the United States, whereby a major teaching hospital is contractually committed to invest a predetermined portion of its annual revenue and/or margin to its affiliated university/SOM. Further, the teaching hospital margins of fully integrated AMCs (i.e., those that have a single corporate structure) can be deceiving, as these organizations are more focused on the overall financial performance of the university or health science center and are less concerned about how the financial performance of a single component entity is expressed publicly.

Research

It is not a coincidence that most of the highest ranking and most respected AMCs in the country also have the highest level of federally and industry-sponsored research funding. These institutions tend to have a focused investment strategy for research-intensive faculty, as well as modern space and technology to support the mission. A focused research strategy has become increasingly important, since funding has become more competitive; applications have risen while funding has remained flat. The success rate on grant applications has been cut in half over the past two decades and now stands at approximately 15%.[24]

As shown in **Table 7**, the more integrated group notably outperformed the less integrated group in both measures in this category.

Table 7 — Results: Research[25]

Level of AHS Integration	Count	NIH Median Funding	NIH Median Funding Per Faculty
More Integrated	62	$83 Million	$69,977
Less Integrated	42	$42 Million	$52,503
Overall	104	$48 Million	$59,972

Whether an AHS is structurally or functionally more integrated, it is understandable why research activity would be higher for organizations where the strategic and financial interests of the primary teaching hospital and FGP are aligned. The parties, along with the affiliated SOM, are highly coordinated in sustaining the research enterprise. It can be more challenging for less integrated groups to agree on a research strategy, and there is typically less transparency on how investment dollars are being used to support these costly programs. Having a shared approach on, for instance, tracking the amount of collective faculty effort devoted to research and consistent bridge-funding policies, can breed confidence in the AHS leadership to renew its investment in research-intensive faculty.

[24] NIH Office of Extramural Research, Ways of Managing NIH Resources.
[25] The study included all available performance data for each measure, but due to certain data limitations some measures were not available for every AHS in the study.

Graduate Medical Education

Together with research, an institution's ability to sustain a strong teaching program can have a significant impact on the overall stature of an AMC. Despite limited federal funding to support GME programs, the market is surging as more community hospitals and health systems aggressively invest in training programs, which have many perceived benefits including the reputation that comes with being a teaching hospital and establishing an organic pipeline for its medical staff. The market dynamics are putting added pressure on long-standing major teaching hospitals to attract and retain high-caliber faculty to manage GME and establish highly reputable programs that draw the best residents.

As summarized in **Table 8**, the more integrated AHS group performed significantly better in this study with respect to residency ranking, which is based on measures such as current resident satisfaction, program reputation, and various objective measures (e.g., board passage rates).

Table 8 — Results: GME[26]

Level of AHS Integration	Count	Median Doximity IM Residency Rank[27]	Median Doximity Surgery Resident Ranking[28]
More Integrated	62	56	54
Less Integrated	42	88	77
Overall	104	65	61

Consistent with the interpretation themes shared for other results of this study and based on insight gathered from many of the more integrated AHSs, the results of the GME category seem intuitive. As an AHS turns its attention to the nonclinical missions of research and medical education, it is conceivable that the more integrated organizations would need to be aligned in their thinking with respect to investing in the academic mission. The more distant or fragmented the organizational model is, the more challenging it may be to reach agreement on where to invest, how best to manage the training programs, and how it aligns with the clinical strategy.

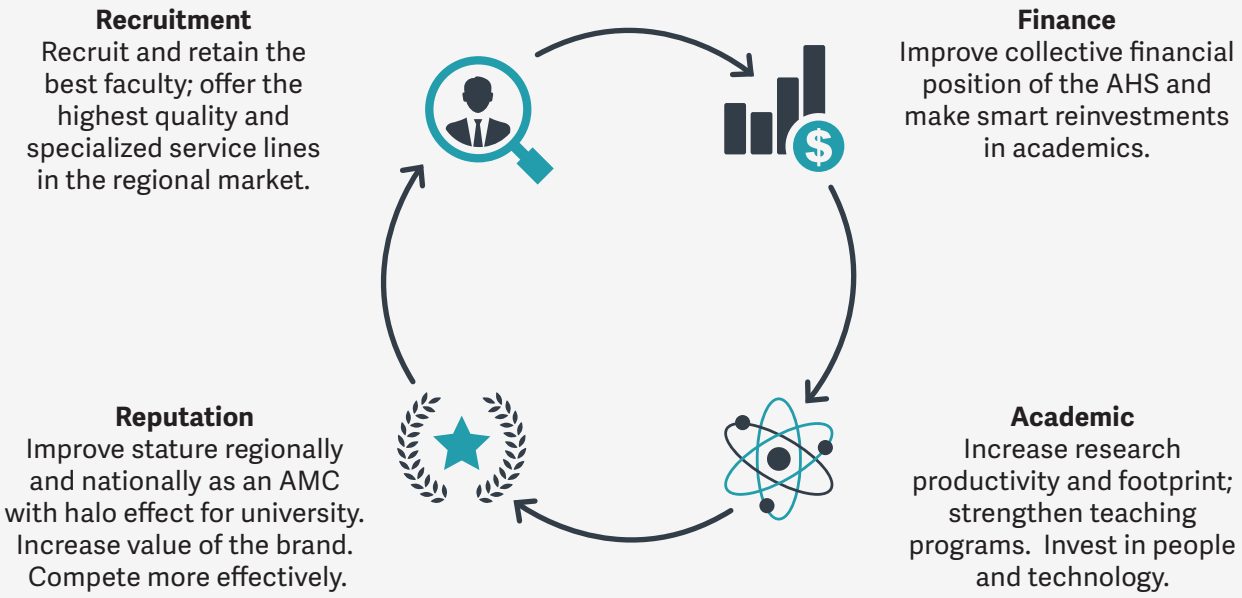
[26] The study included all available performance data for each measure, but due to certain data limitations some measures were not available for every AHS in the study.
[27] Doximity residency rankings, surgery and internal medicine. *https://residency.doximity.com/.*
[28] Ibid.

Discussion

DISCUSSION

Are integrated AHSs better? This study suggests they are. Does that mean all teaching hospitals and FGPs should merge to achieve integration? Not necessarily, but it does indicate that having complicated organizational models and spending considerable energy negotiating from a distance rather than acting as true partners with shared risk will in fact cause organizations to fall behind in the market. Historically, many academic leaders have been afraid that concentrating on the production and performance of the clinical enterprise would come at the cost of distracting from the AMC's academic obligations. In fact, the reverse may be true. AMCs that focus on academics in an uncoordinated and reactionary manner without the steady strength of a high-performing AHS will fall short of sustaining their three-part mission. AMCs need to rebalance their portfolio and ensure the maximum value is generated from their clinical enterprise so they can invest wisely in academic programs. This belief is reflective of a "virtuous cycle," a construct used by many companies across industries. As shown in **Figure 11**, the virtuous cycle is fitting for describing the nexus between the strength of the clinical enterprise and the ability to succeed in all three missions of the AMC.

Figure 11 — Virtuous Cycle of AMC Components Supporting One Another[29]



Substantiated by the results of this study and in the context of the virtuous cycle, the discussion points and opinions below are offered to AMCs and their AHSs as they interpret the study's findings and make adjustments to their organizational and functional design to more effectively compete in today's marketplace.

[29] Adopted from Figure 2 in A. Levine et al., "The relationship between the University of Pittsburgh School of Medicine and the University of Pittsburgh Medical Center—a profile in synergy," *Academic Medicine*, Vol. 83, No. 9, pp. 818, September 2008.

Acceptance that the AHS is the Economic Engine

Forward-thinking AMCs place equal importance on their three mission areas but accept the fact that the health system must thrive economically for a recurring source of investment to be available. Despite that, having the infrastructure and administration of a major teaching hospital tightly aligned with the academic physician organization inherently creates an advantage for the performance and market position of the AHS. Many AMCs need to break through the misperception that if the clinical portion of faculty's time is under shared control with the health system, the institution will drift away from its focus on academics. The opposite in fact may be true: if an AHS does not appreciate and embrace its academic mission through the shared oversight and engagement of clinical faculty, the AHS will be increasingly tempted to address its clinical needs with alternative providers who have little or no academic obligations. This type of shift would likely change the complexion and direction of the AMC.

Streamlined Decision Making

It has been tested and proven across industries that when a well-defined and efficient decision-making process is established, organizations are able to respond faster and make more informed decisions that align with their strategic goals and missions. Achieving a streamlined decision-making process can be very challenging for AMCs because of their three-component organizational structure and three-part mission, but it has become an imperative for at least the clinical enterprise. The opportunity cost is far too high for teaching hospitals and large clinical faculty organizations to be disjointed in how they approach strategy, operations, and finance. Establishing a clear and more vertical reporting structure will enable a more efficient and informed decision-making process. Being nimble and responsive is essential for AHSs to be competitive in today's market, where there is little room for error.

BUILDING AN INTEGRATED AHS

The University of Kansas Health System

> *Historically three separate entities*
> *700-bed flagship teaching hospital*
> *$1.5B clinical revenue (hospital + FGP)*
> *600 clinical faculty*

OLD MODEL

- 18 physician foundations, each with its own board
- Siloed leadership structures
- Complex funds flow between SOM and hospital
- Misaligned strategic and financial goals
- Separate professional and hospital-based revenue
- Unclear GME and mission support to SOM

NEW MODEL

- Single, integrated, multispecialty FGP
- New health system structure uniting new FGP with hospital
- Matrix leadership positions across hospital, FGP, and SOM
- Simplified, performance-based funds flow
- Comanaged ambulatory care division
- Pooled enterprise revenue
- Formulaic, incentive-based investments to SOM from health system

REDESIGN OF A STRUCTURALLY INTEGRATED AHS

Penn Medicine

University-based AMC (three components under university ownership)
700-bed flagship teaching hospital
$4.3B clinical revenue (hospital + FGP)
1,600 clinical faculty

OLD MODEL

- Hospital, SOM, and FGP, each with its own board/oversight structure
- SOM and health system operated independently, though both under university
- Complex funds flow/support arrangements between individual departments, hospital, and SOM
- Health system and nearly all departments operating in deficit
- Lack of hospital/FGP engagement in organized joint planning

NEW MODEL

- FGP within health system
- Vertical reporting structure for health system (FGP CEO reporting to health system CEO)
- One board (Penn Medicine) guiding the health system and SOM
- Strategic and long-range financial planning integrated across Penn Medicine
- Completely new funds flow that is highly formulaic and performance-based
- All departments operating in the black

Physicians and Staff *Are* the Assets

Large hospitals, advanced laboratories, and medical school campuses might come to mind when thinking about an AMC, but this visual is empty without the most important asset: the faculty/physicians and other health professionals. The success or failure of an AMC ultimately rests on its ability to recruit and retain high-caliber faculty, and how they are organized, governed, and managed will have an increasingly direct impact on recruitment and retention. Early-career faculty and community physicians seeking to be associated with an AMC in today's market are curious about how an institution is organized, its points of accountability, and how resources are directed. They are also more knowledgeable about the sustainability of their professional practice and the need for investments from the teaching hospital. AHSs will be well served to showcase an organizational design where the physician organization is structurally or functionally aligned with the primary teaching hospital. If the caliber or value of these assets (physicians and staff) declines, the operations and financial performance will follow.

Shared Goals and Accountability

While it may seem clear that the university/medical schools should be primarily responsible and held accountable for the academic mission, ownership of the clinical mission is more complicated. The clinical enterprise must have shared goals and be accountable for executing the clinical mission across the physician enterprise and hospital/health system. The teaching hospital and FGP must accept that each cannot succeed without the other. In other words, the measure of success for the clinical enterprise should only be viewed through the lens of the AHS as a whole. Developing an organizational structure that insists on shared goal setting and clear points of accountability (ideally linked to financial risk/reward) is a critical success factor. In most markets, AHSs are competing with highly integrated nonacademic health systems that have a vertical organizational model with one set of goals and clear distribution of accountability.

Restructuring Alone Won't Solve Everything

The process of restructuring corporately or changing reporting lines for any organization regardless of industry is very tangible, much more so than setting a strategy or analyzing performance. The "before" and "after" of a structural change is very apparent. Making changes to the governance, leadership, and management structure is sensitive and draws the attention of stakeholders, which is particularly true in the often political environment of AMCs. However, without a firm understanding of what an AMC is trying to achieve functionally or behaviorally, restructuring may be misguided and/or serve as an unnecessary distraction from improving functional integration. For instance, while it would appear easier for a fully integrated AMC (i.e., all entities reporting to one board and CEO) to drive toward a single strategy and make streamlined decisions, many have fallen short. Despite a single structure, deficiencies can exist in how divisions or business units are organized, and there can be unclear points of accountability and flat or fragmented decision-making processes. The same can be true of nonacademic community hospitals that are underperforming because they have directly employed physicians without having a well-defined strategy or organizational model to engage them. Conversely, there exist AMCs with a high level of organizational effectiveness through their AHS in their ability to define and execute strategy and manage operations despite having multiple entities. Nonetheless, this discussion should not deter AHSs from strongly considering a new, contemporary structure if it is warranted and if it can serve as an effective enabler to integration. The overarching conclusion being made here is that structure alone neither directly equates to functional integration nor does it ensure organizational effectiveness.

The Imperative for Integration

Grounded in results instead of rhetoric, this study substantiates the widely held belief that more integrated academic health systems outperform their less integrated peers across multiple measures of performance. This comes as no surprise, as there are no prevailing trends driving toward the fragmentation of the FGP and/or its relationship with the adult primary teaching hospitals. When large academic physician organizations (which commonly account for the majority of a teaching hospital's medical staff) are structurally and/or functionally integrated with their hospital partner, the AHS and, more broadly, the AMC can fundamentally improve performance across all three mission areas. While the path to a more integrated relationship presents many hurdles—such as fear of an SOM yielding control of clinical faculty, difficulty designing a mutually acceptable structure, and cultural and political barriers—the healthcare market will not wait for AMCs to catch up. The truth is an AMC cannot reach its full potential without an integrated, well-organized, and market-dominant AHS.

"The opportunity cost is far too high for teaching hospitals and large clinical faculty organizations to be disjointed in how they approach strategy, operations, and finance."

APPENDIX—Data Sources For Assessing Performance

Reputation

U.S. News & World Report Hospital Rankings[30]

The U.S. News & World Report reviews nearly 5,000 hospitals and the results from surveys of more than 140,000 physicians to rank the best medical centers in 16 adult specialties. This study includes the total number of awards in the following adult specialties: cancer; cardiology and heart surgery; diabetes and endocrinology; ear, nose, and throat; gastroenterology and GI surgery; geriatrics; gynecology; nephrology; neurology and neurosurgery; orthopedics; pulmonology; and urology. The top 50 for each specialty was considered, and, for each occurrence of a listing on the top 50 for a specialty, the organization was allocated one point. For example, if Hospital A was ranked 10 on the cancer list, 35 on the geriatrics list, and 15 on the pulmonology list, it would receive a score of three points.

Quality

CMS Value-Based Purchasing Adjustment Factor

The CMS Value-Based Payment Modifier program adjusts Medicare Physician Fee Schedule (PFS) payments to a physician or group of physicians (as identified by their taxpayer identification number [TIN]), based on the quality and cost of care furnished to their Medicare fee-for-service (FFS) beneficiaries. The value-based modifier ranged from 0.00% to +1.25% in FY 2014 and provides differential payment under Medicare PFS based on the quality of care compared to the cost of care furnished to Medicare FFS beneficiaries during a performance period.

The current adjustments are based on hospitals' performance across 26 measures of clinical processes, patient satisfaction, and outcomes, including the use of preoperative antibiotics, doctor-patient communication, and mortality rates. They include 12 clinical process-of-care measures, 8 patient-experience dimensions, 5 outcome measures, and 1 efficiency measure on spending per beneficiary.[31]

[30] *http://health.usnews.com/best-hospitals/rankings.*
[31] *http://www.modernhealthcare.com/article/20141218/NEWS/141219982.*

APPENDIX—Data Sources For Assessing Performance

CMS Readmission Payment Adjustment Factor

In October 2012, CMS began reducing Medicare payments for inpatient prospective payment system (IPPS) hospitals with excess readmissions. Excess readmissions are measured by a ratio, by dividing a hospital's number of "predicted" 30-day readmissions for heart attack, heart failure, pneumonia, hip/knee replacement, and COPD by the number that would be "expected," based on an average hospital with similar patients. A ratio greater than 1 indicates excess readmissions. The adjustment factor ranged from .099 (reflecting the maximum 1% penalty for FY 2013) to 1.0 (indicating no penalty). This study utilized the FY 2013 CMS readjustment factors.

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Scores

Patient satisfaction was evaluated in accordance with the CMS HCAHPS summary star rating, a blend of patient feedback in areas such as provider communication, hospital environment, and willingness to recommend the hospital. The star rating is based on reported HCAHPS measures, which are created from the following composite measures: communication with nurses, communication with doctors, responsiveness of hospital staff, pain management, communication about medicines, discharge information, care transitions, HCAHPS individual items such as cleanliness and quietness of hospital environment, and global items including overall hospital ranking and recommendation of the hospital.[32]

Financial Performance

Operating Margin[33]

Optum provides a comprehensive analysis of the financial and operating performance of U.S. hospitals and 5-year trend information on more than 70 key financial measures. The sources of data utilized by Optum are audited hospital financial statements, strategic operating indicator data submitted by hospitals, and Medicare cost reports. Operating margin is defined by Optum using the following equation: ([Net patient revenue + (total other income – contributions – donations – investments)] – [operating expenses – other expenses] ÷ [net patient revenue + total other income]).

[32] *http://www.medicare.gov/hospitalcompare/Data/HCAHPS-Star-Ratings.html.*

[33] Optum. Financial Benchmarks Database. Available at *https://www.hospitalbenchmarks.com/index.aspx.*

APPENDIX—Data Sources For Assessing Performance

Current Ratio[34]

The current ratio is reported by Optum and represents current assets divided by current liabilities and measures whether a hospital has enough resources to pay its debts over the next 12 months.

Case Mix– and Wage Index–Adjusted Cost Per Discharge

Optum also reports a cost per discharge (inpatient operating expense divided by total inpatient discharges) and a case mix–adjusted cost per discharge that takes into account the hospital's wage index and the severity of the inpatient cases for a given year.

Research

National Institute of Health (NIH) Funding Per Faculty[35,36]

Research strength was evaluated based on the amount of NIH research funding awarded to the primary teaching hospital divided by the number of faculty (clinical and basic science) to determine NIH funding per faculty.

GME

Doximity Internal Medicine and Surgery Ranking[37]

The Doximity residency rankings are composed of three major data points: current residents' satisfaction survey, reputation data, and objective data. The residents' satisfaction survey is derived from survey responses from each residency's current residents and recent graduates. As of August 2015, there were over 16,000 unique respondents to the satisfaction survey. Reputation data is derived from peer nominations from more than 30,000 board-certified physicians. Objective data is compiled from a variety of public sources as well as the proprietary Doximity database, which covers all U.S. physicians, regardless of membership in Doximity.

[34] Ibid.

[35] Funding is reported by Blue Ridge Institute for Medical Research and is based on the Research Portfolio Online Reporting Tool (RePORT) from the NIH, *http://www.brimr.org/NIH_Awards/NIH_Awards.htm.*

[36] Total number of faculty at each school (clinical and basic science) based on the AAMC U.S. Medical School Faculty Annual Report.

[37] *https://s3.amazonaws.com/s3.doximity.com/mediakit/Doximity_Residency_Navigator_Survey_Methodology.pdf.*

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