Understanding Different Health Care Systems and Funds Flow Models in Surgery

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Introduction

Academic medical centers (AMC) have historically been considered as centerpieces in the American healthcare landscape [1, 2]. Currently, however, many AMCs face financial and governance turbulence. Historically charged with delivering complex, specialized care, the AMC in the modern era is simultaneously saddled with the costs of supporting medical education and research. As the sole "safety net" provider, AMCs often treat a disproportionate share of Medicaid or under- and uninsured patients for emergency, Level 1 trauma and psychiatric crises. Increases in consumerism and competition magnify these challenges even further. Intensifying demands for price transparency combined with inconsistent and less than desirable quality ratings, and higher mortality rates, do not cast many AMCs in a favorable light. The traditional appeal and historic image of AMCs may diminish as more patients seek routine care elsewhere.

Clinical care, research, and education are recognized as the traditional pillars of academic medicine. Overlying this tripartite mission are both the structure of the academic medical center and the legal and financial ties between its traditional constituents: public or private status, for-profit or not-for-profit status, hospital (or hospitals), school of medicine (and perhaps university), faculty practice group, and affiliated community physicians. A complete discussion regarding constituents of AMCs must also consider the constantly changing financial landscape of clinical care, research and education including the various sources of revenue of each:

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Medicare, Medicaid, private insurance and its various insurance "managed care products," self-pay, philanthropy, Veterans Administration, and National Institutes of Health, among others. Governmental regulation implemented through Stark Law, Halifax decision, and inurement considerations influence overall financial strategy and inter-party negotiations attending to cost shifting, revenue sharing or gain sharing [3]. Also, trends of clinical integration, value-based healthcare, and population health further cloud the financial and regulatory framework AMCs must operate in. Understanding and navigating this ever changing, multi-tiered, jigsaw puzzle of health care delivery in the academic medical center is an ongoing challenge for all leaders in AMCs. The structure of an academic health care system and the methodology by which resources are allocated among the various entities significantly influence the conduct of the clinical, research, educational, and administrative functions of an academic department of surgery.

In the chapter that follows, we present an overview of the evolving structure of the academic medical center with examples of published funds flow models from University of Pennsylvania, Stanford University, University of California at San Francisco, and University of Alabama at Birmingham. AMCs are highly variable and individual entities. Therefore, success in achieving financial viability while simultaneously addressing the tripartite academic mission in an academic department of surgery will require ongoing vigilance, agility, fluidity, innovation and ultimately, compromise.

The Changing Structure of the Academic Health Care System

The economic engine of an academic medical center (AMC) is its clinical operation, also known as the academic health system (Fig. 13.1). The clinical enterprise represents the combined assets of the teaching hospital(s) and clinical faculty. Depending on the system, affiliated non-academic community physicians may also contribute to the clinical enterprise. Historically, the other components of the

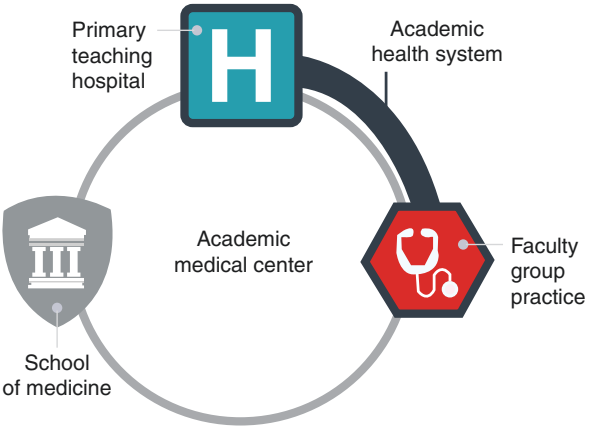

Fig. 13.1 Structure and relationships among academic medical center components [8]

academic mission (research and teaching programs) are underfunded by their traditional revenue streams. Specifically, start-up funds required for new research programs and faculty recruitment, perpetual cost-sharing of grants, appetite for capital and technology demands are most often excluded from traditional academic revenue streams. Schools of medicine derive funding from a variety of sources including tuition, state funding, philanthropy, clinical revenues generated by the hospital and clinical faculty practice plan, and indirect money from grants. To emphasize the overall cost of research, the top 40 research intensive medical schools in the United States contributed $300 million of their own institutional funds to the operation of research centers; however, these funds are constantly being criticized and subject to reduction [4]. Despite these various sources of funding, revenue from clinical care subsidizes the research and education missions at every medical school.

Clinical care performed through hospitals, faculty practice, and other clinics generally average 85% of revenue for academic medical centers [4]. Academic medical centers may also receive additional funds through direct and indirect medical education payments. Programmatic support may also exist for services provided to the hospital which may include 24/7 physician in-house coverage, administrative roles such as medical director, IT infrastructure management, and participation in compliance and quality assurance programs. New programs for clinical growth, including recruitment of physicians, often require financial support from the hospital, often achieved through a "Professional Service or Research Support Agreement". Grants and contracts constitute the second largest single revenue source, approximately 12% of total funding. Federal grant funds are increasingly difficult to attain through national initiatives such as limits to grant support for individual PIs and efforts to consolidate federal funds into a small and finite number of research intensive organizations. All other sources combined including endowments, donor gifts, and tuition accounted for the remaining 3% [4]. The identified threats to revenues for the academic medical center include: indirect medical education funding, disproportionate share hospital payments, Medicare basket updates, state funding, new funding models including the Accountable Care Organization and bundled payments, commercial insurers creating tiered benefits and/or narrow networks, new quality standards, grant and contract funding via the NIH, philanthropy, physician sustainable growth rate, and loss of previously insured patients. This study identifies a number of strategies for the future, including but not limited to the following:

1. Building the brand by holding faculty accountable for cost and quality.
2. Becoming part of a larger community and/or regional network
3. Push the envelope on new kinds of extenders to increase effectiveness. These extenders include, technology, in addition to personnel, become an information hub to realize return on health information technology investment, align the research pipeline with clinical and business strategies [4].

The changing structures, challenges and future intentions of the academic medical center largely inform the downstream funds flow model. Clinical activity constitutes the vast majority of revenue for AMCs. As such, there are innumerable

forces driving the perceived need for greater clinical integration to enhance and reinforce the clinical enterprise to be able to support the tripartite mission of the AMC:

1. Traditional academic revenue streams are declining.
2. Professional fees in faculty practice groups have declined and face additional cuts for most specialties
3. Free standing practice plans can no longer subsidize the academic mission at historical levels such as transfer vehicles such as the Dean's Tax. Pressures to recruit and retain highly productive clinical faculty require a greater amount of practice revenues and professional revenues be used to support clinical faculty compensation and clinical infrastructure.
4. Margins of major teaching hospitals are the last places for resources to fund academic mission.
5. Teaching hospital performance is a reflection of a combined effort between the clinical faculty and hospital team.

The greatest challenge facing the modern AMC is upholding its tripartite mission while simultaneously balancing the interplay of its organizational structure including the teaching hospital, medical school, and faculty practice group. Ongoing changes in the market place have rendered this challenge increasingly complex. Studies from the Association of American Medical Colleges and Institute of Medicine indicate that the success of each component is intertwined with that of each of the others [5–7]. In the face of such a challenge, many academic medical centers are making significant changes to improve their performance; as of 2015, 31% of Association of Academic Health Center members are attempting to do so by modifying their governance structures [6]. In this study, Enders and coauthors conclude that academic medical centers have four options: form a system, partner with others in a collaborative network model, merge into a system, or be prepared to shrink in isolation [6].

Modifying the governance structure of the AMC may not be sufficient to meet the growing challenges. Several studies have put forth various theories to assist in ensuring the future success of the AMC. A Price-Waterhouse study reduces the challenge at hand to three major obstacles that must be managed.

1. Budgetary and political pressures will raise the threat level at AMCs. For example, only 22% consumers surveyed by PWC said they would pay more to be treated at an academic medical center.
2. Low quality rankings and imprudent affiliations could damage the brand of the academic medical center.
3. The traditional academic medical center structures are not designed to address new challenges [4].

An additional force that necessitates the need for change for many AMCs is patient access. Same-day appointments and geographical convenience are two

objectives that many AMCs have not historically considered in their deployment of resources.

A different approach outlined in a 2014 study by the Institute of Medicine examined stewardship priorities for academic health systems and identified ten qualities central to navigating the changing health care terrain in the United States [5]:

1. Enable broad engagements by families, patients and the public
2. Create and scale innovative models for efficient personal and population health management
3. Develop and leverage data, science and resources for new knowledge
4. Emphasize studies that sharply focus and pace for improved health outcomes
5. Demonstrate a continuously learning culture and practice
6. Train a well-coordinated, professional team-based work force
7. Foster an environment that develops and empowers clinical leaders
8. Forge diverse interceptor and multidisciplinary approaches
9. Help communities locally, nationally and globally access tools for better health
10. Measure and communicate the complications and impact of academic health systems.

Traditionally, the academic medical center has upheld the tripartite mission of clinical practice, research, and education. The modern-day AMC attempts to maintain this mission while simultaneously integrating the interests and goals of the teaching hospital, medical school, and faculty practice group. Innumerous threats to revenue complicate this complex and impressive goal. The current economic climate will require AMCs to make changes to their governance system, stewardship priorities, and organizational structures. Various AMCs are moving to address these concerns.

Academic Medical Center Models

Academic medical center models typically fall into one of five structures (Fig. 13.2). These include the integrated academic medical center, hospital and faculty practice aligned structure, university and faculty practice aligned structure, university and hospital alignment, and lastly, all three as separate entities. The first two represent the hospital and faculty practice group in a single structure. The last three represent structures in which the hospital and faculty practice group are independent. Although the degree of structural integration refers to the corporate governance and organization of the academic health system, the various constituents continue to have a direct vested interest in each other's success. Nevertheless, functional integration in many ways supersedes structural integration as an operational necessity.

It is generally agreed that functional integration requires enhanced coordination between the hospital and faculty practice groups within the domains of strategic planning, budgeting, capital and facilities planning, matrix reporting, clinical

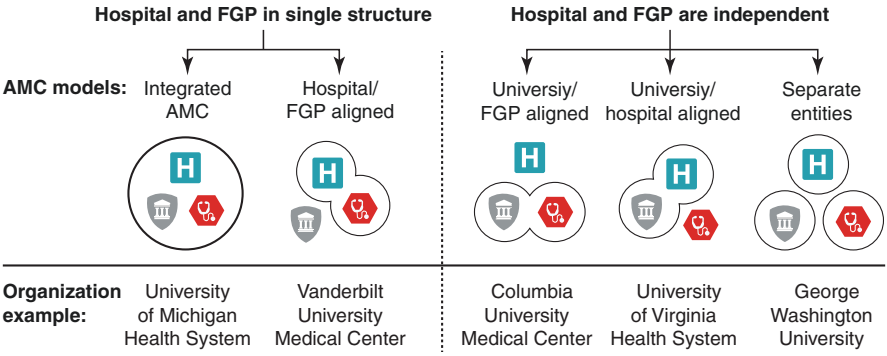

Fig. 13.2 Examples of AMC structural models [8]

service offerings, and position recruitment. Strategic planning in which goals are developed through a collaborative process reinforces the notion that entities are working toward identical goals. Collaborative development of budgets ensures synchronization. There may be contractual obligations to obtain budget approval from the other entity in certain defined situations. A multi-year capital plan developed collaboratively insures interorganizational alignment and synchronization. Joint committees may exist to evaluate decisions requiring major capital investment. Matrix reporting lines, theoretically, obligate key executives to concurrently represent and balance interests of both the academic and clinical enterprises. Typically, these positions are the Executive Vice President of Clinical Affairs, or President of the Faculty Practice Group. Decisions to add to or grow clinical services are made in a collaborative fashion. Lastly, entities may collaborate on recruitment of new physicians to fulfill long term goals of the hospital entity.

A 2015 study by ECG subdivides systems into levels of more integrated and less integrated [8] (Fig. 13.3). The more integrated systems exhibit a system-owned faculty practice group, direct physician employment, senior executive reporting relationships between the hospital and faculty practice group, university ownership of both the hospital and faculty practice group and/or the presence of a virtual/parent health system (Fig. 13.4). In contrast, less integrated system features include a school-based faculty practice plan, department-based faculty practices and/or a separate faculty practice plan and hospital. In the ECG study, they found that increased integration was associated with enhanced reputation scores, higher quality, enhanced research, improved GME functions, but decreased overall financial performance.

Keroack and co-authors examined the role of functional alignment vs. structural integrity of medical schools and teaching hospitals [9]. In their examination of 85 academic health centers, these authors found that a high degree of structural integrity was usually associated with significantly higher functional alignment, although there was considerable overlap between high and low structural integrity institutions. Notably, they found that structural integrity was not associated with enhanced performance measures, rather functional alignment was significantly associated with higher performance in teaching, research, and finance, but not clinical care and efficiency.

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/SCM 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 primaoy teaching hospital.

Fig. 13.3 Criteria for degrees of integration [8]

Other thought leaders have also approached the question of the structure and role of AMCs within the ever-changing landscape of healthcare. Hegwer has indicated that a number of changes would enable organizations to take on value-based payment, population health management with the rise of consumerism in healthcare [10]. These include centralizing and professionalizing the board, hiring leaders to support innovation and transformation, building and reassessing partnerships, strengthening integration, organizing physicians, retooling infrastructure to focus on quality, building a cohesive physician and ambulatory services unit, creating a value-based care and payment task force, creating alignment through organizational restructuring, and focusing on funds flow alignment. They quote Steven Klasko, President and CEO of Thomas Jefferson University and Jefferson Health, "The old math is NIH funding, inpatient revenue, and tuition for success in academic medicine. Success in the future requires new math, which focuses on academics, clinical care, innovation, and philanthropy" [10]. The structure of the academic health system, whether it evolves via structural integration or not, places a great emphasis on functional alignment. It is this functional alignment that, in turn, will determine the funds flow model for clinical departments.

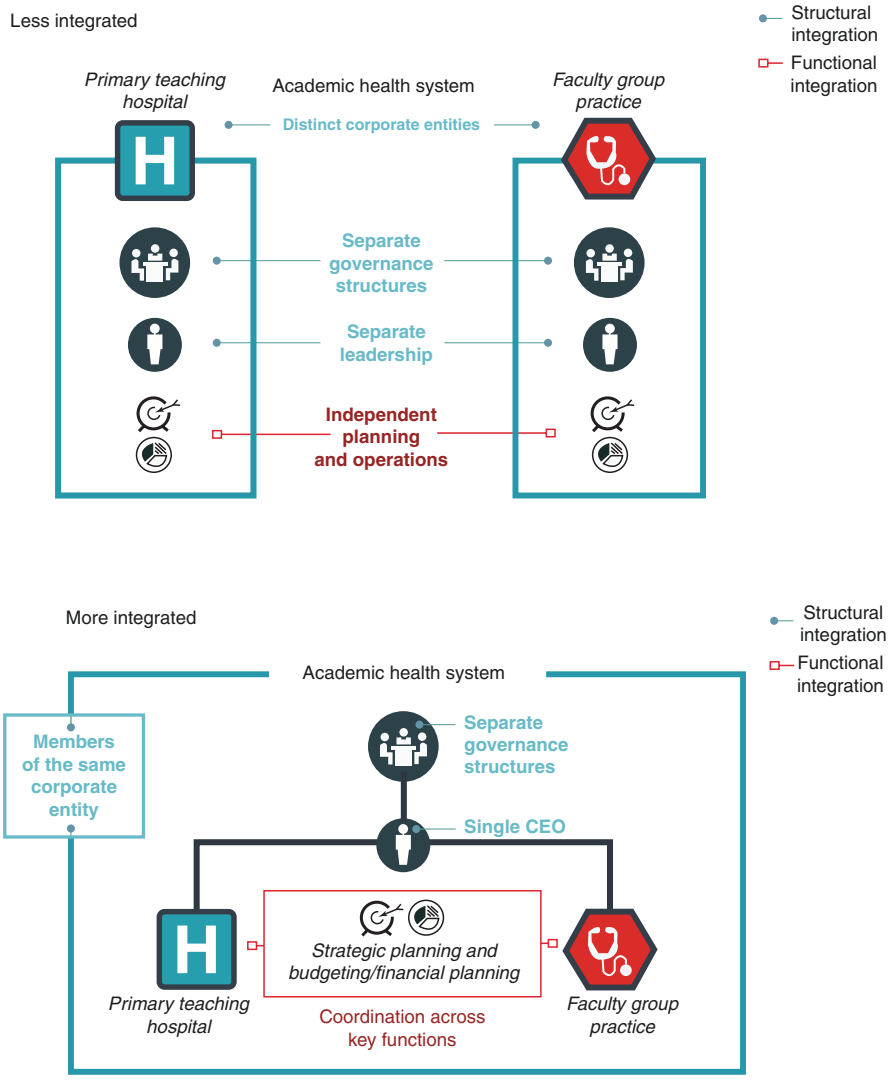

Fig. 13.4 Examples of more and less integrated structures [8]

Funds Flow

Perhaps one of the greatest misconceptions endured by both academic physicians and leadership of AMCs is the perceived variability and inconsistency in the understandings of the source of funds and use of funds in AMCs. The grass always seems to be greener and highly skilled professionals frequently discuss and analyze this topic at varies forums such as professional meetings, conferences, etc. At the macro and highest level of an AMC, the methodology and mechanics of receiving funds and expending funds is extremely consistent. There is a finite way funds can be

received and spent. The confusion and need for clarity and communication begins once the funds are internally distributed at the micro level of an AMC. Nevertheless, transparency, alignment, and effective communication of the internal or micro funds flow is the mechanism to resolve organizational barriers to drive future viability and survival.

Funds flow insures alignment, drives accountability, supports enterprise level goals and financial sustainability, reinforces excellence in academic missions, and preserves flexibility to adapt to changing needs. For funds flow to be effective, the methodology for funding must be transparent, rational, trusted and mutually accepted by physician leaders. The future success of the academic medical center will rely on appropriate and high yield resource allocation. It is critical that every academic medical center establish a structured and disciplined approach for funding the three missions of the enterprise. This approach may be broken down into four stages: 1) Analyzing the cash inflows and outflows so all stakeholders understand both macro and micro fund flows of an AMC 2) Rationalizing and simplifying the existing flow of funds, 3) Defining a transparent and role- driven model, that is consistent across time and 4) Laying the groundwork for sustainability through process, policy, governance and controls. Data must be normalized by creating a common data model and then mapped to the existing accounts. Key performance indicators for each funding category should be defined and linked to funding provided, in order to measure effectiveness and drive accountability.

A critical component of funds flow centers on a transparent, simple, and equitable methodology for clinical faculty compensation and productivity. These are typically benchmarked using one or more of the following market surveys: 1) AAMC Medical School Faculty Salary Survey, 2) UHC-AAMC Faculty Practice Solutions Centers Productivity Data, 3) AMGA Medical Group Compensation and Financial Survey, 4) MGMA Physician Compensation and Production Survey, 5) Sullivan Cotter Large Clinic Physician Compensation Survey and/or Sullivan Cotter Physician Productivity Survey Report. There is considerable variability amongst academic medical centers as to which market survey is used. Nevertheless, consistency and transparency of survey selection and utilization is of paramount importance for faculty buy-in and confidence.

University of Pennsylvania Model

In a description of the University of Pennsylvania model, Kennedy and co-authors describe the approach to their funds flow reallocation process that took place in 2004 [11]. The process was based on the following principles: 1) align with the overall Penn Medicine strategic plan, 2) be fair and transparent, 3) match revenue with expenses based on a rational value-based model, 4) provide appropriate incentives to be put in place to encourage achieving and/or exceeding system growth objectives, 5) individual faculty clinical activity expectations were established, tied a compensation schema and communicated, at least annually, 6) funds flow should provide for opportunity for gain sharing related to future margin growth, and 7) measure and monitor over time. As an example of the various categories of the

clinical components of funds flow, the authors describe new program start up in 1) recruitment, 2) purchased services by faculty for administrative regulatory or directorship activities, 3) programmatic support which may be exemplified by support from the hospital for clinical programs which the health system deems important and the practices lose money, 4) incentive payment for gain sharing around financial improvement and 5) pass through and payer contracts in which third party contract payments encompassing global payments to the system are then allocated to hospital and physician practices. In order to maintain chair flexibility and autonomy, the majority of funds were allocated at the department level. Following implementation of this new funds flow model, the authors note that total funding for clinical departments increased 30.8% between FY05 ($121M) and FY07 ($159M), while the school of medicine contribution of the total decreased by 25% to $9M during this time. The largest proportion of the increase was associated with new hires, support for clinical program strategic growth, inflationary increases in teaching, research, and clinical purchased services, academic development funds, and enhanced third-party pass through resulting from additional volume on global contracts. The authors conclude that the integrated nature of the Penn health system and the new funds flow methodology were significant factors in their financial improvement. They recommend that a broad evaluation such as that performed at Penn might benefit other AMCs.

Stanford University Model

The Stanford University funds flow model encompasses hospitals which are separate 501(c)(3)s owned by the University, operate all clinical facilities (inpatient, outpatient and ancillaries), assume risk and reward for the clinical enterprise (including, payor mix), and perform all contracting, billing and collections and are responsible for malpractice [12, 13]. The adult funds flow 5-year agreement was originally established in 2006 and renegotiated in 2011 and 2016. The objectives were intended to:

1. Align outcomes and incentives between the Stanford Hospital and Clinics and the School of Medicine
2. Be simple, formula-driven, stable, predictable and transparent
3. Include the full range of professional services and funding, such as clinical services, medical administrative services, program development and mission-based funding
4. Support increased productivity and market-based compensation for physicians
5. Incentivize physicians to enhance the clinical enterprise and ensure high quality care and service standards.

The broad outline of the Stanford funds flow model includes WRVU payments for physician clinical work based on median MGMA total compensation per WRVU and by specialty. In addition, there are department transfers for physician benefits,

clinical department overhead costs, Dean and University taxes on clinical revenue, GME program director costs, medical director costs, program development support for new recruits, quality, safety and service initiatives and academic grants, including the share to the Dean's office. Following implementation of this funds flow model, WRVU payments were increased from the MGMA 50th to the MGMA 75th percentile and the shared margin trigger decreased from 6.5% to 4%. Finally, quality safety and services incentives were increased to 8% from 6% of WRVUs.

University of California—San Francisco (UCSF) Model

In 2014, at UCSF the rapid increase in cost of practice over the increase in professional fee revenues began rendering many clinics financially unsustainable. As a result, UCSF administration realized the need for a new funds flow model between the Medical Center and School Of Medicine [14, 15]. The previous model was based on professional revenue as the source of payment for clinical expenses associated with physician practices. Departments managed all practice and departmental clinical and faculty expenses independently and clinical income was supplemented by hundreds of individual agreements between the Health System and departments. The numerous, complex strategic support agreements had become unwieldy, difficult to adequately communicate, and increasingly expensive. Patients' experience was highly variable from one clinic to the next. The existing clinical funds flow model was complex, non-transparent, growth-inhibiting, access-limiting, and financially unsustainable.

The aim of the new funds flow design was for all individuals who spent the majority of their time supporting the clinical enterprise to be housed under a single organizational structure. The goals were defined as: clinical growth, financial sustainability, academic mission, efficiency, enhanced patient access, competitive compensation, and long-term viability. The UCSF Health System was defined as all components of the clinical organization, including the UCSF Medical Center and the Physician Practices. The Health System would collect the professional and technical revenue for clinical services and be responsible for all patient care expenses, including practice, clinical department, and faculty productivity expenses. Departments were given the responsibility for faculty salaries and any remaining departmental expenses. Practice decisions were made collaboratively between the Health System and each department and individual agreements between the Health System and the departments were limited. Professional fees and technical revenue accrued to the Health System. The Health System assumed financial responsibility for the cost of operating ambulatory and inpatient practices with the exception of the cost of physician and faculty clinical effort. Four tiers of payment to the departments' clinical income stream were established:

1. A dollar per WRVU payment made to the department for various subspecialties determined using national standards for physician productivity and compensation.

2. Margin sharing incentive payment in which the health system, clinical departments, and Dean's office share in a margin earned above the annual combined budget for the health system.
3. An incentive plan to align the health system and departments' goals designed to enhance quality, access, and patient experience.
4. A staffing payment reserved for a small number of clinical services for which physician staffing is a requirement for safety, regulatory mandates or mission critical for patient care.

In addition, the Health System reimbursed the departments for actual benefits expense related to faculty clinical time and pay for clinical operating overhead expense. Finally, the health system paid the malpractice expenses, absorbed all expenses associated with billing and coding, Dean's tax, all medical group expenses, and much of the expense related to ambulatory practices.

University of Alabama (UAB) Model

At UAB, the leadership found that existing hospital mission support processes did not align the faculty practice with the hospital practice [16]. Departments were requesting more funds than were needed and selected departments were experiencing financial difficulty despite receiving mission support. Multiple specialties performing the same procedures were receiving different conversion rates. The rational underlying the change to funds flow included healthcare reform, changing reimbursement models, and insuring the survival of the UAB Health System clinical and academic missions. Anticipated outcomes included organizational leadership alignment across the academic medical center, transparency of finances at both the departmental and divisional level, alignment of incentives, and clinical integrational of quality outcomes.

The new UAB funds flow model eliminated all previous hospital support and centralized all clinical costs. Compensation was based upon WRVUs; WRVU revenues were based upon a 3-year rolling average based on the average MGMA compensation per WRVU. The salary goal was 70% of median MGMA by specialty. Within the Dept. of Surgery, there were ten divisions and 21 resulting rates of WRVU revenues. At non-UAB hospitals, such as the Children's Hospital of Birmingham, professional fees and clinical expenses remained in place and physician benefit and departmental administrative cost reimbursement were maintained. There was a withhold established at 10% of RVU revenues linked to 20 at risk metrics created to enable return. These metrics were based on a combination of practice performance metrics, including patient satisfaction, quality and finance. Individual departments developed WRVU-based compensation plans encompassing their academic, clinical, and educational missions.

A shared governance structure, consisting of a cooperative effort between the faculty practice and the hospital, implemented the new model which removed infrastructure and clinical expense from departmental responsibility, thus enhancing the

financial performance of many clinical departments. Furthermore, the new model permitted the implementation of an academic enrichment fund to the School of Medicine. Subsequent years found that the combined performance of the hospital and practice plan in FY15 was significantly favorable to budget with a variance of $69 million with respect to FY14. The Dept. of Surgery experienced a $6.1 million and $5.1 million operating margin in FY14 and FY15, respectively and FY15 total WRVUs was >885,000. A retrospective review of the prior funds flow model concluded the new funds flow model improved the clinical operating margin and reserves of various departments, many of which were able to receive WRVU revenues regardless of the payor mix, and Dept. Chairs were empowered to distribute revenue for recruitment, retention, and the academic mission.

Conclusion

"A revolution under way in health care is fundamentally changing how every academic medical center operates" [6]. AMCs are reexamining relationships and funding priorities. Functional integration is underway to leverage both professional and hospital revenue to not only support and sustain the traditional missions of clinical care, research, and education, but also more fundamentally, to ensure the future viability of the AMC. For an academic dept. of surgery within this AMC, the funds flow model design determines future investment and apportionment among the various missions.

In the future, not all AMC's will achieve equal success. Particularly vulnerable are the education and research missions. Top performing AMCs will quickly streamline and effectively execute both strategy and operations based upon a common definition and understanding of both macro and micro fund flows of the organization. Resource allocation and performance metrics will require stakeholders and decision-makers to be more agile and responsive to outcome data. Even though there are several structural models that may exist, execution, alignment and communication will dictate success.

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