



How to Create and Sustain Effective, Patient-Centered Service Lines Across the Entire Woodruff Health Sciences Center

Haian Fu, Abhinav Goyal, Kristy Martyn, Brad Sanford, David Schulman, Nicole Turgeon, and Mary Zellinger

Woodruff Leadership Academy Class of 2015

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ABSTRACT

In this era of rapid healthcare reform, academic health centers (AHC's) recognize the urgency of achieving better alignment among its constituent hospitals, physician practices, clinical departments and divisions, health professional schools (medicine, nursing, and public health), and research and educational programs. The term "service line" is often used to refer to the alignment of resources and healthcare professionals across different disciplines and departments with a common interest in a specific disease (or group of diseases). While healthcare leaders generally agree that such a horizontal approach to care delivery would more efficient and more patient-centered compared with the vertical care model based on traditional academic departments and divisions, few leaders agree how to implement and operationalize this new horizontal care delivery model.

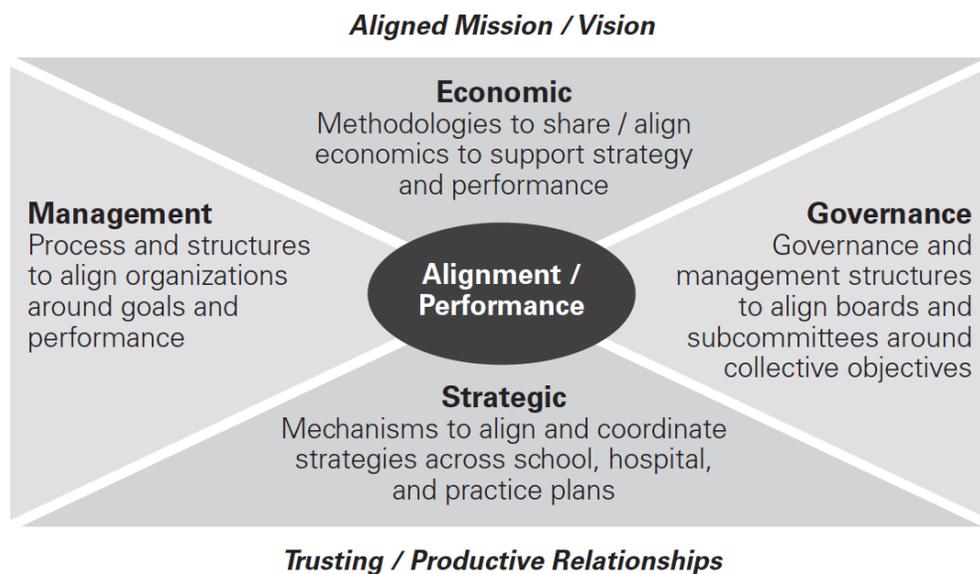
The Woodruff Health Sciences Center, Emory Healthcare, and the allied health professional schools of Emory University have already embarked on an ambitious care transformation and alignment model based on service lines: Emory Medicine, with its six signature programs in Child Health, Brain Health, Winship Cancer Institute, Cardiovascular Health, Transplantation, and Musculoskeletal. Our Woodruff Leadership Academy project team, "At Your Service", elected to study the state of Emory's service lines. Specifically, our three objectives were: 1) To define "service line", and explore whether service lines translate to more patient-centered care and better population health; 2) To describe the barriers to successful service line creation that the individual entities (hospitals, physician practices, academic departments and divisions, etc.) of our complex healthcare system face, and propose solutions or "building blocks" to form successful service lines; and 3) To showcase three examples of Emory service lines, and highlight what differentiates Emory's service lines from those of other healthcare organizations.

In order to achieve these objectives, we studied the published literature on service lines, and then interviewed 40 leaders in healthcare, research, or education across the WHSC and Emory community, in addition to 3 Emory patient-family advisors. We found that there were almost as many definitions of "service line" as there were interviews conducted, and that there was frequent (and often strong) disagreement on whether "service line" was an appropriate term (compared with other terms such as center, program, or institute). While it was generally agreed that service lines may make care delivery more efficient, there was concern that service lines are not necessarily congruent with patient-centered care and population management unless designed and built to meet those specific goals. The barriers to service line creation revolved around core issues of money, control, and culture. The inability to overcome these barriers was generally due to the failure of academic departments, hospitals, and physician practices to recognize their interdependence. Although the path to success varied among the different service lines, three "building blocks" were recognized as generally necessary for a service line to come together: a viable plan to achieve financial stability during the design phase of a service line; strong institutional support; and strong leadership to help a service line navigate Emory's often silo-oriented healthcare system. We highlighted three towers from Emory Medicine: Transplant (a model service line that exemplifies a high degree of integration); Winship Cancer Institute (witnessing great advances due to strong financial support, notably from the Woodruff Foundation, and the impetus of the NCI Cancer Center designation); and Musculoskeletal (achieving impressive results through its sharp focus on streamlined clinical care processes). Although the primacy of strong, efficient, patient-centered clinical programs cannot be overstated, Emory service lines will continue to differentiate themselves from those of rival institutions by dedicated efforts to integrate its research and educational missions, as well as alignment with (not separation from) their constituent academic departments.

DEFINITIONS AND ADVANTAGES OF SERVICE LINES

According to the American Association of Medical Colleges (AAMC) Advisory Panel on Health Care, achieving optimal alignment in academic health centers (AHC's) is especially important because of "changing economics, market consolidation, fiscal pressures, and payers' new focus on higher quality and lower cost... [that] require a new operating model for academic medicine" (Enders & Conroy). Interest in alignment is high among AHC's. June Conroy, AAMC chief health care officer, stated, "We spend a lot of time visiting institutions, and... the number-one thing they want to know [is] – who has changed how they do business to be more integrated, and what alignment looks like in practice" (Pelletier). The urgent need for alignment in AHCs is echoed in a Chartis Group report noting that, "it's too expensive to be out of step" (Levin et al). However, they also stated that among leadership, "less than 25% report agreement about how to implement [an alignment] strategy and operate in a fully aligned manner." They propose an alignment model that leadership can use for "overall alignment" that optimizes governance, strategy, management, and economics. (Levin et al., **Figure 1**).

Figure 1: The Chartis Group Organizational Alignment Framework (from Levin et al.)



Service lines are defined as means of achieving alignment through "reorientation of strategy, resource planning and allocation on the horizontal continuum across provider entities; [with] the theoretical value in the horizontal or service line approach in aligned and not duplicative investment strategy in program, staff, equipment and other resources." They are also defined as "the true patient-centered approach to [healthcare] delivery... organized in the way that . . . patients experience healthcare" (Jaskie). "Despite the differences in nomenclature, better integration may occur when progressing from a division-based specialty program to a service line structure" and "the service line model... has been correlated to the highest form of integration in organizational structure" (Abouljoud & Whitehouse). In addressing service lines in transplant, Abouljoud and Whitehouse described the "perceived need for autonomy, alignment among services and finances, and alignment of authority with responsibility" and "perceived benefits included growth, alignment, efficiency, and resource allocation."

Our interviews of Emory leaders and patient-family advisors revealed varied definitions of service lines. Service lines were defined as "specialty specific product lines that offer services

across the continuum”; “intended to realign personnel, infrastructure, and resources to gain efficiencies and improve performance in key metrics (financials, cost, productivity, quality metrics, etc.)”; “must include teaching, research, and biology collaborations”; and “aligning care around patients with a specific disease state (cardiovascular, musculoskeletal, cancer, etc.).” Others preferred the use of “center” rather than service line, and felt the term service line did not make it clear that the patient was at the center. Some stated that the term is too narrow, and that “program” was a better fit for what we want to achieve in alignment of services.

Potential benefits of service lines proposed by the literature and in our interviews included shared and common vision/goals; patient focus; improved quality of care and patient safety; improved continuity of care; improved coordination of care; standardization of care (overall management); enhanced ability to rapidly respond to the market; established rationale for resource allocation (staff, beds, capital, etc.); enhanced accountability; personnel retention; more efficient cost management; management of limited resources (cost, revenue, personnel, space, physicians, etc.); and proper sizing of programs.

The following quotes from our interviews highlighted some of the benefits of service lines and alignment: “Organize clinical care with a focus on patient needs, bring complementary skills, take patients to one place to get all needs met”; “scientifically, all fields work together”; and “provides academic opportunity to develop protocols and do research, and provides for teaching opportunities for the medical school.” Three commonly stated reasons for creating service lines included: 1) patients deserve and expect coordination of care (transplant and cancer are key examples); 2) competitive nature of medicine demands “service lines” to improve efficiency allowing money to be made and saved; and 3) brings the best clinicians and researchers to the “service line” for the patient.

Service alignment provides an opportunity to enhance patient-centered care and population health management, only if service lines are designed to meet these objectives. As described by those we interviewed, designing service alignment around patients for “seamless care across the continuum” and “designed from the patient’s perspective” is ideal, and “may improve patient/family experience and provide patient-centered care only if they are designed with that intent in mind.” An example of a patient-centered service line is Emory University Orthopedic and Spine Hospital, which involved patient family advisors in the design phase “to match what patients wanted delivered;” this has resulted in very high patient satisfaction. The patient family advisors we interviewed clearly indicated that Emory provides excellent health care. They also emphasized that they expected excellent service and ease of access (through call centers, online appointments and other self-serve mechanisms, and information). This was consistent with the “Total Care” ALS/FTD Video developed by a patients’ spouse who supported using proven methods for stellar customer service, good phone trees, and caring call centers (<http://www.screencast.com/t/psmf9hGih72Y>).

The AAMC Advisory Panel (Enders & Conroy) identified eight themes for sustainable AHC models for the future from interviews with 13 leading academic health systems (including Emory). Four of their eight themes (Numbered 1, 2, 3, and 7 in their document) are particularly relevant to developing service lines aligned around patient-centered care and population health:

1. *The AHC of the future will be system-based*, with a broad regional presence and clinical services aligned across the continuum of care.
2. *Academic health systems require strong and aligned governance, organization, and management systems* committed to a unified direction, transparency, and internal and external accountability for performance.
3. *University relationships will be challenged to evolve as academic health systems grow and develop*, requiring leadership and structure to support clinical expansion, community

engagement, alignment on financial requirements, and implementation of productive industry relationships.

4. *Academic health systems must begin the movement to population health now*, as purchasers look to reward organizations that can demonstrate improved outcomes for attributed populations of patients, and as community leaders address the social determinants of health.

Service alignment can be a population health strategy for value-based care ensuring “the 6 Rights” (Person/Care/Time/Provider/Place/Cost) are addressed. Multiple service lines can strategically work together for population health management, such as Orthopedics integrating with Primary Care. The VA Geriatric and Extended Care and GRECC-Geriatric Research Education and Clinical Center are good examples of collaboration across the “real life” care continuum to keep people healthy with our tripartite mission.

BARRIERS TO SERVICE LINE CREATION

Given all the aforementioned advantages and benefits of effective patient-centered service lines, why don't service lines simply emerge organically as an optimal approach to the delivery of high quality patient care within a modern AHC? The answer appears to lie in several real and/or perceived barriers that tend to inhibit the initial formation of service lines, and an inability to overcome these barriers without the presence of an external catalyst or change agent driving the formation. Over the course of dozens of interviews with key stakeholders throughout Emory and the Woodruff Health Sciences Center, the project team discovered that the majority of barriers to service line creation identified by the participants seemed to fall into one of three themes: financial barriers, authority/control related issues, and culture. Financial barriers included financial reporting systems, funds flows, and compensation and incentives. The authority/control related barriers revolved primarily around the control of money, finances, hiring, titles, academic promotion, and space allocation. Cultural barriers most frequently pertained to tradition, physician identity, leadership and vision, and an inherent fear of change. Why are these barriers so difficult to overcome naturally without a strong external driving force? One project participant summed this up succinctly:

“The inability to overcome barriers [to service line creation] is often due to the failure of individual entities (departments, hospitals, physician practices, etc.) to recognize their interdependence.”

As a result we find that many of these barriers arise at the points of interaction between these different organizational entities. For example, hospitals are incentivized as individual operating units with separate bottom lines, and they act naturally in manner that's aligned with these incentives. Academic departments feel threatened by the potential loss of control over clinical dollars and may therefore resist the formation of service lines. Physician practices are often penalized for being in the red as an individual business operating units even though they are critical in driving the success of other business units via the referral pipeline. Individual physicians are rewarded based on personal performance and volume and may be reluctant to support education and research missions due to the loss of clinical efficiencies and/or a perceived lack of financial benefit. Examples of financial, control, and culture barriers for each major component of our healthcare system are shown (**Table**). Fortunately, these barriers are not insurmountable and can be sufficiently mitigated with proper leadership, planning, transparency, and recognition by all parties that “We're all in this together.”

Table: Financial, control, and culture barriers to service line creation faced by the Woodruff Health Sciences Center and its individual component entities

	Financial barriers	Control barriers	Culture barriers
Health system as a whole	<ul style="list-style-type: none"> Financial reporting systems not designed for service line model Complexity and length of current budget cycle is a drain of time and energy across WHSC & EHC 	<ul style="list-style-type: none"> More difficult to organize around and manage service line models across the system as opposed to traditional departmental models Fear that individuals unhappy with the change will leave 	<ul style="list-style-type: none"> Competing organizational priorities & values; lack of buy-in “We are too respectful of tradition and don’t have enough respect for the change that is needed.” Resistance to change
Hospitals	<ul style="list-style-type: none"> Incentivized as individual business operating units Must cover common services that generate little to no revenue (Lab, Pharmacy, Emergency Dept, etc) 	<ul style="list-style-type: none"> May be reluctant to consolidate services into a service line if it means less volume, revenue, or prestige for their own facility 	<ul style="list-style-type: none"> Hospitals are moving toward World B but Physicians are still have a World A mindset (fee for service)
Academic departments	<ul style="list-style-type: none"> Threatened by potential loss of control over clinical operations and revenue which is often used to support its other missions (research and education) 	<ul style="list-style-type: none"> Want to maintain control over hiring, granting titles / academic promotions, allocation of space Inability to agree upon leadership of service lines comprised of multiple departments 	<ul style="list-style-type: none"> Departments often perceived by many as the biggest roadblock to service line creation, because they have the most to lose Lack of sufficient trust in leadership from another “tribe”
Physician practices	<ul style="list-style-type: none"> Loss of revenue as services shift to hospitals for better reimbursement Feel that benefit of referrals to other business units not adequately appreciated/rewarded 	<ul style="list-style-type: none"> Reluctant to transition to new standardized protocols and equipment 	<ul style="list-style-type: none"> “Town vs. Gown” divide between community and Emory physicians Perception by community physicians that Emory wants to take over
Individual physicians	<ul style="list-style-type: none"> Compensation and incentives are based on individual performance May not support research & education (less profitable, loss of clinical efficiency) Physicians from different departments that bill for the same service (e.g. critical care) are compensated at different levels 	<ul style="list-style-type: none"> Turf battles among specialties for the same procedures (e.g. interventional cardiology, vascular surgery, interventional radiology, and neurointerventional services all competing to do carotid artery stenting, i.e. same CPT code) 	<ul style="list-style-type: none"> Traditionally trained in “guilds” and may more closely identify with their academic department than a service line

THE “BUILDING BLOCKS” OF SUCCESSFUL SERVICE LINES

Emory’s response to the call for greater alignment of services is Emory Medicine, a visionary program that seeks to establish or strengthen six signature service lines or programs, including Brain Health and Neuroscience; Winship Cancer Institute; Cardiovascular Health; Organ Failure and Transplantation; Musculoskeletal; and Child Health. Emory Medicine is an ambitious program, and its successful implementation will require the commitment and collaboration of all major entities at Emory, including Emory University, the Woodruff Health Sciences Center, and Emory Healthcare. Underlying these six “towers” of the Emory Medicine skyline are the three platforms of patient care, research, and education (Emory’s tripartite mission as an AHC). However, the skyline represents just the “tip of the iceberg” of what constitutes successful service lines and programs. Based on the conducted interviews, we suggest that there are three “building blocks” that are vital to creating strong centers that support our signature programs and missions: the “Foundation” of Financial Stability; broad Institutional “Support”; and the “Mortar” of Leadership.

Building block #1: The “Foundation” of Financial Stability. Before even entertaining the creation of a center that involves multiple service lines, a strategy to ensure financial stability must be developed. A sound financial strategy includes not only reinvestment of clinical revenue, but also institutional investment, philanthropy, discovery, and intellectual property. A sound financial strategy also considers the initial investment required to establish a center, as well as how the center’s activities will be sustained financially over time. In addition, we must adopt financial tracking and reporting systems that are based on the service line model, not only for individual operating / business units.

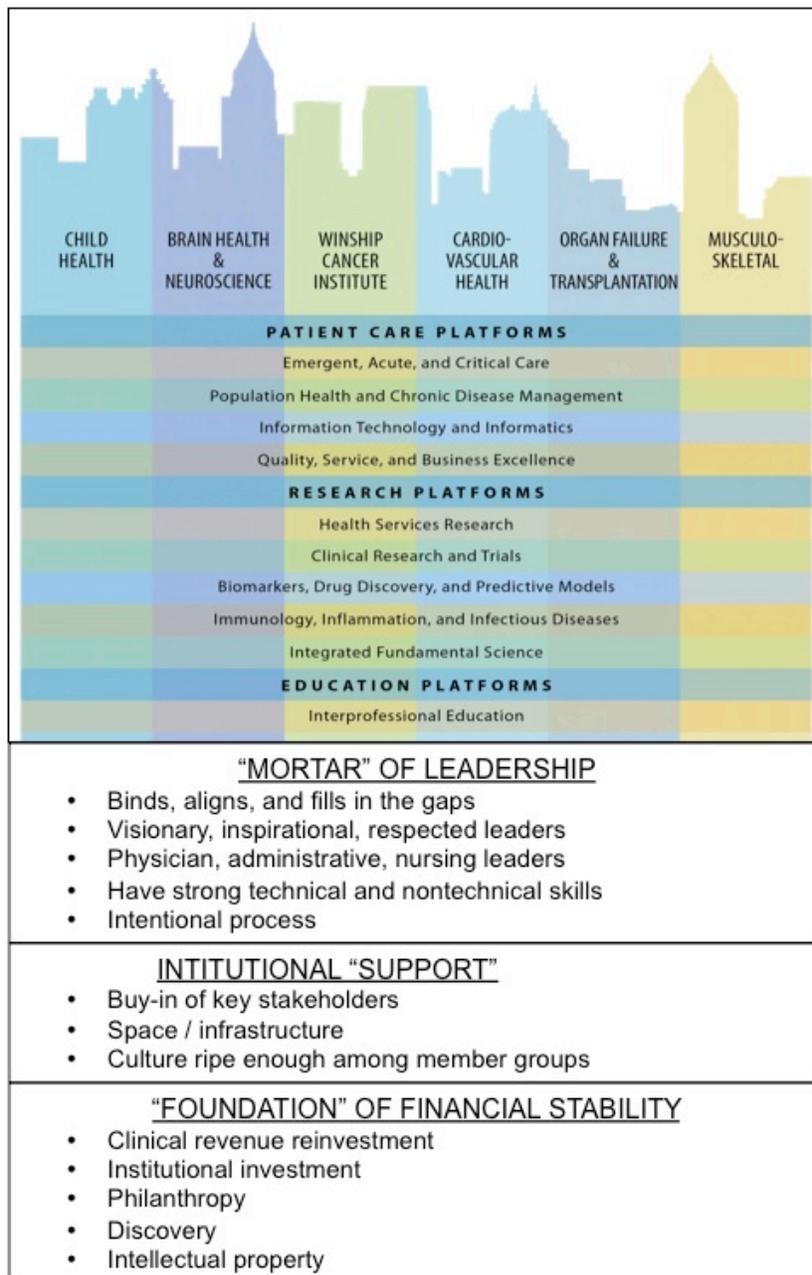
Building block #2: Strong Institutional “Support”. The success of a service line depends on the support of all major entities and operating units of Emory University, the Woodruff Health Sciences Center, and Emory Healthcare. There are three components to strong institutional support: 1) Buy-in of key stakeholders, including department chairs, hospital leadership, and administration leadership. Buy-in of all of these leaders is crucial in order to work through issues of money and control as previously described. 2) Space and infrastructure, defined as establishing a common space in which like-minded health care professionals with common interests and foci can be housed in order to establish goals, work together, and drive results on a daily basis. To ensure the long-term success of a center, the importance of this daily “rubbing of shoulders” cannot be overstated. 3) A ripe (enough) culture among the constituents or members of the proposed center. We have indicated ripe “enough”, because there will undoubtedly be differences in how individual groups propose to operate a center. However, there must be general agreement in the importance of coming together as a team, and enough “political will” and mutual respect to work through individual differences.

Building block #3: The “Mortar” of Leadership. We have chosen the term “mortar”, because strong leaders do three things that characterize mortar’s functions: 1) They bring and bind together the building blocks of a center or service line. 2) They align the blocks for maximum efficiency and weight bearing, particularly when resources are limited. 3) They recognize and fill in the gaps. During our interviews, several qualities of effective service line leaders were mentioned, but three of the most common ones were “visionary, inspirational, and respected.” It is important to note that leadership refers not only to physician leaders, but also strong administrative and nursing leaders to help navigate and align our complicated, silo-oriented system. Leaders are expected to have strong technical skills and content expertise that pertain to their specific center. However, in today’s era of team-based care, successful service lines will be created and led by those that also have strong nontechnical skills, including high EQ and collaborative skills, and a good business sense. Finally, leaders are intentional, and they lead

individual constituents through a deliberate process so that they can evolve from “me” to “we”. The five stages of service line evolution (as described by both Dr. Wright Caughman and Mr. Tom Bell) are: 1) What are we trying to do? 2) What are our goals? (Why are we doing it?) 3) When are we doing it? 4) What’s in it for me? (This is often a roadblock that prevent some service lines from moving forward for a long time.) And finally; 5) How can I help?

By ensuring that these three building blocks are in place (financial stability, broad institutional support, and leadership), Emory Medicine can greatly increase the likelihood of developing and sustaining successful service lines (**Figure 2**).

Figure 2: The Emory Medicine skyline with its 6 signature programs, 3 platforms (patient care, research, and education), and 3 building blocks for service line creation



METRICS

How can we determine if a service line is a successful enterprise? Interviews of service line participants throughout the Emory system provided a multitude of different answers, falling into five broad categories of service line metrics: revenue positivity, quality outcomes, provider outcomes, research productivity and educational excellence. A positive revenue stream can derive from an increase in patient volumes, but can also relate to philanthropy generated from unique aspects of the service line coupled with broad public awareness. Many senior leaders noted that creating a service line is not an inexpensive endeavor, and that support from the healthcare system may be required for the first several years of operation to ensure that it survives lean times. It is also worthwhile considering the downstream revenue and overhead generated by the existence of a service line, though there was some debate about whether this should be counted towards its revenue stream.

Quality metrics can include both patient outcomes (such as survival, readmission rates and patient satisfaction) and process outcomes (such as appointment availability and adherence to clinical guidelines); the latter are more readily available though they may not always serve as a surrogate marker of the former. Provider metrics can include not only the number of providers in the system, but also metrics related to the competitiveness of their salaries and rates of faculty retention, which are likely to be intimately related. Rates of academic promotion could also be considered, though these would likely depend on both educational successes (from teaching awards and trainee evaluations) and research productivity (measured by grant dollars, publication rates or H-index).

In reality, the appropriate metric likely depends upon the priorities of the specific service line; it seems reasonable to adopt a process of “balancing metrics” to ensure that each endeavor is being assessed on a broad range of assessments instead of being held accountable for a single deficient metric. For example, if the system chooses to assess the efficiency of Emory University Orthopaedics and Spine Hospital (EUOSH) using its number of employees per occupied bed (seven), it would be found far less efficient than Emory University Hospital Midtown (EUHM), which has fewer than four employees per occupied bed. However, when one concomitantly examines the length of stay metrics (a balancing metric), similar surgeries are associated with a 40% reduction in length of stay at EUOSH versus EUHM.

THREE EXAMPLES OF SERVICE LINES OF EMORY MEDICINE

Emory Transplant Center

The Emory Transplant Center’s (ETC’s) core mission is to provide quality care for patients in need of organ transplants while offering access to the most cutting-edge transplant technology. That mission extends beyond the care of patients presenting today, and includes improvement of the therapies available for future patients. This has been a result of an intentional vision by courageous, creative and thoughtful leaders who reached beyond and did not accept financial, departmental and other traditional barriers. Rather, the focus was on building teams to develop a truly interdisciplinary program that synergizes surgeons, nephrologists, hepatologists, nurse practitioners, infectious disease specialists, nutritionists, social workers, pharmacists, informaticists, and administrators. Specifically, Dr. Christian Larsen became founding director of the Emory Transplant Center (ETC) in 2001 and has been a national pacesetter in establishing new standards to ensure reliable, patient-centered care, focusing on multidisciplinary care a full decade before its recognition as an essential attribute in patient care. In addition, the ETC has been one of the nation's leading centers for National

Institutes of Health research funding in basic immunology, in translational studies in non-human primates, and in large, multi-center clinical trials.

Transplantation was one of five priority centers of excellence in Emory's strategic plan under Dr. Michael John's leadership and remains one of the Emory Medicine towers. Transplantation as a field lends itself well to the center concept since multiple specialties are required to care for patients with organ failure. Dr. Larsen and Dr. Thomas C. Pearson recognized this natural fit and built a comprehensive transplant center that integrated patient care and research. One of the key factors in developing the center was the leadership and vision of Drs. Larsen and Pearson. Larsen presented a compelling vision for developing a transplant center that was quickly supported by institutional leaders. Once this support was secured he reached out to department leaders to support a shared vision of a multi-disciplinary care team providing life-long patient and family-centered care in a transplant center. This was achieved with trust and mutual respect. For example, each individual physician in the transplant center signed a contract outlining what their roles and responsibilities were to their individual departments and to the transplant center. Maintaining the connection to the host departments was and continues to be important for continued academic identity and enrichment of the faculty members.

A multidisciplinary approach has resulted in team-based participation and development of standardized care for transplant patients. For example, the post-transplant kidney patients have a management protocol, order sets, drug and laboratory monitoring protocols, and set appointments for the first year after kidney transplantation. Data is captured and reviewed real time to evaluate process and outcomes with the goal of identifying areas for quality improvement while providing the highest quality of care.

Transplant center volume has significantly increased from 284 transplants in 2008 to 442 in 2014, resulting in over 50,000 outpatient services per year which include provider visits, infusion and laboratory services. The increase in clinic and transplant volume has also resulted in a growing hospital contribution margin which has reached approximately \$22 Million in FY12.

While the clinical teams were gaining momentum, the research teams were diligently working on the understanding of immunity after transplantation. More opportunities for both basic and clinical science were emerging because of the strong and growing clinical program. Collaborations with scientists at the Yerkes National Primate Research Center and with other disciplines across the Emory campus were forged.

Despite declining federal funding trends, the ETC has fought hard to maintain its research mission. In June 2011, the FDA approved belatacept in the form of the drug Nulojix for kidney transplant recipients, which is the first time a new class of drug has been approved for transplant since the 1990s. NIH funding has grown while overall funding has been relatively stable at approximately \$18M per year. FY14 saw a decrease to \$12M with the departure of a prominent scientist, Allan Kirk, MD., PhD. However, the pipeline is rich with young investigators who will achieve funding because of the strong infrastructure and mentorship already in place.

The ongoing research efforts at Emory are continually published in well-respected, peer-reviewed medical and scientific journals. Faculty at the Emory Transplant Center (ETC) were involved in 121 publications in 60 different journals in FY14, including publications in all top 10 scientific journals. The circulation impact factor is 14.948. The mean H-Index by rank is; professor 35.6, associate professor 17.5, assistant professor 8.3.

In summary, The Emory Transplant Center is effective as a result of leadership that developed an environment fostering a shared vision and mutual respect and accountability across disciplines in the clinical, research and academic missions. The ETC is a system leader at the forefront of adapting to changes in academic medicine.

Winship Cancer Institute

One size does not fit all. While the Transplant team model represents a well-designed and mature integrated health care program, other areas may pose additional challenges because of their unique features and complexity. Winship Cancer Institute represents such a complex model which has early successes and is on its way to address the more complex cancer service line issues.

Winship Cancer Institute is an NCI-designated Cancer Center. The National Cancer Institute (NCI) recognizes centers around the country that meet rigorous criteria for world-class, state-of-the-art programs in multidisciplinary cancer research. As mandated by the NCI-designated cancer centers, Winship has strived to address these challenging requirements to establish team based collaborative cancer research that spans laboratory science, clinical research, and population-based research; clinical programs that offer patients the latest forms of treatment for a wide range of cancers, as well as access to clinical trials of experimental treatments; training programs for scientists, physicians, surgeons, and other professionals in cancer-related disciplines, and public education and outreach about cancer prevention and screening, with special attention to the needs of underserved populations. For this goal, Winship has established a matrix research and patient care structure across departments, divisions, and schools. Winship members include 154 core members with strong basic and/or clinical cancer research focus and a total of 357 members, which represent faculty in over 34 departments across Emory's School of Medicine, School of Public Health, School of Nursing, and Emory College. The cancer patient focused care is integrated with four research programs: Cancer Genetics and Epigenetics, Cancer Cell Biology, Discovery and Developmental Therapeutics, and Cancer Prevention and Control. Such research programs are strongly supported by shared core facilities such as Emory Integrated Genomics Core and Cancer Tissue and Pathology. With such a structure, Winship has attracted more than \$70 million research support from federal and industrial sources. Importantly, the educational component is accomplished by the newly established Cancer Biology graduate program and a T32-training program for physician scientists. Thus, Winship has established a matrix-based patient care and research structure that offers patients first-rate cancer care solutions and access to clinical trials. This is clearly due to the evolved outstanding leadership team; strong initial and ongoing financial support, notably from the Woodruff Foundation; housing patient care and research under the same roof; and the institutional mandate and support for the NCI Cancer Center designation.

New challenges for Winship. As Winship grows and expands its service area and locations and cancer patient care landscape evolves, new challenges have emerged. From the Winship Strategic Planning process, it has identified problems, including uncoordinated decision making, inability to implement initiatives quickly, inconsistent program development across EHC locations and across disease site programs and approaches to financial support and investment, and unclear lines of authority and responsibility.

Proposed new cancer service model. To address these issues, the new matrix-based service line organizational model has been recommended by the Strategic planning team and the Winship leadership team that will clarify decision making, lines of authority, strategic initiatives, implementation, and operational responsibility. The new cancer service line model will support the following principles:

- Develop an exceptional clinical care platform that is required for excellence in research and education success. Exceptional clinical care is inseparable from research and education.
- Develop a “Winship” clinical care model that is consistent, seamless, patient and family-focused, and research driven for all types of cancer across all locations. The model will wrap standardized, multidisciplinary care and support services around the patient and will create approaches to cost management.
- Implement the most efficient and effective management structure to create clarity and consistency for decision making, authority, management, strategy development, marketing, and space planning of all cancer clinical services. The cancer services structure needs to fit within the Clinic and Hospital operational structures and continue to use shared business services of TEC and EUSOM.
- Create and sustain transparency of information for clinical, research, quality, financial, and other data.
- Facilitate the development of a culture of excellence in quality and service across all interprofessional care teams.
- Develop the financial model that supports clinical care and research (basic, translational, clinical, population) sustainability and consistency from year to year.

Musculoskeletal service line

Through 1990, orthopedic practice at Emory was a small “boutique” practice located predominantly at Clifton Campus with a smaller affiliated offshoot at Crawford Long Hospital. Orthopedics remained a small department with fewer than 10 faculty members with a patient satisfaction metric in the 15th percentile. There was little to no communication between these physician practices, and there was a high amount of physician turnover. In 1991, a satellite office was opened on North Decatur Road as a “spine center,” housing faculty from both the Department of Orthopedics and the Department of Neurosurgery; the center was staffed by three spine surgeons, physical therapy and radiology. It failed to capture the flavor or intent of a service line since providers shared little other than their clinic location; procedures and the associated billings were shunted back to parent Departments, leading faculty to feel like they were competing with each other for patients.

Due to a combination of a prevalent condition and an aging population, the demand for orthopedic services will increase markedly over the next several decades. For example, the musculoskeletal service line sees more than four times as many patients as Winship Cancer Institute and twenty times as many as the Emory Transplant Center. Given that the number of providers seeing orthopedic patients is disproportionately smaller than that of the other service lines, their focus had to necessarily be narrowed and the metrics used to judge their accomplishments must necessarily be disparate.

From a clinical standpoint, Emory is known for its expertise in complex and rare conditions, whereas orthopedic procedures are perceived to be common and generally non-emergent. This leads it to be a consumer-driven specialty where patients can “shop around” for what they perceive to be the best value, something that isn’t practical for urgent medical disorders, for which patients to go to the most proximate medical provider. In addition, orthopedics is generally not a chronic condition; patients who graduate back to health need to be replaced by an aggressive recruitment strategy for new patients.

In 1994, the Emory Spine Center was formed in an effort to align departmental goals and improve the patient experience. It was felt that there was an opportunity to dominate the local market because there was no local leader in this domain. Physiatrists and rehabilitation specialists were recruited and housed with orthopedics to improve the patient experience in an effort to establish a novel model for delivery of care by recognizing the growing demand for and uncoordinated delivery of musculoskeletal care at Emory and to improve the value for patient per unit dollar and unit time. A focus on patients and service bred success and good leadership permitted the financial reinvestment in the Center instead of the parent Departments. These reinvestments allowed better staffing and a transition to a competitive provider compensation plan, allowing us to retain talent who might have otherwise departed for Piedmont, Northside or Atlanta Medical Center.

How do we know that this has been successful? Two externally obvious measures are the creation of the outpatient Sports and Spine Center in Executive Park and the opening of the Emory University Orthopaedics and Spine Hospital in Tucker. These developments would not have been possible without reinvestment of clinical funds from the musculoskeletal practice and the continued buy-in and support of Emory Healthcare.

From a patient care standpoint, we have multiple metrics that reliably demonstrate a successful enterprise. Patient volumes continue to rise each year and inpatient revenues directed to Emory Healthcare overhead continue to climb out of pace with other Emory signature service lines. Patient satisfaction metrics are reliably in the 99th percentile and quality metrics show length-of-stay and inpatient nursing quality indices higher than any other facility in the Emory system. Post-operative infection rates are reliably lower than the national average and continue to drop year after year.

From an academic standpoint, faculty recruitment and retention has been outstanding. The Sports and Spine Center has grown from 12 to 51 full time faculty over the last twenty years, and is now one of the largest such enterprises nationally. Over that same time frame, no single faculty member has left for another academic institution or a private practice position. While the musculoskeletal enterprise is not likely to compete with other Emory signature service lines on an H-index metric, they are positioned to have every physician participating in research using an internet-based outcomes data collection system. Every patient gets a disease-specific measure on every visit; patients also get linked to internet surveys that can measure outcomes after discharge and between visits. This data capture is hardwired to the appointment software and doesn't require a human touch to generate further data. Students and residents are already using this database for their research endeavors.

WHAT DIFFERENTIATES EMORY'S SERVICE LINES

The most important differentiation factor for Emory service lines is its first-rate academic research environment and dedication to its educational mission.

- Breakthrough discoveries and therapeutic strategies can be readily translated to cutting-edge patient care practices. Such activities are best represented by Emory "Game Changers": individual investigators whose research discoveries have transformed our medical practice and offer the penetrating points to lead the development of the next generation of medicines. Such Emory Game changes include Mahlon DeLong whose pioneering deep brain stimulation approach has led to the first in class treatment for patients with Parkinson's disease. Rafi Ahmed's fundamental discovery of immune exhaustion mechanism has led to the revolutionary concept for restoring patient immune system to fight cancer. Such Emory discoveries provide our service lines unique opportunities for high quality care that others will follow.
- Our academic research environment adds other significant values to Emory service lines, which include access to latest treatment options and clinical trials for experimental therapies. This access will allow our patients reach national networks and global talents and expertise.
- As an academic innovation hub, we provide our patients access to new patient care models, such as an integrated care model with big data driven care operation, and access to new patient care options, such as genomics medicine.
- The integrated patient care model in which patient care, research, and education are housed under the same roof fosters opportunities for developing patient need-directed cutting edge technologies. The integrated and comprehensive patient care system that are enabled by the academic pursuit will be patient- and family-focused, research and education-driven, and future-oriented.

SUMMARY OF FINDINGS

1. The term “service line” is often used in the literature to refer to a patient care delivery model in which there is alignment of resources and healthcare professionals across different disciplines and departments with a common interest in a specific disease (or group of diseases).
2. The term “service line” means different things to different leaders across the entire WHSC. There are strong and differing opinions about whether or not “service line” is even an appropriate term.
3. There is general agreement that a service line model (more horizontal care delivery approach) could be more efficient than a vertical care model driven by traditional academic departments and divisions; however, few leaders agree how to implement and operationalize this new horizontal care delivery model.
4. The creation of service lines does not automatically ensure that a healthcare system will be more effective at delivering patient-centered care and managing the health of populations. Service lines must be designed specifically to meet these objectives in order to achieve them.
5. The barriers to service line creation revolve around core issues of money, control, and culture. The inability to overcome these barriers is generally due to the failure of academic departments, hospitals, and physician practices to recognize their interdependence.
6. Two financial-related barriers were identified at a global health system level that hindered collaborations required to create / sustain successful service lines: 1) lack of financial reporting systems that facilitate service line reporting (most emphasize only individual operating / business unit performance), and 2) habitually long and often contentious budget seasons that drain time, resources, and creative energy across all healthcare entities (hospitals, physician practices, and academic departments).
7. The path to success differs for each service line (the path of one is not the path of another). For example, the formation of the Emory Transplant Center was catalyzed by strong physician and administrative leaders that helped navigate silo-based barriers to collaboration. Winship Cancer Institute was created through significant financial support, notably from the Woodruff Foundation; broad institutional buy-in; and a drive to achieve the NCI Cancer Center designation. The musculoskeletal service line has succeeded through relentless pursuit of streamlined processes and clinical care efficiencies.
8. Despite different paths to service line creation, there are three “building blocks” generally recognized as vital for the success of a service line: a sound strategy for financial viability, broad institutional support, and strong leadership.
9. Service lines must select metrics of success from several domains (financials, efficiency, quality, market share, patient volume, research productivity, etc.), and then commit to adhering to these metrics. In addition, selecting balanced metrics will be important so that any one objective does not overshadow others that are also important.
10. Although the primacy of strong, efficient, patient-centered clinical programs cannot be overstated, Emory service lines will continue to differentiate themselves from those of other healthcare systems by focusing on areas that distinguish Emory (notably research and education); and by always striving to be at the “penetrating point” of the cutting edge.

RECOMMENDATIONS

1. Challenge those who are contemplating forming a service line to articulate three key aspects: 1) the scope of their service line (mainly clinical care efficiencies, or also with integration of research and education); 2) how the service line specifically will improve the experience of the patient; and 3) how the service line will be initiated and sustained financially (viable financial model).
2. Include patient family advisors in the design phase of a service line. Specifically engage them to ensure that their wishes are met for greater patient access, more control over their own scheduling and records, and enhanced coordination of care.
3. Develop a strategy to ensure care is coordinated across multiple service lines. With the ageing population, the proportion of patients with multiple conditions that cut across service lines is expected to increase (e.g. elderly, overweight woman with coronary artery disease, history of breast cancer, depression, and osteoarthritis requiring joint replacement). Coordination of care across service lines is critical to our growing commitment to value-based care and population health.
4. Design or modify funds flow models and incentive structures across the enterprise to encourage each entity (e.g. hospitals, academic departments, physician practices, individual physicians, etc.) to focus on the success of service lines or the system as a whole, and not just their own operating or business unit.
5. When designing new service lines, be transparent with and obtain sufficient buy-in from all key stakeholders, especially leaders of departments and divisions that have traditionally driven Emory's clinical programs.
6. Create or adopt financial reporting systems that facilitate reporting for service lines, and not only for individual operating / business units.
7. Commit to making budget season a smaller portion of the fiscal year, and make it a less contentious and more collaborative process. This will help thousands of healthcare workers, managers, and scientists recoup time and energy to devote to our core missions.
8. When hiring or appointing leaders for service lines, remember two key principles: 1) service lines need strong leaders from all disciplines (not only physicians, but nursing and administrative also) in order to successfully navigate Emory's silo-oriented system; and 2) emphasize non-technical skills (high EQ, strong collaboration skills, good business sense) as much as, if not more than, strong technical skills.
9. Choose balanced metrics to gauge the success of a service line, so that performance is not driven by any one objective.
10. Develop an Emory clinical care model that is structurally and operationally integrated with research and education. Exceptional clinical care is inseparable from research and education.

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APPENDIX

We wish to sincerely thank our interviewees across the Emory community for sharing their knowledge and wisdom.

Susana Alfonso
Kevin Andrews
Robert J. Bachman
Judy Belt
Scott D. Boden
William A. Bornstein
Timothy G. Buchman
Dee Cantrell
Shari M. Capers
Penny Castellano
[S. Wright Caughman](#)
Kevin Clark
Carolyn Clevenger
June Connor
James W. Curran
Walter J. Curran, Jr.
Joe Derosé – Patient Family Advisor
Heather Dexter
Nelda Felman – Patient Family Advisor
Vanessa Fischer – Patient Family Advisor
[John T. Fox](#)
Bryce Gartland
Susan M. Grant
P. Russell Hardin
Ira R. Horowitz
Michael M.E. Johns
R. Paul Johnson
Jane Jordan
Fadlo R. Khury
Christian P. Larsen
[Angel Leon](#)
Allan Levey
Marilyn Margolis
Richard Mendola
Douglas C. Morris
Marc Overcash
Dane C. Peterson
Jim R. Roberson
David S. Stephens
W. Robert Taylor
Gary L. Teal
Lynn Whelan
David L. Wynes