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Building a Radiology Service Line: Key Elements and Necessary Actions

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Building a radiology service line is a challenge. Beyond the science of imaging and pathophysiology of disease, there are a number of key elements and necessary actions—related to personnel, communication, and resources—that must be taken to make the service line successful and sustainable. Although there is no single best way to build an imaging-based service line, there are a number of essential components. The purpose of this article is to delineate these components and describe how ambitious radiologists may successfully build and sustain a radiology service line.

Introduction

How do you build a service line in a radiology department? It is a common question that many radiologists have wrestled with and attempted to systematically answer. But, the answers can be vague and the task can be daunting. Whether starting a brand new service line, or growing a pre-existing, fledgling one—certain actions should be considered to ensure that the end product is robust, self-sustaining, and compatible with the goals of the department and the overall institution.

Porter and Lee[1] perhaps provided the most commonly accepted definition of a health care service line in their Harvard Business Review article entitled *The Strategy that Will Fix Health Care*. Referred to by the authors as *Integrated Practice Units* (IPUs), these services lines are ideally organized around a medical condition or a set of closely related conditions and involve multidisciplinary input. In Porter and Lee's model, an Integrated Practice Unit should take responsibility for the full cycle of care and patient education while accepting joint accountability for outcomes and costs. Although this description is theoretical, it serves as a viable model for health care teams striving to build service lines. Imaging's interface with the vast majority of medical specialties and patients with a variety of ailments renders it a foundational specialty for the development and coordination of many health care service lines.

Many new service lines are appearing in radiology departments across the country: magnetic resonance (MR) imaging and MR-guided interventions, musculoskeletal imaging and interventions, interventional oncology, cardiac imaging, etc.[2–5] Some service lines predominantly provide for inpatients, others for outpatients. Some may require an outpatient clinic. Extending the hours of on-site radiologists interpreting conventional imaging is another version of a radiology service line. Imaging service lines are often able to improve time-to-diagnosis, an increasingly important metric, which may improve length of stay and decrease the number of costly hospital admissions.[6] These and other promising features of radiology service lines demonstrate the growing importance of informing leaders who are able and willing to manage, grow, and sustain these services.

The purpose of this article is to outline tangible steps, actions, and investigations that may help motivated radiologists successfully build and sustain a successful radiology service line.

Clarify and Communicate the Vision

What is your vision for the service line? And once the vision is clear, has it been communicated to department leadership? There is, perhaps, no more important step in building a successful service line than answering these questions.

The vision may involve providing services locally, regionally, or nationally. Is the objective to deliver innovative care—or to deliver existing care in a more efficient, patient-centered way? How many physicians should be a part of the new service line? At how many facilities do you want to offer the service? Is there an existing model that you want to emulate? Or is the vision entirely innovative? How will this service line help the hospital and the department? The actual answers to these questions matter less than ensuring that they are communicated to department and hospital leadership. Without support from leadership, it is unlikely any service line will succeed. With wavering leadership support, the service line is unlikely to survive times of stymied growth or instances when additional capital equipment and personnel are requested or both; instances that all service lines will endure.

To re-emphasize, clarifying the vision and communicating that vision are the foundation to any and all radiology service lines. The remainder of this article is built upon this principle.

Learn About Your Team

There are a variety of approaches to starting something new in any organization. Some people approach new endeavors by

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"cleaning house" and bringing in an entirely fresh team to execute the vision. However, in reality, this is commonly not feasible and may establish an unfavorable reputation within the organization that may be impossible to shed. Rather, it is likely more beneficial to learn about the strengths and weaknesses of existing personnel and find ways that their strengths may help the service line grow. Institutional wisdom can go a long way (but must of course be differentiated from institutional inertia).

Who are the team leaders? If you are growing an MR-procedure service line— who is the lead MR technologist? Who is the best MR physicist in the department? Is there a team of nurses that prepare and recover patients? What is their view of MR-guided procedures? Did these individuals take this job because of exciting possibilities and potential? Or did they take the job as a final destination before their upcoming retirement for which they have a day-calendar countdown on their desk? Learning what motivates your team members is an important element to building a service line.

Beyond support staff, who are the physician influencers that may affect the service line? Department and hospital leadership have already been discussed. But beyond leadership, there are often/always physicians who carry influence over day-to-day operations in the health care system. These individuals may be radiologists, surgeons, or advanced practice providers. And although they may not directly serve on "the team," they can often affect hospital-wide support for the service line. Identifying these people and learning their opinion about the potential of your service line is important.

The bottom line is that it is often best to learn about your team before implementing a large number of sweeping changes. Discovering their strengths and motivators is an important step to building a team that will put effort toward growing the service line.

Are There Adequate Tools and Resources?

Certain resources are obvious. If one is growing an interventional radiology service, rotational fluoroscopy and ultrasound will be required. Similarly, when building a cardiac imaging service line, specific software packages for computed tomography (CT) and MR scanners will be essential. However, other necessary tools and resources may be less apparent.

For example, if building an interventional radiology service, are newer items such as cone-beam CT guidance and intravascular ultrasound, which may not be available at your institution, necessary? Similarly, will you be able to readily obtain novel stent and embolic technologies if your service line requires them? For capital equipment and inventory needs, it is essential to learn how the budget process works at your institution by working closely with hospital management. And while it is important to possess up-to-date technology, it is also important to keep in mind that hospital management wants to see that current technologies are being used to their fullest capacity before they consider spending substantial capital on the latest and greatest.

Physical equipment aside, what personnel will be available and capable of running the service? It is an important question to answer when building a radiology service line. When you are away, will the service line still function? If not, what is the plan to increase access to the service in your absence? If there is no plan to train or hire other physicians to provide such a service, there will be a substantial effect on sustainability. Again, this element (personnel) should be part of the initial vision and should be communicated to leadership early in the building process.

Identify Key Referring Services

Do the cardiologists in the hospital believe in cardiac CT angiography to evaluate for coronary artery disease? Is the urology service willing or reluctant to refer for endovascular varicocele embolization? Do your orthopedic surgery colleagues believe in musculoskeletal ultrasound examinations?

Buy-in from referring services is crucial for any new imaging-based service line to thrive. Even if referring services are not "all-in" from the outset, there must at least be a willingness to learn why the new imaging service line might benefit their patients. Unfortunately, economic conflicts often cloud these discussions and negotiations. As an aspiring service line builder, it is in these moments that it is important to remain patient-centered and willing to help other clinicians. This approach will build trust and support from other specialties and services. Without trust and support, it will be challenging and perhaps impossible to grow a new service line.

In certain instances, it may help to identify certain diseases that are "pain-points" for physicians in your hospital. These "pain-point" diseases are often illnesses for which expertise has not been previously available at your institution, or diseases that are particularly challenging to treat with readily available resources. Aiding in the treatment of these ailments may lead to future referrals that will support your service line.

Have a Plan to Educate

When building a novel service line, there are a number of stakeholders that should be educated about its purpose and benefits. It is the opinion of the author that most service line builders do an adequate job of educating referring physicians via grand rounds and interdisciplinary settings—which has already been discussed. However, a similar educational effort should be paid to support staff. Often, technologists and nurses do not have background information on the purpose of new service lines or why they are beneficial for patients. Without this knowledge, it is difficult to advocate on behalf of a new service line. Support staff can be educated in a number of forums including educational sessions, morning rounds, and simple day-to-day interactions at the scanner or in the procedure suite. Educating this group should not be overlooked. Additionally, it is not uncommon for other radiologists in the group to lack coherent understanding about the service line's purpose and positives. Partners in your group can serve as remarkable advocates for a new service line as they interact with a variety of referring physicians and patients. However, baseline knowledge about the capability and purpose of the service line is necessary for this to occur.

Hospital leadership is the final group to which educational attention should be paid. Why does the service line benefit the hospital? Does it expand the catchment area? Does it decrease length of stay and lower readmissions? Tell them, or they may not know.

The method by which each of these groups is educated should be customized to fit the audience. The point to remember, though, is that in addition to referring physicians—a service line builder must also take time to educate support staff, radiology group members, as well as hospital administration. Each of these groups will be able to advocate more effectively on behalf of the service line with this baseline knowledge.

Design Patient Management

It may seem overly simplistic to ask, but how will patients be referred to your service line? Although this concept may seem elementary on paper, many excellent service line concepts have