



# Built to Care: Cancer Centers for the Future

Despite the recent national pandemic that has swept across the United States and the negative financial impact it has had on our healthcare system, the confluence of a rapidly aging population, a growing rate of cancer incidence, and aging and undersized facilities underscore the need for development or growth of new cancer programs. Taking into account the impact of numerous challenges in our dynamic healthcare industry—for example, changing treatment patterns, emerging and costly therapies, and an often turbulent reimbursement landscape—it is more important than ever to apply a rigorous planning process to the design of any new facility. If not, errors such as oversizing, undersizing, or not allowing for sufficient flexibility can have significant adverse implications for years or even decades. But for healthcare systems and integrated networks that take the time to conduct due diligence and thoroughly analyze and understand their market, a properly designed and constructed cancer center can be the catalyst for an exceptional new chapter in the organization's history.

Most cancer care is provided in the outpatient setting, and most organizations will focus their cancer centers on providing these types of ambulatory services. In recent years, the ambulatory care center market segment has seen significant growth. According to a CBRE analysis of the most recent U.S. Census Bureau data, the number of outpatient centers in the United States increased 51 percent from 26,900 in 2005 to 40,600 in 2016; the growth

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in the outpatient space continued through 2019, with more than 2.1 million square feet of new space being completed in the fourth quarter.<sup>1,2</sup> Cancer centers are a significant contributor to this exponential growth. This is not surprising, because healthcare providers are working to aggregate cancer services into a single space, facilitate seamless patient care across the continuum, and create a financially viable model to accommodate current and

future patient volumes. At the same time, patients are becoming actively involved in the selection of their healthcare team. A key consideration for many patients is the availability of comprehensive services in one accessible location and in the community where they live. In addition, the rise in the number and effectiveness of multidisciplinary clinics necessitates expanded and flexible cancer center designs.

Below we discuss other factors that are driving healthcare providers to consider building a new cancer center.

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### **Need for Additional Capacity**

Cancer disproportionately impacts the elderly population. Given the aging demographics of the United States, the number of new cancer patients is projected to continue to grow for years to come. Centers for Disease Control and Prevention data indicate that new cancer cases have increased approximately 20 percent for each of the last two decades, a trend that is anticipated to continue beyond 2020.<sup>3</sup> The growth in patient volumes is straining many cancer programs, particularly those that were built five or more years ago. Cancer centers with spatial limitations face throughput issues and may experience longer wait times for first available appointments. In addition, cancer centers with limited space often rely on outside labs, pharmacies, and support services, creating additional bottlenecks in the system that extend patient wait times at each step of their treatment.

### **Patient Centricity**

Patients expect the highest quality healthcare experience at the most accessible and affordable location possible. Moreover, cancer treatment presents unique facility challenges to accommodate both the clinical (e.g., immunocompromised) and psychological (e.g., healing environment) needs of patients. Contemporary cancer centers are specifically designed to meet these challenges and offer patients a holistic care environment.

### **Aging Environments**

Many cancer centers were not designed to be adaptable, which creates barriers to incorporating new technologies and/or approaches to care. As cancer services continue to evolve with

new treatments and equipment, it is key to create a physical space that is flexible and able to accommodate both medical and technical advances.

To effectively address each driving factor described above, hospitals, health system leaders, and integrated networks must first explore the four main phases of new cancer center planning and understand the dependencies between each phase. The remainder of this article details these phases and explains the complexities that must be considered when pursuing a cancer center facility project.

### **Phase One: Strategic Planning**

Cancer care is perhaps the most dynamic field of medicine. Clinical innovation and rapidly changing treatment protocols require program flexibility, and reimbursement restraints and expectations for improved clinical outcomes and enhanced access to care require continual quality improvement.

These and other transformational pressures on the cancer care delivery system not only heighten the importance of strategic planning (so that organizations are well prepared to respond to these changes) but also increase the complexity of planning. In a recent planning guide, ECG shed light on the potential strategies that organizations may pursue in response to these specific challenges.<sup>4</sup> Notably, responding to many of the forces transforming the cancer marketplace will require facility solutions; therefore, it is critical to address these requirements throughout the strategic planning process.

Only a few years ago, health systems defined long-range planning to encompass a 10 or 15 year time frame. Today, most organizations consider 3 to 5 years to be long-term planning, given the pace of change in the industry and the level of disruption. Therefore, organizations that have not developed or refreshed their cancer program's strategic plan in the last three years should do so.

### **Strategic Framework**

As Michael Porter wrote, "The essence of strategy is choosing what *not* to do."<sup>5</sup> In an era of infinite challenges and finite resources, health systems must employ a very rigorous approach to strategic planning to ensure that financial resources are optimally deployed. Many organizations find value in bringing structure to their planning process by adopting a planning rubric. Commonly, entities use a four-part planning framework that progresses from defining the organization's purpose to identifying supporting goals and strategies and finally to articulating specific tactics (see Figure 1, right).

The first phase of the planning process involves defining key foundational elements unique to the organization and its aspirations. The mission and vision play an important role in charting a long-term course for the organization and provide a foundation upon which all future decisions will be made.

Following the development of foundational elements, the framework focuses on directional elements: goals and strategies. These elements provide increasing levels of granularity to the strategic plan and begin to shape the organization's roadmap. The goals articulate what the organization will achieve to realize

Figure 1. Strategic Planning Framework



its vision, and the strategies describe how it will pursue these goals.

The implementation stage involves determining specific tactics to execute the strategies; these should be precisely defined actions. For example, a tactic to enable development of the requisite research support infrastructure is to hire a research coordinator during the next fiscal year.

**Key Strategic Factors for Oncology Programs**

When developing an oncology strategic plan for an organization, there are many topical areas or cancer program capabilities to assess, including:

- Physician and administrative leadership and expertise
- Screening, education, and prevention
- Diagnostic capabilities
- Treatment resources
- Facilities and technology
- Supportive care resources
- Research efforts
- Quality improvement.

These areas should be developed at the cancer site-specific program level, with the organization first determining the appropriate sequence of planning efforts (e.g., which tumor sites to begin with). For each of the topical areas noted above, cancer program leadership should consider current program capabilities and

marketplace competition and how they impact strategy and tactic development. These eight topical areas, including detailed components, are presented in Figure 2, page 20.

**Growth Strategies**

Realizing larger strategic aspirations requires program growth—whether it is achieving scale or generating financial performance to support key investments. Most related initiatives are organized into one of two categories: growth in place and regional expansion.

Growth in place focuses on increasing market share within an established service area. As previously noted, detailed plans (strategies and tactics) should be developed for site-specific programs. For the facility, specific investments may be necessary to modernize the program (to keep up with community standards) or to differentiate it from competitors (from either a clinical or aesthetic perspective). In other cases, additional capacity to accommodate growth is warranted.

Alternatively, regional expansion moves beyond growth in place, focusing on expansion of the geographic area served. Regional expansion is typically considered once an organization has attained high levels of performance in its existing service area and clinical portfolio. When contemplating regional expansion, three factors must be addressed: deciding where to expand, establishing the number of new sites desired, and defining a development strategy (i.e., build versus buy).

Figure 2. Cancer Program Capabilities

**Physician/Administrative Leadership and Expertise**

- Cancer leadership (clinical and administrative dyad)
- Dedicated and subspecialized surgeons and oncologists for tumor sites
- Physician champions for tumor sites

**Quality Improvement**

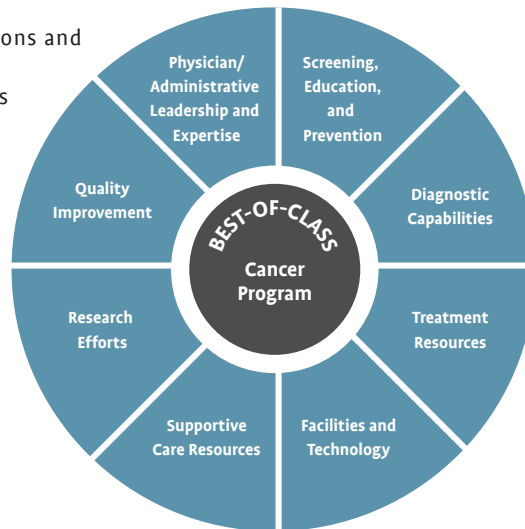
- Cancer site-specific reporting
- Real-time data that actively informs program (re)design
- National quality initiative participation
- Preparation for value-based care

**Research Efforts**

- “Critical mass” of research studies, scientists, and grants
- Dedicated research staff
- Collaboration with other entities

**Supportive Care Resources**

- Dedicated navigators
- Social work, psychosocial, nutritional and financial counseling, etc.
- Integrated palliative care
- Seamless transition to survivorship



**Screening, Education, and Prevention**

- Adherence to national guidelines
- Genetic counseling services
- Formalized community outreach
- Integration with primary care and other specialties

**Diagnostic Capabilities**

- Seamless evaluation
- Imaging expertise
- Access to advanced diagnostics

**Treatment Resources**

- Multidisciplinary care teams
- Prospective tumor boards
- Clinical pathways utilized in 90% of applicable cases

**Facilities and Technology**

- Electromagnetic technology
- Interventional oncology
- Pharmacogenetics
- Dedicated and updated space

If the organization opts for regional expansion, new facilities may be needed. Part of strategic planning includes determining whether there are existing clinical resources in the area to acquire or whether new services need to be developed. Outreach via telemedicine or telehealth must also be taken into consideration. This analysis will inform the scope of facility renovation or construction required to support the new locations and the new remote and/or virtual services.

**Phase Two: Business Planning**

Business planning is a critical element that may be completed prior to or in coordination with the next phase, which is facility planning. The business plan objectively quantifies the need for and financial viability of the construction project. This plan typically consists of three elements:

- Volume projections
- Preliminary facility sizing
- Financial feasibility.

First, clinical volumes, at both service and modality levels, must be modeled. The volume projections will be based on the goals and aspirations articulated in the strategic plan, combined with underlying assumptions. These assumptions correlate with planning strategies and include percentage growth or market capture, volumes at the service level (e.g., surgery, imaging, radiation, and

medical oncology), and assumed service utilization rates (e.g., the number of treatments per patient). Volume modeling is an iterative process; it is critical that the projections are as accurate as possible, because they serve as the basis for all subsequent analyses. Given the importance of these values, it is also imperative to ensure that key organizational stakeholders agree with the underlying assumptions used to create the projections, as well as with the projected numbers.

After calculating the clinical volumes anticipated for the new cancer center, these values are translated into projected estimates for facility requirements. Typically, at this stage, preliminary sizing estimates focus on total square footage requirements to support the various clinical departments and attendant clinical volumes. A precise calculation is not needed at this point, and there will be no architectural renderings or block diagrams. Rather, the intent is to estimate total square footage so that initial project costs may be calculated.

Next, financial projections are developed for the cancer program based on all historical information that is available (e.g., revenue and expenses per unit of service) and that will consider the projected new volumes. The analysis will factor in the contemplated financial investments, including facility construction and equipment, to develop a holistic perspective. The result from this analysis is typically expressed on a net present value basis, where multiple years of future returns are compared to near-term

financial investments. Any project with a positive net present value is considered financially viable.

### Phase Three: Facility Planning

Having established a strategic direction for the cancer program and qualitatively defined facility needs (e.g., space for expansion, capacity for new technology, and new outreach locations), the next step is to translate the plans into quantitative measures used to define the details of the project and allow for a financial viability assessment.

First, the volume projections are translated into objective values that include the number of exam rooms, square footage requirements, and capital asset requirements. The analysis is based on plans to develop clinical services, offer innovative technologies, and account for anticipated demographic changes. This assessment should project both near-term (e.g., 3 years) and long-term (e.g., 10 years) facility requirements. As a part of this process, the organization should take a close look at its current operational performance compared to industry benchmarks. The development of a new or expanded facility often presents key opportunities to improve workflows, enhance the use of human resources, and better serve patient needs. The organization should take advantage of this effort to drive operational change in a way that improves levels of service, efficiency, quality, and satisfaction.

It is important to validate the calculated resource requirements (e.g., room totals) by running the projected volumes through a stress test, created by using a throughput and utilization model. Some levers in the model, such as cancer center hours of operation, will be predetermined by the project leaders. Other variables layered into the analysis include expected exam and treatment minutes per case, room turnaround times, and utilization percentage factor by room type. These analyses prevent facility under-sizing by accounting for periods of inefficiency.

Before completing the sizing analysis, it is also key to evaluate the impact of other strategic and industry factors not addressed during prior phases. These may include local building regulations, innovations regarding the built environment (e.g., patient-centered design, green design, Planetree, and sustainability/LEED), and different technologies. By taking these factors into consideration, the organization is better prepared to plan a facility that will meet longer-term needs. In addition, it is important to create a space that is adaptable to ever-evolving clinical care and technology trends. Design flexibility must be tempered to avoid building unnecessary space.

The financial capabilities supporting the built environment should also be accounted for beginning with the facility cost. There is a fine balance between determining what is needed and planning for the unexpected (e.g., scale and types of equipment and the space or rooms to accommodate them).

At this planning phase, the budget is directional and is used to assist the decision-making process. The final budget is based on full schematic design floor plans developed by the design team. If the final design aligns with the agreed-upon program, estimates should be within 8 percent to 10 percent of the final project

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It is critical to develop an oversight planning team to serve as the central communication group, facilitate information exchange, and be the decision-making authority for various project work streams. This team will also regulate change management and establish structures and tools needed (i.e., dashboards, issues trackers, budgets, and a master schedule) for the cancer center project to be successful.

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budget. These budget variances usually correlate with the addition of higher-quality finishes, public amenities, and equipment. The cost model should consider multiple factors, including:

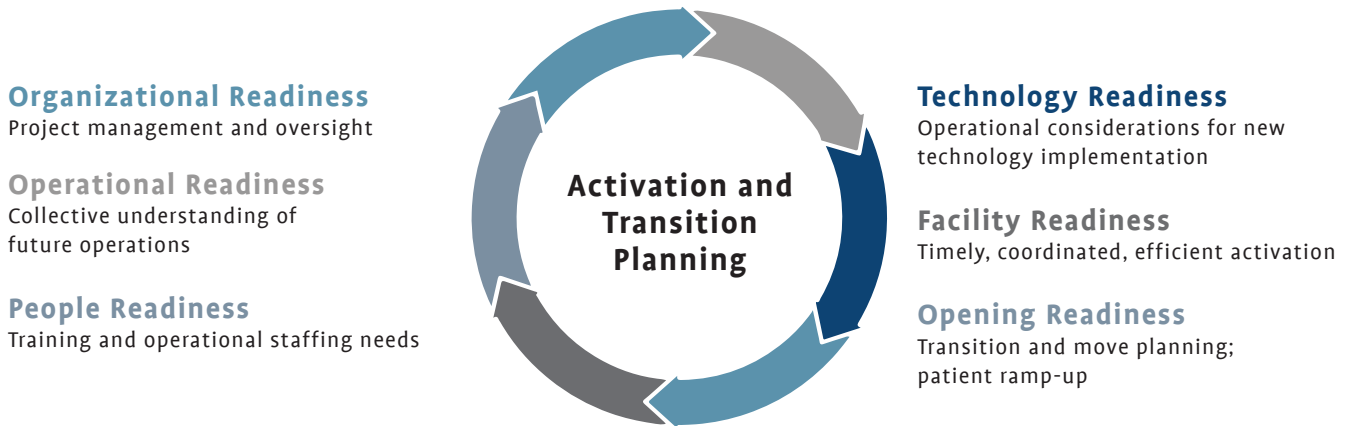
- The sum of all department gross square feet
- General circulation and other remaining building department gross square feet
- Major medical equipment needed for treatment and clinical support areas
- Project fees (e.g., site development and permits)
- Additional capital fees (e.g., minor movable equipment, IT, and contingency fees)
- Inflation.

The desired level of IT and medical equipment innovation must also be determined in the facility planning stage. In cancer care, new and improved technologies and medical solutions are introduced at an exponential rate; therefore, organizations should include a contingency amount when designing a new cancer facility. Acknowledging that patients desire the latest technologies and services as essential to their treatment plans, how forward thinking and state of the art do you want your cancer center to be? How much can you afford? What is on the horizon for cancer care that is critical to include in the scope and practice of your new facility? These questions should be asked as part of the final step in facility planning.

### Phase Four: Activation and Transition Planning

For patients, their family members, physicians, and staff, opening a new cancer center provides the organization with the opportunity to expand and establish world-class levels of service, efficiency, quality, and satisfaction. For success, the health system must prepare staff to provide patient care in the new facility and prepare the new facility for staff to provide patient care. This entails a resource-intensive, transformative process focused on converting design plans and a construction site into an operational healing environment that is integrated with the rest of the health system.

Figure 3. Readiness Categories



It is critical to develop inter- and intra-departmental workflows, refine inter-building relationships, and cultivate an exceptional patient and family experience in the new environment. Though it is often challenging to fully comprehend these changes, especially for operational staff who have never been through such a project, activation and transition planning is one of the most important and exciting phases of the facility development process.

This phase is generally organized in six readiness categories, as shown in Figure 3, above.

### **Organizational Readiness**

It is critical to develop an oversight planning team to serve as the central communication group, facilitate information exchange, and be the decision-making authority for various project work streams. This team will also regulate change management and establish structures and tools needed (i.e., dashboards, issues trackers, budgets, and a master schedule) for the cancer center project to be successful. This type of team is typically composed of health system operations, administration, and nursing leadership and cancer center physicians. The importance of physician membership on this oversight team cannot be overstated, because active stakeholder involvement is critical to the success of the project. The ultimate deliverables are a workforce and a building that are in sync and well prepared to provide safe and quality care.

### **Operational Readiness**

The health system and cancer center oversight team must establish a collective understanding of the care delivery model in the new cancer center. Building upon where the architects, designers, and planners left off, operational readiness is the time during which floor plans are reviewed, operational workflows are customized and optimized for the new space, and consensus is built on inter- and intra-departmental processes. Form work groups for each area within the cancer center that will encompass direct patient care or be directly affected by changes in the patient care process.

Examples of work groups within the operational readiness category include the following:

- Medical oncology/hematology
- Radiation oncology
- Surgical oncology
- Infusion
- Pharmacy
- Lab
- Registration
- Care coordination
- Case management/social work
- Financial navigation
- Materials management
- Environmental services.

The work groups will meet to develop operation manuals that define the high-level scope of services within each department; key rooms and spaces; staffing and volumes; performance metrics; operational workflows; and departmental routes for patients and their families and for staff.

### **People Readiness**

Opening a new cancer center poses unique challenges—most notable, preparing clinicians and staff to deliver high-quality care in new ways in a new environment. Once processes are established by the operational readiness work groups, it is critical to train to any new standards through multiple methods of education. Staff must be oriented to the new building, department space, and workflows within the cancer center. Training can be conducted through in-person walk-throughs, as well as via online learning modules. In addition, it is key during this readiness phase to communicate with the staff and the community as often as possible to keep them informed of progress and expectations. Newsletters, newspaper articles, blog posts, and town hall meetings are suggested to convey transparent and up-to-date messages.

### Technology Readiness

Many organizations are installing state-of-the-art technology (e.g., magnetic resonance imaging guided linear accelerators and proton therapy) to attract patients who are seeking the latest treatment innovations. However, the new equipment and treatment modalities present challenges to staff who may be unfamiliar with them or have been trained to use other devices. Therefore, a plan must be in place to procure and install the equipment, as well as train staff on its uses.


### Facility Readiness

New cancer center activation is highly dependent on the successful completion of construction and facility handover, which must be thoroughly planned and aligned to minimize risk. Significant IT, medical equipment, furniture, casework, and fixtures must be installed; building systems must be tested; and security plans for the building must be implemented. This process involves multiple stakeholders throughout the organization, including facilities, biomed, engineering, security, supply chain, and environmental services, to ensure that the building is compliant to code and regulatory standards.

### Opening Readiness

Finally, to prepare for a safe and timely opening that is aligned with the strategic plan and organizational goals, it is critical to focus on planning for the opening day. There are various exercises that can be done with the cancer center leadership team to determine how to best transition into the new space, while assuring patients that they will receive high-quality care during the move. Because most cancer centers are ambulatory in nature, planning is significantly less intense than for a hospital setting, where patients must be physically transferred to a new space during their inpatient stay. Scenario planning can be conducted for all details of the transition process, including time and day of the week, equipment move scheduling, opening sequence of departments, and notification to the community of the official closing of the old space. If necessary, a command center can be implemented to ensure that any real-time issues are escalated quickly and addressed immediately to eliminate any impact to patient care.

### Closing Thoughts

Any major construction project has the potential to create a lot of energy and excitement for an organization or program. This is especially true for cancer centers, where patients and donors have emotional attachments to the center and often participate in some of the planning efforts. A well-organized and well-planned cancer center project can pay dividends for years to come through improved patient satisfaction, increased employee engagement, better care coordination, and potentially improved clinical outcomes. With one chance to “get it right,” organizations should be certain to take the necessary time for thorough due diligence and strategic planning to make certain that the facility is appropriately designed and sized to meet its aspirations. 

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