White Paper

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Programming for Improved Cancer Patient Care: An Infusion Center Case Study

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Introduction

Programming is a vital step in the design process that can forge a strong working relationship between client and architect. With this team-based approach, the expertise of the architect is combined with that of the caregiver to provide a balance for making informed decisions.

This important stage involves a series of intensive, onsite conversations that can also accomplish the following:

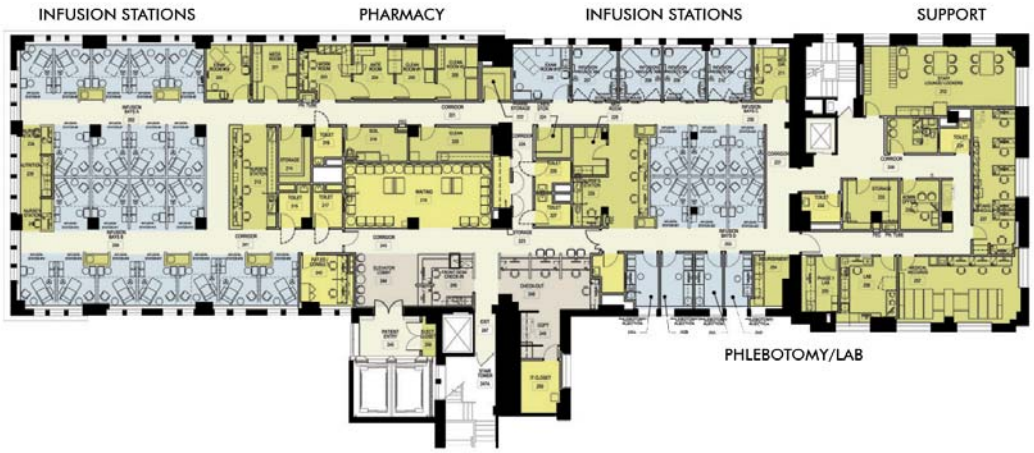
- Define objectives and goals.
- Define elements that must be maintained.
- Define problems that must be addressed.
- Determine the project's unique technical, environmental, and human considerations.
- Build consensus among various stakeholders.

Architects embrace programming as an opportunity to learn about their clients' mission and work practices, to develop an understanding of their unique needs before moving forward, and to offer suggestions where appropriate. Clients, meanwhile, get the opportunity to share their hopes and preferences and to seek solutions based on the architect's wide range of experiences. As a result, the final design is rooted in the very real needs of the institution and its mission.

A Case in Point

When changes in federal regulations began reducing healthcare reimbursements for oncology infusion treatments, a hospital in Philadelphia, Pennsylvania, sought to enhance the quality of care and profitability of its many affiliated and private infusion practices by uniting them under the auspices of the hospital. With a goal of enhancing both patient care and the staff work environment, our design team worked closely with the hospital to create an appropriate program based on a quantitative analysis of the use of the existing space.

A stumbling block to arriving at the appropriate square footage was an assumption early on that to accommodate the necessary services and activities of each of the nine programs, the size of the new facility would need to exceed the sum of the existing square footages. As stand-alone units, each practice had to dedicate significant space to functions such as patient reception, blood draws, office work, and storage. By consolidating these practices at one location, these redundancies could be eliminated, thus reducing the overall space needs – and the commensurate building and operational costs – even further. Combining these spaces would also reduce staffing redundancies, further increasing efficiency.



Using a proprietary patient queuing calculator, Burt Hill was able to objectively consider thirty-minute time slots from 5:30 a.m. until 10:30 p.m. and determine exactly how many patients were present in the existing practices at any given time. Assuming a four- to six-hour visit on average, the calculator broke patient visits into segments for intake, preparation, procedure, and recovery. When plotted on a graph, these figures clearly indicated that while the need for infusion stations was truly great each morning when the patients first arrived, the need for these stations declined throughout the day as each patient completed his or her treatment and left the site. By mid-afternoon, there were few if any patients still present, and the infusion stations sat empty. After analyzing this data, Burt Hill met with the clinical and accounting staff to propose a significant change in business practice: if patient appointments could be staggered throughout the day rather than scheduled at the same time, more patients could be accommodated in fewer chairs. Instead of scheduling all patients for early morning so that all were ready for their treatments around the same time, patient arrivals could be spread throughout the day so some could participate in the intake phase, while others were being prepped for treatment, receiving treatment, or recovering from treatment. The early-morning bottleneck would be removed, and patients could flow through the system more quickly and comfortably. As a result, the initial space demand was reduced by approximately 50%, from 60 infusion stations to 30.

Getting Into the Mind of the Patient

Having arrived at a square footage that was more in keeping with the hospital's financial goals and thus allowing the project to move forward, attention could now turn to the needs of the patients. There were numerous considerations:

- Enhancing the comfort and preserving the dignity of the patients was paramount. Each infusion station would need to be adequately proportioned to offer comfort and privacy, and to accommodate family members.

- Examination/infusion can be a weekly occurrence that can take several hours, so the experience should be as non-stressing as possible considering the physical and emotional stress the patients already face as a result of their illness.
- The facility would need to accommodate patients of all ages.
- Because many patients have limited mobility due to their illness as well as to the fact that they are connected to fusion pumps during their visit, the space must be easy to navigate.
- Some patients require food with their treatment to fend off nausea, while others could become sickened by odors emanating from food preparation areas. Consideration of these opposing elements needed to be addressed in the design.

The Results

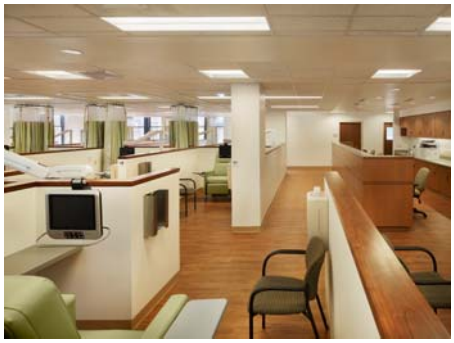
The programming effort resulted in the transformation of 20,000 square feet of rental space into a brand new oncology infusion center. The new center fully integrates the services offered previously in nine locations and includes a patient reception area, a phlebotomy lab, a pharmacy, 15 examination rooms, 30 infusion stations, and the necessary support space.

The design is a direct response to the needs that surfaced during the programming phase of the project.

1. A better experience for patients and their families.
   An open floor plan with a series of pods allows infusion patients to draw curtains if they wish to receive treatment in privacy or leave them open to interact with fellow patients. During post occupancy discussions, we learned that the need for private stations should not be a mandate, as some patients develop friendships and want to spend time in small group settings. By creating a mix of private and group stations, each patient can choose the environment that best suits their needs.

   The open plan also allows patients of similar ages to be seated near each other without having rigidly defined pediatric and geriatric areas, and neutral colors provide a soothing atmosphere for all ages. Increased infusion station size heightens patient comfort and privacy, and provides adequate space for family members. A large reception area can comfortably accommodate an increased number of patients and the family members who accompany them. Smooth floors, few transitions, and restrooms located conveniently near the treatment stations cater to patients with limited mobility.

   To reduce the potential for nausea-inducing food odors, food preparation areas are located away from the treatment areas but not too far as to be an inconvenience to caregivers.



2. Greater Efficiency.
   Patients and staff are no longer required to travel from place to place for examination, blood work, drugs, and infusion, increasing overall convenience and efficiency.

3. Improved care.
   Having the examination rooms and infusion stations in the same facility allows physicians to be more closely involved in their patients' treatments. Similarly, having the pharmacy onsite increases interaction among the pharmacists and other caregivers as well as between pharmacists and patients. A pneumatic tube provides a link to the hospital's main pharmacy so that additional pharmacists can be available during unusually busy periods, thus further reducing wait times. The open floor plan allows nurses to keep an eye on the needs of their patients simultaneously, while cubicles with curtain tracks allow patients to maintain visual privacy when they so choose.

4. Decreased Operational Costs.
   As a result of the co-location of the nine practices, the cost of operation per patient was reduced. The new business model has made possible a twelve-hour workday that can significantly increase the center's patient capacity. It has also allowed more doctors to be hired, which has further increased patient capacity. Following our example, the staff tracks the usage of the treatment stations each week to ensure that they are being used for maximum efficiency throughout the workday. Since the new facility opened, the number of daily infusions has more than doubled, and the number of patients has nearly tripled, yet they are enjoying shorter wait times in a more pleasant treatment environment.

   The new business model also allows the hospital to offer later appointment times to accommodate patients' personal work schedules. Patients are able to work in the morning and attend to their medical needs in the afternoon. It is truly a patient-focused care facility.