

Stepping Outside the Bounds

Susquehanna Health's Cancer Center breaks the boundaries of its physical location to capture ambient daylight, improve the patient experience, and, ultimately, offer the kind of workflow efficiency that promotes operational and personal well-being.

By Karen Schweizer



Thanks to Siemens comprehensive data analysis, Karen Armstrong, CIO of Susquehanna Health, and her team were able to project future volume and treatment types for their Cancer Center.

Nestled between a branch of the Susquehanna River and the base of Bald Eagle Mountain, Williamsport, PA, USA, has the kind of serenity often only found in the lush, green countryside. It is this sense of peace that Susquehanna Health hopes to convey to its cancer patients in a new, renovated space, complete with a healing garden that was suggested by health system employees.

The 282-bed Susquehanna Health includes The Williamsport Hospital & Medical Center, Divine Providence Hospital, and Muncy Valley Hospital. It is ranked as one of the nation's most wired hospitals by Hospitals & Health Networks, and, in 2006, launched a major initiative to renovate its campus facilities, among them the Susquehanna Cancer Center, which is located at Divine Providence Hospital.

Patient-Centered, Physician-Focused

As part of the project, Susquehanna Health hired Granary Associates, Philadelphia, PA, an architectural firm that specializes in health facility design. "The architects'

experience with healthcare facilities was important to us, but even with that we felt it would be best to get outside input regarding workflow," says Karen Armstrong, Senior Vice President and Chief Information Officer (CIO), Susquehanna Health. "We wanted the facility to be patient-centered and physician-focused."

Susquehanna Health has long been a strategic business partner with Siemens Medical Solutions and was, in fact, the first worldwide beta site for the Siemens information technology solution Soarian® Financials. Through that relationship, Armstrong and her colleagues were aware of the company's Global Solutions Division's abilities in process-based facility design. "If you have the right team with the right clinical background and the right credentials to talk with physicians and workers at all levels, you can observe and make good solid workflow recommendations," continues Armstrong. "We believed the Siemens consultants could really take the project to the next level."

Collin Beers, Senior Vice President at Granary Associates, agrees that the Siemens consultants brought value to the project.

Summary

Challenge:

- Expand and redesign Cancer Center with regard to workflow requirements and patient needs

Solution:

- Create patient flows for each patient type and visit – both in medical and radiation oncology
- Relocate the lab to medical oncology, position the phlebotomy station next to the lab
- Position the pharmacy between medical oncology and the chemotherapy infusion area
- Establish additional consult rooms for palliative care, pain management, home care and hospice, dietary, and physical therapy
- Project the future incidence of cancer in the area to plan for potential future volume

Result:

- Patient wait times for lab results are expected to be reduced by 60 minutes
- Reduced distance nurses and pharmacists cover to administer medications
- Caregivers can come to the oncology patient rather than making the patient go to them
- Projection resulted in more infusion rooms, less exam rooms, plus shell space for easier and cost-efficient installation of a future linear accelerator

“If our client is using a fairly contemporary approach to space planning, we let it stand. But the Siemens consultants were able to ask tougher questions about why certain workflow processes were the way they were,” he says. “Because they were brought in to analyze efficiency, the dialogue took on a whole different angle.”

Improved Efficiency and Outlook

The medical oncology and radiation oncology service areas currently reside in an 11,000-square-foot space in the basement of Divine Providence Hospital. In this location, the services are restricted from growth by other spaces – another service line above it and the earth itself around the basement. When the service line above the Cancer Center relocated, the option to renovate this space and expand the Cancer Center became more realistic. Granary Associates worked with some of the Cancer Center’s key stakeholders to review potential options and balance the Center’s clinical needs with its budgetary requirements. The new proposed space – at 34,000 square feet – had the potential to offer significant improvements: Medical oncology could be moved to the upper floor, allowing the infusion chairs to be positioned near a large window overlooking a healing garden. “One wall of the existing building will be primarily glass, which will offer us considerably more light and contribute to an overall fresh look and feel,” says Armstrong. After reviewing the initial concepts for the two-floor center, Siemens consultants helped develop a conceptual floor plan that was more conducive to the patient experience and the physicians’ and staff’s workflows. Patient flows were created for each patient type – both in medical and radiation oncology, from initial consult visit, new patient visit, follow-up doctor visit, chemotherapy infusion, to radiation therapy treatment. “Oftentimes, when physicians and nurses make suggestions for facility design, they do it with the convenience of the staff in mind,” says Armstrong, “and while the staff’s produc-

tivity and efficiency are important elements in the design, we also needed to weigh that against what was best for the patient.”

Experienced in Workflow Design

In fact, key adjacencies were important elements of the consultants’ recommendations. By relocating the lab to medical oncology and positioning the phlebotomy station next to the lab, patient wait times are expected to be reduced by 60 minutes. The Siemens consultants also recommended positioning the pharmacy between medical oncology and the chemotherapy infusion area to reduce the distance nurses and pharmacists travel to administer medications. And, to further enhance the patient experience, additional consult rooms were recommended so palliative care, pain management, home care and hospice, dietary, and physical therapy caregivers could come to the oncology patient rather than making the patient go to them. “It’s important that the architects and consultants are on the same page when it comes to space considerations. Once we were aware that Siemens was involved in the project, we met with the consultants so we could work together on concept plan development,” says Beers. “The consultants’ feedback was really beneficial. Based on their data, they would suggest certain changes and we would work with them to determine what was architecturally feasible.”

Planning for Future Volume

To ensure that physician, nurse, and other staff workflows were considered in the design, Siemens consultants interviewed key stakeholders, observed current operations, reviewed proposed drawings and technology plans, and gathered available operational data on the existing Cancer Center. “One of the key elements they brought to the table was recommendations on the future incidence of cancer in our area so we could plan for potential future volume,” says Armstrong. “They looked at patient demographics and the types of



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Karen Armstrong, Senior Vice President, CIO, Susquehanna Health, Williamsport, PA, USA

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cancer that are likely to occur in our area, and were able to project the size of the facility that would be necessary and the number of chemotherapy infusion areas and exam rooms that we would need in the future.”

Compared to the original plans, this potential volume evaluation resulted in an increase in the number of infusion rooms and chairs needed from 12 to 18, with 8 of them as private rooms. The number of exam rooms decreased from 19 to 14 rooms. Furthermore, based on the high utilization of their current equipment, the consultants recommended building shell space for a future linear accelerator. Planning and building for future technology saves construction costs and limits the disruptions to daily operations when the equipment is installed in the future.

“It was the first time we had worked with workflow-efficiency oriented consultants,” says Beers. “We’ve worked with other strategic partners, usually business-oriented consultants who, after they have com-

pleted a business model or justified a need, tend to not go any further with the project. But the Siemens consultants were there all the way through. And at the end, we knew we had a plan that had been challenged. It wasn’t just a recreation of the way Susquehanna had worked before.”

“Our experience is limited by what we know to be true here; it doesn’t necessarily help us forecast for the future,” says Armstrong. “That’s where the consultants come in. The Siemens consultants are credible and professional, and have the credentials and experience that go a long way towards not only making our staff feel comfortable, but also getting them to understand the rationale behind the recommendations. We know they will help us achieve good, efficient outcomes.”

An award-winning journalist, Karen Schweizer's articles on health and medical technology have appeared in numerous business and consumer magazines. She is currently on staff at Siemens Medical Solutions USA, Malvern, PA, as a writer.

Optimizing Assets and Identifying Opportunities to Increase Revenue

Susquehanna Health not only engaged the Global Solutions team of Siemens Medical Solutions for the process-based facility design of its Cancer Center, but also asked Siemens consultants to participate in the planning for a brand-new outpatient imaging center. The Siemens consultants examined Susquehanna’s imaging technology deployment based on demographics, services, resources, utilization, and efficient patient processes. “In particular, we wanted their expertise to determine what modalities should remain in the hospital and which ones we should take out or duplicate at the imaging center,” says CIO Karen Armstrong. The Global Solutions team recommended, for example, that Susquehanna locate its high-volume procedures near the waiting room to reduce the distance covered by patients and congestion in the corridors. Additional recommendations included relocating some existing technology in The Williamsport Hospital to the ambulatory imaging center to reduce overall capital costs. Capital dollars saved could then be used to invest in new imaging technology.

“They confirmed some facts about the productivity of our computed tomography [CT] and ultrasound staffs, which quantified this information for us in a way that had never been done before,” says Armstrong. “And beyond the technology recom-

mendations, they also suggested hiring a CT aide. Rather than using expensive technicians, we could use this person to do the routine stocking, help transport patients and assist in getting them ready, run errands, and handle some basic paperwork.”

Other significant benefits could be realized through changes to Susquehanna’s existing patient flow processes and staffing procedures. By creating an intravenous (IV) preparation area, patients receiving IV contrast can have their IV started outside the CT scan room, which eliminates approximately five minutes for every contrast exam performed and equates to the potential for an additional 2,100 appointments per year.

An assessment of the existing staff resources also found that the scheduled hours of operation in CT and ultrasound could be expanded. By scheduling full-time staff on evenings and weekends (which were previously covered by on-call staff), the health system could decrease its annual staffing costs by about \$40,000 in the first year. In addition, adding weekend appointments significantly reduces the radiology department’s scheduling backlog.

All of these recommendations are being taken into consideration as Susquehanna Health moves to the groundbreaking phase of the project, which is expected to occur by late 2007.

