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Sneak Peek at the New Hospital

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The new University Medical Center of Princeton currently expects to open on May 22, 2012 with some significant changes in patient care, including an enlarged emergency department with individual rooms; medical

services re-organized around a “portals of care” concept; de-centralized nursing stations; and a more environmentally friendly design in its new Plainsboro location.

The capital campaign for the new hospital, projected to cost \$447 million dollars to build, is on track. Having met the fundraising goal of \$115 million last year, the Princeton Healthcare System (PHCS) moved the goalpost forward to \$150 million by March 2013, with \$130 million raised to date.

PHCS made the decision to move from downtown Princeton based on the following factors:

- the hospital needed to be able to meet the needs of a growing elderly population,
- 70% of patients and employees live closer to the new location
- according to a study conducted by PHCS, the hospital’s expansion was limited at its current location on Witherspoon Street.

PHCS management considered renovating the current hospital site by upgrading equipment and adding floors but was constrained by space

limitations, concerns about changing the historic nature of the neighborhood, and Princeton Borough and Township zoning laws. The study determined that funds would be spent more efficiently by building a new hospital, which will be competitive with other hospitals in the region, rather than upgrading the current hospital to industry standards.

The University Medical Center at Princeton has an annual budget of \$245.5 million dollars for 2011.

Site Design

Building design for the new hospital used evidence-based research from the [Pebble Project](#). The Pebble Project is [The Center for Health Design's](#) research initiative and aims to help a healthcare facility improve the quality of care for its patients, attract new patients, retain staff and enhance the efficiency of its operation.

The new hospital site includes a Medical Arts building with outpatient services, outpatient lab and imaging services, women's services, physicians' practices, and rental space, along with occupational medicine and the sleep lab, says Pamela Garbini, Vice President, Construction and Facilities.

The main hospital is a large curved structure with an East-West orientation that optimizes light. The spacious lobby is 380 feet long with an estimated 24 to 35 feet wide in different areas, with 30 foot high ceilings and floor-to-ceiling windows.



The main concourse is a two-story space with visual elements guiding patients and their families to where they need to go.

The building also includes the Oncology Infusion Center, which will be twice as large as the current one. Patients will be able to receive [LINAC](#) radiation therapy, a state-of-the-art technology that specifically targets tumors with less radiation time, according to Dr. Susan Lorenz, Senior VP of Patient Care Services and Chief Nursing Officer.

Separate elevator banks exist for public and private transport. A patient transport elevator in the rear of the hospital is dedicated to staff and patients, allowing for more comfortable transport and minimizing patient exposure to the general public. Garbage and linens from patient rooms will

be sent down in chutes, minimizing the spread of infection through contaminated linens and waste.

An adjacent building will house the William A. and Joan L. Schreyer Medical and Community Education Center with classrooms housing community events and continuing education. A medical library with a full-time librarian on staff, run by the medical library committee and maintained through volunteers, will include electronic resources (hard copy stored offsite) available to physicians, residents, students and staff.

A Fitness Center is scheduled to open to the public as well as the hospital community.

Parking will be available in open lots in the front and back of the building, with a total of 1543 parking spaces.

Portals of Care

The new hospital will be organized by a system of “Portals of Care”, in which specialized patient care will be located off the main lobby and in other areas of the hospital. The portals of care are Cancer, Cardiac & Pulmonary Care, Neuroscience, Maternal-Child Health, Surgery, Emergency Department, the Eating Disorders program and Testing and Treatment. A patient entering the cardiac portal would be directed to where he needs to go to receive a flow of services applicable to his condition, according to Dr. Lorenz.

A surgical patient who registers in the surgical portal, for example, uses the dedicated patient elevator to the Operating Room. Family can remain downstairs in the lobby, instead of sitting in the hallway waiting for their loved one to complete surgery. Patients have the choice of checking in online ahead of time or onsite with staff through registration cubicles.

“The objective of the portals of care,” says Garbini, “is to create an environment of healing and wellness as opposed to one of illness.”

Operating Rooms

There will initially be eight main operating rooms, each measuring approximately 650 square feet, with two hybrid operating rooms (one for complex vascular surgery and one for intricate neurosurgery) that combine complex interventional radiology procedures with surgery, and a CAP

(College of American Pathologists) vascular and cardiac catheterization lab.

Patient Rooms

The University Medical Center was awarded a grant from RWJ Foundation to determine which factors would help control the spread of infection and enhance patient care. A model patient room was built in the current hospital to implement this evidence-based research so that nurses could test out new configurations and give feedback as to what they felt would best help the patient.



The single patient room enhances privacy and healing, and decreases the opportunity for the spread of infection as well as complying with current American Institute of Architecture (AIA) guidelines and application code requirements.

Instead of ceiling lights, the model patient room uses light boxes for a warmer, softer light that fosters a soothing and healing environment. The caregiver zone of the patient room includes a nurse server, which contains linens, medications and supplies that have been delivered to the patient room from the hall without disturbing the patient. With everything the patient needs within the room, the nurse gets to spend more time with the patient and less time “hunting and gathering,” according to Dr. Lorenz.

The nurse server also reduces the spread of infection by drastically reducing the number of times the nurse needs to leave and reenter the room, therefore minimizing exposure. With patient medications in the nurse server, nurses will no longer need to obtain medications from the med station, optimizing time spent with the patient and reducing the potential for medical errors.

The caregiver zone, located where the nurse first enters the room, includes surfaces upon which the nurse prepares medications and gets supplies ready for procedures. Wall mounts allow for equipment and shelving to be hooked into the wall as needed by the nurse.

A sink is readily available for hand washing close to the door, one of the best practices to reduce the spread of infection.

Every patient room has a cart with a computer for patient documentation. A

nurse can now document vital signs and progress notes right at the patient's bedside. Entering data directly into the computer is the standard, as transcription of written physician's orders and charting can lead to medical errors.

Each patient room will be using the Hill-Rom bed, a technologically-advanced bed that has certain vital features: it can be lowered closer to the floor than any other hospital bed, thus protecting the patient from harmful falls, and includes a programmable mattress based on body weight that not only protects the patient from pressure ulcers but allows the nurse to weigh the patient in the bed.

The room's surfaces, such as the Corian countertop and the floor, are designed to be easily cleaned and resistant to microbes.

Railings exist where necessary along the wall and enable the patient to support himself when going to the bathroom, with the light switch on the outside of the bathroom. In order to minimize falls, the head of the patient bed is no more than three feet from the bathroom. Older patient rooms in the current hospital have a greater gap, with more chance of injury.

The bathroom includes an off-center toilet so the nurse can help support a patient. Larger showers can accommodate a chair and include a railing for support. Bathrooms are generally 50% larger than bathrooms in the older patient rooms of the current hospital.

A glass window in the door to the patient room lets in light but will not allow people in the hallway to see into the room, mitigating the patient's feeling of isolation yet protecting his privacy.

Instead of recycling inside air to patient rooms, the building cycles in fresh air to minimize the spread of disease.

Other amenities include storage for a travel bag, a desk area where a patient can plug in and use a computer (WiFi available for laptops throughout the hospital), and a sleep sofa for a visitor who wishes to stay overnight. The large-screen television provides television programs, games and movies. It also shows Get Well Network, which provides patient education and involves the patient in his own care by letting him complete assessments on his falls risk and pain levels, as well as patient satisfaction surveys.

The new University Medical Center will open with 231 patient beds.

Maternal-Child Health

Maternal-Child Health will initially include eight Labor & Delivery rooms and two cesarean-section rooms, with 24 post-partum rooms. A Level 2 Special Care Nursery will contain fourteen bassinets for mostly premature infants, babies born over 32 but under 38 weeks and who need support after birth.

Emergency Department

The Emergency Department (ED) has private rooms with glass doors for patients. “No longer will patients need to reside on gurneys in cubicles or corridors,” says Garbini.

There will be two triage areas with a play area for children. The new Emergency Department will include a digital imaging and diagnostics facility, an interventional procedures suite with operating rooms, and cardiac catheterization and vascular laboratories.

The Emergency Department rooms allow for patient privacy but are large enough to accommodate family. There will be 28 patient rooms in the ED along with six in the Geriatric ED. The geriatric population will be separated from the main ED patient population in order to receive specialized care necessary to an aging population, with falls and dehydration foremost among causes for an ED visit.

The hospital will also house a Behavioral Health Psychiatric Emergency Department. This subunit allows for improved and focused care and secure space for the psychiatric patient population.

The Rapid Medical Evaluation unit allows for greater flow for less seriously-ill patients. For example, a young patient who has an X-ray for a bone fracture will be able to wait for the imaging results in Results Waiting, where he can recline in a comfortable chair with family around. The Rapid Medical Evaluation unit expedites a patient’s emergency room stay and frees up beds for sicker patients.

According to Dr. Lorenz, in the current Princeton Medical Center, the Emergency Department sees 40,000 visits for 20 beds annually. The new hospital’s Emergency Department will contain 34 beds, increasing capacity to 65,000 visits annually.

Green Building

PHCS is investing \$60 million in green initiatives for the new hospital.

Carbon abatement measures result in a 25 percent decrease (equivalent to removing around 1,555 cars from the road annually) in the building's carbon footprint, as opposed to building the hospital with conventional energy infrastructures.

The cogeneration plant (a combined heat and power facility) for the hospital is gas-fired and steam-turbined, allowing for the green-powered building to generate chilled water for cooling, removing many kilowatt-hours of demand from the power grid during the peak demand time of the day. A digital control system optimizes the use of energy and therefore cost. The plant also employs an energy recycling system that produces two kinds of energy: electricity and heat from natural gas. The system is twice as efficient as traditional power systems. The solar shade in the lobby lightens the concourse without heating it, maximizing light yet conserving energy spent in cooling the building.

Transition

The hospital is working with FDI/HCT (Facilities Development Incorporated and Healthcare Transitions), an organization that has assisted with hundreds of hospital moves.

The current move date is May 22, 2012. According to Dr. Lorenz, at the end of April or the beginning of May, hospital employees will conduct exercises and mock moves with volunteer patients to prepare for the move.

A brief comparison of some hospital features:

Princeton Medical Center	University Medical Center of Princeton at Plainsboro
Double patient rooms	Single patient rooms
Staff must use sink in the patient bathroom to wash hands	Improved accessibility of sinks in patient rooms (closer to door) to promote hand washing to prevent spread of infection

Patient more dependent upon staff for safety	Built-in safety features such as hand railings along wall and in shower, light outside bathroom, off-center toilet, larger shower and 50% larger bathroom for both nurse and patient decrease risk of falls. Head of bed closer to bathroom.
Traditional nursing stations with entering of patient data at computer stations outside of patient room, accessing medications from med station, medical supplies from storage room, and linens from linens room	Decentralized nursing stations with nurse server in patient's room providing access to medications, medical supplies and linens, along with computer in room to enter patient data, optimizing time spent with patient
Traditional building	Green building with combined heat-and-power cogeneration facility. Fresh air is recycled through patient areas mitigating spread of infection.
Emergency Department with 20 beds	Emergency Department with 34 beds including Rapid Medical Evaluation unit and specialized geriatric ED
Psychiatric patients seen and treated in general ED	Specialized Behavioral Health Psychiatric Emergency Department
Patients and staff must use main elevators	Dedicated elevators for patients and accompanying staff
Traditional hospital admission procedure (onsite registration with general admissions)	Portals of care providing specialized admission and treatment according to patient condition. Online registration is available.

About the Author »



Bonnie Schultz

Bonnie Schultz has worked as a technology and marketing writer in the Boston area. She moved here in 1997 and is the mother of two boys. Since 2007, Bonnie has been blogging about food and community happenings in the Princeton area.

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