Patient-Centered Design
More Control, Improved Outcomes, Better Scores
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INTRODUCTION

A major current trend in healthcare facility design is driving satisfaction through patient-centered and patient-controlled environments. The patient room of today is a far cry from what was built just 50 years ago. But its evolution isn’t over—not even close. As the healthcare industry continues to change shape, so too must the space that arguably holds the most value to any hospital.

The HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey is a survey instrument and data collection methodology for measuring patients’ perceptions of their hospital experience. It is the first national, standardized, publicly reported survey of patients’ perspectives of hospital care. The data about patients’ perspectives of care allow objective and meaningful comparisons of hospitals on topics that are important to consumers, and public reporting of the survey results creates new incentives for hospitals to improve quality of care.

In this ebook sponsored by MechoSystems we look at the challenges pressing the need for patient room innovation, the solutions that have been brought to the table so far, and what’s emerging on the design horizon.
Patients’ healthcare experiences are largely driven by their clinical outcomes, their interactions with staff, and their perceptions of care. How and when the physical environment improves the patient experience is one of the hardest things to quantify.

In a 2012 Healthleaders Media survey, 82 percent of healthcare executives surveyed said expanding or renovating facilities was an important patient-oriented tactic but most are spending 5 percent or less of their operating budgets on patient experience initiatives. Can we build a case that the physical environment can improve the quality of experience for patients and family? A 2003 study in Healthcare Management Review concluded that when clinical care was almost identical, care was perceived as superior in newly constructed facilities.

Enhancing the patient experience has become a top priority since the Centers for Medicare & Medicaid Services (CMS) began linking reimbursements to the HCAHPS, the first standardized, publicly reported survey of inpatient’s perspectives regarding their hospital stay. As consumers can now meaningfully compare hospital ratings online, the significance of patient satisfaction has soared. Additionally, it’s anticipated that CMS will implement the CGCAHPS survey, a standardized tool that also measures patient perceptions of care in outpatient settings.

The HCAHPS scoring is based on seven key issues: Communication, quiet at night, information about medications, discharge information, cleanliness, responsiveness, and pain management.
New facilities almost universally equal higher HCAHPS scores, but there’s plenty that can be done by making tweaks to existing spaces, too. The following explores what aspects of hospital design and planning can directly impact key elements that support a positive patient experience.

Noise reduction
The physical environment can play a major role in reducing noise levels to improve sleep and mood, and create better pain tolerance. Private inpatient rooms reduce exposure to noise levels that can cause stress and negative health effects. Research in a 2011 issue of the Journal of Nursing Administration reported that same-handed patient rooms—where all patient rooms are identically oriented—also reduce noise transmission by avoiding shared headwalls and providing more space between patient room doors.

In inpatient environments, specifically, there’s a continuing dichotomy between necessary visibility into rooms for caregivers and acoustical privacy. Patient satisfaction is driving more attention to placement of work areas related to patient rooms as well as sound attenuation.

The Facility Guidelines Institute’s Guidelines for Design and Construction of Health Care Facilities, starting in the 2010 edition, call for minimum acoustic standards at a much higher sound attenuation rating for walls and ceilings in patient treatment areas compared to other spaces. In addition, operational initiatives and implementation of technology like noise detectors to modify staff behavior can be successful, though problems persist related to noise generated by medical equipment and communications systems. Patient calls and alarms guided directly to clinician’s handheld devices can be used to reduce some ambient noise.
**Improved communication**

The discharge process and communications in general can be enhanced by creating spaces where instructions can be easily and comfortably transmitted to patients and their families. These can include niches where staff and families meet in an informal yet acoustically private setting outside of patient rooms, or formal consultation rooms where more serious discussions can take place. Directions regarding treatment can be more fully comprehended in a relaxed setting created with comfortable furniture and furnishings.

Technology is a key driver of enhanced communications, too. Digital screens deliver patient and family education, wayfinding, clinical communication, and even personal greetings. These can be located in inpatient rooms or exam and treatment rooms, and in the future may be tied to telemedicine for remote consulting. Patient status boards for surgery or interventional patients can be distributed throughout a hospital so families can move freely but still track progress of their loved ones.

**Staff support**

The Beryl Institute has reported that regular, scheduled rounding by key clinical staff improves outcomes, and perceived staff responsiveness is one of the most important patient satisfiers. Further, responsiveness is improved if charting is done while staff is facing the patient and family. The continuing adoption of electronic health records allows for more decentralized charting, either at the bedside or just outside patient or exam/treatment rooms, bringing caregivers closer to patients. Adoption of handheld devices will accelerate this trend.
To enhance communication among caregivers, smaller, strategically placed “huddle rooms” allow for interdisciplinary clinical meetings closer to patient beds, while decentralizing patient supplies nurse servers located outside patient rooms can also reduce staff travel distances.

Supporting the emotional state of clinicians to best deal with difficult situations is an important piece in creating the best patient experience. Respite rooms can permit staff to be “off stage” when emotional, especially in high-stress departments. Additional amenities such as staff lounges with natural light, views, and exterior access as well as on-site fitness centers allow caregivers spaces to decompress.

**Stress reduction**

Introduction of natural light and views of nature, even via virtual reality, can reduce the perception of pain, according to a 2008 report in the *Pain* journal. Early studies by Roger Ulrich and others showed that pleasant exterior views can help reduce patient length of stay, and it’s now well accepted that natural light uplifts patients, family, and staff, regardless of location within a hospital. When this can’t be accomplished naturally, the use of art or digital monitors depicting nature and faux lighting elements can be very effective. The future may even bring virtual reality “headsets” to the table, providing healing images in place of a real environment.

An additional approach to reducing stress in the hospital environment is to alleviate anxiety often exacerbated by poor wayfinding. Clear, coherent circulation with orientation to the outdoors can be reinforced by color and finishes that designate which corridors are

Pleasant exterior views can help reduce patient length of stay, and it’s now well accepted that natural light uplifts patients, family, and staff, regardless of location within a hospital.
public ways versus staff areas. It’s important that patients and family can see where they need to travel when they first arrive and are guided through the facility by a hierarchy of spaces. Most important is how patients are directed upon arrival.

A generational approach
Meeting the expectations of patients and families becomes even more complex as each generation is considered. Recent consumer research has shown that those born after the baby boomers are much more computer savvy and self-research their potential healthcare providers, relying more heavily on the patient experience reported by others. Millennials (those born after 1982) are far less likely to choose their care site by physician recommendation and are more likely to respond to branding and amenities provided. So far, healthcare organizations have predominately focused on appealing to older generations who are by far the largest consumers of health services, especially in acute care settings. But as younger generations begin to take on caregiver roles for parents and grandparents, they’ll likely demand more service, communication, and a satisfying physical environment.

Experience mapping is one technique that can be used to understand each generation’s journey through the healthcare setting. During early design for the Park Nicollet Women’s Center, AECOM worked with clinicians and administrators to identify personas of four key patient types: young professional women, young mothers, middle-age menopausal women, and the elderly. The effort illustrated how each patient journey through its new facility was different. A work session mapped each persona’s projected encounters, identifying points of common interaction and potential space conflicts. This not only helped reconfigure the planning but identified key opportunities for art and specialty furniture/lighting placement to enhance the patient experience.

Improving the patient and family experience in all healthcare settings is only going to gain importance as consumers become more educated on their choices.
New insights

Improving the patient and family experience in all healthcare settings is only going to gain importance as consumers become more educated on their choices. Social media now only allows users to rate health outcomes but provides a platform to share experiences—both good and bad. Understanding what environmental elements provide the most effective use of resources to improve patient satisfaction will be important in an age of diminishing revenues. The future will bring new insights on the power of design to enrich the lives of patient, caregivers, and staff in healthcare organizations.
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INCREASING PATIENT SATISFACTION BY DECREASING PATIENT ROOM SIZE
Esperanza Harper, Nicholas Watkins, and Tamra Minnier

In the current industry climate, architects and designers can expect healthcare clients to challenge practices—even best practices—if they lead to higher costs. Case in point: Pittsburgh’s UPMC expected every square foot of its new UPMC East hospital, completed in July 2012, to contribute value to the organization, reflecting a broad industry trend in response to changing reimbursement models under the Affordable Care Act. Healthcare organizations are seeking projects that are economically viable from the start and offer value over the long term. For many, any potentially wasted square footage, especially in the patient room, is a luxury that’s no longer sustainable.

The patient room is one of the largest investments a hospital will make, with the design decision multiplied dozens, even hundreds, of times. For UPMC East, the challenge for BBH Design (Raleigh) was to balance performance and cost, assuming that at some point there are diminishing returns on how much performance is enhanced by an increase in size. Additionally, value for UPMC East was also defined by introducing smart technology into patient rooms, specifically a system that prompts nurses to initiate care activities and provides patient education.

Putting a guidelines-driven approach to patient room square footage aside in favor of a design research approach, the team addressed a list of functional and experiential criteria with the client. After dozens of iterations, UPMC
selected a right-sized patient room for its needs. Here’s a look at how the research informed the design.

**Balancing objectives**

The 2010 *Facility Guidelines Institute’s Guidelines for Design and Construction of Health Care Facilities* suggests that patient/family-centered patient rooms should include 250 square feet of clear floor area, exclusive of toilet rooms, closets, lockers, wardrobes, alcoves, or vestibules. The layout should also provide a minimum clear dimension of 15 feet, with an additional 30 square feet of clear floor area for each family member permitted by the facility to be in the room.

For the UPMC East project, the first challenge was to find the right size and layout that would be patient/family-centered and ultimately deliver capital and operational savings. Ownership indicated early in the schematic phase that many of the existing UPMC facilities with rooms smaller than the Facility Guidelines Institute’s (FGI’s) suggestion had been determined to be sufficient for patient-centered care, which led the design team to begin the project by benchmarking patient rooms’ square footages across UPMC and non-UPMC facilities, finding the average room size to be 183 net square feet. This average was very low due to the number of pre-2000 UPMC facilities in the sample. While UPMC East recognized that 183 square feet was too small to be a target for new hospital construction, it was still committed to the idea of a more space-efficient option.

The next step involved the construction of a series of progressive patient room mock-ups, allowing the team to test room performance against a list of criteria developed with UPMC East. Initially, the most important criterion was a small floor area. Other criteria included ample space around the patient bed,
maximum natural light, toilet access from the headwall, and the capacity to accommodate bariatric patients. Interestingly, the final design was not the smallest, but it outperformed in patient-centric criteria such as visibility of the patient from the corridor, ample space around the patient, and patient privacy.

The average patient room size in the U.S. increased from 240 square feet in 2002 to 320 square feet in 2012, an increase of 33 percent, according to Health Strategies and Solutions Inc. (Philadelphia). Comparatively, the UPMC East team ultimately zeroed in on a 220-net-square-foot patient room. Using a conservative average room size of 300 square feet based on previous years’ averages, the UPMC East patient room represents a savings of 80 square feet. Square footage savings quickly translates into cost savings. With 156 patient rooms built for the project and healthcare construction cost averaging $400 per square foot, UPMC East saved $4.9 million in capital costs as well as approximately $9 million in operational costs over the projected 50-year life of the building. Right-sizing the UPMC East patient room also yielded an estimated $1 million in energy savings for every 10 years of operation.

**Right-sizing as a patient-centered strategy**

Outside of achieving cost benefits, right-sizing is also a strategy for implementing patient-centered care. In the case of UPMC East, right-sizing allowed the team to implement smart technology, maximize the family zone, and distinguish areas for caregivers.

From the onset of the project, it was established that smart technology would play an integral role in the room design. Each patient room is equipped with the means to bring patient information to the bedside when it’s needed through the integration of two main components: a touch-screen personal...
computer on the patient headwall at the entrance to the room and a monitor at the foot of the patient bed. The monitor functions both as the patient’s TV and as a smart room display that shows patient data, information on care tasks, and patient education materials. The smart technologies for the UPMC East patient room were aimed at engaging the patient and care staff in jointly sharing information in a way that doesn’t require staff to turn their backs to patients while accessing records on a computer—fostering engagement without additional square footage.

Placement of smart technology also had an impact on zoning of the patient room. Typically, family zones are created at the window edge of a patient room’s long dimension. As the components were finalized at UPMC East, it was decided to place the family zone on that window side of the room as well as at the foot of the bed, giving family an opportunity to interact face-to-face with patients and caregivers. Providing this option to sit closer to the patient allowed greater opportunity to shrink square footage by decreasing the overall depth of the room.

Caregiver activity is concentrated in two zones. For activities that primarily require access to electronic medical records, staff can work at the head of the patient bed, allowing care to be provided without moving too far into the room or disrupting patients’ rest. Additionally, a zone just inside the room door is designated for activities such as handwashing or to accommodate easy pick-up of food trays.

Does it work?
The opening of UPMC East in July 2012 wasn’t the end of its right-sizing for patient/family-centered care story. Additional research was conducted to address the following questions: If smaller rooms in the UPMC system were perceived as sufficient for patient-centered care, how does UPMC East’s performance
Patient-Centered Design:  More Control, Improved Outcomes, Better Scores

stack up in comparison, with respect to patient safety and satisfaction outcomes? If the patient room is right-sized, does that mean the patient unit is also right-sized and configured for patient-centeredness? Can smart technology help to shrink room size and contribute greater value for the patient experience than additional square footage can?

Using archival data from UPMC hospitals, the team discovered that the 220-square-foot rooms at UPMC East didn’t register as a negative in HCAHPS scores. Compared to peers across the UPMC system, patients at UPMC East reported significantly greater satisfaction with responsiveness to their needs (e.g., call button, toileting), better communication with nurses, and a greater likelihood of recommending the hospital. From a quality and safety standpoint, patients at UPMC East experienced significantly fewer falls and readmissions.

The method used to collect the data precludes any certain identification of the facility as making the difference, yet the data does indicate that it’s possible to design a smaller patient room without sacrificing patient safety and satisfaction.

With regard to the right-sized unit and patient-centeredness, a space syntax analysis was performed on UPMC plans, including UPMC East, which indicated that visibility into patient rooms was considerably higher at UPMC East and that its corridor system was easy to understand and navigate. Higher corridor-to-patient visibility may have contributed to higher patient satisfaction because it’s likely to support nurses in responding to patients’ needs, while increased legibility in wayfinding makes it quicker and easier to travel to patient rooms. Further research methods and tools will need to be initiated to explore overall unit layout and patient satisfaction.

It’s possible to design a smaller and ultimately less expensive patient room while preserving, if not enhancing, patient satisfaction and safety.
The post-occupancy evaluation suggests that smart room displays may have given patients and families better access to patient information, compared to other UPMC facilities. Good feelings associated with this enhanced awareness and knowledge may compensate for the slightly smaller floor area, especially since satisfaction with the patient room setting may be driven less by square footage and more by amenities. Further stages of the POE will isolate what specifically about the design of the rooms contributes to patient/family-centered care.

This experience at UPMC East has demonstrated that it’s possible to design a smaller and ultimately less expensive patient room while preserving, if not enhancing, patient satisfaction and safety. Recommendations about square footages are made to be tested. In most cases, it’s more effective to design to functional needs and patient and family experience, allowing those components to dictate area.
Healthcare providers across the country are strategizing their next moves in an industry-wide shift to provide more care in outpatient environments, an effort to reduce inpatient admissions and, particularly, costs—and one that’s taking care outside of hospitals whenever possible.

Ironically, this trend isn’t diminishing the number of inpatient projects being pursued. In fact, it’s inspiring their reinvention. And at the heart of any hospital are its patient rooms.

“You have your specialty suites, your diagnostic and treatment areas, etc. But the rest of it is where the patients, after all the treatment is done, are going to reside for the duration of their stay,” says Walter Jones, senior vice president of campus transformation for The MetroHealth System (Cleveland) and former senior vice president of facilities planning and development for Parkland Health & Hospital System. Jones oversaw construction of the new Parkland Memorial Hospital in Dallas, of which 1 million square feet of its 2 million total are dedicated to 865 patient rooms.

In addition to the impressive percentage of square footage allocated to patient rooms in any given building, these spaces—and their design—must support a number of shifts taking place in healthcare today, leading providers across the country to reconsider approaches of the past.
“What clients are doing as a result [of the outpatient shift] is circling back and, with the ability to either streamline or decant some of their outpatient and nonclinical services and free up real estate, investing in improving the inpatient experience and environment,” says John Rodenbeck, a principal at Perkins Eastman (New York).

There are plenty of reasons for it, too. For starters, market competition is pushing the need for wholesale adoption of private patient rooms, especially as patients have more choice in where they receive care. Private rooms also come with a number of other proven benefits, such as reducing healthcare-associated infections (HAIs) and increasing patient satisfaction—the Affordable Care Act ties both outcomes and HCAHPS scores to reimbursements. And while the outpatient transition will likely reduce future bed needs, it also translates to the expectation that patients who do require hospital admission in years to come will be much more acute than today’s inpatients.

And that’s just what we know. As technology begins to play a larger role in care delivery and mobile health solutions continue to be adopted, patient rooms must be designed with adaptability in mind and an eye on a future that’s anything but clear.

The baseline
The starting point for almost all patient room designs is a single-occupancy space. “I think we’re making great progress,” says Cyndi McCullough, evidence-based design director for HDR (Omaha, Neb.). “Every project I’ve worked on involves either renovating some rooms to make private rooms, adding new, or a combination of both. It’s at the top of the list for most everyone.”
While the transition isn’t as easy for systems with tight urban sites, the majority of providers are better able to, for example, renovate a 200-bed double-occupancy facility into a 100-bed single-occupancy facility than they were prior to reform. “With more procedures going into the outpatient arena, it’s offering more real estate within the hospital to either convert or build private rooms for a lot less expensive price tags. They’re not going for higher-bedded facilities,” Rodenbeck says.

Meanwhile, the average length of patient stays has historically grown shorter. And with patients anticipated to be more acute in the future, requirements for what the rooms must accomplish and support during that stay are being pushed.

“The rooms are critical as more has to be achieved in a shorter time. Patients need quality sleep and reduced stressors, and need to be protected from pathogens and medical error. Families need to participate in care, and staff need to be focused, communicate seamlessly, and be protected from injury,” says Carolyn BaRoss, principal and firmwide healthcare interior design director for Perkins+Will (New York).

To that end, Rodenbeck says the baseline of any patient room design is to maintain distinctive zones for patients, family, and staff. “It’s understanding each tenant, how they work, how they communicate, and how they interact that’s going to best inform the functionality of the room,” he says. “Every one of their experiences is critical to the success of a design.”

**Details, details**

When approaching the fit-out of a patient room, McCullough has a hierarchy of needs: “First is the safety of patients, which includes infection control. Second is efficiency for staff, and then it’s involvement of the family.”

To meet infection control needs in particular, designers are turning to materials to create environments that are easily cleanable and maintained.
To meet infection control needs in particular, designers are turning to materials to create environments that are easily cleanable and maintained, from high-performance upholstery to solid surface casework to plastic laminate or rubber flooring, some products even antimicrobial or treated in other ways. “Patient room design will continue to evolve along with the products, materials, and technologies to help keep rooms clean and patients safe. There are so many more appropriate products that have been developed in the last 10 years,” BaRoss says.

And while hospitality touches of the past decade (e.g., smooth headwalls) have become almost ubiquitous, Pinto Alexander says that hiding caregiving necessities is starting to fall by the wayside due to the time it may add to an emergency situation and the cost that all of those hidden doors and hinges adds to a project. McCullough agrees: “I think we get carried away sometimes with what we want it to look like. If a person’s coming to the hospital, sometimes they need to see a little stainless steel. They need to know you’ve got the equipment and are going to take care of them.”

But that doesn’t mean that aesthetics and safety can’t be balanced. “Much of what we try to accomplish in the patient room is to make it warm and comfortable, but this has more to do with managing the visual clutter than adding to it. A beautifully proportioned space with a nice window and view, with considerations for privacy and dignity, controllable layers of lighting, and high-performance acoustics make a big impression before anything else is added,” BaRoss says.
John Kouletsis, vice president of facilities planning and design for Kaiser Permanente (Oakland, Calif.), encourages exploration of choice for patients, too, from the option of opening a window to selecting artwork for their walls to coloring the room a favorite shade with the use of LED lamps. “One of the biggest things you can do in designing the patient room of the future is to give people choice; stop telling them what to do,” he says. “How can you start restoring choice and the sense that the patient hasn’t totally lost control?”

Configuration of the room has evolved, as well—for example, locating handwashing sinks by the door so staff (and visitors) can easily scrub up as they walk into the room. The caregiver space is often sited directly upon entry and adjacent to the handwashing sink, allowing staff easy access to the patient, a place to chart in the room (if required), possibly a stool to pull out for easy conversation, and separate lighting controls to tend to the patient without disrupting sleep.

But what’s changed most significantly in recent years is the family zone, often placed on the outboard wall or the far side of the patient bed. Research continues to prove the benefit of family members as caregivers, yielding improved outcomes and reduced lengths of stay, which has influenced providers to answer the trend with plenty of accommodations.

“We believe strongly that the patient room is where the family (or the care advocates), the patients, and caregivers come together as a single team. The room needs to accommodate that and it needs to encourage that,” Kouletsis says. To that end, side chairs of old have been replaced by a pull-out sofa or Murphy bed, complemented by storage and casework, private lighting controls, and individual entertainment options.
Always prepared
Because patient towers and units of old were built to a very specific purpose, spaces that have been replaced over the years are often reassigned to administrative offices or abandoned altogether, says Tim Fishking, a principal at NBBJ (Columbus). “They’re so inflexible and expensive to renovate or retrofit,” he says.

To avoid repeating the mistakes of the past, designers are increasingly being charged with creating spaces that can flex well into the future. For example, one approach is to create a standardized, acuity-adaptable room that can be used for general med/surg purposes today but potentially serve as critical care space in the future, or even be reconfigured for specialty service lines.

“If you’re going to replace beds and build a bed tower, you may as well standardize everything. It’s easier to build, it saves money in construction, and it’s faster. You’re always going to need a higher level of care. You don’t have to equip it for that to begin with, but you need to be prepared size-wise that you can adapt it and put the right equipment in when you need to,” McCullough says.

Some designers start with a code minimum square footage for critical care rooms (200 square feet of clear floor area plus required clearances, per 2014 Facility Guidelines Institute [FGI] standards), and add on from there as needed—at times surpassing 300 square feet, including the patient bathroom. This provides more flexibility for future uses than starting with much smaller med/surg minimums (120 square feet of clear floor area, per FGI).

It’s about adaptability and flexibility. That’s exactly what healthcare needs.
Designers also suggest including larger door widths to accommodate ICU-level and/or bariatric beds as well as enough infrastructure within the ceiling to support patient lifts and a configuration that allows observation from the corridor.

Modular components are growing in popularity, as well, as healthcare designers take a page out of the office design handbook. “In the corporate workplace, technicians can come in and reconfigure an entire floor with an allen wrench. It’s about adaptability and flexibility,” says Ryan Hullinger, a principal at NBBJ (Columbus). “That’s exactly what healthcare needs.”

Furthermore, Hullinger says, not planning for future equipment and technology needs would be a major miss for any patient room project. “The stakes are high. No hospital can afford to spend a tremendous amount of money on an inpatient unit that becomes quickly outmoded or prematurely obsolete because of changing care models, changing equipment, and changing technology,” he says.

At Parkland, Jones says the design was focused on bringing care to the bedside, supporting medical record and diagnostic connectivity close to the patient. A sizable footwall screen today supports patient entertainment and education, but the possibilities for later include display of medical records and diagnostics and a platform for two-way communication with outside caregivers or friends and family.

Kouletsis says Kaiser Permanente is also turning to technology to provide more control to the patient experience. “How do you keep the person plugged into their life so that it’s as normal as possible, so that they don’t feel disconnected?” he says. Looking even further into the future, Rodenbeck says disparate

MechoSystems - About Parkland Memorial Hospital
Parkland Memorial Hospital utilizes MechoSystems’ motorized shading with the SolarTrac system which automatically manages solar heat and glare, while reducing BTU load on the facility. The MechoSystems manual shadecloth solution can be found in each patient room.
systems will likely become integrated, from the electronic medical record to the IV to the lighting. “There’s going to be a whole interface that’s about the patient room and the patients controlling their own environment,” he says.

To make all of this work, though, requires necessary IT infrastructure. “We don’t know what kind of computer [providers] are going to be using or how they’re going to document in the patient room, but it’s about understanding who needs to do that and make sure they’re wired to do so,” McCullough says.

**Betting on the future**

Looking ahead, there are plenty of patient room design challenges looming that will require innovative solutions. For example, Jones questions how construction can be even further streamlined. While a good deal of prefabrication of patient room components—from the headwall to the toilet room to the MEP infrastructure—is being fabricated off-site today, the patient room is ripe for more, from equipment modules to the units themselves. “What can I do to get an economy of scale and not take away from the functionality that I need?” he says.

Other questions surround the growing use of mobile health devices that have hit the consumer market and will likely be translated to care delivery. Oftentimes the role of the patient room itself, Jones says, is to provide monitoring, but “the more portable that equipment becomes—really portable, wearable, backpack-able—the patient has some freedom to move around. That gets out of the patient room realm. What does it mean for the hospital?” Jones says. “Is the room the room now, or is the room actually becoming the person?”

While monitoring may decline as a role of the patient room, it’s likely that what’s performed within the space will only be enhanced. “As patients become more acute, [providers] are
going to want to move them less while they’re there. So that means if they need to do a CAT scan or provide some imaging services, I think those types of things are going to become more mobile and the patient room is going to become more like an operatory,” Rodenbeck says.

Jones agrees, anticipating that diagnostic and treatment areas will remain a piece of the puzzle, but that once a patient reaches a room, they’ll stay there. “It will be less of, ‘We’re going to roll you out for a lab visit and be back in an hour.’ Now more and more of that stuff can be done in the room. The patient doesn’t have to move, the family can watch and see the situation unfold in front of them, and the patient can be more comfortable because their environment is more stable. By doing that, you start reducing stress levels and presumably foster a higher level of recovery,” he says.

Improving outcomes—alongside keeping patients and staff safe and maintaining patient and family satisfaction—is and always will be the name of the game.

“When a patient is in the hospital, it’s only because they can’t get care at home. And when a patient is in the hospital, the place they spend most of their time is in the room. So let’s create a room that’s very efficient for staff, that’s safest for patients, and allows us to maximize our reimbursement. It’s critical and we need to be paying attention,” McCullough says.
WHAT’S NEXT FOR PATIENT ROOM DESIGN?

Jennifer Kovacs Silvis

Long before healthcare reform ever pressed the need to rethink the way patient rooms are designed, NXT Health and executive director Salley Whitman recognized that the complexity of healthcare had resulted in a lack of innovation in our care environments.

Launched in 2006 with a contract from the U.S. Department of Defense to design a patient room of the future, NXT Health, a nonprofit design group, got to work. The effort evolved into what today is Patient Room 2020, a futuristic model of what inpatient care six years from now might look like—sort of.

The project isn’t necessarily prescriptive or intended for wholesale adoption. Rather, it’s been dubbed a “proving ground,” where concepts can be translated to design, put into practice, and then researched to help shape future adaptations.

When Patient Room 2020 was revealed in summer 2013, covered extensively in trade and consumer media alike, its inherently modern aesthetic and white walls were the source of much debate in the healthcare design world, where a warmer, more hospitality-inspired aesthetic had become the norm. But the concepts NXT Health set out to prove—design approaches that support patient and staff safety, engagement and empowerment in care process, quality of care, and efficiencies in work processes—were revered.
A 400-square-foot physical model of the prototype has since been built in New York, showcasing, in particular, a keen focus on technology and providing a demonstration space for an approach that truly advances the inpatient environment.

Whitman spoke with Healthcare Design about the response Patient Room 2020 has received since its launch, why the patient room continues to hold so much weight for the healthcare industry overall, and what’s next for the constantly evolving model.

Healthcare Design: It’s been more than a year now since NXT Health’s Patient Room 2020 project made its debut. Share with readers what the ongoing mission of NXT Health is and, particularly, where Patient Room 2020 fits into that larger vision.

Salley Whitman: Our ongoing mission at NXT is to foster creativity to improve healthcare.

The Patient Room 2020 serves as an ultimate vision of supporting this type of creative design through to the completion of a full prototype for testing. While all future projects may not be this large scale, we look forward to supporting other great designers and their creative efforts to improve healthcare.

When renderings of Patient Room 2020, an arguably stark and very modern space, were first published, reactions from the healthcare design industry were immediate and ran the gamut—some loved it, some hated it. Were you expecting that?

One of my favorite quotes is by Ivan Illich: “If you want to change society, you have to tell an alternative story.” In my opinion, that is one of the most impactful things we accomplished with Patient Room 2020. There was definitely an intention to be provocative, and we fully expected dissent along with excitement. It achieved the purpose of getting people’s
attention in this very noisy world. Now that we have your attention, let’s do something different to solve the problem.

In a time when healthcare is largely focused on shifting care into communities and creating accessible outpatient care models, why is there such a continued focus on the acute care patient room, as well? What role does it serve in the future of healthcare?

I don’t think that there should be a focus on one versus the other. The focus needs to be on the entire continuum of care, and better yet, on the health of the whole person. We were not making a statement with Patient Room 2020 that only inpatient care matters, rather that it shouldn’t be forgotten as we turn toward redesigning the outpatient setting. As the inevitable and positive shift toward outpatient happens, we will still have a need for acute care services in the hospital setting. If by some unfortunate circumstance you end up as an inpatient, that experience should still be of the highest quality and empowering to the individual and their family members.

For providers, the patient room is a critical space tied very closely to outcomes and, subsequently, the bottom line. How were things like patient satisfaction, medical errors/infection control, and operations considered when creating Patient Room 2020?

All three of those were part of the five main design drivers for the Patient Room 2020, along with technology integration and improved quality. Every aspect of the design includes potential solutions to the issues surrounding these outcomes. Some of those include the handwashing reminder lights at the entry sink, UV lighting to clean in-room equipment, integrated safety lifts and rails, and a “patient companion unit” to allow full control over the environment for the patient.

The focus needs to be on the entire continuum of care, and better yet, on the health of the whole person.
You’ve since built out the space in New York and have referred to it as a proving ground, where the design can be continually developed. How has the process progressed?

We have been so fortunate to have many different groups come into the space and provide their feedback. Two of the groups that we’re most excited about are patients and nurses. Last fall, we had a focus group with Planetree’s Patient and Family Advisory Council (PFAC) and got some great comments about things that work well and things that could be improved. In the spring, we conducted an innovation workshop with a group of nurses from a New York area hospital who had some fantastic questions and ideas to move some concepts forward.

What are some examples of feedback you heard?

The Planetree PFAC helped us understand a lot more about what a patient needs at the bedside. They loved the concept of the patient companion unit [a touchscreen tablet integrated into an overbed table] but felt that it could be optimized with more room for storage, trash, and food trays while using the electronic side. They also talked about the need to have some type of pull-down seat, either off the bed or on the wall, for physicians to sit down at the bedside and discuss their care plan. The nurses are a wealth of good ideas, but some key ones include helpful apps on the caregiver dashboard, smart flooring that senses movement, and sensors on the bathroom doors that trigger a notification in the hallway that the bathroom is in use.

MechoSystems - Examples of Patient Bedside Control

At the University of Texas Southwest Medical Center in Dallas, the MechoSystems blackout shading system is controllable from each patient bed, ultimately, contributing to the patient-centered design of the facility.
Let’s talk about a feature that’s been a source of debate: the aesthetic. Some argued that patients prefer homelike environments and that this particular approach doesn’t support patients on an emotional level. What was the reasoning behind the look and feel of the space? Has feedback influenced any reconsideration?

As David Ruthven, lead designer of Patient Room 2020, has described, the key reason for using the white color was to create a space that was “unapologetically healthcare.” The white serves as a better tool for color rendition, leaving the option to use lighting to color the space based on one’s preference. It also allows people to see what needs to be cleaned rather than covering up dirt with patterns and colors. Lastly, it was meant to be a neutral palette in which others could develop and grow their own ideas. We never intended the Patient Room 2020 project to be prescriptive.

Patient Room 2020 is also largely focused on the role technology can and will play in care delivery. What message would you send providers and designers in terms of planning spaces today to support the technology that’s either here or just around the corner?

I would say first and foremost: streamline. Make sure you’ve taken the time to ask the question, “Is this really necessary or is it redundant to something we already have?” Ask your clients to push back on their technology vendors and encourage them to request the least amount of hardware to accomplish the best result. In addition, healthcare providers need to insist on interoperability with existing systems. Of course, the built environment also needs to be flexible and adaptable, but I worry that the focus on this misses the larger issue of being overwhelmed instead of supported by technology.
What is your ultimate goal for Patient Room 2020?
In supporting the development and construction of the Patient Room 2020 prototype, it was never our goal for the full concept to have widespread adoption. There are too many hypotheses within the design that need to be tested and further developed. However, we do believe that there are some concepts in the room that are ready to be adopted in the real healthcare setting and we’re excited to see that happen over the next few years.

What are some of those concepts that are ready for adoption?
The patient bathroom design (including sliding doors, sink, and shower system) could be easily adopted and used in different configurations and acuity levels of inpatient rooms. Along this same line, the caregiver entry sink area is a product that could be used in a healthcare setting now. The design team may need to do some more work on the lighting cues and electronic dashboard concepts, but those could evolve over time.

How will the model continue to be developed? Do you anticipate future iterations, and what might they look like or what newly identified needs might they answer?
We are very excited about a few updates that we’re making to the Patient Room 2020 prototype this fall, including a new intelligent flooring system. We can’t say a lot about it yet, but stay tuned for more information in the coming months. It’s hard to predict what future iterations may evolve from this project. I think we’re most excited about working with new designers and industry partners in the coming years to develop concepts that aren’t even on the radar yet. That’s where the real creativity happens—connecting great minds with real problems that need solving in healthcare. The possibilities are infinite.
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