Creating a Culture of Patient Safety through Innovative Hospital Design

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Abstract

When SynergyHealth, St. Joseph's Hospital of West Bend, Wisconsin, decided to relocate and build an 82-bed acute care facility, we recognized the opportunity to design a hospital that focused on patient safety. Hospital leaders believed if a facility design process was "engineered properly," it would enhance patient safety and create a patient safe culture; however, we found little information to give us direction. To help us plan the new facility, we conducted a national learning lab, drawing what we could about patient safety from available literature; inviting experts from the health care profession and other fields, including transportation, spacecraft design, and systems engineering; and involving our board members, staff, physicians, and facility design team. In this case study, we describe the process used by St. Joseph to design a new hospital around patient safety, and identify and discuss safety design principles, providing examples of their application at St. Joseph's new facility. Finally, recommendations are made for the design of all health care systems, including new facilities, remodeling, and additions.

Introduction

"We shape our buildings and afterwards, our buildings shape us."

–Winston Churchill

According to the Institute of Medicine (IOM),[1] tens—if not hundreds—of thousands, of errors occur every day in the U.S. health care system. A "medical error" is defined as the failure of a planned action to be completed as intended (error of execution), or the use of a wrong plan to achieve an aim (error of planning). The majority of errors that occur are considered "near misses"—errors that could have caused harm to patients but did not, as a result of chance, prevention, or mitigation. Unfortunately, a small portion of errors do result in an "adverse event"—an injury caused by medical management rather than by the underlying disease or condition of the patient.

Numerous studies have documented the impact of human error on patient safety. For example, a 1991 Harvard Medical Practice Study reported that 69 percent of injuries suffered by hospitalized patients in New York State in 1984 were the result of errors, and nearly 14 percent of these injuries were fatal.[2] In another study, 2.4 percent (2,539 out of 105,603) of medication errors reported in hospitals resulted in harm.[3] Patients involved in these harmful errors received intensive patient care, which resulted in prolonged hospital stays, additional testing and monitoring, and increased drug therapy, ultimately increasing the use of hospital resources and costs. The IOM reported that the probability of a hospital preventable medical death will occur in the range of 3 to 6 per 1,000 admissions and that an adverse event will occur in the range of 3 to 4 per every 1,000 admissions.[4] When the management and medical staff at St. Joseph's reviewed these data, we originally believed that those statistics applied to others, but not to Wisconsin and not to St. Joseph's Hospital. We have since come to realize that preventable medical deaths and adverse events happen in Wisconsin and at St. Joseph's—with comparable rates to the rest of the country. How could the design of a facility with its equipment and technology lower or eliminate preventable medical errors and adverse events? Our preliminary discussions with national patient safety leaders reinforced our finding that little or no written research on the topic of designing around patient safety existed. Many of them had personal examples of how facilities with their equipment and technology had affected patient safety, and all believed that designing around patient safety had merit.

The traditional hospital design process requires that architects be given program objectives, room requirements, and constraints (Functional Space Program), such as the need to locate certain departments near others. This results in a block diagram (Adjacencies) and then room-by-room overall schematic, followed by room layout and construction documents. Typically, no issues are raised about the effect of facility's technology and equipment on patient safety, thus creating an opportunity to repeat the conditions that lead to error. In this case study, we describe the process used by St. Joseph to design a new hospital around patient safety. We identify and discuss safety design principles, and provide examples of their application at St. Joseph's. Finally, recommendations are made for the architectural design of all health care systems, including new facilities, remodeling, and additions.

Methods

Learning lab

Given the lack of data available on how the design of health care facilities affects the quality and safety of patient care, St. Joseph administrators believed that there was an opportunity to learn collectively from leaders in health care and other disciplines about how a facility could be designed to improve patient safety. A learning lab was organized in April 2002, with participation from national and local leaders from the nuclear and transportation industries, spacecraft design, systems engineering, health care administration, health services research, human behavior research, hospital quality improvement and accreditation, hospital architecture, medical education; pharmacy; nursing; and medicine. Members of St. Joseph's Board, staff, physicians and the design team also participated.[5]

At the learning lab, human error and Reason's model of safety were discussed. Reason classifies errors found in complex systems such as healthcare as either "active failures" or "latent conditions."[6, 7] In health care, active failures are errors made by those who provide direct care to the patient, such as physicians, nurses, and technicians. Latent conditions are those conditions that are present in the health care system, the facility, equipment, and processes that contribute to, or combine with, active failures to produce error. Latent conditions typically arise from decisions made by management, architects, and equipment designers and include lack of standardization of equipment and procedures, poor visibility, high noise levels, and excessive movement of patients. Unlike active failures, which are difficult to predict, latent conditions can be identified and remedied with safety barriers before they can contribute to an adverse effect. Safety barriers act to prevent a health care provider from committing an active failure or by mitigating the effect of an active failure.[8] In a systems approach, error reduction is achieved by strategically building defenses, barriers, and safeguards into the facility, equipment, technology, and processes that make up the health care system.[7, 9, 10]

The work of Leape,[2] Reason,[7] and Norman[11] informs us that human error is attributed to human cognition and to the limitations of memory and thought processes. Most daily activities are routine and completed with little or no higher-level thought processes. In these types of activities, errors known as slips or mistakes (lapses) can occur for multiple reasons, including distractions, interruptions, multitasking, or any deviation from the routine activity. Other behaviors require a conscious, knowledge-based thought process that often borrows from past experiences. Errors in these behaviors are referred to as mistakes and can result from a lack of knowledge, experience, communication, or even misjudgment.

These concepts were discussed during the two-day learning lab process, and facilitated groups made recommendations regarding the hospital facility design and for designing to prevent unsafe hospital events. An organizational "brainstorming" technique was used to generate ideas for maximizing patient safety in the facility's overall design, after which each participant voted for the 10 facility design recommendations that they felt would have the largest overall impact. Final recommendations were prioritized by the number of "votes" given to each of the design or design process considerations (Table 1).[5] St. Joseph's administrators then made a commitment to the learning lab participants and to themselves, involving changes in the traditional hospital design process. The design would focus on patient safety, the administrators promised, and the learning lab recommendations would be used to build a safety-oriented facility and to achieve the safety culture goals outlined in the group visioning process.

Safety-driven design principles

In designing our new health care facility, we were concerned with identifying and preventing both active failures and latent conditions. The facility design principles we gleaned from the learning lab are aimed at minimizing latent conditions that create error within health care (Table 2). The learning lab also identified 10 precarious events (active failures) that were the result of JACHO sentinel events and input from the VA Center for Patient Safety (Table 2). Another resource is the "Serious Reportable Events in Healthcare," issued by the National Quality Forum.[13] Examples of facility latent conditions and active failures, and St. Joseph's design around these factors, are discussed below.

Table 1. Top 10 recommendations from learning lab

1.	Design FMEA at each design stage.
2.	Standardize location of equipment, supplies, room layout, and care processes.
3.	Involve patient/families in the design process.
4.	Use an established checklist for current/future design.
5.	Bring critical information for decision-making close to the patient.
6.	Reduce noise.
7.	Use adaptive systems that will allow function in the future.
8.	Articulate a set of principles by which everything is measured.
9.	Begin equipment planning on Day 1.
10.	Begin mock-ups on Day 1.

Table 2. Facility safety design principles

Design around latent conditions: • Noise reduction • Scalability, adaptability, flexibility • Visibility of patients to staff • Patients involved with care • Standardization • Automate where possible • Minimize fatigue • Immediate accessibility of information, close to the point of service
• Design around precarious events/active failures: • Operative/post-op complications/infections • Events relating to medication errors • Deaths of patients in restraints • Inpatient suicides • Transfusion related events • Correct tube-correct connector-correct hole • Patient falls • Deaths related to surgery at wrong site • MRI hazards

Latent conditions

Noise reduction

While historically noise was considered more of a nuisance than a health hazard, it is now increasingly being recognized as a serious health hazard and a threat to safety and performance.[14–16] The World Health Organization[15] found that noise interferes with communication; creates distractions; affects cognitive performance and concentration; causes annoyance; and contributes to stress and fatigue. Mental activities involving a demand on working memory are particularly sensitive to noise and can result in degradation of performance. Additionally, the nature of sound and the reverberation rate or how long the sound remains has a direct effect on the noise level. When the reverberation rate is long, there is greater opportunity for sounds to blend together, increasing the noise level. With speech communication, a longer reverberation time combined with background noise makes speech perception increasingly difficult.[14] Noise has also been found to negatively affect the quality of the healing environment for patients. It may elevate blood pressure, increase pain, alter quality of sleep, and reduce overall perceived patient satisfaction.[17–19] Some design features St. Joseph's used to reduce noise include stronger steel, carpeting, standardized single rooms with insulation between rooms, more absorbent ceiling tiles, quiet-engineered mechanical systems, quiet-engineered equipment and technology, and elimination of overhead paging.

Standardization

A facility's effect on behaviors has been investigated in several areas, including commercial aviation, and information and communications technology. There is very little available, however, on the impact of facility standardization and how it affects medical error rates and quality of care. Arguably, care standardization could substantially affect hospital organizational factors—reducing medical errors and improving quality. Errors in health care, like human failures in any other sphere, are not just isolated causes; they are themselves the consequences of upstream organizational factors or latent conditions.[20]

Standardization has been documented as an important strategy in human factors design.[4, 7] It reduces reliance on short-term memory and allows those unfamiliar with a given process or design to use it safely and efficiency.[4] Much of the work in human factors focuses on improving the human-system interface by designing better systems and processes. (The standardization of the facility and room design—from the location of the outlets, to bed controls, to the cupboards in which the latex gloves are stored—all have an impact on human behavior.) Examples of facility design standardization planned for St. Joseph's include patient rooms (e.g., emergency exam, post recovery, ambulatory/diagnostic exam), and admission/observation equipment and technology (e.g., intravenous infusion pumps, IVs, monitors, beds, medication and decision support systems, and the locations for all gases throughout the facility).

Active failures

Operative/postop complications/infections

The number of patients that acquire infections in a health care setting, and the number of deaths resulting from those infections is staggering. The Centers for Disease Control and Prevention (CDC) has estimated that nearly 2 million patients develop an infection in U.S. hospitals annually.[21] Approximately 90,000 of those patients (mostly infants or seniors) die as a result of their infections.[22] Moreover, operative and postoperative complications were the number-two sentinel event reviewed by JCAHO through December 2001.[23]

As a result of these statistics, the CDC issued new hand-washing guidelines in October 2002. The guidelines advise health care providers to routinely use alcohol-based hand rubs in conjunction with soap and water and sterile gloves to protect patients. Facility design at St. Joseph's includes placing sinks in every patient care area, allowing providers to wash their hands in front of the patient, using High Efficiency Particulate Air (HEPA) filters in all public areas and ultraviolet lights in key patient care areas to eliminate airborne pathogens, eliminating blinds on the windows to reduce condensation, having single patient rooms, using air flow in patient rooms (modified "laminar flow"); and standardizing the location of prominently visible sanitizer dispensers. A separate air system was installed for the emergency room waiting area with HEPA and ultraviolet filters, and the number of times the air is removed and returned has been increased from our current location.

Events relating to medication errors

Medication related errors are one of the most common types of errors occurring in hospitals, occurring throughout the medication process from prescription to administration. An IOM report,[23] cited studies showing that in 1993, approximately 7,000 deaths were attributable to medication errors and that 1 out of every 854 inpatient hospital deaths resulted from a medication error. While not all medication errors result in harm, those that do can be costly. The IOM estimates that preventable adverse drug events resulted in approximately $2 billion in increased hospital costs each year for the nation as a whole.

Studies have shown that technology can have a significant impact on patient safety and quality of care. Researchers at Brigham and Women's Hospital in Boston[24] identified how information technology can be a tool in reducing the number of medication errors and adverse events caused by latent conditions and active failures. At LDS hospital in Salt Lake City, a computerized physician/provider order entry (CPOE) system with decision support reduced the incident of adverse drug events related to antibiotic administration by 75 percent.[25]

Facility designs at St. Joseph's made certain that proper wiring/cabling is included in all areas where medication may be dispensed or delivered. In addition, a pneumatic tube system is being installed in all areas of the hospital where medication will be dispensed or ordered, minimizing hands off and maximizing timely delivery with wireless and wired capability for computers. Technology plans include an integrated clinical system linking electronic medical records, decision support, CPOE, bar code readers, and an automated pharmacy system to ensure accuracy in ordering and delivery, and minimize "human touches"—therefore, errors—in the process.

Process recommendation

The challenge at St. Joseph's was to change the traditional hospital design process to incorporate the safety-driven design recommendations gleaned from the learning lab (Table 1). Rather than just directing architects to design the new facility based on existing models, the new development process was driven by a constant focus on designing for the safety of patients. A checklist was developed to help maintain focus on patient safety and ensure that the safety-driven principles were addressed in the design process.

Initially, the hospital's design and construction team—architects, contractors, engineers, and the owner's representative—met with physicians, hospital executives, and other representatives from the hospital to discuss the facility design principles (Table 2), brainstorm about safe design, and create a matrix of design features focused on patient safety and their related costs.

Hospital leadership recognized that a cross-departmental team approach would be needed and formed an 11-member Facility Design Advisory Council. Members of the council represented various departments within the hospital and included management, staff, and physicians. The council was responsible for overseeing the design process and providing updated design information to hospital employees, administration and the design steering committee.

Equipment and technology planning, beginning day 1

In keeping with the facility design recommendations, equipment and technology planning began early in the design process; usually the equipment and technology planning occurs at the schematic or design development stage. An onsite technology fair was held, giving staff the opportunity to evaluate information systems (IT) and other technologies, and generate ideas for application. A long-range equipment and technology plan was developed to determine what systems could be implemented immediately or at the completion of the new facility, and those that would be acquired in the future. One goal is to implement an integrated information system with the clinic that will provide complete patient data at any point of care. Other technologies planned are a nurse call system, a bed exit system, and a materials management system. Additionally, we will migrate to standardized equipment throughout (e.g., monitors, beds, IV systems) the facility.

Failure mode and effects analysis (FMEA)

The management team, facility advisory committee, and department design teams met routinely with architects during the design process. We consulted experts on noise reduction and lighting, as well as on educating the design teams on the use of Failure Mode and Effects Analysis (FMEA). FMEA is a tool commonly used in other industries, such as aviation and manufacturing, to identify and prevent problems associated with product and process design.[26] In hospital design, as in other industries, it is easier to fix potential failures during the planning stages than after construction has begun.

FMEA was conducted at each major stage of the design process, schematics, and design development. Although the use of FMEA is very time-consuming and often labor intensive, it is highly beneficial in identifying potential failures and developing innovative solutions associated with design considerations. Application of FMEA resulted in design changes to room adjacencies, room relationships within departments, and details of the room design.

Mock-ups of room construction

Mock-up designs of patient rooms began immediately for the intensive care unit (ICU), medical/surgical unit, and the New Life Center (obstetrics). Along with their usefulness in the design of safer environments, mock-up rooms can serve two additional functions: systems simulations, and advance education and orientation. Simulations of current or redesigned processes can be undertaken with the aid of the room mock-up, until such time as the remodeling or construction of the new work environment has been completed. These simulations can be routine functions such as medication delivery in a patient's room, or complex circumstances such as an emergency resuscitation exercise. These types of simulation training can be quite helpful in minimizing transition errors.

Involving patients and families in the design process

The IOM recommends working together with patients to customize health care systems, to ensure patient needs and values are adequately met.[4] At St. Joseph's, we believe that patients' and families' involvement in the design phase, as well as in the subsequent care, is critical for achieving patient safety. We learned a great deal from patients and families through focus groups, in which mock-up reviews and surveys identified design flaws and design features that enhanced the facility design focus on safety. We also designed patient/family areas to accommodate overnight stays, allowing families to be active in the care of their loved ones. This active process of involving the patient and family with the care of the patient helps catch errors so caregivers can recover potential adverse events. Designing the facility to promote knowledge and the free flow of medical information at the bedside not only allows for greater participation of patients and families in the care processes, but also allows immediate access of information to professionals at the point of service.

Putting it all together

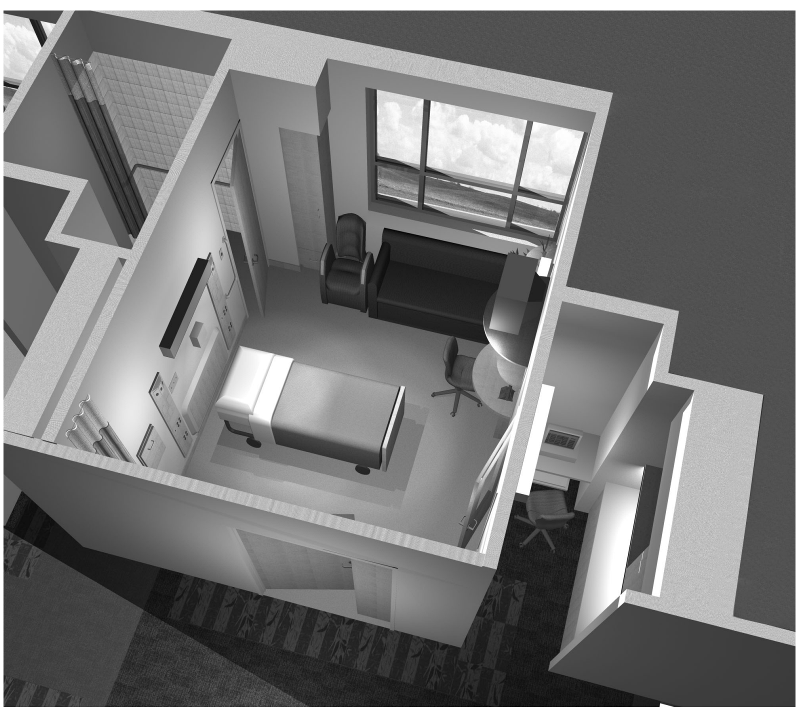
The patient room

Physicians, nurses, staff, patients, and family members were invited to view and evaluate the patient room mock ups; suggestion forms were available in each room to encourage feedback. As a result of suggestions received, the alcove storage was redesigned and standardized, desk heights were changed, the configuration of the bathroom evolved, and the location of furniture was determined to create a patient room that focused on the safety design principles and precarious events, lowering the probability of harm.

With these suggestions, our patient rooms evolved from a "traditional" patient room (Figure 1). Each patient room in the new facility will be a private room allowing more space for staff to provide care and for family members who want to stay close to the patient. A small charting alcove adjacent to the room will allow nurses to observe without disturbing the patient's rest, creating a better healing environment. The windows to all patient rooms are oversized, improving visibility of patients while enhancing their view of natural surroundings. Light sources within rooms mimic natural light, yet allow for appropriate viewing of patients.

All rooms are truly standardized in layout and placement of equipment and supplies. A cabinet, or "nurse server," in each alcove will hold the patient's barcoded medication—in a locked box—along with all other supplies needed for

Figure 1. Architect's rendering of a safety-centered patient room planned for use at St. Joseph's Hospital



patient care, allowing the nurse to remain in the room with the patient, thus reducing the nurse's fatigue and increasing time spent with the patient. Noise reduction will be achieved through single rooms and the use of special noise-absorbing ceiling tiles, structural systems designed to reduce vibrations, the elimination of overhead paging, and insulation between rooms.

For added safety, patient rooms will be wired for the use of cameras, to assist with monitoring of high-risk patients. The cameras will connect directly to the nurses' station or another appropriate location, and will only be used with the consent of the patient. Lift infrastructures will be installed in every room so patients and staff risks during transfers are minimized. Additional technologies, such as the use of automatic lights that go on when the patient attempts to get out of bed, are being considered to reduce the potential for patient falls. Other design considerations to reduce patient falls are bathrooms at the head of the bed with a handrail from the bed to the bathroom, beds that lower to reduce the harm to patients falling and rubber flooring that is safer than traditional hard flooring alternatives. Bedside computers are planned to allow nurses or other staff to double-check medication or other scheduled treatment prior to administration. The bedside computer will also allow access to EMR and CPOE, bringing information close to the patient. Patients will have access to their scheduled medication or other treatments prescribed, encouraging them to become more involved with their own care. A sink, in view of the patient and conveniently located for staff and family, will be installed to reduce the risk of infection. Curtains, instead of blinds, will be placed in the windows, with a fan over the window to reduce condensation**.** All patient and public areas will be HEPA filtered, with key patient areas receiving ultraviolet treatment. Additionally, there will be "modified laminar flow" for each room. The patient room has capacity for expansion to accommodate new, advanced procedures and diagnostics. Increased "foot space" on both sides of the bed, standardized headwalls (the "plate" attached to the wall in which gases, electric, and other patient care resources are housed) on both sides of the bed, and heightened ceilings will allow for more services—such as enhanced radiology procedures, endoscopy, or minor surgery—to be delivered in the patient room enhancing safety through flexibility and adaptability.

Culture of safety

James Reason[20] defines "culture" as "shared values (what is important) and beliefs (how things work) that interact with an organization's structures and control systems to produce behavioral norms (the way we do things around here)." Reason's components of a safety culture include an informed culture (those who manage and operate the system have current knowledge about the factors that determine the safety of the system), a reporting culture (people are prepared to report their errors and near-misses), a just culture (people are encouraged and even rewarded for providing safety-related information, but must be clear about what is acceptable and unacceptable behavior), and a learning culture (the willingness and know-how to draw the right conclusions from a safety-information system and to implement reforms). He believes that a safety culture can be engineered, not in the traditional sense of developing more sophisticated gadgeting, but through social engineering. The importance of a safety culture in creating a patient and staff safe health-care experience cannot be underestimated. If safety is important to an organization and if an organization does things with safety in mind, a safer experience will result for patients and staff. The systems of a hospital are highly influenced by its culture or are a reflection of its culture. The national learning lab recommended 11 culture of safety goals for St. Joseph's (Table 3).

Table 3. Safety culture goals

1.	Shared values and beliefs about safety within the organization
2.	Always anticipating precarious events
3.	Informed employees and medical staff
4.	Culture of reporting
5.	Learning culture
6.	"Just" culture
7.	Blame-free environment recognizing human infallibility
8.	Physician team work
9.	Culture of continuous improvement
10.	Empowering families to participate in care of patients
11.	Informed and activated patient

Recognizing that we are human and we will make mistakes is difficult for health care workers to accept. Perfectionism is correlated to competence and mistakes are correlated to incompetence. Instead of being dedicated to creating facilities and systems that catch mistakes, or creating barriers and environments so mistakes are less likely to occur, we dedicate ourselves to demanding individual perfectionism. Given that all of us make mistakes, health care workers are forced to feel inept and incompetent, at times, leading to guilt and shame.

Storytelling, blame-free reporting, open discussion about the human conditions, executive walk-arounds, and "just" reaction to the consequences of human mistakes, all contribute to developing a safety culture at St. Joseph's. A common belief system is essential to develop a safe culture. Storytelling—especially from incidences within an organization—was an important first step to developing common beliefs and values. Another technique for achieving safety culture goals implemented at St. Joseph's was a confidential and anonymous reporting process. How can one design, minimize, or eliminate precarious events if one does not know they exist? This reporting created a learning culture by which the results of the reports were translated into actions. Processes were changed, technologies were added, and facilities were redesigned to enhance safety and minimize the errors, near misses and adverse events. All aspects of the safety culture goals have changed for St. Joseph's Hospital, creating a safer culture for patients and staff.

Cost implications

Some features focused on safety require more capital than a traditionally designed hospital, for example HEPA filters throughout and increased square footage in patient rooms. Some safety features save capital resources more than traditional hospital design, most notably standardization. Many (most) safety features require the same amount of capital as traditionally designed hospitals. In our case, the capital requirements were comparable with recently built traditional hospitals of our size. There were, however, intervening variables. For example, the competitive construction climate gave us favorable bids. We budgeted based on traditional hospital cost per square foot per bed and have met those budgeted numbers. It demanded thoroughly prioritizing the opportunities to enhance safety in design.

Discussion

Designing around patient safety will have a return on investment (ROI) for two significant reasons. First, a patient safety designed hospital is more efficient, as a result of standardization and automation. The processes will be "cleaner" (i.e., producing less waste and rework), as both safety and efficiency are highly correlated. Second, designing for patient safety will help to eliminate near-miss incidents, errors, and adverse events, reducing hospital stay lengths and cost per discharge. If one is on a Diagnostic Related Group (DRG) system, this will result in greater net income per discharge. (This will also allow for increased volume, as avoided readmissions from safety issues are replaceable.) And though we do not have data on the business case for patient safety (the new hospital has not yet opened), we have projected reducing near misses, errors, and adverse events will lead to improved efficiency, lower our length of stay, lower cost per discharge, improved profit margins, and increased the ROI.

Conclusion

The facility design process at St. Joseph's has involved a continuous focus on patient safety by implementing the recommendations of the national learning lab. Efforts have focused on reducing reliance on short-term memory and providing information when problem solving is needed. This will result in reducing the latent conditions and active failures that lead to error. The design process changed and the design itself changed with the focus on safety design principles and process recommendations. Our focus on safety also improved our safely culture.

We are now translating our learning to improve the safety of our processes. The safety driven principles, checklist, multidisciplinary teams, and common beliefs all apply to process redesign around patient safety, as much as the facilities. The focus on safety in facility design made it easier to recognize and change processes. We have a deeper understanding of latent conditions and active failures and their impact on facilities and systems.

Throughout this process of designing a hospital from "the inside out," there were discussions with participants about which elements of the effort were important to apply to the overall (re)design of health care facilities. Several critical success factors were identified:

- CEO leadership and commitment.
- Physician leadership.
- Multidisciplinary design team at the outset to direct the process.
- Multidisciplinary retreats with architects and construction engineers to discuss and brainstorm on understanding the safety driven design principles; learning lab process recommendations; safety culture goals and safety culture engineering; design features of facilities; equipment and technology; and managing budgets and setting capital priorities.
- Development of checklists and safety design principles.
- FMEA at three design stages: adjacencies, schematics, and design development.
- Room mock-ups beginning Day 1

The importance of engaging architects, equipment planners, information systems leadership, contractors, hospital ownership representatives, executive management, and department heads also is critical to the success of a patient safety-centered hospital design. Their support, expertise, and emotional buy-in is critical at brainstorming retreats and throughout the evolution of the planning and construction process. The same individuals are equally important for their work with the hospital staff; maintaining the collective focus on the safety-driven principles that will serve as the foundation for cultural change and the evolution of the facility design, with its equipment and technology changes.

Safety culture strategies and the development of a common belief system—along with an anonymous and confidential reporting system and a "just" culture—are crucial to the creation of a culture in which the welfare of those who make use of a facility is the foremost consideration in the design of its departments, its organizational management, and its processes of care. Making patient safety the guiding principle serves to enhance the culture of patient safety.

The purpose of a hospital is to provide quality care to its patients. The information on the current state of health care system quality available with the publications of *To Err Is Human, Crossing the Quality Chasm, Demanding Medical Excellence, Wall of Silence, Managing the Risks of Organizational Accident,* and *The Psychology of Everyday Things*, and a myriad of journal articles and other books underscores our ethical and professional obligation to improve the safety of the care to patients. Designing around patient safety in our health care facilities is one important approach to improving patient safety, building a culture of patient safety, and meeting our mission as an industry.

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