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Safe haven

A new inpatient unit at Children's Hospital of Philadelphia offers a specialized environment for patients with both medical and behavioral health needs **By Anne DiNardo**



SEVERAL YEARS AGO, Children's Hospital of Philadelphia (CHOP) noticed an increasing number of patients seeking medical treatment who also had behavioral health conditions, such as children exhibiting suicidal or other self-harm tendencies or who fall on the autism spectrum. To address these comorbidities, modifications were made to the 546-bed hospital, such as adding anti-ligature fixtures and other safety features to patient rooms and training more staff to handle kids in crisis. It was a step in the right direction, but it didn't address the fact that patients were often scattered throughout the hospital, with staff and equipment brought to them on an as-needed basis. "We were attempting to provide high-quality behavioral health support, essentially throughout the entire enterprise. That created some significant challenges for doing it as well as we would have liked, and as consistently," says Doug Carney, senior vice president of facilities at CHOP.

An idea to pursue the creation of a dedicated unit was further supported by another realization: Behavioral health treatments were often delayed until patients were released from the hospital, says Natalie Miovski Hagerty, director of facilities planning at CHOP. "We wanted to be able to look at our kids more holistically," she says. "Yes, we're a medical hospital, but we should be able to maintain and, if possible, help improve the underlying behavioral health concern while they're here." For example, if a child was admitted after overdosing, CHOP was equipped to treat the physical needs of the patient, but leaders also wanted to better streamline efforts to start addressing the underlying cause of the



TOP: A playroom for younger patients is located between two patient-room neighborhoods. A glass wall with a translucent tree graphic allows staff to monitor the room, while also providing a sense of privacy for patients and families. **ABOVE:** A translucent glass-walled conference room features large silhouettes of trees—a graphic element that reinforces the nature theme and creates a sense of privacy. **PREVIOUS PAGES:** Understanding that unexpected noises or visitors can be stressful for patients, the unit's corridors are designed to provide a calm and quiet environment through the use of an onstage/offstage layout that separates the service and staff areas from the patient spaces.



A family lounge with skylight is located near the entrance to the unit and serves as a calming transition to the patient corridors as well as a place of respite for visitors.

behavior. “This new unit will help us coordinate an effort to understand why a child did this and help put the child and the family on a better path to move forward,” Hagerty says.

STARTING FROM SCRATCH

Moving from project concept to opening was not an easy process, however. In fall 2015, CHOP physicians and clinicians and designers from ZGF Architects (Washington, D.C.) began an extensive benchmarking process, quickly realizing that although solutions were in place at other facilities, what they wanted to create—a medical behavioral unit—didn’t exist. For example, Seattle Children’s Hospital in Seattle has a psychiatry and behavioral medicine unit located adjacent to a medical unit. Other facilities, such as Hasbro Children’s Hospital in Providence, R.I., have psychiatric units where minor medical issues can be managed. CHOP’s goal, though, was to create a freestanding unit for patients with complex medical conditions that’s equipped with multiple safety features to reduce stress and anxiety, such as improved acoustics to reduce noise on the unit and ligature-free bathrooms. “We wanted to design it in such a way that you can’t throw a chair or rip things off the walls, to make the rooms as safe as possible for these kids,” Hagerty says.

Next, ZGF led a multidisciplinary team, including physicians, nurses, and psychologists, through design charrettes to create six avatars that represent the types of patients who will likely use the unit: an aggressive patient; a post-op aggressive patient who might be at risk for pulling out his or her lines or other self-harming



ABOVE: Open care team stations offer visibility to the patient rooms and corridors, while a wood canopy and surround adds warmth and interest to the hallways. **BELOW:** Room detailing, from the selection of materials and casework to tamper-proof hardware and ligature-resistant plumbing fixtures, was developed with safety in mind.

activity; a suicidal patient; a patient who tries to ingest foreign bodies; a flight risk; and a patient with acute psychosis. The process allowed the team to anticipate the needs of these specific patient populations and answer those needs in the design.

In conjunction with the new unit, CHOP created a care model that would bring together a multidisciplinary team, including providers, social workers, and therapists—in one spot. “They could be more instantly available, more physically present, to support these children as they are treated for their medical needs,” Carney says. CHOP assigned two co-medical directors—a pediatrician and a psychiatrist—to the unit to give equal weight to the medical and behavioral sides of care and involved them in the planning and design process to help guide operations and layout. (For more on the staffing of the unit, go to HCDmagazine.com/CHOP-staffing.)

With these pieces in place, the team then spent nearly two months prototyping room mock-ups in the hospital basement, starting with building a patient room out of foam core and eventually creating a room to finish level. Throughout that process, Carney says several hundred staff members, including clinicians and environmental services and facilities staff, were brought through the room to test different features and provide feedback. The process resulted in modifications such as changing the angle of the staff handwashing sink so nurses could maintain eye contact with patients and installing a new locking mechanism on cabinets that hold medical equipment and monitors to improve speed of access for the staff. “Without an archetype to follow, the prototype [process] was the only way to get feedback on the design, so we needed time to do that,” Carney says.

CHOP also conducted mock patient events and ran simulation codes—from medical events to a child acting out emotionally—to ensure that all the safety, patient, and staffing needs were being addressed cohesively. Marla Vanore, RN, director of nursing, trauma, and injury prevention at CHOP, says one of the biggest challenges was finding the right bed, because a medical bed has features, such as multiple long cords, that children with suicidal tendencies could use to harm themselves, while a behavioral health bed isn’t designed for medical procedures. “If a child went into cardiac arrest, we needed to be able to quickly drop the head of the bed down, lower the whole bed, and do resuscitation,” she says. Ultimately, the team chose a medical bed that’s customized with fewer and shorter cords.

In January, the new 10-bed, 11,000- square-foot medical behavior unit





LEFT: A unique natural element is used in the design of each patient room, appearing as a large-scale photograph at the entrance and as a customized silhouette within. This solution serves as a wayfinding tool to help patients and families differentiate between the rooms. **BELOW:** Patient rooms are organized into three neighborhoods, each with its own color palette that's used in the environmental graphics, furniture, and furnishings.

opened on the fourth floor of an existing inpatient tower.

SOOTHING SETTING FOR KIDS

While project team members didn't want the emphasis on safety to result in a unit that looked too institutional, they also knew it couldn't look like other floors in the hospital. "Certain colors, flashing items, or imagery could escalate some of the anxieties that these patients might have," Hagerty says. Instead, the bold color schemes and visual activity in other departments have been replaced with a soothing palette of greens, blues, and lavenders and nature-themed graphics. Supplies, computers, TVs, and equipment are stored in cabinets and out-of-sight areas to keep rooms and corridors clutter free.

The team employed evidence-based design to choose design features proven to have a positive effect on the emotional state of patients, says Sue Ann Barton, a principal at ZGF and medical planner on the project. For example, private

THE TEAM CHOSE DESIGN FEATURES PROVEN TO HAVE A POSITIVE EFFECT ON THE EMOTIONAL STATE OF PATIENTS.



rooms, small patient neighborhoods, and quiet corridors help promote a calming and welcoming environment that can reduce stress and aggression. Design elements that deliver an added layer of safety include detailing on casework that prevents patients from accessing equipment, durable materials such as rubber flooring, and tamper-proof hardware.

CHOP's parent and patient advisory groups consulted on several of the design initiatives, including stressing the importance of giving young patients a sense of control during their hospital stay. To this end, each of the patient rooms has an LED lighting system embedded in the ceiling that allows patients to project different colors onto the footwall, depending on their mood or preference.

Working within the floorplate of the existing building, the patient rooms are organized along an L shape, with six rooms on one side and four on the other. The placement breaks up the unit into smaller neighborhoods that are easier for patients and family members to navigate. Decentralized nurses' stations are located between pairs of rooms with open care team stations in each neighborhood. Offstage corridors are used to move supplies, linens, and soiled materials on and off the unit to further reduce traffic and noise in the corridors.

Planners also made room for some amenity spaces that are more common in behavioral health units than a medical inpatient floor, including an activity room, which can be used for dining and group therapy sessions, and two comfort rooms where patients can go to be alone or calm themselves down. "The teams saw it as part of the care model," Hagerty says. "Kids can cuddle in there by themselves; it's a safer area."

A PLACE TO THRIVE

When the work was completed, CHOP decided to start with a four-month soft opening, activating only five of the inpatient beds for patients with comorbidities to give the staff time to refine their processes and learn how to work together (the other beds were used for regular inpatient needs until the unit was fully activated in early April). While the unit has been in operation less than a year, Vanore says the staff reports that the environment has allowed them to successfully address patients' dual needs. Another benefit, Carney says, is the sense of community that the unit has created for both staff and patients. "It gives patients a sense that they're a part of something and that there are other people experiencing the same thing," he

MAXIMUM EXPOSURE

To mimic the solar day and provide routine lighting exposure to reinforce the body's natural circadian rhythms, a specialized lighting system was implemented in all patient and staff areas. The intensity and color temperature of fixtures automatically shift through a programmed and controlled time clock.



Lighting was an important strategy in creating a welcoming and healing environment for patients in Children's Hospital of Philadelphia's (CHOP) new medical behavioral unit. "Exposure to daylight is effective in improving mood and reducing depression, which supports the goal of providing a healing environment that reduces the stress of a hospital stay for patients and families," says Sue Ann Barton, principal at ZGF and medical plan-

ner on the project. "If a patient is depressed, they'll just want to stay in their room and keep the lights off and stay in the dark."

Using evidence-based design strategies, the design team placed windows in all the patient rooms and corridors and added a circadian lighting system, which is programmed to reflect natural light as it changes in color throughout the day (see images above) to help regulate body clock rhythms

and synchronize the sleep and wake cycles for the patients, Barton says. The design team also took advantage of an existing skylight in the center of the unit by locating activity rooms, the family lounge, and one of the nurses' stations underneath it. "The idea is to keep their circadian rhythms in balance," she says. "When those get out of balance, it can increase depression, so we're trying to look at [lighting] from a number of different ways."

