



*Sky Factory Delnor Nurses Station – credit Legat Architects and Sky Factory*

## Peaceful Lighting Improves Patient Outcomes

“GOOD LIGHTING IS ABOUT GIVING A PATIENT CHOICE AND DIGNITY.”

by Jennie Morton

**A hospital stay, no matter how short, is usually a stressful experience. Even with the highest quality of care, patients are in pain, on disorientating medications and often anxious. Health care design has made leaps in recent decades, creating soothing environments by borrowing trends from hospitality and spas. But there's one area that tends to be a glaring problem — lighting, which can be harsh and unwelcoming. Hospitals and clinics are addressing this issue with color-changing lights and virtual skylights.**

### **An overhead problem**

Traditional patient and examination room lighting has its drawbacks. Not being able to dim lights, harsh glare and poor color rendering can cause frustration for patients and staff alike. And while many facilities have upgraded from flickering fluorescents to LEDs, new light fixtures are often designed for functionality rather than aesthetics.

“Good lighting is about giving a patient choice and dignity,” explains Ana Pinto-Alexander, director of health interiors at the architectural firm HKS. “So much independence is lost when you go to the hospital, including mobility and privacy. Customizable lighting is one way to give back a measure of control and autonomy to patients.”

It has also been documented in multiple studies that views to nature, including natural sunlight, can aid in the healing process. Hospitals have already moved away from sterile rooms devoid of personality, but even a well-appointed interior room cannot overcome the lack of a window.

New and old hospitals alike face the conundrum of providing equal access to light, observes David Navarrete, director of research initiatives for the manufacturer Sky Factory. While hospitals are designed for decades of use with periodic renovations, a significant alteration of their core footprint isn't among them. And even if a modern hospital places patient rooms along the perimeter, that means staff spaces are relegated to the dark center of the building. Who has a greater need for natural light — patients who are healing but ultimately temporary visitors or the staff who work 10-hour shifts, day in and out?





“Health care has an onus to create a healing environment, but it also needs to protect the health of its professionals,” Navarrete argues. “Hospital workers shouldn’t feel like they are stuck in a bunker. Their psychology needs to be revitalized just like patients. Better light can lessen burnout and absenteeism.”

### **A bright solution**

One way to improve health care lighting is to create layers of light. Instead of one light switch for the entire room, there can be up to five fixtures that are used independently by patients, family and caregivers. This approach acknowledges there are a variety of activities in a patient room that require different levels of illumination.

Focus on zones of warm and cool light, Pinto-Alexander recommends. Some fixtures should allow doctors to perform examinations or caretakers to monitor vitals without disturbing the patient. Another set of fixtures can help visitors pass time, such as when reading, or provide ambient light near but not directly overhead a patient bed.

Beyond functionality, health care lighting can have a decorative quality. Humans respond on a biological level to the brightness of a sunny day and the grey funk of an overcast one — interior lighting also has the power to impact mood.

How do you lower the stress of an average of 110,000 ER patients every year? This was the question posed by Northwestern Memorial Hospital in Chicago, Illinois, to its architectural firm HKS. The answer was to create pods that have the look and feel of first-class airline seating, which give patients more control over their surroundings. Each pod has color-changing LEDs that offer three settings: exam, relaxation and intermediate. This provides both functional and mood lighting from the same overhead fixture.

The MD Anderson Children’s Cancer Hospital has embraced vibrant lighting. Children’s hospitals have long understood the power of a cheerful atmosphere, liberally using colorful art, walls and furniture to brighten an otherwise apprehensive experience. Because lighting can also quell fears, HKS included a ring of color-changeable LEDs that radiates behind an oval light fixture in MD Anderson’s patient rooms. The white light in the center provides illumination for exams while the ambient LEDs can alter the mood of the room with the push of a button.

“Not only do the LEDs change from warm to cool, but they switch between a whole spectrum of colors,” Pinto-Alexander says. “It’s a simple way for children and their family members to personalize the room, which is especially important when receiving long-term treatment. Colored lighting is a way to make the space feel less foreign, just like when parents hang posters from home on the walls.”



Sky Factory Northfield Hospital – credit Sky Factory



HKS Anderson Cancer 1 – credit Blake Marvin Photography

### Skylights that mimic reality

While landscape photography is a popular choice in health care facilities, observers understand they are looking at a 2-D image. Virtual skylights aim to change this by stimulating the same neurological response when our brains process real views of nature.

“Even though nature imagery is the bedrock of ‘positive distraction’ in health care environments, it hasn’t been until the last 10 years that nature imagery has been studied in depth,” Navarrete notes. “Patients benefit from images that are more than a distraction but evoke a deeper relaxation response. This requires a multisensory, architectural illusion.”

Sky Factory’s illuminated LED panels create the perception of open space. Even though patients psychologically understand the ceiling isn’t a true skylight, they still “read” the simulated image as being connected to a larger environment.

“What we’re doing is engaging patients in an experience of nature,” explains Skye Witherspoon, CEO of Sky Factory. “The goal is to create a relaxation response in the observer. We do that by giving the skylight content different spatial and visual cues which are different than a pretty picture on the wall.”

These digital creations are more than a novel theory — their effectiveness has been validated in *Health Environments Research & Design Journal*. A 2015 study



HKS Danbury Hospital Pediatric Unit – credit Matthew Carbone

found Sky Factory’s Luminous SkyCeilings reduced acute stress by more than 53% and anxiety by more than 34% when installed in patient rooms.

At Northfield Hospital in Northfield, Minnesota, the director of imaging wanted to reconnect patients with nature and have them instantly feel at ease before their exam. The cave-like atmosphere was uninviting to patients and isolating for radiologists who work there around the clock. The ceiling over the MRI machine now contains an 8x8-foot Sky Factory skylight.

Virtual skylights can be used in patient rooms, waiting rooms, reception areas, break rooms, along corridors and above nurses’ stations. They are especially useful in core areas of the buildings and imaging rooms, which are usually located deep within a basement. Wherever they are installed, these skylights provide a digital window to the outdoors. **WPM**

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*Jennie Morton has been covering trends in the built environment since 2010.*