Evidence-Based Design in the Cardiac Cath Environment

Over the last several years, industry trends reveal that as hospitals build and renovate, no longer is the goal simply to assure that procedural space can accommodate equipment and/or that rooms are sized according to code...Rather, organizations are directing focus to enhancing the in-hospital experience (for patients, families, physicians, and staff) while vying for volume in an increasingly competitive landscape...This scenario is especially significant in heart and vascular care—a service line with great revenue potential, though one that also involves rapidly-changing technology and high costs.

Furthermore, difficult economic times and shrinking reimbursement have placed further constraints on hospitals' ability to make facility improvements, renovations, and/or expansions. More and more hospitals have outdated buildings and less-than-optimal care settings, which can negatively affect clinical outcomes, operational efficiencies, financial profitability, and patient satisfaction of cardiovascular services.

In consideration of these factors, Corazon encourages the construction of a “flexible” building—one that will be able to support a variety of patient acuities, technologic advances, and care delivery approaches—using evidence-based design strategies that can bring added benefits without detrimental impact on the bottom line.

What is Evidence Based Design?

An effective way of addressing the above areas of focus is through the use of evidence-based design, proven architectural methods for improving patient outcomes, safety, and satisfaction, as well as staff morale and retention and operational efficiency through the built environment. Much research has been done on the impact of evidence-based design within the inpatient room. This includes:

- Using the universal bed care delivery model, which brings care to the patient in one private room for the entire hospital stay
- Facilitating patient control over the environment through individual temperature and lighting controls and hotel-like ‘room service’ meals
- Reducing patient stress (both emotional and physiologic) through:
  - A relaxing atmosphere including all of the “comforts of home” – soothing wood tones, muted lighting, and access to natural light and outdoor views
  - Designated space and amenities for family within the patient room
  - Private patient rooms and decentralized nursing stations, both of which eliminate noise and distraction
- Focusing on patient safety (reducing patient falls and medication errors) through:
  - Decentralized nursing stations near the patient room with all required supportive technology
  - Consistent room design wherein care process are automated and all equipment and supplies are in the same location in every room

Much has been published on the impact of evidence-based design, particularly related to the ‘healing environment’ on inpatient outcomes; however, this concept hadn’t quite moved into the procedural setting...until now...

A Healing Environment in the CCL: The Ambient Experience Cath Lab Suite

At long last, the concept of a ‘healing environment’ is finally being integrated into the procedural room. Through architecture and technologies, patient anxiety resulting from invasive hi-tech equipment in a sterile setting can be lessened. For instance, the Ambient Experience CCL Suite (introduced by Philips Healthcare) allows patients to choose light and sound themes during their procedure, and even project scenes onto the ceiling, thus creating a radically different (and arguably better) patient experience.

The Ambient Experience CCL Suite, seen in Figure 1, aims to reduce the physiologic patient stress that often accompanies tachycardia and hypertension, and can ultimately reduce the need for pain medications and sedatives. A hemodynamically-stable patient who is awake, yet relaxed, can facilitate throughput within the CCL and the prep-recovery area by requiring less time for observation and recovery from sedation.

Patient satisfaction is tremendously enhanced as well, according to Victor Hall, Regional Vice President of Cardiac Services at Fairview Hospital, part of the Cleveland Clinic Health System Western Market, where the world’s 50th ambient CCL has been installed. He states that "patients see the atmosphere as soothing—almost like a spa” rather than as a cold, sterile, procedure room. The physician experience is likewise enhanced with the use of soft flooring that supports the back and personalized physician light settings that help reduce glare and shadows.

FIG. 1

Image courtesy of Fairview Hospital, Cleveland Clinic Health Systems – Western Market
A Healing Environment in the CCL: Decentralized Stations / Room Design

Patient prep/recovery rooms and nursing stations that mimic many evidence-based inpatient room design principles do much to support the creation of a healing environment in cath lab procedural areas.

Corazon recommends the below as just some of the ways that a cath lab setting can be designed with evidence-based principles as a guide:

- Private rooms built to universally support the short-stay patient (from prep through recovery)
- A ‘relaxing’ environment to counteract the stress a rapid turnover unit can convey, including muted lighting, soothing wood tones, and in-room televisions.
- Space for family seating, with cell phone and internet access.
- Decentralized nursing stations that puts the staff closer to patients so as to lessen noise, reduce falls, and minimize walking distances.
- Supportive technology located at the bedside, as seen in Figures 3...this brings care closer to the patient while increasing staff efficiency.

Windows provide patients with a positive distraction while waiting for a procedure, or recovering from one. At Fairview Hospital in Cleveland, OH, multiple cath prep-recovery rooms were constructed with a window, granting this healing design element to patients requiring care over 23 hours in this area. As seen in Figure 5, the rooms at Fairview were built with three hard walls, one with a window, and a curtain to care for short stay patients.
The Future of Evidence-Based Design in Procedural Areas

As more research is published on the impact of evidence-based design on patient outcomes, this trend will no doubt continue. And, as consumers demand care environments that not only allow for recovery, but also promote healing, Corazon feels that evidence-based design will further transition into procedural areas such as the cath lab and angiography suite, and even into the operating room.

Savvy hospitals on the forefront of this facility design trend will be well-positioned for success as a result of more efficient patient throughput, shorter lengths-of-stay, and additional marketing opportunities from a differentiated program.

References:


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