

TECHNOLOGY'S ROLE IN EVIDENCE BASED HEALTHCARE DESIGN

Published in Northwest Construction Magazine July 2006

BY TOD MOORE, RCDD, CSI



Many health care organizations are applying evidence-based design to improve the quality of patient care, reduce operational costs, improve staff efficiencies, and build better facilities.

In evidence-based design, designers and owners use research and data from completed projects to improve the quality of health care and promote life-enhancing environments.

This is the mission of the Center for Health Design, a research and advocacy organization comprised of health care and design professionals who promote evidence-based design through education, research and dissemination of information. They publish researched and documented examples of facilities whose design has made a difference in the quality of care and financial performance of the

institution.

According to this organization, evidence-based design should accomplish the following:

- Improve the quality of care for patients
- Attract more patients
- Recruit and retain staff
- Increase philanthropic, community, and corporate support
- Enhance operational efficiency and productivity

TECHNOLOGY'S ROLE

While technology systems were traditionally behind-the-scenes, they are coming to the forefront in terms of how a building is designed (physical infrastructure), how patient

care is delivered (physician order entry systems, electronic medical records, etc.) and how patients are treated during their hospital stay via a variety of bedside services.

A main tenet of evidence-based design is there must be hard evidence that supports the intended outcome of the design. Since health care technologies evolve so rapidly, it can be challenging to measure its impact because there isn't a substantial body of evidence.

Due to the education efforts of organizations like Center for Health Design, there is now documented research which indicates that providing patients with wireless environments, interactive video and movies on demand, meal order entry systems, the ability to play video games with other patients down the hall or friends outside of the hospital, and other bedside services attracts patients, enhances the healing process, shortens patient stay and recovery time, and improves the bottom line.

In addition, there is proven evidence that electronic medical record systems such as computers on wheels (COWS) and PDA's have much higher accuracy than traditional medical records and charting. Locating this information at the bedside means more time spent on diagnosis and personal interaction with patients, as well as reduced overhead by not having to retype handwritten notes.

Technology is also being used as a tool to recruit nursing staff, as many new health care providers are deploying the latest technologies to attract the best and the brightest in the medical profession.

CONVERGENCE AND COST SAVINGS

Many health care facilities are converging multiple technology systems onto a single cabling infrastructure and IP based logical network system. Traditional low-voltage systems, which used to be proprietary, are now running over the same structured cabling system as traditional voice, data and video. This standardized structured cabling infrastructure now supports building automation systems, security systems including closed circuit television and access control, lighting control systems and power monitoring systems.

Wireless systems such as cellular systems, emergency radio systems, maintenance radio systems and telemetry systems are running over one structured antennae system instead of multiple proprietary antennae systems.

A primary example of communications systems convergence is VoIP (voice over Internet protocol), in which the voice communications systems run over the data network. Until three to four years ago, most health care facilities had separate voice and data networks. With a VoIP system, the telephone acts as both the interface to the network and an actual data switch. Rather than have two specific cables for a telephone and a computer, there is now one cable that connects the telephone to the wall and the computer to the telephone.

Converging systems creates tremendous cost savings because it reduces the quantity of cabling to each workstation, reduces multiple systems locations, and permits a single contractor to install all of the structured cable for these systems.

From a maintenance and operations standpoint, putting these systems on the traditional data network can also reduce the need for people with multiple skills on various proprietary systems.

Seeing the value of increased patient satisfaction and decreased staff turnover, many owners are now including evidence-based design in their requests for qualifications. The efforts of organizations such as the Center for Health Design will continue to pinpoint how technology systems improve the quality of health care and promote life-enhancing environments.

For more information on evidence-based design, please visit the Center for Health Design web site at <http://www.healthdesign.org>.



Tod Moore, RCDD, is principal of technology consulting at Sparling, an electrical engineering and technology consulting firm with offices in Seattle and Portland, Ore. He can be reached at tomoore@sparling.com.