



TO BE OR NOT TO

EBD

Top healthcare providers weigh in on the evidence behind evidence based design

By Matthew Kennedy

There is a growing debate in the U.S. regarding the utilization and application of research information in the design process for healthcare facilities. Popularly called evidence based design, or EBD, the debate centers around the basic question, “does it really work?” Or, does the application of the design actions identified through research really achieve the outcomes stated in that research.

Fundamentally the research is undertaken to identify those specific design aspects of a patient or caregiver’s physical environment that lead to better outcomes.

These outcomes can take on a variety of definitions from facilitating quicker patient healing, to reducing patient falls, or reducing environmental stressors that impede workplace performance. But is there truth behind the assertions made by these researchers, and if so can and should this method of design development become more commonplace to ensure the healing and workplace performance we wish our built-environment to enable?

Many critics of this approach, those who say it’s more fiction than fact, argue that the research conducted to identify the evidence is not conducted with

enough scientific rigor, that it's more anecdotal evidence than true researched evidence. More outspoken critics go further in saying that an EBD approach is more of a marketing tool used by certain architectural and engineering firms to bolster their expertise in healthcare design, promising grandiose results often based on inconclusive or misunderstood research. Regardless of the severity of their criticism however, this group of industry professionals may be the last group to judge the validity of EBD objectively since they do not own nor run the facilities the EBD approach is meant to improve through better design.

Instead, a more accurate picture of the EBD approach and its validity can be gained from the end-beneficiaries of this approach, not those who use it in the services that they 'sell' but those who pay for the performance of those services and remain behind to occupy the facilities those services have hopefully improved. This group of owners and facility managers can directly attest to the success or lack thereof, of the EBD approach. From their day-to-day experiences in developing a substantial amount and variety of healthcare projects, they can provide us an unbiased insight into the success — or lack of success — the use of an EBD approach provides, offering us lessons to be applied in our own building programs.

To identify the truth behind the potential fiction of this approach, a representative panel of U.S. national healthcare organizations was informally polled to solicit their understanding of EBD and asked how and when such approaches are used in the development of their facility programs. The owners on the panel represent a total annual construction portfolio of about \$12 billion and were asked a series of 10 questions to frame a representative state-of-the-industry in the U.S. in regards to the effectiveness of evidenced based design approaches and where they perceived potential problems in its application.

Growing confidence in EBD

 Statistics from the HFM 2009 Building Report indicate a growing trend in the U.S. toward the use of EBD, growing from 53 percent of the total healthcare projects in development using EBD in 2006, to a rate of 63 percent in 2008.

All the members of the panel enthusiastically report that they are using EBD more and more, reflecting growing confidence in the value it can add to the development process. Most of this use currently centers on larger projects of \$5 million or more and more specifically on inpatient care units than any other project type. Many of the panel members have, or are in the process of, developing building and design standards that utilize EBD research information, although they are quick to indicate that they still rely on the expertise of their architects and engineers to understand EBD approaches, especially

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when they work with these standards and need to adapt them to specific site circumstances. That has led several panel members to create an in-house EBD 'expert' charged with coordinating design initiatives using this approach, gathering research knowledge through conferences and other similar opportunities, and disseminating that knowledge in-house or externally through publication and research participation.

However, the panel members seem less enthusiastic regarding completing post-occupancy evaluations in a rigorous manner. Although critical to the development of the EBD knowledge base, and very necessary to feed back into the EBD process, information regard-

ing the achieved outcomes in facilities built through the EBD approach is, more often than not, gathered anecdotally from patients or staff members. Several panel members indicated the use of a post occupancy evaluation questionnaire process, but not to the degree required for a valid, authenticated study.

Clients saw greater value in using EBD approaches to develop newer, larger-scale facilities and medical campuses.

Knowing the limits of EBD

 Many of the panel members communicated limitations to the current state-of-the-industry on EBD. Although there is a growing number of studies being completed, and the knowledge base has grown exponentially from 84 studies completed by 1998, to more than a 1,000 such studies completed by 2008, according to a paper published in the spring 2008 issue of *Health Environments Research and*

Design Journal, there are limitations to the practicum of this approach. Not all the answers that these facility managers and directors need have been identified, or where they are being studied, the process of conducting the research is slow to provide the needed answers.

Currently, more researched evidence exists on the physiological responses of patients induced by certain environmental conditions than any other aspect of EBD. Areas of research or design concepts needing further study include those promoting workplace efficiencies, those that reduce patient falls and staff injuries, and those that promote well-being in the family members of patients and the care providers themselves.



Given this, many facility managers and directors are faced with making decisions based on limited or inconclusive evidence. For example, one panel member related the story of being told that same-handed room designs could make it easier for staff to locate supplies stored within a patient's room. Although no research evidence has been identified that such a design has such an effect one way or the other, this particular client proceeded with the same-handed room design stating that the potential benefits — even if not supported by research — outweigh the potential harm such a design could or would not cause.

Many of these panel members make due with 'gut feelings' where they feel the need to make a choice based on inconclusive evidence. They intuitively know the design action has value, but they don't have the conclusive proof, so they take a leap of faith and implement the design action.

One such member practicing in this manner remarked that, "qualitative information can be just as effective as quantitative information."

This led to criticism of the researchers

themselves conducting research for its own sake and identifying outcomes that have little practical value to the real world situations that the panel members face. Collectively, the panel falls into an EBD approach that utilizes current research when and where available, augmented by a 'best practice' approach where such research does not yet exist.

Building a better EBD approach

Despite its growing use, and despite design-oriented research in the U.S. going back several decades, many panel members saw EBD as still being at a beginning stage of use in the industry and still having far to go before it becomes a widely accepted practice. Specific shortcomings they saw in EBD approaches centered on the need for more research and better research methods.

Many of the panel members also criticized the "disconnect" they observed between the researchers identifying the outcomes used in EBD, and the architects needing to utilize this evidence in their design approach. One panel

member stated that architects are not in a good position to challenge the status-quo with their clients. More often than not, such challenges from a hired consultant lead to dismissal by the organizations that hired them. Yet the panel members also commented that these same architects and engineers are the industry group needed to take the EBD approach to the next level of development — that their role in projects gives them more opportunity than others involved on the project development team to make the use of EBD more widespread.

Interestingly enough, these architects and engineers often lack the formal training to conduct and critically understand research methods and outcomes. In fact, the U.S registration and licensing processes for design professionals do not require such knowledge at this point in time. Therefore many of the panel members have taken it upon themselves to form trusted partnerships with architects and engineers, often associating with centers of healthcare education and university programs to create a better environment to develop more credible research base for use in EBD approaches.

A call for support from the frontlines of healthcare

At the Cleveland Clinic, a world renowned leader in healthcare and healthcare research, they are challenged like many other providers in developing the best patient and staff environments with a limited capital budget.

Randy Giese, senior healthcare facility planner with the Cleveland Clinic, says a research-based design approach can assist in addressing these challenges.

“Appropriate healthcare services and outcomes are generally taken for granted, and staff interactions are variable. But the environment is something that we can all affect. It would be great to have a research tool that allows us to streamline our decision making process to develop plans that provide the best outcomes, along with the best patient/family experience at the most reasonable price. I welcome any research that can be

done to assist in this endeavor,” Giese said.

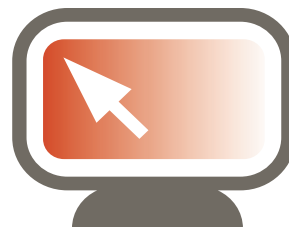
To this end Giese and his associates are beginning to request EBD concepts from their design consultants.

“As owners we need to be aware that there is an ongoing investigation into developing fact-based research to enhance our designs. We need to be up on the latest discussions in order to push our consultants to provide us with the best possible designs for the future,” he said. “We would expect the designers to become experts in this field and provide us with their best designs not only based on ‘best practice’ but also on the real research behind EBD. As designers, you all have the opportunities to work on multiple projects across a wide section of the country and can draw upon that experience to assist us in our one-time opportunity projects.”

In these partnership arrangements, the organizations represented by this panel bring the real world experiences and environments in which to study the outcomes resulting from EBD approaches; the architects and engineers bring the knowledge to translate the research into a built-response or environment; and the university programs provide the research rigor and methods to identify the links between design actions and the built environment.

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>> What is anecdotal and research evidence?

Common misperceptions exist between what is referred to as 'research evidence' as opposed to 'anecdotal evidence.' Much of this misperception forms the foundation of the debate related to the question, "does it really work?" As subtle as it may seem, it is important to understand the difference between these two concepts in order to avoid potential problems in achieving the outcomes desired from healthcare design.

> Anecdotal evidence — Design information gathered through staff comments, patient surveys, or plain hearsay on the impact a particular design feature or environmental condition has had upon patient or staff outcomes or behavior. This type of information is valuable yet unproven by scientific methods and typically is used in best practice approaches where other research data is unavailable.

> Research evidence — Design information gathered through a structured process involving pre- and post-design analysis, empirically based to distinguish perceived outcomes (design fiction), from controlled outcomes (design fact) resulting from a particular design feature or environmental condition. This type of information is used in what has been termed as evidenced based design.

Much of the controversy surrounding EBD approaches is not in the fact that it doesn't work, but in the misinterpretation of anecdotal evidence as research-based design information. The unfortunate result of this situation is often failure to achieve the stated outcomes purported by the evidence. The real culprit is that the evidence used has never been scientifically proven to work.



The next level of EBD

>> As pressures increase to build improved facilities to support better outcomes at decreased costs, EBD can lead the charge through enhanced design. The panel indicated it supports EBD as an approach to deliver the necessary tools to design the needed environments, but more often than not, the state of the current practice falls short of what these panel members need in the performance of their responsibilities. Problems cited by panel members

include: not having enough research to guide facility development decisions; not having enough research evidence with practical value to making day-to-day decisions; and a general lack of collaborative environments in which to conduct qualified research with the proper scientific rigor.

However these problems in the current application of EBD approaches should be viewed less as an indication that EBD "doesn't work," and more as an indication that design approaches utilizing research knowledge are still in

their infancy. The current debate over its use is a useful "growing pain" to be endured that will lead to betterment of the built environment for healthcare overall. ■

Matthew Kennedy has nearly 20 years of experience as both an architect and a consultant working exclusively in the healthcare industry. His expertise and knowledge has enabled clients across the country provide excellent patient care with affordable facilities. He is certified by the American College of Healthcare Architects and serves on the AIA/AAH Committee on Research Initiatives.