

# CHER Newsletter

## Spring 2006



Coalition for  
Health  
Environments  
Research

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Volume 9

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## Leadership's Message

While we may look like adults individually in the photo, as a group we're just now entering post-adolescence.

CHER has moved through its formative early years and we now have a portfolio of nine research studies: 3 highly acclaimed studies completed and published; 2 awaiting publication and distribution, and four studies currently in progress. In short, we are producing work that is informing the industry, influencing codes and legislation, and providing the evidence (data) for evidence-based design.

We've given birth, so to speak, to each completed study as first-time, inexperienced parents, justly proud of the results; a bit surprised each time at our own success. We're particularly proud of our Research Council who under-pin the uncompromising quality standards we demand of the research work done for us.

But like new parents, the challenges have only begun. As we

begin to grow our family of evidence-based studies, the challenges of nurturing the organization into a sustainable engine producing increasing volumes of good work become more and more important.

So we are now transitioning from a Founder-led organization to a mission-focused team. The mission—"To Promote, Fund, and Disseminate Research Contributing to Effective and Improved Healthcare Environments" remains unchanged, but the way we go about fulfilling that mission is maturing.

We are currently working on a Super-Study, if we can call it that, to inform our work for a good while to come. The subject of "100 Critical Issues in Health Care Environments" is to identify and get consensus on the issues you and the rest of the industry are most concerned about. Identifying those problems will bring greater attention to them, and will provide us with a research agenda that



CHER BOARD 2006

we know continues to be important and relevant.

Thank you for your continued interest, support, and encouragement as we grow. And thanks to our Corporate Members, our Sustaining Members, our Research Council, and to all of the people behind the scenes who have given their time and passion to make this work possible.

Contact information for CHER  
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## Our Studies

**A Word about Our Research:** For those of you as yet unfamiliar with the quality of the work CHER undertakes, all research is presided over by our Research Council chaired by Uriel Cohen, M. Arch., Arch. D. The Council is constituted by a respected group of academics and professionals with whom we are honored to associate. Research may range from rigorous academic research

or precise scientific methodologies to forms of practical applied research and less formal field study and observation, to critical reviews of the literature. Our most recent emphasis has been fast-turn-around projects to provide the "evidence" you need to make the right design decisions. We have no axe to grind, no commercial interests to validate—only a commitment

to enlarge the body of evidence guiding design. Our research remains objective and un beholden to anyone except you, the professionals and providers. Most recently, as mentioned above, we have set about to poll the 100 issues that are most important to you. The results will eventually be published as a CHER study and form the basis for much of our future work.

## Active Research Projects Underway

### 100 Burning Questions in Healthcare

Spotlighting issues has been an effective means of marshalling resources around the issue, getting buy-in, and ultimately finding and implementing solutions.

There are many burning issues in healthcare that beg for research and solutions. What's missing is first a comprehensive, systematic and more inclusive assembly of these issues, and then general consensus on what these top issues are and in what order and with what relative urgency they should be addressed. So CHER has undertaken a study to identify and prioritize the most urgent questions of our day. CHER's [Uriel Cohen](#), together with our Research Council, is coordinating this work with [David Allison and Clemson University](#). We anticipate first a national survey to identify general, broad issues and then, with help from a panel of experts, hone them down into increasingly environment-specific concrete questions. It is anticipated that these priorities will not only set CHER's research agenda, but will also help to focus resources on their solutions.

### Environmental Correlates of Falls: Implications for Design of Health Care Environments

Falls are a major health and life hazard in health care environments, particularly among older persons, and in long term care settings. Representative statistics:

As many as 75% of the 1.5 million nursing home residents fall annually (Rubenstein 1994), twice the rate of seniors living in the community nursing home falls (Ejaz 1994; Rubenstein 1994). [11,600 deaths in 1997] (Murphy 2000) and the most common cause of nonfatal injuries. Of those who fall, 20 to 30% suffer moderate to severe injuries such as hip fractures or head traumas that reduce mobility and independence, and increase the risk of premature death.

Environmental hazards account for 16 to 27% of the falls. Such hazards include stairs, wet floors, poor lighting, lack of bed rails, clutter, incorrect bed height, and improperly maintained or fitted

wheelchairs (Baker 1985; Rubenstein 1194 injuries (CDC 2003). More than 60% of people who die from falls are 75 and older (Murphy 2000).

This project conducts a critical review of the research literature, and develop evidence-based recommendations with implications for the design of environments for older persons in independent living, assisted living, skilled nursing facilities and other healthcare settings.

This research is being conducted by [Margaret "Maggie" Caulkins, Ph.D.](#) of [IDEAS Institute of Kirtland, OH.](#) together with co-investigator [Gowri Be-trabet Gulwadi, Ph.D.](#) of the [University of No. Iowa.](#)

The study is being funded by CHER.

### The Efficacy of Grossing Factors in the Planning of Hospital: An Empirical Assessment of Recent Patterns

Most planner/programmer utilize a set of major "net to gross" square footage ratios in programming a healthcare facility to estimate departmental gross and building gross needs. They have typically arrived at these ratios based on their judgment and experience; for most practitioners, they remain untested and un-benchmarked. As hospital departments experience increasingly rapid changes in technology, procedures, and approach to design, hospital planners need to re-examine and update their knowledge base of grossing factors. CHER is undertaking a study to cross-check these ratios against actual take-offs from a spectrum of current building plans.

### Reducing Nursing Errors and Increasing Efficiency Through Environmental Design in Acute Care Settings

With increasing pressures on the in-hospital nursing profession, increasing nurse shortages, and with studies attributing many of the 80- 100,000 medical error-related deaths each year partially to working conditions, it is increasingly important to optimize nurse work environments.

The objectives of this important study are to conduct:

- a) An in-depth critical review and synthesis of the literature to assess the effects of environmental variables on nursing errors, nurses' efficiency, and quality of patient care and job satisfaction in medical/surgical nursing units.
- b) An empirical study to determine the effects of environmental variables on nurses' job satisfaction, health and safety in medical/surgical nursing units.
- c) Identify positive design interventions and generate design principles/guidelines that will support efficiency, reduce nursing errors, increase safety (both patient and staff), contribute to quality of care and job satisfaction of nursing staff in acute care settings.

This study is a return engagement for researcher [Habib Chaudhury, PhD](#), Assistant Professor, Gerontology Programs and Research Centre, [Simon Fraser University](#). We are proud to have him working with us again as principal investigator.

Our thanks to [HKS](#) and president [Ralph Hawkins, FAIA, FACHA](#) who agreed to assist in funding this study. They, like many other architects, are under pressure to demonstrate how design can help reduce the risk of error, particularly in the areas of data entry and medication, increase safety (both patient and staff), and contribute to quality of care and job satisfaction of nursing staff in acute care settings.

Our thanks too, to [Frank Zilm, FAIA, FACHA](#), who helped enlist [HKS's](#) contribution, and to [Kathy Hathorn of American Art Resources](#), who contributed generously to its funding as well.

## Studies Now Available for Purchase

### **Color in Healthcare Environments: A Critical Review of the Research Literature** by Ruth Brent Tofle, Benyamin Schwartz, So-Yeon Yoon, Andrea Max-Royale

Many healthcare providers, designers and practitioners in the field have questioned the relationship between people and color in the environment and searched for empirical reasoning for the various color guidelines in healthcare settings. The evidence-based knowledge, however, for making informed decisions regarding color application in the designed environment has been sporadic, fragmented, conflicting, anecdotal, and loosely tested.

The researchers reviewed over 3,000 titles, critically reviewing all relevant research in order to answer the following questions:

What is empirically known about human response to color and how, if at all, color influences human perception or behavior in a specific setting?

Which color design guidelines for healthcare environments, if any, have been supported by scientific research findings?

This study separates common myths from realities in color studies applied to healthcare environments and promises to play a stimulating role in the advances of color studies for the built environment. The researchers sought to determine which issues and concepts in the literature might contribute to the knowledge of architects, interior designers, researchers, healthcare providers, and users of healthcare environments.

Available as a PDF on a PC- and Mac-compatible CD-ROM. Please see our web site ([www.CHERresearch.org](http://www.CHERresearch.org)) for an order form.

### **The Nature and Rate of Change in Hospital Laboratories** Dina Battisto and David Allison, Architecture + Health, Clemson University

Clinical laboratories in the U.S. are experiencing a tremendous amount of change. Advances in information and automation systems, as well as services and point-of-care testing are influencing laboratory workplaces nationwide. This 56-page report is a must-read for every architect's office, for lab managers and for administrators of health care facilities with clinical labs, and for everyone else who wants to know how these changes are affecting the need for flexible building designs and furnishings.

Based on data collected from 240 clinical laboratory staff in community-based hospitals, this important study identifies trends in:

Testing and lab worker activities

Core and stat services, automation and manual processing, information systems, and robotics

Infrastructure, space plan, and laboratory contents

It also includes recommendations for addressing flexibility in future projects:

Establishing zones

When to use fixed walls and furniture

Utilizing overhead power supply and data ports

Use of modular furniture

Funding for this study was generously provided by Herman Miller, Inc.

Available as a PDF on a PC- and Mac-compatible CD-ROM. Again, the order form is found on our web site.

### **The Use of Single Patient Rooms vs. Multiple Occupancy Rooms in Acute Care Environments (Phase I)**

Habib Chaudhury, PhD, Assistant Professor, Gerontology Programs and Research Centre Simon Fraser University (SFU) is the principal investigator.

This work provides important evidence in the ongoing and increasingly active debate. This study is an extensive

review of literature in the areas of healthcare design, construction and operating cost, hospital management, staff efficiency, infection control and patient outcomes in order to identify advantages and disadvantages of single vs. multiple occupancy patient rooms. The research questions that guided the literature review were:

What are the differences in first cost, operating cost, energy costs and efficiency of management and care delivery in single and double occupancy patient rooms in acute care settings?

What are the advantages and disadvantages in disease control and falls prevention in single versus double-occupancy rooms in acute care settings?

What are the therapeutic impacts of single versus double-occupancy hospital rooms?

The funds for this study were provided by **FGI, The Facility Guidelines Institute**. A generous grant from Academy for Architecture for Health Foundation will allow us to distribute copies of the study free of charge to members of the **Academy of Architecture for Health while supplies last**. This study will also be available for purchase through our web site at a modest price of \$30 for the first copy and \$20 for any subsequent copies. Please visit the **CHER** website at [www.CHERresearch.org](http://www.CHERresearch.org) to download an order form.

Published studies are available directly from **CHER** on CD (.pdf format). Download a form for all studies at [www.CHERresearch.org](http://www.CHERresearch.org)

Pricing includes standard shipping within the continental US.

Organizations may purchase CD's in larger quantities (25 or more) for \$35 ea. Schools and libraries may purchase them for \$30 each. Special discounts also available to **CHER** members.

Go to [www.CHERresearch.org](http://www.CHERresearch.org)

## Studies soon to be Published

### The Impact of Single-Room Neonatal Intensive Care on Users' Health and Satisfaction

Traditionally, "neonates" have been placed in large rooms with 10 to 50 isolettes or in smaller bays with 4 to 6 patient stations. One of the recent trends in neonatal intensive care unit design has been the creation of private rooms. The provision of private room NICU's may be a wonderful trend, or it may create serious challenges. So far they're proving exceedingly popular; one can customize light levels, better control noise, provide more privacy to visitors, etc. But there are possible negative consequences, including a lessening of spontaneous social contact to visitors, etc. But there are possible negative consequences, including a lessening of spontaneous social contact and supports among other families undergoing similar crises.

The goals of this study are to develop design guidelines based on:

A critical review of the literature, including physical and organizational features

and their possible impact on health outcomes and parents' satisfaction;

A comparison from the perspective of the infant, the family, and staff, of the effect of single-room and multi-patient NICU's;

The comparative implications of single-room vs. multi-patient NICU's on operations and cost.

This research work has been conducted by an all-star cast that includes co-investigators **Debra Harris, Ph.D.** from the **University of Florida**; **Mardelle Shepley, D.Arch.**, from **Texas A& M University**, and **Robert White, MD**, director of Regional Newborn Program, **Memorial Hospital South Bend, IN**.

Our thanks to the **AIA Academy of Architecture for Health** for funding this project.

### Limiting the Spread of Infection in the Healthcare Environment

We're excited to announce that the American Journal of Infection Control will be publishing this important study by Northwestern Memorial Hospital of infection as related to commonly used materials in the healthcare environment. This study involves a laboratory-based analysis of 14 commonly used products for upholstery, wall surfaces and flooring, which were all "inoculated" in the laboratory. NMH's report will include a literature review as well as the test results from their work in determining the ability of each material to sustain and propagate commonly used infectious organisms in hospitals.

The **American Journal of Infection Control** (AJIC) has accepted this study for publication in an upcoming issue after which it will be available for purchase through our website [www.CHERresearch.org](http://www.CHERresearch.org).

## What's Next? (aka: Projects Awaiting Funding)

We have a new answer and it's twofold:

First, we will become much more dependent on drawing research topics from our list of "The Top 100 Burning Issues". When complete, those will be the issues our research tells us you care about most.

Second, it takes money to do research. So you can, by your generosity, accelerate the speed at which any particular subject on that list gets studied. Of course, we'll be happy to also consider any particular topics of particular meaning to you as well.

Send your suggestions to Jennie Selden at [jennie.selden@bentleyps.com](mailto:jennie.selden@bentleyps.com) or to Uriel Cohen at [uriel@uwm.edu](mailto:uriel@uwm.edu)

In anticipation of our "Top 100 Burning Questions", here are some of the Board's additional recommendations. What are yours?

Decontamination Technology—what's most effective and reliable.

Single-handed Patient Rooms: do they really reduce errors?

Part II of **The Use of Single Patient Rooms vs. Multiple Occupancy Rooms in Acute Care Environments**. This new study would expand the investigation beyond the narrow range of facilities to which Part I was necessarily limited.

Part II of **Limiting the Spread of Infection in the Healthcare Environment**. This new study would move from laboratory-based testing right into the hospital environment to measure infection rates and risks in an actual hospital-based working setting.

**Standards and allocation of space for dining and recreation areas in long-term care**. The Facilities Guidelines Institute has identified inadequacies and deficiencies in the current guidelines for these vital functions in long term care facilities.

**Literature and product search of the design implications of bariatric patients**

**Cost and effect of full-spectrum lighting**

**Role of Humidity Control in Long Term Care Environments**. This project, set to assess the effects of humidity and humidity control in facilities for the elderly, was intended to be a critical review of the literature. However, there turned out not to be any relevant literature on the subject. We still think there's an interesting issue here, and anyone similarly interested should contact us.

All of the above, with Board approval, are available for sponsorship.

## News Notes

### Boardroom Talk

#### The Baton is Passed

Our sincerest thanks to Tib Tusler, who, since its inception, has generously and selflessly served **CHER** as its Chairman and all-purpose leader. The baton is now passed to **Bart Franey**, our new Chairman, **Jennie Selden**, President, **Frank Weinberg**, executive VP, and **Jean Young**, Marketing Chair. **Roger Call** remains our Secretary/Treasurer.

#### And while we're on the subject . . .

Our own Tib Tusler was recently awarded the Lifetime Achievement Award by the American College of Healthcare Architects during the AIA Academy meeting in Los Angeles. He is only the third architect to receive this recognition. Tib was greeted with a well-deserved standing ovation by several hundred at the Modern Healthcare Awards dinner.

#### CHER's growing influence or: What it's all about

We know our work has value, but it's nice to hear about its influence on legislative standards. We heard just that from study author **Habib Chaudhury**, who tells us that the health region in Edmonton, Canada is writing standards for their long-term care and is potentially using the Single vs. Double Patient Room study in recommending private rooms.

### Welcomings and Thanks

#### Welcome Aboard!

We welcome **NTD Stichler and M Design Studio** as new members and supporters of **CHER**.

Spreading the wealth: Special thanks again this year to **Judy Klich and Paul Cleary of Lees Carpets** and **Dennis Krause and Cheryl Durst of IIDA** who, along with our own **Jane Rohde**, organized and set up the fundraiser dinner at Healthcare Design '05. All proceeds were divided among the **IIDA Foundation, AAHID, CHER**, and the **Center for Health Design**, with over \$800 going to **CHER**.

#### CHER in Etherspace

Thanks to the many people who logged on to The **AIA's Academy of Architecture for Health** Web-cast featuring **CHER's** research projects. Judging by both the sizeable attendance and enthusiastic feedback, it was a big success. Speakers included **Habib Chaudhury, PhD, Debra Harris, PhD, Mardelle Shepley, D. Arch, and Jane Rohde, AIA**. The presentation focused on the design implications of three studies: Single vs. Double-occupancy Patient Rooms, Single-room NICU room designs, and our Color study.

#### CHERING with audiences

Our indefatigable **Jane Rohde, FIIDA, AIA, ACHA**, et al, is at it again. She made the first presentation of our Infection Control Study at **Healthcare Design '05** in Scottsdale and again at the fall meeting of the **CFFA (Chemical Fabrics and Films Ass'n)**. And in just two days—February 7<sup>th</sup> and 8<sup>th</sup>, she gave four CEU presentations to IIDA City Centers.

Speaking of speeches, **Tib Tusler** presented **CHER's** research findings at one day seminars in New York September 21<sup>st</sup> and Los Angeles on September 27<sup>th</sup> sponsored by **Architecture Magazine**.

#### Thanks to those behind the scenes

The Board would like to again thank our distinguished Research Council for their continued good work. We now have a record 4 studies underway, 3 completed and available, and 2 more being readied for publication and distribution!

And a heartfelt thanks to Pat Weiss for all the hard work she's performed not only on this newsletter, but in all sorts of behind-the-scenes efforts so critical to our success!

Roger

#### We're all in this together... Only more so...

Realizing that we're all ultimately trying to improve the quality of healthcare environments, we are achieving greater and greater levels of cooperation with similarly-chartered organizations. The **Center for Health Design** has joined **CHER** and **CHER** has joined The Center in selling and promoting each other's studies and publications. **The Symposium on Healthcare Design** has also joined **CHER** and asked **CHER** to supply speakers for their programs, and the **IIDA** sponsored its second annual fundraiser on joint behalf of itself, **CHER**, and the Center for Health Design. **The AIA Academy of Architecture for Health (AIA/AAH)** and the Facilities Guidelines Institute (FGI) continue to support the work of **CHER**, and we are working to get the American Society of Healthcare Engineers (**ASHE**) involved with **CHER** as well.

## Get involved!

CHER is an open-source organization. Our next Board of Director's meeting is scheduled for all day Saturday Feb. 25<sup>th</sup> and the morning of Sunday 26<sup>th</sup> in conjunction with **ASHE/PDC** in San Diego. Our CHER members are invited and welcome to join us!

Please phone Jennie Selden at (706) 629-1975 to make arrangements.

Board Member **Jean Young** has assumed the Marketing Chair for CHER. We welcome her energies and enthusiasm to this role as leader, and we welcome any other ideas, contributions, and other efforts to help us spread the word.

You can reach Jean by phone at (619) 294-9601, ext. 301 or via email at [jyoung@youngcoinc.net](mailto:jyoung@youngcoinc.net).

## How to sponsor a study

CHER is always looking for more money to support its research. This is an effective way for manufacturers, architectural or interior design firms or those in the construction industry to demonstrate and publicize their commitment to state-of-the-art products and practice. We will give donors ample credit for their support.

Sponsorships are available from \$5,000 to \$20,000 or more. Anyone interested

in sponsoring one of our projects, or suggesting one of your own to sponsor, please contact:

Bart Franey, Chairman  
(888) 353-0311 (ofc)  
[bfraney@wellnessllc.com](mailto:bfraney@wellnessllc.com)

Jennie Selden, President  
(706) 629-1975 (ofc)  
[Jennie.selden@bentleytps.com](mailto:Jennie.selden@bentleytps.com)

### Speaker Programs Available

For organizations wishing a presentation of this material, please contact:

**Jean Young,  
Marketing Chair  
(619) 294-9601, ext. 301  
(San Diego)**

To date, major sponsors for our research studies have been **Herman Miller, Inc.** and the **AIA Academy of Architecture for Health**, **FGI**, the **Facilities Guidelines Institute**, **HKS Architects**, and **Kathy Hathorn of American Art Resources**. We thank them for their commitment, foresight, and generosity.

## Leadership

CHER is lead by a Board of Directors. Currently, our board consists of eleven individuals, all of whom are volunteering their time and, in many cases, travel funds to help guide our steps as an organization. Generally, board membership is drawn from our member organizations, however this is not required. The board itself selects new members, individuals with a commitment to our mission, understanding of the health-care field, knowledge to guide us and willingness to take on specific assignments to further our goals.

### Officers/Board Members:

W. H. (Tib) Tusler, FAIA, FACHA,  
Chair Emeritus

Bart Franey,  
Chairman

Jennie Seldon  
Chair, President

Frank Weinberg,  
Executive Director

Roger B. Call, AIA, ACHA  
Secretary/Treasurer

Uriel Cohen, M. Arch., Arch. D.,  
Chair, Research Council

Jean Young, ASID, CID, AAHID  
Chair, Marketing

D. Kirk Hamilton, FAIA, FACHA  
Kathy Hathorn

Roger Leib, AIA, ACHA

Jane Rohde, FIIDA, AIA, ACHA,

Frank Zilm, FAIA, FACHA

### Research Council Members:

Research is directed by a committee of skilled, experienced individuals with credible research credentials. They write the RFP's, find researchers, evaluate research methodology and critically review both the rigor and value inherent in research proposals submitted to CHER. They also review the interim and final reports

and assure replicability of CHER's sponsored research.

Uriel Cohen, M. Arch., Arch D.,  
School of Architecture and Planning,  
University of Wisconsin Chair

Teri Oelrich, RN, BSN, MBA,  
NBBJ Architects

David Allison, AIA, ACHA,  
Associate Professor/Director,  
Graduate Studies in  
Architecture + Health,  
Clemson University

Mardelle McCuskey Shepley, Arch. D.,  
AIA, ACHA,  
Associate Professor,  
College of Architecture,  
Texas A & M University

Debra D. Harris, Ph.D., AAHID,  
IIDA/Assistant Professor,  
Dept. of Interior Design,  
College of Design,  
Construction and Planning,  
University of Florida

## Join CHER

We currently have three ways to join in:

- Organizational Members
- Corporate/Business
- Sustaining Members
- Provider Members\*

**Organizational members** are organizations that represent professional disciplines, are not for profit, and have a commitment or interest in the healthcare facility environment. They must be dedicated to the enhancement of the quality of the healthcare system. There is no dues charge for organizations but there is an expectation that representatives will participate with us in setting priorities for research and will support us in raising funds for research.

### Our Organizational Members:

AIA Academy of Architecture for Health (AAH)  
 American College of Healthcare Architects (ACHA)  
 American Society of Interior Designers (ASID)  
 Center for Health Design (CHD)  
 International Interior Design Association (IIDA)  
 Kansas Assisted Living Association  
 M Design Studio  
 NTD Stichler Architects  
 U.S. Department of Veterans Affairs (VA)

**Corporate/Business Members** are a new, more affordable category of participation. Corporate/Business members provide the essential lifeblood of any organization, the financial support to keep our operations going. Membership in this category includes consultants, architects, engineers, contractors and construction managers, manufacturers and suppliers. Annual dues for these members are based on the size of the firm as noted:

10 persons or less: \$100  
 11–25 people: \$500  
 26+ people: \$1,000

Some of this funding is used for research and the remainder is for staff support, supplies, postage, printing and the like.

**Sustaining Members** are individuals, providers or Corporations/Businesses who, in addition to their interest in CHER membership, wish to make an extraordinary investment in the efforts of the organization. Sustaining Membership dues are \$2,500. In addition to the value realized through general membership in CHER, Sustaining Members are further acknowledged by being noted on CHER's letterhead, website and newsletter.

Our Sustaining Members and Providers are a distinguished group of progressive organizations. These are the organizations that support our research and make our work possible. We hope all our readers, in turn, will recognize their commitment and support their products and activities.

### Our Sustaining Members:

American Art Resources  
 Bentley Prince Street  
 Francis Cauffman Foley Hoffmann Architects Ltd.  
 HKS, Inc. – Architects  
 Herman Miller, Inc.  
 Images of America Healthcare  
 Lees Carpets  
 Mannington Commercial  
 RTKL Associates, Inc.  
 STERIS Corporation  
 The Symposium of Healthcare Design  
 Watkins Hamilton Ross Architects  
 Wellness Environments

**\*Provider Members:** In anticipation of the insights our “Top 100 Burning Issues in Healthcare” will bring us, CHER is working to redesign the Provider Council (traditionally our 4th category of membership) to more effectively connect with the Provider community.

**Please contact us to join and/or participate in any other way.**

**1. Jennie Selden,  
 President  
 Or her ass't: Jennifer Duke  
 (706) 629-1975 (ofc)  
[Jennie.selden@bentleyyps.com](mailto:Jennie.selden@bentleyyps.com)**

**2. Our web site is:  
[www.CHERresearch.org](http://www.CHERresearch.org).**

## How do I contact CHER?

Please contact us to join and/or participate in any other way.

1. Jennie Selden,  
President  
or her ass't: Jennifer Duke  
(706) 629-1975 (ofc)  
[Jennie.selden@bentley.com](mailto:Jennie.selden@bentley.com)

2. Our web site is: [www.CHEResearch.org](http://www.CHEResearch.org).

## How can I have input to CHER as an individual?

Please feel free to send suggestions to any board member on research topics or innovations that should be posted on our web site. Any of us would love to talk with you; you do not need to be a CHER member to have input to our activities.



**The Nature and Rate of Change in Hospital Laboratories**  
Dina Battisto and David Allison, Architecture + Health, Clemson University



**Color in Healthcare Environments: A Critical Review of the Research Literature**  
Ruth Brent Tofle, Benyamin Schwartz, So-Yeon Yoon, Andrea Max-Royale



**The Use of Single Patient Rooms vs. Multiple Occupancy Rooms in Acute Care Environments**  
Facility Guidelines Institute, Habib Chaudhury, Simon Fraser University



## Mission Statement

The Coalition for Health Environments Research (CHER) is to “promote, fund, and disseminate research contributing to effective and improved healthcare environments.

Our focus is practical research that you—our stakeholders—can directly put to use in re-shaping our healthcare environments. Our membership

includes professional organizations, academics, providers, members of the design and engineering professions, contractors, constructors consultants, manufacturers and suppliers.

We are a not-for-profit 501 (c) 3 corporation.

**CHER has completed or has in progress nine research studies; all created and peer reviewed by trained Ph.D.-level researchers.**