



Newsletter

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Special points of interest:

- Enhancing with Lighting
- The impact of design
- Pain management
- Good exercise
- The benefits of dogs

The Newsletter is a project of the N.C. Coalition for Long-Term Care Enhancement. To respond to articles, contact the editor: Kaye Brown, Ph.D. at Duke University, (919) 668-3348 or the Coalition at <alice@ltcenhance.com>. 1,500 copies of this public document have been printed at a cost of \$425.12 or \$0.28 per copy.

Inside this issue:

<i>Continuing on the Journey</i>	2
<i>Evidence-Based Healthcare Design</i>	2
<i>Designing Lives Around Cancer</i>	3
<i>Pain Management, Nature's Way</i>	4
<i>The Clinical Case for Exercise</i>	5
<i>Man's Best Friend</i>	7

Lighting for an Aging Population

By John E. Pace, AIA

Mention the subject of lighting with regard to living environments for elders and several avenues of discussion are apt to come up for consideration. This piece is an overview to a non-technical and general discussion on lighting and the elderly with respect to: *physiological changes as we age, light sources and their impact on behavior, and the effect of light patterns as we age.*

It has long been recognized that many of our abilities peak in the teens and twenties of young adulthood. Skipping the typical locker room conversations bemoaning the losses as we age, let's focus on some of the basic senses. The losses on the sense of taste and smell can diminish some of the joys of eating or may encourage the over-use of scented toiletries. The loss of hearing acuity can be an isolating factor even for those of us who use hearing aids. The loss of hearing may make one more reliant upon visual cues and more likely to seek entertainment through reading versus conversation and television.

It has been clearly shown that older people need much more light to see, although the magnitude is often under recognized. The amount of light needed for a young adult to perform a detailed task, such as reading, is 1/5 or less that what is required for an older person to perform the same task, even with excellent or corrected vision. Even less task oriented activities are more difficult as we age, such as way-finding, as evidenced by a senior remarking "They are making movies much darker these days". In some regards, that may be true,

but less so in terms of the illumination of the projection screen.

Along with the decreasing ability of the eye to effectively gather the light, glare often becomes a hindrance, particularly when the attempts to address low light levels is merely by adding wattage or lumens into a space. When we increase the illumination levels, we can inadvertently increase the glare. Glare occurs when the light source in the visual field of the observer is significantly greater than the light level to which the viewer's eyes can adapt, causing a sensation of discomfort, inability to perform the visual task, annoyance, reticence and fear. The aging eye often has a reduction in retinal luminance, and a reduction in the sensitivity to contrast. This often accompanies an increase in intraocular scatter that reduces the contrast of the image on the retina that in turn increases the sensitivity to glare. The solutions, then, are not merely the introduction of more light, whether it is natural light or artificial light, but how it is applied.

We are fortunate to see the lighting industry offering many alternative solutions through the design of light fixtures and alternative lamping sources that are greatly improved over the old standbys of the incandescent lamp tubes. Not only do new light sources such as compact fluorescents, halogen lamps, and LED sources offer opportunities for creative solutions, but also they are coping with the concern of energy efficiency.

(See **Lighting**, page 6)

Continuing on the Journey

Over six years ago, we began the Newsletter in order to bring news of the Eden Alternative to our state's nursing homes. We have changed a great deal since then, as have the homes we serve. The Coalition now embraces all philosophies that espouse changing long-term care residential environments from medical models to social models. In the years we have worked to support this transition, we have learned from our partners that each journey is unique to those undertaking it. But we have all struggled to justify our enhancement plans in terms of clinical outcomes. The following articles call to your attention the clinical evidence from acute-care settings that support environmental interventions. We welcome these findings and as I transition out of the editorship of the Newsletter, I hope these will help you make the case for continually improving your cultures of care.....**Editor**

Evidence-Based Healthcare Design

Not sure your remodeling plans will achieve your community's goal for enhancing the quality of life for staff and residents? Well, you are not alone. How physical environments affect healthcare outcomes has become the focus of all initiatives dealing with evidence-based design. One in particular, The Pebble Project which focuses exclusively on healthcare settings, has much to teach us about how to achieve our environmental enhancement goals.

The Pebble Project began five years ago with funding from the Robert Wood Johnson Foundation. Project planners of healthcare renovations and rebuilds throughout the country became affiliated with the Center for Healthcare Design in order to gather and disseminate data on how design innovations impact users. Most of the original partner institutions involved in the project are still building their programs and have few results to report. But those results that have been published have import

for long-term care environments.

- In Indianapolis, the Methodist Hospital reports that patient falls declined 75% following the redesign of its critical-care unit.
- In Detroit's Barbara Ann Karmanos Cancer Institute, RN turnover went from 23% to 2.8% annually after the facility redesigned its inpatient unit.
- At PeaceHealth in Eugene, OR, lifts in patient rooms practically eliminated patient-handling injuries.
- With a new hospital,

Kalamazoo's Bronson Methodist saw their nosocomial infection rate decline 11%.

The Center reports they expect to add more facilities to the project's original 28, thereby covering the gamut from replacement hospitals and unit renovations to long-term care facilities and ambulatory care centers.

All partner facilities in The Pebble Project agree to measure and document "the impact of the built environment on healthcare outcomes, satisfaction, safety and performance." The Center will publicly disseminate these findings in order to achieve the project's goal, which is, "To create a ripple effect in the healthcare industry (thus the name "pebble project") and contribute ...to the science of evidence-based design."

References

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Kaye Brown, Ph.D. is the Newsletter's Editor. She can be reached at <kayeb@baa.duhs.duke.edu> or (919) 668-3348.



The Coalition participates in many annual events, such as the NCHCFA Trade Show in Greensboro.

Designing Lives Around Cancer

Charles Jencks is a world-renowned landscape architect whose wife, Maggie, died of cancer. It was her passion and mission to make new day-clinics for persons living with cancer, healing places where patients and their doctors could work together to effect cures. Maggie's Centres, located throughout the U.K., are named in her memory.

Each Maggie's Centre relates intimately to its site as well as the community culture it serves. The Centres, Jencks writes, all share certain design features: "If one asks why each Maggie's Centre has the same semi-open space of a 19th century house, looks in part like an art gallery and church, and functions like a day-care center," it is probably due to the dialectic way in which we approach what Jencks terms "the ultimate questions" dealing with life and death.

Increasingly, he writes, we ask that our healthcare settings be "part urban square, part playpen, part library and bar." When people eventually ask what he calls "the deep questions", they will gravitate to places that can "take on opposite roles". This produces heterogeneity in the built environment, a quality vividly displayed in each Maggie's Centre.

These buildings are planned intentionally to heal patients, not merely to house healing practices. The program's designers, including world-famous architects such as Richard Rogers, Zaha Hadid, David Page and Richard Murphy, are charged with making their designs increase the quality of life and ultimately the survivorship of patients undergoing various cancer therapies in their buildings. The movement's founders maintain that even the best designs by the world's best designers will lose appeal and effec-

tiveness in time and that therefore, no two Maggie's Centres should look alike.

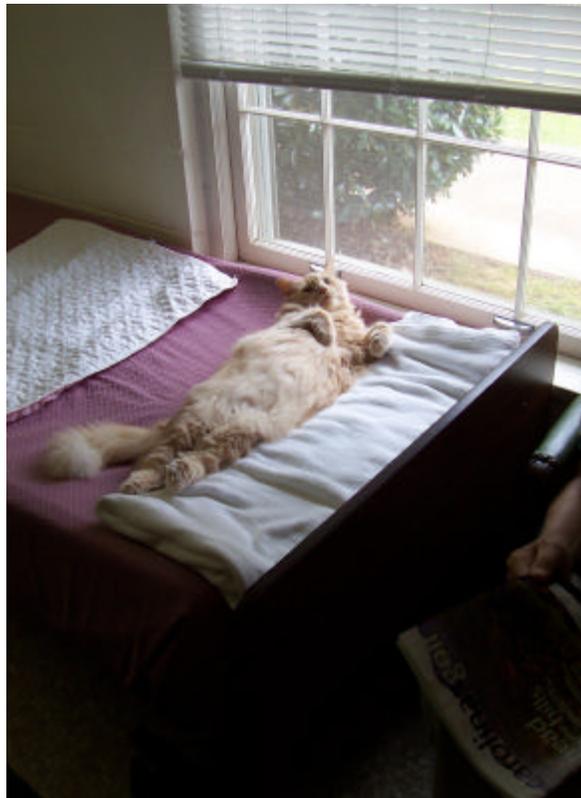
Jencks suggests that the great "trend of our time" is to make healthcare environments that look like "domesticated landscapes of heterogeneity" because we ask for the very best in health treatments but wish not to be reminded of that at all times. In the Maggie's Centres, we see significant space dedicated to the arts as well as an intimate connection between the building and its site because throughout the U.K., art and nature are increasingly considered essential therapies in healthcare settings. The environmental enhancement movement in long-term care

in this country has much to learn from these very special healing places overseas.

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Charles Jencks, "Maggie's Centres and the Architectural Placebo" in *Healthcare Design*, Vol. 5, #4: 22-23, Sept. 2005).

Kaye Brown, Ph.D. is the Newsletter's Editor. She can be reached at kayeb@baa.duhs.duke.edu or at (919) 668-3348.



Animals can lower blood pressure, provide opportunities to give care, and in general make us smile with their unpredictable habits. Simba the cat stretches out on one of his favorite beds in Whittier Health Care Center of Friends Homes at Guilford. The benefits of animals can be proven with studies and statistics, but most of us don't need that proof to know how important they are to our residents.

Pain Management, Nature's Way

Flexible bronchoscopies are painful, invasive diagnostic procedures that many residents in long-term care must undergo. Now, in many hospitals throughout the country, these procedures take place in rooms equipped with special equipment that replicates the healing effects of natural outdoor environments.

The equipment, called "Bedscapes," consists of floor-to-ceiling curtains depicting natural scenes accompanied by audiotapes playing natural sounds complimenting the imagery. The company Healing Environments manufactures both drapes and tapes for what is known as "distraction therapy," a class of non-pharmacological tools used in clinical practice as adjuncts for pain management. Healing Environment's founder, Yosaif August, writes that the idea for a healing natural enclosure came from his family's experiences with anxiety, fear and loss of place when they became hospital patients. Because nature played such a central role in grounding his family in a sense of place, he reasoned that bringing nature to them in the hospital would create a space in which they could relax. Apparently, it works.

In a series of experiments, beginning in 2003, the evoked natural scenes have been shown to dramatically lower the degree of pain that patients experience while undergoing flexible bronchoscopies. In the Johns Hopkins study (Diette, G.B., et al., 2003), patients experienced no less anxiety in rooms outfitted with Bedscapes than those in the control group, but their perceived levels of pain before, during and

after the procedure were significantly less. The authors of the study conclude: "We have now seen that distraction therapy with nature sights and sounds (i.e., Bedscapes) can improve pain control and should be considered for routine clinical use during invasive procedures such as FB." Today, Bedscapes is used in over 50 hospitals and nursing homes throughout the country.

Your community can put this clinical information to immediate use by making sure that residents have ample opportunity to interact with the natural world all around them. If you are unsure how to do this, contact your local horticultural therapy association. And the next time you transport residents to sites for flexible bronchoscopes, ask the clinic if

they are using Bedscapes or comparable distractive devices to lessen the pain of the procedures. Your residents will thank you.

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Diette, Gregory B., et al., "Distraction Therapy with Nature Sights and Sounds Reduced Pain During Flexible Bronchoscopy", Chest, 123:3 March 2003: 941-948.

Bedscapes website
<www.bedscapes.com>

Kaye Brown, Ph.D. is Editor of the NCCLTCE's Newsletter. She can be reached at <kayeb@baa.duhs.duke.edu> or at (919) 668-3348.



A scenic river, or a warm ocean seascape can certainly bring calm to situations over which you may feel you have no control. The evidence is compelling that this form of relaxation therapy named Bedscapes can contribute to reduce the stress and pain from certain medical procedures. The concept combines realistic scenery with soothing sounds that complete the mental picture.

The Clinical Case for Exercise

A big challenge today is “wellness” which, in the long-term care setting, means helping residents stay as fit as possible by offering them a variety of physical environments in which to exercise. Just as we have left behind the notion that residents are patients in our homes, we are about to embrace “active living” as our community’s mission in part because evidence-based care is driving this transformation.

Exercise, measured in a myriad ways, retards the rate of decline seen in many forms of aged-linked disabilities. In a landmark study investigating the relationship between exercise and dementia risk, Eric Larson reports that in a 6 year study involving 1750 subjects aged 65 and older, exercise was correlated with lower rates of dementia especially among those who were the most frail at the start of the study. It appears that exercise opportunities commonly available in long-term care (i.e., walking, stretching, training with weights) can produce in a one year a significant decline in dementia risk for those exercising three times per week. For those with Alzheimer’s dementia, the rate of cognitive decline was slowed through exercise. It is suggested by the study’s lead author that increased blood flow is responsible for the observed differences, though the exact physiological mechanism is not specified.

In a new study focusing on the patterns of physical exercise displayed by residents at 410 continuing care retirement communities (i.e., CCRCs), Craig Zimring reports that if opportunities for exercise of the appropriate type are built into the environment, residents across all levels of care will utilize them. The study suggests that by exercising, residents maintain their health longer than residents without these opportunities. Campuses whose designs encourage and support walking through integration with the surrounding community fabric have the highest level of residents engaged

in walking. This suggests that independent residents will walk out on their own if paths and trails have been planned to take them to places they want to go. For nursing center residents, other elements of physical design (i.e., small, intimate courtyards and places that naturally engage the senses) encourage fitness. Staff-initiated physical activities are needed more in nursing centers and for those independent residents who may not have bought into a physically active lifestyle. Here management plays a critical role in selling fitness as a goal by focusing on staying engaged in the larger community of which the CCRC is but a part.

It appears than sooner rather than later, most long-term care environments are likely to embrace wellness or “active living” and this will be reflected in their renovation plans.

In their report, “Defining the Wellness Paradigm”, Hodgson and colleagues present us with a picture of what 123 predominantly large CCRCs plan to build to implement their varying visions of wellness. Eighty-two of the communities surveyed had already built wellness centers. Of those who did not, over half planned to build one. While the concept of wellness differed significantly amongst respondents, most agreed that wellness is physically manifested in a building principally through its fitness center.

Most wellness centers in the surveyed communities are located in or near the center of the campus; almost none are located out on the periphery or off-campus. Almost all contain a fitness room with exercise equipment; thirty-nine percent have swimming pools and almost a third have warm hydrotherapy pools. Most centers hold classes in these spaces. Over three fourths have walking paths and trails extending outdoors. These rooms average just over 1000 square feet and almost all report independent use by their residents.

For residents attending classes, stretching is by far the most popular activity, followed closely by aerobics. Special offerings, such as dance and strength training, are reportedly

much less popular.

New CCRCs all contain wellness centers, a trend likely to continue. In order to stay competitive, your community will have to take wellness into account when it plans its next renovation. Your community’s unique concept of wellness will likely play a critical role in the design process. Don’t be too surprised if it also plays a large part in your marketing campaign as well.

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Kaye Brown, Ph.D. is the Newsletter’s Editor. She can be reached at kayeb@baa.duhs.duke.edu or (919) 668-3348.

The North Carolina Coalition for Long-Term Care Enhancement meets the third Thursday of each month, usually on the campus of the Division of Facility Services in Raleigh, North Carolina. Membership is made up of those interested in enhancing our state’s long-term care facilities, and includes various backgrounds, interests, and levels of involvement within the state’s nursing care facilities. If you are interested in what we do and being a part of this movement, contact us by visiting our website.

Lighting

(Continued from page 1)

Yet in spite of the evolution in technology, effective solutions must still rely on sensitive and effective use of the components in order to solve the inherent problems. Placement of the light sources, screening against glare, placement of task lighting where needed and logical placement of switching devices, including the use of 3-way switching for control at either end of a pathway, become the difference between a functional or problematic design.

Equally important to the selection and placement of artificial lighting is the effective use and control of natural lighting. The concerns of lighting for daily activities and the annoying intrusion of glare present equal obstacles when dealing with natural light from the exterior of the living environment. How often have we seen the misguided introduction of a large glazed pane at the end of a corridor with the intent of bringing natural light into the interior of a building? The result can be terribly harsh on the observer facing or walking along the corridor during daylight hours.

The ability of the aging eye to make adjustments to changing light conditions is slower in response time, making such adjustments between brightly lit areas transitioning both an uncomfortable and potentially hazardous experience. We all recognize that it is for this same reason that we find that the highway tunnels are more brightly lighted during daytime hours than they are at night. Or that it is easier to find your way to the bathroom from your bed in the middle of the night than it is to leave a brightly lit bathroom or

hallway and find your way in the darkened bedroom.

Light also plays a significant role in the wake and sleeping patterns of an individual through the effect on our internal 24-hour body clock, referred to as our circadian rhythm. There is a tiny grain-sized area of our brain, called the suprachiasmatic nucleus that lies just above the optic chiasm, where the optic nerves cross behind the eyes. Bright light influences the suprachiasmatic nucleus clock to set or maintain our bodies to the correct time. Regardless of our reliance on electronic timepieces, our internal clocks need resetting. It is this same phenomenon that sets the body clocks of the crowing rooster, animals in the field and the sunflower.

The suprachiasmatic nucleus needs to be stimulated and adjusted to maintain daytime activity and restful nighttime sleep patterns. If we are not outdoors between dawn and dusk for a long enough period, the timing of our bodies can run fast or slow. If the body clock runs too fast, or advanced, the person tends to fall asleep too early or wake too early. This condition often is a contributing factor to depression. Conversely, a delayed sleep phase sends signals to the body too late, resulting in the person falling asleep too late, often lying in bed awake for hours. They may also awaken too late in the morning and have a hard time getting up and going.

Although it is not the intent to cover this subject in detail for this article, recent studies have shown interesting findings when introducing lighting into the individual's life patterns, either overtly as in light-therapy studies, or by light introduced

into the living environment by way of permanently mounted light fixtures, moveable torchieres or flanking lights around a television set. Significant findings have been published recently showing the impact of the color of the light. Blue light has been shown to have a greater effect on normalizing the body clock and sleep patterns than when red light was used.

Finally, in returning to the changes to our senses through the aging process, we need to recognize and deal in a sensitive and caring way to enhance the abilities of the aging person to allow them the freedom of their mobility through choices of moving from one place to another with effective lighting, light switching and light sources where needed for specific tasks. One of those "tasks" is the ability to be able to have a comfortable place to sit and read for enjoyment to the best of their ability and through the best means we can offer. We must try to see through their aging eyes as we too make that journey.

John E. Pace, AIA is a principal with Pace Pollard Architects, LLC and is the current vice-president of SAGE, the Society for the Advancement of Gerontological Environments. Mr. Pace is an architect and planner whose practice is based in Salt Lake City, Utah. His professional practice focuses on the design of various facilities for seniors. He may be reached at <jp@pacepollard.com>. This article was published in Volume 5, No. 1 of SAGE's Newsletter and is reprinted here by permission.

Correction: In the Fall 2005 edition of this newsletter, on page 4, the painting technique demonstrated in that story is called Trompe L'oeil, or faux finish. We apologize for the error.

Man's Best Friend

At the November American Heart Association meeting in Dallas, RN Kathie Cole and colleagues from UCLA's Medical Center presented findings on how dogs help heart failure patients recover. By measuring anxiety and stress levels as well as heart and lung pressures pre- and post- therapy dog visits to 76 patients, Cole was able to show how dogs help heal.

The measurable physiological effects in her study are the following: standard measures of patient anxiety dropped 24% when therapy dogs and trainers visited them, but the drop averaged only 10% when the trainers alone visited patients. Epinephrine levels measuring stress dropped 17% when dogs were present, but only 2 % when they were not. When neither member of the therapy team visited those suffering heart failure, the patients' epinephrine levels rose on average 7%.

Most significantly are the changes reported in heart and lung pressure during and after therapy dog team visits. Patients' heart pressures declined by 10% and they experienced an average lung pressure decline of 5%. But

when the handlers visited patients without their canine partners, patients uniformly had a rise in both heart and lung pressures, thereby establishing that it is the presence of the dogs that affects these desired changes.



For years we've known or suspected that animal contact can relieve a variety of ills. As this article suggests, it is possible to quantify these findings with studies and research. Statistics can help convince those who haven't yet learned from pet therapists. Mackenzie is a resident of Friends Homes at Guilford in Greensboro, and the unit is much brighter and certainly more fun with her around.

At Baylor Healthcare System, their therapy dog program grew from one dog in 1985 to 84 dogs today. Linda Mailer, of Baylor's Institute for Rehabilitation, remarked on their program, "It makes the hospital seem less like a hospital, and it lowers people's blood pressure."

Dogs serve people in countless ways. They are our chief therapies for assisting the blind as well as the mobility-impaired. Dogs can alert owners of impending epileptic

seizures and can warn the hearing-impaired of ominous sounds. They can sniff out scents that alert sensory-diminished owners of life-threatening conditions. For children with reading

problems, dogs make better reading buddies than people because they are all accepting and listen to whatever a child wants to read to them.

If your community does not have resident dogs, you are probably missing out on one of the fastest-growing and most effective therapies available. Many nursing homes have resident dogs but perhaps few staff know how dogs produce healing effects. Thanks to the careful research now being done in acute-care settings, we can now track the physiological changes these four-

legged therapists produce in our residents, changes often considered hallmarks of health and well-being.

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Kaye Brown, Ph.D. is the Newsletter's Editor. She can be reached at kayeb@baa.duhs.duke.edu or (919) 668-3348.

**THE NORTH CAROLINA COALITION FOR
LONG-TERM CARE ENHANCEMENT**

2711 Mail Service Center
Raleigh, North Carolina
27699-2711

Email: alice@ltenhance.com



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27699-2711



A four-year-old once said that dogs don't live as long as humans because they are born knowing how to love—it takes humans longer to learn. For Billie Sue Ward and her beloved friend Deanna of The Wilkes Senior Village in North Wilkesboro, love comes in small packages. Read inside about how dogs help heal those afflicted with acute heart failure. As always, please share this newsletter with others who might be interested in the information.