**How Hospital Gardens Help Patients Heal**

By Deborah Franklin

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To get an inkling of what a well-designed hospital garden can mean to a seriously ill child, watch the home video posted on YouTube last August of Aidan Schwalbe, a three-year-old heart-transplant recipient. The toddler is shown exploring the meandering paths, sun-dappled lawn and gnarled roots of a branching shade tree in the Prouty Garden at Children’s Hospital Boston. “He loves to be out in the garden feeding the birds and squirrels,” wrote Aidan’s grandmother in an August blog entry. “They will all weigh 30 lbs. each by the time we leave here!”

The garden that Aidan loves—with its vibrant greenery, shaded places to sit and walk, and small, half-hidden animal sculptures that fascinate visitors of all ages—is “one of the most successful hospital gardens in the country,” says Clare Cooper Marcus, an emeritus professor in landscape architecture at the University of California, Berkeley.

Dismissed as peripheral to medical treatment for much of the 20th century, gardens are back in style, now featured in the design of most new hospitals, according to the American Society of Landscape Architects. In a recent survey of 100 directors and architects of assisted-living residences, 82 percent agreed that “the design of outdoor space should be one of the most important considerations in the design.” But can gardens, in fact, promote healing? It turns out that they often can. Scientists around the world are now digging into the data to find out which features of gardens account for the effect.

**Common Sense Put to the Test**
The notion that the fresh breezes, dappled sunlight and fragrant greenery of a garden can be good for what ails us has its roots in ancient tradition and common sense. But a much cited study, published in 1984 in the journal *Science* by environmental psychologist Roger Ulrich, now at Texas A&M University, was the first to use the standards of modern medical research—strict experimental controls and quantified health outcomes—to demonstrate that gazing at a garden can sometimes speed healing from surgery, infections and other ailments.

Ulrich and his team reviewed the medical records of people recovering from gallbladder surgery at a suburban Pennsylvania hospital. All other things being equal, patients with bedside windows looking out on leafy trees healed, on average, a day faster, needed significantly less pain medication and had fewer postsurgical complications than patients who instead saw a brick wall.

Esther Sternberg, a physician and neuroimmunologist at the National Institute of Mental Health, calls Ulrich’s work “groundbreaking.” At the time, studies showing that loud sounds, disrupted sleep and other chronic stressors can have serious physical consequences were only just beginning. “In 1984 we all took it for granted that hospitals were noisy, smelly, disorienting mazes,” says Sternberg, who details the history in her book *Healing Spaces: The Science of Place and Well-Being*. “But it hadn’t occurred to us that stress could affect a patient’s healing—or that we could do anything about that.”

Fortunately, as the evidence implicating hospitals as major engines of stress builds, the stack of data suggesting that gardens and planted alcoves can encourage healing has grown, too.  Just  three to five minutes spent looking at views dominated by trees, flowers or water can begin to reduce anger, anxiety and pain and to induce relaxation, according to various studies of healthy people that measured physiological changes in blood pressure, muscle tension, or heart and brain electrical activity.

Indeed, the benefits of seeing and being in nature are so powerful that even pictures of landscapes can soothe. In 1993 Ulrich and his colleagues at Uppsala University Hospital in Sweden randomly assigned 160 heart surgery patients in the intensive care unit to one of six conditions: simulated “window views” of a large nature photograph (an open, tree-lined stream or a shadowy forest scene); one of two abstract paintings; a white panel; or a blank wall. Surveys afterward confirmed that patients assigned the water and tree scene were less anxious and needed fewer doses of strong pain medicine than those who looked at the darker forest photograph, abstract art or no pictures at all.

 “Let’s be clear,” Cooper Marcus says. “Spending time interacting with nature in a well-designed garden won’t cure your cancer or heal a badly burned leg. But there is good evidence it can reduce your levels of pain and stress—and, by doing that, boost your immune system in ways that allow your own body and other treatments to help you heal.”

**Growing Insight**
Still, research shows that not all gardens are equally effective. In 1995 Cooper Marcus and landscape architect Marni Barnes received a grant from the nonprofit Center for Health Design to analyze the physical layout and daily use of several hospital gardens in northern California. In 32 hours of observations, which included taking detailed notes and interviewing users (who collectively made 2,140 visits), the researchers noticed several patterns that have been borne out in subsequent studies of other sites.

Among their findings: users mostly visited gardens seeking relaxation and restoration from mental and emotional fatigue. Tree-bordered vistas of fountains or other water features, along with lush, multilayered greenery of mature trees and flowering plants, appealed most. Those results are consistent with Ulrich’s findings of the healing power of a “window view” and also correspond with the theories of evolutionary biologists that people prefer views that are reminiscent of the savannas where humans evolved. Throughout human history, trees and water have signaled an oasis, and flowering plants have been a sign of possible food. Open views deter surprises by predators, and shaded alcoves offer a safe retreat.

The more greenery versus hard surfaces, the better. “We found that a ratio of at least 7:3 seems to work best,” Cooper Marcus says. Less greenery signals a “plaza or shopping mall courtyard” and is not as relaxing.

What you can do in the garden is as important as what you see. The results of “behavioral maps” tracking visitors’ actions while in a garden suggested a need for private conversation areas; smooth, tree-lined paths that invite strolls but that will not trip wheelchairs or intravenous poles; lightweight furniture that can be tugged into the shade or sun; and naturalistic landscaping that lures birds, squirrels and other wildlife.

One finding, in particular, surprised Cooper Marcus and Barnes. Stressed hospital employees accounted for as many visits to hospital gardens as stressed patients, and interviews confirmed that staffers depend on the greenery. “I feel like one of the Mole People,” an employee who works in the basement radiology department of a Berkeley, Calif., hospital told the researchers. She said she comes to sit amid the trees of the rooftop garden daily to relax and meditate. “It’s a big mental, emotional lift.”

Different generations seem to value the same things in gardens, but research has turned up differences, too. In 2005 clinical psychologist Sandra A. Sherman and her colleagues conducted a study of three gardens at a children’s cancer center in San Diego to try to figure out what worked and what did not. Some of the findings made intuitive sense. A mosaic turtle sculpture that small children could climb, for example, was more alluring than a crane sculpture the kids could only look at. Other results were less obvious. A riverlike water feature where kids and parents could splash and float boats together was twice as popular with the kids as a child-size playhouse that adults could not enter.

Focusing on the other end of the age spectrum, Susan Rodiek of Texas A&M has looked at long-term care institutions. In her studies, published in 2009, of a random sampling of 68 assisted-living facilities, Rodiek talked to 1,100 residents and 430 employees. “Older people,” she found, “need and benefit from outdoor space and greenery just as much as the young.”

But the adults desire some different features. Middle-aged adults, for example, tend to look for peace and quiet in the garden, and older adults are more likely to seek stimulation. At one new senior residence Rodiek studied, the facility’s architect had created a lovely, secluded lawn and pond at the back of the apartment building. But every afternoon, the researchers noticed, at around the same time, the elderly residents dragged their lightweight aluminum chairs to the front of the building to be part of the community of commuters passing by. “You can only watch a pond for so long,” Rodiek says. “And a grass lawn doesn’t change much.”

**The Search for Standards**
To help ensure that outdoor areas promote as much healing as possible, Rodiek has recently created a checklist, drawing on the evidence described above, that administrators of long-term care facilities and others can use to evaluate their garden design. And she is working on one geared specifically to hospitals so that hospital-accrediting agencies can set standards.

Codified standards are needed because therapeutic gardens are becoming so popular. “New hospitals are now competing on the basis of whether they have a ‘healing garden’ or not,” Cooper Marcus says. “But when you go to look, some are not much more than a rooftop with a chaise lounge and a few potted plants.” Designing a good garden for health care settings “isn’t rocket science,” she adds. Yet basing the design on good science instead of whim will strengthen the healing nature of nature.

**What Makes a Garden Healing?**
The following checklist, based on research, shows what works:

*Keep it green* — Lush, layered landscapes with shade trees, flowers and shrubs at various heights should take up roughly 70 percent of the space; concrete walkways and plazas about 30 percent.

*Keep it real* — Abstract sculptures do not soothe people who are sick or worried.

*Keep it interesting* — Mature trees that draw birds and chairs that can be moved to facilitate private conversation foster greater interaction.

*Engage multiple senses* — Gardens that can be seen, touched, smelled and listened to soothe best. But avoid strongly fragrant flowers or other odors for patients undergoing chemotherapy.

*Mind the walkways* — Wide, meandering paths that are tinted to reduce glare allow patients with low eyesight, wheelchairs or walkers to get close to nature. Paving seams must be narrower than one eighth of an inch to prevent trips by patients trailing wheeled IV poles.

*Water with care* — Fountains that sound like dripping faucets, buzzing helicopters or urinals do not relax anyone, and neither does the strong smell of algae.

*Make entry easy* — Gardens should not be far away or behind doors that are too heavy for a frail or elderly person to open.

**ABOUT THE AUTHOR**

Deborah Franklin is based in San Francisco and has reported on science and medicine for National Public Radio, the *New York Times*, *Fortune* and *Health Magazine*.