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Horticulture in health care **The role of plants in health care facilities**

by Mary Jane Gilhooley

According to the American Horticultural Therapy Association, or AHTA, 1879 saw the construction of the first greenhouse used for therapeutic purposes. Since then, the role interior plants are playing in health care facilities has become increasingly important.

No longer thought of as mere decorations, interior plants are now commonly utilized in health care settings across the country to improve the physical, social and mental well-being of countless individuals.

The positive effects interior plants are having on patients, as well as health care employees, are becoming widely known. And as knowledge spreads of the healing effects of interior plants, more health care facilities are incorporating them into their healing regimens.

Horticultural therapy

Horticultural therapy came into existence in the late 1800s. Today, many hospitals, facilities for the developmentally disabled, long-term care facilities and other health care settings are embracing horticultural therapy as a means of improving quality of life for their patients.

The first horticultural therapy degree curriculum was established at Kansas State University in 1971. Since then, horticultural therapy has

developed into a thriving profession.

According to the AHTA, many doctors, psychiatrists, psychologists and other health care professionals rely on horticultural therapy to complement physical, occupational and other types of therapies. The basic idea behind horticultural therapy is that working with plants has positive physical and psychological effects on patients.

“Horticultural therapy is a professional treatment, where you’re assessing the patient’s needs, developing a plan of care, and adapting therapeutic activities to meet that plan of care,” says Karin Fleming, president of the AHTA and head of the horticultural therapy program at Bryn Mawr Rehab Hospital in Malvern,

Pa. At Bryn Mawr, horticultural therapy activities take place in the facility’s therapy greenhouse and garden.

In greenhouses and gardens such as Bryn Mawr’s, horticultural therapists team up with other therapists to devise a program based on certain patient goals. For example, a physical therapy patient who needs to work on fine motor skills can benefit from handling small seeds and pruning plants. Or, the same patient can work on standing balance skills while taking care of plants in window boxes set at different heights.

Horticultural therapists are quick to point out that patients benefit psychologically from working with plants as well. “Horticultural therapy can really brighten the spirits of patients who have spent time in acute care hospitals before moving to a rehab hospital,” says Fleming. “They’ve been taken care of for a long time, and with horticultural therapy, they’re finally given the chance to provide some nurturing themselves.”

By working with plants, patients are able to focus on their strengths and abilities rather than their weaknesses. This, in turn, can lead to a more positive outlook and attitude.

As outlined above, the benefits of plants to patients are fairly well-known in terms of horticultural therapy. However, research is showing that patients need not work directly with plants in order to benefit from them. In fact, health care facilities are discovering that not only patients, but employees



Courtesy of Plantmann Industries

as well, can be affected positively simply by being in the presence of plants.

Interior plants' effects

Many studies have shown that plants can have pronounced psychological and physical effects on individuals in controlled settings. In one study, Dr. Roger Ulrich of Texas A&M University showed that college students under pressure while taking an exam exhibited less fear and anger and more positive feelings when plants were in full view.

In another study involving hospital patients, Dr. Ulrich showed that those patients whose rooms overlooked vegetation recovered faster after gallbladder surgery and required less pain medication than patients who did not have a view of nature. Preliminary results from similar studies with cardiac patients in intensive care units are consistent with these findings.

The tendency to heal faster in the presence of plants may be attributed to the fact that plants have been shown to lower stress levels. In other studies, Dr. Ulrich and R. F. Simons showed that views of plant life can actually lower blood pressure and reduce muscle tension, producing recovery from stress within four to six minutes.

Recent studies conducted by Dr. Virginia Lohr of Washington State University reinforce Dr. Ulrich's findings relating to plants and stress reduction.

In Dr. Lohr's study, interior plants were used in a computer laboratory with 27 computer workstations. A computer program to test productivity and induce stress was specifically designed for these experiments, incorporating one hundred symbols and time-measured readings of participants' reactions. The symbols were presented in the same randomized sequence to each subject. Plants present and plants not present were the only variables that participants experienced.

Blood pressure readings recorded while using the program confirmed that the program was effective in inducing

stress. Emotional states and pulses were also measured during the experiment. At the conclusion of the experiment, measurements of blood pressures, pulses and emotional states indicated that participants who worked in the presence of plants were less stressed than those who did not.

To heal, patients need to relax and de-stress. As these studies show, interior plants can provide patients with the calming environment necessary for optimal healing. Busy health care employees are likely to appreciate the stress-reducing qualities of interior plants as well.



Courtesy of Plantscaping, Inc.

Case in point: University Hospitals of Cleveland

For many years now, restorative gardens have been known for offering a relaxing environment in which people who are sick, injured and under stress can recover and regain confidence in themselves.

An example of the relaxing effects such garden areas have can be found at University Hospitals of Cleveland.

In 1990, University Hospitals of Cleveland created an interior, 20,000 square-foot palm atrium in an area that had previously contained an exterior

courtyard with four major medical centers attached and overlooking it.

Within the award-winning atrium, eleven large, in-ground beds contain seventy palm varieties, with some soaring to 30 feet in height. 1,500 understory and ground cover plantings also adorn the atrium, which was built to serve as a connection between the four major medical centers.

Plantscaping, Inc. of Cleveland, Ohio has been maintaining and growing the palm atrium since 1994, and Plantscaping President Nancy Silverman is able to visit the atrium often.

"I have had the opportunity to speak to many employees and patients about the atrium over the years," says Silverman. "The atrium, filled with lush, healthy greenery, serves as a tremendous respite from the sterile, often intimidating hospital environment."

According to Silverman, the atrium is beneficial for both patients and employees. "When you see small children from Rainbow Babies and Children's Hospital, as well as patients of all ages being wheeled through the atrium, you realize what a healing power plants have," says Silverman. "Watching nurses, doctors and technicians taking a welcome break from their difficult daily routines makes you aware of the relief and benefits plants can provide to workers as well."

Case in point: Hannibal Regional Hospital

Hannibal Regional Hospital, an acute care facility located in Hannibal, Mo., enlisted the help of Plantmann Industries (St. Louis, Mo.) to install plants in its mall lobby area. The goal behind the installation was to provide a comfortable, relaxing environment for both patients and employees of the hospital.

A large rest area with seating now contains 11 double adonida palm trees, some of which are more than 12 feet in height. Golden pothos, bromeliads and other plantings have also been installed

around the bases of the palms.

According to Carol Jaco, Senior Vice President of Patient Care for Hannibal Regional Hospital, the plant installation has been a huge success.

“We recognize that the environment in which care is provided can significantly influence the healing process,” says Jaco. “The plants in Hannibal Regional Hospital’s mall contribute to the therapeutic milieu for both patients and their families.”

Many visitors and employees of the hospital have never seen such large indoor plant material, and often express disbelief that the large palms are real.

“Patients and families really react to these plants, and many have remarked that the combination of plants and extensive light foster a sense of hope and comfort,” says Jaco. “Our plantings bring a sense of calming energy to the open and spacious architecture of the hospital. We believe that the appealing green space is an important overall contributor to individual and family well-being for all who turn to us for care.”

Increased comfort levels

In addition to having a calming effect, plants can actually make a room more comfortable. The cooling effect of indoor trees and landscapes has been shown to keep indoor humidity levels at optimal range for human comfort.

Plants cool by a process called transpiration. A recent study out of Washington State University demonstrated that plant transpiration in enclosed settings released moisture, creating a humidity level exactly matching the recommended human comfort range of 30 to 60 percent. Similarly, the same study concluded that in the absence of plants, the relative humidity in enclosed settings ran below this recommended range.

For patients to heal, comfort is a necessity. By incorporating plants into the health care environment, health care facilities can enhance comfort levels for their patients.

More relaxing environment

It goes without saying that patients need calm surroundings to optimize healing. The positive contribution of interior plants to noise reduction has been well-documented in numerous studies, including work done by Dr. Helen Russell and Dr. David Uzzell of Surrey University, England.

When strategically placed, plants can absorb sound, reducing what has become known as the “decibel distraction factor.” With sound-reducing plants in place, patients will be better able to rest and, eventually, heal. In addition, less distractions due to noise can help health care employees stay more focused on the task at hand.

Positive perceptions

First impressions are important, especially when a patient is entering a health care facility. Studies out of England’s Oxford Brookes University show that indoor plants offer a guarantee of positively enhancing perception and contributing to well being. The same set of studies concludes that people perceive a building with interior plantings as more welcoming and more relaxed. Conversely, the studies show that people’s perceptions of a building are less positive in the absence of plants.

Plants, then, are likely to enhance patient perceptions of their surroundings upon entering a health care facility. Their perception of their health care facility as welcoming and relaxed will help them to be more relaxed themselves, speeding the healing process. Also, health care employees who see their surroundings as welcoming and relaxed are much more likely to be satisfied with their working conditions.

Case in point: The Continuum Center for Health and Healing

The Continuum Center for Health and Healing is a state-of-the-art initiative located in New York, N.Y., offering fully integrated care that combines biomedical science with complementary and alterna-

tive medicine. With the help of John Mini Indoor Landscapes (City Island, N.Y.), the Center has installed exotic plants throughout its main waiting area, entrance way and treatment areas.

According to Barbara Glickstein, Director of Community Education and Community Outreach for the Center, plants have had a positive effect on both patients and employees. “We are a health care facility trying to educate individuals, families and the community about the role the environment plays with regard to their health,” says Glickstein. “Clients and employees really appreciate the natural green beauty, and our space has been called a healing sanctuary. We are working with a group of environmental artists to bring even more natural beauty to our Center.”

Case in point: Hackensack University Medical Center

Hackensack University Medical Center, located in Hackensack, N.J., is a 635-bed, regional care teaching and research hospital that provides the largest number of inpatient and outpatient services in the state of New Jersey. Working with John Mini Indoor Landscapes, the Center has completed multiple installations of interior plants in public and patient care areas in order to brighten the spirits of patients, visitors and employees.

“Studies have shown the positive effects nature has on the speed at which a patient recovers,” says Suzen Heeley, Director of Design and Construction for the Center. “Not always able to provide a view of nature, we try to include plants in every area possible as a means to bring nature to patients, visitors and employees.”

According to Heeley, interior plants are also having a calming effect at the Center. “Our plants are uplifting the spirits of those without visual access to the outdoors, which gives life to the Center’s environment and relaxes stressed patients and employees.”

Improving IAQ

The last thing a healing patient needs is to breathe in toxic air. But common and dangerous toxins do exist all around us, lurking in materials such as fibers (carpet, fabric, wall coverings) and solvents (wall-board, paints, varnishes and furniture).

Research shows that rooms with plants contain fewer airborne molds and bacteria than rooms without plants. For almost twenty years, Dr. Bill C. Wolverton and his aids in the Environmental Research Laboratory of John C. Stennis Space Center (NASA) have been conducting innovative research employing natural biological processes for air purification. "Plants have been found to suck chemicals out of the air," says Wolverton.

According to Wolverton, plants clean contaminated air in two ways. They absorb pollutants into their leaves and transmit the toxins to their roots, where they are transformed into a source of food for the plant. Plants also emit water vapors that create a pumping action, pulling dirty air down around the roots, where it is once again converted into food for the plant.

It may be hard to believe that something as simple and inexpensive as a plant could have such a positive effect on the air we breathe. However, according to Jay Naar, author of *Design for a Livable Planet: How You Can Help Clean Up the Environment* (Harper & Row, 1990), 15 to 20 plants are enough to clean the air in a 1,500 square-foot area.

In one study involving workers in a hospital radiology department, interior plants were shown to have pronounced effects on worker health when added to a room with no windows and no natural light. In the study, 23 containers with one or more commonly used indoor foliage plants were added to the room, which was used for the examination of x-rays.

Radiology workers who spent time in the room were surveyed over the course of four months, and all showed significant improvements in health after the plants had been added. In particular, workers reported less experiences with the following symptoms: fatigue, feeling

heavy-headed, headaches, dry or hoarse throats, and hands with dry, itching or red skin.

With plants around them and cleaner air to breathe, patients may have an easier time with the healing process. And with plants incorporated into their working environment, health care employees may experience fewer instances of work-related illnesses.

Case in point: Maravilla Rainforest

Cleaner air and healthier living were the inspiration behind the creation of Maravilla Rainforest. An award-winning, 287-unit senior citizen residence located in Vernon Hills, Ill., Maravilla is known as the world's largest installation of an organic, indoor rainforest environment.

To fully appreciate the grand scale of this interior plant installation, consider that eight semi-trucks full of tropical plants and five semi-trucks full of soil were required before the project was complete. Designed by Foliage Design Systems of Chicago and Ives/Ryan Associates (Naperville, Ill.), Maravilla offers its residents a quarter-mile walking path, a meditation area, a relaxing café, waterfall massages and hot mineral baths, all surrounded by more than 6,000

tropical plants and trees.

Dr. Tomer Anbar, one of Maravilla's owners and a principal developer behind the project, cites the air-purifying qualities of interior plants when explaining the impetus behind the facility's creation. "Plants have been shown to absorb toxins while releasing oxygen," says Dr. Anbar. "Also, research has shown that people who live in rainforests do not suffer from allergies. By creating Maravilla, our hope was to offer its residents an environment in which cleaner air would improve their health and longevity."

By all accounts, Maravilla has been a total success. Residents have reported feeling healthier and more energetic since moving in to the rainforest environment. It is interesting to note that members of Maravilla's medical staff are benefiting from the facility's tropical foliage as well. "One of our nurses was able to wean herself from asthma medications after she began working here," says Dr. Anbar.

Even visitors to Maravilla are noticing the effects of the rainforest environment, with many commenting on how much better they feel just 30 minutes after they arrive.

Final thoughts

While more studies are certainly needed to fully explore the benefits of interior plants to patients and health care employees, the research and case studies presented here make a strong case for including interior plants in health care settings. For more information regarding the many benefits of interior plants, please visit the Plant at Work Web site at www.plantsatwork.org.

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Courtesy of Foliage Design Systems of Chicago