Expanding the center’s space – and our horizons

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Trio of researchers aim to improve childhood leukemia treatment

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Silly, spectacular or soothing creations

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Dear Reader,

This has been a momentous year for the UC Davis Comprehensive Cancer Center, beginning with our exciting “comprehensive” designation by the National Cancer Institute this spring, and now, with the opening of our long-anticipated – and beautiful – building expansion. This issue of Synthesis will introduce our vastly expanded center and enhanced services for our patients, as well as explore some of the opportunities the expansion provides for additional clinical trials, research, outreach and integration of our programs.

As you will learn, all of our patients, including the pediatric patients who have been seen in other health system facilities, will now be seen in the expanded cancer center. We are excited about the co-location of our pediatric and adult programs, which we believe will provide better continuity of care for our patients and survivors as they transition from childhood to adolescence and adulthood.

Our new building also gives us an opportunity to showcase the talent of several local artists, whose imaginative paintings, tiles and photographs were commissioned specifically for both the pediatric and adult patient-care areas. You will meet three of them in this issue of Synthesis. You will also meet four health system employees who have answered the call to make significant financial contributions to the Cancer Center expansion. Their generosity helps us offer patients a comfortable environment, as well as top-tier care informed by expert research from laboratories throughout UC Davis and beyond.

This fall/winter issue of Synthesis also explores our team approach to tackling pediatric leukemia at its very core so that we find new ways of delivering drugs, create less toxic treatments and improve outcomes. And, finally, we hope you enjoy our profile of patient Albert Plante, now cured of lymphoma, and enjoying life to its fullest.

Please send your comments or suggestions about this and future editions of Synthesis to the editor at Dorsey.Griffith@ucdmc.ucdavis.edu.

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Ten years in the planning, the UC Davis Comprehensive Cancer Center’s new expansion opens up a world of opportunities for patients and staff alike.

Not only does the center now feature upwards of 70 percent more space, increasing from approximately 64,000 to 110,000 square feet, it also serves adult and pediatric oncology patients under one roof for the first time, creating new synergies in research, easier transitions for children as they mature and the framework for a range of future specialized clinics.

The striking new space features three stories of floor-to-ceiling windows, ensuring that the new building’s many open spaces are illuminated by natural light, augmented by contemporary pendants and built-in lighting fixtures automatically regulated for maximum energy efficiency.
The sleek, modern look is enhanced with blonde wood accents and curving walls – from the shared atrium entrance to the pediatric and adult floors. Outside, a landscaped courtyard adds to the site’s appeal, particularly for families with children, creating a more friendly patient experience.

The net effect is an inviting patient-centered home.

Pediatric oncology goes from shared to dedicated space, moving from the UC Davis Children’s Hospital and the Glassrock Building on Stockton Boulevard to the entire first floor of the expanded building. With five examination rooms and 13 infusion chairs, in which patients receive treatments and are monitored immediately afterward, it’s a customized fit for the clinic’s current needs.

Not only does the center now feature upwards of 70 percent more space … it also serves adult and pediatric oncology patients under one roof for the first time, creating new synergies in research, easier transitions for children as they mature and the framework for a range of future specialized clinics.

Meet pediatric cancer specialist

ANJALI PAWAR (above)
Associate Professor, Pediatric Hematology/Oncology

Prior to joining UC Davis in March 2012, Pawar trained and held a faculty position at University of Michigan. In addition to oncology and hematology, Pawar is especially interested in young women with bleeding disorders and clotting problems, and plans to continue clinical research in this area at UC Davis. Pawar is a big fan of healthy eating habits and getting a lot of exercise, and is interested in the problems of childhood obesity as it relates to cancer therapy complications. She is Board Certified in Pediatrics as well as Pediatric Hematology Oncology and is a member of several professional pediatric and pediatric hematology and oncology organizations.
caseload plus its 60 to 75 newly diagnosed young patients each year.

A welcome new feature is the addition of two isolation rooms — ideal for those concerned about infection or for youngsters, adolescent and young adult patients wanting more privacy.

Adult oncology, until now split between the center and the Bulkley Building on Alhambra Boulevard, is consolidated on the new facility’s second and third floors. It features 16 examination rooms and a 31-chair infusion center, which also had previously been split between those buildings. Adult patients will now have a total of 32 examination rooms with the expansion and the existing building.

The expansion also allows for additional space and staff for Phase 1 trials, in which researchers test new drugs or treatments in a small group of people as a first step to evaluate their safety and potential benefit.

“A key focus for the UC Davis Comprehensive Cancer Center is supporting a robust clinical research program through which we develop therapeutics that have been generated in our basic research labs,” explains chief administrative officer Jeanine Stiles. “Ever since the current center – which was built in 1991 and designated by the NCI in 2002 – space restraints have limited us from doing more research. In this new facility, we’ll be able to dedicate infusion chairs solely to Phase 1 clinical trials.”

Stiles, who also serves as the center’s associate director for administration, points out that the expanded center can support much-needed trials for the pediatric population. “Pharmaceutical firms don’t necessarily invest funds in pediatric trials because young patients are such a small part of the cancer population,” she says. “We now have space to expand existing programs and implement new ones to

“As more children become long-term survivors, we can help them in their adolescent and young adult years with specialized clinics, allowing us to focus on any late effects associated with the therapy they received as youngsters and to offer risk-based interventions to promote optimal health.”

~ Kathryn Wells
focus more attention on pediatric cancers and this patient population.”

The center’s clinical trials support unit currently runs about 150 protocols, all therapeutic in nature, for specific treatments of various cancers, and that number will expand with all services now under one roof.

“For a Phase 1 program, a comfortable environment is crucial for the patient to spend the better part of the day,” says Cinda Lyon, the unit’s executive director. “We expect to expand our Phase 1 complement of trials because we’ll now have more infusion chairs, allowing us to accommodate more trial participants and their therapy.”

With pediatric and adult oncology faculty in close proximity, physicians and researchers will be better positioned to consult on patient care, to discuss new medications in the pipeline and ideally to brainstorm new research ideas, among other benefits. “With all of our patients and faculty located in the same building,” explains surgical oncology chief Richard Bold, “clinical research and patient care will be better coordinated and more efficient.”

The expanded facility has inspired plans for a wide variety of specialized clinics, including a psychiatric program, palliative care and chronic pain clinics. “We now have the space and resources to develop new programs and bring in groups that have been involved in helping patients,” says Bold.

Jay Balagtas, acting chief of pediatric hematology and oncology, adds that the pediatric clinic will feature almost double the number of exam rooms, allowing providers to expand into a number of new programs. “These include a post-stem cell transplant clinic that will be operated in conjunction with Stanford University, as well as a long-term effects clinic for monitoring pediatric cancer survivors,” he says.

That’s a big plus for Kathryn Wells, a pediatric hematology and oncology nurse practitioner at the center who has a special concern about the late effects that can follow childhood cancer treatment. “I’ve seen kids who’ve survived and now have medical, educational and psychosocial issues as they enter adulthood and beyond,” she says. “As more children become long-term survivors, we can help them in their adolescent and young adult years with specialized clinics, allowing us to focus on any late effects associated with the therapy they received as youngsters and to offer risk-based interventions to promote optimal health.”

Survivorship is a concern as well for Charlotte Mitchell, whose
son, Austin, is now turning 14 after having successfully battled leukemia from ages 4 to 9. “Austin has been in remission and is doing very well medically, though care is never really over for any child who’s had cancer; five years of emotionally challenging treatment sticks with a person,” she explains. “I’m hopeful that the center will look after these kids to make sure they’re successful as they become adults.”

In fact, with the co-location of pediatric and adult care, the center is better poised than ever to facilitate “longitudinal progression,” the term used to describe the transitions that young cancer survivors encounter as they progress through pediatric, adolescent and young adult levels of primary and follow-up care. Children return to the same familiar surroundings and friendly faces as they mature.

“Frankly, we’ve had a break in continuity, but now we have global and longitudinal continuity, featuring psychiatric and other follow-up care,” explains Bold.

“For a Phase 1 program, a comfortable environment is crucial for the patient to spend the better part of the day.”

~ Cinda Lyon
“What we strive for in length of survival needs to be matched in quality of life. The expansion offers us the space to do that while incorporating many specialties.”

Mitchell looks forward to a more seamless approach to patient care. “We’ve been with the UC Davis Medical Center for 15 years, including Austin’s birth and my own recent bout with lymphoma. I’m proud of the campus, with all its newly developing areas, from the emergency room to the Comprehensive Cancer Center,” she says. “That kind of growth can only allow for greater, better care, so we’re certainly very excited about the expanded center.”

“A key focus for the UC Davis Comprehensive Cancer Center is supporting a robust clinical research program through which we develop therapeutics that have been generated in our basic research labs.”

~ Jeanine Stiles
JP Avilla was 15 and a rising football star when he was abruptly sidelined with hip pain and bouts of vomiting. His pediatrician in Truckee referred him to UC Davis Medical Center, where a pediatric oncologist diagnosed him with acute lymphoblastic leukemia (ALL). JP’s budding athletic career was put on hold; chemotherapy treatments and home schooling ensued.
“The whole world turned upside down at that point,” says Terri Avilla, JP’s mother. “He would have been a freshman, but that all went to the wayside.”

Five months into chemotherapy treatment, JP’s 230-pound frame had dwindled to 180 pounds. The drugs, aimed at killing the leukemia cells, also made him sick. An allergy to one of the agents gave him hives from head to toe and weakened his immune system. Many children treated with chemotherapy for leukemia suffer similar side effects.

“There are also lots of long-term effects,” says Noriko Satake, who specializes in pediatric hematology and oncology at the UC Davis Comprehensive Cancer Center. “Chemotherapy and radiation therapy can harm bones, the heart and brain function. They affect a child’s growth and development.”

Satake and two other UC Davis scientists are collaborating to find alternative, less toxic treatments for childhood leukemia. Satake and stem cell researchers Elva Diaz and Paul Knoepfler are studying the mechanisms of genes involved in leukemia and other types of childhood cancer, hoping that a better understanding of the molecular underpinnings of the disease will yield novel treatments, improve patient outcomes and reduce side effects. The multidisciplinary, translational approach is designed to get targeted therapies out of the laboratory and to individual patients in the clinic when they need them.

Leukemia accounts for one-third of all childhood cancers, and ALL is the most common type of childhood leukemia. Robust, sweeping pediatric clinical trials have yielded dramatic results, bringing the overall leukemia survival rate to 80 percent. Still, Satake says, many children have poor outcomes because some leukemias resist treatment.

Satake is working to develop a unique method to deliver a type of molecule called siRNA, along with nanoparticles and a linker, which interferes with gene expression and recognizes and binds to the surface of leukemia stem cells. Unlike normal cells, stem cells can make copies of themselves or become different kinds of cells.

“The linker is the key to preventing negative side effects in patients because...”

“...If we can target cancer stem cells that have a lot of N-Myc, we can stop the cancer.”

~ Paul Knoepfler
the new treatments we are developing would target leukemia stem cells and not go into normal cells,” says Satake.

Satake’s fellow researchers are focused on cancer genes Mxd3 and N-Myc.

“There are great targets in children’s cancer, but we don’t know the roles of each,” says Satake. “What we learn about them will help us to find other targets and learn how cancer cells grow.”

Diaz, an associate professor in pharmacology, studies the mechanisms behind Mxd3, and Knoepfler, an associate professor in cell biology and human anatomy at the UC Davis School of Medicine, researches N-Myc, both of which are found in high levels in cancer cells.

Knoepfler is studying the role that high levels of N-Myc have in uncontrolled cell growth. He explains that in cancer stem cells N-Myc acts as an accelerator, telling the cancer to grow unchecked into a full-sized tumor. In normal stem cells, however, N-Myc acts as the accelerator and other molecules as the brakes. In a healthy brain, for example, N-Myc tells the cells to grow during development and then turns off growth when the young adult brain reaches the correct size. In brain cancer stem cells N-Myc can turn cell growth back on, resulting in a cancerous tumor.

“My theory was that if we could understand the normal function of N-Myc in cells, that would help us understand how it causes cancer,” says Knoepfler. “If we can target cancer stem cells that have a lot of N-Myc, we can stop the cancer.”

Diaz focuses on Mxd3, a gene that regulates cell proliferation and is found both in normal stem cells and leukemia stem cells. Diaz hopes to understand the gene’s role in leukemia and whether it is a useful target for treatment. Because Mxd3 and N-Myc are in the same pathway, the two proteins likely share similar functions. Working together, the researchers aim to learn how N-Myc and Mxd3 interact to regulate cancer cell development and proliferation.

“The goal of the collaboration with Noriko Satake is to develop novel therapies using Mxd3 as a target to treat childhood cancers such as leukemia,” says Diaz.

“The more targets we have, the better chance we have of killing the cancer cells,” Satake adds. “If our approach is successful, the way we treat cancer in the future will be completely different from current treatments.”

Satake eventually will conduct human clinical trials of any new treatment developed in the laboratory.

Even JP has contributed to the...
research effort, having donated his own leukemia stem cells to Satake after his diagnosis. And while JP may not benefit directly from the research trio’s current work, he and his family are hopeful that his participation will aid in their efforts.

“The more information researchers have, the higher the survival rate for these kids,” says Terri Avilla.

Today, JP is a husky 17-year-old high school student who earns excellent grades, has a part-time job at a local fast-food restaurant and enjoys Lake Tahoe vacations with his family.

“For missing 72 days of school he is still getting a 3.0, and that’s pretty darn good,” says Terri Avilla of her son. “He is quick-witted and has always turned things around by joking with us or the nurses – even at his worst.”

Even JP has contributed to the research effort, having donated his own leukemia stem cells to Satake after his diagnosis. And while JP may not benefit directly from the research trio’s current work, he and his family are hopeful that his participation will aid in their efforts.
The dark blue and light green blooms appear to float in midair, defying nature, existing only to delight viewers and offer them a moment of transcendence.

That’s exactly the point of Louie’s flower series. “I want to bring happiness to everyone who sees my work,” says Louie, 59. “I want to bring positive energy and joy.”
Louie’s work will hang in a public area in the new wing of the UC Davis Comprehensive Cancer Center. Louie is one of about 15 artists from the Sacramento region who have been commissioned by UC Davis Health System to create pieces for the Cancer Center expansion.

The artists, who work in an array of mediums, were initially selected by an art advisory committee of cancer center faculty and staff. Committee members viewed past works by scores of candidates and selected artists whose work captures a tone of healing, wonder and joy.

“In my mind, art is always the crowning jewel of the building,” says Nancy Gordon, a senior project manager who oversees the health system art program. “Once it’s installed, it feels like the building is complete and ready for the staff to do their great work.”

Gordon says the committee, working with Susan J. Willoughby, an art advisor for the health system, wanted to select art that would appeal to a broad range of people—children, adults, seniors and people from different cultures.

Indeed, the collection of new art is diverse. It ranges from photographs of second graders making wild faces for the camera to delicate ink prints of photos of Inle Lake in Myanmar.

“Hospitals can be pretty scary places,” says Willoughby. “We want people to feel as though we care about them... to have something reassuring.”

Kurt Fishback, the artist who took the photos of the second graders

“Everybody’s life has something to celebrate. Everybody’s life leaves a mark behind.”

~ Brenda Louie
from Woodlake Elementary School in Sacramento, has a similar goal for his photographs, which will hang in the pediatric clinic.

“It is my hope that (the photos) ground them and create a sense of balance for the kids going through the space,” says Fishback. “It is about raising spirits,” he adds, suggesting that the “spirit of the child helps the healing occur.”

The committee worked to select artists who live and work in the area served by the health system. Some of them, such as Fishback, have been local fixtures on the art scene for decades. Louie is a well-known art professor at Sacramento State University. Other artists are lesser known, but given their talent may be up-and-comers.

Willoughby says artists often want to be affiliated with UC Davis Health System because it is becoming known as a “significant collector” of art. Artists’ names are displayed with the pieces.

“Every piece has an identifying plaque,” says Willoughby. The health system usually does not buy just one piece from an artist, but up to three, she adds.

“We want it to look like a cohesive collection,” says Willoughby.

The art pieces will be the last items to be placed in the new wing. Each piece is selected to reflect a tone for that particular room. Art chosen for the center’s new pediatric unit will appeal to both parents and children.

“Even our kids’ pieces are some-

“It is my hope that (the photos) ground them and create a sense of balance for the kids going through the space. It is about raising spirits.”

~ Kurt Fishback
what sophisticated," says Gordon. “I feel like the art should not be too pediatric in nature. It should also appeal to the parents, who are there as much as the children are there.”

The work of artist Maggie Jimenez also was selected for the pediatric wing. Jimenez creates from a whimsically decorated studio in the back of her Land Park home in Sacramento. She works with a multitude of mediums, including clay and glass.

The pieces selected for the pediatric area are fused glass. One, called Big George, features a big, red dog. Another, Green Grocer, displays a clownish-looking man in a top hat, surrounded by carrots and holding an apple and a crow. The pieces howl with bright colors.

Jimenez, whose father was born and raised in Mexico City, says her heritage inspires her to showcase bright colors.

As for the playful nature of her work, she chalks that up to her former teaching career in Sacramento.

Jimenez, whose father was born and raised in Mexico City, says her heritage inspires her to showcase bright colors.

Indeed, many of the pieces selected for the new wing of cancer center reverberate with humor — along with light, color, whimsy, fantasy, joy, contemplation, awe and tranquility.

“When you teach middle school for 25 years, you have to have a sense of humor,” says Jimenez. “If you don’t, they will eat you alive.”

Indeed, many of the pieces selected for the new wing of the cancer center reverberate with humor — along with light, color, whimsy, fantasy, joy, contemplation, awe and tranquility. The entire UC Davis Comprehensive Cancer Center collection — like art itself — seeks to capture the human experience.

“Everybody’s life has something to celebrate,” says Louie. “Everybody’s life leaves a mark behind.”
LGBT task force finds disparities in cancer screening and care

Enrique Manjarrez experienced homophobia firsthand during an annual preventive care visit to a physician.

“The doctor was completely homophobic and made extremely rude remarks while examining me,” says Manjarrez, an education and prevention manager at Breaking Barriers, a community services program in Sacramento for people with HIV and other serious illnesses.

Fortunately, Manjarrez found another doctor and continued to get annual checkups. But many members of the lesbian, gay, bisexual and transgender (LGBT) community stop seeking health care altogether because they either experience or fear bias of medical providers.

“For me, it’s an issue of addressing social justice and health disparities. This is an area where we can do some good, rectify past wrongs, and improve access for groups who have not always had access to sensitive and appropriate health care.”

~ Alan Shindel
Manjarrez and other members of the newly formed UC Davis Comprehensive Cancer Center’s LGBT cancer health task force are hoping to induce productive changes, as they search for the reasons behind the disparities in health care and cancer screenings among the LGBT community.
lower-than-average cancer screening rates among respondents. For example, only 32 percent of female respondents had their recommended mammograms, and only 19 percent of male respondents reported having a recommended PSA test for prostate cancer. Nearly half of respondents (43 percent) said their providers did not talk with them about their risks of cancer or how to reduce them.

“There is a general lack of knowledge regarding LGBT medical needs and concerns, and cancer risks seem to be minimized due to the high attention paid to HIV/AIDS, depression and substance abuse,” one respondent commented. “Doctors need to do a better job educating us on cancer risks and screening.”

Researchers attribute the higher cancer rates both to lifestyle factors and lower screening rates. For example, lesbians have higher rates of breast cancer than heterosexual women, partly because they are less likely to experience childbirth and breast feeding – both of which decrease risk for breast cancer. Gay men have higher rates of anal and prostate cancers than their heterosexual counterparts.

“Across the board, LGBT people tend to have a higher prevalence of many health problems compared to the general population,” says Alan Shindel, a urologist and assistant professor of urology at the UC Davis School of Medicine. Shindel, a task force member, cites economics as a possible reason as members of the LGBT community usually have lower rates of insurance coverage. Fear of health-care provider bias is another reason. “Fear of disclosing their sexual orientation can hinder their access to care,” he says.

Margie Wells, 43, once feared seeing a physician because she anticipated bias. A flu-like illness finally drove the then-24-year-old to seek medical attention at an urgent care clinic. She told the physician that she could not be pregnant, but he never-

Researchers attribute the higher rates of cancer both to lifestyle issues and lower rates of cancer screenings.

“LGBT folks tend to avoid screening for cancer largely because they have a mistrust of and bad feeling about seeing health-care providers.”

~ Marlene von Friederichs-Fitzwater
theless insisted that she get a pregnancy test. An ultrasound test ultimately revealed an ovarian endometrioma that had grown out of control and required surgery. Later, at 36, Wells found a lump in her breast that turned out to be cancer. She underwent a bilateral mastectomy.

“If someone stays away (from seeing a physician) the risk is increased,” says Wells. “If you are sick and you ignore it because you don’t have a medical professional to trust, that is a death waiting to happen.”

The LGBT cancer health task force’s survey results will be used to strengthen the delivery of health care to the LGBT population locally through outreach and education, says Marlene von Friederichs-Fitzwater, founder and chair of the task force and director of the UC Davis Comprehensive Cancer Center’s outreach research and education program.

“While the sample size was small, with 119 respondents, the survey results show trends that call for increased cancer awareness and cancer screening in this population,” von Friederichs-Fitzwater says, adding that the task force also plans to apply for a National Institutes of Health grant to develop ways to respond to the disparities.

Health-care providers, too, need to be educated about culturally sensitive and thorough care for members of the LGBT community.

For example, Manjarrez says, doctors who treat transsexual men who were born biologically female need to know that their patients still need pap smears, and that transsexual women who were born biologically male still need prostate cancer checks.

“For me, it’s an issue of addressing social justice and health disparities,” says Shindel of his work on the task force. “This is an area where we can do some good, rectify past wrongs and improve access for groups who have not always had access to sensitive and appropriate health care.”
In a meeting room on the UC Davis Health System campus, the yoga instructors direct and position their students through a powerful flow of movements, such as downward facing dog, warrior I and crescent lunge. Vinyassa yoga focuses heavily on breathing practices and mixes active and passive poses.

The weekly yoga sessions bring many benefits to the students. Studies show that the practice of yoga aids cancer patients and their caregivers in stress reduction, improved sleep and lowered blood pressure.

Jack Sanders is a prostate cancer survivor. He takes the class and now tries to incorporate some of the stretches and moves into his personal daily exercise routine. For him, the benefits go beyond the physical.

Every week, yoga teachers Krista Rindell and Dina Cataldo lead a group of cancer patients, survivors and caregivers through an hour-long routine of Vinyassa yoga.

Studies show that the practice of yoga aids cancer patients and their caregivers in stress reduction, improved sleep and lowered blood pressure.
“It teaches the idea of letting the cares of daily life float away,” he says. “I started to really get the idea of the importance of the breath and posing.”

For people who have had cancer, yoga can be emotionally empowering, says Cataldo, 32, herself a breast cancer survivor. “It gives students some control,” she says. “When you have cancer you feel like you’ve lost control. Yoga offers a safe place for people to be with themselves.”

Rindell, 24, says the practice “brings an awareness, a relaxing release,” to participants. “It builds strength and shows them that even though they are going through so much, their bodies are able to do more than they are aware they can.”

Marlene von Friederichs-Fitzwater, associate professor of hematology and oncology, and director of outreach research and education at the cancer center, was instrumental in developing the yoga program, which started in June. “The studies tell us that it is an excellent way to help patients and survivors deal with insomnia, fatigue and even physical pain,” says von Friederichs-Fitzwater. “It’s an excellent, gentle kind of body work you can do that actually relieves physical symptoms.”

Rindell and Cataldo say they adapt the class to accommodate students at different stages of treatment and recovery. They move more slowly through some poses and sometimes hold poses a bit longer than is typical.

“We modify it a bit because the patients haven’t moved like this for a long time — or ever,” says Rindell, who works by day as an administrative assistant in the Health Sciences Development office.

Cataldo began her yoga practice shortly after she was diagnosed with cancer in 2010. She says she was looking for a “lifestyle change,” and yoga helped her to make a shift in perspective. Prior to her yoga practice, she says she experienced much higher levels of stress in her job as a deputy district attorney for Sacramento County. Now, she faces the same grueling deadlines, but doesn’t feel as much stress when they loom. She thinks yoga helped her make a mental shift.

“When you get to practice being calm, you seem to bring it out to your life,” she says.
Albert Plante woke up from surgery to remove an inflamed appendix to a crushing surprise. His surgeon, seeing abnormalities on his pre-op blood tests, sampled his liver during the operation and found what turned out to be stage IV non-Hodgkin’s lymphoma.

“I was told then that the disease could be managed for years, but it would eventually kill me,” says Plante, who was 64 and living in the East Bay at the time. “I never accepted that fate.”

Plante started treatment and retired soon after, moving to the Sacramento area to be closer to his grown children. His doctor recommended that he continue his care at UC Davis. He became a patient of Joseph M. Tuscano, professor of hematology and oncology at the UC Davis Comprehensive Cancer Center and a specialist in the treatment of lymphoma and other blood-borne cancers.

“Cancer treatment must be approached individually and creatively,” says Tuscano, who in addition to his clinical practice leads an active research program developing novel approaches to manipulate the immune system to treat cancer. “You always need to be searching for what might work for each patient.”
For several years, according to Tuscano, Plante was a textbook patient: He was well for a time, then relapsed, underwent a new treatment, got better again, then relapsed and started a new cycle of treatment.

Then things changed. Plante stopped responding to new therapies. He developed a particularly horrific form of the disease; angry red welts covered his entire body, and what was visible on the skin indicated what was going on within. PET scan images revealed the cancer had spread throughout his body and internal organs.

“After seven different rounds of therapy, Mr. Plante was a ‘hopeless case’ as far as conventional treatment was concerned,” Tuscano says. “Fortunately, he was a good candidate for a promising clinical trial.”

Tuscano enrolled his patient in a study evaluating the safety and efficacy of a new drug combination: rituximab, a monoclonal antibody that targets and destroys B cells and is a standard treatment for lymphoma, and lenalidomide, a potent immune stimulant that also has many anti-tumor actions. The UC Davis Comprehensive Cancer Center was one of the first centers in the United States to offer this novel combination for non-Hodgkin’s lymphoma.

The trial had phenomenal results. The overall response rate was 80 percent, with complete remission in half the patients. More than half of the patients who got better had, like Plante, stopped responding to rituximab in the past.

“The response was amazing,” says Tuscano, “especially considering that this was a population of cancer patients who had ‘flunked’ their other therapies.”

Like most of the other participants, Plante’s improvement from combination therapy was dramatic. His skin and

“I was told then that the disease could be managed for years, but it would eventually kill me. I never accepted that fate.”

~ Albert Plante
internal lesions practically melted away, according to Tuscano. But with that success came an unusual and serious consequence known as tumor lysis syndrome. The lymphoma cells had been destroyed so quickly and in such large numbers that their breakdown products overwhelmed Plante’s body’s ability to eliminate them. His kidneys shut down, and Plante needed careful monitoring and support to pull him through.

Next step – a cure
Although Plante improved far beyond expectations, Tuscano knew the combination therapy was only a stopgap measure. Would Plante, who was always willing to try something new, be willing to undertake one more very drastic experimental treatment that might offer a cure?

A hematopoietic stem cell transplant is the only known therapy that offers a cure for Plante’s lymphoma. But it is considered too toxic for patients over 60. It involves first destroying (“myeloablating”) the patient’s immune system with high-dose chemotherapy or radiation, then transplanting a donor’s stem cells to repopulate the bloodstream with normal cells. The procedure is so toxic that up to 40 percent of patients die from the procedure, and only 30 to 40 percent are alive after five years.

Tuscano knew of an exciting clinical trial involving a collaboration of more than 20 medical centers in the United States that offered a new, much less toxic, non-myeloablative approach to hematopoietic stem cell transplantation, in which only low-dose or standard radiation or chemotherapy is used to prepare the body for the transplanted cells. Preliminary results indicated that fewer than 10 percent die from the procedure and that 48 to 75 percent of patients are still alive three years after transplant. The trial enrolled patients up to 75 years old, so Plante qualified.

“I gave him the standard ‘diaper talk’ – you know, the possibility of terrible side effects including diarrhea 10 times a day,” says Tuscano. “Most patients are

“After seven different rounds of therapy, Mr. Plante was a ‘hopeless case’ as far as conventional treatment was concerned. Fortunately, he was a good candidate for a promising clinical trial.”

~ Joseph Tuscano
understandably anxious. But he didn’t flinch. He said, ‘Let’s do it.’”

Plante partially attributes his can-do, optimistic personality to his 26-year career in the Air Force, starting in 1954 after high school graduation. During his nearly month-long hospital stay for the stem cell transplant, medical staffers were amazed that he got up every morning, made his hospital bed military style and did not get back in bed until 8:00 each evening. Every day, he walked a two-mile loop in the ward that he had carefully paced out.

A methodical man, Plante also kept statistics on his medical journey. Over the course of his disease, he needed 220 chemotherapy infusions, 58 pints of blood and 38 bags of platelets.

One year later, Plante is a fit 74 years “young” without detectable cancer and is considered cured.

“We are so fortunate to be able to offer our patients promising new therapies that may not be available elsewhere,” says Tuscano. “Without them, Plante would not have beaten the odds to be cured of this disease.”

Plante is back to a normal life, appreciating every day of it. He takes great pleasure from treating his grandchildren to ice cream, taking daily walks and enjoying time with his wife of 56 years.

Plante is back to a normal life, appreciating every day of it. He takes great pleasure from treating his grandchildren to ice cream, taking daily walks and enjoying time with his wife of 56 years.
Marnie Livingston is grateful that her breast cancer was caught early and treated successfully. Tammy Welden is grateful for her son’s health after an accident left him near death. Abbey DeGraffenreid is grateful that she no longer has signs of lymphoma. And Terri Wolf is thankful for her secure job as an oncology nurse. All four are employees at the UC Davis Health System and each has recently made a large financial commitment to the Cancer Center. Taken together, the four women have pledged $35,000 in recent months. They are among a growing number of health system employees who have made gifts to the Cancer Center building project, research or clinical programs.

“Employee donors are contributing to patient care, research, clinical trials and everything else...”
that makes up the cancer center,” says Michele Steiner, associate director of development for the UC Davis Comprehensive Cancer Center. “More importantly, they help with community involvement; their donations demonstrate that they are investing in the future health of the community. No gift is considered too small and we appreciate every gift that is received.”

Livingston, executive assistant to division of pain medicine chief Scott Fishman, is donating $5,000 to the Cancer Center expansion to honor her surgical oncologist, James Goodnight, now associate dean for clinical affairs.

“I would not have made it without Dr. Goodnight’s compassion and concern for my care,” says Livingston, a single mother who was treated for breast cancer in 2007. “I was so happy; everyone was so nice and caring, including the staff at the front desk. I am donating because I want to make sure that other people can get the kind of care that I received.”

Livingston underwent six weeks of radiation therapy, five days per week, while working full-time and as a single mother with two boys, ages 12 and 15. Her boys cleaned the house while she was undergoing radiation therapy.

“I was very proud that my children helped me whenever I needed it,” says Livingston.

Livingston says she was lucky that her tumor was found early. “I was at stage 0, which was very easy to treat with a lumpectomy and radiation,” she says, “Dr. Goodnight ordered another mammogram six months after I finished my radiation and found that there was no sign of cancer.”

DeGraffenreid, who works on the performance, improvement and safety team for perioperative services, had six months of treatment for lymphoma, which included chemotherapy and radiation. But she says she didn’t let the disease control her, and continued working full-time throughout, using a laptop, during her five-hour chemotherapy sessions.

“The thing that gave me the most hope was learning that I had a very treatable form of lymphoma,” she says. “All of my doctors were always very positive and supportive.”

DeGraffenreid will donate $5,000 to honor Goodnight, $2,500 to name an infusion chair in the expanded center and $2,500 to lymphoma research.

“They are among a growing number of health system employees who have made gifts to the Cancer Center building project, research or clinical programs.
Benefactors>>

Welden, an administrative assistant at the UC Davis Comprehensive Cancer Center, has committed $5,000 to the expansion of clinics and infusion center, plus $5,000 for two infusion chairs, which will bear her name.

Welden's commitment to the medical center began in 2006 when her 15-year-old son, Anthony, was hit by a pick-up truck and dragged 150 feet. The accident left him in a coma.

“The nurses told me, ‘never give up,'” she says. “Through four long months of hospital visits and lots of prayer, we never did. We knew he would be all right. It was just a matter of when he would wake up.”

Initially, Anthony was cared for at the hospital’s intensive care unit. He was transferred to a sub-acute facility in Saratoga, Calif., where he finally woke up from his coma. Welden then decided she wanted to get involved in whatever way she could.

Welden joined the health system staff in March 2008, and is now working full-time at the Cancer Center. Welden also volunteers at UC Davis events and at her church.

“As someone who received the generosity of others, I knew it was time for me to give back to the cancer center when it was expanding.”

~ Terri Wolf

Keaton’s Korner: ‘Where kids can be kids’

Robyn Raphael lost her 5-year-old son, Keaton, in 1998 after a nine-month battle with neuroblastoma. Within a few months, the Raphael family launched a nonprofit foundation in his memory. Since then, the Keaton Raphael Memorial has helped more than 1,200 families in Northern California with emotional, financial and educational support.

The foundation also invests in childhood cancer research, having contributed more than $4 million since 2000. In 2012 alone, the memorial donated $350,000 for pediatric cancer research to local organizations.

“If we can eliminate childhood cancer, our work is done,” Raphael says.

Raphael found a new opportunity to contribute with the opening of the UC Davis Comprehensive Cancer Center expansion, which brings pediatric oncology clinics under the same roof with adult oncology services. With a $50,000 donation from the memorial, the expansion’s playroom is now named Keaton’s Korner in honor of Raphael’s son.

“I really felt that this was a great way to honor our son and embody his spirit of play,” says Raphael. “It is a legacy for other children.”

Raphael recalls that during her son’s chemotherapy treatment at the UC Davis Children’s Hospital, Keaton watched movies, played video games, made arts and crafts and played with Legos and other toys.

All of the children’s toys from the former pediatric infusion center on Stockton Boulevard were relocated to Keaton’s Korner, with the addition of newly contributed items.

“When kids are getting a treatment or an infusion, they can be there all day,” Raphael says. “The playroom can take their mind off their illness and treatment. It’s an area where kids can be kids – even for a few hours.”
for two years,” she says. “As someone who received the generosity of others, I knew it was time for me to give back to the cancer center when it was expanding. In the future, there won’t be stipends coming from the Moore Foundation, but from the donors.”

Employees may donate by telephone, mail or online through the cancer center website and can pay by check, cash or payroll deduction.

Livingston, DeGraffenreid, Welden and Wolf all made their donations through payroll deduction.

Steiner stresses that not all employee donors are committing as much as Livingston, DeGraffenreid, Welden or Wolf. Many employees, who juggle their own financial demands, have opted to give $5 per paycheck. She notes that even that amount will build to $60 in six months for employees paid bimonthly. An employee who commits $10 per month for five years will be contributing a total of $600.

Employee support is critical in advancing the mission of the cancer center,” Steiner says. “It’s inspiring to see so many employees who give so much in their work every day illustrate this commitment with their financial support, as well.”

clinical resource nurse in the department of radiation oncology, has committed $10,000 to name a discharge station in the expansion.

“As a nurse, I know the importance of a great organization and part of that comes from what donors contribute,” says Wolf. “Because of these contributions, we basically didn’t have to pay anything for our graduate education.”

Wolf and her classmates at the UC Davis Betty Irene Moore School of Nursing received grants from the Gordon and Betty Moore Foundation, which committed $100 million toward nursing education. As a student in the first class of the nursing school, Wolf understands that part of being a leader means being generous.

“I also received the Pat and Charles Fullerton Pain Scholarship

“I have my life to live; I hope to make whatever little difference in someone else’s life I can.”

~ Abbey DeGraffenreid
Fabrics of hope

Madison Zenker was 10 when her aunt, Willie Garrett, lost her battle with ovarian cancer. During Garrett’s treatment, Zenker offered her comfort with a carnival-themed pillow case she had made. To honor her late aunt and provide the same kind of comfort to other cancer patients, Madison started Cases for Cheer, a nonprofit organization that donates hand-made pillow cases to cancer patients at the UC Davis Comprehensive Cancer Center.

Pediatric cancer patients appreciate the pillow cases, which cheer them during hospital stays or long chemotherapy treatments at the infusion center.

“Sammy has spent many, many, many nights in the hospital since her diagnosis of rhabdomyosarcoma in November,” says Brenda Murphy, of her daughter Sammy. “A pretty, fresh pillowcase certainly makes her trips more cheerful and personalizes the dreary hospital bed.”

Nancy E. Lewis, a charge nurse in the pediatric infusion room, is also grateful for Madison’s efforts. “Thank you for thinking of us and putting a big smile on the faces of children with cancer,” she says.

Madison was recognized in August for her commitment to community service when she received the Kohl’s Cares $1,000 scholarship toward her post-secondary education.

Madison and her many volunteers at Cases for Cheer make and deliver 70 pillow cases each month. Since 2009, Cases for Cheer has made 3,360 pillow cases sewn from colorful fabrics with designs ranging from monkeys, faeries and frogs, to cars, toys and cheerleaders.

“We do a whole assembly line,” she says. “For $7 you can help us bring cheer to a patient and for $21 you can help us bring cheer to three!”

Madison has even posted a video on her blog and on YouTube teaching people how to make their own pillow cases. Cases for Cheer also hosted sewing classes at the Elk Grove Country Sewing Center. Dates and times for those classes are on the organization’s main website. Madison always encourages anyone who enjoys sewing to volunteer.

“I can’t cure cancer, but I can make people with cancer a little happier,” she says.

Cancer center director wins Health Care Heroes Lifetime Achievement Award

UC Davis Comprehensive Cancer Center director Ralph de Vere White was honored with a lifetime achievement award from the Sacramento Business Journal.

The Journal’s Health Care Heroes Award honors outstanding achievements of individuals and organizations from Sacramento, El Dorado, Placer and Yolo counties in various health-care categories.

De Vere White, a renowned urologist and cancer researcher, has served as director of the cancer center at UC Davis since 1996. In that relatively short time, he has led the center’s remarkable growth in clinical care and research prominence. De Vere White is noted for creating an environment at UC Davis that fosters innovative collaboration among a range of experts from throughout the university and beyond to take on complex challenges in the prevention, diagnosis and treatment of cancers.

Under his leadership, the cancer center in 2001 was designated by the National Cancer Institute; in 2012 that designation was upgraded to “comprehensive” – the highest honor in oncology. In addition to directing the cancer center, de Vere White maintains a busy clinical practice and continues to do leading-edge research.

Ramsey Badawi awarded prestigious “Provocative Questions” grant from NCI

Ramsey Badawi, UC Davis associate professor of biomedical engineering, has won a groundbreaking grant from the National Cancer Institute (NCI) to address whether tumors can be detected when they are two to three times smaller than those detectable using current imaging methods.

The three-year NCI grant, $574,000 in the first year, is part of the “Provocative Questions” project. This is a new and uniquely structured initiative that funds research tackling one of 24 questions, which, if answered, could lead to significant advances. The questions, which had before been asked but were later abandoned because of a lack of ways to address them, emerged from discussions among veteran cancer researchers and scientists in various fields.

Badawi’s project, “Enabling Technologies for Ultra-High Sensitivity PET Scanners,” was chosen from among more than 700 grant applications submitted to the NCI. Only 57 grants, totaling $22 million, were awarded.
Badawi, who holds an endowed chair in molecular imaging in the department of radiology, has been working for many years to enhance the capabilities of existing imaging technologies such as positron emission tomography (PET). In his UC Davis Medical Center laboratory in Sacramento, for example, he has collaborated with other UC Davis scientists to build a specialized combined PET/CT scanner, which can detect small breast tumors and be used to evaluate the effectiveness of chemotherapy.

Badawi’s laboratory already has simulated a highly sensitive, giant (2-meter long) PET scanner using software; the NCI grant will allow the team to develop the technologies to support building the actual device. “We need the fancy detectors, fast reconstruction techniques to deal with data and fast and high-capacity electronics,” he says. “The grant will allow us to have all of this technology in place so that we can then build the final system.” Unlike other types of imaging, PET can accurately measure physiological functions such as blood flow, oxygen use and glucose metabolism. It can determine how well organs are functioning, help monitor the efficacy of drugs and distinguish benign from malignant tumors.

Still, PET is limited in that current commercial scanners can only reliably detect cancers that are larger than about one cubic centimeter. A major increase in detection sensitivity would provide a radical change in how imaging could be used in clinical practice, according to the NCI. “This scanner will be 50 times more sensitive than the one we have now,” Badawi says of his design. “That would mean, for example, we could do really fast scans of children, possibly obviating the need for certain levels of anesthesia.”

Since the scanner will be able to record a 3D high-definition “movie” of how drugs track through the entire body, Badawi also envisions use of the device to determine whether a new drug agent reaches its target, how long it stays in the blood stream or affects a certain organ, bone marrow or the vascular system, for example. “Hopefully, this will allow us to rule out drugs that otherwise would have had to go through expensive clinical trials and identify drugs that are more likely to be successful,” he says.

News from the UC Davis Health System Cancer Care Network

Gene Upshaw Memorial Tahoe Forest Cancer Center celebrates grand opening

The newly named Gene Upshaw Memorial Tahoe Forest Cancer Center held its grand opening celebration in July. The jam-packed event featured tours of the new center and remarks from UC Davis Comprehensive Cancer Center director Ralph de Vere White and numerous Tahoe Forest Health System leaders.

Also among the speakers was Terri Upshaw, wife of the late All-Pro offensive guard for the Oakland Raiders. Gene Upshaw, a patient at the Truckee-based center, died of pancreatic cancer in 2008. Also in attendance were former pro-football greats Timothy Donnell Brown, Marcus LeMarr Allen and Herman “Herm” Edwards, Jr.

The new center, made possible with $28.6 million in publicly approved bond funds and an aggressive local fundraising campaign, features a radiation oncology program, medical oncology and an array of other services to enhance the comfort of patients. The hospital expects nearly 2,000 patients to use the new center’s services annually.

Rideout Cancer Center expanding

Rideout Cancer Center, in partnership with UC Davis Health System in Marysville, will open its expansion in December. The project adds more than 16,000 square feet, 11 transfusion bays, six exams rooms, new radiation oncology and diagnostic equipment, as well as a new reception area and remodeled pharmacy.

The hospital foundation is funding various pieces of healing art as well, which will be displayed throughout the facility.
Yoursphere launches online program for kids

UC Davis Comprehensive Cancer Center and Yoursphere.com have teamed up to create the first of its kind interactive web community that allows young cancer patients and survivors to connect with peers all over the world.

“Kids’ Cancer Corner” provides children who have been diagnosed with cancer and their support groups a rich social networking experience that is content- and age-appropriate and complies with the Children’s Online Privacy and Protection Act (COPPA). The UC Davis Comprehensive Cancer Center’s adolescent and young adult (AYA) cancer advisory board helped develop the Kids’ Cancer Corner, offering ideas for content, games and video clips. The board will maintain the site and keep it interesting with frequent updates and new offerings. The site can be found at http://yoursphere.com/KidsCancerCorner_UCDavis.

“Children with cancer often feel isolated because they may not be able to go to school and friends might feel uncomfortable around them,” says Marlene M. von Friederichs-Fitzwater, director of the outreach research and education program for the cancer center. “They tell us they also feel ‘different’ and ‘weird.’ That’s why we are so excited about Yoursphere, a website where kids with cancer like themselves can help them feel less alone and where activities can help take their minds off the disease.”

Yoursphere.com is produced by Yoursphere Media Inc., a Davis, Calif.-based company that is a respected leader in children’s social networking. Yoursphere provides young people with the activities they love – chatting with friends, sharing interests, posting videos, playing games, winning prizes and more – in an environment that respects privacy and educates its community about online safety, cyberbullying and other important issues.

UC Davis Comprehensive Cancer Center collaborated with Yoursphere.com to create Kids’ Cancer Corner as a place where young people and families affected by a cancer diagnosis can safely communicate as they navigate their illness and survivorship. Here, they can get mentorship and other resources helpful for healing and access games and other activities offered by Yoursphere.

UC Davis Health System partners with state to direct world-renowned California Cancer Registry

UC Davis Health System is now running the California Cancer Registry, one of the world’s leading resources for population-based data on cancer.

Kenneth W. Kizer, director of the Institute for Population Health Improvement (IPHI) at UC Davis Health System, leads the partnership with the California Department of Public Health (CDPH). As a past director (from 1984 to 1991) of the former California Department of Health Services, he led efforts to obtain the legislation authorizing statewide cancer reporting in 1986 and then oversaw the implementation of the statewide California Cancer Registry.

California’s statewide population-based cancer surveillance system is a data gold mine containing information on more than 4 million cancer cases diagnosed since 1988 including patient demographics, cancer type, extent of disease at diagnosis, treatment and survival information. The database is a powerful tool that enables researchers and health-care professionals to assess geographic, ethnic, racial and other risk factors for cancer. Data about trends, disparities in cancer occurrence and treatment and other information derived from the registry, help shape policy, refine guidelines on patient care, and reveal where early detection, education or other cancer-related programs should be directed.

The registry had been operated by the Public Health Institute since 1986. Through the new partnership with UC Davis, the IPHI collects, analyzes, interprets and disseminates information on cancer incidence and mortality for the state. Working with the CDPH and the state Cancer Surveillance and Research Branch, IPHI and UC Davis Health System staffers monitor the incidence and mortality of specific cancers over time and analyze differential cancer risks, cancer by geographic region, age, race/ethnicity, sex and other social characteristics. They also gather cancer data through the registry and work with researchers on special projects related to the causes, treatment, risk factors and prevention of specific cancers.
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